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A Report of the CSIS Burke Chair in Strategy

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Chinese Strategy and Military Power in 2014

*Chinese, Japanese, Korean,
Taiwanese, and US Perspectives*

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US Perspectives

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INTRODUCTION

The United States and the People's Republic of China (PRC) face a critical need to improve their understanding of how each is developing its military power and how to avoid forms of military competition that could lead to rising tension or conflict between the two states. This report focuses on China's military developments and modernization and how they are perceived in the US, the West, and Asia.

It utilizes a wide range of unclassified data available in the West on the trends in Chinese military forces, but draws principally on the official reporting by the US, China, Japan, South Korea, and Taiwan. It relies heavily on the data in the US Department of Defense (DOD) *Report to Congress on Military and Security Developments Involving the People's Republic of China*, particularly the 2013 and 2014 editions.

It also draws upon various editions of the annual military balances compiled by the International Institute for Strategic Studies (IISS) for many of the force and equipment numbers and trends, though a range of sources are included. It also draws upon a Burke Chair report entitled *The Evolving Military Balance in the Korean Peninsula and Northeast Asia*, looking at the bilateral US-Chinese balance in more detail.

The Need for Focused Military Dialogue

The goal behind this report is not to present the authors' view of the balance, but rather to provide the basis for an unclassified dialogue on the military developments in China, including the size and structure of the country's current and planned military forces. This is why it draws on a wide range of often conflicting official US, Chinese, and other Asian official reporting, supplemented by the work of other scholars and the data bases developed by the IISS and Jane's in an effort to compare different views of Chinese strategy and military developments. It is not meant to provide one view of balance, Chinese forces, or Chinese strategy, but rather to provide US, Chinese, and other analysts with a better basis for understanding Western estimates of the changes in Chinese force strength and force quality.

Accordingly, it focuses heavily on the force numbers and specific forces changes shaping Chinese forces rather than policy statements and doctrine alone. It compares both Chinese and outside statements on policy, strategy, and the balance with a detailed analysis of the trends in Chinese military forces since 1985, examining how the often-conflicting trends in outside sources interact with reporting on Chinese military spending and strategy. It also shows that important changes are taking place in US strategy and that must be considered when evaluating Chinese actions.

The study makes it clear that US, other Asian, and other Western sources and analyses of Chinese military developments are not an adequate basis for US and Chinese dialogue without Chinese review, commentary, or more Chinese transparency in providing data on Chinese strategy, military forces, and military spending. There is a critical need for focused military dialogue and for joint US and Chinese efforts to develop common data and perceptions on US and Chinese military strategy and net assessments of the overall trends in military balance and strategic situation in the Pacific region.

Moreover, this report shows that focusing on strategy and concepts in broad terms is no substitute for a detailed examination of specific changes in force strength, the extent to which concepts and strategy are actually being implemented, and how the shifts in US and Chinese forces actually compare. One of the weaknesses in unclassified Chinese official strategy and doctrine, and Chinese assessments of the strategic situation and military balance, is that far too many rely on broad statements without specifics, comparisons of actual numbers, and enough data to provide adequate transparency to explain and validate what is said.

The Trends in Chinese Military Modernization

Accordingly, this report examines a range of data regarding Chinese capabilities and force modernization, focusing on the most reliable sources. Using these sources, it analyzes the full range of China's military capabilities as well as trends in their growth and composition. The data indicate that the PRC has engaged in a continuing military modernization program that is expanding the capabilities available to the People's Liberation Army (PLA).

Although the PLA has consistently reduced its Personnel since the 1980s, reductions in obsolete equipment and the procurement and deployment of modern systems in its land, air, naval, and missile forces have led to increases in the PLA's overall military effectiveness, especially in the context of its "Local War under Conditions of Informatization" military doctrine.

Data alone, however, cannot provide a full narrative: this report places the observable data within the context of contemporary Chinese military thought and doctrine. Seen within the context of Chinese military doctrine, the modernization efforts in the PLA Army, Navy, Air Force, and Second Artillery Force have enabled changes in operations and tactics as well as in force structure and weapon systems: these changes, in turn, have expanded PLA military capabilities and placed China on the road to becoming a modern military power.

Setting the Stage: America's Developing Strategy in Asia

No aspect of China's strategy, the changes in its forces, and its military modernization is unrelated to its view that the US is competitor for strategic influence and a potential future threat. At the same time, the same is true of US views of China. The US sees China as an emerging major regional power and peer competitor in military strength. Accordingly, any analysis of the trends in Chinese military power that focuses on the need for dialogue must be prefaced by the fact that the US is modifying its force posture in Asia in reaction to China's actions just as China is reacting to the US – as well as regional powers like Japan, South Korea, and Vietnam..

US Forces in the Pacific

Any assessment of China's strategy and forces must recognize that Chinese developments focus on the US as its key strategic competitor, and does so both in terms of the forces the US can deploy and US ties to regional strategic partners. One key criteria shaping Chinese strategy and planning is the size of the Forces that the US deploys in the areas near China, and can deploy from its bases throughout the Pacific and the world.

The US deploys major forces in the Pacific region. US Pacific Command (PACOM) forces include four component commands: US Pacific Fleet, US Pacific Air Forces, US Army Pacific,

and US Marine Forces Pacific. These commands are headquartered in Hawai'i and have forces stationed and deployed throughout the region.

PACOM's forces change regularly as a result of modernization, contingency needs, and budget pressures. As of June 2013, PACOM had some 330,000 military and civilian personnel, or about one-fifth of total US military strength. US Navy and Marine forces were numerically the largest elements in PACOM's area of responsibility (AOR). The US Pacific Fleet included five aircraft carrier strike groups, more than 140,000 personnel, 180 ships, and almost 2,000 aircraft. US Marine Corps Pacific possessed about two-thirds of US Marine Corps combat strength and included approximately 85,000 personnel and two Marine Expeditionary Forces.

US Air Forces Pacific had approximately 43,000 airmen and 435 aircraft; US Army Pacific had more than 60,000 personnel, including five Stryker brigades. PACOM also had over 1,200 Special Operations personnel. In addition, there were about 27,000 Coast Guard personnel available to support US military forces in the region.¹

In January 2014, PACOM still reported that it had some 330,000 personnel, or about one-fifth of total U.S. military strength.²

- U.S. Pacific Fleet consisted of approximately 180 ships (to include five aircraft carrier strike groups), nearly 2,000 aircraft, and 140,000 Sailors and civilians.
- Marine Corps Forces, Pacific possessed about two-thirds of U.S. Marine Corps combat strength, including two Marine Expeditionary Forces and about 85,000 personnel assigned.
- U.S. Pacific Air Forces were comprised of approximately 43,000 airmen and more than 435 aircraft.
- U.S. Army Pacific had more than 60,000 personnel assigned, including five Stryker brigades.
- Component command personnel numbers included more than 1,200 Special Operations personnel. Department of Defense Civilians employees in the Pacific Command AOR numbered about 38,000.
- Additionally, the U.S. Coast Guard, which frequently supports U.S. military forces in the region, had approximately 27,000 personnel in its Pacific Area.

These forces conducted frequent exercises with allied and friendly navies. PACOM reported that USPACOM participated in many exercises and other engagement activities with foreign military forces. Major exercises included:³

- *Talisman Saber*: A biennial Australia/United bilateral exercise merging Exercises TANDEM THRUST, KINGFISHER and CROCODILE. TALISMAN SABER is the primary training venue for Commander Seventh Fleet as a Combined Task Force (CTF) in a short warning, power projection, forcible entry scenario. The exercise is a key opportunity to train Australian and US combined forces in mid to high-intensity combat operations using training areas in Australia
- *Cobra Gold*: A joint/combined exercise with Thailand designed to improve U.S./Thai combat readiness and joint/combined interoperability.
- *Balikatan*: A joint exercise with the Republic of the Philippines and the U.S. to improve combat readiness and interoperability.
- *Keen Sword/Keen Edge* Joint/bilateral training exercises (field training/simulation, respectively) to increase combat readiness and joint/bilateral interoperability of U.S. Forces and Japan Self-Defense Forces for the defense of Japan.
- *Rim of the Pacific*: A biennial large-scale multinational power projection/sea control exercise. In 2000, participants included the U.S., Canada, Australia, Japan, South Korea, Chile and the United Kingdom.

In addition, USPACOM had participated in more than 20 disaster relief operations in 12 countries and one U.S. territory (Japan, South Korea, the Philippines, Palau, Indonesia, Thailand, Vietnam, Laos, Burma, India, Madagascar, Sri Lanka and Guam) since 1996.

The Commander of US Pacific Command -- Adm. Samuel J. Locklear, III -- described PACOM's force levels, and modernization efforts as follows in his testimony to the Senate Armed Services Committee on March 25, 2014. As will be discussed shortly, he has good reason to highlight the potential gap between US defense spending and military resources and the capabilities the US must develop, as well as the growing need for the US to build strategic partnerships in the region and match similar developments in Chinese forces:⁴

Resources

Budget uncertainty has hampered our readiness and complicated our ability to execute long-term plans and to efficiently use our resources. These uncertainties impact our people, as well as our equipment and infrastructure by reducing training and delaying needed investments. They ultimately reduce our readiness, our ability to respond to crisis and contingency as well as degrade our ability to reliably interact with our allies and partners in the region.

The USPACOM joint forces are like an 'arrow.' Our forward stationed and consistently rotational forces -- the point of the 'arrow' -- represent our credible deterrence and the "fight tonight" force necessary for immediate crisis and contingency response. Follow-on-forces from the continental U.S. required for sustained operations form the 'shaft of the arrow.' Underpinning these forces are critical platform investments and the research and development needed to ensure our continuous dominance. Over the past year we have been forced to prioritize readiness at the point of the arrow at the great expense of the readiness of the follow-on force and the critical investments needed for these forces to outpace emerging threats, potentially eroding our historic dominance in both capability and capacity.

Due to continued budget uncertainty, we were forced to make difficult short-term choices and scale back or cancel valuable training exercises, negatively impacting both the multinational training needed to strengthen our alliances and build partner capacities as well as some unilateral training necessary to maintain our high-end warfighting capabilities. These budgetary uncertainties are also driving force management uncertainty. Current global force management resourcing, and the continuing demand to source deployed and ready forces from USPACOM AOR to other regions of the world, creates periods in USPACOM where we lack adequate intelligence and reconnaissance capabilities as well as key response forces, ultimately degrading our deterrence posture and our ability to respond.

Posture, Presence, and Readiness

Driven by the changing strategic environment, evolving capabilities of potential competitors, and constrained resourcing, we have changed the way we plan for crises, internationalized the USPACOM headquarters to better collaborate with allies and partners, and created a more agile and effective command and control architecture - a command and control architecture that can seamlessly transition from daily routine business to crisis. Strategic warning times in the USPACOM AOR are eroding and key to addressing this is our ability to rapidly assess and shape events as crises emerge.

This approach places a premium on robust, modern, agile, forward-deployed forces, maintained at the highest levels of readiness, and capable of deploying rapidly.

USPACOM is doing much to prepare the force for 21st century threats. Our components are looking at new ideas for employment of forces to better fit the needs and dynamic nature of the Indo-Asia-Pacific and to send a powerful and visible message of our commitment across the region. The Marine rotational force deployments to Darwin, the USS Freedom (the first Littoral Combat Ship rotating through Singapore), and rotational deployments of F-22s to Japan and F-16s to South Korea are just a few examples of these efforts. Likewise, U.S. Army Pacific (USARPAC) is currently exploring a future employment model that helps us work with allies and partners, using existing exercises and engagements as the foundation.

Critical to continued success in the USPACOM AOR is properly setting the theater to ensure a full range of military operations can be supported by the necessary forces postured, capabilities, and infrastructure.

Forward pre-positioning (PREPO) is a vital. Agile, responsive and sustained operations demand a resilient network of capabilities to deploy and sustain my most demanding contingency plan required forces. While we have made some strides to address current theater issues, I remain focused on building capacity in these areas:

- Army PREPO stocks: FY16-20 sustainment funding to ensure reliability/availability.
- PREPO Fuel: Continue to build capacity for forward positioned stocks.
- PREPO Munitions: Remove expired assets to create space for needed resources.
- PREPO Bridging: Procure additional resources to enhance capacity.
- OCombat Engineers: balance active/reserve mix to meet plan timelines.

Our \$1.4B FY14 military construction (MILCON) program supports operational capability requirements to base MV-22s in Hawaii and an additional TPY-2 radar in Japan, and improve theater logistics and mobility facilities. Coupled with active and passive defense measures, MILCON pays for selective hardening of critical facilities and the establishment of aircraft dispersal locations to improve critical force and asset resiliency. Projects like the General Purpose and Fuel Maintenance hangers and the command post at Guam are examples. Continued targeted investments are needed to support “next generation” systems such as the Joint Strike Fighter, address airfield requirements, and co-locate mission support and maintenance facilities which enhance readiness, improve mission response and reduce costs associated with returning aviation assets to CONUS. Support for other dispersed locations like those in Australia also offer increased security cooperation opportunities, deepening our already close alliance. Additional sites we are considering in the Commonwealth of the Northern Marianas Islands offer expanded opportunities for training and divert airfields as well.

Many of our bases, established during World War II or in the early years of the Cold War, require rehabilitation. Infrastructure improvement programs like MILCON, Host-Nation Funded Construction (HNFC), and Sustainment, Restoration and Modernization (SRM) ensure the readiness of forces and facilities needed to meet the challenges of a dynamic security environment. In addition to continuing the outstanding support Congress has provided for MILCON, we ask for consideration to fully fund Service requests for SRM, which contribute directly to the readiness of critical ports/airfields, command/control/communication, fuel handling and munitions facilities.

Continued engagement by the U.S. Army Corps of Engineers (USACE) further supports our objectives. USACE’s unique expertise builds capacity in critical areas, including disaster response and water resource management, and their Planning and Design (P&D) funding directly supports the HNFC program. FY15 P&D funding for USACE (\$20M) will enable efficient utilization of billions of dollars of HNFC in Japan and Korea, ensuring our base sharing approach supports current budget trends.

...To sustain our current technological superiority, we must rapidly develop affordable and innovative capabilities that force our potential adversaries to respond with more costly solutions--costly in terms of money, time and resources. Our ability to successfully develop innovative capabilities will ensure we continue to be the world’s most dominant and lethal fighting force. In order to meet this challenge, innovative approaches through affordable / high payoff science and technology programs as well as through innovation and experimentation must be accelerated. Specifically, the unique challenges in terms of distance and threat require we maintain our technological advantages in areas such as – mobility, unmanned platforms, long-range strike, ISR, sub-surface capabilities, cyber, space, and missile defense.

We continue to look for opportunities to leverage the capabilities and resources of our allies and partners. Sharing and co-development of technologies with allies, as well as conducting experimentation and demonstrations within the operationally relevant environments offered by our partners will help to achieve this goal. USPACOM will continue to work closely with our partners, and allies, generating capabilities that achieve regional security.

USPACOM’s success depends on our ability to accurately assess the theater security environment with penetrating and persistent ISR and domain awareness. These capabilities depend on resourcing for agile command and control of ISR; modernized sensors and platforms with the reach to excel in a non-permissive

environment; and secure, assured means for sharing critical information with our allies, partners, and our forces. The nexus for leveraging these capabilities—the USPACOM Joint Intelligence Operations Center—also requires modernization of aging and dispersed infrastructure which is costly to operate and sustain.

USPACOM continues as a global leader in intelligence and cyber systems. It has established and is maturing the Joint Cyber Center-Pacific (CYBERPAC), which plans, integrates, synchronizes and directs theater cyberspace operations. The aim is to set the theater for cyberspace operations, provide assured command and control and information sharing with joint and inter-organizational partners and forces, and direct regional cyber missions to meet USPACOM objectives. USPACOM continues to work with DoD counterparts to receive additional cyber forces and build appropriate mechanisms to command and control such forces across all operations.

Agile and resilient C4 (Command, Control, Communication, and Computers) capabilities are critical for assuring our ability to maintain communications and situational awareness; command and control forward deployed forces; and coordinate actions with coalition partners. This holds particularly true for USPACOM, which must overcome the “Tyranny of Distance” posed by the vast Indo-Asia-Pacific region. From moving supplies in support of a humanitarian assistance/disaster relief effort to full spectrum coalition operations, modern joint forces depend upon assured command and control and interoperability.

Future globally integrated operations will require even more integrated communications with mission partners on a single security classification level with a common language. Therefore, a more defensible and secure C4 cyber architecture designed to communicate with mission partners is needed. USPACOM was recently designated to lead Increment 2 of the Joint Information Environment (JIE), which will accommodate Service networks and joint/coalition warfighting networks in a standard network infrastructure with improved security capabilities. JIE will further strengthen collective cyber security in the region and will redefine joint/coalition communications, establish a credible cyber defense posture, and improve staff efficiency and support. We have already expanded traditional communications interoperability forums with Korea, Japan, Singapore, Thailand, and the Philippines to include cyber defense.

Changes in US Strategy and Rebalancing to Asia

It is unclear how these forces will change, in spite of the declared shifts in US strategy and US plans to carry out a limited “rebalancing” of its force structure by shifting forces from Europe and the Atlantic to Asia and the Pacific.

The New US Strategic Guidance in 2012

The broad goals in US strategy are clear. The US announced major shifts in its strategy in a document called *Sustaining US Global Leadership: Priorities for 21st Century Defense* that the DoD issued on January 5, 2012.⁵ Like all the US official strategy documents that have followed, it never referred to a “pivot” to Asia and gave the Middle East the same strategic priority as Asia. The document did state that,⁶

U.S. economic and security interests are inextricably linked to developments in the arc extending from the Western Pacific and East Asia into the Indian Ocean region and South Asia, creating a mix of evolving challenges and opportunities. Accordingly, while the U.S. military will continue to contribute to security globally, *we will of necessity rebalance toward the Asia-Pacific region*. Our relationships with Asian allies and key partners are critical to the future stability and growth of the region. We will emphasize our existing alliances, which provide a vital foundation for Asia-Pacific security. We will also expand our networks of cooperation with emerging partners throughout the Asia-Pacific to ensure collective capability and capacity for securing common interests. The United States is also investing in a long-term strategic partnership with India to support its ability to serve as a regional economic anchor and provider of security in the broader Indian Ocean region. Furthermore, we will maintain peace on the Korean Peninsula by effectively working with allies and other regional states to deter and defend against provocation from North Korea, which is actively pursuing a nuclear weapons program.

The maintenance of peace, stability, the free flow of commerce, and of U.S. influence in this dynamic region will depend in part on an underlying balance of military capability and presence. Over the long term, China's emergence as a regional power will have the potential to affect the U.S. economy and our security in a variety of ways. Our two countries have a strong stake in peace and stability in East Asia and an interest in building a cooperative bilateral relationship. However, the growth of China's military power must be accompanied by greater clarity of its strategic intentions in order to avoid causing friction in the region. The United States will continue to make the necessary investments to ensure that we maintain regional access and the ability to operate freely in keeping with our treaty obligations and with international law. Working closely with our network of allies and partners, we will continue to promote a rules-based international order that ensures underlying stability and encourages the peaceful rise of new powers, economic dynamism, and constructive defense cooperation.

Former US Secretary of Defense Leon Panetta summarized these shifts in US strategy in more detail in a speech to the Shangri-La Security Dialogue in Singapore on June 2, 2012. It is critical to note, however, that Secretary Panetta did not discuss major increases in US forces, acknowledged the constraints on US military resources, and focused on the need for US and Chinese cooperation and dialogue:⁷

The purpose of this trip, and of my remarks today, is to explain a new defense strategy that the United States has put in place and why the United States will play a deeper and more enduring partnership role in advancing the security and prosperity of the Asia-Pacific region, and how the United States military supports that goal by rebalancing towards this region.

... America's fate is inexorably linked with this region. This reality has guided more than six decades of U.S. military presence and partnership in this region -- a defense posture that, along with our trading relations, along with our diplomatic ties, along with our foreign assistance, helped usher in an unprecedented era of security and prosperity in the latter half of the 20th century.

In this century, the 21st century, the United States recognizes that our prosperity and our security depend even more on the Asia-Pacific region. After all, this region is home to some of the world's fastest growing economies: China, India, and Indonesia to mention a few. At the same time, Asia-Pacific contains the world's largest populations, and the world's largest militaries. Defense spending in Asia is projected by this institute, the IISS, to surpass that of Europe this year, and there is no doubt that it will continue to increase in the future.

Given these trends, President Obama has stated the United States will play a larger role in this region over the decades to come. This effort will draw on the strengths of the entire United States government. We take on this role not as a distant power, but as part of the Pacific family of nations. Our goal is to work closely with all of the nations of this region to confront common challenges and to promote peace, prosperity, and security for all nations in the Asia-Pacific region.

... We will play an essential role in promoting strong partnerships that strengthen the capabilities of the Pacific nations to defend and secure themselves. All of the U.S. military services are focused on implementing the president's guidance to make the Asia-Pacific a top priority. Before I detail these specific efforts, let me provide some context for our broader defense strategy in the 21st century.

The United States is at a strategic turning point after a decade of war. We have significantly weakened al-Qaida's leadership and ability to attack other nations. We have sent a very clear message that nobody attacks the United States and gets away with it.

Our military mission in Iraq has ended and established—established an Iraq that can secure and govern itself.

In Afghanistan, where a number of Asia-Pacific nations are playing a critical role in the international coalition, we have begun our transition to the Afghan security lead and to an Afghanistan that can secure and govern itself. Recent meeting in Chicago, NATO and its partners—over 50 nations—came together to support General Allen's plan to accomplish this goal. In addition to that, we joined in a successful NATO effort to return Libya to the Libyan people.

But even as we have been able to draw these wars to a hopeful end, we are confronted today by a wide range of complex global challenges. From terrorism—terrorism still remains a threat to the world—from terrorism to the destabilizing behavior of Iran and North Korea, from nuclear proliferation to the new threat of cyberattack, from continuing turmoil in the Middle East to territorial disputes in this region.

At the same time, the United States, like many other nations, is dealing with large debt and large deficits, which has required the Department of Defense to reduce the planning budget by nearly half a trillion dollars or specifically \$487 billion that were directed to be reduced by the Congress in the Budget Control Act over the next decade. But this new fiscal reality, challenge that many nations confront these days, has given us an opportunity to design a new defense strategy for the 21st century that both confronts the threats that we face and maintains the strongest military in the world.

This strategy makes clear the United States military, yes, it will be smaller, it will be leaner, but it will be agile and flexible, quickly deployable, and will employ cutting-edge technology in the future. It makes equally clear that while the U.S. military will remain a global force for security and stability, we will of necessity rebalance towards the Asia-Pacific region. We will also maintain our presence throughout the world. We will do it with innovative rotational deployments that emphasize creation of new partnerships and new alliances. We will also invest, invest in cyber, invest in space, invest in unnamed systems, invest in special forces operations. We will invest in the newest technology and we will invest in the ability to mobilize quickly if necessary.

We have made choices and we have set priorities, and we have rightly chosen to make this region a priority.

Our approach to achieving the long-term goal in the Asia-Pacific is to stay firmly committed to a basic set of shared principles -- principles that promote international rules and order to advance peace and security in the region, deepening and broadening our bilateral and multilateral partnerships, enhancing and adapting the U.S. military's enduring presence in this region, and to make new investments in the capabilities needed to project power and operate in Asia-Pacific. Let me discuss each of these shared principles.

The first is the shared principle that we abide by international rules and order. Let me underscore that this is not a new principle, our solid commitment to establish a set of rules that all play by is one that we believe will help support peace and prosperity in this region. What are we talking about? These rules include the principle of open and free commerce, a just international order that emphasizes rights and responsibilities of all nations and a fidelity to the rule of law; open access by all to their shared domains of sea, air, space, and cyberspace; and resolving disputes without coercion or the use of force.

Backing this vision involves resolving disputes as quickly as possible with diplomatic efforts. Backing these principles has been the essential mission of the United States military in the Asia-Pacific for more than 60 years and it will be even a more important mission in the future. My hope is that in line with these rules and international order that is necessary that the United States will join over 160 other nations in ratifying the Law of Seas Convention this year.

The second principle is one of partnerships. Key to this approach is our effort to modernize and strengthen our alliances and partnerships in this region. The United States has key treaty alliances with Japan, South Korea, Australia, Philippines and Thailand. We have key partners in India, Singapore, Indonesia, and other nations. And we are working hard to develop and build stronger relations with China.

As we expand our partnerships, as we strengthen our alliances, the United States-Japan alliance will remain one of the cornerstones for regional security and prosperity in the 21st century. For that reason, our two militaries are enhancing their ability to train and operate together, and cooperating closely in areas such as maritime security and intelligence, surveillance and reconnaissance. We are also jointly developing high-tech capabilities, including the next generation missile defense interceptor, and exploring new areas of cooperation in space and in cyberspace.

In the past several months we have strengthened the alliance and our broader strategic objectives in the region with a revised plan to relocate Marines from Okinawa to Guam. This plan will make the U.S. presence in Okinawa more politically sustainable, and it will help further develop Guam as a strategic hub for the United States military in the Western Pacific, improving our ability to respond to a wide range of contingencies in the Asia-Pacific region.

Another linchpin of our Asia-Pacific security is the U.S. alliance with the Republic of Korea. During a year of transition and provocation on the Korean Peninsula, this alliance has been indispensable, and I have made it a priority to strengthen it for the future. To that end, even as the United States reduces the overall size of its ground forces in the coming years in a transitional way over a five-year period, we will maintain the United States Army's significant presence in Korea. We are also boosting our intelligence and information sharing with the Republic of Korea, standing firm against hostile provocations from North Korea while transforming the alliance with new capabilities to meet global challenges.

The third shared principle is presence. While strengthening our traditional alliances in Northeast Asia and maintaining our presence there, as part of this rebalancing effort we are also enhancing our presence in Southeast Asia and in the Indian Ocean region.

A critical component of that effort is the agreement announced last fall for a rotational Marine Corps presence and aircraft deployments in northern Australia. The first detachment of Marines arrived in April, and this Marine Air-Ground Task Force will be capable of rapidly deploying across the Asia-Pacific region, thereby enabling us to work more effectively with partners in Southeast Asia and the Indian Ocean and tackle common challenges such as natural disasters and maritime security.

These Marines will conduct training and exercises throughout the region and with Australia, strengthening one of our most important alliances and building on a decade of operational experience together in Afghanistan. Speaking of that, I welcome and applaud Australia's announcement that later this year it will assume leadership of Combined Team Uruzgan, and will lead our security efforts there through 2014.

We're also continuing close operational cooperation with our longtime ally, Thailand. The Thais annually host COBRA GOLD, a world-class multilateral military exercise, and this year we will deepen our strategic cooperation to meet shared regional challenges. We are energizing our alliance with the Philippines. Last month in Washington I joined Secretary Clinton in the first-ever "2+2" meeting with our Filipino counterparts. Working together, our forces are successfully countering terrorist groups. We are also pursuing mutually beneficial capability enhancements, and working to improve the Philippine's maritime presence. Chairman Dempsey will be traveling from here to the Philippines to further our military engagement.

Another tangible manifestation of our commitment to rebalancing is our growing defense relationship with Singapore. Our ability to operate with Singaporean forces and others in the region will grow substantially in the coming years when we implement the forward deployment of the Littoral Combat Ships to Singapore.

As we take existing alliances and partnerships in new directions, this rebalancing effort also places a premium on enhancing partnerships with Indonesia, Malaysia, India, and Vietnam, and New Zealand. In the coming days I will travel to Vietnam to advance bilateral defense cooperation, building off of the comprehensive memorandum of understanding that our two nations signed last year. From Vietnam, I will travel to India to affirm our interest in building a strong security relationship with a country I believe will play a decisive role in shaping the security and prosperity of the 21st century.

As the United States strengthens these regional partnerships, we will also seek to strengthen a very important relationship with China. We believe China is a key to being able to develop a peaceful, prosperous, and secure Asia-Pacific in the 21st century. And I am looking forward to traveling there soon at the invitation of the Chinese government. Both of our nations recognize that the relationship -- this relationship between the United States and China is one of the most important in the world. We in the United States are clear-eyed about the challenges, make no mistake about it, but we also seek to grasp the opportunities that can come from closer cooperation and a closer relationship.

I'm personally committed to building a healthy, stable, reliable, and continuous mil-to-mil relationship with China. I had the opportunity to host Vice President Xi and later Defense Minister General Liang at the Pentagon in the effort to pursue that goal. Our aim is to continue to improve the strategic trust that we must have between our two countries, and to discuss common approaches to dealing with shared security challenges.

We are working with China to execute a robust military-to-military engagement plan for the rest of this year, and we will seek to deepen our partnership in humanitarian assistance, counter-drug, and counter-proliferation efforts. We have also agreed on the need to address responsible behavior in cyberspace and in outer space. We must establish and reinforce agreed principles of responsible behavior in these key domains.

I know that many in the region and across the world are closely watching the United States-China relationship. Some view the increased emphasis by the United States on the Asia-Pacific region as some kind of challenge to China. I reject that view entirely. Our effort to renew and intensify our involvement in Asia is fully compatible -- fully compatible -- with the development and growth of China. Indeed, increased U.S. involvement in this region will benefit China as it advances our shared security and prosperity for the future.

In this context, we strongly support the efforts that both China and Taiwan, both have made in recent years trying to improve cross-strait relations. We have an enduring interest in peace and stability across the Taiwan Strait. The United States remains firm in the adherence to a one-China policy based on the Three Communiqués and the Taiwan Relations Act. China also has a critical role to play in advancing security and prosperity by respecting the rules-based order that has served the region for six decades. The United States welcomes the rise of a strong and prosperous and successful China that plays a greater role in global affairs.

Another positive step towards furthering this rules-based order is Asia's deepening regional security architecture, which the United States strongly supports. Last October, I had the opportunity to be the first U.S. secretary of defense to meet privately with all ASEAN defense ministers in Bali. We applaud the ASEAN Defense Ministers Meeting Plus for producing real action plans for multilateral military cooperation, and I strongly support the ASEAN decision to hold more frequent ADMM-Plus discussions at the ministerial level. We think this is an important step for stability, real coordination, communication, and support between these nations.

The United States believes it is critical for regional institutions to develop mutually agreed rules of the road that protect the rights of all nations to free and open access to the seas. We support the efforts of the ASEAN countries and China to develop a binding code of conduct that would create a rules-based framework for regulating the conduct of parties in the South China Sea, including the prevention and management of disputes.

On that note, we are obviously paying close attention to the situation in Scarborough Shoal in the South China Sea. The U.S. position is clear and consistent: we call for restraint and for diplomatic resolution; we oppose provocation; we oppose coercion; and we oppose the use of force. We do not take sides when it comes to competing territorial claims, but we do want this dispute resolved peacefully and in a manner consistent with international law.

We have made our views known and very clear to our close treaty ally, the Philippines, and we have made those views clear to China and to other countries in the region. As a Pacific power, the United States has a national interest in freedom of navigation, in unimpeded economic development and commerce, and in a respect for the rule of law. Our alliances, our partnerships, and our enduring presence in this region all serve to support these important goals.

For those who are concerned about the ability of the United States to maintain a strong presence in the Asia-Pacific region in light of the fiscal pressures we face, let me be very clear. The Department of Defense has a five-year budget plan and a detailed blueprint for implementing this strategy I just outlined for realizing our long-term goals in this region, and for still meeting our fiscal responsibilities.

The final principle -- shared principle that we all have is force projection. This budget is the first in what will be a sustained series of investments and strategic decisions to strengthen our military capabilities in the Asia-Pacific region. I would encourage you to look at the increasing technological capabilities of our forces as much as their numbers in judging the full measure of our security presence and our security commitment.

For example, over the next five years we will retire older Navy ships, but we will replace them with more than 40 far more capable and technologically advanced ships. Over the next few years we will increase the number and the size of our exercises in the Pacific. We will also increase and more widely distribute our port visits, including in the important Indian Ocean region. And by 2020 the Navy will reposture its forces from today's roughly 50/50 percent split between the Pacific and the Atlantic to about a 60/40 split between those oceans. That will include six aircraft carriers in this region, a majority of our cruisers, destroyers, Littoral Combat Ships, and submarines.

Our forward-deployed forces are the core of our commitment to this region and we will, as I said, sharpen the technological edge of our forces. These forces are also backed up by our ability to rapidly project military

power if needed to meet our security commitments. Therefore, we are investing specifically in those kinds of capabilities -- such as an advanced fifth-generation fighter, an enhanced Virginia-class submarine, new electronic warfare and communications capabilities, and improved precision weapons -- that will provide our forces with freedom of maneuver in areas in which our access and freedom of action may be threatened.

We recognize the challenges of operating over the Pacific's vast distances. That is why we are investing in new aerial-refueling tankers, a new bomber, and advanced maritime patrol and anti-submarine warfare aircraft.

In concert with these investments in military capabilities, we are developing new concepts of operation which will enable us to better leverage the unique strengths of these platforms and meet the unique challenges of operating in Asia-Pacific. In January, the department published a Joint Operational Access Concept which, along with these related efforts like Air-Sea Battle, are helping the Department meet the challenges of new and disruptive technologies and weapons that could deny our forces access to key sea routes and key lines of communication.

It will take years for these concepts and many of the investments that I just detailed, but we are making those investments in order that they be fully realized. Make no mistake -- in a steady, deliberate, and sustainable way the United States military is rebalancing and bringing an enhanced capability development to this vital region.

His replacement, Secretary Chuck Hagel, gave a speech at the May 31, 2013 Shangri-La Forum that provided additional data on US policy towards the Asia-Pacific region:⁸

... [T]he world is undergoing a time of historic transformation, and Asia is at the epicenter of that change. The 21st century will be defined by the rise of new powers; the rapid spread of information, goods, and technologies; innovation and economic integration; new security coalitions that take on shared challenges; issues of trade, energy and the environment; and greater opportunities for people of all nations to have a voice in shaping their future.

With this incredible promise come complications and challenges. In Asia, we see a range of persistent and emerging threats, including:

- North Korea's nuclear weapons and missile programs, and its continued provocations;
- Ongoing land and maritime disputes and conflicts over natural resources;
- The continued threat of natural disaster, the curse of poverty and the threat of pandemic disease;
- Environmental degradation;
- Illicit trafficking in people, weapons, drugs, and other dangerous materials – including the proliferation of weapons of mass destruction;
- And the growing threat of disruptive activities in space and cyberspace.

These are the challenges of the 21st century. This morning I want to describe, from my perspective as the Secretary of Defense of the United States, what we can do together to meet these critical challenges. In particular, America and other nations of the Asia-Pacific must continue to strengthen existing alliances, forge new partnerships, and build coalitions based on common interests to ensure this region's future is peaceful and prosperous.

1. U.S. Investments in Asia-Pacific

In support of this goal, America is implementing a rebalance – which is primarily a diplomatic, economic and cultural strategy. President Obama is increasing funding for diplomacy and development in Asia, including a seven percent increase in foreign assistance in the Asia-Pacific region. The United States is providing new resources for regional efforts such as the Lower Mekong Initiative, which helps improve water management, disaster resilience, and public health. We have built strong momentum toward implementing a next-generation trade and investment agreement through the Trans-Pacific Partnership negotiations. We are fostering regional trade and investment through our work in APEC and our support to ASEAN.

The Department of Defense plays an important role in securing the President's vision of rebalance. Our approach was outlined in the President's 2012 Defense Strategic Guidance, which is still guiding the U.S. military as we reorient its capabilities and capacities to better prepare for future global security challenges.

As we carry out this strategy, it is true that the Department of Defense will have fewer resources than in the recent past. It would be unwise and short-sighted to conclude, however, that our commitment to the rebalance cannot be sustained – particularly given the truth that even under the most extreme budget scenarios, the United States military will continue to represent nearly 40 percent of global defense expenditures. Like the employment of all resources, it is always a matter of the wise, judicious and strategic use of those resources that matters the most and has the most lasting impact.

The fact of the matter is that new fiscal realities present an opportunity to conduct a thorough and much-needed review to ensure we are matching resources to the most important priorities. With that goal in mind, I recently directed a Department-wide Strategic Choices and Management Review. Although the review's outcome is not final, the direction I provided was to follow the President's defense strategic guidance, to focus new energy and thinking on addressing long-standing challenges, and to make our defense enterprise one that better reflects 21st century security realities – including the rise of Asia.

For the region, this means I can assure you that coming out of this review, the United States will continue to implement the rebalance and prioritize our posture, activities and investments in Asia-Pacific. We are already taking many tangible actions in support of that commitment.

For example, the United States is adding to the capacity of our ground forces in the Pacific after Iraq and as we draw down from Afghanistan. The 1st and 3rd Marine Expeditionary Force and the Army's 25th Infantry Division are all returning to their home stations in the Pacific theater. The United States Army is also designating 1st Corps as "regionally aligned" to the Asia-Pacific region.

In addition to our decision to forward base 60 percent of our naval assets in the Pacific by 2020, the U.S. Air Force has allocated 60 percent of its overseas-based forces to the Asia-Pacific – including tactical aircraft and bomber forces from the continental United States. The Air Force is focusing a similar percentage of its space and cyber capabilities on the region. These assets enable us to capitalize on the Air Force's inherent speed, range, and flexibility.

The United States military is not only shifting more of its assets to the Pacific – we are using these assets in new ways to enhance our posture and partnerships. For example, we are pushing forward with plans for innovative rotational deployments in the region. Last year, we noted at this forum that the U.S. Navy had committed to rotating up to four Littoral Combat Ships through Singapore. In recent weeks, the first of those ships, the USS Freedom, arrived to begin a busy schedule of regional maritime engagements. I look forward to visiting the ship tomorrow. Meanwhile, the second company-sized rotation of U.S. Marines recently arrived in Darwin to deepen cooperation with our treaty ally Australia and other regional partners. Eventually, 2,500 U.S. Marines will be deployed to Australia each year.

America's enduring commitment to peace and security in the Asia-Pacific region depends on sustaining the ability to deter aggression and operate effectively across all domains, including air, sea, land, space, and cyberspace.

Our five year budget plan submitted to Congress this year put a premium on rapidly deployable, self-sustaining forces – such as submarines, long-range bombers, and carrier strike groups – that can project power over great distance and carry out a variety of missions. In the future, this region will see more of these capabilities as we prioritize deployments of our most advanced platforms to the Pacific, including the F-22 Raptor and F-35 Joint Strike Fighter deployments to Japan, and a fourth Virginia-class fast attack submarine forward deployed to Guam.

Even further over the horizon, we are investing in promising technologies and capabilities that will enhance our decisive military edge well into the future. For example, last month, for the first time ever, the U.S. Navy successfully launched an experimental remotely piloted aircraft from an aircraft carrier, ushering in a new era in naval aviation.

Having achieved a series of technological breakthroughs in directed energy, next year for the first time the U.S. Navy will deploy a solid-state laser aboard a ship, the USS Ponce. This capability provides an

affordable answer to the costly problem of defending against asymmetric threats like missiles, swarming small boats, and remotely piloted aircraft.

Combined with new concepts, doctrine, and plans that integrate these new technologies and other game changing capabilities, we will ensure freedom of action throughout the region well into the future.

Our investments in Asia are not just about cutting-edge technology and platforms, they are also about cultivating deeper ties between our people and building a network of professional military personnel and security experts across the region.

We have prioritized investments in people, including:

- Expanding the size and scope of our exercises in PACOM, allocating over \$100 million in funding for joint exercises in the PACOM region;
- Setting aside new funding for defense education that will allow us to significantly increase the number of students who can attend the Asia-Pacific Center for Security Studies in Hawaii.
- These investments in people, technology, and capabilities are critical to our strategy and to the region's peace and security. Even more important, however, is America's continued investment in our alliances and partnerships, and the region's security architecture.

2. U.S. Bilateral Relationships

Relationships, trust, and confidence are what matter most in the region. America's partners must have confidence in their bilateral ties and alliances with us and our commitments to them and the region, including our treaty alliances. These remain essential to our long-term vision of regional peace and stability.

That is why we have initiated processes with each of our treaty allies to define a new, forward-looking agenda based on enhancing security for our allies and partners, increasing the ability of militaries to work together seamlessly, and building their capacity to contribute to the region's security:

With Japan, we have agreed to review the Defense Guidelines that underpin our Alliance cooperation, and are making substantial progress in realigning our force posture and enhancing Alliance missile defense capabilities;

With the Republic of Korea, we are working to implement the Strategic Alliance 2015 and discussing a shared vision for a more globally-oriented Alliance out to 2030;

With Australia, we are expanding cooperation related to cyber security and space situational awareness. The U.S. and Australian Navies recently reached an agreement to deploy an Australian warship in a U.S. carrier strike group in the Western Pacific, giving our naval forces new practical experience operating together cooperatively and seamlessly;

With the Philippines we are discussing an increased rotational presence of U.S. forces and helping the Philippine armed forces to modernize and build greater maritime capacity; and

With Thailand, six months ago we announced our Joint Vision Statement, the first such bilateral document in over 50 years.

Our Allies are also working more closely together. In this vein we are encouraged by growing trilateral security cooperation between the U.S., Japan, and the Republic of Korea, as well as the U.S., Japan, and Australia. The United States is also looking at trilateral training opportunities such as jungle training between the U.S. and Thailand that could expand to incorporate the Republic of Korea. Similarly, the United States is working to build trilateral cooperation with Japan and India.

Complex security threats facing the United States and our allies – which go beyond traditional domains and borders – demand these new approaches to Alliance cooperation, and they also demand new and enhanced partnerships as well.

Here in Singapore I look forward to building on our practical collaboration under the U.S.-Singapore Strategic Framework Agreement, which has guided security cooperation not only in this region, but in the Gulf of Aden and Afghanistan as well.

With New Zealand, the signing of the Washington Declaration and associated policy changes have opened up new avenues for defense cooperation in areas such as maritime security cooperation, humanitarian assistance and disaster relief, and peacekeeping support. This week, in Guam, a New Zealand Navy ship is visiting a U.S. Naval facility – the first such visit in nearly 30 years.

With the Vietnamese, we are expanding our cooperation – as set forth in a new memorandum of understanding – in maritime security, training opportunities, search-and-rescue, peacekeeping, military medical exchanges, and humanitarian assistance and disaster relief.

In Malaysia, we are expanding maritime cooperation, including the first-ever visit of a U.S. aircraft carrier to Sabah.

In Burma, we are beginning targeted, carefully calibrated military-to-military engagement aimed at ensuring the military supports ongoing reforms, respects human rights, and a professional force accountable to the country's leadership.

The United States is also working to enhance our partners' capacity to provide for their own security and the security of the region. Ultimately, the United States' goal in the region is to encourage allies to work together to design the next generation of platforms. With our closest and most capable allies and partners, we are already working to jointly develop and deploy cutting-edge technologies to tackle emerging security challenges.

An important example of this cooperation is with India, one of the leaders in this broader Asia region, where we are moving beyond purely defense trade towards technology sharing and co-production.

The world's largest democracy, India's role as a stabilizing power is of growing importance with the increase of trade and transit between the Indian and Pacific Oceans. The United States considers India's efforts to enhance its military capabilities as a welcome contribution to security in the region.

Our vision for the Asia-Pacific region is an open and inclusive one. Along with India, other rising powers also have a special role to play in a future security order as they assume the responsibilities that come with their growing stake in regional stability. To that end, a critical element of our long-term strategy in Asia is to seek to build strong relationships with rising powers – including India, Indonesia and China.

The United States and Indonesia – the world's largest Muslim-majority nation – are building new habits of cooperation that reflect a shared vision for a peaceful and prosperous region. As a large, diverse, and democratic country, Indonesia has a key role in helping lead this region. The United States and Indonesia are working together on humanitarian assistance and disaster response preparedness, maritime security, international peacekeeping, and combating transnational threats.

Building a positive and constructive relationship with China is also an essential part of America's rebalance to Asia. The United States welcomes and supports a prosperous and successful China that contributes to regional and global problem solving. To this end, the United States has consistently supported a role for China in regional and global economic and security institutions, such as the G20. We encourage our allies and partners to do the same.

The United States strongly supports the efforts made by the PRC and Taiwan in recent years to improve cross-Strait relations. We have an enduring interest in peace and stability in the Taiwan Strait. The United States remains firm in its adherence to a one-China policy based on the three joint U.S.-China communiques and the Taiwan Relations Act.

While the U.S. and China will have our differences – on human rights, Syria, and regional security issues in Asia – the key is for these differences to be addressed on the basis of a continuous and respectful dialogue. It also requires building trust and reducing the risk of miscalculation, particularly between our militaries.

President Obama and President Xi, who will soon meet for a summit in California, have both been clear that they seek a stronger military-to-military relationship. I am pleased that the dialogue between our armed forces is steadily improving. Over the course of the past year, positive developments include:

- We hosted then-Vice President Xi Jinping at the Pentagon, and later hosted China's Minister of Defense;

- Secretary Panetta, General Dempsey and Admiral Locklear led delegations to China;
- The first ever Chinese observation of the US-Philippine Balikatan exercise;
- The first-ever joint counter-piracy exercise in the Gulf of Aden;
- The U.S. invitation for China to participate in RIMPAC, the Pacific's largest multilateral Naval exercise;
- An agreement to co-host a Pacific Army Chiefs Conference with China for the first time;
- Later this year, I look forward to welcoming the Minister of Defense to the Pentagon.

While we are pleased to see this progress, it is important for both the United States and China to provide clarity and predictability about each other's current and future strategic intentions.

Accordingly, China, the United States and all nations of the region have a responsibility to work together to ensure a vibrant regional security architecture that solves problems. America's bilateral relationships and Alliances will continue to underpin the region's security and prosperity, but multilateral institutions provide critical platforms and opportunities for countries to work together.

3. Toward a Regional Security Architecture

The United States strongly supports a future security order where regional institutions move beyond aspiration to achieving real results, and evolve from talking about cooperation to achieving real, tangible solutions to shared problems, and a common framework for resolving differences. We are working toward a future where militaries can respond together rapidly and seamlessly to a range of contingencies, such as providing immediate humanitarian assistance and disaster relief.

ASEAN has set the stage for regional cooperation by developing a network of viable institutions. ASEAN nations play a critical role in this region's security architecture, and will continue to do so. In addition to the East Asian Summit and the ASEAN Regional Forum, the relatively new ASEAN Defense Ministers Meeting Plus (ADMM+) provides an important framework for nations in the region to pursue common security objectives.

.... The United States supports Asian nations taking the lead in pushing their region towards greater cooperation... [o]ur relationships with ASEAN nations are critical, and ASEAN leaders extend great hospitality to members of my government every year.... I believe this first-ever U.S.-hosted meeting of ASEAN Defense Ministers will provide another opportunity for us to discuss a shared vision for a dynamic, peaceful, and secure future for the region.

This future can only be realized if we work together to create an environment where all can prosper and succeed, and where coercion and conflict are put aside in favor of open dialogue. This requires a continued commitment to certain foundational principles that have enabled this region's success for generations. These include free and open commerce; a just international order that emphasizes rights and responsibilities of nations and fidelity to the rule of law; open access, by all, to the domains of sea, air, space, and now, cyberspace; and the principle of resolving conflict without the use of force.

Threats to these principles are threats to peace and security in the 21st century. Unfortunately, some nations continue to dismiss these values and pursue a disruptive path – most notably, North Korea.

The United States has been committed to ensuring peace and stability on the Korean Peninsula for sixty years. That means deterring North Korean aggression and protecting our allies, and achieving the complete denuclearization of the Korean Peninsula. The United States will not stand by while North Korea seeks to develop a nuclear-armed missile that can target the United States.

The United States has been clear that we will take all necessary steps to protect our homeland and our allies from dangerous provocations, including significantly bolstering our missile defense throughout the Pacific. No country should conduct "business as usual" with a North Korea that threatens its neighbors. We are working closely with our ROK and Japanese allies to strengthen our posture and ability to respond to threats from North Korea. The prospects for a peaceful resolution also will require close U.S. coordination with China.

Beyond the peninsula, the United States also remains concerned over the potential for dangerous miscalculations or crises posed by numerous competing territorial claims in the region.

The United States has been clear that we do not take a position on the question of sovereignty in these cases. That does not mean, however, that we do not have an interest in how these disputes are addressed and settled. The United States stands firmly against any coercive attempts to alter the status quo. We strongly believe that incidents and disputes should be settled in a manner that maintains peace and security, adheres to international law, and protects unimpeded lawful commerce, as well as freedom of navigation and overflight.

In the South China Sea, the United States continues to call on all claimants to exercise restraint as they publicly pledged in 2002, and to seek peaceful means to resolve these incidents. In that regard, we support the recent agreement between China and ASEAN to establish crisis hotlines to help manage maritime incidents. The U.S. also welcomes efforts to start talks on a Code of Conduct for the South China Sea. We encourage claimants to explore all peaceful means of settling their territorial disputes and the use of the dispute adjudication resolution mechanisms provided by the Law of the Sea Convention. Such efforts should not hinder progress towards developing a binding Code of Conduct.

Even as we seek to uphold principles in well-established areas, we must also recognize the need for common rules of the road in new domains.

The U.S. and all nations in the region have many areas of common interest and concern in cyberspace, where the threats to our economic security, businesses and industrial base are increasing. In response, the United States is increasing investment in cyber security and we are deepening cyber cooperation with Allies in the region and across the globe. Next week I will attend a meeting of NATO Defense Ministers devoted to cyber issues.

We are also clear-eyed about the challenges in cyber. The United States has expressed our concerns about the growing threat of cyber intrusions, some of which appear to be tied to the Chinese government and military. As the world's two largest economies, the U.S. and China have many areas of common interest and concern, and the establishment of a cyber working group is a positive step in fostering U.S.-China dialogue on cyber. We are determined to work more vigorously with China and other partners to establish international norms of responsible behavior in cyberspace.

The United States and its Asian-Pacific allies and partners are far more likely to be able to live peacefully and prosperously in a world where we are bound together by strong economic ties, mutual security interests and respect for rules, norms, and the institutions that underpin them.

Secretary Hagel's Summary in April 2014

Secretary Chuck Hagel, gave a speech at the PLA National Defense University on April 8, 2014 that provided additional information on US policy toward China and the Asia-Pacific region:⁹

Today, China's status as a major power is already solidified, built on its growing economic ties across the globe, and particularly across the Asia-Pacific region. Last year, the trade in goods and services between the United States and China exceeded \$500 billion. Trade between ASEAN members and China exceeded \$400 billion last year. And [one-third of global trade] travels the South China Sea.

China's tremendous growth, coupled with the continued dynamism of the Asia-Pacific and America's increasing engagement in the region, offers an historic and strategic opportunity for all nations. As our economic interdependence grows, we have an opportunity to expand the prosperity this region has enjoyed for decades.

To preserve the stable regional security environment that has enabled this historic economic expansion, the United States and China have a very big responsibility to address new, enduring regional security challenges alongside all the partners of the Asia-Pacific. We face North Korea's continued dangerous provocations, its nuclear program, and its missile tests; ongoing land and maritime disputes; threats arising from climate change, natural disasters, and pandemic disease; the proliferation of dangerous weapons; and the growing threat of disruption in space and cyberspace.

The Asia-Pacific region is the most militarized in the world, and any one of these challenges could lead to a conflict, a deadly conflict. And as the PLA modernizes its capabilities and expands its presence in Asia and beyond, American and Chinese forces will be drawn into closer proximity, which increases the risks of an incident, an accident, or a miscalculation. But this reality also presents new opportunities for cooperation.

All of us want a future of peace and stability for this region, and the costs of conflict will rise as economic interdependence grows. But the high cost of conflict will not make peace and stability inevitable. History has made that very clear. So we must work together, and in partnership with all the nations of this region, we must work together to develop and build upon what President Xi and President Obama have called a “new model” of relations.

This model seeks to seize opportunities for cooperation between the U.S. and China, but also to enhance peace and security throughout the region. It seeks to manage competition, but avoid the traps of rivalry. And good China-U.S. relations will not come at the expense of our relations with others in the region or elsewhere, nor should it, for China or for the United States.

Realizing this vision will require continued commitment, effort, leadership, courage, and some new thinking for both the United States and China across all dimensions of our relationship, but especially between our militaries. That is what I would like to speak to you about today. In particular, I’d like to address how we can develop a “new model” of military-to-military relations that General Chang and I announced this morning.

Doing so will require a shared understanding, an understanding of the regional security order that we seek and the responsibilities we all have to uphold it. It will require bold leadership that seeks to deepen practical cooperation in areas of shared interest, while constructively managing differences through open dialogue, transparency, and candor.

In the spirit of openness and candor, I’d like to describe to you – the future leaders, you, the future leaders of the PLA – America’s intentions.

Here in the Asia-Pacific and around the world, the United States believes in maintaining a stable, rules-based order built on free and open access to sea lanes and air space, and now, cyberspace; liberal trade and economic policies that foster widely-shared prosperity for all people; halting the proliferation of dangerous and destabilizing weapons of mass destruction; and clear, predictable, consistent, and peaceful methods of resolving disputes consistent with international law.

Since the Second World War, American and Asian investment in this rules-based order has produced extraordinary results, including here in China. For our part, the United States has helped to provide access to global markets, technology, and capital; underwritten the free flow of energy and natural resources through open seas; and maintained alliances that have helped keep the peace. We haven’t done it alone. We’ve done it with partners.

America’s rebalancing to the Asia-Pacific is about ensuring that America’s presence and engagement – including our relationship with China – keeps pace with the Asia-Pacific’s rapidly evolving economic, diplomatic, and security environment.

The rebalance also reaffirms America’s longstanding bonds of history, commerce, and friendship throughout this region. This includes commitments to our treaty allies – Japan, Korea, Australia, Thailand, and the Philippines. And it includes our deepening ties with members of ASEAN. That is not – must not be, nor will be – at the exclusion of strengthening our relationship with China. That is why I just visited Japan, one of America’s closest allies, and last week hosted an ASEAN defense minister’s forum in the United States, the first time we’ve ever done so. In both settings, I not only emphasized America’s interest in continuing to build a lasting and constructive relationship with China, I encouraged all of our allies, all of our allies and partners to build long, consistent, productive relationships with China.

All nations have the responsibility to pursue common interests with their neighbors and to settle disputes peacefully in accordance with international law and recognized norms. But as a nation’s power and prosperity grows, so do its responsibilities. And whether the 21st century is one marked

by progress, security, and prosperity will depend greatly on how China and other leading Asian Pacific powers meet their responsibilities to uphold a rules-based order.

Disputes in the South China and East China Seas must be resolved through international norms and laws. We must trust in those laws and those norms. The United States has been clear about the East and South China Sea disputes. We do not take a position on sovereignty claims, but we expect these disputes to be managed and resolved peacefully and diplomatically, and oppose the use of force or coercion. And our commitment to allies in the region is unwavering.

Great powers must resolve their disputes peacefully and responsibly. Strengthening the peace and avoiding conflict requires leadership. It requires courage. It requires understanding. It requires reaching out. And it requires cooperation. It also requires a careful management of differences, all of which are important parts of President Xi and President Obama's vision for China-U.S. relations.

Today, I had the opportunity to engage in productive discussions with General Chang. As I mentioned earlier, we spent most of the morning together. We spent a good part of the morning talking about our military-to-military relationship, how we can support the vision of President Xi and President Obama. We discussed the responsibility we have to reassure each other – and to reassure other nations throughout this region – reassure them about our capabilities and our intentions, because that is how we build trust.

We also discussed the need to take a long-term perspective, because both of our nations are, and will remain, Pacific powers, great powers. And in order to deepen mutual understanding, we cannot shy away from addressing difficult issues. We must deal straight up, honestly, directly with each other in confronting disagreements and difficult issues.

With these ideas in mind, I believe our “new model” of military-to-military relations should proceed on three tracks: first, maintaining sustained and substantive dialogue; second, forging concrete, practical cooperation where our interests converge; and, third, working to manage competition and differences through openness and communications.

The foundation for our military-to-military cooperation must be a sustained and substantive dialogue. The engine for this dialogue has been our high-level exchanges. We must continue and increase those exchanges. This in particular has been an area of notable progress.

Last year, China hosted General Dempsey, our senior military officer and Chairman of the Joint Chiefs, as well as our Air Force Chief of Staff and Vice Chief of Naval Operations. I was honored to host General Chang at the Pentagon last year. We also hosted Admiral Wu Shengli, your chief of naval operations.

You recently hosted General Odierno, our Army Chief of Staff. Later this month, our Chief of Naval Operations, Admiral Greenert, will visit China. And, next month, General Dempsey will host his counterpart in Washington, General Fang, for another exchange.

More bilateral exchanges and visits are planned, and earlier today General Chang and I agreed on two important new mechanisms: We will establish a high-level Asia-Pacific security dialogue, and we will create an Army-to-Army dialogue. This will deepen substantive military discussions and institutional understanding.

When they are substantive, these discussions are invaluable. They're invaluable because they help identify areas where we can and should pursue concrete, practical cooperation – the second track of our military-to-military relations, which is vitally important.

Already, we have identified non-traditional security missions as areas of clear mutual interests, including counter-piracy, humanitarian assistance and disaster relief, military medicine, and maritime safety. One example of our practical cooperation is these areas where we can do more, and specifically annual Disaster Management Exchanges held now between our militaries, and with representatives of the United States Federal Emergency Management Agency. Last November's exchange, held in Hawaii, included a first-ever exercise involving PLA troops on U.S. soil.

We are set to deepen this practical cooperation. In addition to welcoming China to this year's RIMPAC exercise, today I invited the PLA to participate in a military medical cooperation activity that will take place afterwards.

By building trust where we have common interests, practical cooperation and sustained dialogue will help us work through disagreements and more effectively manage competition, which is the third track of our military-to-military engagement.

Managing the competitive aspects of our relationship requires us to be more candid, more open, more transparent about our capabilities, our intentions, and, again, our disagreements, even on the most sensitive subjects. This openness is not only for our mutual benefit. It provides assurances to an increasingly anxious region unsure of our intentions.

The United States has taken significant steps to be more open with China about our capabilities, intentions, and disagreements. And we will continue to welcome initiatives by China to do the same, particularly as China undertakes significant military modernization efforts.

During my tour yesterday of the Liaoning aircraft carrier, I heard directly from the ship's sailors how important open military-to-military communication is. Last December, the Liaoning commander, Senior Captain Zhang Zheng, helped to avoid a near-catastrophe in which U.S. and Chinese vessels avoided a collision by only 46 yards. It turns out that, only three months before that incident, Senior Captain Zhang had accompanied Admiral Wu on a visit to the United States. When Senior Captain Zhang was confronted with a moment of crisis, his effort to de-escalate the situation was informed by having met members of the U.S. Navy and having developed an understanding of the U.S. Navy's intentions and operating procedures.

Greater openness has also enabled recent progress in establishing a notification mechanism for major military activities, and it will help us to expand the content of these notifications as we build greater trust.

Openness and two-way communication is especially important in the area of strategic and emerging capabilities, and in managing regional security challenges. It is why we seek to resume a U.S.-China nuclear policy and strategy dialogue. It is also why, through our Cyber Working Group, the United States has been forthright in our concerns about Chinese use of networks to perpetrate commercial espionage and intellectual property theft. We've also made efforts to be more open about our cyber capabilities, including our approach of restraint.

Those efforts recently took a major step forward when the Department of Defense, for the first time ever, provided to representatives of the Chinese government a briefing on DoD's doctrine governing the use of its cyber capabilities. We've urged China to do the same. It's in both of our interests to continue to follow this path.

We've asked China to work more closely with the United States and regional partners on another shared challenge where we have had some disagreement, responding to the dangerous destabilizing behavior of North Korea. In my meetings with Asia-Pacific leaders throughout this visit, we've discussed the threat North Korea poses to America, its allies, and to regional stability. The regime's nuclear program and its recent missile launches in violation of UN Security Council resolutions pose a continued and stark challenge and threat to the United States homeland.

America will continue to respond to North Korea's actions by reinforcing our allies and increasing our deterrence, including through my announcement this week that we will deploy two additional ballistic missile defense ships to Japan. This builds on other steps to bolster regional missile defense, including building a second radar site in Japan and expanding our ground-based interceptors in our country, in Alaska.

We look to China to play a constructive role in meeting this challenge, to help us, partner, cooperate with us, because of China's interests, its status as a leading power in Asia and the world, and because its largest trading partners are the nations being threatened by North Korea.

Continuing to support a regime that engages in these provocative and dangerous actions – and oppresses its own people – will only hurt China's international standing in this region. Instead, the

United States and China, along with other nations in this region, must increase our cooperation to address the North Korean threat.

As we work through differences and find areas of common interest, my hope is that we heed what Harry Truman, a great American president, said many years ago. And he said this: “We do not believe that there are blind tides of history which sweep men one way or another” – because people “of courage and vision can ... determine their own destiny.”

The United States and China can and will determine their own destiny. They must marshal that courage and vision that President Truman talked about. We must determine our own destiny, our own way together. That is our shared responsibility.

Each of you, in this way, will help shape our future and our countries’ destinies. Each of you will be a part of this conversation and the molding and the shaping of where we all take the world. One by one – captain-to-captain, ensign-to-ensign, general-to-general, admiral-to-admiral – we must all do our part to build greater trust, confidence, and cooperation between our two militaries, our two countries, and among all the countries of the region of the world.¹⁰

An Uncertain Rebalancing and Not a “Pivot”

The speeches delivered by Secretaries of Defense Panetta and Hagel indicate the US “rebalance” to the Asia-Pacific region is a strategic necessity based on the belief that the 21st century will be defined in many ways by the emergence of this region as an increasingly important global player. US policy toward the Asia-Pacific aims firstly to maintain the flow of commerce and keep open key lines of communication. It also endeavors to maintain geopolitical stability in the region with a rising China. Deterring hostile action from rogue states like North Korea and discouraging US allies like Japan and South Korea from coming in conflict with China are principle objectives in the maintenance of this stability.

The describing this as a “pivot to Asia” is, however, a matter of political rhetoric that has led many to exaggerate the shifts taking place in US forces. No US planning guidance from the new Strategic Planning Guidance the Department of Defense issued in January 2012 to the 2014 QDRT and F2015 budget request issued in the early spring of 2014 has used the term “pivot.” All documents referred to a limited “rebalancing” based on the assumption that the US did no longer faced serious strategic challenges in Europe.

The idea of rebalancing some elements of US forces from the support of NATO to PACOM – was based on shifting some US aid units bank to the US and changing the force presence of the US Navy from a roughly 50/50 distribution between the Pacific and Atlantic to one of 60/40 by 2020. These are the shifts highlighted by both Panetta and Hagel as evidence of the changing US defense policy toward the region.

Moreover, most US strategic documents that talk about Asia do not distinguish between forward deployed US forces in Asia, forces in the Pacific and continental US – especially the West Coast, and forces in Hawaii. They also place a heavy emphasis on creating stronger regional strategic partners rather than building up US forces. As a result, rebalancing is only one aspect of US strategy. US and Chinese competition for regional strategic partners is just as important in net assessment terms.

Strategy, Rebalancing, and Reality

This should make it clear that that any US and Chinese military dialogue must be based on a net assessment of both changes in Chinese strategy and forces described in this report and the changes in US strategy and forces. At the same time, such a net assessment needs to be based on more

than strategy; clear trends and hard numbers and strategic partners must be taken into account as well.

At the same time, it is important to stress just how uncertain the future US posture in the Asia-Pacific really is.

The 2012 Strategic Guidance

The US strategic guidance issued in 2012 stated that,¹¹

U.S. economic and security interests are inextricably linked to developments in the arc extending from the Western Pacific and East Asia into the Indian Ocean region and South Asia, creating a mix of evolving challenges and opportunities. Accordingly, while the U.S. military will continue to contribute to security globally, we will of necessity rebalance toward the Asia-Pacific region. Our relationships with Asian allies and key partners are critical to the future stability and growth of the region. We will emphasize our existing alliances, which provide a vital foundation for Asia-Pacific security. We will also expand our networks of cooperation with emerging partners throughout the Asia-Pacific to ensure collective capability and capacity for securing common interests. The United States is also investing in a long-term strategic partnership with India to support its ability to serve as a regional economic anchor and provider of security in the broader Indian Ocean region. Furthermore, we will maintain peace on the Korean Peninsula by effectively working with allies and other regional states to deter and defend against provocation from North Korea, which is actively pursuing a nuclear weapons program.

The maintenance of peace, stability, the free flow of commerce, and of U.S. influence in this dynamic region will depend in part on an underlying balance of military capability and presence. Over the long term, China's emergence as a regional power will have the potential to affect the U.S. economy and our security in a variety of ways. Our two countries have a strong stake in peace and stability in East Asia and an interest in building a cooperative bilateral relationship. However, the growth of China's military power must be accompanied by greater clarity of its strategic intentions in order to avoid causing friction in the region. The United States will continue to make the necessary investments to ensure that we maintain regional access and the ability to operate freely in keeping with our treaty obligations and with international law. □ □ Working closely with our network of allies and partners, we will continue to promote a rules-based international order that ensures underlying stability and encourages the peaceful rise of new powers, economic dynamism, and constructive defense cooperation.

- *Deter and Defeat Aggression.* U.S. forces will be capable of deterring and defeating aggression by any potential adversary. Credible deterrence results from both the capabilities to deny an aggressor the prospect of achieving his objectives and from the complementary capability to impose unacceptable costs on the aggressor. As a nation with important interests in multiple regions, our forces must be capable of deterring and defeating aggression by an opportunistic adversary in one region even when our forces are committed to a large-scale operation elsewhere. Our planning envisages forces that are able to fully deny a capable state's aggressive objectives in one region by conducting a combined arms campaign across all domains—land, air, maritime, space, and cyberspace. This includes being able to secure territory and populations and facilitate a transition to stable governance on a small scale for a limited period using standing forces and, if necessary, for an extended period with mobilized forces. Even when U.S. forces are committed to a large-scale operation in one region, they will be capable of denying the objectives of – or imposing unacceptable costs on – an opportunistic aggressor in a second region. U.S. forces will plan to operate whenever possible with allied and coalition forces. Our ground forces will be responsive and capitalize on balanced lift, presence, and prepositioning to maintain the agility needed to remain prepared for the several areas in which such conflicts could occur.
- *Project Power despite Anti-Access/Area Denial Challenges.* In order to credibly deter potential adversaries and to prevent them from achieving their objectives, the United States must maintain its ability to project power in areas in which our access and freedom to operate are challenged. In these areas, sophisticated adversaries will use asymmetric capabilities, to include electronic and cyber warfare, ballistic and cruise missiles, advanced air defenses, mining, and other methods, to complicate our operational calculus. States such as China and Iran will continue to pursue asymmetric means to counter our power projection capabilities, while the proliferation of sophisticated

Growing Strategic and Resources Uncertainties

The US initially announced that it would shift its naval presence from 50% to 60% of its total fleet by 2020, but later talked about shifting 5% of its fleet and air forces. Since that time, the US has made major cuts in planned defense spending, cuts in its military readiness and exercise activities, and has come to face growing uncertainty over its future defense plans because of Sequestration and a Budget Control Act passed after it announced the changes to its strategy, the Russian seizure of the Crimea and pressure on the Ukraine, and the steadily more uncertain strategic situation in the Middle East.

In terms of money, it is not yet clear what the short term effects of sequestration will be, how much of the FY2015 budget request will be funded, and how large an army, fleet, and air force the US will maintain in coming years. Furthermore, the US has long fallen short of its ship-building goals. The US may well have to cut back by a carrier task force equivalent and slow its plans to modernize its submarines and equip them with more conventional long-range missiles.

At one point, the US Air Force planned to allocate 60% of its overseas-based forces to the region.¹² While it then talked about focusing on the air-sea battle, each before developments in the Ukraine and the growing crisis in the Middle East, the USAF, Navy, and Marine Corps faced similar challenges in modernizing and maintaining its combat air fleet, in procuring the planned number of F-35 fighters, in actually funding and deploying a new bomber, and in modernizing key “enablers” such as its refueling tankers.

The US also faced major challenges in adapting its land forces to its new strategy. A 2012 analysis by the Congressional Research Service notes that similar uncertainties exist in the future posture of the US Army:¹³

General Odierno reportedly envisions the Army playing an important role in the Asia-Pacific region. Noting that the Asia-Pacific region is home to 7 of the 10 largest armies in the world, General Odierno reportedly stated that the Army would “actively seek new opportunities for expanding current international training opportunities.” General Odierno also emphasized how the presence of the U.S. Army in the region—about 25,800 soldiers in South Korea; 23,000 in Hawaii; 2,700 in Japan; and 13,000 in Alaska—serves as a deterrent to potential aggressors and also provides forces that can be deployed elsewhere within the region. In terms of force structure, as previously noted, the Army does not foresee any cuts to Army units in Hawaii, Japan, or South Korea. In addition, three Stryker BCTs are stationed at Joint Base Lewis-McChord in Washington that are assigned to U.S. Pacific Command and under the operational control of U.S. Army Pacific, but it is not known if these units will be reassigned to different missions.

Deterrence and response aside, the Army reportedly plans to step up training exercises in the region in an effort to strengthen its presence and influence. In addition to Pacific-based units, the Army reportedly is considering including the XVIII Airborne Corps at Ft. Bragg, NC; the I Corps at Joint Base Lewis-McChord, WA; and the 101st Airborne Division at Ft. Campbell, KY, in upcoming exercises. The U.S. Army Pacific is reportedly working with the 101st Airborne Division on the possibility of participating in Yudh Abhyas, a bilateral exercise with India. The United States and India would take turns hosting the exercise, with the United States hosting the exercise in 2013. The U.S. Army Pacific is also reportedly working with Australia and New Zealand, perhaps to conduct a battalion-sized event with the New Zealand Army and a brigade-sized exercise with the Australian Army. In addition to working with these armies, the United States also hopes to leverage its relationships with Indonesia, Malaysia, and Thailand in order to increase partnership opportunities with the three nations.

In May of 2013, Chief of Staff of the Army General Odierno, Commandant of the Marine Corps James F. Amos, and Special Operations Commander Admiral McRaven outlined the continued importance of ground forces to the future of global stability. The White Paper titled, “Winning

the Clash of Wills: Strategic Landpower and the Inherently Human Nature of Conflict,” also touches on the role of landpower in the Asia-Pacific area.

The strategic environment of the multi-polar world is changing at an accelerating rate. The rise of powerful regional competitors with the ability to challenge us militarily, particularly in East Asia, will pose a national and international security challenge. Asymmetric anti-access capabilities, such as advanced anti-ship cruise missiles, anti-satellite weapons, and cyber warfare will challenge the United States’ ability to safeguard and guarantee access to the global commons. With some 90% of global trade moving by sea, any eruption of hostilities threatening free access to the commons would have immediate worldwide consequences. Our ability to intervene in the face of a crisis is exacerbated by declining force levels, reduced forward basing, reliance on unfettered access to improved ports and airfields, and ongoing economic turbulence...

Even if one focuses on the difficult challenges presented by China the value of landpower remains apparent. As tensions mount, many of the nations threatened by China’s rise are looking to the United States to “balance” China’s growing military power in the region. The Air Force and Navy obviously have a crucial role in this arena, both as a deterrent to aggression and in military engagement. Still, those efforts must be complemented by forward engaged and creatively employed Soldiers, Marines, and Special Operations Forces, as it signals a high level of American commitment to its partners and allies.¹⁴

There is no credible way at present to determine what path the US will really pursue in Asia, what its future military spending will be, and what levels of force it will deploy over time. The key point from the perspective of US and Chinese military dialogue is that even if all current plans are implemented, the US would not carry out a major military build-up in Asia, and – as the following analysis of Chinese forces shows – would not posture its forces for a confrontation with China. This highlights the fact – as does the analysis of Chinese forces – that a military dialogue must be founded on hard, detailed analysis of the actual force trends on both sides, not on a worst-case analysis of military rhetoric.

The 2013 US Report on Chinese Military Power and the 2014 QDR

This is the official position of the US, as the May 2013 edition of the DoD *Military and Security Developments Involving the People’s Republic of China* report points out:¹⁵

During their January 2011 summit, U.S. President Barack Obama and then-PRC President Hu Jintao jointly affirmed that a “healthy, stable, and reliable military-to-military relationship is an essential part of [their] shared vision for a positive, cooperative, and comprehensive U.S.-China relationship.” Within that framework, the U.S. Department of Defense seeks to build a military-to-military relationship with China that is sustained and substantive, while encouraging China to cooperate with the United States, our allies and partners, and the greater international community in the delivery of public goods. As the United States builds a stronger foundation for a military-to-military relationship with China, it also will continue to monitor China’s evolving military strategy, doctrine, and force development and encourage China to be more transparent about its military modernization program. In concert with its allies and partners, the United States will continue adapting its forces, posture, and operational concepts to maintain a stable and secure Asia-Pacific security environment.

The US raised similar issues in its 2014 Quadrennial Defense Review:¹⁶

Powerful global forces are emerging. Shifting centers of gravity are empowering smaller countries and non-state actors on the international stage. Global connections are multiplying and deepening, resulting in greater interaction between states, non-state entities, and private citizens. In a fundamentally globalized world, economic growth in Asia; aging populations in the United States, Europe, China, and Japan; continued instability in the Middle East and Africa; and many other trends interact dynamically. The operating environment is increasingly enabled by technology, which provides the types of capabilities once largely limited to major powers to a broad range of actors. The rapidly accelerating spread of information is challenging the ability of some governments to control their populations and maintain civil order, while at the same time changing how wars are fought and aiding groups in mobilizing and organizing.

Regional and global trends in the security environment, coupled with increasing fiscal austerity, will make it imperative that the United States adapt more quickly than it has in the past and pursue more innovative approaches and partnerships in order to sustain its global leadership role.

...Rebalancing and sustaining our presence and posture abroad to better protect U.S. national security interests. In striving to achieve our three strategic objectives, the Department will also continue to rebalance and sustain our global posture. We will continue our contributions to the U.S. rebalance to the Asia-Pacific region, seeking to preserve peace and stability in a region that is increasingly central to U.S. political, economic, and security interests. Faced with North Korea's long-range missiles and WMD programs – particularly its pursuit of nuclear weapons – the United States is committed to maintaining peace and security on the Korean Peninsula. As part of our broader efforts for stability in the Asia-Pacific region, the United States will maintain a robust footprint in Northeast Asia while enhancing our presence in Oceania and Southeast Asia. As we end combat operations in Afghanistan, we are prepared to transition to a limited mission focused on counterterrorism and training, advising, and assisting Afghan security forces.

...The United States has been a Pacific power for more than a century, with deep and enduring economic and security ties to the region. Particularly in the past six decades, the United States has helped ensure peace and prosperity in the Asia-Pacific region through our commitment to free and open commerce, promotion of a just international order, and maintenance of open access to shared domains. U.S. economic, security, and people-to-people ties with the region are strong and growing.

...The Asia-Pacific region is increasingly central to global commerce, politics, and security. Defense spending in this region continues to rise. As nations in the region continue to develop their military and security capabilities, there is greater risk that tensions over long-standing sovereignty disputes or claims to natural resources will spur disruptive competition or erupt into conflict, reversing the trends of rising regional peace, stability, and prosperity. In particular, the rapid pace and comprehensive scope of China's military modernization continues, combined with a relative lack of transparency and openness from China's leaders regarding both military capabilities and intentions.

A multilateral security architecture – composed of groups such as the Association of South East Asian Nations (ASEAN) and regional actors collaborating on issues ranging from humanitarian assistance to maritime security to counterterrorism – is emerging to help manage tensions and prevent conflict. Traditional anchors of regional security such as Australia, Japan, and the Republic of Korea (ROK), and growing powers such as India and Indonesia, are taking on additional leadership roles to foster increased communication and shared understanding.

As many Asia-Pacific countries seek to achieve greater prosperity, establish regional norms, and strive for a stable military balance, North Korea remains closed and authoritarian. North Korea's long-range missile and weapons of mass destruction (WMD) programs – particularly its pursuit of nuclear weapons in contravention of its international obligations – constitutes a significant threat to peace and stability on the Korean Peninsula and in Northeast Asia and is a growing, direct threat to the United States.

... In striving to achieve our three strategic objectives, the Department will also continue to rebalance and sustain our global posture. We will continue our contributions to the U.S. rebalance to the Asia-Pacific region, seeking to preserve peace and stability in a region that is increasingly central to U.S. political, economic, and security interests. Faced with North Korea's long-range missiles and WMD programs – particularly its pursuit of nuclear weapons – the United States is committed to maintaining peace and security on the Korean Peninsula. As part of our broader efforts for stability in the Asia-Pacific region, the United States will maintain a robust footprint in Northeast Asia while enhancing our presence in Oceania and Southeast Asia. As we end combat operations in Afghanistan, we are prepared to transition to a limited mission focused on counterterrorism and training, advising, and assisting Afghan security forces.

...U.S. interests remain inextricably linked to the peace and security of the Asia-Pacific region. The Department is committed to implementing the President's objective of rebalancing U.S. engagement toward this critical region. Our enduring commitment to peace and security in the Asia-Pacific region requires a sustained ability to deter aggression, operate effectively across all domains, and respond decisively to emerging crises and contingencies. In support of these goals, we are enhancing and modernizing our defense relationships, posture, and capabilities across the region.

The centerpiece of the Department of Defense commitment to the U.S. Government's rebalance to the Asia-Pacific region continues to be our efforts to modernize and enhance our security alliances with Australia, Japan, the ROK, the Philippines, and Thailand. We are taking steps with each of our allies to update our combined capacity and to develop forward-looking roles and missions to address emerging regional challenges most effectively. We are also deepening our defense relationships with key partners in the region, such as Singapore, Malaysia, Vietnam, and many others. Through both our alliances and partnerships, we are focused on enhancing our partners' capacity to address growing regional challenges in areas such as missile defense, cyber security, space resilience, maritime security, and disaster relief.

With China, the Department of Defense is building a sustained and substantive dialogue with the People's Liberation Army designed to improve our ability to cooperate in concrete, practical areas such as counter-piracy, peacekeeping, and humanitarian assistance and disaster relief. At the same time, we will manage the competitive aspects of the relationship in ways that improve regional peace and stability consistent with international norms and principles.

Underpinning all of the Department's engagements in the Asia-Pacific region is our commitment to key principles and values that are essential to regional peace and security. We are working to support and expand the flourishing network of multilateral organizations and engagements that are taking root in the region. We are focused on promoting responsible behaviors and establishing mechanisms that will prevent miscalculation and disruptive regional competition and avoid escalatory acts that could lead to conflict. This includes supporting trilateral engagements and exercises, as well as strengthening ASEAN's central role in the region through participation in institutions such as the ASEAN Defense Ministers' Meeting-Plus.

As we end combat operations in Afghanistan, we are prepared to transition to a limited mission focused on counterterrorism and training, advising, and assisting Afghan security forces. We will continue efforts to help stabilize Central and Southwest Asia and deepen our engagement in the Indian Ocean region to bolster our rebalance to Asia. The stability of Pakistan and peace in South Asia remain critical to this effort. The United States supports India's rise as an increasingly capable actor in the region, and we are deepening our strategic partnership, including through the Defense Trade and Technology Initiative.

Secretary Hagel's Statements in April 2014

On a trip through Asia in April 2014, Secretary Hagel made stops in Japan, China and Mongolia and spoke about the rising influence of China and the numerous territorial disputes that have heightened military tensions in the region. While in Japan Hagel had sharp words directed at China, "Coercion and intimidation is a deadly thing... You cannot go around the world and redefine boundaries and violate territorial integrity and sovereignty of nations by force, coercion or intimidation, whether its small islands in the Pacific or large nations in Europe."¹⁷ Hagel also announced his plans to deploy two new ballistic missile defense destroyers to Japan by 2017, a move that would increase the total of such ships in Japan from five to seven.

Secretary Hagel spoke in Japan about the security situation and the American-Japanese strategic relationship, particularly in regards to the threat of North Korean belligerence.¹⁸

Today, Minister Onodera and I had an opportunity to discuss a number of important issues, important to our alliance. He has noted most of them. And these build upon our two-plus-two meetings in Tokyo last October. My visit to Japan represents the halfway mark in my fourth trip to the Asia-Pacific in the last year. I came here from Hawaii, where I met with the 10 ASEAN [Association of Southeast Asian Nations] defense ministers, and will go next to China.

Minister Onodera and I had the opportunity to discuss both visits in some detail. I commended Japan's capacity-building efforts in Southeast Asia, and we reaffirmed the importance of coordinating U.S. and Japanese security assistance activities in the region. I also underscored the United States' interests in developing a constructive relationship with China, and the importance of Japan doing so as well.

A key focus for our talks today was the threat posed by North Korea. In response to Pyongyang's patterns of provocative and destabilizing actions, including recent missile launches in violation of U.N. Security

Council resolutions, I can announce today that the United States is planning to forward deploy two additional Aegis ballistic missile defense (BMD) ships to Japan by 2017.

This will bring our Japan-based fleet of BMD-capable ships to a total of seven. I visited one of our BMD ships last fall while I was here in Japan. This deployment follows our October announcement to establish a second missile defense radar site in Kyoto prefecture, and my decision last year to increase ground-based interceptors in Alaska.

These steps will greatly enhance our ability to defend both Japan and the U.S. homeland from North Korean ballistic missile threats. This move to significantly bolster our naval presence is another action that strengthens our alliance and increases deterrence against North Korean aggression. Building off of President Obama's recent meeting with Prime Minister Abe and President Park, today Minister Onodera and I discussed ways to help deepen trilateral defense cooperation, including through the upcoming defense trilateral talks which will be held in Washington this month.

Minister Onodera and I also discussed our plans for consolidation on Okinawa. And I thank the minister for Japan's efforts in securing approval for the Futenma replacement facility's landfill permit. We look forward to the facility's construction beginning soon. I reaffirm the U.S. commitment to continue exploring ways to reduce the impact of our facilities on Okinawa, and our desire to be a good neighbor. These issues will be part of revising the guidelines for U.S.-Japan defense cooperation as we enhance our force posture, and Japan expands its roles and relationships around the world.

The United States welcomes Japan's efforts to play a more proactive role in contributing to global and regional peace and stability, including reexamining the interpretation of its constitution relating to the rights of collective self-defense. Finally, we discussed key challenges in the East China Sea. I restated the principles that govern longstanding U.S. policy, U.S. policy on the Senkaku Islands and other islands. And we affirmed that since they are under Japan's administrative control, they fall under Article 5 of our mutual security treaty.

We take seriously America's treaty commitments. And we strongly oppose any unilateral coercive action that seeks to undermine Japan's administrative control. A peaceful resolution of territorial disputes is in the interests of all nations of the region. America has no stronger ally or better friend in this region than Japan. Going forward there should be no doubt that as the United States continues to rebalance towards the Asia-Pacific, the enduring friendship and alliance between our two nations will only grow stronger.

Following his visit to Japan Secretary Hagel made his first visit to China as the Secretary of Defense and spoke on several occasions about the Chinese-American security relationship and his interest to develop improved military-to-military relations.

General Chang, as you know, I first came to China in January of 1984 and have been here a number of times since then. But this, as has been noted, is my first trip as Secretary of Defense. As General Chang noted, we've just finished a morning of very good straightforward, productive positive meetings where I restated that the United States is committed to continuing to build the constructive and productive relationship with China.

U.S.-China relationship is important for stability and security in the Asia Pacific and for achieving prosperity for both our nations in the 21st century. And as President Obama has said, the United States welcomes the rise of a stable, peaceful and prosperous China. One focus of our discussion today was how we develop a new model of military-to-military relations, which I will address in greater detail in a speech that I'll give this afternoon.

I explained that the U.S. believes its approach should be to build a sustained and substantive dialogue to deepen practical cooperation in areas of common interests and to manage competition and manage differences through openness and communication. In each of these areas there is much work still to be done, but we're making progress, strong progress. And, as General Chang noted, yesterday I very much appreciated the opportunity to tour China's aircraft carrier and particularly to meet PLA personnel aboard the ship and have an opportunity to listen to these young sailors.

And later today I'll have the opportunity to speak to officers at the National Defense University. And, as General Chang noted, tomorrow I truly am looking forward to visiting with noncommissioned officers,

which, I think we all appreciate, are the backbone of our militaries. Exchanges like this at every level of command are critical. They're critical for building mutual understanding and also respect.

Our vision is a future where our militaries can work closely together on a range of challenges, such as humanitarian assistance and disaster relief missions. However, to reach this objective we must be very candid about issues where we disagree, while also continuing to deepen our cooperation in areas where we do agree. And we have many common interests and we agree on many things. Regarding cybersecurity, I emphasized in our meetings this morning the need for both the United States and China to be more open with each other about our capabilities and our intentions in this critically important domain. Greater openness about cyber reduces the risks that misunderstanding and misperception could lead to miscalculation. More transparency will strengthen China-U.S. relations.

As General Chang announced, we agreed today on several new ways to improve our military-to-military relationship. We will establish an army-to-army dialogue mechanism as an institutionalized mechanism within the overall framework of the U.S.-China military-to-military relationship. We agree to participate in a joint military medical cooperative activity. And this will build on the experiences gained at the 2014 Rim of the Pacific exercise, a U.S.-hosted, multilateral naval exercise that China will participate in for the first time this summer.

We'll establish an Asia-Pacific security dialog to exchange views on a host of security issues. This dialog will build on the discussions General Chang and I had today on regional security issues, including North Korea, and the growing threat posed by its nuclear and missile programs. Continued instability on Northeast Asia is not in China's interests, it's not in the U.S. interests, it's not in the region's interests. And the U.S. is deeply concerned about the threat North Korea poses to our treaty allies and increasingly to our own homeland. The United States and China have a shared interest in achieving a verifiable, irreversible denuclearization of the Korean Peninsula.

We also had a very good, direct, positive discussion about tensions in the East and South China Sea. I underscored that all parties should refrain from provocative actions and the use of intimidation, coercion or aggression to advance their claims. Such disputes must be resolved peacefully and in accordance with international law.

I thanked General Chang and his leaders again for their generous invitation to visit China, and for their leadership and their partnership in working with the United States on many of these common interests, especially as we move forward on a new model for our military-to-military relationship. I look forward to more progress in the future because the China-U.S. relationship is essential, essential to peace and security in the 21st century.

During the question and answer session immediately following Secretary Hagel's statement, Defense Minister Chang Wanquan and Secretary Hagel found common ground in calling for a peaceful rise of China in the region. General Chang insisted that the Chinese military rise was not a zero-sum game, and that there was sufficient space in the region to accommodate US and Chinese influence.

However, the two diverged on the issue of US political and military support of Chinese rivals Japan and Taiwan. When asked about recent US Congressional support for arms sales to Taiwan Hagel responded, "The relationship we have with Taiwan in selling arms to Taiwan are self-defense armaments. Nothing has changed since 1978. We still have the same policy that we've been committed to since that time." Alternatively, Chang stated, "The Chinese side expresses strong dissatisfaction with and a strong objection against the acts passed by the US House of Representatives. The US arms sales to Taiwan is in serious violation of the three US-China joint communiques, especially the principles of the August the 17th communique, which is a severe intervention into China's domestic affairs."¹⁹

In regards to Japanese claims of sovereignty of the Diaoyu islands and the possibility of Japanese changes to their collective self-defense policy, Hagel stated that "Japan is a sovereign nation. It's

a democracy. It will review its constitution and make its own decisions.” Chang responded that “China and Japan relations is confronted with severe difficulties and Japan should take full responsibility. We hope that the US could stay vigilant against Japan’s action and keep it within bounds and not to be permissive and supportive.”²⁰

During his weeklong trip to Asia in April, President Obama made it clear in a press conference with Japanese Prime Minister Shinzo Abe that the US obligation to Japanese defense under article five of the two countries’ security treaty does indeed included a confrontation over the Senkaku Islands. The president stated:

“Our commitment to Japan’s security is absolute and article five [of the security treaty] covers all territories under Japan’s administration, including the Senkaku islands...we don’t take a position on final sovereignty on the Senkakus but historically they’ve been administered by Japan and should not be subject to change unilaterally...my hope is that the Chinese will continue to engage with the US and other countries. We don’t take a position on this piece of land or this piece of rock but we do take a position on the peaceful resolution of these disputes.”²¹

President Obama’s New Statements on Strategy: The West Point Speech

President Obama has stated that the US “rebalance” to the Asia-Pacific is not meant to contain or block the rise of China, but to simply ensure that international norms and stability within the region are maintained. From China’s perspective, however, the interpretation of America’s shift in focus to Asia has been met with doubt and speculation over its true intentions. China’s response to President Obama’s confirmation of support to Japan was to downplay the statement and assert its claims to the disputed islands.

In his speech delivered at the West Point commencement in May 2014, President Obama outlined America’s foreign policy goals highlighting the administration’s intention to maintain America’s leadership role in the world by upholding international standards and working with regional partners. President Obama stated,²²

“I believe in American exceptionalism with every fiber of my being. But what makes us exceptional is not our ability to flout international norms and the rule of law; it’s our willingness to affirm them through our actions. That’s why I will continue to push to close GTMO [Guantanamo Bay detention camp] - because American values and legal traditions don’t permit the indefinite detention of people beyond our borders. That’s why we are putting in place new restrictions on how America collects and uses intelligence - because we will have fewer partners and be less effective if a perception takes hold that we are conducting surveillance against ordinary citizens. America does not simply stand for stability, or the absence of conflict, no matter what the price; we stand for the more lasting peace that can only come through opportunity and freedom for people everywhere.

Which brings me to the fourth and final element of American leadership - our willingness to act on behalf of human dignity. America’s support for democracy and human rights goes beyond idealism - it’s a matter of national security. Democracies are our closest friends, and are far less likely to go to war. Free and open economies perform better, and become markets for our goods. Respect for human rights is an antidote to instability, and the grievances that fuel violence and terror.”²³

President Obama focused on America’s involvement in the Arab world in its struggle against Islamic extremism, specifically Afghanistan, the Middle East, and North Africa, as well as the confrontation resulting from Russian expansionism in Eastern Europe. Through these examples, the President argued the point that American leadership, both military and non-military, is essential to resolving conflict and that the absence of American leadership only contributes to wider chaos.

“Here’s my bottom line: America must always lead on the world stage. If we don’t, no one else will. The military that you have joined is and always will be the backbone of that leadership. But U.S. military action cannot be the only -- or even primary -- component of our leadership in every instance. Just because we have the best hammer does not mean that every problem is a nail. And because the costs associated with military action are so high, you should expect every civilian leader -- and especially your Commander-in-Chief -- to be clear about how that awesome power should be used.”

“Regional aggression that goes unchecked -- whether in southern Ukraine or the South China Sea, or anywhere else in the world -- will ultimately impact our allies and could draw in our military. We can’t ignore what happens beyond our boundaries.”

Although not speaking at length about the Asia-Pacific or the specifics about one of his principle foreign policy objectives known as the “rebalance,” President Obama furthered his point about non-military leadership by stating,

“Keep in mind, not all international norms relate directly to armed conflict. We have a serious problem with cyber-attacks, which is why we’re working to shape and enforce rules of the road to secure our networks and our citizens. In the Asia Pacific, we’re supporting Southeast Asian nations as they negotiate a code of conduct with China on maritime disputes in the South China Sea. And we’re working to resolve these disputes through international law.”²⁴

The 2014 PACOM Posture Statement

As noted earlier, the Commander of US Pacific Command -- Adm. Samuel J. Locklear, III -- provided a realistic warning about the resource issues he faced in his testimony to the Senate Armed Services Committee on March 25, 2014. He also, however, provided a more detailed picture of US strategy and one that is an essential supplement to the broader policy statements issued by the President and Secretary of Defense and US strategic guidance and the 2014 QDR:²⁵

Security Environment

Since last year’s testimony before this Committee, four critical leadership transitions have been completed, seven national elections were conducted on democratic principles, and the region is readying for free and open elections in two of the most populous countries on earth. When I last testified, Xi Jinping had just assumed the position as China’s new President, completing the formal leadership transition in China. Since then President Xi put forward a comprehensive agenda of domestic, economic, and social reforms. In North Korea, Kim Jong-Un is beginning his third year in power. The recent purge of his uncle, Chang Song-Taek and frequent reshuffling of military commanders suggest that the struggles between new and old guards are not fully resolved. To the south, Republic of Korea (ROK) President Park Geun-Hye continues to strengthen the U.S.-ROK alliance and to maintain a path to peaceful reunification of the Korean peninsula. In Japan, Prime Minister Shinzo Abe implemented policies such as establishing a National Security Council and passing the Secrets Protection Act that allow it to better address the persistent and emerging security challenge of the next decade.

The last year saw elections in Australia, Bangladesh, Bhutan, Cambodia, the Maldives, and Mongolia. In Bangladesh and Cambodia, the results were strongly contested and are not fully resolved, creating uncertainty and political instability. A sharp political division continues in Thailand, despite new elections. Next on the horizon are important national elections in India in May and Indonesia in April and July. Burma continues to undergo its dramatic democratic and economic transition, including the release of over a thousand political prisoners and the possibility of a national ceasefire agreement. The countries of the Asia-Pacific region are not only more stable politically; they are also more engaged in multilateral political organizations and economic institutions. A multilateral security architecture -- comprised of groups such as the Association of Southeast Asian Nations (ASEAN) and regional actors collaborating on issues ranging from humanitarian assistance to maritime security to counterterrorism -- is emerging to help manage tensions and prevent conflict. ASEAN has grown in this leadership role under Brunei’s chairmanship in 2013, and hopefully has opportunities to grow even more under 2014 chairman Burma. We’ve seen encouraging examples of states using international fora to resolve disputes peacefully, such as the Philippines using the United Nations Tribunal on the Law of the Sea (ITLOS) to argue its case

against China's territorial claims in the South China Sea, and Thailand's and Cambodia's pledge to abide by the International Court of Justice's recent decision in their long-standing border dispute.

Indo-Asia-Pacific economies increasingly drive the world economy. Forty percent of global economic growth is attributed to this region. Yet the area is still home to some of the most devastating poverty on earth. As with other parts of the world, the divide between "haves" and "have-nots" grows wider, leading to political and economic disenfranchisement and disturbing population shifts across borders. The International Organization for Migration estimates that 31.5 million people in Asia have been displaced due to economic disparities. These hardships are further aggravated by intense competition for natural resources. In an area home to more than half the earth's population, demand for food, water, and energy is increasing. Friction caused by water shortages is evident between India and Pakistan, India and Bangladesh, and China and Southeast Asia. Much of the region is unable to adequately provide for their own food requirements, highlighting the need for stable, plentiful supplies through international commerce. The same is true for energy supplies. Disruption of these supplies or unexpected price increases quickly strain many governments' ability to ensure their people's needs are met.

North Korea: North Korea remains our most dangerous and enduring challenge. As many Indo-Asia-Pacific countries seek to achieve greater prosperity, improve compliance and adhere to regional and international law, and strive for stable relations, North Korea remains isolated and unstable. North Korea's pursuit of nuclear weapons and ballistic missiles, in contravention of its international obligations, constitutes a significant threat to peace and security on the Korean Peninsula and in Northeast Asia.

During last year's posture hearings, the region was in the middle of a North Korean "provocation campaign"—a calculated series of North Korean actions designed to escalate tensions and extract political and economic concessions from other members of the Six-Party Talks. This campaign began with a satellite launch, in December 2012, which was particularly concerning because it violated UN Security Council resolutions and verified technology necessary for a three-stage Intercontinental Ballistic Missile (ICBM). North Korea continued its campaign through last spring. They conducted another underground nuclear test, threatened the use of a nuclear weapon against the United States, and concurrently conducted a mobile missile deployment of an Intermediate Range Ballistic Missile, reportedly capable of ranging our western most U.S. territory in the Pacific. Though we have not yet seen their "KN08" ICBM tested, its presumed range and mobility gives North Korea a theoretical ability to deliver a missile technology that is capable of posing a direct threat to anywhere in the United States with little to no warning. In addition, North Korea pledged to "readjust and restart" facilities at Yongbyon Nuclear Research Center – including the plutonium-production reactor that has been shut down for the past six years.

Consistent with previous provocation cycles, recently, North Korea then shifted to a more conciliatory approach and has expressed claimed that it is willing to talk to the United States either bilaterally or within the Six-Party Talks framework with no concrete steps towards required denuclearization obligations or even negotiate on the issue of denuclearization.

North Korea's role in weapons proliferation remains troubling. North Korea continues to violate United Nations Security Council resolutions against selling weapons and weapon-related technologies around the globe. The July 2013 Panamanian confiscation of a North Korean ship loaded with fighter aircraft and other weapons from Cuba in direct violation of UN sanctions is one example. While it has become harder to sell to traditional customers such as Iran and Syria, North Korea is attempting to open new markets in Africa and South America. North Korea's proliferation activities defy the will of the international community and represent a clear danger to the peace, prosperity, and stability of the Asia-Pacific region.

Natural Disasters: The Indo-Asia-Pacific region is the world's most disaster-prone with eighty percent of all natural disaster occurrences. It contends with more super-typhoons, cyclones, tsunamis, earthquakes, and floods than any other region. This past year, a super typhoon hit the Philippines, severe flooding and a major earthquake in New Zealand, devastating flooding in India and Nepal, another earthquake in the Sichuan Province of China, and flooding and drought in the Marshall Islands. During Operation Damayan in the Philippines, we joined the Multi-National Coordination Center (MNCC) as an enabler to relief efforts coordinated by the Government of the Philippines, a testament to the importance of capability building initiatives and theater security cooperation. Our Center for Excellence in Humanitarian Assistance and Disaster Relief serves as a clearing house for information and best practices in disaster relief and supporting preparedness efforts throughout the region. We also stand ready to respond to the all too frequent vectors of

disease that plague this region. Large populations, dense living conditions, and poor sanitary conditions in many Indo-Asia-Pacific nations create optimal conditions for the rapid spread of human- or animal-borne diseases. Regional information sharing and rapid response to health crises is improving, but the danger remains high.

Territorial Disputes: The primacy of economic growth, free trade, and global financial interdependency keeps outright inter-nation conflict at bay. The most likely scenario for conflict in this part of the world is a tactical miscalculation that escalates into a larger conflict. There is no more likely stage for this scenario than the complex web of competing territorial claims in the East and South China Seas. Competing territorial claims in East is a significant and growing threat to regional peace and stability. The use of Coast Guards and an implicit rule set imposed by Japanese and Chinese leadership signaled that neither country wants escalation. China's declaration in November of an Air Defense Identification Zone (ADIZ) in the East China Sea encompassing the Senkakus immediately raised tensions. As Chinese and Japanese reconnaissance and fighter aircraft increasingly interact, and China flies unmanned aerial vehicles over the area the chances for miscalculation or misunderstanding remain high. USPACOM continues to watch this situation very closely.

Territorial disputes in the South China Sea are even more complex. No less than seven claimants have overlapping claims in this oil, gas, and mineral rich sea. By far the most excessive claim is China's, which extends to almost the entire South China Sea and includes other claimants' Exclusive Economic Zones in the region, up to and sometimes including the 12nm territorial sea. China's activities in the South China Sea appear to consist of slowly increasing its naval and air presence in the region, meeting and checking any activity by any of the more aggressive claimants in the disputed areas, and providing political and economic incentives to quiet the other claimants. As evidence of this policy, China increased its maritime presence in 2013 and now maintains three continuous Coast Guard patrols in the South China Sea, backed up by regular transits of Chinese Navy warships. Attempts by other claimants to assert claims and prevent Chinese actions that seek to assert operational superiority provide the potential for miscalculation.

Through multilateral forums, USPACOM supports the U.S. position advocating for adjudication of claims by duly constituted international bodies and multilateral solutions. Unlike other nations involved in this and similar disputes, China consistently opposes international arbitration, instead insisting on bilateral negotiations—a construct that risks China's domination of smaller claimants. The activities by multilateral forums to adopt international codes of conduct for the South China Sea and those efforts to legally adjudicate claims need our support.

Cyber: Cyberspace is growing not only in its importance relative to the flow of global commerce but also in its importance to our ability to conduct military operations—making it an attractive target for those seeking to challenge the economic and security order. Cyber threats come from a diverse range of countries, organizations, and individuals. China is rapidly expanding and improving its cyberspace capabilities to meet their national and military objectives, as are others, including North Korea and Russia, not to mention rogue groups and individuals who are increasingly enabled by technology. These actors seek to exploit our vulnerabilities by gaining unauthorized access to our networks and infrastructure on a daily basis. Potential adversaries are actively probing critical infrastructure throughout the United States and in partner countries.

Violent extremism: Periodic eruptions of religious, ethnic, political, and separatist violence continues to plague some of our closest partners in the region, limiting our engagement efforts. India, Bangladesh, Indonesia, Thailand, and the Philippines are all working against a confluence of criminal and extremist networks that enable transnational facilitation of people, material, and money across the region to support various causes which threaten regional peace and prosperity. A sustained effort to build and enhance the capacity of our allies and partners is the cornerstone of our counter terrorism strategy in South and Southeast Asia. We are encouraged by the persistent pressure that our partner nations are placing on these networks. Through close and continuous cooperation we have eroded localized insurgencies and degraded transnational extremist organizations with global reach such as Al-Qaida, Lashkar-e Tayyiba, and Hezbollah.

The movement of terrorist networks as they seek safe havens and target new areas is a potential challenge. Despite modest gains over the past few years, India-Pakistan relations are promising but fragile and the cease fire violations along the Line of Control in 2013 are certainly cause for concern. Barring another major terror attack in India, a conflict between these two nuclear powers is remote, but continued violence along the contentious border will erode the political space to improve relations. Looking further beyond the

immediate term, we should remain guardedly optimistic that India and China—the two largest Asian powers—value the economic benefits of cooperation and will strive, in New Delhi’s words, “for peace and tranquility on the border as the foundation of a stable relationship.”

Chinese Military Modernization and Intent: While we recognize and understand China’s desire to develop a military commensurate with its diverse interests. The United States remains committed to preserving regional peace and security, to meet our security commitments to our regional allies, and guaranteeing free access to the sea, air, and space domains. We are meeting that challenge by improving our military-to-military relationships with China, while steadfastly standing by our friends and allies in the region. Although U.S./China military-to-military ties are improving, we will need ever more transparency and understanding of Chinese military intentions and capabilities if we are to minimize friction and avoid conflict in the future.

The Chinese military continues to pursue a long-term, comprehensive military modernization program designed to improve the capability of its armed forces to project power to fight and win a short-duration, high-intensity regional military conflict. While preparing for potential conflict in the Taiwan Strait appears to remain the principal focus of their military investment, China’s interests have grown and it has gained greater influence in the world, with its military modernization increasingly focused on expanding power projection capabilities into the East China Sea, South China Sea, the Western Pacific, and even the Indian Ocean. This expansion, in part, is focused on developing the capabilities to deny U.S. access to the Western Pacific during a time of crisis or conflict and to provide the means by which China can bolster its broad maritime claims in the region.

Chinese military operations are expanding in size, complexity, duration and geographic location. During 2013, the Chinese People’s Liberation Army (PLA) Navy conducted the highest number of open ocean voyages and training exercises seen to date. This included the largest ever Chinese military naval exercise observed outside the first island chain and into the Western Pacific, highlighting an enhanced power projection capability and increased ability to use military exercises to send political messages to regional allies and partners and others in Asia.

This expansion in Chinese military power projection is driven by the rapid modernization of Chinese military capabilities. Over the course of the last year, the PLA continued large-scale investment in advanced short- and medium-range conventional ballistic missiles, land-attack and anti-ship cruise missiles, counter-space weapons, military cyberspace capabilities, and improved capabilities in nuclear deterrence and long-range conventional strike, advanced fighter aircraft, integrated air defenses, undersea warfare, and command and control. China’s first aircraft carrier, the Liaoning, began to integrate its air wing and conduct flight operations.

China’s advance in submarine capabilities is significant. They possess a large and increasingly capable submarine force. China continues the production of ballistic missile submarines (SSBN). The platform will carry a new missile with an estimated range of more than 4,000 nm. This will give the China its first credible sea-based nuclear deterrent, probably before the end of 2014.

Allies and Partners

The United States’ five treaty allies the USPACOM AOR, Australia, Japan, Republic of Korea, Philippines and Thailand, each play a critical role in addressing aspects of these challenges. The bilateral relationships we build with our allies is key to mutual defense but also form the basis for multilateral security arrangements that can strengthen efforts to address Asia-Pacific security challenges.

Australia: Our alliance with Australia anchors peace and stability in the region. The Australians take a leading role in regional security issues, and we are coordinating our Theater Campaign Plan with their Regional Campaign Plans to synchronize and optimize our mutual efforts. USPACOM is working closely with the Australian Defense Staff to advance U.S. force posture initiatives including the Marine Rotational Forces in Darwin and dispersed rotational U.S. Air Force capabilities at Royal Australian Air Force bases. Increased rotational presence in Australia with a more robust bilateral training and exercise program continues to enhance U.S.-Australia interoperability and regional stability.

Japan: The alliance between our two countries is stronger than ever. USPACOM remains ready to carry out the U.S. security commitment to Japan through a full range of military capabilities. U.S. Forces Japan

and Japanese Self Defense Forces (JSDF) collaborate and work towards greater shared responsibilities in realistic training, exercises, interoperability and bilateral planning. With the 2006 establishment of the Japanese Joint Staff, U.S. Forces Japan is building a close relationship to enhance interoperability and information sharing. The October, 2013 agreement by our “2+2” Security Consultative Committee (SCC) to review the U.S.-Japan Defense Cooperation Guidelines for the first time since 1997 should enable the JSDF to play a greater role in both the defense of Japan and in response to contingencies further afield. We will continue to maintain a robust military presence in Japan in order to meet future security. Last year, the Marines replaced aging CH-46 helicopters with MV-22 Ospreys and recently the Government of Japan approved a land-fill permit on Okinawa to allow the construction of a new airfield that will facilitate improved posture of U.S. Marine aircraft. The U.S. Navy has begun the gradual replacement of P-3 maritime patrol aircraft with the newer and more capable P-8s. We will continue to deploy well-equipped, highly trained and ready forces along with our newest equipment to best support Japan and the region.

During North Korea ballistic missile provocations last year, the U.S. and Japan worked very closely to defend against potential threats. It became apparent to both USPACOM and Japan that we need an additional TPY-2 radar in Japan to provide intelligence, surveillance and reconnaissance (ISR) against missile threats. This will serve to provide early warning of missile threats to improve defense of the U.S. homeland, our forces forward deployed, and to Japan.

We continue to work with Japan and the Republic of Korea (ROK) towards a trilateral military-to-military arrangement capable of addressing North Korea provocations. Trilateral military-to-military exercises and operations will improve each participant’s understanding of the mutual challenges and shared opportunities that exist in and around the Korean peninsula.

Philippines: USPACOM is identifying opportunities, informed by a proposed Agreement on Enhanced Defense Cooperation with the Philippines, for an enhanced rotational presence of U.S. forces to improve the training and capability of both our forces. U.S. forces are assisting the Philippine force efforts to improve its maritime security capabilities. Key Philippine efforts include improving Maritime Domain Awareness through development of long-range aircraft and waterborne patrols within the Philippines’ Economic Exclusion Zone and enhancing integration among the National Coast Watch system.

The typhoon response in November provided evidence of the strength of the U.S.-Philippines alliance. During Operation Damayan, U.S. military relief operations assisted the people of the Philippines. More importantly, the Philippines Armed Forces were well-prepared for the emergency. Their participation in two previous DoD-sponsored humanitarian assistance/disaster response (HA/DR) planning exercises enabled a rapid damage assessment to response and recover execution process. USPACOM continues to stand by our ally as they undergo recovery efforts.

Republic of Korea: The U.S. and ROK alliance remains strong. For 61 years, we have worked together to provide peace and stability in Northeast Asia, and we continue to work to enhance our relationship and collective capabilities. We recently concluded negotiations for the 9th Special Measures Agreement (SMA) and have developed a new cost sharing arrangement that will be in place through 2018.

The United States and ROK have agreed to transfer Operational Control on a conditions- and milestones-based timeline, and deliberations are ongoing to ensure we are developing the right capabilities for the alliance. We believe that the best way to ensure deterrence and maintain the strength of the alliance is through development of combined capabilities to respond vigorously to any future North Korean provocation.

Thailand: Thailand, with whom we have the oldest treaty in Asia, demonstrates a willingness and capability to be a regional leader. Their efforts assist in addressing several issues including negotiating competing South China Sea maritime claim disputes, serving as an enabler for engaging Burma, and encouraging trilateral engagements. Thailand is committed to increased responsibility for regional security matters.

Activities with the Thai military, including the annual Cobra Gold exercise, the largest and longest running joint/combined exercise of its kind, are the means by which we remain tightly aligned with Thailand. The Thais have expanded this formerly bilateral U.S.-Thai exercise into a premier multilateral event with a dozen participant countries from around the region.

Singapore: Singapore is designated a “Major Security Cooperation Partner,” a title that reflects the value of our bilateral relationship. Singapore is critical to U.S. presence in Southeast Asia. Their continued commitment to U.S. military presence in the region is underscored by their support of the Navy’s Littoral Combat Ship (LCS) rotational deployments. Singapore’s Changi Naval Base, with its modern shore infrastructure and command and control center, is a key enabler of LCS and provides critical support to other key other forward operating naval forces.

India: India continues its rise as a regional and emerging global power. Its increasing, positive presence in the Asia-Pacific and Indian Ocean region as security provider is an important factor in regional stability. Last year, USPACOM participated in the U.S.-India Strategic Dialogue and looks forward to India’s participation in this year’s Rim of the Pacific (RIMPAC) exercise.

India has had impressive growth in defense trade with the U.S., purchasing C-17s, C-130Js, and P-8s. As we look to mature our defense relationship, there is further opportunity for growth in defense sales, co-development and co-production under the aegis of the U.S. India Defense Trade and Technology Initiative. These systems would expand India’s capabilities to provide for their own security and help their efforts to be a security provider for the region.

New Zealand: We continue to improve our relationship with New Zealand. USPACOM recently co-hosted with our New Zealand counterpart an Inaugural Bilateral Defense Dialogue and we plan follow-on dialogue this summer. We will be conducting 22 joint military-to-military exercises with New Zealand this year. We have revised our policy to allow their warships to visit our global military ports on a case-by-case basis and look forward to New Zealand’s participation in this summer’s RIMPAC exercise.

Oceania: USPACOM remains engaged by assisting the Pacific island nations to build capacity to detect, deter, and seek redress for illegal activities within their Exclusive Economic Zones (EEZ) and have enhanced expansion of selected partner Coast Guard ship rider agreements to include U.S. Navy ships. In addition to EEZ control, capacity-building for effective HA/DR response remains USPACOM’s focus for the Oceania sub-region. USPACOM has increased the regional understanding of the area’s security concerns through regular participation in the Pacific Island Forum as a mechanism to discuss mutual security issues.

Association of Southeast Asian Nations (ASEAN): USPACOM has expanded combined and joint training and exercises in the region, notably with Indonesia, Malaysia, and other ASEAN members. There has been success using multilateral forums to build partner capacity in humanitarian assistance and disaster relief, intelligence cooperation, counter narcotics, maritime security, maritime domain awareness and cyber security and peacekeeping operations.

ASEAN’s goal to develop a code of conduct for the South China Sea, and the efforts of some ASEAN nations to adjudicate claims using international bodies are positive initiatives which we support. USPACOM will continue to explore ways to support the ASEAN Defense Ministers’ Meeting (ADMM) and ASEAN Regional Forum for addressing common security challenges. The recent ADMM Counter-Terrorism Exercise is an example of successful collaboration with regional partners on transnational threats. Other multilateral engagements such as the recent event in Brunei focused on military medicine and maritime collaboration in areas of counter-piracy, search and rescue, and Humanitarian Assistance and Disaster Relief (HA/DR). The recently concluded ADMM-Plus multilateral peacekeeping (PKO) exercise in the Philippines focused on force generation, sustainment and logistics, and field operations.

Improving partner relations remains vital toward building multilateral cooperation arrangements. The multilateral forums of ASEAN provide an ideal mechanism to build multilateral capabilities. The ADMM forum is beginning to formalize those relationships to address the region’s security challenges. In fact, the U.S. Secretary of Defense is hosting the next ADMM forum in Hawaii. There are also key ASEAN member countries building close bilateral military relationships which can greatly enhance regional stability. For example, in adherence to the 2013 U.S.-Vietnam Comprehensive Partnership, we will continue to assist Vietnam in developing its non-lethal defense capabilities in specialized areas such as maritime security, search and rescue, disaster management, and peacekeeping.

U.S. - China Relationship: The last year has seen some progress in improving the cooperative aspects of our military-to-military relationship with China. There are three major areas of military-to-military engagement opportunities with the Chinese. First, we use current mechanisms to exchange views on the international security environment and expand common understanding of common problems, including

discussions on Iran and North Korea. U.S. and Chinese participation in the Fullerton Forum, the Strategic Security Dialogue in Singapore, along with China's invitation to join the USPACOM Chiefs of Defense Conference are examples of forums for discussing common problems.

Second, we work to develop increased institutional understanding. The Mid-Level Officers Exchange is a program where the Peoples' Liberation Army (PLA) and USPACOM host a delegation of each other's field grade officers to better understand cultural, linguistic, and historical factors. A group of officers from the USPACOM staff and components traveled in early March to three cities in China, at the PLA's invitation, to gain an appreciation of how their military organizations and institutions work.

Third, we can build areas of mutual cooperation. The Military Maritime Consultative Agreement (MMCA) dialogues are held to exchange views on maritime domain safety. Chinese ships recently completed a port visit berthing in Pearl Harbor last November. Sixty-three PLA soldiers participated in Humanitarian Assistance training at a Hawaiian training area. Next year, the Chinese are scheduled to reciprocate and will host a similar number of U.S. soldiers. The Chinese participation in the Cobra Gold exercise, as well as their upcoming participation in the world's largest naval exercise, RIMPAC, illustrates a growing effort to include China in large multilateral activities to increase awareness and cooperation. All of the activities were scoped to ensure they fall within Congressional guidance regarding U.S. and China military-to-military interaction.

... Cooperative Security Locations (CSLs) are important to our ability to respond agilely in the Indo-Asia-Pacific. CSLs are enduring locations characterized by the periodic (non-permanent) presence of rotational U.S. forces. Although many of these locations, like Thong Prong Pier in Thailand, provide important strategic access, we lack the authorities to make low cost improvements. Increased funding to enable low cost improvements would enhance our security cooperation effectiveness with key allies and partners in the region. To address this gap, we are requesting a new \$30M 'Security Cooperation Authority', managed by the Joint Staff under the MILCON appropriation. The new authority will provide us the flexibility to rapidly fund CSL development in support of DOD priorities in theater.

USPACOM posture is also dependent on the need to build stronger Security Cooperation capacities with our partners.

Engagement resources like Foreign Military Financing (FMF) and International Military Education and Training (IMET) are also powerful engagement resource tools. FMF and IMET are critical to demonstrating U.S. commitment to priority regional security concerns such as maritime security and disaster relief; enabling troop contributing countries to participate in peacekeeping and coalition operations; and providing professionalization opportunities in support of deeper partnerships with the United States and U.S. interests, including strengthening democratic values and human rights.

Two other tools that help build capacity are the Global Security Contingency Fund (GSCF) and the Excess Defense Articles (EDA) program. GSCF is a broad-based pilot program (ending in 2015) that allows improved interagency security cooperation. I highly encourage you to continue this authority beyond 2015, especially considering the benefits from the \$40 million GSCF allocation largely applied to the Philippines' law enforcement and maritime security capabilities, including the establishment of the Interagency Maritime Technical Training Center. The EDA program also allows us to build vital capabilities, but current statute limits transfer of certain ships to partner nations.

Equally important is continued Congressional support of the Combatant Commander Exercise Engagement Training Transformation Program. These resources enable funding for joint exercises and engagement that sustain force readiness, strengthen alliances, expand partner networks, and prepare for a full range of military operations. The Asia-Pacific Center for Security Studies (APCSS) remains a uniquely effective executive outreach tool to convey our strategic interests to multi-national audiences and needs our continued support. Expansion of the DoD's State Partnership Program (SPP) run by the National Guard Bureau has begun in the Indo-Asia-Pacific. Recent collaborative efforts to fully integrate SPP into our Security Cooperation programs have led to the successful introduction of five Bilateral Affairs Officers and the establishment of DoD's newest partnership (Nevada – Tonga). We now have 8 of 66 SPP programs worldwide (Mongolia, Philippines, Indonesia, Vietnam, Cambodia, Bangladesh, Thailand, and Tonga).

In order to meet theater objectives and opportunities in 11 additionally identified Asia-Pacific nations, we continue to establish new partnerships in the region. To sustain our current technological superiority, we

must rapidly develop affordable and innovative capabilities that force our potential adversaries to respond with more costly solutions--costly in terms of money, time and resources. Our ability to successfully develop innovative capabilities will ensure we continue to be the world's most dominant and lethal fighting force. In order to meet this challenge, innovative approaches through affordable / high payoff science and technology programs as well as through innovation and experimentation must be accelerated.

Specifically, the unique challenges in terms of distance and threat require we maintain our technological advantages in to the Philippines' law enforcement and maritime security capabilities, including the establishment of the Interagency Maritime Technical Training Center. The EDA program also allows us to build vital capabilities, but current statute limits transfer of certain ships to partner nations. Equally important is continued Congressional support of the Combatant Commander Exercise Engagement Training Transformation Program. These resources enable funding for joint exercises and engagement that sustain force readiness, strengthen alliances, expand partner networks, and prepare for a full range of military operations. The Asia-Pacific Center for Security Studies (APCSS) remains a uniquely effective executive outreach tool to convey our strategic interests to multi-national audiences and needs our continued support.

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The Broader Pacific Framework: The 2014 Shangri-La Dialogue:

These examples demonstrate the Obama Administration's goal of exercising American leadership through regional partnerships and non-military means when possible in order to maintain the stability of the global commons and secure U.S. interests. In Asia, this has been a difficult process given the recent elevation in tensions due to many territorial disputes between China and its neighbors and their concern with China's expanding military and political influence throughout the region.

These broader tensions between China, the US, and other Pacific powers were clearly on display at the 2014 Shangri-la Dialogue as China, with a very full and vocal delegation consisting of 12 PLA officers along with a multitude of civilian officials, voiced its opposition to what it perceived as a coordinated effort by the United States, Japan, and ASEAN to block Chinese influence and interests.

In response to the keynote address delivered by Prime Minister Abe, Lieutenant General Wang Guanzhong of China angrily stated, "When Mr. Abe spoke just now, there was veiled criticism targeted at China...these accusations are wrong and go against the standards of international relations."²⁶ Without criticizing China directly, Prime Minister Abe brought up all of the most contentious issues that Japan and many other nations in the region have with China, as well as making the case for Japan to take a more prominent role militarily to unwritten regional stability and security:

"If we take the fundamental spirit that we have infused into international law over the ages and reformulate it into three principles, we find the rule of law at sea is actually a matter of common sense. The first principle is that states shall make their claims based on international law. The second is that states shall not use force or coercion in trying to drive their claims. The third principle is that states shall seek to settle disputes by peaceful means. So to reiterate this, it means making claims that are faithful in light of international law, not resorting to force or coercion, and resolving all disputes through peaceful means.

So that is all about common sense, the foundation of human society. And yet these very natural things must be emphasized. I urge all of us who live in Asia and the Pacific to each individually uphold these three principles exhaustively.

Take a look at Indonesia and the Philippines. They have peacefully reached agreement of late on the delimitation of their overlapping EEZs. I welcome this as an excellent case in point that truly embodies the rule of law. My government strongly supports the efforts by the Philippines calling for a resolution to the dispute in the South China Sea that is truly consistent with these three principles. We likewise support Vietnam in its efforts to resolve issues through dialogue. Movement to consolidate changes to the status quo by aggregating one fait accompli after another can only be strongly condemned as something that contravenes the spirit of these three principles.

Would you not agree that now is the time to make a firm pledge to return to the spirit and the provisions of the 2002 Declaration on the Conduct of Parties in the South China Sea that all concerned countries in the Sea agreed to, and not to undertake unilateral actions associated with a permanent physical change? The time to devote our wisdom to restoring peaceful seas is now.

What the world eagerly awaits is for our seas and our skies to be places governed by rules, laws, and established dispute-resolution procedures. The least desirable state of affairs is having to fear that coercion and threats will take the place of rules and laws and that unexpected situations will arise at arbitrary times and places. I strongly hope that a truly effective Code of Conduct can be established in the South China Sea between ASEAN and China and that it can be achieved swiftly. Japan and China have an agreement concluded in 2007 between then-premier Wen Jiabao and myself, when I was serving as prime minister. That was a commitment we made to create a maritime and air communication mechanism in order to prevent unexpected situations between Japan and China. Unfortunately, this has not led to the actual operation of such a mechanism. We do not welcome dangerous encounters by fighter aircraft and vessels at sea. What we must exchange are words. Should we not meet at the table, first exchanging smiles as we sit down to have discussion? It is my firm belief that commencing the operation of this agreement between our two countries will lead to peace and stability of the region as a whole.

Be that as it may, in my view, the time has come to place emphasis on ASEAN. The ARF is a meeting held at the foreign-minister level, while the ADMM-Plus is a meeting at the defense-minister level. There is no stage that outshines the East Asia Summit as a venue for heads of state and government to come together and discuss the order that is desirable. Keeping military expansion in check and making military budgets transparent, as well as enlarging the number of countries that conclude the Arms Trade Treaty and improving mutual understanding between authorities in charge of national defense – there is no lack of issues those of us national leaders ought to take up, applying peer pressure on each other.

I urge the further enhancement of the East Asia Summit, as the premier forum taking up regional politics and security. Next year marks the tenth anniversary of the launch of the EAS. I propose that we first create a permanent committee comprised of permanent representatives to ASEAN from the member countries and then prepare a road map to bring renewed vitality to the Summit itself, while also making the Summit along with the ARF and the ADMM-Plus function in a multilayered fashion. The first thing we should discuss is the principle of disclosure. We have all heard the saying that ‘sunshine is the best disinfectant’. From now, Asia will continue to play the leading role in pulling the prosperity of the world forward. Military expansion is inherently unworthy of such a place as this. The fruits of prosperity should instead be reinvested into even greater prosperity and improving people’s lives. I believe that a framework under which we publicly disclose our military budgets step by step, that enables us to cross-check each other is, a system that we should seek to establish as we extend the scope of the East Asia Summit.

Japan will offer its utmost support for efforts by ASEAN member countries to ensure the security of the seas and skies and rigorously maintain freedom of navigation and overflight. Then what will Japan actually support, and how? That is what I will talk about next. We have decided to provide ten new patrol vessels to the Philippine Coast Guard. We have already provided three brand new patrol vessels to Indonesia through grant-aid cooperation. And we are moving forward with the necessary survey to enable us to provide such vessels to Vietnam as well. And it is true that Japan provides practical support across the board, so when hard assets are sent out from Japan, experts also follow, together with instruction in the relevant technical skills. By doing so, the bonds between the people invariably become stronger. We also convey to the

partners our sense of pride in committing ourselves to our duties. By cultivating a high degree of morale and proficiency and sharing our stringent training, buds of lasting friendship emerge.

Even if we look only at the three countries of the Philippines, Indonesia, and Malaysia, the number of people easily surpasses 250 who have learned from Japan about how coast guard operations should be conducted. In 2012, when we invited to Japan higher-ranking officials within the agencies enforcing maritime law in each of the five major ASEAN countries, all throughout the month-long training period, three members of the Japan Coast Guard were assigned to each person receiving training, with all of them living, eating, and sleeping together under the same roof. I understand that one participant from Malaysia said, 'In Japan, the technical aspects of course, but also the high level of morale of each individual is superb. What I wish to take back home with me is this spirit.' I feel that this trainee really understood what we were actually trying to convey.

Here in Singapore representatives of member nations of ReCAAP, which was created eight years ago, are on high alert 24 hours a day spotting piracy. Heading the ReCAAP Information Centre at present is a Japanese.

Recently, Japan has formulated new principles governing the cases in which defense equipment can be transferred to other countries. We are now able to send out Japan's superb defense equipment, such as for rescue, transportation, vigilance, surveillance, and minesweeping, in cases in which appropriate control can be ensured, on the basis of a strict examination. Japan and the recipient country are first to forge a written agreement, and then to move the whole process forward, bearing in mind that each is strictly examined and aptitude is checked by supervision.

Japan will combine various options within its assistance menu, including ODA, capacity-building by the Self-defense Forces, and defense-equipment cooperation, to support seamlessly the capacity of ASEAN countries in safeguarding the seas. I have stated all that as a pledge to you.

I will now talk about my final topic for today, and that is about the new banner Japan has chosen to raise. We are in an era in which it is no longer possible for any one nation to secure its own peace only by itself. This is a view shared throughout the world. That is exactly why it is incumbent upon us in Japan to reconstruct the legal basis pertinent to the right of collective self-defense and to international cooperation, including the United Nations peacekeeping operations.

On my watch, discussion is under way in Japan. Japan's Self Defense Forces are at this very moment working hard to foster peace in South Sudan, only recently independent, under the flag of the United Nations mission there. Units from such countries as Cambodia, Mongolia, Bangladesh, India, Nepal, the Republic of Korea, and China are participating in this same mission. There are also a great many civilian UN staffers as well as members of NGOs from various countries. They are all partners with us in the sense that they are all assisting in South Sudan's nation building. Imagine now that civilians or NGO workers there, powerless to defend themselves, came under sudden attack by armed elements. Under the approach that the Japanese government has taken to date, Japan's Self Defense Forces are unable to go rescue these civilians enduring the attack. Is this an appropriate response into the future? My government is thinking hard about it, and a close consultation is under way within the ruling coalition parties. It is precisely because Japan is a country that depends a great deal on the peace and stability of the international community that Japan wishes to work even more proactively for world peace, and wishes to raise the banner of 'Proactive Contributor to Peace'.²⁷

U.S. Defense Secretary Chuck Hagel focused his speech at the 2014 Dialogue on the strategy behind the U.S. "rebalance" to Asia – making a somewhat uncertain and undefined claim that that it was no longer a goal of the administration, but a reality and citing new partnerships and bilateral agreements within the Asia-Pacific rather than tangible shifts in US forces:

Today, I return on my fifth trip to the region as Secretary of Defense in about a year, again reaffirming that America's commitment to the Asia-Pacific is enduring.

In his remarks at West Point earlier this week, President Obama laid out the next phase of America's foreign policy – particularly as we come out of 13 years of war in Iraq and Afghanistan. He made clear we will balance our diplomacy, our development assistance, and military capabilities, and that we will strengthen our global partnerships and alliances.

That is how America is implementing its strategy of rebalancing to the Asia-Pacific.

The rebalance is not a goal, not a promise, or a vision – it's a reality. Over the last year, President Obama launched comprehensive partnerships with Vietnam and Malaysia, held a summit with Chinese President Xi, and last month visited three of our five regional treaty allies – Japan, South Korea, and the Philippines – as well as Malaysia. In the Philippines, he and President Aquino announced a new Enhanced Defense Cooperation Agreement on the rotational presence of U.S. forces – the most significant milestone for our alliance in over a decade.

Under President Obama's leadership, the administration is also making progress in negotiating the Trans-Pacific Partnership trade agreement. Our State Department is increasing foreign assistance funding to the Asia-Pacific region and expanding assistance for maritime capacity-building in Southeast Asia.

Diplomatic, economic, and development initiatives are central to the rebalance, and to our commitment to help build and ensure a stable and prosperous region. But prosperity is inseparable from security, and the Department of Defense will continue to play a critical role in the rebalance – even as we navigate a challenging fiscal landscape at home.

A central premise of America's strategy in the Asia-Pacific is our recognition that, in the 21st century, no region holds more potential for growth, development, and prosperity than this one.

But even while advances in human rights, freedom, democracy, technology, and education are all yielding better lives and futures for all people; and even as more nations are stepping forward to contribute to regional security, the Asia-Pacific is also confronting serious threats.

We see ongoing territorial and maritime disputes in the South and East China Seas; North Korea's provocative behavior and its nuclear weapons and missile programs; the long-term challenge of climate change and natural disasters; and the destructive and destabilizing power of cyberattacks.

Continued progress throughout the Asia-Pacific is achievable, but hardly inevitable. The security and prosperity we have enjoyed for decades cannot be assured unless all nations – all our nations – have the wisdom, the vision, and will to work together to address these challenges.

As President Obama said earlier this week, "America must always lead on the world stage. If we don't, no one else will." He went on to say that, the "question is not whether America will lead, but how we will lead...to help ensure peace and prosperity around the globe." Today, I want to highlight four broad security priorities that the United States, as a Pacific power, is advancing in partnership with friends and allies throughout the Asia-Pacific:

- First, encouraging the peaceful resolution of disputes; upholding principles including the freedom of navigation; and standing firm against coercion, intimidation, and aggression;
- Second, building a cooperative regional architecture based on international rules and norms;
- Third, enhancing the capabilities of our allies and partners to provide security for themselves and the region; and,
- Fourth, strengthening our own regional defense capabilities.

One of the most critical tests facing the region is whether nations will choose to resolve disputes through diplomacy and well-established international rules and norms...or through intimidation and coercion. Nowhere is this more evident than in the South China Sea, the beating heart of the Asia-Pacific and a crossroads for the global economy.

China has called the South China Sea "a sea of peace, friendship, and cooperation." And that's what it should be.

But in recent months, China has undertaken destabilizing, unilateral actions asserting its claims in the South China Sea. It has restricted access to Scarborough Reef, put pressure on the long-standing Philippine presence at the Second Thomas Shoal, begun land reclamation activities at multiple locations, and moved an oil rig into disputed waters near the Paracel Islands.

The United States has been clear and consistent. We take no position on competing territorial claims. But we firmly oppose any nation's use of intimidation, coercion, or the threat of force to assert those claims.

We also oppose any effort – by any nation – to restrict overflight or freedom of navigation – whether from military or civilian vessels, from countries big or small. The United States will not look the other way when fundamental principles of the international order are being challenged.

We will uphold those principles. We made clear last November that the U.S. military would not abide by China's unilateral declaration of an Air Defense Identification Zone in the East China Sea, including over the Japanese-administered Senkaku Islands. And as President Obama clearly stated in Japan last month, the Senkaku Islands are under the mutual defense treaty with Japan.

All nations of the region, including China, have a choice: to unite, and recommit to a stable regional order, or to walk away from that commitment and risk the peace and security that have benefitted millions of people throughout the Asia-Pacific, and billions around the world.

The United States will support efforts by any nation to lower tensions and peacefully resolve disputes in accordance with international law.

We all know that cooperation is possible. Last month, 21 nations signed the Code for Unplanned Encounters at Sea – an important naval safety protocol. ASEAN and China are negotiating a Code of Conduct for the South China Sea – and the United States encourages its early conclusion. Nations of the region have also agreed to joint energy exploration; this month, the Philippines and Indonesia resolved a longstanding maritime boundary dispute; and this week, Taiwan and the Philippines agreed to sign a new fisheries agreement.

China, too, has agreed to third-party dispute resolution in the World Trade Organization; peacefully resolved a maritime boundary dispute with Vietnam in 2000; and signed ASEAN's Treaty of Amity and Cooperation.

For all our nations, the choices are clear, and the stakes are high. These stakes are not just about the sovereignty of rocky shoals and island reefs, or even the natural resources that surround them and lie beneath them. They are about sustaining the Asia-Pacific's rules-based order, which has enabled the people of this region to strengthen their security, allowing for progress and prosperity. That is the order the United States – working with our partners and allies – that is the order that has helped underwrite since the end of World War II. And it is the order we will continue to support – around the world, and here in the Asia-Pacific.

This rules-based order requires a strong, cooperative regional security architecture.

Over the last year, the United States has worked with Asia-Pacific nations to strengthen regional institutions like ASEAN and the ADMM+, which I attended last year in Brunei.

This regional architecture is helping to develop shared solutions to shared challenges, building strong and enduring ASEAN security community, and ensuring that collective, multilateral operations are the norm, rather than the exception.

To make further progress, our militaries must train, plan, and operate side-by-side – as we did after Typhoon Haiyan, and in the search for Malaysian Airlines Flight 370.

Both these tragedies – different as they were – showed that all nations of the region can work together to provide rapid humanitarian assistance and disaster relief. They also demonstrated that the need for facilities and agreements that are ready and in-place when disaster strikes, so that relief can flow as soon as it is needed. For these missions, ASEAN members should consider Singapore's offer to use Changi Naval Base as another regional command and control hub. Some 80% of the world's large-scale natural disasters strike in the Pacific, and with climate change threatening even more severe weather, closer cooperation cannot wait.

This was one of the topics discussed at the recent U.S.-ASEAN Defense Forum I hosted a couple of months ago in Hawaii – an initiative that I suggested on this platform at this Dialogue last year.

Over the course of that three-day forum, my discussions with ASEAN defense ministers highlighted a clear and shared interest in building a common understanding of the regional security environment, including more information-sharing, greater maritime cooperation, and more joint and combined exercises.

A common picture of the region's maritime space could help deter provocative conduct, and reduce the risk of accidents and miscalculation. So I am asking Admiral Sam Locklear, who leads the United States Pacific

Command, to host his regional counterparts to discuss concrete ways to establish greater maritime security awareness and coordination.

The United States is also reaching out to China. We're reaching out to China because we seek to expand prosperity and security for all nations of this region.

As I underscored in Beijing last month during my visit to China, the United States will continue to advance President Obama and President Xi's shared commitment to develop a new model of relations – a model that builds cooperation, manages competition, and avoids rivalry. To help develop this model, we are increasing our military-to-military engagement with China through our joint exercises, exchanges, and other confidence-building measures that can help improve communication and build understanding between our forces. Chairman of the Joint Chiefs General Dempsey and I have led this effort, and we will continue to focus on building this new military-to-military model. And I am glad General Dempsey is here to help us today accomplish more progress in this area.

We must also work more closely together to guard against North Korea's destabilizing provocations, and its nuclear and ballistic missile programs, which threaten regional stability and China's own interests. The United States is looking to China to play a more active and constructive role in meeting this challenge and achieving complete, verifiable, and irreversible denuclearization of the Korean Peninsula.

The U.S.-China military-to-military dialogue has a long way to go. But I think we've been encouraged by the progress we've made, and continue to make. Our dialogue is becoming more direct, more constructive...getting at the real issues and delivering more results.

As we expand this dialogue, the United States also supports a sustained and substantive exchange with China on cyber issues. Although China has announced a suspension of the U.S.-China Cyber Working Group, we will continue to raise cyber issues with our Chinese counterparts, because dialogue is essential for reducing the risk of miscalculation and escalation in cyberspace.

As America strengthens its ties across the Asia-Pacific, we also welcome the region's democratic development. We welcome democratic development because democracies are America's closest friends, and because democracies are much more likely to live with their neighbors in peace.

The United States will continue to strongly support our friends who are pursuing democratic development – in Myanmar and elsewhere around the region. We will also respond when nations retreat from democracy, as in Thailand. We urge the Royal Thai Armed Forces to release those who have been detained, end restrictions on free expression, and move immediately to restore power to the people of Thailand, through free and fair elections. Until that happens, as U.S. law requires, the Department of Defense is suspending and reconsidering U.S. military assistance and engagements with Bangkok.

The Asia-Pacific's shifting security landscape makes America's partnerships and alliances indispensable as anchors for regional stability. As we work to build a cooperative regional architecture, we are also modernizing our alliances, helping allies and partners develop new and advanced capabilities, and encouraging them to work more closely together.

In Southeast Asia, that means continuing to help nations build their humanitarian and disaster relief capabilities, and upgrade their militaries. One important example is our first-ever sale of Apache helicopters to Indonesia, which I announced during my visit to Jakarta last year. This sale will help the Indonesian Army defend its borders, conduct counter-piracy operations, and control the free flow of shipping through the Straits of Malacca. We are also providing robust assistance to the Philippines' armed forces, to strengthen their maritime and aviation capabilities.

In Northeast Asia, our capacity-building efforts include strengthening Allies' capabilities with sophisticated aircraft and ballistic missile defense – especially to deter and defend against provocation by Pyongyang.

Two months ago, we signed an agreement with the Republic of Korea. We signed that agreement for its purchase of Global Hawk, which will dramatically enhance its intelligence, surveillance, and reconnaissance capabilities. South Korea also intends to acquire the F-35 Joint Strike Fighter – which means that America and its most capable allies in this region, including Australia and Japan, will soon be operating the world's most advanced, fifth-generation tactical aircraft.

We are also making significant progress in building a robust regional missile defense system. Last month in Tokyo, I announced that the United States will deploy two additional ballistic missile defense ships to Japan – a step that builds on the construction of a second missile defense radar site in Japan, and the expansion of America’s ground-based interceptors in the continental United States, which I reviewed this week in Alaska during my trip to Singapore.

Modernizing our alliances also means strengthening the ties between America’s allies, enhancing their joint capabilities – such as missile defense – and encouraging them to become security providers themselves. Yesterday, I held a trilateral meeting with my counterparts from Australia and Japan, and today I will host another trilateral meeting with my counterparts from Korea and Japan.

The enhanced cooperation America is pursuing with these close allies comes at a time when each of them is choosing to expand their roles in providing security around the Asia-Pacific region, including in Southeast Asia. Seven decades after World War II, the United States welcomes this development. We support South Korea’s more active participation in maritime security, peacekeeping, and stabilization operations. We also support Japan’s new efforts – as Prime Minister Abe described very well last night – to reorient its Collective Self Defense posture toward actively helping build a peaceful and resilient regional order.

To complement these efforts, the United States and Japan have begun revising our defense guidelines for our first time in more than two decades. We will ensure that our alliance evolves to reflect the shifting security environment, and the growing capabilities of Japan’s Self-Defense Forces.

America’s global partnerships also reach across the Asian continent and extend to India, one of the United States’ most important, democratic partners – and a country with historic influence across Asia.

The United States looks forward to working with India’s new government led by Prime Minister Modi. We welcome India’s increasingly active role in Asia’s regional institutions, which strengthens regional order. We also welcome India’s growing defense capabilities and its commitment to freedom of navigation in the Indian Ocean. To further strengthen U.S.-India defense ties, I am directing the Pentagon’s Undersecretary for Acquisition, Technology, and Logistics to lead the U.S.-India Defense Trade and Technology Initiative with India’s new government. I plan to play an active and very personal role in expanding this initiative because it is a centerpiece of America’s defense cooperation with India, and it should reflect the trust and confidence President Obama and I have in our nation’s relationship with India. To reinforce this effort – and to drive even more transformational cooperation – I hope to visit India later this year.

The United States also remains committed to building the capacity of allies and partners in the region through as many as 130 exercises and engagements, and approximately 700 port visits annually. And across the Asia-Pacific region, as part of the rebalance, the United States is planning to increase Foreign Military Financing by 35%, and military education and training by 40% by 2016.

Next month, the United States will host its annual Rim of the Pacific exercise, the world’s largest maritime exercise that will feature for the first time a port visit by a New Zealand naval ship to Pearl Harbor in more than 30 years, and it will include Chinese ships for the first time. All told, RIMPAC will include some 23 nations, 49 surface ships, 6 submarines, more than 200 aircraft, 25,000 personnel, and even, I understand, a few highly trained sea lions.

Beyond capacity-building efforts, a stable and peaceful regional order depends on a strong American military presence across the Asia-Pacific region... a presence that enables us to partner with our friends and allies, and help deter aggression. We are no strangers to this part of the world. America has been a Pacific power for many years. Our interests lie in these partnerships and this region.

Today, America has more peacetime military engagement in the Asia-Pacific than ever before. I want to repeat: today, America has more peacetime military engagement in the Asia-Pacific than ever before. And America’s strong military presence – and our role in underwriting the region’s security – will endure. Our friends and allies can judge us on nearly seven decades of commitment and history of commitment. That history makes clear, America keeps its word.

America’s treaty alliances remain the backbone of our presence in the Asia-Pacific, and our friends and allies have seen our significant steps in recent years to enhance our posture in Northeast Asia, to expand our partnerships in Southeast Asia, and to ensure our forces can operate effectively regardless of other nations’ capabilities.

Consider that just three years ago, the strength of our alliance with Japan was being overshadowed by disagreements over the future of the U.S. presence in Okinawa.

Today, we have a fully agreed force realignment roadmap, and we achieved a major breakthrough last December with the approval of the permit to build the Futenma Replacement Facility. We have also deployed our most advanced capabilities to Japan – including two Global Hawks at Misawa, F-22 fighter aircraft at Kadena, and MV-22 Ospreys on Okinawa.

Meanwhile, we are enhancing our posture on the Korean Peninsula and sustaining the readiness of our forces. To reflect a dynamic security environment, including the evolving North Korean nuclear and missile threat, the U.S. and South Korea decided we can reconsider the current timeline for the transition of wartime operational control to a Seoul-led defense in 2015. We have enhanced the U.S. Army's force posture and deployed even more advanced intelligence, surveillance, and reconnaissance capabilities. And we recently reached a new Special Measures Agreement that codifies our shared resource commitment to defending the peninsula.

Further south, we have strengthened our partnership and alliance with Australia. Three years ago, we had no forces operating in Australia. Today, we have more than 1,000 Marines rotationally deployed in Darwin. With Australian troops, these Marines will conduct training and exercises throughout the region.

In the coming years, the United States will increase its advanced capabilities that are forward-stationed and forward-deployed in the entire region, particularly as we draw down our forces in Afghanistan. And we will ensure that we sustain our freedom of action in the face of disruptive new military technologies.

Next year, the Navy will introduce the Joint High Speed Vessel in the Pacific and an additional submarine forward-stationed in Guam. As many as four Littoral Combat Ships will be deployed here by 2017. By 2018, the Navy's advanced, multi-mission *Zumwalt*-class destroyer will begin operating out of the Pacific. And by 2020, as we achieve our target of operating 60% of both our Navy and Air Force fleets out of the Pacific, we will also be flying the Hawkeye early warning and unmanned Triton ISR aircraft in the region.

Because U.S. force posture in Asia is a priority for DoD, I am directing our Deputy Secretary of Defense to oversee the implementation of our ongoing enhancements to America's military presence in this region, and with particular emphasis on our posture in Japan, Korea, and Guam. The Deputy Secretary will also continuously review the posture of our forces, to ensure they remain prepared for all necessary contingencies.

Finally, to ensure that the rebalance is fully implemented, both President Obama and I remain committed to ensuring that any reductions in U.S. defense spending do not come – do not come – at the expense of America's commitments in the Asia-Pacific.

Here, and around the world, a peaceful, prosperous, and durable order will not sustain itself. The nations of the Asia-Pacific must come together to accomplish this.

We must support the peaceful resolution of disputes...and oppose intimidation and coercion no matter where they are.

We must build a cooperative regional security architecture that builds trust and confidence. And we must continue to develop, share, and maintain advanced military capabilities that can adapt to rapidly growing challenges. From Europe to Asia, America has led this effort for nearly seven decades, and we are committed to maintaining our leadership in the 21st century.

Later this morning, I will meet with Vietnamese General Thanh. General Thanh joined the Vietnamese army in 1967, the same year I joined the United States Army and arrived in Vietnam. Today, General Thanh and I will meet as America's Secretary of Defense and Vietnam's Minister of Defense...working to strengthen our nations' emerging defense ties. History is full of irony, which is why America must lead and will continue to lead with humility.

But America must lead, and our leadership must always reflect an enduring truth: As United States Secretary of State, Secretary of Defense, and General George Marshall once said, "the strength of a nation does not depend alone on its armies, ships, and planes...[but] is also measured by...the strength of its friends and [its] allies." Very wise words from General Marshall. Those words ring more true today than ever before.

Today, perhaps more than ever, one of America's greatest sources of strength is its network of partners and allies. As President Obama put it at his West Point speech, from Europe to Asia, America is "the hub of alliances unrivalled in ... history of nations."

Across this region, and across the globe, the United States has been – and always will be – committed to a peaceful and prosperous international order that rests not merely on America's own might, but on our enduring unity and partnership with other nations. Thank you.²⁸

As the analysis that follows shows, however, such formal statements disguise a much broader Asian reaction to the modernization of Chinese military forces and China's expanding strategic claims in the Pacific. The most striking such change was Japan's decision to sharply modify the limits on its use of military force. Prime Minister Shinzo Abe's Cabinet on July 1 approved changes to Japan's postwar security policy that could lead to the Self-Defense Forces' use of military force in overseas battles. On July 1, 2014, Prime Minister Abe's Cabinet approved a document that revised the government's interpretation of war-renouncing Article 9 of the Constitution to allow Japan to exercise the right to collective self-defense.

The document stated that Japan could now use military force "a means of self-defense," and to decide to dispatch the Japanese Self Defense Forces to participate in on collective security operations sanctioned by the U.N. Security Council for military action against an invading nation. Abe stated that, "The (SDF) will only be allowed to use force for a minimum required level of self-defense. The basic way of thinking we have had about the interpretation of the Constitution is unchanged...the risk that Japan will be involved in a war will be reduced further with (today's) Cabinet approval."

The fact remained, however, that the Cabinet's decision was broadly understood to be a reaction to China's growing military role and claims in the Pacific. The US Department of Defense, issued a statement later the same day stating that, "Secretary of Defense Chuck Hagel welcome the Government of Japan's new policy regarding collective self-defense, which will enable the Japan Self-Defense Forces to engage in a wider range of operations and make the U.S.-Japan alliance even more effective." Other states like Australia, South Korea, the Philippines, Vietnam, Indonesia, and India had sent less overt messages, but had already joined Japan in reshaping their military plans and modernization in response to China. In contrast, a Chinese Foreign Ministry spokesman -- Hong Lei -- issued a response stating that Beijing opposed Japan's action in "deliberately fabricating a China threat so as to serve a domestic political purpose."²⁹

Conflicting Needs in Europe and the Middle East

There are two other major wild cards in any effort to assess the impact of US strategy and force shifts on China. US official documents and speeches regarding Asia do not reflect two critical changes in the global environment that shapes US strategy.

The first set of changes affects Europe and NATO. The second affects the Middle East and the Gulf. Russian actions in the Ukraine since the spring of 2014 are forcing the US to rethink its future force posture in Europe and NATO, but no clear plans relating to such changes have yet been made public and much depends on future Russian actions in the Ukraine and the rest of Europe.

The second set of changes has emerged pout the rise of the Islamic State in Iraq and Syria, and the steadily growing threat posed by violent Islamic extremism both in terms of terrorism and the stability of the MENA region and security of its energy exports. US hopes to withdraw from

Afghanistan and end any military involvement in the Middle East now seem likely to be replaced with some form of lasting military involvement in the Gulf, and a terrorist and extremist threat that ranges from the Philippines to Morocco and involves US forces in at least low level combat in Iraq.

The cuts in FY2015 and future US defense budgets have not reached the low levels called for in the Budget Control Act and “Sequestration, but US military spending remains limited and these two competing strategic priorities mean that any US rebalancing and shift to the Asia-Pacific will have to rely on a smaller, more flexible forces that lever the latest technology in place of larger forces. They also mean that working with, and through partner forces within the region will be an even more critical component of US policy and one that requires increased interoperability between forces, and thus, more joint force exercises between the US and its allies.

The key question for both the US and China is how this mix of different pressures on the US and China will affect both competition and cooperation. It is also the extent to which the US will see China’s actions as the kind of competition that any major emerging power presents as its wealth and influence increase, and China can see US actions as the almost inevitable response of a major global power, rather than efforts to deny China’s emergence as the key military power in Asia. Both powers have reason to cooperate as well as compete, but much of the analysis that follows shows that China fears US efforts to “contain” it -- a sentiment expressed by Chinese Ministry of Defense Chang in a recent dialogue with Secretary Hagel.³⁰

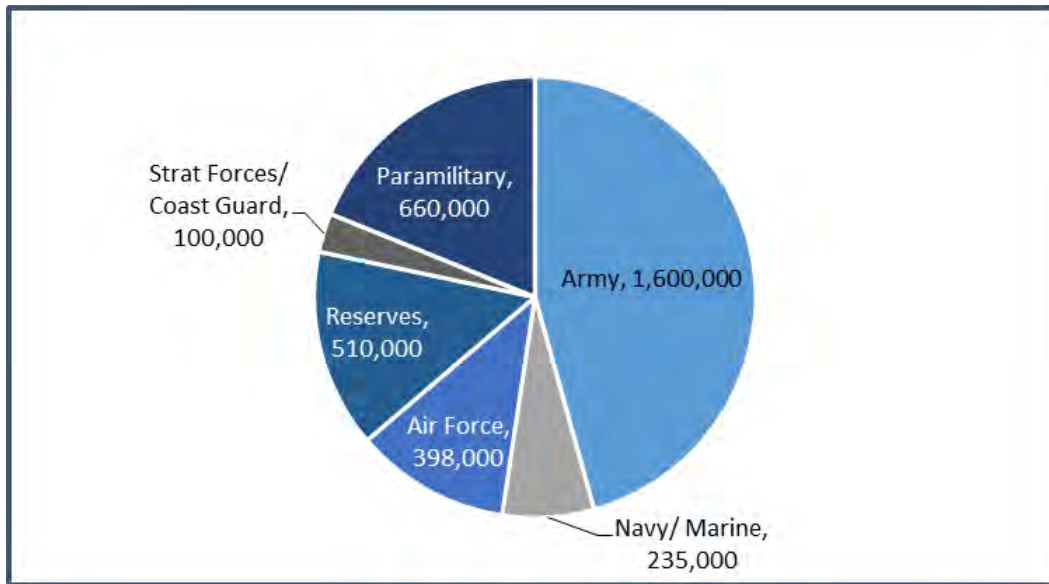
CHAPTER 1: ASSESSING CHINA'S ARMED FORCES

These strategic views and debates all respond to China's growing emergence as a major global power. For more than two decades the Chinese military has engaged in a military modernization and force development program. These efforts have produced the force structure summarized in **Figure 1.1**, and as the previous introduction has shown, there are many different explanations for this modernization effort, with analysts from many countries providing explanations based on differing assumptions, theories, and available data. The previous focus on US views must be carefully contrasted with Chinese statements and views, as must the view of key Asian powers.

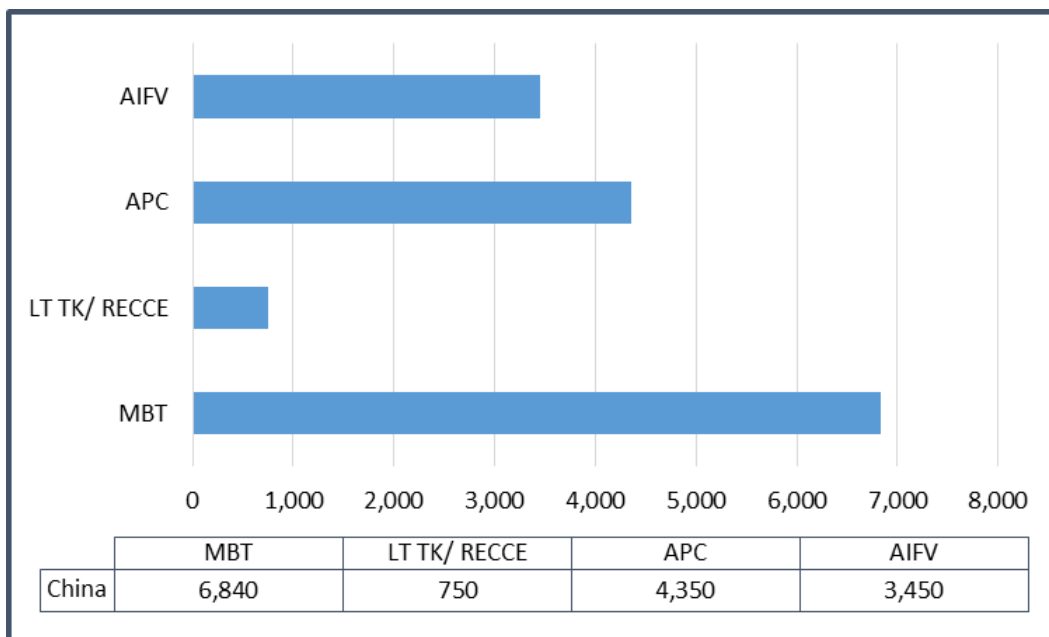
Like the US and other powers, China has a wide range of strategic expertise, and no one voice or document can be regarded as authoritative. At the 18th National Congress of the Communist Party of China in November 2012, China's leaders stated that the country was undergoing a period of strategic opportunity through 2020, and they publically focused on domestic development in the context of a relatively peaceful international order.

In general, however, it seemed as if China's new leader, Xi Jinping, was concentrating more on great power diplomacy than his predecessor, Hu Jintao but that China was also concentrating on both civil and military development.³¹ Xi Jinping quickly began establishing himself as a strong military leader, going on high-profile visits to Navy, Air Force, Army, and Missile Command facilities during his first 100 days in office. He has also launched a campaign to enhance the armed forces' ability to "fight and win wars," while taking direct control of an interagency body that has overseen the escalation over islands claimed by both Japan and China.³²

Perhaps the best Chinese summary of Chinese views is presented by its national defense white papers, issued biennially by the Information Office of the State Council of the People's Republic of China.

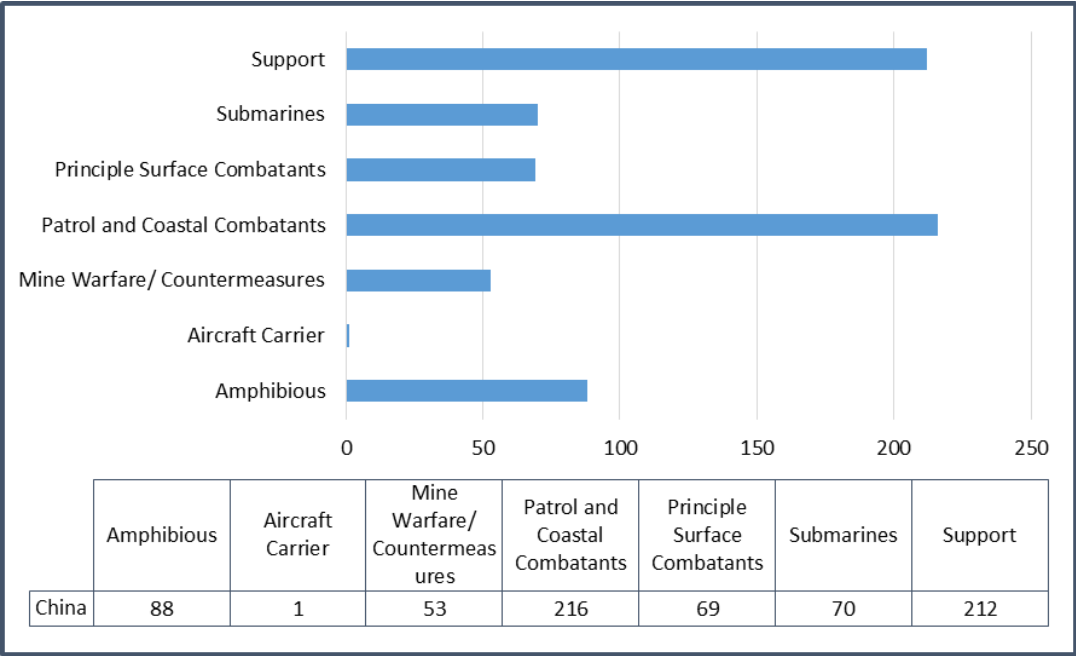
Figure 1.1: People's Liberation Army: Total Personnel

Source: IISS, *Military Balance 2014*, p. 230-39, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

Figure 1.2: Selected PLA Army Equipment Holdings

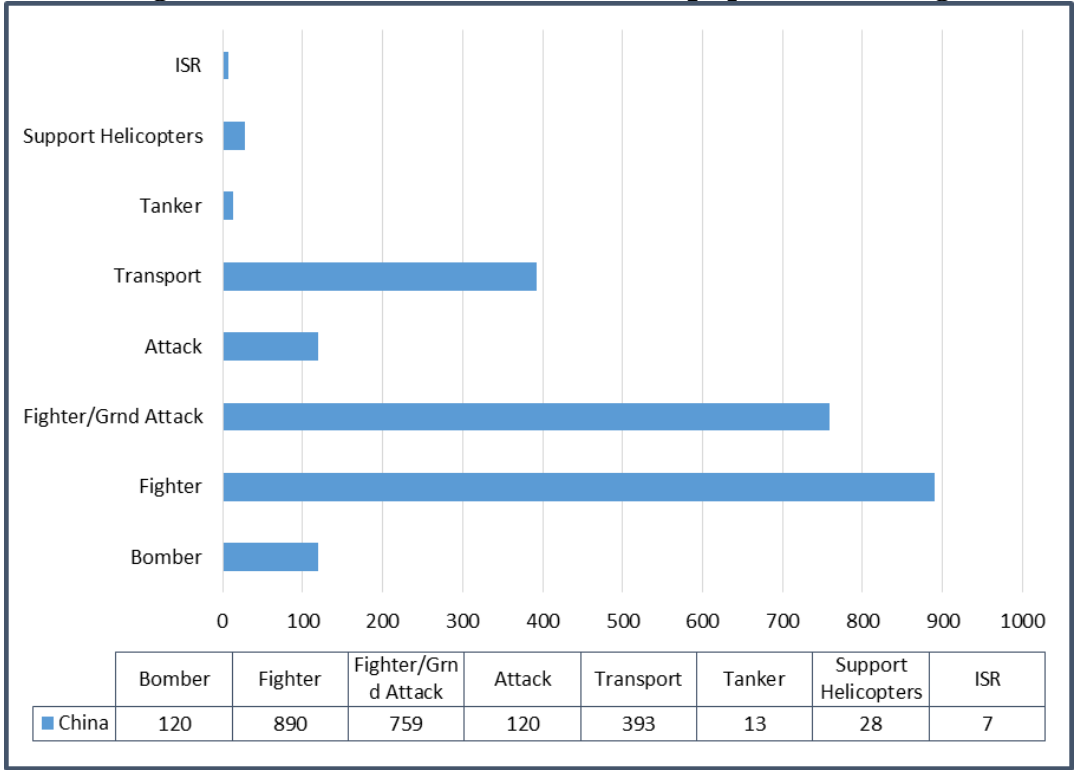
Source: IISS, *Military Balance 2014*, p. 230-39, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

Figure 1.3: Selected PLA Navy Equipment Holdings



Source: IISS, *Military Balance 2014*, p. 230-39, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

Figure 1.4: Selected PLA Air Force Equipment Holdings



Source: IISS, *Military Balance 2014*, p. 230-39, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

China's Defense White Papers

China's recent white papers -- *China's National Defense in 2008*, and *China's National Defense in 2010*, and *The Diversified Employment of China's Armed Forces* (2013) -- provide a far more detailed picture of Chinese views of the logic and drivers behind the military modernization program. It should be stressed that these papers are meant to be viewed as a series, so older versions of the white paper still provide utility for China analysts.³³ In the papers, China offers a summary of its strategic view of the world.

In terms of the official Chinese view of the modern strategic environment, the 2010 white paper notes,³⁴

The international situation is currently undergoing profound and complex changes. The progress toward economic globalization and a multi-polar world is irreversible, as is the advance toward informationization of society. The current trend toward peace, development and cooperation is irresistible. But, international strategic competition and contradictions are intensifying, global challenges are becoming more prominent, and security threats are becoming increasingly integrated, complex and volatile.

On the whole, the world remains peaceful and stable. The international community has reaped the first fruits in joint efforts to respond to the global financial crisis. All countries have stepped up to adjust their strategies and models for economic development, and no effort has been spared in attempting to foster new economic growth points. Scientific and technological innovations are breeding new breakthroughs. And economic globalization has achieved further progress. The international balance of power is changing, most notably through the economic strength and growing international status and influence of emerging powers and developing countries. Prospects for world multi-polarization are becoming clearer. The prevailing trend is towards reform in international systems.

Steady progress is being made in the establishment of mechanisms for management of the global economy and finance. G20 is playing a more outstanding role. The international spotlight has turned to the reform of the UN and other international political and security systems. Profound realignments have taken place in international relations; economic interdependence among various countries has been enhanced; shared challenges have been increasing; and communication, coordination and cooperation have become mainstream in relationships among the world's major powers. As factors conducive to maintaining peace and containing conflict continue to grow, mankind can look forward to a future that on the whole is bright.

The international security situation has become more complex. International strategic competition centering on international order, comprehensive national strength and geopolitics has intensified. Contradictions continue to surface between developed and developing countries and between traditional and emerging powers, while local conflicts and regional flashpoints are a recurrent theme. In a number of countries, outbreaks of unrest are frequently triggered off by political, economic, ethnic, or religious disputes. In general, world peace remains elusive. Deep-seated contradictions and structural problems behind the international financial crisis have not been resolved. World economic recovery remains fragile and imbalanced. Security threats posed by such global challenges as terrorism, economic insecurity, climate change, nuclear proliferation, insecurity of information, natural disasters, public health concerns, and transnational crime are on the rise. Traditional security concerns blend with non-traditional ones and domestic concerns interact with international security ones, making it hard for traditional security approaches and mechanisms to respond effectively to the various security issues and challenges in the world.

International military competition remains fierce. Major powers are stepping up the realignment of their security and military strategies, accelerating military reform, and vigorously developing new and more sophisticated military technologies. Some powers have worked out strategies for outer space, cyber space and the Polar Regions, developed means for prompt global strikes, accelerated development of missile defense systems, enhanced cyber operations capabilities to occupy new strategic commanding heights. Some developing countries maintain the push towards strengthening their armed forces, and press on with military modernization. Progress has been made in international arms control, but prevention of the proliferation of weapons of mass destruction remains complex, there is still much to do to maintain and strengthen the international non-proliferation mechanism.

China released a new defense white paper – *The Diversified Employment of China's Armed Forces* – on April 16, 2013. This white paper is different from its predecessors in several key ways. One is that the paper revealed the structure of each military branch – in terms of numbers of troops and officers as well as the organization of each branch. Moreover, the Air Force, Navy, and domestic R&D investment are all emphasized in terms of capabilities and operational reach expansions.

The 2013 paper discusses China's view of itself and its place in the international arena, and again emphasizes the PRC's commitment to peaceful development:³⁵

In today's world, peace and development are facing new opportunities and challenges. It is a historic mission entrusted by the era to people of all nations to firmly grasp the opportunities, jointly meet the challenges, cooperatively maintain security and collectively achieve development.

It is China's unshakable national commitment and strategic choice to take the road of peaceful development. China unswervingly pursues an independent foreign policy of peace and a national defense policy that is defensive in nature. China opposes any form of hegemonism or power politics, and does not interfere in the internal affairs of other countries. China will never seek hegemony or behave in a hegemonic manner, nor will it engage in military expansion. China advocates a new security concept featuring mutual trust, mutual benefit, equality and coordination, and pursues comprehensive security, common security and cooperative security.

It is a strategic task of China's modernization drive as well as a strong guarantee for China's peaceful development to build a strong national defense and powerful armed forces which are commensurate with China's international standing and meet the needs of its security and development interests. China's armed forces act to meet the new requirements of China's national development and security strategies, follow the theoretical guidance of the Scientific Outlook on Development, speed up the transformation of the generating mode of combat effectiveness, build a system of modern military forces with Chinese characteristics, enhance military strategic guidance and diversify the ways of employing armed forces as the times require. China's armed forces provide a security guarantee and strategic support for national development, and make due contributions to the maintenance of world peace and regional stability.

US Defense White Papers on China's Strategy and Forces

Many sections from the 2013 and 2014 versions of the DoD's *Military and Security Developments Involving the People's Republic of China* report are virtually identical with the same wording on the same page. However, there are some sections that do differ between the documents both in phrasing and substance. These differences will be highlighted throughout for clarity. The 2013 and 2014 editions have summarized the recent trends in China's strategy, military efforts, and force posture with the following:³⁶

China's leaders characterize the first two decades of the 21st century as a "strategic window of opportunity." They assess that during this period, both domestic and international conditions will be conducive to expanding China's "comprehensive national power," a term that encapsulates all elements of state power, including economic capacity, military might, and diplomacy. China's leaders anticipate that a successful expansion of comprehensive national power will serve China's strategic objectives, which include: perpetuating Chinese Communist Party (CCP) rule, sustaining economic growth and development, maintaining domestic political stability, defending national sovereignty and territorial integrity, and securing China's status as a great power. (p.15)

China's leaders routinely emphasize the goal of reaching critical economic and military benchmarks by 2020. These benchmarks include successfully restructuring the economy to maintain growth and increase the quality of living of China's citizens to promote stability; making major progress in military modernization; and attaining the capability to fight and win potential regional conflicts, including those related to Taiwan, protection of sea lines of communication (SLOCs), defense of territorial claims in the South China Sea and East China Sea, and the defense of western borders. Statements by Chinese leaders

indicate that, in their view, the development of a modern military is necessary for China to achieve greater power status. These statements also indicate that the Chinese leadership views a modern military as a critical deterrent to prevent actions by outside powers that could damage Chinese interests, or to allow China to defend itself against such actions should deterrence fail.

...China regards stable relations with its neighbors and the United States as essential to its stability and development. China continues to see the United States as the dominant regional and global actor with the greatest potential to both support and, potentially, disrupt China's rise. In addition, China remains concerned that should regional states come to view China as a threat, they might balance against China through unilateral military modernization or through coalitions, possibly with the United States. Many Chinese officials and the public see the U.S. rebalance to Asia as a reflection of "Cold War thinking" and as a way to contain China's rise. (p. 15)

Despite its desire to project an image of a developing country engaged in a peaceful development strategy, China's efforts to defend national sovereignty and territorial integrity (underpinned by growing economic and military capabilities) have occasionally manifested in assertive rhetoric and behavior that generate regional concerns about its intentions. Prominent examples of this include China's response to Japan's arrest of a PRC fishing trawler captain following a collision with Japanese coast guard vessels in 2010, its use of punitive trade policies as an instrument of coercion, its actions to shield North Korea from the international response to its sinking of the South Korean naval vessel, *Cheonan*, and its action to pressure Vietnam and the Philippines in the South China Sea and Japan in the East China Sea. Official statements and media during these situations indicate that China sees itself as responding to perceived threats to its national interests or provocations by outside actors. China's lack of transparency surrounding its growing military capabilities and strategic decision-making has also increased concerns in the region about China's intentions. Absent a move towards greater transparency, these concerns will likely intensify as the PLA modernization progresses (p. 16)

The DoD went on to cite several specific shifts in Chinese strategy that were having major impacts on US power projection capabilities as well as on regional deterrent and defense capabilities:³⁷

Anti-Access/Area Denial (A2/AD). As part of its planning for military contingencies, China continues to develop measures to deter or counter third-party intervention, particularly by the United States. China's approach to dealing with this challenge is manifested in a sustained effort to develop the capability to attack, at long ranges, military forces that might deploy or operate within the western Pacific, which the DoD characterizes as "anti-access" and "area denial" (A2/AD) capabilities. China is pursuing a variety of air, sea, undersea, space and counter-space, and information warfare systems and operational concepts to achieve this capability, moving toward an array of overlapping, multilayered offensive capabilities extending from China's coast into the western Pacific. China's 2008 Defense White Paper asserts, for example, that one of the priorities for the development of China's armed forces is to "increase the country's capabilities to maintain maritime, space, and electromagnetic space security."

An essential element, if not a fundamental prerequisite, of China's emerging A2/AD regime is the ability to control and dominate the information spectrum in all dimensions of the modern battlespace. PLA authors often cite the need in modern warfare to control information, sometimes termed "information blockade" or "information dominance," and to seize the initiative and gain an information advantage in the early phases of a campaign to achieve air and sea superiority.

China is improving information and operational security to protect its own information structures, and is also developing electronic and information warfare capabilities, including denial and deception, to defeat those of its adversaries. China's "information blockade" likely envisions employment of military and non-military instruments of state power across the battlespace, including in cyberspace and outer space. China's investments in advanced electronic warfare systems, counter-space weapons, and computer network operations (CNO) — combined with more traditional forms of control historically associated with the PLA and CCP systems, such as propaganda and denial through opacity, reflect the emphasis and priority China's leaders place on building capability for information advantage. (p. 33)

In more traditional domains, China's A2/AD focus appears oriented toward restricting or controlling access to China's periphery, including the western Pacific. China's current and projected force structure

improvements, for example, will provide the PLA with systems that can engage adversary surface ships up to 1,000 nm from China's coast. (p. 33)

China is also developing weapons for its entire military to project force further from its coast. Current and projected missile systems will allow the PLA to strike regional air bases, logistical facilities, and other ground-based infrastructure. Chinese military analysts have concluded that logistics and power projection are potential vulnerabilities in modern warfare, given the requirements for precision in coordinating transportation, communications, and logistics networks. China is fielding an array of conventionally armed ballistic missiles, ground- and air-launched land-attack cruise missiles, special operations forces, and cyber-warfare capabilities to hold targets at risk throughout the region. (p. 33)

Territorial Disputes. Senior Chinese officials have identified protecting China's sovereignty and territorial integrity as a "core interest" and all officials repeatedly state China's opposition to and willingness to respond to actions it perceives as challenging this core interest. In 2012, this was demonstrated by Chinese actions at Scarborough Reef in the South China Sea and the Senkaku Islands in the East China Sea. (p. 2-3)

The Chinese government maintains that its maritime rights extend to virtually the entire South China Sea and often illustrates this claim using a "nine-dash line" that encompasses much of the South China Sea area. At the same time, Beijing is ambiguous about the precise meaning of the nine-dash line; to date, China has not clarified the meaning of the nine-dash line or its legal basis. In April 2012, Chinese maritime law enforcement vessels and Philippine coast guard vessels engaged in a protracted standoff at Scarborough Reef, after the Philippine Navy attempted to conduct a fishing enforcement action against Chinese fishermen. (p. 2-3)

Although overt tensions between China and the Philippines subsided by year's end, both sides continue to claim jurisdiction over the reef. Chinese law enforcement vessels have maintained an almost continuous presence ever since. (p. 2-3)

In November 2012, China also added a map which contained the nine-dash line to all of its new passports. This action elicited negative responses from other nations in the Asia-Pacific region. China's increased reference in official government materials to the nine-dash line is a source of concern to its neighbors and other nations because, at a minimum, it creates an impression that China is not merely claiming all the land features within the nine-dash line, but it may also be claiming a special sovereign status of all the water and the sea-bed contained therein. (p. 2-3)

The same section in the 2014 version of the US document included the same information above and added more recent developments from the previous year concerning China's territorial disputes with its neighbors:

In January 2013, the Philippines requested arbitration from the UN Convention on the Law of the Sea (UNCLOS) Commission to challenge China's nine-dash line claim. China has opted out of the proceedings.

As China increases activities in the South China Sea in support of its maritime claims, Chinese forces are interacting more frequently with other countries' forces. On December 5, 2013, a PLA Navy vessel and a U.S. Navy vessel operating in the South China Sea came into close proximity. At the same time of the incident, USS COWPENS (CG 63) was operating approximately 32 nautical miles southeast of Hainan Island. In that location, the U.S. Navy vessel was conducting lawful military activities beyond the territorial sea of any coastal State, consistent with customary international law as reflected in the Law of the Sea Convention. Two PLA Navy vessels altered course and crossed directly in front of the bow of USS COWPENS. This maneuver by the PLA Navy vessel forced USS COWPENS to come to full stop to avoid collision, while the PLA Navy vessel passed less than 100 yards ahead. The PLA Navy vessel's action was inconsistent with internationally recognized rules concerning professional maritime behavior (i.e., the Convention of the International Regulations for Preventing Collisions at Sea), to which China is a party. (p. 3-4)

The 2013 and 2014 sections that discuss the dispute over the Senkaku/Diaoyu islands are as follows:

China claims sovereignty over the Senkaku Islands (what the Chinese refer to as the Diaoyu Islands) in the East China Sea, territory also claimed by Taiwan and Japan. In April 2012, the Governor of Tokyo

announced plans to purchase three of the five islets from private Japanese owners. In response, in September 2012, the Government of Japan purchased the three islands. China protested the move and since that time has regularly sent maritime law enforcement ships (and, less often, aircraft) to patrol near the Senkakus to protect its claims; this has included regular Chinese maritime operations within 12nm of the islands. On September 25, China published a white paper entitled, “Diaoyu Dao, an ‘Inherent Territory’ of China.” In addition, in September 2012, China began using improperly drawn straight baseline claims around the Senkaku Islands, adding to its network of maritime claims inconsistent with international law. In December 2012, China submitted information to the U.N. Commission on the Limits of the Continental Shelf regarding China’s extended continental shelf in the East China Sea that includes the disputed islands. (p. 2-3)

The 2014 version adds:

In November 2013, China announced an Air Defense Identification Zone (ADIZ) in the East China Sea with coverage that included the Senkaku Islands and overlapped with previously established Japanese, South Korean and Taiwan zones. The United States neither accepts nor recognizes China’s requirements for operating in the newly declared ADIZ. This announcement will not change how the United States conducts military operations in the region. (p. 5)

Figure 1.5: East China Sea Air Defense Identification Zones



Source: DoD, *Annual Report to Congress on Military and Security Developments Involving the People's Republic of China* 2014, June 2013, 5.

Both the 2013 and 2014 DoD reports stated:

...China's use of force in territorial disputes has varied throughout its history. Some disputes led to war, such as China's border conflicts with India in 1962 and Vietnam in 1979. A contested border with the former Soviet Union during the 1960s raised the possibility of nuclear war. In more recent cases, China has been willing to compromise with and even offer concessions to its neighbors. Since 1998, China has settled eleven land-based territorial disputes with six of its neighbors. Several disputes continue over exclusive economic zones (EEZ) and ownership of potentially rich, off-shore oil and gas deposits. (p. 21)

The East China Sea contains approximately seven trillion cubic feet of natural gas and up to 100 billion barrels of oil. Japan maintains that an equidistant line from each country involved should separate the EEZs, while China claims an extended continental shelf beyond the equidistant line to the Okinawa Trench (which almost reaches Japan's shore). In early 2009, Japan accused China of violating a June 2008 agreement providing for joint exploration of oil and natural gas fields, and claimed that China unilaterally drilled beneath the demarcation line, extracting reserves from the Japanese side. China, Japan, and Taiwan continue to dispute possession of the nearby Senkaku Islands. (p. 22)

The South China Sea plays an important role in Northeast and Southeast Asian security considerations. Northeast Asia relies heavily on the flow of oil and commerce through South China Sea shipping lanes, including over 80 percent of the crude oil to Japan, South Korea, and Taiwan. China claims sovereignty over the Spratly and Paracel island groups and other land formations within its "nine-dash line" claim - claims disputed in whole or part by Brunei, the Philippines, Malaysia, Indonesia, and Vietnam. Taiwan, which occupies Itu Aba in the Spratly Islands, makes the same claims as the PRC. In 2009, China protested extended continental shelf claims in the South China Sea made by Malaysia and Vietnam; in its protest to the U.N. Commission, China included the ambiguous nine-dash line and reiterated that it has "indisputable sovereignty over the islands in the South China Sea and the adjacent waters and enjoys sovereign rights and jurisdiction over the relevant waters as well as the seabed and subsoil thereof." (p. 22)

Despite increased political and economic relations over the years between China and India, tensions remain along their shared 4,057 km border, most notably over Arunachal Pradesh (which China asserts is part of Tibet, and therefore of China), and over the Aksai Chin region at the western end of the Tibetan Plateau. Both countries in 2009 stepped up efforts to assert their claims. China tried to block a \$2.9 billion loan to India from the Asian Development Bank, claiming part of the loan would have been used for water projects in Arunachal Pradesh. This represented the first time China sought to influence this dispute through a multilateral institution. The then-governor of Arunachal Pradesh announced that India would deploy more troops and fighter jets to the area. An Indian newspaper reported that the number of Chinese border violations had risen from 180 in 2011 to more than 400 by September 2012. (p. 22)

The 2014 report added other information on the bilateral relations between China and India over their border dispute:

In 2009, China and India said they would establish a hotline between their Prime Ministers after exchanging barbs over the status of the border region of Arunachal Pradesh. By 2011, however, progress still lagged as India reportedly found trouble obtaining suitable encryption technology to establish the hotline. Chinese and Indian officials met in late September 2013 to finalize the text of the Border Defense Cooperation Agreement, which will supplement existing procedures managing the interaction of troops along the Line of Actual Control. (p. 21)

On the topic of Chinese counterspace strategies, both the 2013 and 2014 reports stated the following:

Counterspace. PLA strategists regard the ability to utilize space and deny adversaries access to space as central to enabling modern, "informatized" warfare. Although PLA doctrine does not appear to address space operations as a unique operational "campaign," space operations form an integral component of other PLA campaigns and would serve a key role in enabling A2/AD operations. Publicly, China attempts to dispel any skepticism over its military intentions for space. In 2009, PLA Air Force Commander General Xu Qiliang publicly retracted his earlier assertion that the militarization of space was a "historic inevitability" after President Hu Jintao swiftly contradicted him. General Xu Qiliang is now a Vice Chairman of the Central Military Commission and the second highest-ranking officer in the PLA. (p. 34)

The PLA is acquiring a range of technologies to improve China's space and counter-space capabilities. China demonstrated a direct-ascent kinetic kill anti-satellite capability to low Earth orbit when it destroyed the defunct Chinese FY-1C weather satellite during a test in January 2007. Although Chinese defense academics often publish on counterspace threat technologies, no additional anti-satellite programs have been publicly acknowledged. A PLA analysis of U.S. and coalition military operations reinforced the importance of operations in space to enable "informatized" warfare, claiming that "space is the commanding point for the information battlefield." PLA writings emphasize the necessity of "destroying, damaging, and interfering with the enemy's reconnaissance...and communications satellites," suggesting that such systems, as well as navigation and early warning satellites, could be among the targets of attacks designed to "blind and deafen the enemy." The same PLA analysis of U.S. and coalition military operations also states that "destroying or capturing satellites and other sensors...will deprive an opponent of initiative on the battlefield and [make it difficult] for them to bring their precision guided weapons into full play." (p. 34)

The 2014 report went on to state:

The PLA is acquiring a range of technologies to improve China's space and counterspace capabilities. In addition to directed energy weapons and satellite jammers, China demonstrated a direct-ascent kinetic kill capability against satellites in low Earth orbit when it destroyed the defunct Chinese FY-1C weather satellite during a test in January 2007. (p. 32)

In 2013, China conducted at least eight space launches to expand its space-based intelligence, surveillance, reconnaissance, meteorological, and communications satellite constellations. In addition to expanding its in-orbit assets, China successfully launched its first "Kuaizhou" ("quick vessel") space launch vehicle (SLV), which is designed to launch a small satellite of the same name quickly into a low-Earth orbit to support "national disaster monitoring." Chinese media also reported development of a second Chinese responsive space launch vehicle dubbed the Long March 11 (LM-11). The LM-11 will provide China with "a vehicle to rapidly enter space and meet the emergency launching demand in case of disasters and contingencies," and could be launched as early as 2014 and not later than 2016. In parallel, China is developing a multi-dimensional program to improve its capabilities to limit or prevent the use of space-based assets by adversaries during times of crisis or conflict. (p. 10-11)

China launched five new remote sensing satellites in 2013, which can perform both civil and military application. China also launched one communications satellite, four experimental small satellites, one meteorological satellite, and one manned space mission. (p. 11)

Military Information Operations. Chinese writings have outlined the five key features at an operational level of a maturing Chinese information operations (IO) strategy. First, Chinese authors emphasize defense as the top priority and indicate that Computer Network Defense (CND) must be the highest priority in peacetime; Chinese doctrine suggests that "tactical counteroffensives" would only be considered if an adversary's operations could not be countered. Second, IO is viewed as an unconventional warfare weapon, which must be established in the opening phase of the conflict and continue during all phases of war. Third, IO is characterized as a preemption weapon to be used under the rubric of achieving information dominance and controlling the electromagnetic spectrum. Fourth, IO is seen as a tool to permit China to fight and win an information campaign, precluding the need for conventional military action. Fifth, potential Chinese adversaries, in particular the United States, are seen as "information dependent." (p. 9)

An IO campaign includes actions taken to seize and maintain campaign information superiority, unify command campaign information operational forces, carry out information warfare-related reconnaissance, and offensive and defensive information warfare methods. According to a PLA military manual, there are many types of supporting IO to campaigns including an island-landing campaign IO, blockade campaign IO, fire power attack campaign IO, border counterattack campaign IO, counter-landing campaign IO, and counter-airstrike campaign IO. These IO campaigns can be sub-divided into joint campaign IO and combined arms campaign IO.

Depending on the military services involved in the campaign, IO can be further divided into army campaign, navy, air force, and strategic missile force campaign IO. Their primary tasks are to protect the PLA's campaign information systems, collect intelligence from enemy information systems, destroy enemy information systems, and weaken the enemy's ability to acquire, transmit, process, and use information during war. (p. 10)

The PLA continues to conduct frequent military exercises demonstrating advances in information technology and information integration of its military forces. China has performed integrated joint combat operations exercises showcasing intelligence acquisition, joint command, joint strike, and support operations, increasingly incorporated information technology and information integration into its annual training requirement. A number of annual exercise series, including the *Vanguard*, *Lianhe*, and *Joint Education* series have increased required integration and full reliance on information technology for command of complex operations. In 2012, according to PLA newspapers, many military exercises banned paper maps and orders altogether. Also in 2012, there was an increasing emphasis on PLA command academies participating in joint exercises using command information technologies, which indicates proficiency on such platforms is now a requirement for graduation to higher command positions. (p. 11)

The 2014 edition of report added more details about China's intent in building an "informationized" military:

used to defeat a technologically superior, information-dependent adversary through dominance of the battlefield's information space. Information operations encompass defensive and offensive military actions and focus on defending PLA information systems, while disrupting or destroying an adversary's information systems. Chinese writings view informationized warfare as a way to weaken an adversary's ability to acquire, transmit, process, and use information during war and discuss it as a way to force an adversary to capitulate before the onset of conflict. The PLA conducts military exercises simulating operations in complex electromagnetic environments and likely views conventional and cyber operations as a means of achieving information dominance. The PLA GSD Fourth Department (Electronic Countermeasures and Radar) would likely use jamming and electronic warfare, cyberspace operations, and deception to augment counterspace and other kinetic operations during a wartime scenario to deny an adversary's use of information systems. "Simultaneous and parallel" operations would involve strikes against U.S. warships, aircraft, and associated supply craft, as well as the use of information attacks to hamper tactical and operational communications and computer networks. These operations could have a significant effect upon an adversary's navigational and targeting radars.³⁸

These developments are reshaping the structure and character of virtually every aspect of China's forces, making it a far more effective military power in terms of both conventional and asymmetric warfare capabilities and altering the balance of nuclear deterrence affecting the Pacific region. At the same time, it is important to stress that the Chinese view of the world bears striking similarities to the way in which China's neighbors, the US, and many Western nations presented their views of the security environment in the previous chapter.

The Strategic Forces Driving Chinese Military Modernization

China has many reasons to modernize its security forces and expand their war-fighting capabilities. From a Chinese perspective, the other nations of the world create as many strategic uncertainties for China as China does for them. China shares borders with 15 other countries in Asia (counting Japan), several of which pose serious security issues in Chinese eyes. Taiwan,

North Korea, Pakistan, and India all present challenges to regional stability. The US presence in the region is also seen as posing a further challenge in terms of strategic planning.

China has good reason to see the US as both a major trading partner and as a potential strategic rival. China is reasserting its role as a major regional power after more than a century of outside interference and exploitation as well as internal conflict. As a world economic power, China's sphere of interests spans the globe. Becoming a major world power creates strategic and military imperatives that generate a momentum of their own. In the last decade, the development of China's domestic and foreign policies has increased the country's involvement in international affairs. The rapid expansion of international trade, along with China's increased reliance on imported commodities and participation in multilateral policymaking institutions, has exposed China to risks that may increasingly jeopardize its interests abroad and at home. In addition, domestic problems in China may pose issues for internal stability.

China makes several of these points in its defense white papers. It states that China's military faces a world in which "China is ... confronted by more diverse and complex security challenges" that threaten its "vast territories and territorial seas." Consequently, China "faces heavy demands in safeguarding national security" from external threats. Moreover, China's internal concerns, "the 'Taiwan independence' separatist force," and "separatist forces working for 'East Turkistan independence' and 'Tibet independence'" continue to pose domestic challenges.³⁹

In addition, the US creates a unique issue for China, as "the United States is reinforcing its regional military alliances, and increasing its involvement in regional security affairs."⁴⁰ The US also continues to sell weapons to Taiwan. The 2013 white paper implicitly criticized the increasing US presence in the Asia-Pacific as well as highlighted the increasing complication of international relations:⁴¹

There are signs of increasing hegemonism, power politics and neo-interventionism. Local turmoils occur frequently. Hot-spot issues keep cropping up. Traditional and non-traditional security challenges interweave and interact. Competition is intensifying in the international military field. International security issues are growing noticeably more abrupt, interrelated and comprehensive. The Asia-Pacific region has become an increasingly significant stage for world economic development and strategic interaction between major powers. The US is adjusting its Asia-Pacific security strategy, and the regional landscape is undergoing profound changes.

.... China still faces multiple and complicated security threats and challenges. The issues of subsistence and development security and the traditional and non-traditional threats to security are interwoven. Therefore, China has an arduous task to safeguard its national unification, territorial integrity and development interests. Some country has strengthened its Asia-Pacific military alliances, expanded its military presence in the region, and frequently makes the situation there tenser. On the issues concerning China's territorial sovereignty and maritime rights and interests, some neighboring countries are taking actions that complicate or exacerbate the situation.... Major powers are vigorously developing new and more sophisticated military technologies so as to ensure that they can maintain strategic superiorities in international competition in such areas as outer space and cyber space.

China feels that the changes in military forces that some in the West call the "Revolution in Military Affairs (RMA)" are forcing China to face new strategic challenges and to adapt to a rapidly changing military environment. In addition to "fierce" military competition and vigorous development of foreign military technology, China must contend with an expansion in the number of militarized domains. The specific references to outer space, cyber space, and the polar regions in the 2010 white paper express concerns found in the 2008 version over "strategic nuclear forces, military astronautics, missile defense systems, and global and battlefield reconnaissance and surveillance."⁴²

Despite these challenging world trends, China describes its defense policy as one that does not present a threat to any other state and which upholds world peace and stability:⁴³

China pursues a national defense policy that is defensive in nature. In accordance with the Constitution of the People's Republic of China and other relevant laws, the armed forces of China undertake the... duty of resisting foreign aggression, defending the motherland, and safeguarding overall social stability and the peaceful labor of its people. To build a fortified national defense and strong armed forces compatible with national security and development interests is a strategic task of China's modernization, and a common cause of the people of all ethnic groups.

The pursuit of a national defense policy that is defensive in nature is determined by China's development path, its fundamental aims, its foreign policy, and its historical and cultural traditions. China unswervingly takes the road of peaceful development, strives to build a harmonious socialist society internally, and promotes the building of a harmonious world enjoying lasting peace and common prosperity externally. China unswervingly advances its reform and opening up as well as socialist modernization, making use of the peaceful international environment for its own development which in return will contribute to world peace. China unswervingly pursues an independent foreign policy of peace and promotes friendly cooperation with all countries on the basis of the Five Principles of Peaceful Coexistence. China unswervingly maintains its fine cultural traditions and its belief in valuing peace above all else, advocating the settlement of disputes through peaceful means, prudence on the issue of war, and the strategy of "attacking only after being attacked." China will never seek hegemony, nor will it adopt the approach of military expansion now or in the future, no matter how its economy develops.

China's Declared Strategic Goals

In order to achieve the aims of the PRC's defense policy, the PLA states that it seeks to secure China as a sovereign state and to further the cause of world peace. The PLA plans to "broaden their visions of national security strategy and military strategy, aim at winning local wars under the conditions of informationization, make active planning for the use of armed forces in peacetime, deal effectively with various security threats and accomplish diversified military tasks."⁴⁴

In particular, the PLA states that it will adhere to the following fundamental principles and policies:⁴⁵

- Safeguarding national sovereignty, security and territorial integrity, and supporting the country's peaceful development.
- Aiming to win local wars under the conditions of informationization and expanding and intensifying military preparedness.
- Formulating the concept of comprehensive security and effectively conducting military operations other than war (MOOTW).
- Deepening security cooperation and fulfilling international obligations.
- Acting in accordance with laws, policies and disciplines.

China underscored its public emphasis on peaceful intentions and defensive military modernization in its 2010 white paper, describing its actions and policies as follows:⁴⁶

With the development of national economy and society, the increase of China's defense expenditure has been kept at a reasonable and appropriate level.... In recent years, the share of China's annual defense expenditure in its GDP has remained relatively steady, while that in overall state financial expenditure has been moderately decreased.

.... China has always stood for the complete prohibition and thorough destruction of nuclear weapons.... As a permanent member of the UN Security Council and a nuclear-weapon state signatory of the NPT, China has never evaded its obligations in nuclear disarmament and pursues an open, transparent and

responsible nuclear policy. It has adhered to the policy of no-first-use of nuclear weapons at any time and in any circumstances, and made the unequivocal commitment that under no circumstances will it use or threaten to use nuclear weapons against non-nuclear-weapon states or nuclear-weapon-free zones. China has never deployed nuclear weapons in foreign territory and has always exercised the utmost restraint in the development of nuclear weapons, and has never participated in any form of nuclear arms race, nor will it ever do so. It will limit its nuclear capabilities to the minimum level required for national security.

... China consistently supports the efforts of non-nuclear-weapon states in establishing nuclear-weapon-free zones, has already signed and ratified all the relevant protocols which have been opened for signature of any nuclear-weapon-free zone treaties, and has reached agreement with the ASEAN countries on relevant issues under the Protocol of the Treaty on the Southeast Asia Nuclear-Weapon-Free Zone. China supports the Treaty on a Nuclear-Weapon-Free Zone in Central Asia and its protocols signed by Central Asian countries, and supports the establishment of a nuclear-weapon-free zone in the Middle East.

“Defensive” Force Modernization and Transformation versus “Offensive” Force Modernization and Transformation

There is little practical difference, however, between *defensive* force modernization and transformation and *offensive* force modernization and transformation. Like other modern military powers, China must now make procurement and force transformation decisions that will shape its forces for years to come. At the same time, a host of internal and external events could suddenly change the nature of these efforts or their strategic focus. Even if China has no goals or ambitions beyond those stated in its defense white papers, events and crises can put national leaders into unenviable situations and force hard decisions upon them.

This is why it is critical to look beyond what states say and what critics suspect. There are measures of China’s capabilities and actions that are based largely on hard data rather than concepts, broad policy statements, and conflicting opinions. Much is known about the current state of China’s armed forces and its future plans and arms purchases. China’s holdings and deployment of major weapon systems, order of battle, arms trade, and internal security matters can be measured, and those measurements can disclose many aspects of what China is doing.

While many uncertainties do exist in the data available, many official sources such as government reports, yearbooks, white papers, and other official reports address Chinese security policy modernization. The International Institute for Strategic Studies (IISS) also provides extensive unclassified data on China’s force structure, and other sources also provide recent numbers on defense spending and weapons system procurement. China’s policy of information on military matters does make such assessments difficult in some areas and leaves considerable uncertainty in others, but a wide range of data that few experts question does exist.

This report deliberately focuses on such data and does little more than touch on the range of possible unstated motives that might shape China’s possible strategies or the less tangible measures of its intentions and capabilities. It does not make assumptions about whether China’s military buildup constitutes a threat to the US or other Asian nations.

These limits mean that the following descriptions and trend analyses must be kept in perspective. A quantitative description of military capabilities cannot be the sole foundation for strategic decisions. Force numbers and orders of battle cannot portray the ingenuity (or lack thereof) and morale of the people in command. Successful tactics, the ability to make the best use of resources, combat experience, and a functioning support base are some of the factors that may alter the

meaning that comparisons of numbers may suggest. Security forces are a means of political decision-making. Their success will ultimately depend on the extent to which political leaderships use them.

At the same time, the qualitative trends in Chinese forces and provide a better basis for understanding possible strategies and intentions. Modernization data, in particular, provide such insights where quantitative force data may not. These data are provided throughout the text of this report. In addition, it is possible to portray key aspects of the military balance without making value judgments or guessing which given scenarios might develop. They are presented deliberately as bare data in order to avoid guesses about possible intentions and war-fighting options.

Chinese View of the US ‘Rebalance’

It is also important to preface any analysis of China’s forces and strategy by noting that the US, the West, and other Asian states have no monopoly on questioning the real strategic motives behind other states actions. Some of China’s opinions of the US are virtually the mirror image of US opinions about China. According to a July 2013 Pew Global Attitudes poll, 37% of Americans view China favorably and 40% of Chinese view Americans favorably.⁴⁷

A CSIS report released in June 2014 entitled *Power and Order in Asia: A Survey of Regional Expectations* revealed many insights on an array of different issues concerning China’s rise and the changing geopolitical dynamics within the region. For example, the question: “Which of the following countries will exert the greatest power in East Asia in ten years?” resulted in Chinese respondents answering 71% with the United States and 26% with China, which coincided fairly congruently with the American view of 68% believing it will be the United States and 32% China.

The average for all respondents, including Japan and ASEAN nations, however, was 53% responding with China and 43% with the United States.⁴⁸ Concerning the question of, “Which of these descriptions would be in the best interest of your country?” the two most popular responses from Chinese respondents were “a new community of nations based on strengthened multilateral institutions and cooperation” and “a U.S.–China condominium.”⁴⁹ These responses coincide with Chinese assurances that their rise is a peaceful one designed to maintain good relations with its neighbors and the United States. However, recent statements and actions by the Chinese government over territorial disputes in the South China Sea and its concern over U.S. intentions within the region have resulted in a more unilateral and skeptical China in actuality.

Since the U.S. announced its new strategic guidelines at the start of 2012, Chinese experts have often viewed the rebalancing of US forces from Europe to Asia as an offensive-policy meant to contain the rise of China as a world power.⁵⁰ The 2013 Chinese defense white paper specifically referred to the U.S. in this regard, implicitly criticizing the US’s increasing presence in the Asia-Pacific as well as highlighting the increasing complication of international relations:⁵¹

There are signs of increasing hegemonism, power politics and neo-interventionism. Local turmoils occur frequently. Hot-spot issues keep cropping up. Traditional and non-traditional security challenges interweave and interact. Competition is intensifying in the international military field. International security issues are growing noticeably more abrupt, interrelated and comprehensive. The Asia-Pacific region has become an increasingly significant stage for world economic development and strategic interaction between major powers. The US is adjusting its Asia-Pacific security strategy, and the regional landscape is undergoing profound changes.

.... Some country has strengthened its Asia-Pacific military alliances, expanded its military presence in the region, and frequently makes the situation there tenser. On the issues concerning China's territorial sovereignty and maritime rights and interests, some neighboring countries are taking actions that complicate or exacerbate the situation.... Major powers are vigorously developing new and more sophisticated military technologies so as to ensure that they can maintain strategic superiorities in international competition in such areas as outer space and cyber space.

Chinese newspapers and citizens have also expressed concern over the US 'rebalance' to Asia. China does not issue official critiques of US military strategy and plans like those the US DoD issues on Chinese strategy and forces. At the same time, it does tightly control what its press is allowed to print, and the following quotes – representative of many similar examples – show that Chinese strategic patience with the US has limits that are important in considering how China may view US policy towards Asia:⁵²

- *Liaowang*, August 23, 2012: The strategic objective of the United States "is to ensure its leading status in the entire Asia Pacific region, build a trans-Pacific order centered on the United States, and continue its Pacific dominance. And the key link in achieving this objective is to dismantle the East Asian regional corporation framework which has already taken shape....The key link here is to sow discord in the good neighborly, friendly, and cooperative relations between China and countries on its periphery."⁵³
- *Renmin Ribao*, January 30, 2013: The United States "is boosting old military alliances, damaging the political foundation of East Asian peace, sharpening the territorial sovereignty contradictions between China and the countries around it, building a united front aimed at China, forcibly pushing the Trans-Pacific Strategic Economic Partnership, and disrupting the self-determined cooperation and regional integration process between the East Asian countries...in order for China to achieve strategic balance in the Asia Pacific region, it must greatly increase its military presence.... [China] should give full play to the strategic role of Russia and DPRK."⁵⁴
- *Renmin Ribao*, February 28, 2013: "America's overall goal is to secure the total control of the Eurasian Continent, and the purpose of clearing the perimeter is to pave the way for ultimately subduing China and Russia...this no longer is simply containment aimed at impeding expansion; rather, it is a way of choking aimed at controlling or even suffocating the other side...judging by the historical experience of the Cold War between the United States and the Soviet Union, containment will surely be accompanied by murder."⁵⁵
- *Jiefangjun Bao* (a military journal), January 22, 2013: After a long critique of the United States, the article ended as follows: "We [China] should cast away that pacifism and romanticism, which will easily evolve into capitulationism under pressure and threat. We should make full struggle preparation and war preparation. Only by doing so can China maintain a longer period of peace and development."⁵⁶
- *People's Daily Online*, April 10, 2013: Ever since U.S. President Barack Obama proposed the high-keyed "return to the Asia-Pacific" at the end of 2011, the U.S. has begun to frequently organize joint military exercises in the Asia-Pacific region. For those exercises conducted in 2012 by the U.S. in the Western Pacific region alone, there were as many as 17 code names. Why is the U.S. so interested in Asia-Pacific region? Why does it frequently conduct such "exercises"? In a geostrategic sense, containing China in the Asia-Pacific region is the basic content of the U.S. policy toward China. There are three major means for the U.S. to conduct deep involvement in the Asia-Pacific region: first, wide alliance to win over various countries in the Asia-Pacific region; second, military forward deployment to realize strategic "re-balancing"; and third, occupy a "leading" position in the region to play "pro-active role".⁵⁷

The US rebalance to Asia may also have helped lead to an improved relationship between China and Russia. Chinese President Xi Jinping's first official state visit was to Moscow for a summit with Russian President Vladimir Putin on March 22-24, 2013 – just as Putin's first foreign trip after assuming the Russian presidency in 2012 was to China. The two leaders discussed forming a comprehensive strategic partnership to advance both countries' interests, affirming support for each other's strategic and territorial interests. Xi was the first foreign leader to be allowed to visit Russia's strategic defense command headquarters and war room, and the two leaders noted the

US' intercontinental ballistic missile defense system as a concern to both countries in that it could perhaps undermine the deterrence-based strategic military balance.⁵⁸

Simultaneously, officials signed 30 agreements on cooperation in military exchanges, technology, energy, and trade, while the two countries also ratified the 2013-2016 implementation guidelines of the China-Russia Treaty of Good-Neighborliness and Friendly Cooperation. A \$270 billion deal with Rosneft to double oil supplies to China was announced in June 2013. Putin and Xi announced that bilateral trade was expected to reach \$100 billion by 2015 and \$200 billion before 2020.⁵⁹ Year-on-year, China-Russia trade increased by 11.2% in 2012, reaching \$88.2 billion, compared with the 6.2% growth in trade for China overall. China is Russia's largest trade partner, while Russia is China's ninth largest. The number of Chinese tourists visiting Russia jumped 47% over 2011 levels to 343,000 in 2012.⁶⁰

In early July 2013, China joined Russia for its largest-ever naval drills with a foreign partner, the "Joint Sea-2013" exercises, further emphasizing the deepening relationship between the two countries. The Chinese Defense Ministry reportedly sent four destroyers, two guided missile frigates, and a support ship to the exercises. The two countries also conduct anti-terrorism joint drills, the most recent of which was planned for July 27 – August 15 in the Russian Ural Mountains. Though US-Chinese maritime cooperation has been more limited, China will take part in the 2014 US-organized multinational Rim of the Pacific naval exercises, the world's largest.⁶¹

China has also been increasing military, economic, and diplomatic ties with US neighbors and arming states in the Western hemisphere. Prior to the Obama-Xi summit in June 2013, Xi visited Trinidad, Costa Rica, and Mexico, where he announced hundreds of millions of dollars of loans.⁶²

Regional Views of the US 'Rebalance'

The regional reaction to the changes in US strategy has been different than the Chinese reaction discussed above, and reflects a growing concern with China's recent geopolitical assertiveness – especially in the Southeast Asian region – regarding China's avowed 'peaceful development.' In this context, the US rebalance to Asia has been seen in a more positive light than it likely would otherwise have been. According to the July 2013 Pew Global Attitudes poll, of the Asia-Pacific nations surveyed (Japan, Philippines, South Korea, Australia, China, Indonesia, Malaysia, and Pakistan), 64% view the US favorably and 58% view China favorably. Japan is the outlier. While 69% of Japanese citizens see the US favorably, only 5% see China favorably.⁶³

At the same time, the reaction of Southeast Asian states has not been uniform, and even formal treaty allies of the US such as the Philippines and Thailand have had mixed reactions. There is significant domestic political opposition in the Philippines to expanded basing rights for the US. It was reported in mid-July 2013 that the US and the Philippines were in the midst of negotiations for increased positioning of US military equipment and personnel rotation into the country, though the issue of re-establishing US bases was being side-stepped.⁶⁴ Thailand has recently increased relations with China – including in defense-related areas. Singapore has increased its quasi-basing facilities available to the US Navy but refuses to give up its neutrality and be drawn into any sort of alliance.⁶⁵

Other Southeast Asian states have been even more cautious; Vietnam, despite territorial disputes with China, has continued strict rationing of US Navy port calls in order to not undermine its relations with China. Indonesia and Malaysia must both be careful not to alienate domestic

constituencies by increasing relations with the US, while Malaysia has kept a positive attitude towards China – its most important trading partner – and has recently increased defense and security ties. As a 2012 IISS report noted,⁶⁶

Policy-makers throughout Southeast Asia and the wider Asia-Pacific are acutely conscious of and concerned about the implications for their countries' foreign and security policy orientations of the changing regional distribution of power, particularly in terms of China's growing power and assertiveness. At the same time, though, remaining on good terms with Beijing is important for their economic health, and most Southeast Asian states (the Philippines being the exception) have been unwilling to jeopardize their trade and investment links with China.

But Southeast Asian governments also harbour substantial doubts over the durability of America's role, and have not been easily convinced by the rhetoric of the US rebalance. They understand well that there is a significant public-relations element in pronouncements about the long-term viability of the US security role. Southeast Asians have seen a series of outside powers come and go. They recognise that, as the US reduces its forces in Europe and withdraws from Afghanistan, the Asia-Pacific will naturally be the main defence focus for America. But they also know that Washington's longer-term regional commitment could become hostage to fiscal realities and to changes of administration. In these circumstances, most Southeast Asian states are keeping their strategic options open.

Meanwhile, India appears to welcome America's strengthened regional presence as a counterbalance to China and as a chance for India to assert its strategic role in the region. Japan, especially in the context of territorial disputes over islands, has also welcomed increased US presence.

The Growing Chinese-Russian Strategic Partnership

Russian-Chinese military cooperation has a history that goes back to the first half of the Cold War. During the 1950's and 1960's, the USSR provided the Chinese with technical assistance in building up a defense industry. This assistance ended after the Sino-Soviet split but was revived shortly after the fall of the Soviet Union. During the 1990's and early 2000's, China was one of Russia's largest customers for arms. Aircraft, submarines, SAMs, and many other systems that the Chinese use are derived from Russian systems.

However, many of these arms sales then ended abruptly amid Russian accusations of illegal Chinese copying of Russian weaponry. Furthermore, Russia was and still is wary of China's rapidly growing power. Ironically, Russian military technology and expertise played an important part of the growth of that power, particularly in the advancement of Chinese military technology.⁶⁷

More recently, China and Russia often appear to present a strong united front against the United States. Together, they are seen to represent a counter-balance to Western powers. This has in part led to numerous military exercises between China and Russia. Recent naval exercises in the East China Sea following the wake of the Ukraine crisis highlighted Russian-Chinese military cooperation and underscore continued partnership between the two nations.

The most recent evolution of Sino-Russian relations has been one of strategic partnership and political convenience, but has stopped far short of any formal alliance. The relationship between Russia and China has been a symbiotic one designed to provide the political and economic support needed at times yet still allow for flexibility and the room for maneuver in order to pursue individual, and sometimes conflicting, national goals.

The recent signing of a \$400 billion natural gas deal between the two countries is an example of this type of cooperation in support of the two countries' particular strategic economic goals. Through this deal, China was able to secure a critical energy resource to help fuel its economic growth over the next three decades, while Russia is now able to rely less on European markets for its energy exports as its relations with the EU grow colder over the its incursion into the Ukraine and the subsequent economic sanctions.

According to Russian Foreign Minister Sergey Lavrov, China and Russia have forged a "bilateral strategic partnership of coordination [which] has global influence."⁶⁸ This partnership prevents both countries from being completely isolated diplomatically by the West and provides a mechanism by which Russia and China can work to form a more multipolar world not dominated solely by the United States. This flexible partnership allows both parties to pursue their individual goals of becoming the dominant regional actors in their respective geographical spheres, but is not so binding that one has firm obligations to the other as an alliance would require.

For example, Russia has important economic and diplomatic relationships with many nations within the South China Sea, most notably Vietnam. Russia would not sacrifice these relationships in support of China with regards to its territorial disputes with other nations within the region. Similarly, China has no desire to take a position on Russia's annexation of Crimea or its actions in the Ukraine because it would be politically counterproductive to its own territorial disputes, so China remains silent on such matters. Since Russia and China are both sitting members of the UN Security Council, they are able to frustrate Western efforts to deter Russian and Chinese actions. The most recent examples of this have been China's absence when voting on the crisis in Crimea and Russia's neutrality on matters of the South China Sea.

China has publicly stated that it views the first two decades of the 21st century as its strategic window for establishing itself as a top global power, and the leading power within the Asia-Pacific region. It sees its strategic partnership with Russia over the next ten to twenty years as a flexible means to this end. Factors such as demographics and existing Russian ties with China's neighbors, make forging a long-term strategic partnership difficult.⁶⁹ Despite this, having a common rival in the United States has allowed Russia and China to find areas of cooperation.⁷⁰

CHAPTER 2: UNDERLYING RESOURCES FOR CHINA'S SECURITY CAPABILITIES

It is China's economic growth that underpins the changes in its strategy and force structure as well as its rapid rate of military modernization. At the same time, China's high rate of economic growth, the size of its gross domestic product (GDP), and its large population are making it a major force in the global economy.

These factors have already given China the resources to become a major military power with increasingly advanced equipment and technology. If they continue, China's strong economic base, steadily more advanced mix of civil and military technology, and increasingly well-trained and educated workforce will bolster China's prestige in the international system and lay the foundation for steady increases in Chinese military power.

This makes China's economy a critical underlying factor in assessing its military power, but it is important to note that China's role as a global power may be defined more by its economy than by its military forces. Moreover, China's role as a major trading partner and exporter may ultimately give it more influence and leverage relative to both the US and the world than the modernization of its military forces and its steady increase in power projection capability.

Is Becoming an Economic Superpower a Prelude to Becoming a Military Superpower?

Figures 2.1 to 2.3 show IMF estimates of the comparative rise in China's GDP relative to that of the US and other key regional powers. Sources differ over such estimates, and all estimates involve uncertainties in terms of definition and the reliability of the input data, but the IMF estimates are still broadly accurate in showing that China is already on track to having the world's largest GDP in PPP terms, although its GDP in market terms lags behind its PPP GDP, and its per capita income remains limited. It has outpaced almost all other states in terms of sustained growth, including major potential rivals in the developing world like India.

As past cases like Japan have shown, however, trees do not easily grow to the point where they reach the sky. China faces serious potential challenges in sustaining its current economic growth. These include an aging population; making a massive nation-wide shift from a rural agricultural economy to an urban industrialized economy; dependence on the overall health of the global economy; competition with cheaper developing states and labor; saturation of export markets; dealing with corruption, influence peddling, and nepotism and the public reaction; reforming state industries and eliminating barriers to effective internal economic investment and competition; and creating a more equitable distribution of income and stable consumer demand.

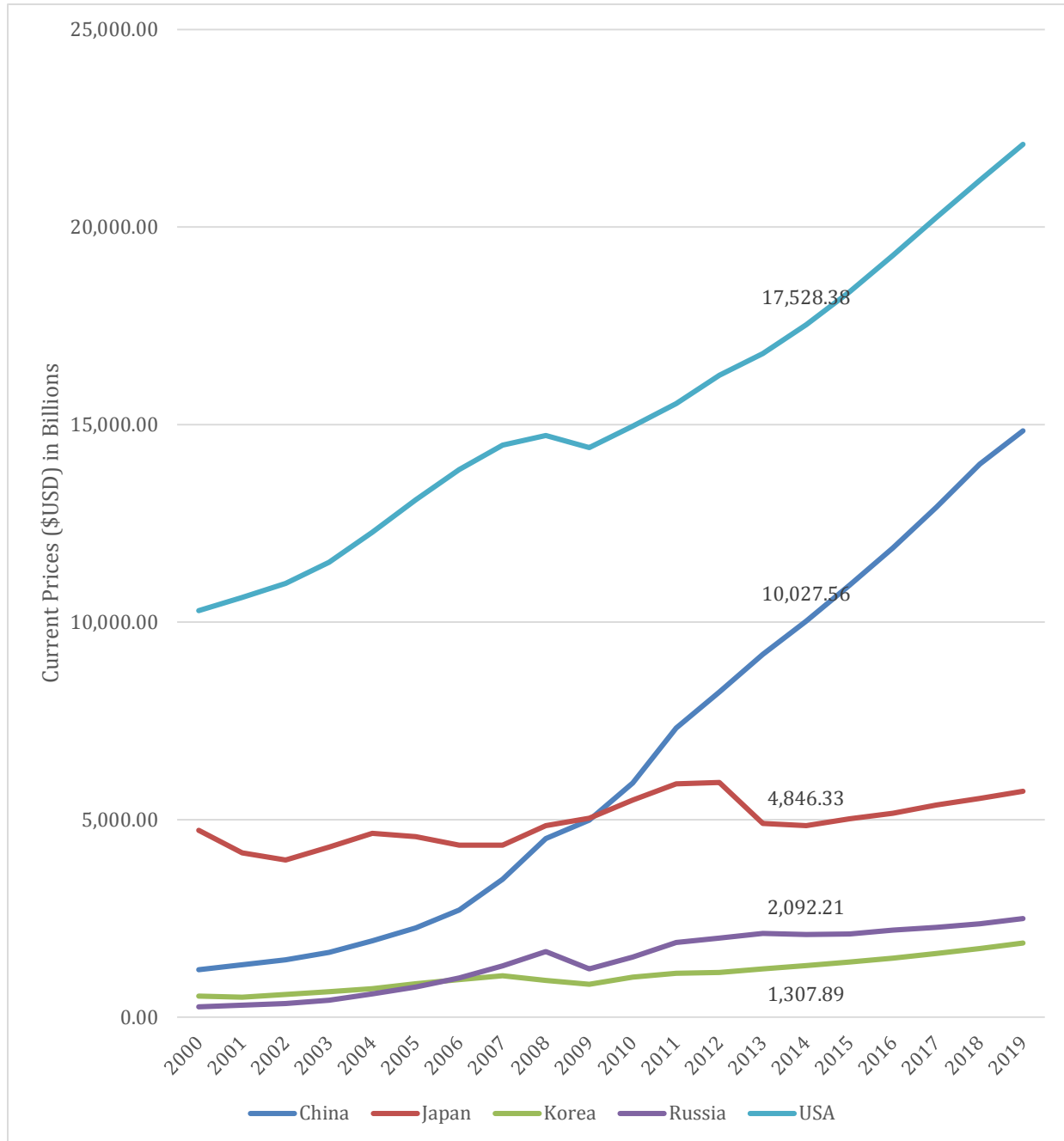
An article from *The Economist* describes China's economy as having ample room for growth. Considering China's large population, compared to those of other developed economies, the Chinese economy can still show strong growth even after it becomes the world's largest economy. Although there are worrying trends that appear to be parallels between China's current economic situation and that of Japan in the 1980's, the article shows that a deeper reading of history points to better historical analogues like the US of the early 20th century and Japan of the 1960's. Both examples suggest that China may experience sharp economic corrections, but does not yet run a

high risk of a long term economic downturn. The long term future of the Chinese economy depends heavily, but not only on, how the yuan appreciates and Chinese monetary policy. According to the article, a gradual appreciation of the yuan and avoidance of excessive credit through lax monetary policy will allow China to avoid a Japanese style long term economic slump. Chinese policymakers must ensure and enable the above two developments lest China run a higher risk of falling into a similar situation that Japan found itself in during the 1990's onward.⁷¹

Even if China can largely sustain its current growth, it will face most of the same limits on its power that the US has faced as an economic superpower. There is a natural synergy between economic and military power, but it is also a synergy that has its limits. China's military success depends on its ability to use military power to achieve its political and strategic goals while avoiding or seriously limiting any actual use of force or conflict. It is hard to conceive of any scenario for a major conflict between China and the US – or between China and any other military power – the real world end state of which would not do China far more harm than the benefits could be worth.

At the same time, China's emerging economic power depends on stable trade relationships that by their very nature require benefits for China's trading partners as well as China. It also depends on creating a stable domestic economy that provides steadily expanding benefits for China's people and balancing the limits to China's exports with steadily expanding domestic demand. China may compete with other states for natural resources and trade but – like the use of force – such competition has serious real world limits. Competitors and the world will react and do so at China's expense.

**Figure 2.1: IMF Estimate of Comparative Rise in China's GDP
(nominal) – Part One**
(Billions \$USD in Current Dollars/Prices)



IMF, *World Economic Outlook Database*, April 2014 Edition, accessed August 21, 2014.

<http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/index.aspx>, adapted by Anthony H. Cordesman and Aaron Lin at the Center for Strategic and International Studies.

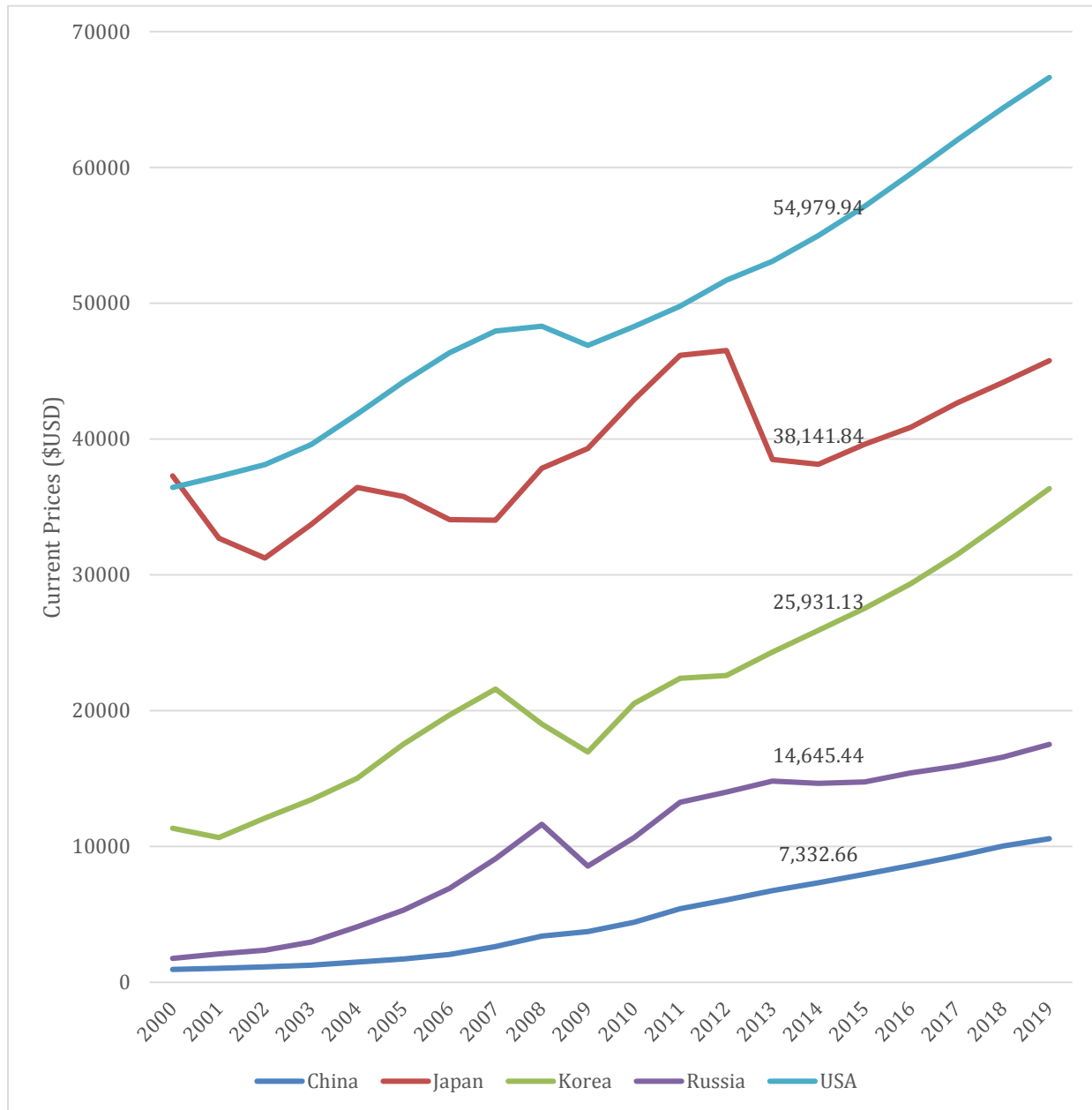
**Figure 2.1: IMF Estimate of Comparative Rise in China's GDP
(nominal) - Part Two**
(Billions \$USD in Current Dollars/Prices)

	China	Japan	Korea	Russia	USA
2000	1,198.48	4,731.20	533.385	259.702	10,289.73
2001	1,324.81	4,159.86	504.584	306.583	10,625.28
2002	1,453.83	3,980.82	575.93	345.125	10,980.20
2003	1,640.96	4,302.94	643.76	430.289	11,512.28
2004	1,931.65	4,655.82	721.976	591.177	12,277.03
2005	2,256.92	4,571.87	844.866	763.704	13,095.43
2006	2,712.92	4,356.75	951.773	989.932	13,857.90
2007	3,494.24	4,356.35	1,049.24	1,299.70	14,480.35
2008	4,519.95	4,849.19	931.405	1,660.85	14,720.25
2009	4,990.53	5,035.14	834.06	1,222.65	14,417.95
2010	5,930.39	5,495.39	1,014.89	1,524.92	14,958.30
2011	7,321.99	5,905.63	1,114.47	1,893.79	15,533.83
2012	8,229.38	5,937.77	1,129.60	2,004.25	16,244.58
2013	9,181.38	4,901.53	1,221.80	2,118.01	16,799.70
2014	10,027.56	4,846.33	1,307.89	2,092.21	17,528.38
2015	10,940.38	5,020.91	1,395.70	2,108.84	18,365.80
2016	11,878.66	5,165.03	1,493.68	2,201.73	19,282.54
2017	12,908.39	5,371.62	1,609.53	2,270.81	20,239.78
2018	13,996.73	5,539.99	1,738.79	2,364.99	21,179.69
2019	14,839.24	5,718.37	1,873.97	2,497.75	22,089.99

IMF, *World Economic Outlook Database*, April 2014 Edition, accessed August 19, 2014.

<http://www.imf.org/external/pubs/ft/weo/2014/01/weodata/inde.aspx>, adapted by Anthony H. Cordesman and Aaron Lin at the Center for Strategic and International Studies.

Figure 2.2: China's Rise in Per Capita GDP – Part I
(Current \$USD)



IMF, *World Economic Outlook Database*, April 2014 Edition, accessed August 19, 2014, <http://www.imf.org/external/pubs/ft/weo/2014/01/weodata/index.aspx>, adapted by Anthony H. Cordesman and Aaron Lin at the Center for Strategic and International Studies.

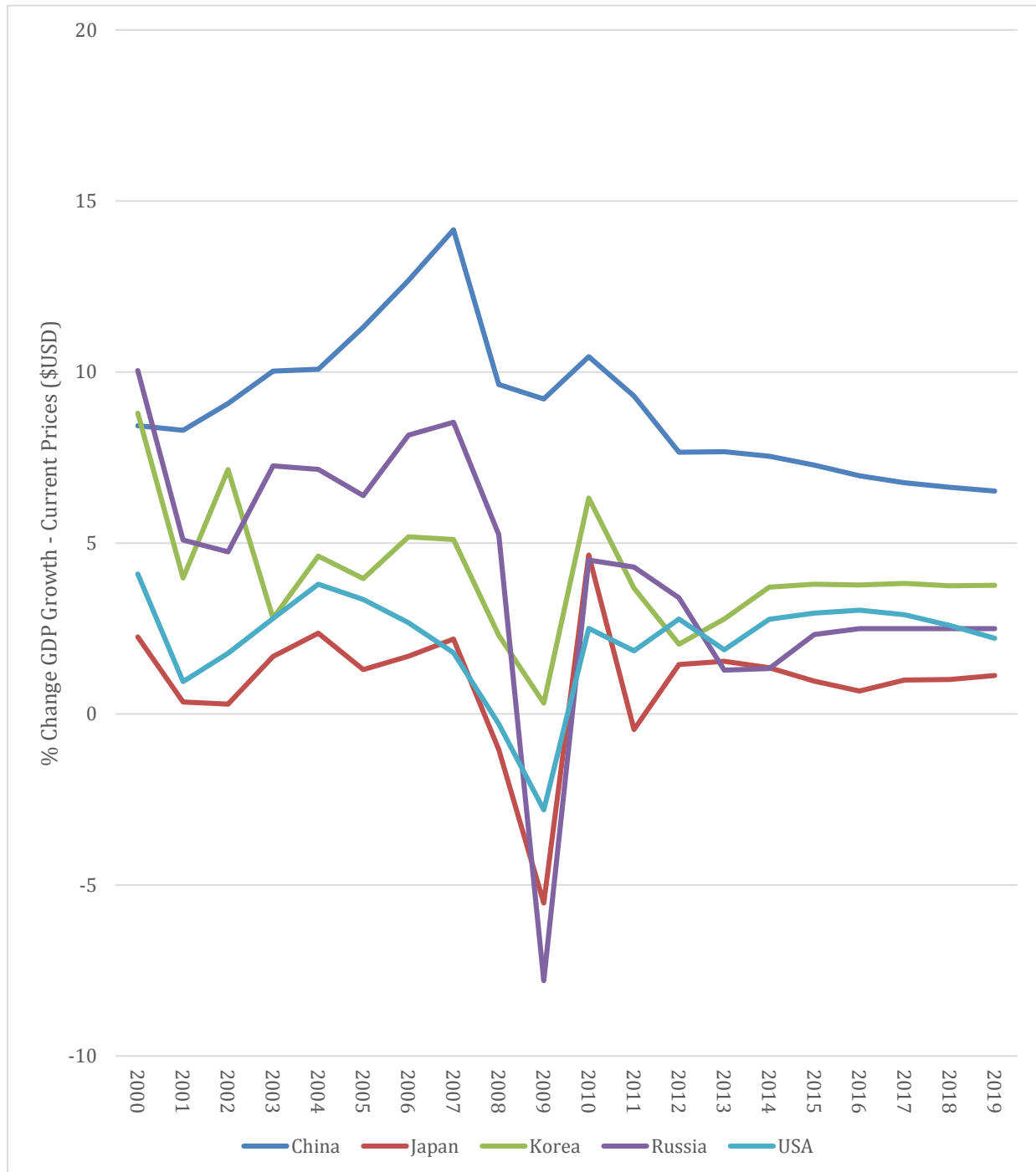
Figure 2.2: China's Rise in Per Capita GDP – Part II
(Current \$USD)

	China	Japan	Korea	Russia	USA
2000	945.597	37,303.81	11,346.66	1,775.13	36,450.14
2001	1,038.04	32,711.10	10,654.82	2,095.58	37,253.44
2002	1,131.80	31,241.17	12,093.73	2,376.90	38,123.18
2003	1,269.83	33,717.88	13,451.10	2,967.51	39,597.37
2004	1,486.02	36,444.19	15,028.82	4,096.86	41,845.61
2005	1,726.05	35,780.57	17,550.88	5,310.88	44,224.13
2006	2,063.87	34,076.75	19,676.11	6,912.93	46,358.36
2007	2,644.56	34,038.35	21,590.17	9,101.56	47,963.56
2008	3,403.53	37,865.07	19,028.07	11,630.58	48,307.78
2009	3,739.62	39,321.22	16,958.65	8,567.94	46,906.90
2010	4,422.66	42,916.74	20,540.18	10,671.21	48,294.15
2011	5,434.36	46,175.36	22,388.40	13,252.56	49,797.25
2012	6,077.65	46,530.38	22,590.16	14,015.75	51,708.98
2013	6,747.23	38,491.35	24,328.98	14,818.64	53,101.01
2014	7,332.66	38,141.84	25,931.13	14,645.44	54,979.94
2015	7,960.63	39,619.22	27,553.23	14,769.26	57,158.18
2016	8,600.66	40,880.42	29,360.62	15,427.52	59,544.10
2017	9,300.05	42,662.71	31,501.71	15,919.55	62,013.50
2018	10,034.34	44,169.95	33,885.24	16,588.07	64,388.17
2019	10,585.78	45,785.89	36,362.54	17,528.07	66,632.82

IMF, *World Economic Outlook Database*, April 2014 Edition, accessed August 19, 2014.

<http://www.imf.org/external/pubs/ft/weo/2014/01/weodata/index.aspx>, adapted by Anthony H. Cordesman and Aaron Lin at the Center for Strategic and International Studies.

Figure 2.3: China's GDP Growth - Part I
(Percent Change in Constant Prices)



IMF, *World Economic Outlook Database*, April 2014 Edition, accessed August 19, 2014.
<http://www.imf.org/external/pubs/ft/weo/2014/01/weodata/index.aspx>, adapted by Anthony H. Cordesman and Aaron Lin at the Center for Strategic and International Studies.

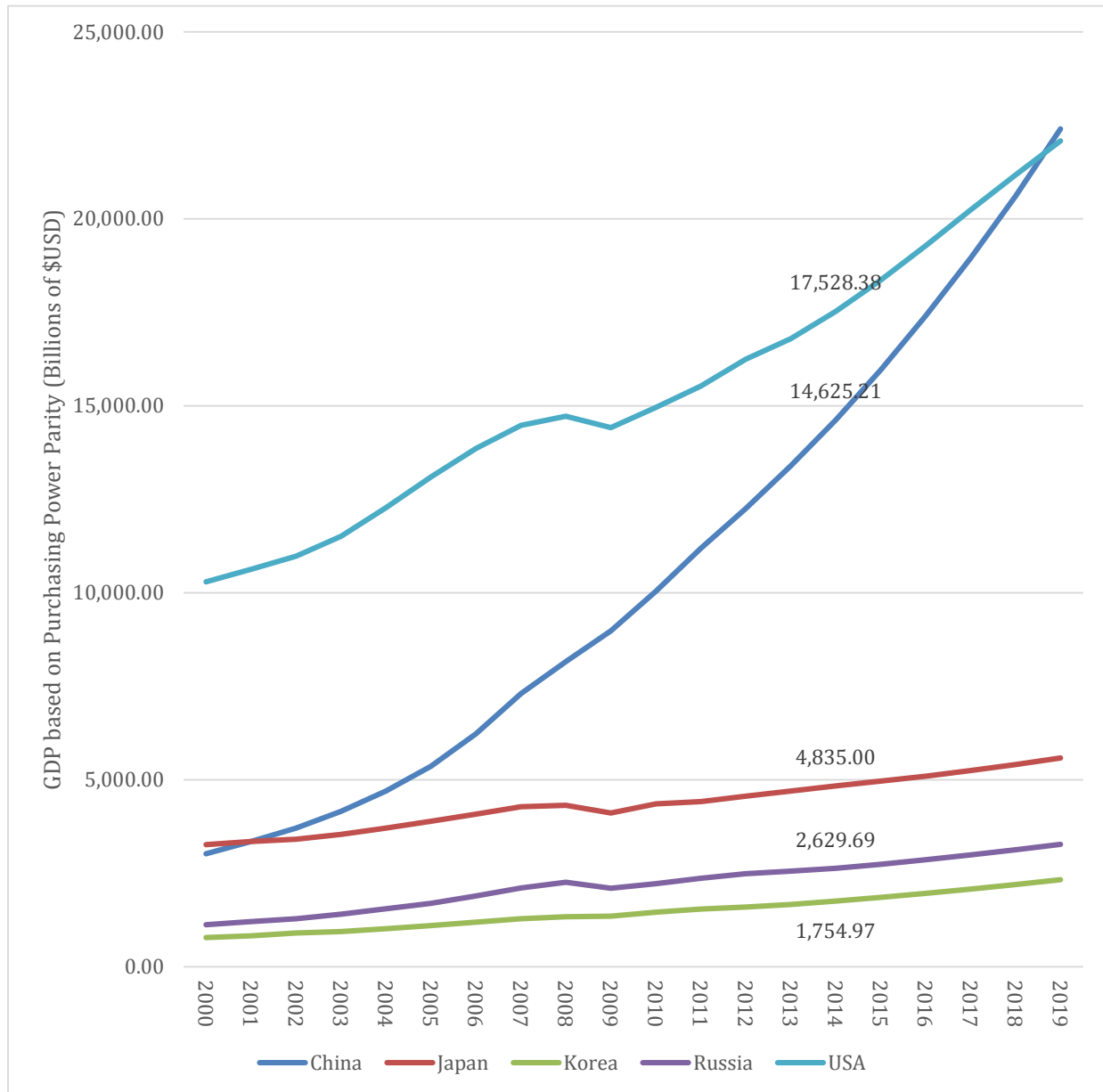
Figure 2.3: China's GDP Growth - Part II
(Percent Change in Constant Prices)

	China	Japan	Korea	Russia	USA
2000	8.431	2.257	8.798	10.046	4.091
2001	8.3	0.355	3.973	5.091	0.949
2002	9.082	0.29	7.15	4.744	1.776
2003	10.025	1.685	2.803	7.253	2.791
2004	10.085	2.361	4.619	7.151	3.798
2005	11.31	1.303	3.957	6.388	3.351
2006	12.677	1.693	5.179	8.153	2.667
2007	14.162	2.192	5.106	8.535	1.79
2008	9.635	-1.042	2.298	5.248	-0.291
2009	9.214	-5.527	0.319	-7.8	2.802
2010	10.447	4.652	6.32	4.5	2.507
2011	9.3	-0.453	3.682	4.3	1.847
2012	7.653	1.447	2.044	3.4	2.779
2013	7.671	1.539	2.775	1.284	1.878
2014	7.538	1.351	3.709	1.327	2.768
2015	7.283	0.965	3.796	2.321	2.953
2016	6.97	0.67	3.776	2.5	3.034
2017	6.761	0.992	3.82	2.5	2.906
2018	6.629	1.006	3.752	2.5	2.593
2019	6.52	1.125	3.763	2.5	2.218

IMF, *World Economic Outlook Database*, April 2014 Edition, accessed August 19, 2014.

<http://www.imf.org/external/pubs/ft/weo/2014/01/weodata/index.aspx>, adapted by Anthony H. Cordesman and Aaron Lin at the Center for Strategic and International Studies.

Figure 2.4: China's Rise in GDP (PPP) – Part I
(Billions of Current International Dollars*)



IMF, *World Economic Outlook Database*, April 2014 Edition, accessed August 19, 2014.

<http://www.imf.org/external/pubs/ft/weo/2014/01/weodata/index.aspx>, adapted by Anthony H. Cordesman and Aaron Lin at the Center for Strategic and International Studies.

*One international dollar has the same value as one US dollar in the US. In other words, one international dollar can buy a comparable amount of goods and services a US dollar would but in the US. The term “international dollar” is used here because the IMF data uses this unit, not the US dollar. See:

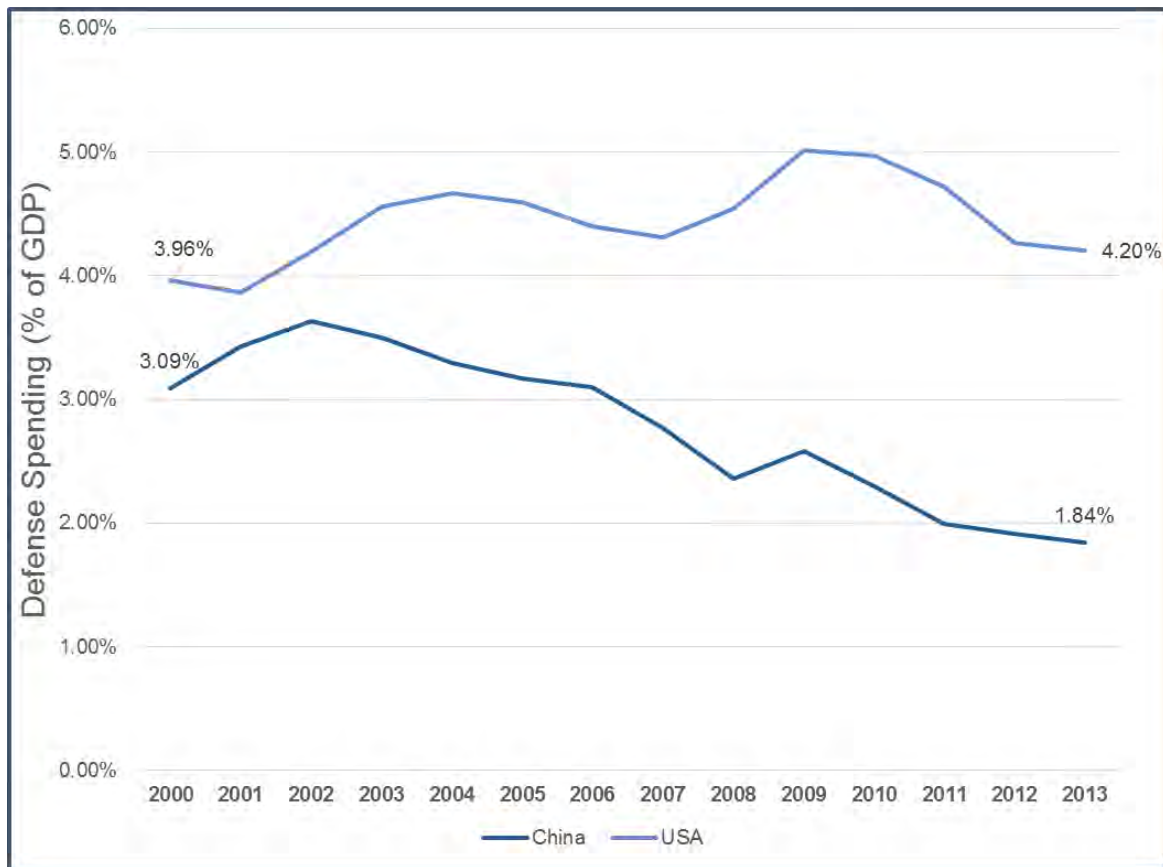
<https://datahelpdesk.worldbank.org/knowledgebase/articles/114944-what-is-an-international-dollar>.

Figure 2.4: China's Rise in GDP (PPP) – Part II
(Billions of Current International Dollars)

	China	Japan	Korea	Russia	United States
2000	3,019.51	3,260.58	776.942	1,122.59	10,289.73
2001	3,345.02	3,347.11	826.313	1,206.76	10,625.28
2002	3,704.90	3,408.40	899.004	1,283.43	10,980.20
2003	4,157.82	3,535.12	942.676	1,404.04	11,512.28
2004	4,697.90	3,706.03	1,015.46	1,546.82	12,277.03
2005	5,364.26	3,889.58	1,096.74	1,696.73	13,095.43
2006	6,230.05	4,077.01	1,189.00	1,891.48	13,857.90
2007	7,301.15	4,276.97	1,282.87	2,107.41	14,480.35
2008	8,160.92	4,315.08	1,337.99	2,261.32	14,720.25
2009	8,981.51	4,107.98	1,352.60	2,100.99	14,417.95
2010	10,039.90	4,351.13	1,455.50	2,222.11	14,958.30
2011	11,189.11	4,416.49	1,538.73	2,363.18	15,533.83
2012	12,255.87	4,558.70	1,597.62	2,486.23	16,244.58
2013	13,395.40	4,698.81	1,666.76	2,556.20	16,799.70
2014	14,625.21	4,835.00	1,754.97	2,629.69	17,528.38
2015	15,968.43	4,968.13	1,853.88	2,738.41	18,365.80
2016	17,405.90	5,096.41	1,960.43	2,860.19	19,282.54
2017	18,954.51	5,249.94	2,076.03	2,990.35	20,239.78
2018	20,615.06	5,408.75	2,196.98	3,126.38	21,179.69
2019	22,406.04	5,580.92	2,326.04	3,269.74	22,089.99

IMF, *World Economic Outlook Database*, April 2014 Edition, accessed August 19, 2014.

<http://www.imf.org/external/pubs/ft/weo/2014/01/weodata/index.aspx>, adapted by Anthony H. Cordesman and Aaron Lin at the Center for Strategic and International Studies.

Figure 2.5: China & USA Defense Spending as a Percentage of GDP

IMF, *World Economic Outlook Database*, April 2013 Edition, accessed February 21, 2014.

<http://www.imf.org/external/pubs/ft/weo/2014/01/weodata/index.aspx>, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

Economic Trends Shaping Military Spending

China's levels of military expenditure have tended to rise in ways that are relatively constant when compared to national income. Many governments increase military spending in rough proportionality to economic growth; while they may find strategic rationales for doing so, wealth seems to generate force development, particularly in developing nations and emerging powers.

So far, China has not faced serious economic challenges in shaping its strategy and military modernization. China has recorded comparatively high GDP growth rates during the past two decades and although there are some indications that economic growth is slowing, China should be able to finance its current high level of modernization indefinitely into the future.

There is an inevitable lag between current economic trends and data on an economy, and some experts feel that China has come under increasing pressure in the first half of 2014. In 2013, however, the data were relatively positive in spite of similar expert cautions during that year. China's GDP stood at \$9.02 trillion (based on the official exchange rate), while its purchasing power parity (PPP) GDP stood at an impressive \$13.62 trillion.⁷²

Positive Trends

In spite of a slight drop-off in its growth rate in recent years, most sources predict that China's economy will continue a robust expansion into the middle of the decade. While the Chinese government has announced it was targeting growth of 7.5% for the year, the Chinese economy grew 7.7% in the first quarter of 2013, though this dropped to 7.5% in the second quarter.³⁹ In mid-July, the Chinese finance minister stated that he expected growth to average approximately 7% for 2013, hinting that economic growth may drop below 7% in the second half of the year; however, *Xinhua* later retracted this statement, saying that the minister had stated that economic growth for 2013 was expected to average 7.5%. Some Western analysts believe that 2013 annual economic growth could be even lower unless government stimulus and reforms are enacted.⁷³

On May 28, 2013, the International Monetary Fund (IMF) predicted that China would grow at around 7.75% for 2013. Inflation was forecast to be 3% and the current account surplus to remain at 2.5% of GDP. The statement released by the IMF in May 2013 noted,⁷⁴

Notwithstanding this relatively favorable near-term outlook, China's economy faces important challenges. In particular, the rapid growth in total social financing—a broad measure of credit—raises concerns about the quality of investment and its impact on repayment capacity, especially since a fast-growing share of credit is flowing through less-well supervised parts of the financial system. While good progress has been made with external rebalancing, growth has become too dependent on the continued expansion of investment, much of it by the property sector and local governments whose financial position is being affected as a result. High income inequality and environmental problems are further signs that the current growth model needs to change.

The Chinese authorities recognize these challenges, and the new government that took office in March has announced a set of reforms for 2013 to start addressing them. In our discussions with the authorities, they emphasized their intention to embark on a comprehensive reform agenda that will ensure more balanced, inclusive and environmentally friendly growth going forward. While China still has significant policy space and financial capacity to maintain stability even in the face of adverse shocks, the margins of safety are narrowing and a decisive impetus to reforms is needed to contain vulnerabilities and move the economy to a more sustainable growth path.

Our dialogue with the authorities has highlighted three broad challenges for the reform agenda: (1) embedding strong governance in lower-level state or state-related economic institutions, especially the banks, state-owned enterprises, and local governments; (2) continued liberalization and reduced government involvement, allowing a greater role of market forces; and (3) a decisive push for rebalancing toward higher household incomes and consumption. Overall success will depend on effective implementation of all three of these goals; for example, further liberalization of financial markets will not achieve the desired efficiency gains—and may even be counterproductive—in the absence of strengthened financial discipline and accountability.

In terms of the main policy areas of the agenda, the mission was reassured by the authorities' focus on the financial sector, fiscal reforms, and other measures to strengthen price signals and the framework for well-functioning markets. Reining in total social financing growth is a priority and will require further tightening of prudential oversight as well as, critically, improved investor accountability for their investment decisions (rather than the widespread perception of guaranteed returns on interest-bearing assets). These policies may slow activity in the short-term, but would do so in a way that supports the transition to a more sustainable growth path. If growth were to slow sharply below this year's target, then on-budget fiscal stimulus should be used, focusing on measures that support household incomes and consumption, such as reductions in social contributions, subsidies to consumption, or targeted social safety net spending.

Continued progress with interest rate liberalization and greater exchange rate flexibility will support rebalancing, and can be accompanied by a gradual and careful further opening of China's capital account. The staff's assessment of China's external position is broadly unchanged from last year's, with the renminbi considered to be moderately undervalued relative to a basket of currencies.

Fiscal reforms are an integral part of the agenda to support rebalancing, improve governance, and raise the efficiency of investment. Including local government financing vehicles, an estimate of 'augmented' general government debt has risen to nearly 50 percent of GDP, with the corresponding estimate of an 'augmented' fiscal deficit on the order of 10 percent of GDP in 2012. While part of this deficit is financed through land sales, and augmented debt is still at a well-manageable level, it is important to gradually reduce the deficit over the medium term to ensure a robust and sustainable debt profile. Continuing tax reform and a comprehensive re-ordering of local government finances, realigning resources with spending needs and revamping the framework for local government investment and borrowing, will be key elements of this effort. Shifting part of the very high social security contributions to other taxation would also contribute to rebalancing and reduce the burden on low-wage earners.

A broad range of other structural reforms will support the transition to more balanced and inclusive growth. Many of these, such as improved pricing of energy, land and water, are already proposed by the authorities. Allowing more competition in sectors currently considered strategic will boost growth and household income, and higher dividends from state-owned enterprises will improve financial discipline and provide additional fiscal revenue.

Taken together, these measures represent a challenging reform agenda that will require strong determination and administrative capacity to implement. The authorities repeatedly emphasized that they are fully aware of those challenges, as they are of the need for a decisive new round of reforms to shift the economy onto a more balanced and sustainable growth path. Their success will benefit both China and the rest of the world, reflecting the growing importance of China and its integration with the global economy.

The Economist Intelligence Unit, taking a longer view, predicted that "the economy will expand by 7.8% in 2013, but this will mark a peak, with the rate of growth gradually decelerating to 6.3% in 2017," while "[r]eal GDP growth will average 7.3% a year in 2013-17."⁷⁵ Consequently, in the near term, China's economic growth will continue and China's potential to support large and advanced military forces will at least be sustained, if not increased.

Economic Uncertainties

As noted earlier, there are important short term and structural uncertainties as to China's economic future and ability to keep funding a massive military program in the longer term. As the IMF noted above, three key challenges for reform are increasing strong governance in state-related economic institutions and the lower levels of the state, continuing to liberalize and decrease government involvement in the economy, and rebalancing the economy towards higher household incomes and consumption.⁷⁶ As China shifts from an export-dependent growth model to growth increasingly reliant on domestic consumption, economic imbalances can impede growth – in particular, intensifying gaps in the social safety net and the need for financial reform.⁷⁷

Overall, the Chinese export-led economy depends heavily on the health of the global economy to maintain growth and stability. Some export markets are also reaching saturation points, such as the market for solar panels – in 2012 the world demand was approximately 30 gigawatts, while the supply of solar panels was 60 gigawatts. The slow recovery from the global recession and the Eurozone's sovereign debt crisis has impacted the East Asian region as a whole. While probable economic forecasts place the region in a positive light, a 2012 World Bank report highlighted the potential economic risks facing East Asia:⁷⁸

For the majority of countries in the region, the health of the global economy and high-income Europe, in particular, represents the strongest risk at this time.

Trade. If the situation in Europe deteriorates sharply, global trade could fall by 5 or more percent with serious implications for the very open East Asia region.

Finance. The potential freezing up of international capital flows under emerging global conditions has increased, exposing East Asian countries, notably, China, Indonesia, Malaysia and Thailand to the possibility of market disruptions, exchange rate volatility and external financing pressures. Vulnerabilities are more acute for countries with large shares of short term and maturing debt or current account deficits.

Commodity Prices. A large number of commodity exporting countries in the region could experience revenue losses (notably oil exporters and especially raw materials producers) under a slower global growth environment.

Remittances. Migrant remittance receipts are potent drivers for growth in countries, such as the Philippines and small island economies – these flows, as well as tourist arrivals could be stymied by sluggish labor market developments in the OECD and could fall sharply in the event of a global crisis.

Real Estate in China is arguably over inflated. Should the market deflate, ensuing wealth losses and loan defaults could further weaken the outlook for China.

An IMF assessment in July 2013 was generally favourable, but it did note that China needed reform in other areas:⁷⁹

... China's economic performance over the past three decades has been remarkable, a testament to its ability to implement necessary but difficult reforms. Continued success now requires another round of decisive measures—in line with the new leadership's expressed intention to re-energize the reform effort.

...Staff expect the economy to grow by 73/4 percent this year, although with downside risks from both external and domestic uncertainties. Since the global crisis, a mix of investment, credit, and fiscal stimulus has underpinned activity. This pattern of growth is not sustainable and is raising vulnerabilities.

While China still has significant buffers to weather shocks, the margins of safety are diminishing...To secure more balanced and sustainable growth, a package of reforms is needed to contain the growing risks while transitioning the economy to a more consumer-based, inclusive, and environmentally-friendly growth path.

In the near term, a priority is to rein in broader credit growth and prevent a further build-up of risks in the financial sector. Only if growth were to slow too sharply below the authorities' target, on-budget fiscal stimulus should be used in a manner that supports rebalancing and helps protect vulnerable groups.

Accelerated financial sector reforms are needed to secure a safe transition to a market-based financial system. This will combine allowing greater room for market forces (such as liberalizing interest rates in the 'traditional' banking industry) with strengthened oversight, governance, and investor accountability. While this will lead to higher borrowing costs for many firms, it is critical to reduce the large-scale regulatory arbitrage and moral hazard evident in the current system, and to improve the allocation of credit essential to future growth and sound finance.

The post-2008 expansion in quasi-fiscal activity needs to be gradually unwound. Key reforms to this end should include a comprehensive revamp of local government finances, increasing SOE dividend payments to the budget, and continuing tax reforms allowing, inter alia, a shift in the tax burden away from regressive social contributions.

A more market-based exchange rate, with reduced intervention, will facilitate further adjustment in the renminbi which staff assess as moderately undervalued against a broad-basket of currencies.

A range of other structural reforms will support rebalancing and help unleash new sources of growth, such as opening markets to more competition, reforming resource prices, and gradually liberalizing the capital account. Graphics representing the IMF assessments can be seen in **Figure 2.4**. The IMF also warned in 2013 that,⁸⁰

Directors noted that the growth outlook is clouded by mounting domestic vulnerabilities in the financial, fiscal, and real estate sectors. At the same time, potential spillovers from developments in the euro area and major advanced economies continue to pose external risks. Directors agreed that China has the capacity to withstand shocks, but considered that a further strengthening of policy buffers over time would be desirable. Accordingly, Directors underscored the importance of transitioning to a new growth path that is more

consumption-based, inclusive, and environmentally friendly. They welcomed the authorities' reform strategy in this direction, which charts a path toward mitigating risks, rebalancing growth, and addressing income disparities, thus safeguarding China's important contribution to global growth.

Executive Directors agreed that the near-term challenge is to contain risks to financial stability, by reining in credit growth and nontraditional forms of lending. Going forward, Directors stressed that a more market-based financial system would help improve the allocation of capital, boost household income, and prevent a further buildup of risks. Emphasizing that financial sector liberalization should progress at the appropriate pace and sequencing, they considered as pressing priorities further deregulation of interest rates, greater use of market-based instruments in monetary management, and enhanced prudential oversight, including over the activities of non-banks.

In this connection, Directors agreed that a more robust and transparent framework for resolution of bad debts and troubled financial institutions would facilitate an orderly exit of weak institutions. They also welcomed the authorities' plan to introduce deposit insurance, and encouraged them to take steps to remove the perception of implicit government guarantees on some financial products, which would ensure a more effective pricing of risk and limit moral hazard.

Directors recognized the contribution of off-budget, quasi-fiscal activity in supporting demand since the global financial crisis. Nonetheless, they encouraged the authorities to unwind it gradually to limit fiscal risks and, if economic growth slows down too sharply, they recommended using on-budget fiscal stimulus, focused on consumption.

Directors also encouraged continued efforts to strengthen the governance and transparency of local government finances while protecting priority spending. In addition, shifting the tax burden from social contributions toward more progressive and efficient forms of taxation, including a value added tax, would boost the role of private consumption as a growth-driver and reduce income inequality. Directors welcomed the authorities' indication to consider this as part of a comprehensive reform of the social security system.

Taking note of the staff's assessment that the renminbi remains moderately undervalued, Directors considered that a more market-based exchange rate system would facilitate further internal and external rebalancing. They supported the authorities' policy of restraining foreign exchange intervention, thereby allowing market forces to play a greater role in exchange rate determination. Directors stressed the importance of advancing structural reform under the Twelfth Five-Year Plan. They encouraged continued liberalization of the capital account, carefully sequenced with financial and exchange rate reforms. Further progress on demand rebalancing is particularly crucial, including by opening markets to domestic and foreign competition, especially in the services and upstream industries, raising resource prices and taxes, and increasing dividend payments by state-owned enterprises to the budget.

Recognizing China's rapid economic and financial development and its increasing global importance, Directors supported plans to continue to upgrade the statistical base, which they hoped will eventually lead to China's subscription of the Fund's Special Data Dissemination Standard. In particular, they welcomed the authorities' ongoing efforts to improve data on local government finances.

Other Asian countries have questioned China's future economic progress. The 2013 Japanese defense white paper noted that China was experiencing increasing domestic challenges:⁸¹

China has various domestic problems. Corruption within central and local communist party leaderships is becoming a significant political problem. As a result of China's rapid economic growth, there are emerging problems such as regional disparities between urban-rural and coastal-inland regions, wealth gaps among urban residents, inflation, environmental pollution, and lack of agricultural and industrial water. Moreover, issues associated with the rapid aging of the population are forecasted to arise in the future. China is expected to continue to tighten its control over society as these potentially destabilizing factors to the government administration expand and diversify. However, analysts point out that with the spread of the Internet, coupled with other factors, the Chinese government will face increasing difficulties controlling the activities of the masses.

Moreover, China has domestic ethnic minority issues, such as protest activities by ethnic minorities in areas such as the Tibet Autonomous Region and the Xinjiang Uyghur Autonomous Region. According to reports, some ethnic minorities are undertaking campaigns seeking separation and independence. Against

this background, Xi Jinping assumed the post of General Secretary of the Chinese Communist Party (CCP) and Chairman of the CCP Central Military Commission at the first plenary session of the 18th Central Committee of the CCP in November 2012, and then assumed the post of President at the first session of the 12th National People's Congress in March 2013, thus seizing control of the three powers of party, military and government. The environment surrounding the Xi government is not optimistic.

During the third plenary session of the 18th CCP Central Committee in November 2013, the session adopted "The Decision on Major Issues Concerning Comprehensively Deepening Reforms" regarding reforms in a wide range of areas, such as economics, politics, culture, society, environment, and national defense and the military. Through the Decision, the Central Committee decided to establish a central leading team for comprehensively deepening reform, which is deemed responsible for the overall design of the reform. The team held its first meeting in January 2014. How these reforms will take shape, including how China will deal with corruption problems within the party, will be a point to watch out for going forward.

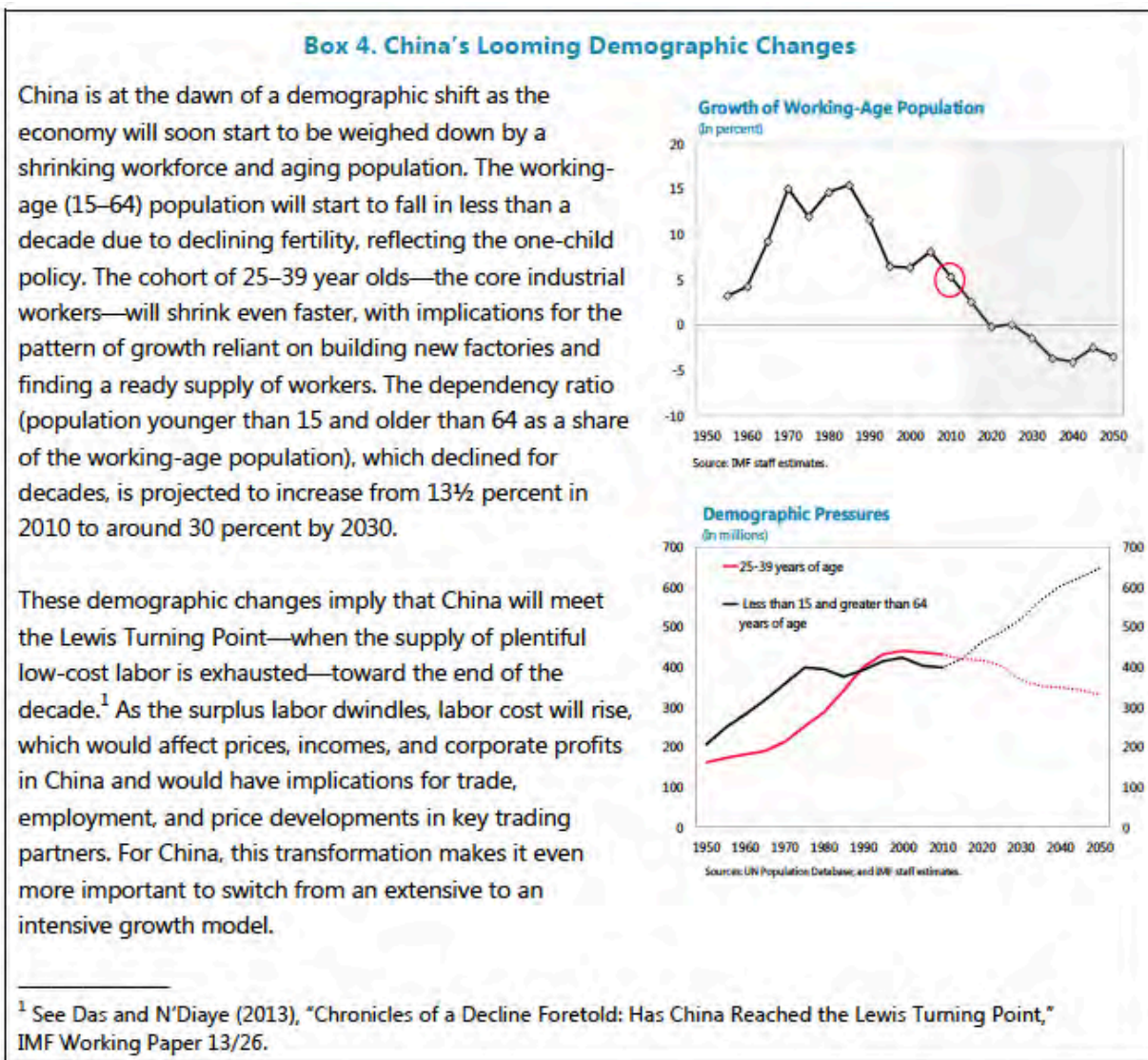
At the same time, China faces longer-term problems in successfully dealing with the massive shift from a rural agricultural economy to an urban industrialized economy. China plans to move 250 million rural residents into newly-built cities and towns over the next 12 years, primarily as a way to find a new source of growth for the slowing economy.⁸²

Corruption, influence peddling, and nepotism are also rampant in the Communist party; Xi Jinping has recently led an anti-corruption movement that Chinese newspapers have reported as likely to be a key priority for his government in the coming years. This appears to be, at least in part, a reaction to the increasing public discontent regarding daily incidents of minor corruption, high-level leadership scandals, and negligence and inefficiency of local Party members. However, many in China believe that the corruption-related problems in China cannot be solved without fundamental political reforms, such as developing an independent media and judiciary.⁸³

China also must address the effects of rising labor costs and the resultant movement of businesses to countries with cheaper labor, such as Cambodia and Vietnam, the latter of which has wages half those in China.⁸⁴ Low costs of operations and a large human resource pool made China especially attractive for foreign manufacturers and investors; over the past several years, wages have steadily risen, concurrently increasing the cost of manufacturing and operations in China. Rising labor costs, declining earnings, and uncertainty over the pace of economic reforms are reducing foreign investors' confidence in the economy.⁸⁵

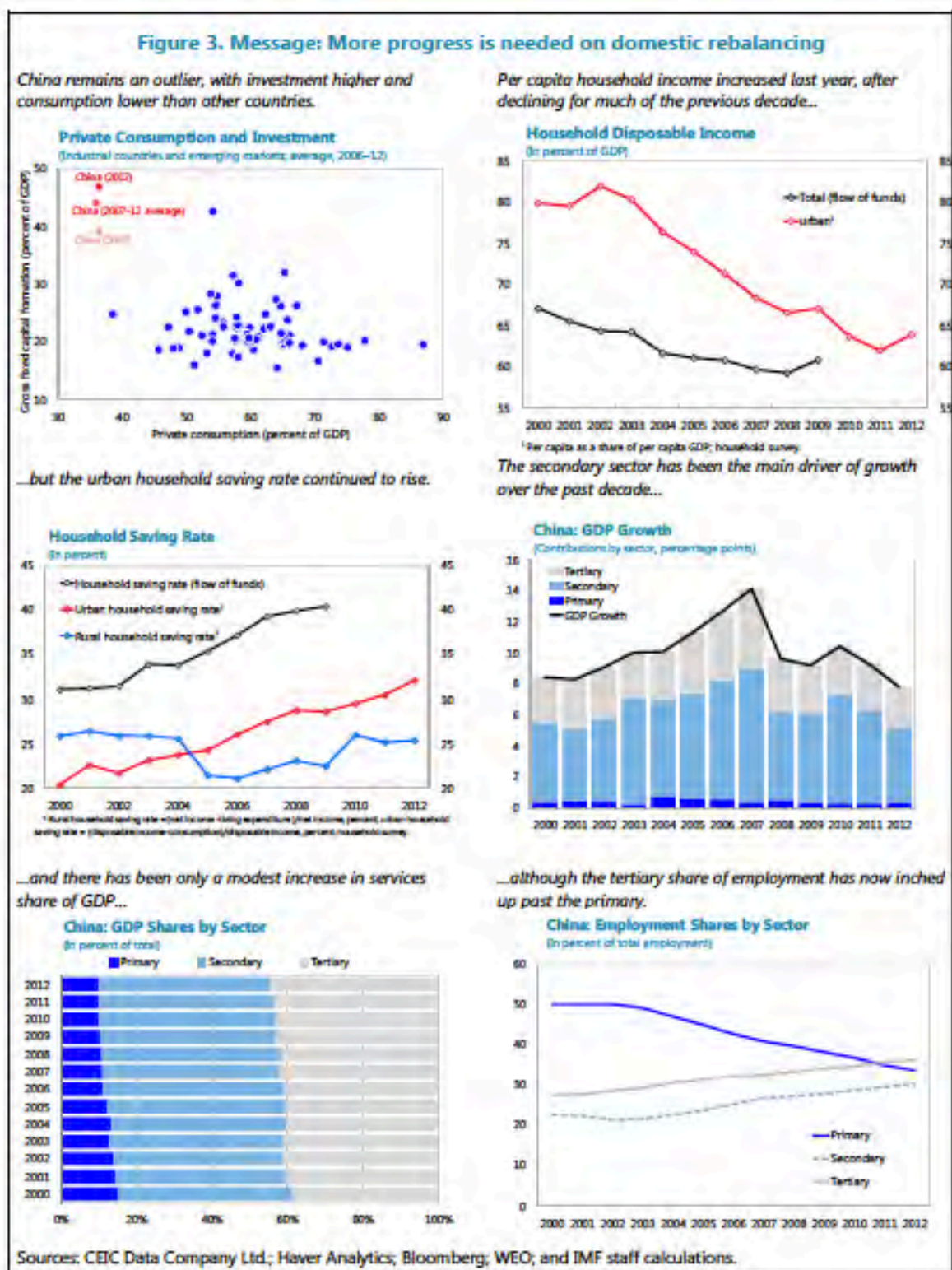
Furthermore, the country must deal with an aging population, an issue that is especially serious in the overall context of the demographic impact of its one child policy in reducing its labor force and concurrently reducing the number of workers available to care for the large number of the elderly. According to the 2010 census, people between the ages of 15 and 59 began to decrease in 2010 and will likely fall by 29.3 million by 2020. Total urban employment is still increasing as Chinese workers move to the cities, but the workforce has started to shrink in absolute terms; China will now need to boost economic output through increased economic efficiency via reallocating resources.⁸⁶

"The urbanization blueprint released by the Central Committee of the CPC and the State Council in May 2014 --, *National New-Type Urbanization Plan 2014-2020* -- announced the acceleration of the process of turning rural migrants into urban citizens. The plan anticipates that by 2020 urban residents will make up 60 per cent of the total population, compared to 53.7 per cent in 2013 — while urban permanent residents will comprise 45 per cent, compared to 36 per cent in 2013⁸⁷

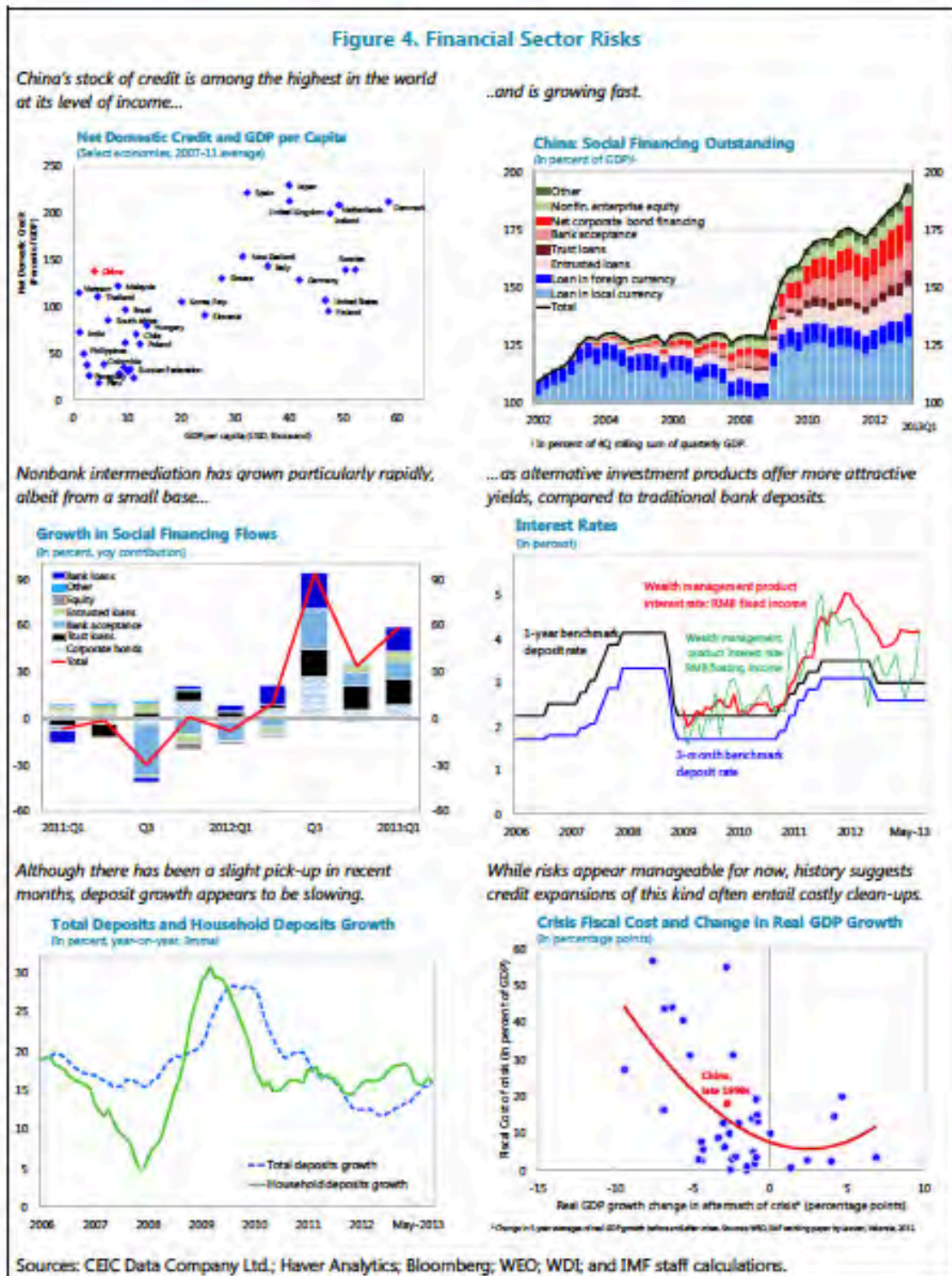
Figure 2.6: July 2013 IMF Assessment of China's Demographic Changes

Source: IMF, *People's Republic of China 2013 Article IV Consultation [Country Report 13/211]*, July 2013, p. 20.

Figure 2.7: July 2013 IMF Assessment of China.

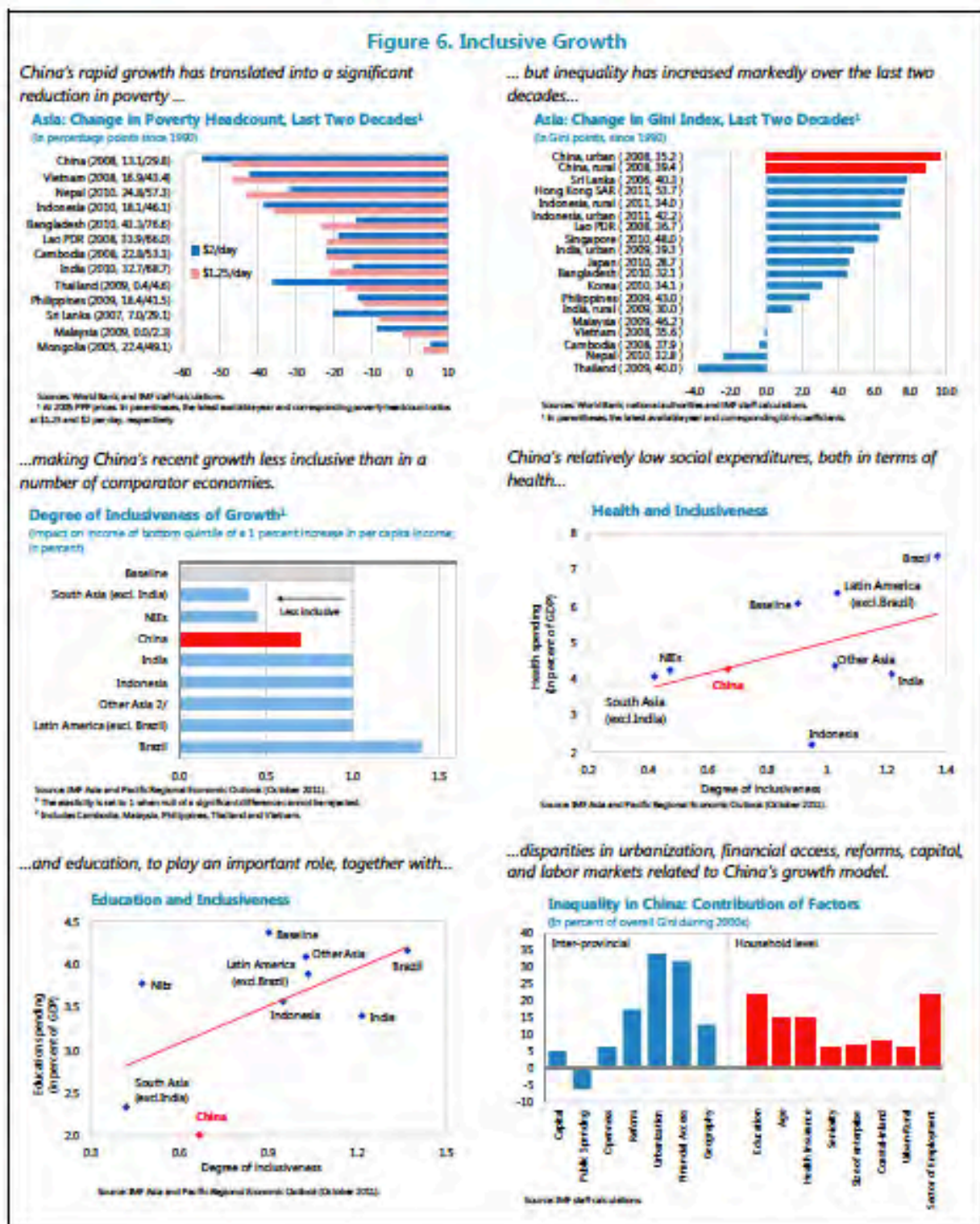


Source: IMF, *People's Republic of China 2013 Article IV Consultation [Country Report 13/211]*, July 2013, p. 8.

Figure 2.8: July 2013 IMF Assessment of China's Financial Sector

Source: IMF, *People's Republic of China 2013 Article IV Consultation [Country Report 13/211]*, July 2013, p. 11.

Figure 2.9: July 2013 IMF Assessment of China's Economic Growth and Inequality

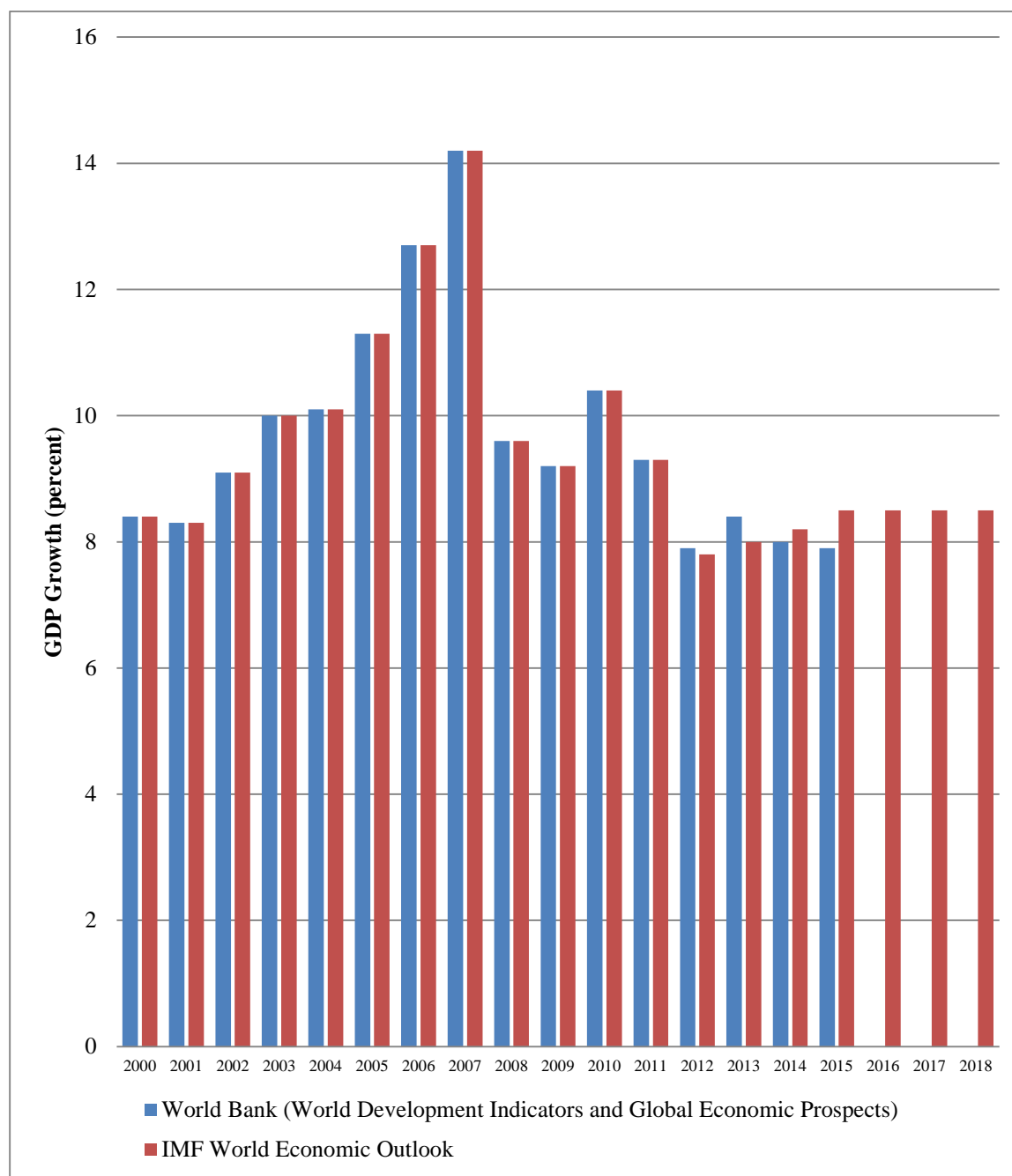


Source: IMF, *People's Republic of China 2013 Article IV Consultation [Country Report 13/211]*, July 2013, p. 18.

China's future economic growth is impossible to predict, and extrapolations based on currently favourable trends often ignore the basic reality that "trees do not grow to the sky." Nevertheless, most experts feel that China will continue to enjoy substantial economic growth and that this will allow it to fund a steady expansion in the capability of its military forces. **Figures 2.5 and 2.6** demonstrate differing – although increasingly uncertain – estimates of China's economic performance. They show that multiple organizations' estimate that China will continue to experience robust economic growth even if not at the double-digit rate of the mid-2000s.

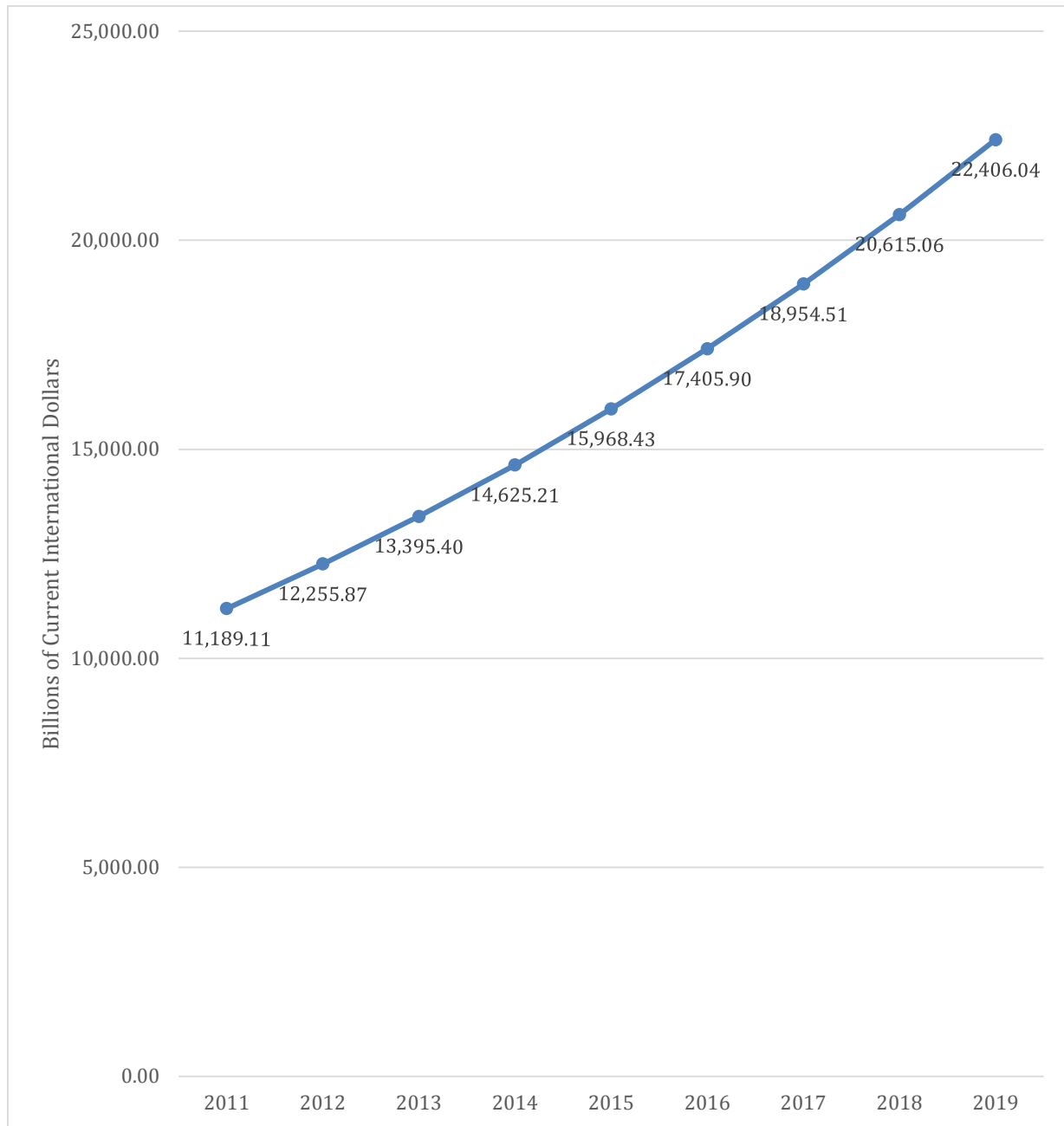
- **Figure 2.5** illustrates Chinese percentage growth rates from 2000 to a 2018 projection.
- **Figure 2.6** shows Chinese GDP based on purchasing power parity, from 2011-2018.

**Figure 2.10: Different Estimates of Chinese GDP Growth Rates
(Market Prices): 2000-2018**



Sources: World Bank, “World Development Indicators,” 2013, accessed June 10, 2013 (for data 2000-2011; constant 2000 US dollars), <http://data.worldbank.org/indicator>; World Bank, “Global Economic Prospects January 2013,” accessed June 10, 2013 (for data 2012-2015; constant 2005 US dollars), <http://siteresources.worldbank.org/INTPROSPECTS/Resources/334934-1322593305595/8287139-1358278153255/GEP13aEAPRegionalAnnex.pdf>; IMF, “World Economic Outlook,” updated April 2013, accessed June 10, 2013. <http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/index.aspx>.

Figure 2.11: China's GDP (PPP) (Billions of Current International Dollars)



Source: IMF, "World Economic Outlook," updated April 2014, accessed August 19, 2014.
<http://www.imf.org/external/pubs/ft/weo/2014/01/weodata/index.aspx>.

Chinese Economic Growth Relative to Increases in Military Spending

The data and estimates of future growth become even more uncertain when the trends in China's economy have to be compared with the trends in its military spending. There is nothing approaching a consensus over how much China is spending put its military forces, and unclassified estimates from the same source after often inconsistent from year to year. Moreover, the fact that China can select how to define the military expenditures it reports, and price key military expenditures as it wants within its state sector means it is difficult to know what aspects of China's security forces and expenditure are being included in its reporting and how they are priced – problems that exist to some extent in all outside estimates because their lack of full transparency as to the sources of data and methodology.

Few would argue, however, that **Figure 2.7** and **Figure 2.8** are broadly correct in showing a strong correlation between the rate of increase in GDP and a rise in official military expenditures as acceleration in GDP growth is matched by a constant defense expenditure-to-GDP ratio.

These figures need to be kept in mind when interpreting the level of Chinese military spending. The US DoD annual report on Chinese military power, issued in May 2013, stated that:⁸⁸

On March 5, 2013, Beijing announced a 10.7 percent increase in its annual military budget to \$114 billion, continuing more than two decades of sustained annual defense spending increases. Analysis of data from 2003 through 2012 indicates China's officially disclosed military budget grew at an average of 9.7 percent per year in inflation-adjusted terms over the period. China has the fiscal strength and political will to support defense spending growth at comparable levels, despite lowering its economic growth forecast in 2012 to 7.5 percent from 8 percent in 2011. Continued increases will support PLA modernization efforts and facilitate China's move toward a more professional force.

Using 2012 prices and exchange rates, the DoD estimates that China's total actual military-related expenditure for 2012 falls between \$135 billion and \$215 billion. However, it is difficult to estimate actual PLA military expenses due to China's poor accounting transparency and incomplete transition from a command economy. China's published military budget omits several major categories of expenditure, such as procurement of foreign weapons and equipment.

The US DoD annual report on Chinese military power, issued in June 2014 is virtually identical to the report from the previous year -- with the exception of the increase in the annual military budget reported by China:⁸⁹

On March 5, 2013, China announced a 5.7 percent increase in the annual military budget to \$119.5 billion USD, continuing more than two decades of sustained annual defense spending increases. Analysis of data from 2004 through 2013 indicates China's officially disclosed military budget grew at an average of 9.4 percent per year in inflation-adjusted terms over the period. China has the fiscal strength and political will to support defense spending growth at comparable levels for the foreseeable future. Continued increases will support PLA modernization efforts and facilitate China's move toward a more professional force.

Using 2013 prices and exchange rates, the Department of Defense (DoD) estimates that China's total military-related spending for 2013 exceeds \$145 billion. However, it is difficult to estimate actual PLA military expenses due to China's poor accounting transparency and incomplete transition from a command economy. China's published military budget omits several major categories of expenditure, such as procurement of foreign weapons and equipment.

The Japanese defense white paper for 2014 put the issues differently, and in a broader context:⁹⁰

China has been sustaining large increases in its defense spending and broadly and rapidly reinforcing its military forces, mainly its nuclear and missile force as well as its Navy and Air Force. As part of such efforts, it is understood that China is strengthening its so-called "A2/AD" capabilities. In addition, China is working to improve joint operational capabilities, enhance capabilities for extended-range power projection, conduct practical exercises, cultivate and acquire highly-capable personnel for administering operations of

informatized forces, and improve the foundation of its domestic defense industry. Furthermore, China has been rapidly expanding and intensifying its activities in the seas and airspace, including the East China Sea and South China Sea. In particular, China has adopted so-called assertive measures, including attempts to alter the status quo by coercive measures, in response to issues involving conflicting maritime interests. Japan has great concerns over such Chinese military activities, etc., together with the lack of transparency in its military affairs and security issues, and needs to pay utmost attention to them. These activities also raise security concerns for the region and the international community.

China has not disclosed specific information on possession of weapons, procurement goals and past procurements, organization and locations of major units, records of main military operations and exercises, and a detailed breakdown of the national defense budget. Moreover, China has not set out a clear, specific future vision of its military strengthening. The transparency of its decision-making process in relation to military and security affairs is not enough either.

China has released defense white papers including China's National Defense every two years since 1998, and it conducts numerous dialogues with national defense authorities of other countries. Furthermore, in August 2007, China expressed its will to return to the United Nations Register of Conventional Arms and to participate in the United Nations Instrument for Reporting Military Expenditures, and has submitted annual reports based on each framework. The Chinese Ministry of National Defense has been giving monthly press conferences by a spokesperson since April 2011. In addition, in November 2013, the position of spokesperson was newly established at seven departments, including the Navy and Air Force⁶, and the spokesperson disseminates information regarding developments related to the People's Liberation Army (PLA). Such moves by China can be perceived on the one hand as efforts that contribute to the improvement of the transparency of military forces, and on the other as efforts to strengthen "Media Warfare."

However, with regard to national defense spending, China has not provided a detailed breakdown of the procurement expenses of major equipment and other details. In the past, China used to disclose the total amounts and general purposes for the following three categories: personnel; training and maintenance; and equipment. Nonetheless, such explanations have not been offered in recent years. Moreover, in China's defense white paper titled, "The Diversified Employment of China's Armed Forces," released in April 2013, its contents were limited to selective topics. While on some topics it gave more details than in the past, there was no reference to national defense spending that was described in previous defense white papers. Thus, transparency is declining in regard to national defense spending, and China has not yet achieved the levels of transparency expected of a responsible nation in the international community.

China announced that its national defense budget for FY2014 was approximately 808.2 billion yuan. The initial budget amount announced represented a growth of approximately 12.2% (approximately 88.1 billion yuan) compared to the initial budget amount for the previous fiscal year. This shows that the Chinese national defense budget continues to increase at a rapid pace. The nominal size of China's announced national defense budget has grown approximately 40-fold over the past 26 years and almost quadrupled in size over the past ten years. China positions the buildup of defense capabilities as important a task as economic development, and it is believed that China is continuing to invest resources in the improvement of its defense capabilities in tandem with its economic development.

In addition, it must be noted that the amount of the defense budget announced by China is considered to be only a part of its actual military expenditures. For example, it is believed that the announced defense budget does not include all the equipment procurement costs and research and development expenses.

It is equally important to note, however, that some of the US and other outside reaction to the shifts in Chinese military strategy and modernization tends to ignore the fact that nations generally increase military power as their economic strength increases, become more sensitive to strategic concerns beyond their border, and become more competitive with other states. The US sometimes ignores its own history in doing so, in particular what British and other European perceptions were of the growth of US power.

Moreover, few countries have suffered as much in modern history from outside exploitation and invasion – forces that involved a long series of crippling outside attacks and occupations. Chinese

nationalism is shaped by anger at a history that dates back to the Opium Wars of 1839-1860, and was then followed by European and Japanese zones of exploitation, wars with Japan, and an American role that sometimes aided China but also joined outside states in exploiting and invading China during the siege of Beijing in 1900.⁹¹

China suffered some of its worst moments in modern history during the Japanese invasions that began in the 1930s and lasted through World War II. China sees the “Cold War” as a period where the US supported the Kuomintang and Taiwan until the shift in US policy during the Nixon Administration, and sees the Korean War to some extent as an extension of outside threats and challenges. While it does not currently face serious military threats from its Asian neighbors, that has scarcely always been the case, and China fought a border war with Vietnam as recently as 1979. It also faces serious territorial and maritime disputes with many of these same neighbors – several of which have begun their own military build-up and expanded their ties with the US. While China’s overt diplomatic and military strategy may focus on peace and good relations with all outsider states, no nation can ignore either its history or its current strategic situation.

Figure 2.12: Comparing Percentage of GDP spent on Military Expenditures – Part One

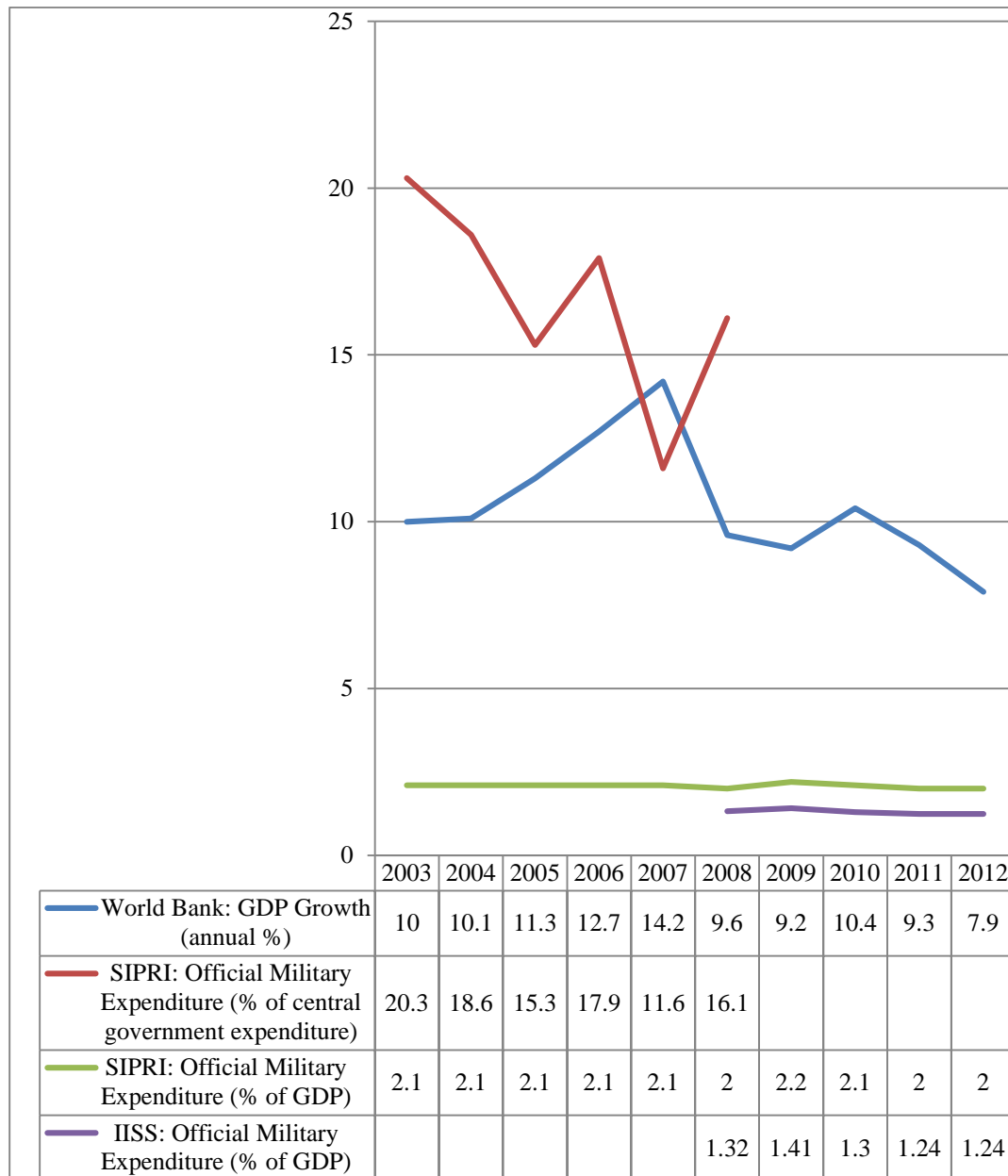


Source: IMF, “World Economic Outlook,” updated April 2013, accessed June 10, 2013, and IISS & SIPRI Indexes for military spending. <http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/index.aspx>, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

Figure 2.12: Comparing Percentage of GDP spent on Military Expenditures – Part Two

	China's GDP (In Billions \$USD)	SIPRI Index (In Billions \$USD)	China Mil Expend % GDP	USA GDP (In Billions \$USD)	SIPRI Index (In Billions \$USD)	Mil Expend % GDP
2000	\$1,198.5	\$37.04	3.09%	9,951.48	394.155	3.96%
2001	\$1,324.8	\$45.42	3.43%	10,286.18	397.334	3.86%
2002	\$1,453.8	\$52.83	3.63%	10,642.30	446.142	4.19%
2003	\$1,641.0	\$57.39	3.50%	11,142.23	507.781	4.56%
2004	\$1,931.6	\$63.56	3.29%	11,853.25	553.441	4.67%
2005	\$2,256.9	\$71.50	3.17%	12,622.95	579.831	4.59%
2006	\$2,712.9	\$84.02	3.10%	13,377.20	588.837	4.40%
2007	\$3,494.2	\$96.91	2.77%	14,028.68	604.292	4.31%
2008	\$4,520.0	\$106.77	2.36%	14,291.55	649.01	4.54%
2009	\$4,990.5	\$128.87	2.58%	13,973.65	701.087	5.02%
2010	\$5,930.4	\$136.47	2.30%	14,498.93	720.386	4.97%
2011	\$7,322.0	\$146.15	2.00%	15,075.68	711.402	4.72%
2012	\$8,227.0	\$157.60	1.92%	15,684.75	668.841	4.26%
2013	\$9,020.3	\$166.11	1.84%	16,237.75	682.478	4.20%

Source: IMF, "World Economic Outlook," updated April 2013, accessed June 10, 2013; and IISS & SIPRI Indexes for military spending. <http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/index.aspx>, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

Figure 2.13: Chinese GDP Growth and Defense Spending

Based primarily on material from International Institute for Strategic Studies, *The Military Balance 2009* and *2013* (London: Routledge, 2009 and 2013); 2013 SIPRI Military Expenditure Database, *Stockholm International Peace Research Institute*. <http://www.sipri.org/databases/milex> World Bank, "World Development Indicators," 2013, accessed June 10, <http://data.worldbank.org/indicator>.

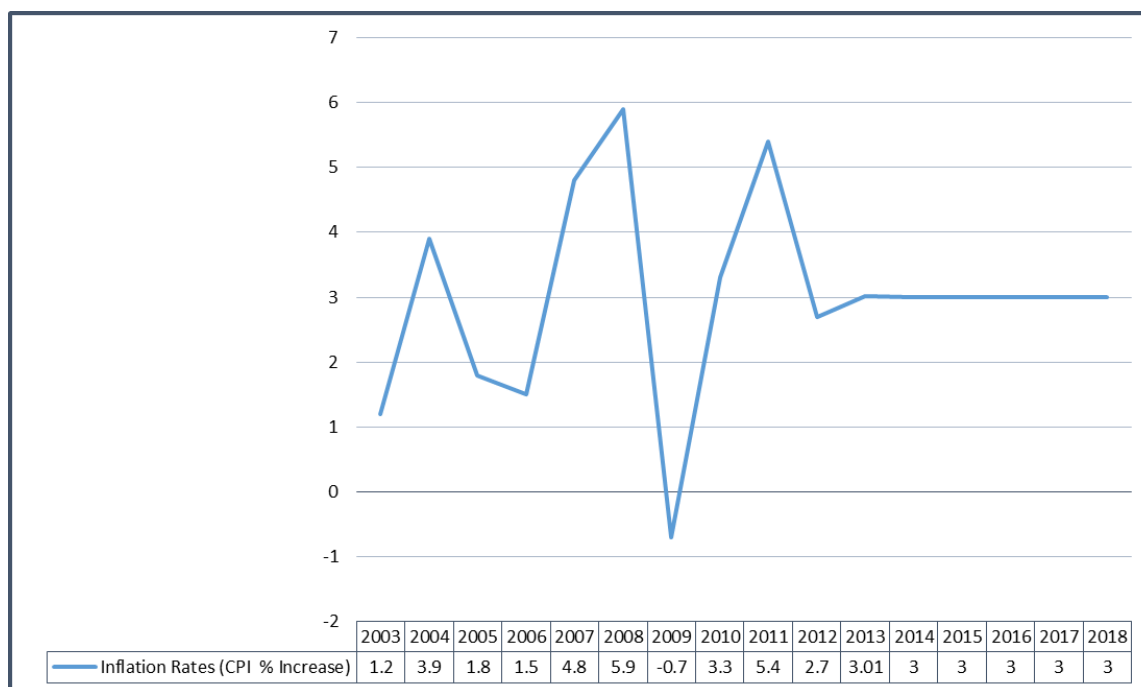
Economic Factors that May Impact China's Military Spending, Strategy and Modernization

While China's future economic growth seems unlikely to limit its military expenditures in ways that will prevent it from achieving its strategic objectives, its ability to fund the necessary military expenditures may still be influenced by several key factors that augment or impede GDP growth. Inflation is one such factor.

During the last several years, inflation rates in China have been high enough – the inflation rates for 2010 and 2011 were 3.3% and 5.4%, respectively, while inflation was reduced to 2.6% in 2012 – that the PRC has taken steps to prevent “overheating.”⁹² In response to these relatively high rates of inflation, former PRC Premier Wen Jiabao announced on March 5, 2012, that the PRC would seek a relatively moderate growth rate of 7.5% in order to achieve “higher-level, higher-quality development over a longer period of time,”⁹³ though the country achieved a 7.8% growth rate for 2012. According to the World Bank's Chief Economist, Justin Yifu Lin, China lowered its growth rate because “there are some overheating in certain sectors,” and “there are some inflation pressure[s].”⁹⁴

Such trends could continue in the near term: *Xinhua* reported a statement from Zhang Ping, minister in charge of the National Development and Reform Commission and the country's top economic planner, in which he said that the government would not relax its efforts to manage inflation even though inflation trends were currently stabilizing.⁹⁵ As a result, the Chinese government set a target consumer price increase at 4% for 2012, though prices only rose 2.6% in 2012, while incomes rose approximately 10%. The 2013 economic growth target remained 7.5%,⁹⁶ while the inflation target was set at 3.5%.⁹⁷ Inflation-control will continue to be a priority for Beijing and may act as a break on GDP growth, and possibly on military expenditure.

Figure 2.14 below displays Chinese inflation rates for the years 2003-2018.

Figure 2.14: Estimates of Chinese Inflation Rates (CPI % increase)

Note: World Bank figures were only available through 2011 but were the same as the IMF figures and so were not included as a comparison. <http://data.worldbank.org/indicator>.

Source: IMF, “World Economic Outlook,” updated April 2013, accessed June 10, 2013, <http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/index.aspx>; 2013-2018 are estimates.

FDI and Current Account Balance

Foreign investment is another key factor. The inflow of foreign direct investment (FDI) has been a critical aid to Chinese economic development over the past decade. FDI reached a new record in 2011 as the country took in \$116 billion – though FDI fell 4% in 2012, to \$111.7 billion.⁹⁸ Outside estimates for China’s FDI differ, as the EU, China’s biggest trading partner, is currently experiencing a protracted financial crisis. FDI from Europe was \$6.1 billion in 2012, a 3.8% decrease from 2011.⁹⁹ Despite the consequences of Euro-area economic instability for FDI in China, the PRC Ministry of Commerce has targeted the years 2012-2015 for a four-year average of \$120 billion in FDI.¹⁰⁰

As of 2010, approximately 47% of all FDI was invested in the manufacturing sector, with services making up a roughly equivalent amount.¹⁰¹ FDI in the services industry was larger than that of the manufacturing sector in 2012. In April 2013, it was reported that FDI rose 1.44% in the first three months of the year, compared to the first three months of 2012 – totaling \$29.9 billion. Of that, the service sector received \$14.4 billion, while the manufacturing sector received \$13.2 billion.¹⁰²

According to PRC statistics, US direct investment in China in 2012 increased 4.5% to \$3.13 billion, accounting for roughly 2.8% of China’s annual FDI total. However, the top Asian countries investing in China – Hong Kong, Japan, Singapore, Taiwan, and the ROK – accounted

for 84.5% of FDI, or \$94.46 billion. Hong Kong represented \$71.29 billion of this, with Japan second at \$7.38 billion; the US was the fifth-largest investor in China.¹⁰³

FDI outflows from China are smaller, but still substantial: the PRC Ministry of Commerce's figures for outward non-financial direct investment overseas in 2012 show that China invested \$77.22 billion, up 28.6% from 2011.¹⁰⁴ In 2010, China was credited with \$68.81 billion in total FDI (\$8.63 billion financial and \$60.18 billion non-financial).¹⁰⁵ China's fast-growing economic ties with countries in Latin America and Africa have the potential to make China a considerable investor in many regions of the world. However, it should also be noted that much of the current ODI is directed towards Hong Kong and Caribbean off-shore tax havens, such as the Cayman Islands.¹⁰⁶

In light of these trends, China's current account balance has generated significant surpluses during the first decade of the 21st century. Ranked first in the world, China's 2012 current account balance stood at \$213.8 billion and accounted for roughly 2.6% of China's nominal GDP and 1.7% of its PPP GDP.¹⁰⁷ Reserves of foreign exchange and gold in China have surpassed \$3.3 trillion, and China has indicated an interest in diversifying its portfolio by targeting corporate equity assets abroad.¹⁰⁸

The exact implications of these trends for the defense sector are unclear, although they give China steadily greater resources on which to draw and have led to a sustained modernization of China's Personnel and industrial base. While China's military-industrial complex almost certainly does not attract as much FDI as other industry branches, other benefits from FDI, which are hard to quantify, must be kept in mind.

The Chinese government emphasizes innovation and business practices transfer (*kaifang zhengce* policy), state-led dual-use production, and access to technology by acquisition of foreign companies. A possible result of such practices is the divergence between those defense enterprises which have "benefited from integration with a rapidly expanding civilian economy and science and technology sector, particularly elements that have access to foreign technology" and lesser performing defense companies producing goods which have "limited counterparts in the PRC civil-industrial sector."¹⁰⁹

Demographic Trends

Population is another factor that will influence both China's economy and military development. China will remain the world's most populated nation – or be a close second – until the end of the twenty-first century. Sheer population size will be one foundation of China's power and prestige in international affairs, although much will be determined by how the country will develop its pool of human resources.

China has relied less and less on sheer Personnel for its military strength, but demographic developments and a steadily better-educated population still give it immense resources to draw upon. With approximately 1.35 billion inhabitants, China is the most populous nation on Earth. India, too, has more than 1.2 billion citizens, yet the US as the third most populous country has a mere quarter of China's population.¹¹⁰

At the same time, Chinese population growth rates have been slowing for most of the past 30 years. The official population growth rate for 2011 was 4.79%,¹¹¹ although such numbers may undercount growth in rural areas. In the absence of reliable migration data, it is difficult to

estimate whether China's net population growth will be positive or negative in the years to come. However, under the assumption of negligible immigration, the US Census Bureau has, with all the caveats associated with long-term population prediction and assumptions of migration, predicted a Chinese population that peaks around 2025 and begins shrinking afterward.

Age is much more likely to be a factor affecting China's economic future, however, than sheer population size. As the trend depicted in **Figure 2.10** indicates, birthrates in China have been steadily decreasing, and are projected to decrease further in the coming decades. Currently, the fertility rate is approximately 1.4 children per woman; at the same time, life expectancy is rising, and has reached an estimated average of 75 years for the population.¹¹² **Figure 2.11** illustrates these birth and fertility rate trends. **Figure 2.12** compares the shift in the relative rate of births versus deaths.

Figure 2.13 shows rough estimates of the impact of Chinese shifts in the gender distribution toward a more male-majority society – most prominently in age groups under 50 – and the combined impact of a one child policy, an aging population and declining birth rate on the size of the Chinese work force.

The most serious impact of the coming changes in China's economy and military Personnel pool will be a significant shift in its population pyramid, moving to an age distribution with comparatively fewer young people and more elderly.¹¹³ In addition, some reports indicate the skewed ratio in recent years of approximately 120 males born for every 100 females will certainly contribute to slower population growth and have other social ramifications.¹¹⁴ According to the US Census Bureau's International Database, this trend will peak in 2030 when the number of males aged 15-39 will be 13% larger than the corresponding number of females.¹¹⁵

Population projections indicate that the number of young women and men available for conscription will be more than sufficient to meet recruiting demands. This will be especially true if cuts in personnel strength of the armed forces persist or even if the number of security forces remains steady. The real issue will be the size and cost of China's work force, the cost of dealing with an aging population that has limited productivity and a high dependency ratio and medical costs.

Societal Trends and Economic Transformation

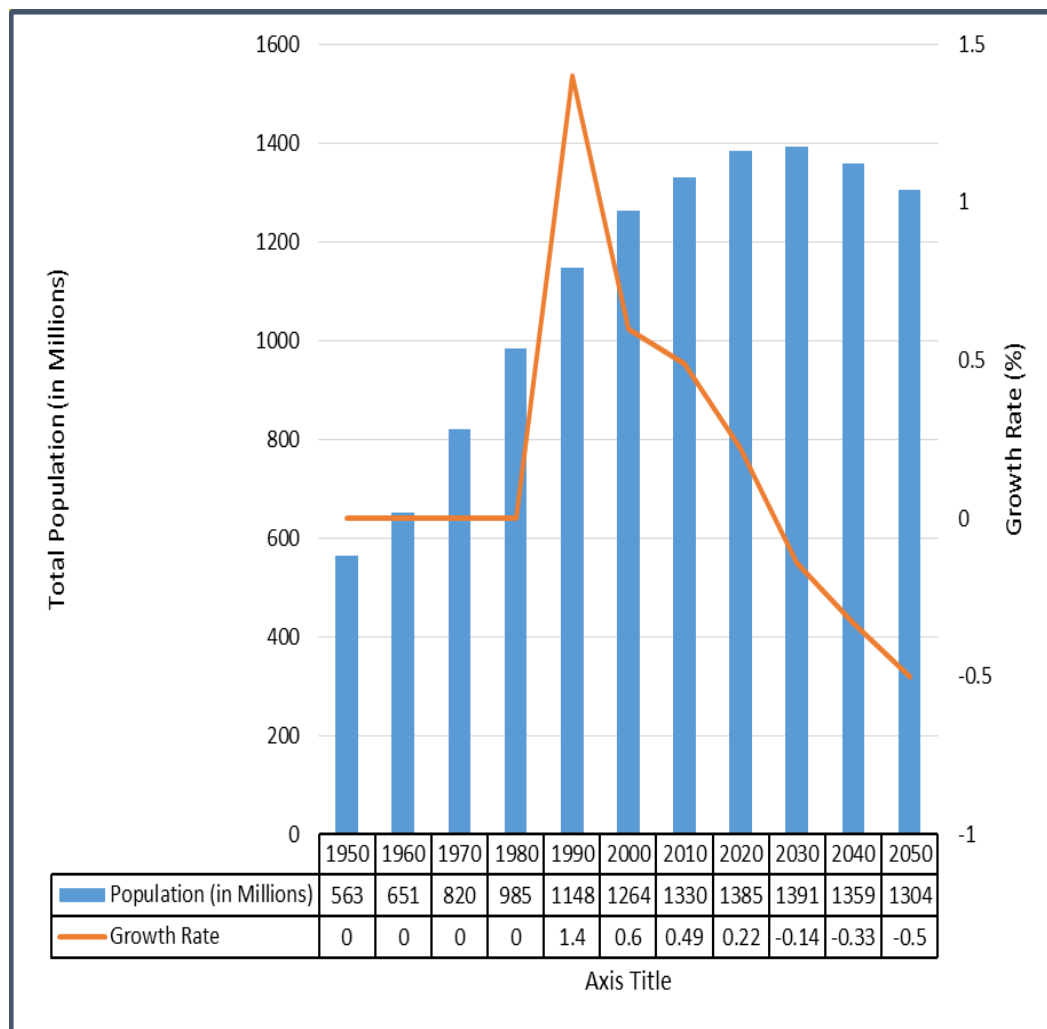
China's future personnel pool and economic growth will also be affected by societal trends caused by population change in combination with economic transformation. The erosion of traditional social security networks in rural China already introduces difficulties for the recruitment of soldiers and absorption of veterans. Chinese armed forces will have to attract well-trained specialists and maintain a corps of noncommissioned and commissioned officers. This should be easier if Chinese overall economic development continues, because more and more skilled men and women will be available to draw upon if the armed forces can project themselves as attractive employers.

If demographic and economic trends should cause a shortage of skilled labor in the future, it could mean problems for the security forces in terms of recruiting and retaining qualified personnel, especially under tight budgets. One report notes that beginning in 2017 the Chinese working-age population will begin to decline in number.¹¹⁶ Such circumstances would certainly make military recruitment more difficult and limit economic growth. Furthermore, in light of social inequalities, selective conscription could cause political pressure to introduce a volunteer army.

Due to the one child policy -- which was originally implemented in 1979 in order to stem social problems caused by a ballooning population -- China's current fertility rate of 1.55 is well below the replacement rate of 2.1 children per woman.¹¹⁷ This demographic trend is causing an acceleration in the greying of China and will eventually lead to a sharp population decline after its projected peak in 2020. This policy has also generated the phenomenon of a significant gender imbalance.

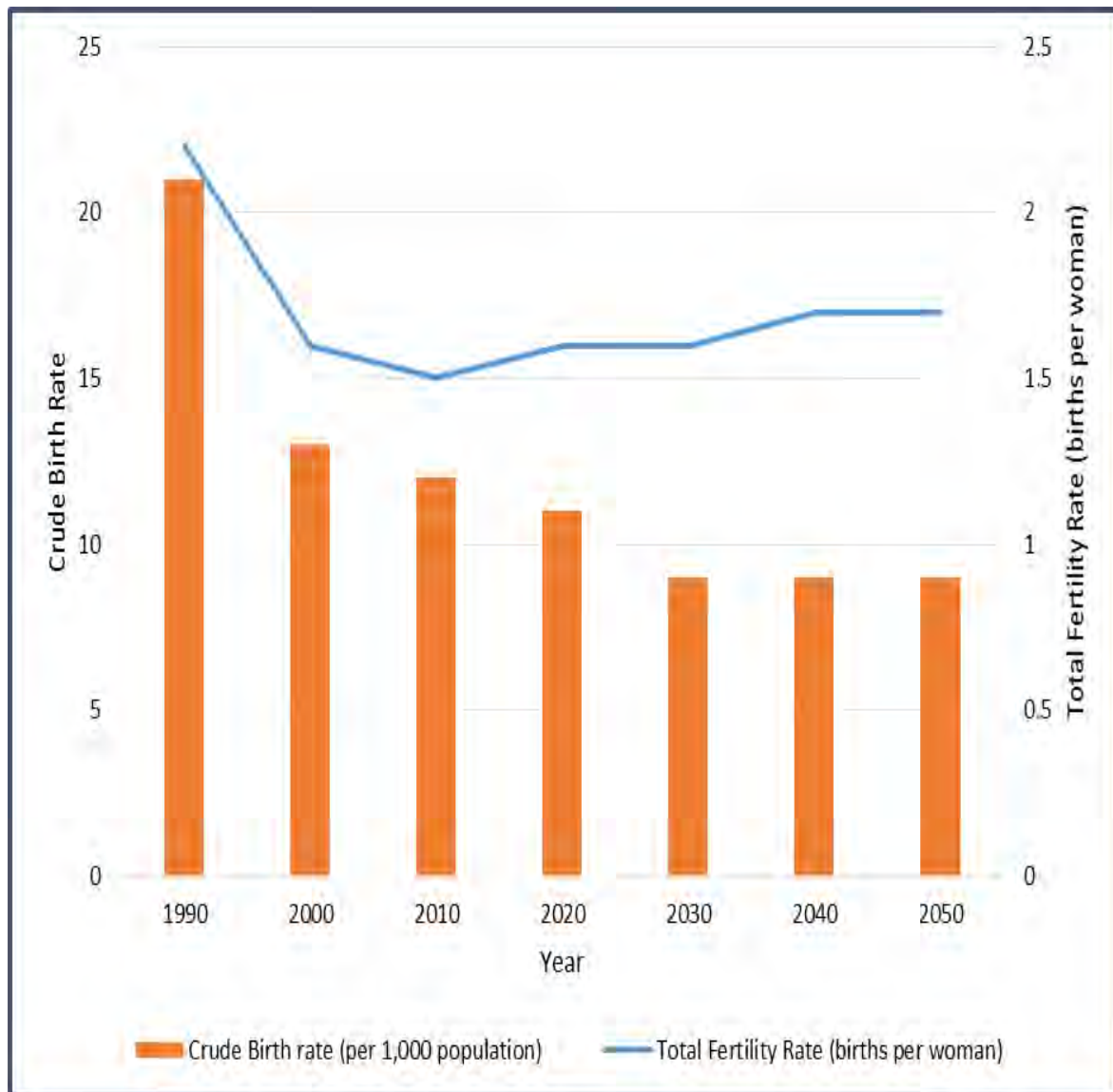
The cultural preference for male children in conjunction with the one child policy has led to a disturbing increase in female infanticide that has caused an unnatural gap between the two sexes. This gender gap currently stands at a ratio of 1.06 males/female and is projected to increase to a total of 30 million more males than females by 2020. The government has recently been relaxing the restrictions of this policy allowing for couples who are only-children themselves to have up to two children.

Figure 2.15: Chinese Population Projection (in millions)

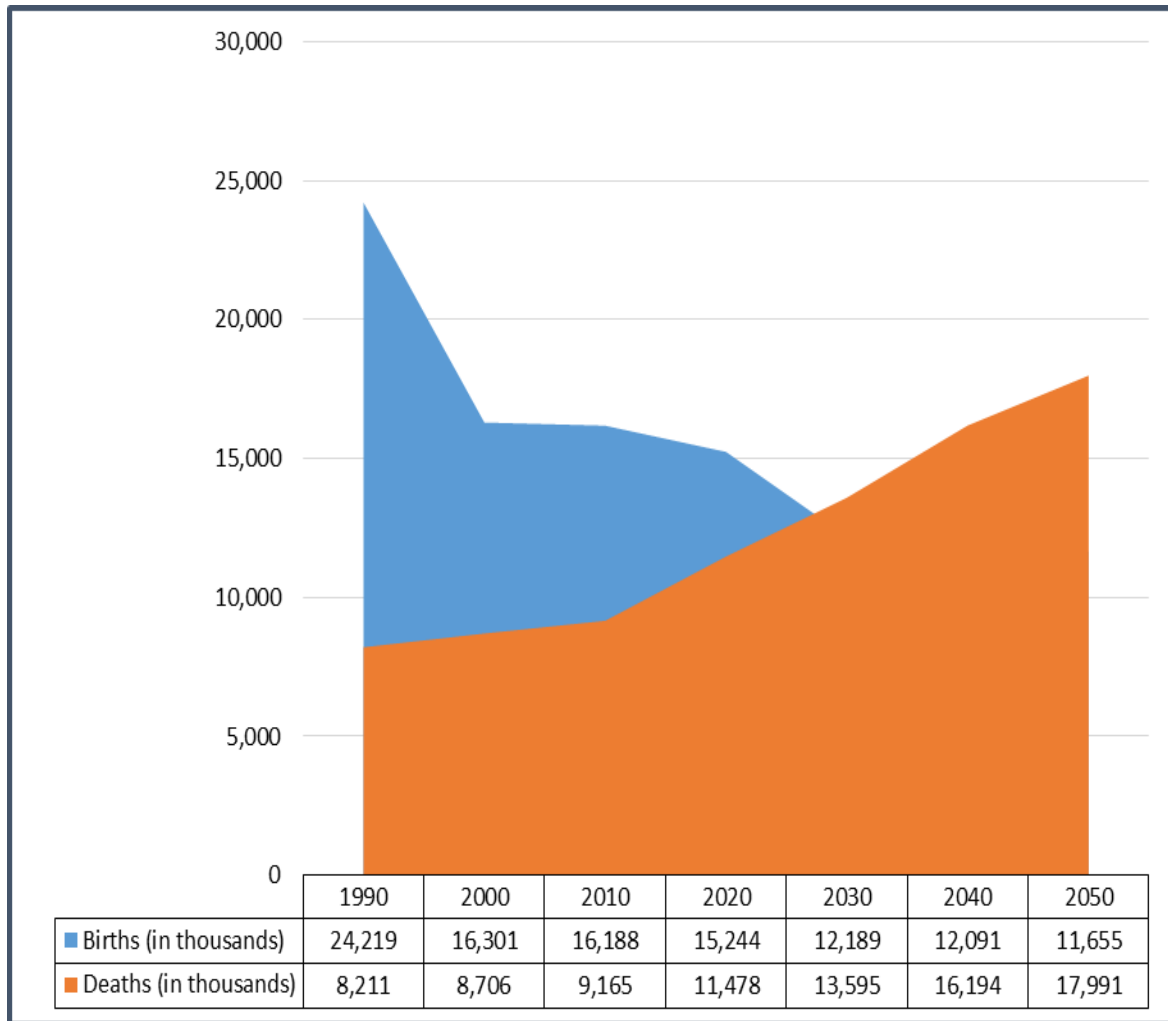


**Growth rate data are not available in China until 1990.

Source: US Census Bureau, International Programs, International Database, accessed March 2014, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.
<http://www.census.gov/population/international/data/idb/informationGateway.php>.

Figure 2.16: Chinese Population Growth Indicators

Source: US Census Bureau, International Programs, International Database, accessed March 2014, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.
<http://www.census.gov/population/international/data/idb/informationGateway.php>.

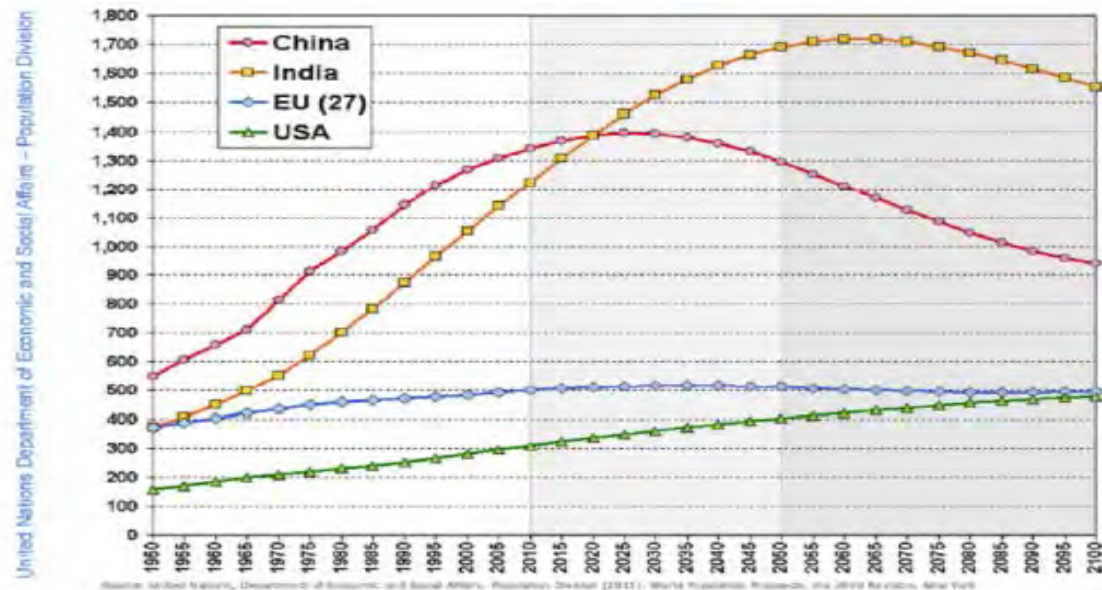
Figure 2.17: Chinese Births vs. Deaths over Time

Source: US Census Bureau, International Programs, International Database, accessed March 2014, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.
<http://www.census.gov/population/international/data/idb/informationGateway.php>.

Figure 2.18: The Impact of Population, Control, Age and Shifts in Gender on China's Work Force – Part I

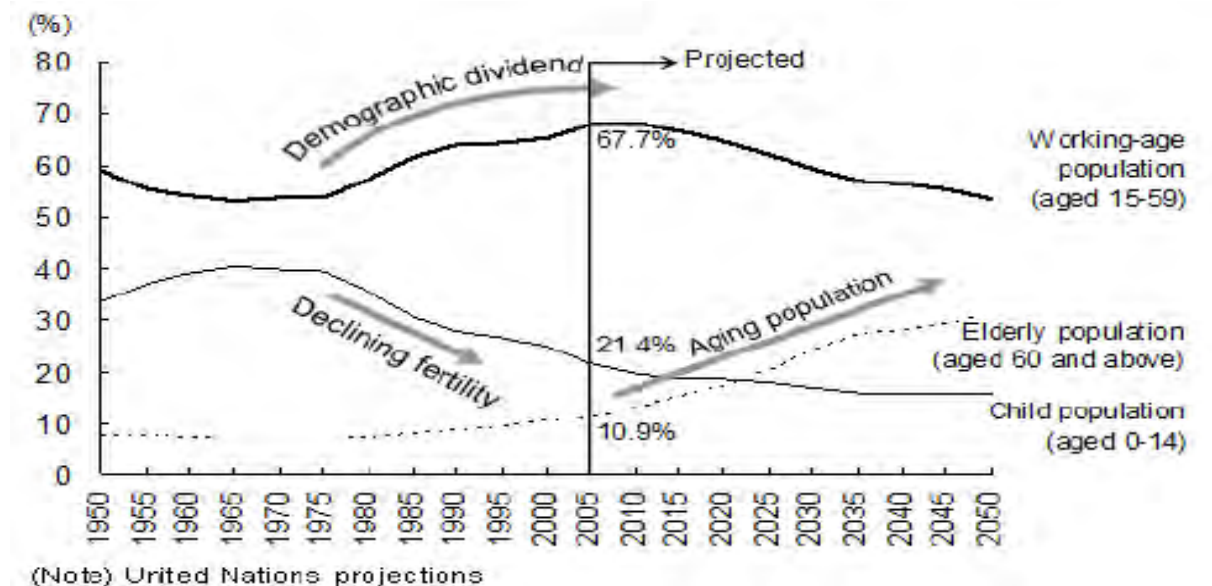
(Note Graphics are Dates and Data Shift with Time)

China's Total Population: 1950-2010 in Millions



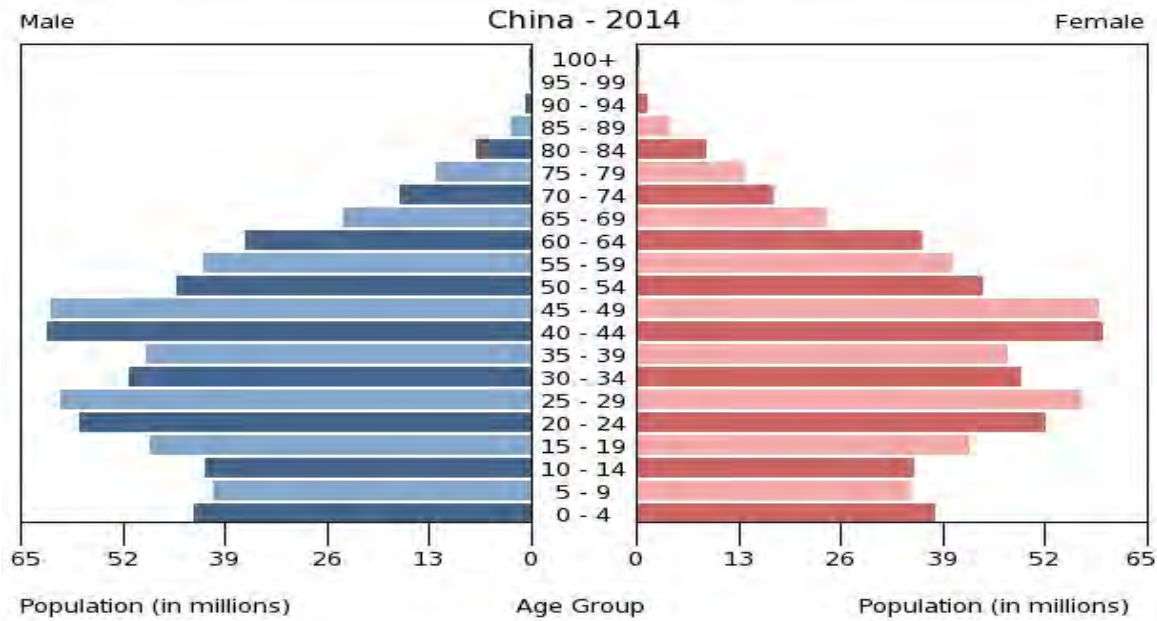
Adapted from the K2P Blog: "Posts Tagged 'Chinese government' China relaxes highly successful one-child policy, November 15, 2013, <http://ktwop.com/tag/chinese-government/>.

Impact on Labor Force and Youth and Aged Dependency

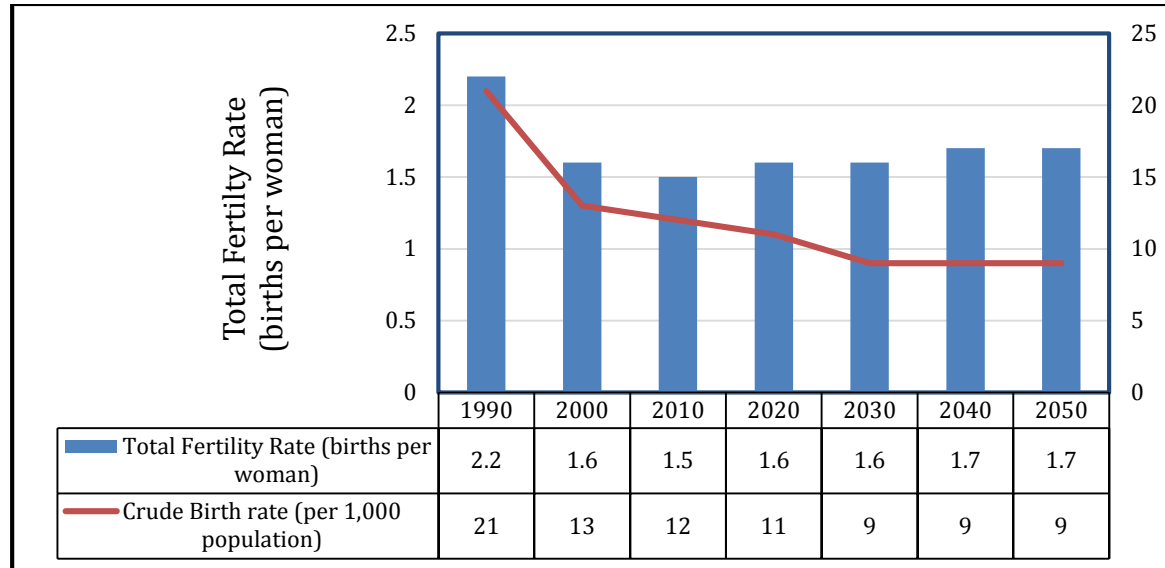


Adapted from RIETI, China Facing the Challenge of Aging Population.

Figure 2.18: The Impact of Population, Control, Age and Shifts in Gender on China's Work Force – Part II



Source: US Census Bureau, International Programs, International Database, accessed June 2014, <http://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=separate&RT=0&Y=2014&R=-1&C=CH>.



Source: US Census Bureau, International Programs, International Database, accessed May 2014, adapted by Anthony H. Cordesman and Tyler Duhamel at the Center for Strategic and International Studies. <http://www.census.gov/population/international/data/idb/informationGateway.php>.

CHAPTER 3: CHINESE ESTIMATES OF MILITARY SPENDING

There is no way to determine how much strategy shapes military spending versus how much resources shape strategy. The two are always interdependent. For all the debates over the precise numbers involved, however, there is no debate over the fact that China now dominates Asian military spending and is becoming the largest regional military power in terms of power projection as well as total forces.

An assessment of China's defense spending and modernization efforts shows that China's growing economy allows it to finance all of the resources necessary to support the strategies described in the next chapter, and radically improve not virtually every relevant aspect of its conventional and asymmetric warfare capabilities, and every aspect of its sea-air-missile-nuclear capabilities.

At the same time, Chinese military spending -- and China's strategy and force modernization -- do react to the spending and force developments in the US and other Asian powers. Some critics of Chinese military spending and China's lack of transparency often ignore the strategic context in which Chinese military modernization and growth is taking place. In contrast, Chinese analysts point to the surrounding environment and other countries' military budgets as major drivers of defense spending.

Two leading Western analysts, Adam P. Liff and Andrew S. Erickson, point out that,¹¹⁸

First, in Beijing's view China faces numerous internal threats to stability ranging from secessionist movements in Tibet and Xinjiang to widespread -- if localized -- "mass incidents," i.e. anti-government protests. While there is no open-source evidence of PLA involvement in PAP operations other than the March 2008 suppression in Lhasa, continued domestic security concerns necessarily affect military prioritization. Second, China has land borders with 14 nations -- including four nuclear weapons states -- and territorial disputes with two of them (primarily India, also Bhutan). Third, China retains maritime boundary or island disputes with all its maritime neighbours.

Thus, Beijing's political relations with all major military powers in its neighbourhood are, at best, tepid. Combined with Taiwan's unresolved status, this makes the Near Seas and their immediate approaches a critical area of strategic contention and assertion for China. ... for these and other reasons, China has tense, albeit not unstable, political and military relations with the world's sole superpower (the US), whose leaders will probably remain suspicious of China's intentions as long as it retains an authoritarian political system. Despite increasingly global security interests of the kind often used to justify US defense policy (e.g. secure sea lanes of communication for safe passage of the resources and commerce) and sincere concerns about its external environment, China's defense budget increases remain focused on irredentist but regional concerns, however controversial the means and desired ends of that approach may be to other states with interests in the region.

Chinese Statements on Military Spending

The levels of Chinese military spending on its armed forces remain a key area of uncertainty. Once again, it is not clear what aspects of its military spending that China fully reports, it is not clear how it prices military goods and services within its state sector, and there is no reliable way to cost China's military forces in terms that are comparable to the forces of the US or other military powers.

China did, however, provide a detailed description of its official public view of the formulation and control of its military spending in its 2010 defense white paper, while also giving the following the rational for current trends:¹¹⁹

China adheres to the principle of coordinated development of national defense and economy. In line with the demands of national defense and economic development, China decides on the size of defense expenditure in an appropriate way, and manages and uses its defense funds in accordance with the law.

With the development of national economy and society, the increase of China's defense expenditure has been kept at a reasonable and appropriate level. China's GDP was RMB 31,404.5 billion in 2008 and RMB 34,090.3 billion in 2009. State financial expenditure was RMB 6,259.266 billion in 2008 and RMB 7,629.993 billion in 2009, up 25.7 percent and 21.9 percent respectively over the previous year. China's defense expenditure was RMB417.876 billion in 2008 and RMB495.11 billion in 2009, up 17.5 percent and 18.5 percent respectively over the previous year. In recent years, the share of China's annual defense expenditure in its GDP has remained relatively steady, while that in overall state financial expenditure has been moderately decreased.

China's defense expenditure mainly comprises expenses for personnel, training and maintenance, and equipment, with each accounting for roughly one third of the total. Personnel expenses mainly cover salaries, allowances, housing, insurance, food, bedding and clothing for officers, non-ranking officers, enlisted men and contracted civilians. Training and maintenance expenses mainly cover troop training, institutional education, construction and maintenance of installations and facilities, and other expenses on routine consumables. Equipment expenses mainly cover R&D, experimentation, procurement, maintenance, transportation and storage of weaponry and equipment. Defense expenditure covers costs to support the active forces, reserve forces, and militia. It also covers part of the costs to support retired servicemen, servicemen's spouses, and education of servicemen's children, as well as national and local economic development and other social expenses.

In the past two years, the increase in China's defense expenditure has primarily been used for the following purposes: (1) Improving support conditions for the troops: Along with the economic and social development and the improvement of people's living standards, the PLA has adjusted servicemen's salaries and allowances, increased funding for education and training, water and electricity supplies and heating, upgraded logistics support for grass-roots units in a comprehensive and coordinated way, and improved the on-duty, training and living conditions of border and coastal defense forces and units in remote areas and harsh environments. (2) Accomplishing diversified military tasks: China has increased investment in improving MOOTW capabilities, in supporting earthquake rescue and disaster relief operations, in escort operations in the Gulf of Aden and waters off Somalia, in flood control and emergency rescue operations, and in international rescue operations. (3) Pushing forward the Revolution in Military Affairs (RMA) with Chinese characteristics. In view of the upward trend in purchasing prices and maintenance costs, China has moderately increased the funds for high-tech weaponry and equipment and their supporting facilities.

In 2010, confronted by the residual impact of the global financial crisis and other uncertainties, the tension between revenue and expenditure in China's finances persists. Giving priority to socially beneficial spending in agriculture, rural areas and farmers, as well as in education, science and technology, health, medical care and social security, China has increased its defense expenditure moderately as needed. China's defense budget for 2010 is RMB532.115 billion, up 7.5 percent over 2009. The growth rate of defense expenditure has decreased.

China practices a strict system of financial supervision of defense funds. The annual defense budget is incorporated into the annual financial budget draft of the central government, and then submitted to the NPC for review and approval. The auditing offices of the state and the PLA conduct audit and supervision of the defense budget and its enforcement. In recent years, the Chinese government has strengthened systematic and meticulous management of defense expenditure, reformed and innovated financial management systems, pressed forward with reforms in asset management, reinforced budget implementation, supervision and management, and organized auditing of economic responsibilities of military leaders and special auditing of the use of funds and materials. In this way, transparency and standardization of defense expenditure are enhanced, and the proper and effective use of defense funds is ensured.

Its 2013 white paper did not discuss military spending in any detail. The Chinese Ministry of Finance did announce in 2013, however, announced that a 11.2% increase in the 2012 military budget had been “used to improve living and training conditions for our troops, support the military in promoting IT application, strengthen development of new- and high-technology weapons and equipment, and enhance the country’s modern military capabilities.”¹²⁰

According to the Twelfth National People’s Congress, the 2013 budget was to “be used to support efforts to improve the working and living conditions of officers and enlisted personnel, make the armed forces more mechanized and information-based, and safeguard national security.”¹²¹ In early March 2013, China released its 2013 national budget, forecasting a military expenditure of 720.2 billion Yuan (\$114.3 billion), a 10.7% increase. Official military spending in 2012 was approximately \$106 billion, an 11.2% rise over 2011.

PRC white papers consistently state that the defense budget is split approximately equally between personnel, training and maintenance, and equipment expenditures. **Figure 3.1**, a chart published in the 2010 white paper, supports these government statements by providing a breakdown of the PRC’s 2009 military budget: spending for personnel, training and maintenance, and equipment is almost equally distributed, with equipment expenses slightly higher. A more detailed Chinese breakdown of spending allocations is not available.

Figure 3.2 compares a Chinese government graph depicting the percentage of total government expenditures devoted to the official defense budget to a similar estimate by Taiwan (Republic of China or ROC). Both estimates indicate that the total burden military expenditures place on the Chinese state and society is decreasing despite the significant increases in absolute defense expenditures.

China’s official reported annual average growth in military spending of over 11% over the past decade is certainly high by international standards.¹²² Yet, these increases appear to be sustained by almost equally high GDP growth rates. Moreover, many outside sources estimate that that China’s increases in military spending are affordable. In 2010, for example, the US Department of Defense assessed that, in spite of significant increases in the defense budget, “the actual change in the implied burden of the official defense budget on the economy appears negligible,” largely as a result of significant GDP growth.¹²³

Moreover, China’s official estimate of it’s the growth of its military budget growth have consistently been outpaced by bigger increases in total national financial expenditures – with both roughly correlating to China’s large yearly GDP growth. The official estimate of the military budget’s share of total state expenditures actually decreased from 9.5% in 1994 to 5.5% in 2011. Officially, therefore, Chinese investment in military forces comprised a decreasing percentage of government spending, providing some support to official Chinese statements that China’s principal objective is economic development – and thus that defense modernization is subordinate to that goal.¹²⁴

**Figure 3.1: Official PRC Defense Budget Allocation for 2009
(in RMB billion)**

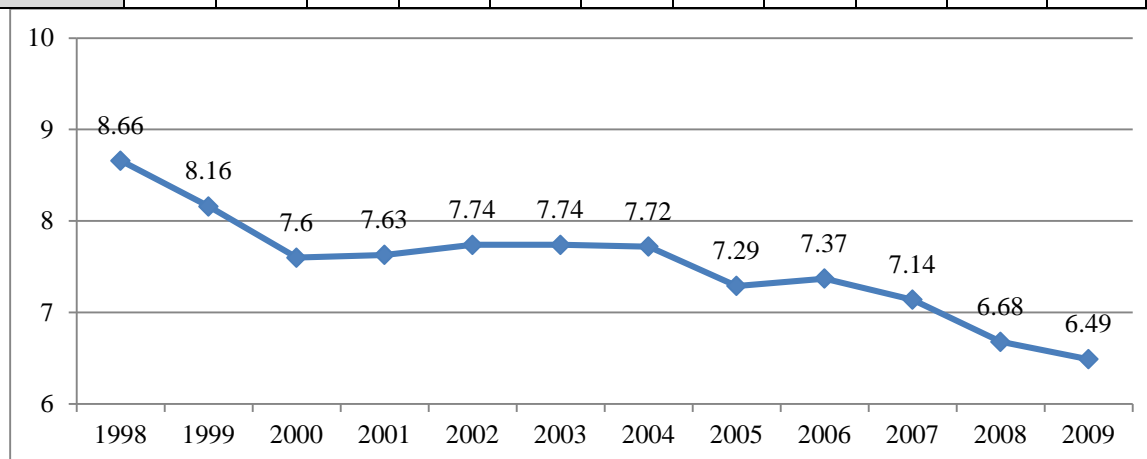
	Active Force	Reserve Force	Militia	Total	
				Amount	Percentage
Personnel	167.063	1.465	0	168.528	34.04
Training & Maintenance	152.171	1.965	12.859	166.995	33.73
Equipment	157.426	1.431	0.73	159.587	32.23
Total	476.66	4.861	13.589	495.11	100.00

Source: *China's National Defense in 2010*, March 30, 2011. http://english.gov.cn/official/2011-03/31/content_1835499_10.htm, Ch. 8.

Figure 3.2: Relative Burden of the PRC Defense Budget on State Finances: PRC vs. ROC Estimate

PRC Estimate of Percentage of the PRC's Government Expenditure Devoted to the Official Defense Budget, 1998-2009

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Percentage	8.66	8.16	7.6	7.63	7.74	7.74	7.72	7.29	7.37	7.14	6.68	6.49



Taiwan (ROC) Estimate of Percentage of the PRC's Government Expenditure Devoted to the Official Defense Budget, 2000-2011

Year	Defense Budget Total	Defense Budget Growth %	of Overall Expenditure Total	of Overall Expenditure Growth %
2004	2,200.0	15.3	28,486.9	7.7
2005	2,476.0	12.5	33,930.3	7.3
2006	2,979.4	20.4	40,422.7	7.4
2007	3,555.9	19.3	49,781.4	7.1
2008	4,182.0	17.6	62,427.0	6.7
2009	4,951.1	18.5	76,300.0	8.5
2010	5,335.0	7.8	93,180.0	5.7
2011	6,027.7	13.0	108,969.0	5.5
2012	6,703.7	11.2	125,712.0	5.3
2013	7,201.7	6.9	138,246.0	5.2

Sources: *China's National Defense in 2010*. Ch. 8. http://english.gov.cn/official/2011-03/31/content_1835499_10.htm; Ministry of Defense Republic of China, *National Defense Report 2012*, October 2013, p. 48.

US Analyses of Chinese Defense Budgets

The US DoD has long questioned Chinese official reporting on the size of its defense budgets and done so on the grounds that China's official military budget does not include major categories of defense-related expenditures, while also including line items that are not usually included in other countries' military budgets. It has also reported that China still maintains a semi-command economy and a lack of accounting transparency.

As a result, the US has issued higher estimates of the growth in Chinese military spending. According to the DoD, China increased military spending by 12.7% in 2011; and China's official military budget grew at an average of 12.1% in inflation-adjusted terms over the period from 2000-2010. At the same time, due to overall economic growth of 10.2% over the same period, the actual burden on the economy of the increased official defense budget appears to have been negligible.

Figure 3.3, taken from the now-dated 2010 DoD report on China, shows a comparison of official Chinese defense budgets and US estimates of the actual size of the Chinese budget over 1996-2009. These US figures tried to take into account all military-related expenses, as outlined above. This resulted in a low and a high estimate, suggesting that the real amount of Chinese defense spending, according to the DoD, is somewhere in between. A detailed methodology on how the estimates are arrived at is not available.

The DoD estimated that China's actual military-related spending for 2010 was over \$160 billion.¹²⁵ The DoD estimated China's actual military spending at \$120-180 billion in 2011, compared to the official figure of \$91.5 billion. China argues that its defense budget expands in parallel with its economic growth, and is not directed at any other country. One Chinese Vice Foreign Minister remarked, "Strengthening China's defense capability will be conducive to further stability in the region and will be conducive to world peace."¹²⁶

The DoD's estimates for 2012 Chinese military spending range from \$135 billion to \$215 billion, a variance of about 50%.¹²⁷ Using a median estimate of \$175 billion, the PRC's DoD-reported defense budget is roughly 28% of the US defense budget – reported by the US DoD as \$615 billion (including OCO). In his 2012 testimony before the Senate, DIA Director Ronald L. Burgess Jr. provided the following commentary on China's reported defense spending:¹²⁸

DIA estimates China spent as much as \$183 billion on military-related goods and services in 2011, compared to the \$93 billion Beijing reported in its official military budget. This budget omits major categories, but it does show spending increases for domestic military production and programs to improve professionalism and the quality of life for military personnel.

The 2012 edition of the DoD report on Chinese military power noted that,¹²⁹

Chinese military investments ... have led to the fielding of equipment and capabilities that support the PLA's traditional set of core missions (such as defending China's security, sovereignty and territorial integrity), and an expanding array of new missions at home and abroad.

On March 4, 2012, Beijing announced an 11.2 percent increase in its annual military budget to roughly \$106 billion. This increase continues more than two decades of sustained annual increases in China's announced military budget. Analysis of 2000-2011 data indicates China's officially disclosed military budget grew at an average of 11.8 percent per year in inflation-adjusted terms over the period.

Estimating actual PLA military expenditures is difficult because of poor accounting transparency and China's still incomplete transition from a command economy. Moreover, China's published military budget does not include several major categories of expenditure, such as foreign procurement. Using 2011 prices

and exchange rates, DoD estimates China's total military-related spending for 2011 ranges between \$120 billion and \$180 billion.

The 2013 edition of the DoD report drew similar conclusions about these figures as in previous years:¹³⁰

On March 5, 2013, Beijing announced a 10.7 percent increase in its annual military budget to \$114 billion, continuing more than two decades of sustained annual defense spending increases. Analysis of data from 2003 through 2012 indicates China's officially disclosed military budget grew at an average of 9.7 percent per year in inflation-adjusted terms over the period. China has the fiscal strength and political will to support defense spending growth at comparable levels, despite lowering its economic growth forecast in 2012 to 7.5 percent from 8 percent in 2011. Continued increases will support PLA modernization efforts and facilitate China's move toward a more professional force.

...Using 2012 prices and exchange rates, the DoD estimates that China's total actual military-related expenditure for 2012 falls between \$135 billion and \$215 billion. However, it is difficult to estimate actual PLA military expenses due to China's poor accounting transparency and incomplete transition from a command economy. China's published military budget omits several major categories of expenditure, such as procurement of foreign weapons and equipment.

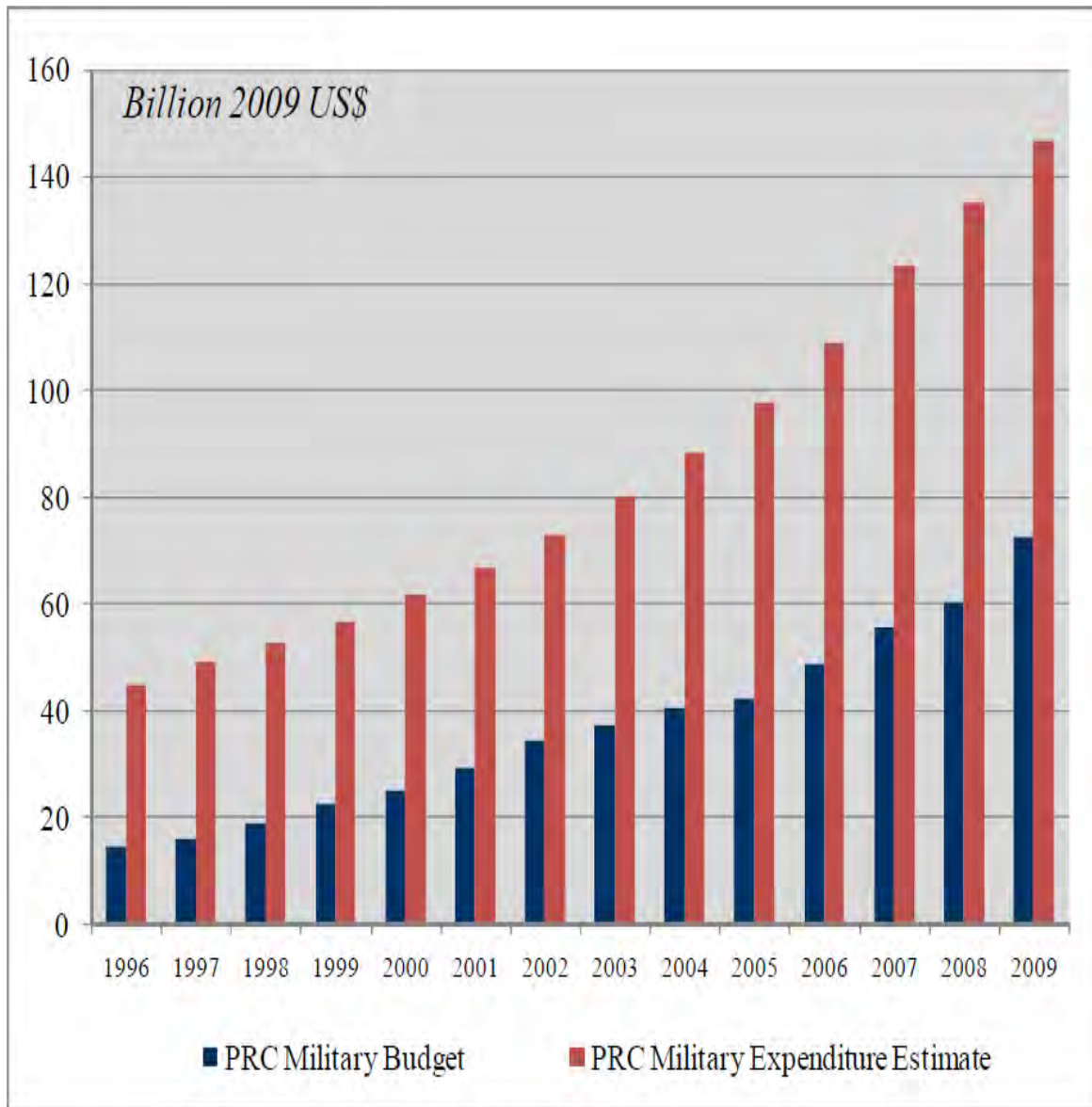
The 2014 DoD annual report on China is virtually identical to the 2013 report -- with the exception of the increase in the annual military budget figures:¹³¹

On March 5, 2013, China announced a 5.7 percent increase in the annual military budget to \$119.5 billion USD, continuing more than two decades of sustained annual defense spending increases. Analysis of data from 2004 through 2013 indicates China's officially disclosed military budget grew at an average of 9.4 percent per year in inflation-adjusted terms over the period. China has the fiscal strength and political will to support defense spending growth at comparable levels for the foreseeable future. Continued increases will support PLA modernization efforts and facilitate China's move toward a more professional force.

Using 2013 prices and exchange rates, the Department of Defense (DoD) estimates that China's total military-related spending for 2013 exceeds \$145 billion. However, it is difficult to estimate actual PLA military expenses due to China's poor accounting transparency and incomplete transition from a command economy. China's published military budget omits several major categories of expenditure, such as procurement of foreign weapons and equipment.

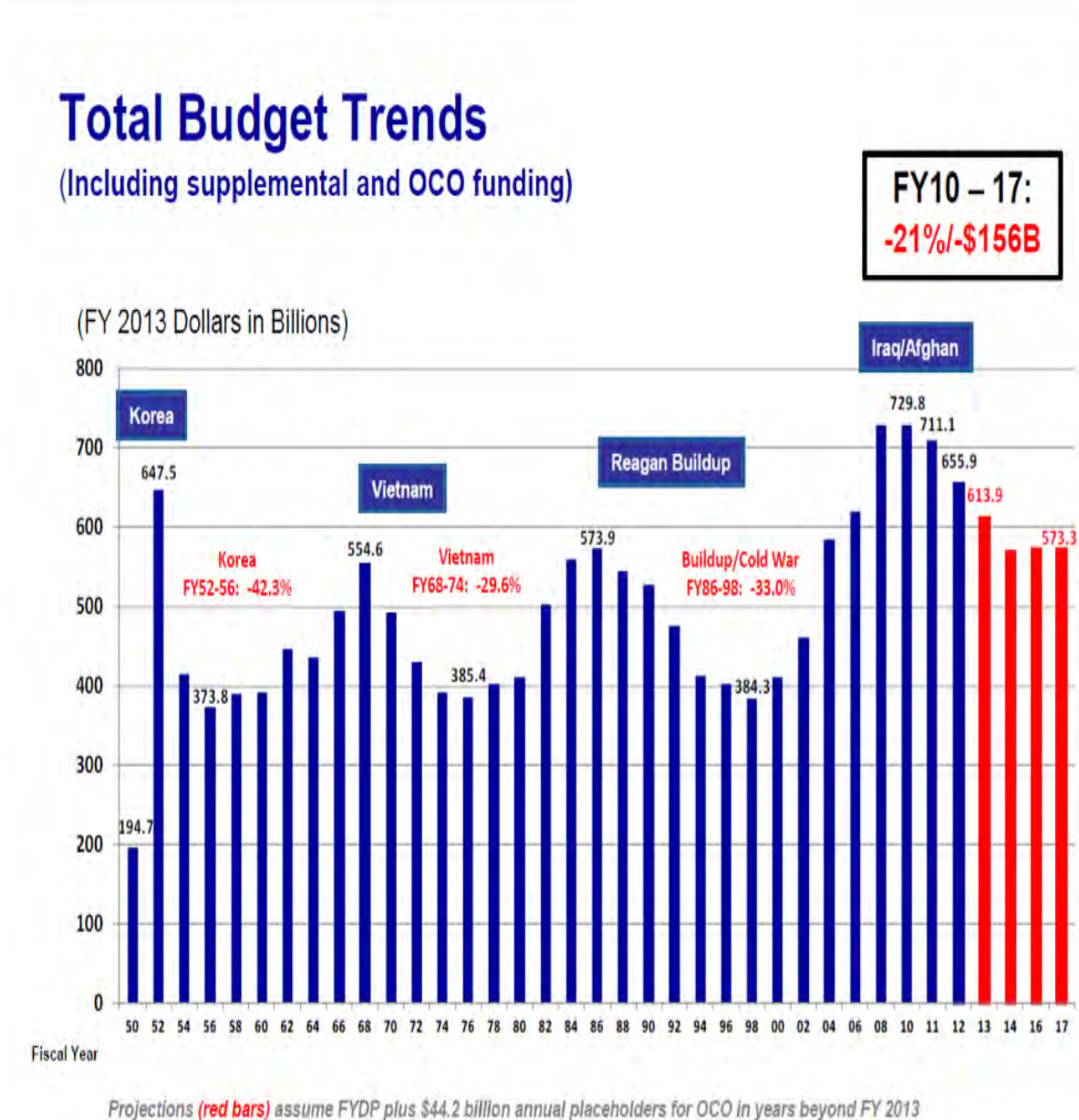
For purposes of comparison, **Figure 3.4** details historical US defense spending from 1950-2017.

Figure 3.3: Historical PRC Defense Budget Compared to US Estimates of Total Defense Spending



China's Annual Real GDP and Military Budget Growth, 2000 - 2009.

Source: DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2010*, 42, http://www.defense.gov/pubs/pdfs/2010_CMPR_Final.pdf.

Figure 3.4: Historical US Defense Expenditures

Source: DoD, *Fiscal Year 2013 Budget Request*, Office of the Undersecretary of Defense (Comptroller)/Chief Financial Officer, February 2012.

http://comptroller.defense.gov/defbudget/fy2013/FY2013_Budget_Request_Overview_Book.pdf.

Other outside Assessments of Chinese Military Spending

Other outside experts question China's reporting. **Figure 3.6** provides a 2013 IISS' analysis of China's defense budget trends and estimates over 2009-2011, and shows that the IISS estimated that China was actually spending far more than it reported. This led the IISS to project a possible future convergence between Chinese and US military spending under a variety of scenarios that could take place as early as 2022 or as late as 2050:¹³²

.... On 5 March, China released its 2013 defence budget. It was set at RMB718bn (US\$112bn), an increase of 10.7% over 2012. Over the past decade, China has seen a rapid acceleration in its official defence-spending levels, with rates of increase comparable to the expansion of the Chinese economy. Additionally, as noted each year in *The Military Balance*, official Chinese defence budget figures probably underestimate true defence spending. Although official figures include personnel, operations and equipment expenditure, it is widely held that other military-related expenditures are omitted, such as R&D and overseas weapons purchases. A fuller account of China's true military spending levels should also include funding allocated to the People's Armed Police (PAP). If estimates of these extra items are included, Chinese defence spending typically rises to about 1.4 to 1.5 times official figures.

However, the after-effects of the financial and debt crises that in 2008 hit advanced Western economies, China's main export destination, call into question Beijing's export-oriented industrial growth model. China's announced growth target for 2013 is, at 7.5%, lower than the 2012 figure. Unless China can decouple from advanced economies and successfully rebalance towards a domestic-demand driven model, its GDP growth- and by extension, its defence spending growth- will in part continue to be constrained by the ill-health of advanced economies. Chinese real defence spending growth rates may have started to fall in the five years since the crisis. In 2009-13, average real defence-spending growth was 7.6% per annum, compared to an average 10.4% per annum in the five years before the crisis (2003-2007).

Figure 3.6 also provides a comparison of IISS and SIPRI data based on various editions of the IISS military Balance, and SIPRI estimates released in April 2014. The detailed methodology used by SIPRI was not provided with the data, but it is obvious that SIPRI has made consistently higher estimates of Chinese sending than the IISS – ranging from twice as high in the early 2003s to roughly one-third higher in 2013.

A 2013 analysis by Adam P. Liff and Andrew S. Erickson reached a very different conclusion. It provided the data on Chinese military spending shown in **Figures 3.7 and 3.8**. Liff and Erickson noted that while the official Chinese defense budget nominally increased at an average annual rate that exceeded 10% since 1990, important qualifications had to be made in assessing China's real spending. One qualification was that the rampant inflation in China sharply decreased the real-world impact of what look like large budget increases. They felt that calculating China's defense budget at constant prices – and thus accounting for inflation effects – showed that China's effective defense spending growth rate was much lower – as was the burden Chinese military spending placed on the Chinese economy:¹³³

The differences between the nominal (current price) and real (constant price) average annual growth rates are remarkable: 1.6 per cent vs. -3.2 per cent (1980-1989); 15.7 per cent vs. 7.8 per cent (1990-1999); 16.5 per cent vs. 12.5 per cent (2000-2009); and 10.4 per cent vs. 3.1 per cent over the 2010-2011 period. In other words, when calculated in real terms the average annual increases in the budget exceeded 10 per cent during only one of the ten-year periods in [see **Figure 5.7**]: 2000-2009. This all suggests that unqualified statements along the lines of "China's official defence budget has increased by double-digits since year 19XX," while in most cases technically true in nominal terms, may exaggerate the real-world effects of these budget increases.

The 2014 Japanese White Paper provides still another estimate of the PRC Defense Budget, which is shown in **Figure 3.9**. Like the DoD estimate, it concluded that China's increases in defense spending were real and well in excess of 10% per year. **Figure 3.10**, also from the 2014 Japanese Defense White Paper, shows regional defense budget trends over the past 10 years.

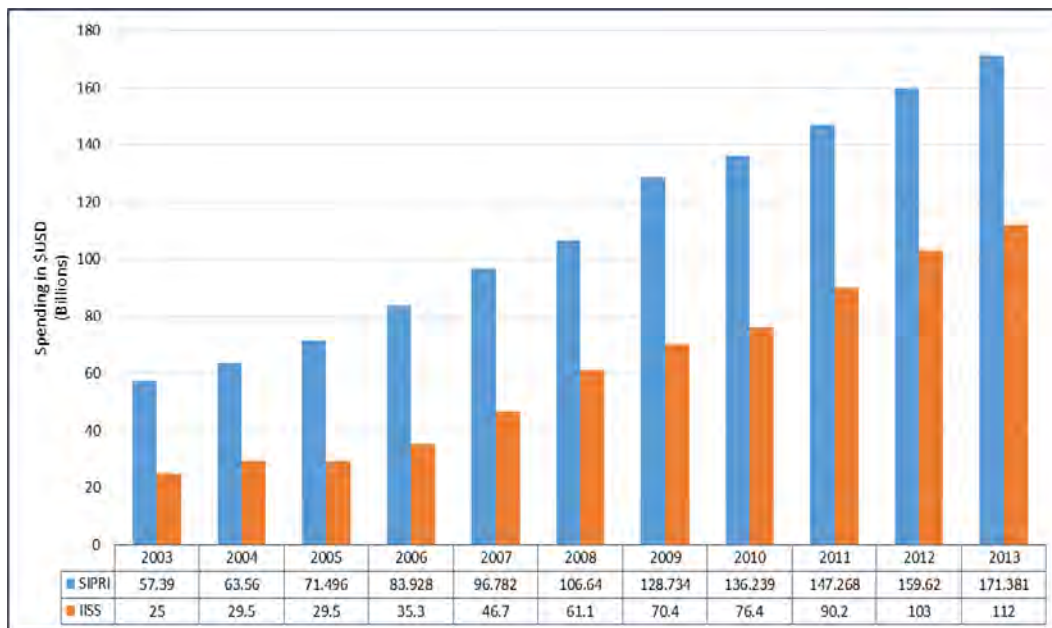
Figure 3.5: Chinese Military Budget Trends versus IISS and SIPRI Estimates, 2003-2013

Chinese vs. IISS Estimates

	2009	2010	2011
Chinese GDP (RMB, billions)	34,090	40,151	47,156
Chinese GDP Growth	9.2%	10.4%	9.2%
Official Defense Budget (RMB, billions)	495.1	533.3	583.0
Nominal Percentage Change	18.5%	7.7%	9.3%
Real Percentage Change	19.2%	1.8%	4.7%
Official Defense Budget as a Percentage of Total Outlays	6.5%	5.9%	5.3%
Official Defense Budget as a Percentage of GDP	1.45%	1.33%	1.24%
Total Estimated Defense Spending (RMB, billions)	671.8	753.4	883.3
Nominal Percentage Change	16.3%	12.1%	17.2%
Real Percentage Change	17.0%	6.0%	9.1%
Total Estimated Defense Spending as a Percentage of Total Outlays	8.8%	8.4%	8.1%
Total Estimated Defense Spending as a Percentage of GDP	1.97%	1.88%	1.87%
Official Defense Budget (USD, billions)	72.5	78.7	90.2
Total Estimated Defense Spending (USD, billions)	98.4	111.1	136.7
Total Estimated Defense Spending	6.83	6.78	6.46

Source: IISS, *Military Balance 2013*, p. 256.

IISS vs. SIPRI Estimates



Source: IISS, *Military Balance 2013*, p. 256, and SIPRI data provided to author in March 2014.

Figure 3.6: PRC Defense Spending-related Comparative Statistics, 1980-2011

	1980-1989 (annual average)	1990-1999 (annual average)	2000-2009 (annual average)	2010-2011 (annual average)
Defense budget growth rate...				
... <i>At current prices</i>	1.6%	15.7%	16.5%	10.4%
... <i>At constant prices (base year of 1980)</i>	-3.2%	7.8%	12.5%	3.1%
GDP growth rate	9.8%	10.0%	10.3%	9.8%
State financial expenditures growth rate (aggregate – central and local)...				
... <i>At current prices</i>	8.6%	16.8%	19.3%	19.5%
... <i>At constant prices (base year of 1980)</i>	3.5%	8.8%	15.1%	11.6%

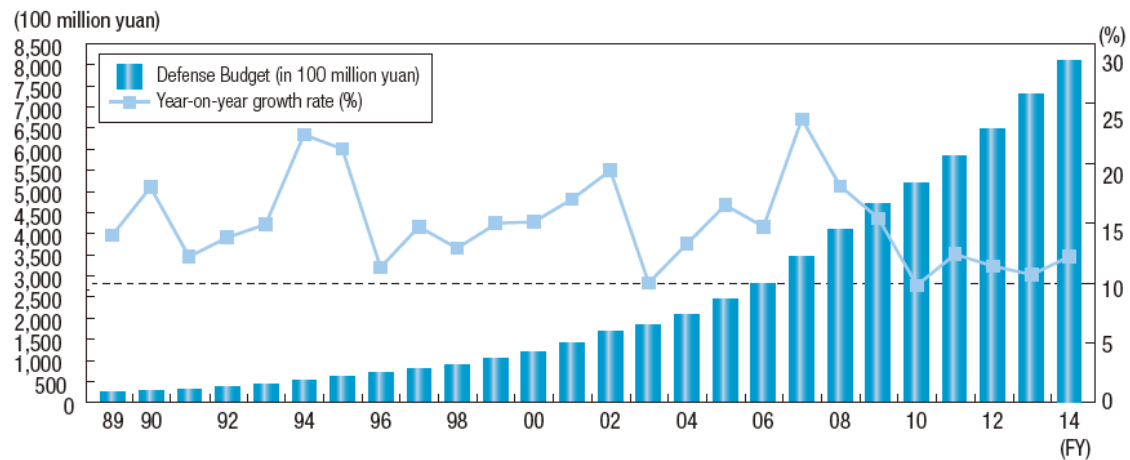
Source: Adam P. Liff and Andrew S. Erickson, “Demystifying China’s Defence Spending: Less Mysterious in the Aggregate,” *China Quarterly* (March 2013), 8.

Figure 3.7: PRC Official Defense Budget Annual Data, 2002-2012

•	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012*
GDP growth rate at current prices	9.1%	10.0%	10.1%	11.3%	12.7%	14.2%	9.6%	9.2%	10.4%	9.2%	N/A
Defense budget (RMB billions)...											
... <i>At current prices</i>	170.8	190.8	220.0	247.5	297.9	355.5	417.9	495.1	533.3	602.7	670.0
... <i>At 2002 constant prices</i>	170.8	186.0	200.6	217.1	251.8	279.1	304.4	362.9	366.6	385.3	N/A
... <i>As % of GDP</i>	1.42%	1.40%	1.38%	1.34%	1.38%	1.34%	1.33%	1.45%	1.33%	1.28%	N/A
Defense budget growth rate...											
... <i>At current prices</i>	18.4%	11.7%	15.3%	12.5%	20.4%	19.3%	17.6%	18.5%	7.7%	13.0%	11.2%
... <i>At 2002 constant prices</i>	18.5%	11.4%	14.0%	11.0%	17.2%	15.2%	12.8%	13.6%	5.3%	8.3%	N/A

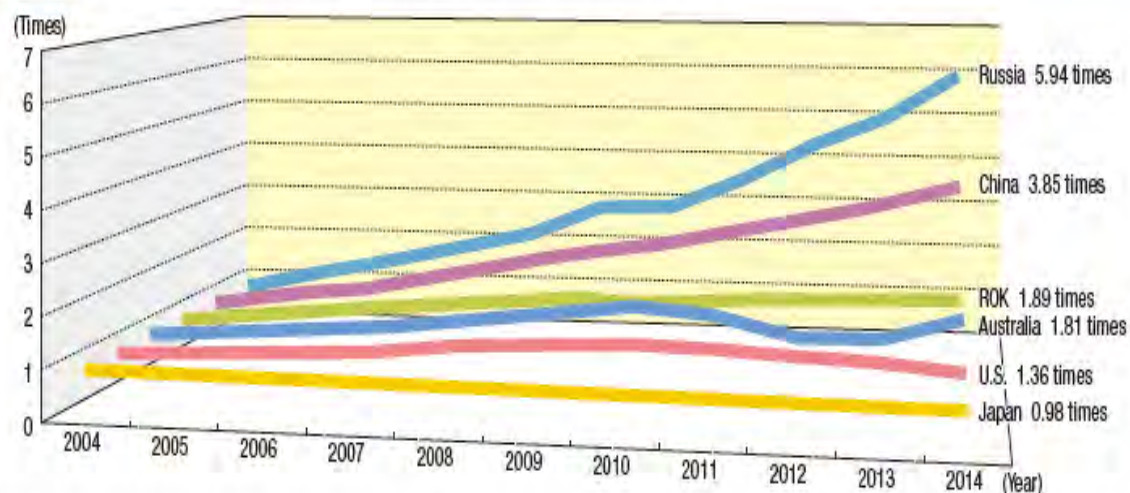
Note: 2012 defense budget is an estimated figure reported in Xinhua.

Source: Adam P. Liff and Andrew S. Erickson, “Demystifying China’s Defence Spending: Less Mysterious in the Aggregate,” *China Quarterly* (March 2013), 10.

Figure 3.8: Change in China's Defense Budget**Fig. I-1-3-1** Change in China's Announced Defense Budget

Notes: The total defense budgets for FY2002 and FY2004 were not disclosed, while the growth rates and the amount of increase for these two fiscal years were disclosed. The total defense budgets for the two fiscal years based on the growth rates and the amount of increase in combination with the initial defense budgets of the previous years were calculated. However, the numbers as a result of the calculation was found to be inconsistent with the numbers China disclosed the following year. In this graph, 168.4 billion yuan and 210 billion yuan for FY2002 and FY2004, respectively, were used based on the calculation conducted on the assumption that the disclosed growth rates and the amount of increase are based on the actual defense expenditures for FY2001 and FY2003.

Source: Japanese Ministry of Defense, *Defense of Japan 2014*, August 2014.

Figure 3.9: Changes in Defense Budgets in Surround Counties over the Past 10 Years**Fig. II-5-4-7** Changes in Defense Budgets in Surrounding Countries Over the Past Ten Years

Notes: 1. Created based on the defense budgets published by each country.
 2. These are numerical values obtained by simple calculation of the ratio between the defense budgets each year, with the FY2004 value as 1 (times) (rounded off two decimal places).
 3. The definition and breakdown of the defense budgets of each country are not necessarily clear. As we must take into account various factors such as foreign exchange fluctuations and price levels of each country, it is very difficult to draw a comparison of defense budgets among countries.

Source: Japanese Ministry of Defense, *Defense of Japan 2014*, August 2014.

A Lack of Transparency and Estimation Problems

These estimates illustrate the lack of expert consensus regarding the real level of Chinese defense spending. Many experts believe that Chinese government statistics do not include some outlays that are standard reporting for most other countries. The following items of China's military spending are believed by many observers to be outside of official disclosure:¹³⁴

- Arms imports, foreign weapon procurement, military aid for and from foreign countries;
- Expenses for paramilitary forces;
- Expenses for strategic and nuclear forces;
- Government subsidies for military production;
- Expenses for military R&D; and
- The PLA's own fundraising.

This leads most outside experts to believe that China's real military expenditures sharply exceed the officially stated numbers and that the announced Chinese defense expenditures do not suffice to support an organization that maintains 2.3 million service personnel and an increasingly sophisticated and therefore expensive arsenal of weapons systems. The US government has at least implied that China is hiding information about military spending that should be made public.

Others point out that pay increases and expenditures for social services among the armed forces have increased substantially in recent years. As previously noted, large pay raises have been authorized in 2006, 2008, and 2011. However, it is not clear whether pay increases have, in relative terms, outspent overall military expenditure growth.

Outside experts also often criticize this lack of transparency and inclusiveness in the Chinese defense budget transparency and the exclusion of significant defense-related spending from the official budget -- arguing that China underreports actual military spending intentionally. Adam P. Liff and Andrew S. Erickson provide an excellent summary of the issues involved, and their list of things excluded from the official Chinese defense budget includes:¹³⁵

- The budget of the 660,000-strong People's Armed Police (PAP);
- Some domestic procurement and research and development expenses;
- Overseas purchases of major weapons and platforms;
- Contributions from regional and local governments;
- Extra-budgetary revenues and resources from a limited number of military commercial enterprises (such as hospitals, and strategic infrastructure);
- Militarily- relevant portions of China's space programme;
- Central and local government defence mobilization funds;
- One-time entrance bonuses for college students;
- Authorized sales of land or excess food produced by some units;
- Personnel for motion pictures; and
- Donations of goods, services and money by local governments and enterprises to units and demobilized personnel.

The PAPF is another major exclusion from the official Chinese military budget is the PAPF; however, this force's primary focus is paramilitary and domestic -- with responsibilities like firefighting, border security, and natural disaster relief. In the event of a war, the PAPF would support the PLA in local defense, but neither supports the other in domestic operations in peacetime. The PAPF's budget is categorized under public security expenditures, not national defense expenditures (where the PLA's budget is located).¹³⁶

Specific weapons and equipment procurement costs from domestic defense industries and defense-related R&D funds given to civilian defense contractors and PLA armament research institutions are also not publically released. This funding likely comes from several different parts of the government, such as the State Administration for Science, Technology, and Industry.

Although most PLA procurement is domestic, a significant cost-based percentage is imported -- in particular, advanced weapons technology and some weapons platforms. The PRC both imports completed weapons systems and promotes foreign-assisted development, licensed production, and reverse engineering. It is believed that these exports are paid for from special accounts controlled by the State Council and thus are not part of the official defense budget. It is likely that China will continue to rely on such imports for at least several more years.¹³⁷

China's defense budget also does not include provincial defense-related spending like military base operating costs. It is believed that this money comes from local governments and the Ministry of Civil Affairs. The former also contributes to militia and reserve expenses, including civilians working for some PLA departments. However, a 2010 government statistic showed that only 2.94% of defense expenditures were paid for by local governments, meaning that the exclusion of this spending from the official budget does not significantly affect the real spending numbers.¹³⁸

Overall, these items and areas excluded from the official defense budget make guesstimating real Chinese defense spending relatively difficult; as Adam P. Liff and Andrew S. Erickson note,¹³⁹

China's general lack of transparency about how its official defence budget is calculated makes judging the validity of these Western criticisms very difficult. However, the potential significance of the above exclusions for assessing the size of China's actual defence budget is suggested in three important studies conducted by the International Institute for Strategic Studies (IISS). In 2006, IISS estimated that including the costs of foreign weapons purchases, subsidies, R&D spending, new product expenditures, arms exports and PAP funding revealed a 72 per cent gap (in RMB terms) between China's FY2005 official defence budget and "actual" (i.e. IISS-estimated) defence spending. In 2010, IISS estimated a roughly 39 per cent difference between the FY2008 official defence budget and "actual" (i.e. IISS-estimated) defence spending. In 2012, the estimated gap for the FY2010 budget was 41 per cent. It should be noted that, although large, the disparity between the official budget and IISS's estimates declined significantly over the initial three-year period before stabilizing. As argued in the next section, this shrinking gap, which is consistent with similar trends in estimates by the US Department of Defense, suggests that in recent years an increasing percentage of "actual" PLA funding has been placed "on the books"; that is, officially reported figures increasingly reflect actual spending.

.... Although the exclusion of major items from China's official defence budget is undoubtedly an issue of concern, less widely known is that the budget also includes some items that are not included in those of its Western counterparts. For example, the PLA still engages in some infrastructure construction projects, although many are designed to be dual-use and paid for from local and national non-defence funds. It provides some medical help to civilians in remote areas and provides some support to domestic security operations (e.g. during the 2008 Olympics). The PLA also engages in disaster relief, such as the dispatch of over 200,000 personnel in response to the 2008 Wenchuan earthquake -- the largest deployment of Chinese armed forces since the 1979 war with Vietnam. There are legal provisions for it to be reimbursed for these operations, but the processes, delays and extent of such reimbursements remain unclear. In Western

countries, such tasks are assigned primarily to non-military organizations. The PLA also provides perquisites for retired senior officers (offices, assistants, cars, drivers, cooks, caregivers, and special hospital facilities) that their better-salaried Western counterparts do not receive.

Finally, most estimates by non-Chinese analysts that put military expenses several times over PRC figures rely on PPP models. This conversion rate poses several problems:

- The assumed relative buying power of Chinese government funds in PPP terms refers to buying Chinese-made goods
- The market for military equipment and services in China is highly non-transparent, and transferring average PPP assumptions to the state-run military-industrial complex almost certainly will result in skewed results, even more so as China is importing military goods manufactured abroad
- Purchasing power theory loses its descriptive value when applied to goods, which are not homogenous; weapon systems and other military purchases are artificially protected by government regulation
- The return on investment in buying Chinese-made goods is unclear, and it is not unlikely that an indigenous product that meets state-of-the-art quality may actually cost more money than arrived at by PPP conversion

Moreover, most outside estimates do not seem to take account of the fact a command economy like China's can assign drastically lower costs to virtually any defense activity than a market economy can, and most of the world's command economies do so. They also do not take account of the fact that pay and allowances can differ sharply from country to country, and that conscript forces are far cheaper than paying competitive wages for all-volunteer or largely professional forces.

The US Department of Defense estimates do seem to be based more on comparable cost – the value of Chinese military efforts in prices comparable to those in the US what At the same time, free market attempts to guess at the market cost of such military efforts are notoriously inaccurate and uncertain. For example, the US intelligence community found after the Cold War that its attempts to determine the economic burden of Soviet defense expenditure and the equivalent cost of Soviet forces in US terms were sometimes little more than econometric nonsense.

The Chinese Response

Chinese commentators respond to Western criticisms of the PRC's lack of military transparency in three different ways. They:¹⁴⁰

- (1) emphasize that there is no universal standard for military transparency;
- (2) compare the current level of transparency favourably to even greater opacity previously; or
- (3) contend that "the most fundamental and most important form of transparency" is the transparency of China's strategic intentions, as opposed to the transparency of military capabilities or doctrine.

As has been noted above, Western organizations and experts have tried to overcome the lack of PRC transparency by independently estimating "actual" defense spending – though many of these estimates are inconsistent for several reasons, as discussed previously: (1) the difficulty of defining "defense spending"; (2) conversion of China's RMB-denominated budget into US dollars, especially because of problems with the official exchange rates, application of PPP rates, and inflation and strengthening of the RMB since 2005 – meaning that conversions based on current exchange rates make recent budget increases look larger than they really are; and (3) the lack of transparency regarding the actual costs of individual items and which specific spending categories are already included in the official budget further complicates estimates of actual PLA military expenditures.¹⁴¹

...[I]n 2009, the US Department of Defense estimated China's "actual" FY2008 defence budget at US\$105–150 billion: 1.8–2.6 times the official figure of US\$57.2 billion (RMB417.8 billion) and 2.5–3.6 per cent of GDP. Meanwhile, the Stockholm International Peace Research Institute (SIPRI)'s estimate that year was much lower: US\$84.9 billion – 1.48 times the officially released figure. The difference between SIPRI's estimate and the upper bound of the Department of Defense's estimate was US\$65.1 billion, a difference larger than China's entire official defence budget that year.

While significant defence-related spending is undoubtedly excluded from China's official defence budget, some of the items included in foreign estimates of the "actual" figure are controversial. For example, some Western institutions include expenditures for the (domestically focused) PAP in their calculations, labeling it one of the largest extra-budgetary sources of defence spending. But they do so without offering explicit justification. This single line-item can inflate estimates of the budget by as much as one-fifth above the official figure. Take the 2010 figures as an example: adding only official PAP expenditures (RMB93.4 billion) to the official budget (RMB533.4 billion) results in an estimate of "actual" Chinese defence spending 18 per cent higher.

Furthermore, many other nations, including the US, have defense-related spending that is outside of their official defense budgets:¹⁴²

For example, the US 051 (Department of Defense) budget excludes a significant amount of defence-related spending. In fact, one analysis of US "total defence-related spending" based on similar metrics to those regularly used by Western organizations to estimate China's "actual" defence budget found a US\$187 billion gap between the United States' official FY2006 defence budget and what this group of American PLA experts calculated as "actual" US defence-related spending that year.

The parallels they draw are intriguing: China is criticized for excluding some funding for officer pensions from its official defence budget, yet the Department of Veterans Affairs' entire budget, retirement costs paid by the Department of Treasury, and veterans' re-employment and training programmes paid by the Department of Labor are not included in Department of Defense's budget. China is criticized for excluding funding for its nuclear and strategic rocket programmes from its official defence budget, yet atomic energy activities related to defence are funded by the Department of Energy and fall outside the Department of Defense's budget. Finally, China is criticized for excluding the PAP's budget and various defence activities that are paid for by local governments from its official defence budget, yet neither the Department of Homeland Security budget nor state funding for some US National Guard functions is included in the Department of Defense's budget... [I]t is important to also stress that while "actual" US defence spending is larger than the official figure, most other relevant spending is relatively transparent, and can be assembled by a knowledgeable analyst. This is significantly less true of China's defence spending.

It still seems likely that some aspects of the PRC's limited military transparency are an attempt by its leadership to obscure Chinese strategic intentions – although China's capabilities can be measured by much more tangible changes in military forces, modernization, and readiness. At the same time, it is important to note that other countries in the region with similar economic development levels – such as India, which is a similar size and is also growing quickly – have similar transparency (or lack thereof) in their military spending. China is scarcely an exception in this regard.¹⁴³

CHAPTER 4: CHINESE STRATEGY AND PLA MILITARY DOCTRINE

China's unclassified literature tends to be more conceptual and less focused on actual force numbers and implementation than most US and European discussion of strategy – as well as most such discussions by the Ministries of defense in Asian nations like Japan, South Korea, and Taiwan. This has led to significant debates in the Western open-source literature over China's strategy, force structure, military spending, and arms purchases, as well as over China's actual internal views of its strategic environment, its intentions, and the goals it is seeking to pursue.

One way to resolve these debates is to focus on what China does as distinguished from what it says. The following chapters attempt to tie Chinese strategy and broad statements regarding its military developments to quantitative indicators of trends in Chinese military modernization and force development in order to better determine China's actual goals and how they relate to real-world changes in its military posture and forces. At the same time, simply measuring the shifts in the unclassified data on Chinese forces lacks context and perspective. They can only be understood in the context of Chinese strategic doctrine.

Chinese Strategic Doctrine

An analysis of the trends in Chinese force development cannot cover all the issues affecting Chinese military doctrine. It is, however, necessary to have some picture of what China says as background for any portrayal of its force strength and modernization.

Of course, what China says is likely to not be a full reflection of what its leaders actually think and intend. Certainly no Western strategy document or force plan has ever passed this test or even come close to meeting it. It does, however, at least set the stage.

It is important to keep in mind the difficulties that arise from transcription, transliteration, and translation; the different cultural context; and the reality that all countries sometimes deliberately conceal facts or use misleading terms in official documents and statements. This holds especially true in non-democratic systems and when dealing with military policy, such as when trying to infer which objectives will be assigned to the PLA.

China does not make publicly available a unified, single doctrine for guiding military operations. Rather, Chinese doctrine must be understood as the combination of several documents and guidelines at different command levels of the armed forces, united into a hierarchical system that the Chinese refer to as a "Science of Military Strategy." At the top of this hierarchy, the "Military Strategic Guidelines" provide direction on the current and future development of the PLA. The 2012 DoD annual report to Congress on Chinese military and security developments notes this situation, stating:¹⁴⁴

China's 'Military Strategic Guidelines for the New Period,' completed in 1993 and revised as recently as 2004, contains the overarching strategic and operational guidance that directs the training, development, and employment of China's armed forces.

Attempts to discern a systematic hierarchy among Chinese war-fighting principles usually identify two concepts – "Active Defense" and "Local War under Conditions of Informatization"

– at the top level of China’s military doctrine. In addition, the old concept of “People’s War” has been modified and updated to remain relevant in the 21st century.

Active Defense

Active defense is an operational guideline for military strategy that applies to all branches of the armed forces. It states that China’s military engages in a policy of strategic defense and will only strike militarily once it has already been struck. However, Active Defense specifically states that such a defensive strategic posture is only viable if mated with an offensive operational posture. Moreover, the first strike that triggers a Chinese military response need not be military; actions in the political and strategic realm may also justify a Chinese military reaction, even if the PLA fires the first shot tactically.¹⁴⁵

The *Science of Military Strategy*, a PLA textbook on strategy, presents the four pillars of active defense.¹⁴⁶

- First, China will not fire the first shot and will attempt to settle any disputes by peaceful means for as long as possible.
- Second, China will attempt to deter war militarily or politically before it breaks out.
- Third, China will respond to an attack with offensive action and will seek to destroy the enemy’s forces.
- A fourth pillar, but presented as part of pillar three, is that China would not be the first state to use or threaten to use nuclear weapons.

Thus, while Active Defense posits a strategically defensive orientation for the PLA, it specifically instructs the PLA to engage in operationally offensive action in order to thwart an invader. As the *Science of Military Strategy* states,¹⁴⁷

Strategically, we would fight only after the enemy has struck. But when foreign enemies forced war on us, we should be able to deal out powerful counterattack and stop the enemy’s offense in predetermined areas. After gradually depriving the enemy of his strategic initiative, we would change strategic defensive to strategic offensive, so as to utterly defeat the enemy’s invasion.

Local War under Conditions of Informatization

While Active Defense provides the basic strategic posture for the PLA, its concept of operations in the early 21st century is codified by the doctrine of Local War under Conditions of Informatization.

The Local War under Conditions of Informatization (Local Wars) concept has been the official military doctrine of the PLA since 1993.¹⁴⁸ This doctrine states that near-future warfare will be local geographically, primarily along China’s periphery; limited in scope, duration, and means; and conducted under “conditions of informatization,” which the DOD describes as “conditions in which modern military forces use advanced computer systems, information technology, and communication networks to gain operational advantage over an opponent.”¹⁴⁹ The DOD further interprets the doctrine to refer to “high-intensity, information-centric regional military operations of short duration.”¹⁵⁰ As the rest of this study will show, the PLA’s ongoing modernization and force development has occurred along the lines necessitated by this doctrine.

As has been discussed earlier, the Chinese conception of “informatization,” uses a word that attempts to capture and describe an important but abstract concept.

“Western analysts often see ‘informatization’ as a vague concept that is functionally equivalent to the PLA’s ‘RMA with Chinese characteristics,’ or to the modernization of the PLA’s C4ISR capabilities, or to the

American military's concept of Network-Centric Warfare (NCW)...¹⁵¹ The term 'informatization,' at its most universal and elemental, describes the process of moving toward greater collection, systematization, distribution, and utilization of information. Within that ultimate process, however, there are numerous subordinate processes, extending down through multiple layers, from the global trend of informatization to the informatization of particular industries, societies, weapons systems, and the like. At any given level, the term "informatization" can refer to an organic, decentralized process (such as the "informatized conditions" under which the PLA are instructed to prepare to win local wars), to an intentional, directed process (the informatization of weapons and equipment), or in some cases to actions taken by an actor to adapt or prepare for informatization trends beyond its control."¹⁵²

In short, "informatization" is seen as a global phenomenon and/or broad historical trend in society.

"Just as the industrial revolution transformed both the context of warfare and the means by which military capabilities were generated, Chinese theorists perceive the information society as representing anew sea-change with implications for every aspect of warfighting and military construction. PLA theoreticians view this trend as not only altering how wars are fought, but whether or not wars commence at all, with informatization sometimes lowering the barriers to entry into a conflict."¹⁵³

In an apparent nod to People's War,

"PLA scholars informatized mobilization as requiring systematic communication, coordination, and synchronization between the PLA, China's other armed forces (the militia and People's Armed Police), and civilian networks, both for the national defense and for Hu's focus on the PLA carrying out expanded military operations other than warfare (MOOTW). PLA scholars emphatically view civil-military integration in the defense economy as a key component of both PLA informatization and military innovation, thus intertwining military and civilian informatization efforts."¹⁵⁴

Like many of the PLA's theoretical concepts, this prediction of the nature of modern war is based on a combined study of history and theory: PLA theorists reportedly identify the 1991 Gulf War as the beginning of a new era in warfare, a Revolution in Military Affairs (RMA), in which information technology completely revolutionized warfare and changed the way militaries were organized, led, and fought. Moreover, the same theorists assess that the dramatic changes in international relations following the Cold War have decisively altered both the political drivers for war and the political constraints on war.¹⁵⁵

The result of the RMA and the decisive change in international affairs is a new type of warfare dominated by two key characteristics: a dependence on information technology and a limitation in geographic scope, duration, and political objectives of future warfare. As the *Science of Military Strategy* asserts,¹⁵⁶

It has two distinctive features: one is the high-tech feature, and the other is the local feature. The former refers to the high-tech as the material and technological foundation of war, for a large amount of high-tech weapons and equipment are used and a lot of traditional military systems are improved by the employment of high technologies. The latter means that the war is controlled within the local range. Moreover, the aim, range, tools of war and time and space of engagements are all limited. These two features determine the fundamental orientation of the future development of local war.

With regard to the second characteristic, PLA theorists argue that in contrast to the previous PLA belief in "Total War," Local Wars are characterized by the pursuit of limited political goals through relatively constrained uses of force.¹⁵⁷ In this new conception, military force supports diplomatic strategies aimed at securing attainable, limited political goals rather than seeking the complete destruction of the enemy. To quote American analysts Roger Cliff *et al.*, "Military action is intended to create conditions for the achievement of the desired political outcome."¹⁵⁸

Thus, military force operates in conjunction with, or possibly in support of, other instruments of national power. PLA Colonels Qiao Liang and Wang Xiangsui argue this point strongly in their

book, *Unrestricted Warfare*, and assert that the effectiveness of military power has declined relative to the new, infinite means of coercing one's enemies. They contend that the dynamically changing external environment facing nation-states today makes "obsolete the idea of confining warfare to the military domain."¹⁵⁹ As a result, military means are a subsidiary means of comprehensive national power and but one instrument to complement others.

Despite the decreasing potency of the purely military sphere in future conflicts, the concept of Local Wars still has much to say about the specific conditions regarding military-on-military confrontations. The high level of technology present in Local Wars ensures that wars will be brief but highly destructive contests between military forces, both of which are linked and empowered by information technology.

Because of this extreme battlefield lethality, in combination with the limited geographic scope and objectives of Local Wars, the PLA expects to fight short wars in which the first campaign will be highly destructive at the military level and lead to a decision within the military sphere quickly. Moreover, the ability of military forces to communicate and coordinate rapidly through effective C4ISR networks means that, at the operational level, military forces in Local Wars will be agile, capable of high-tempo deep operations, resource-intensive, critically dependent on information, and present in all warfare domains.¹⁶⁰

People's War

People's War is often wrongly confused with guerilla warfare. The Chinese concept of People's War is one in which the people actively support the military during times of warfare: this active support can be logistical, political, or operational. When describing arming the civilian population for military operations, PLA writings mostly refer to militia, civil defense, and reserve forces.¹⁶¹ However, the use of civilian materiel and personnel for support and logistics functions is still accepted in PLA doctrine and is still seen as necessary for victory in Local Wars:¹⁶²

The cooperation between the regular warfare and irregular warfare stresses that we should give full play to the creativity of the masses and servicemen on the basis of inheriting the glorious tradition of the people's war so that the new form of the people's war under modern conditions can be explored according to the reality of the war in different strategic directions. "Five combinations" should be dealt with well. The first is the combination of the regular troops with the masses participating in the war. The emphasis should be put on coastal regions or inland border regions. The masses should be mobilized to support defensive operations on the sea or counterattack in self-defense on the borders, and make use of local scientific and technical resources to launch all kinds of attacks against the enemy and provide various special supports.

The PLA sees no contradiction between People's War and Local Wars; instead, the two doctrines are seen as mutually reinforcing.¹⁶³ Moreover, this belief in complementarity is far more than purely theoretical: the PLA actively depends on the civilian population at all strategic levels, requiring the active logistical, and at times operational, and support of the Chinese people for mobilization, mobility, and combat.

For example, a key role of local governments in wartime is to coordinate civilian support for military forces. Referencing transportation during wartime, the *Science of Second Artillery Campaigns* states,¹⁶⁴

With respect to engineering support, on one hand the destruction during wartime of the positions, roads, bridges within the battlefield would greatly magnify the work load and difficulty; while on the other hand, the magnanimous support and assistance from the local government and the masses would become a potent replenishment of our wartime engineering support. Moreover, within the battle zone, the financial potential, mechanical maintenance capability, loading and unloading transportation capability, medical first-aid ability,

in addition to the quantity and quality of the population, would all constitute extremely direct influence towards the logistics, equipment technical support and personnel replenishment.

Consequently, the PLA identifies the Chinese population and local governments as vital resources during Local Wars. Given the predicted close proximity of China to future battlefields, as well as the necessary mobilization and maneuver that would take place within China, the PLA predicts that the local population can be decisive even in a local, high-technology war.

A key element of People's War is the necessity of maintaining good relations with the local populace. As a result, the *Science of Second Artillery Campaigns* specifically instructs SAF personnel to maintain good relations with the local populace for ethical and operational reasons:¹⁶⁵

Vigorously foster the PLA's good tradition of supporting the government and cherishing the people, and foster military-politics and military-civilian relationships. Under the premise of strict adherence to secrecy, obtain contact with pertinent departments of the local government in a timely manner, and actively seek the vigorous support of the regional government. Under the condition of satisfying campaign operations, strive to accommodate the masses by self-consciously safeguarding the masses' interests. Strictly abide by policy regulations and the masses discipline, resolve new issues that surface during the process of campaigns in a timely manner, and establish the fine image of a mighty and civilized army.

Chinese Campaign Doctrine

Active Defense, Local Wars, and People's War describe how China intends to posture itself, develop its forces, and fight at the strategic level. Operationally, or in the Chinese terminology, at the campaign level, the PLA has developed doctrines and principles of warfare that it believes will enable China to win Local Wars in the early 21st century, even against technologically superior adversaries. While every element of PLA campaign doctrine cannot be discussed in this limited overview, the campaign doctrines most necessary for evaluating Chinese modernization are included below.

Integrated Joint Operations

Chinese military writings describe joint operations as a critical component of future military operations and a necessary means of defeating technologically superior adversaries. PLA doctrine holds that joint operations, or cooperation at the operational level between multiple services, are an essential means of augmenting combat power at the operational level and a necessary means for obtaining victory in Local Wars. Identifying future combat as a confrontation between military systems, the PLA believes that synergies obtained by multi-service cooperation, such as the use of SAF forces at the operational level to further PLAAF operations, create synergies that enable the PLA to achieve its objectives in a highly complex and lethal environment. As the *Science of Military Strategy* notes,¹⁶⁶

Under the high-tech conditions, the victory of war depends on the comprehensive confrontation capacity of the whole combat system. The composition of war power is developing in the direction of systematization, and the emphasis is laid on the combination of various forces so as to find new ways to increase their combat effectiveness through the integrated composition and employment of combat forces. The operations of individual service is disappearing, while the traditional division of labor among the Army, the Navy and the Air Force is blurring.

Various combat forces are more closely connected with each other, and the operations are highly integrated. A very small-scale operation possesses the feature of jointness. The enormous power of various combat forces can only be given full play to in joint operations. Integrated and joint operation has become the basic pattern of high-tech local war. The principles of "systems confrontation" and "overall strike" have become more important than that of "independent operation".

Sometimes strategic means might be used to attack tactical targets, and, sometimes, tactical means might be employed to attack strategic targets. Supported by information technology, various arms and services, different functional formations and various combat factors are woven into a unity. Hence, joint operation has become the inexorable operational pattern. Combined fighting capacity has become the fundamental symbol of combat effectiveness of the armed forces.

Traditionally, the PLA considered joint operations to be “operations under unified command and executed by two or more services at the level of the corps.”¹⁶⁷ However in the last decade, the PLA has made two revisions to its joint operations concept. First, the PLA has renamed joint operations “integrated joint operations,” partially in response to lackluster training practices that did not achieve the hoped-for level of jointness but also in order to emphasize the role of support, logistical, and civilian forces in the joint operations concept. The new concept also emphasizes the role of informatization in joint operations.¹⁶⁸

Second, the PLA has begun the process of pushing joint operations down from the level of corps (Group Armies [GA’s]) to that of divisions and even brigades.¹⁶⁹ As the above quote shows, the PLA intends to push down joint operations to “very small-scale operations.” However, as one analyst writes,¹⁷⁰

It is evident that conducting joint operations at division level and below is still a relatively new concept for the PLA and that more time is necessary for them to experiment, encounter problems, find solutions, and communicate these experiences throughout the PLA.

However, according to the 2014 DoD report, in order to achieve this new concept:¹⁷¹

...the PLA is laying the foundation for future changes in military doctrine. To develop a new cadre of officers, the PLA is reshuffling its academics to cultivate junior officers proficient with and capable of leveraging technology in all warfighting functions for joint operations. The National University of Defense Technology, for example, launched a yearlong joint operations staff officer course to serve as a pilot for a future national-level program. The course allows junior officers to rotate to the command elements of other PLA services to enhance their skills in joint operations planning and preparation.

Information Warfare

One of the main principles of the Local Wars concept is that Information Warfare (IW) will play a central role in future warfare. Within the realm of IW, the PLA must be capable of quickly seizing and retaining information supremacy, or the ability to access and process information in effective C4ISR¹⁷² networks while denying the enemy the same ability. Consequently, the PLA believes that advantages in collecting, transmitting, and processing information will lead to significant advantages at the operational and even strategic level. As the 2011 DoD Report states,¹⁷³

PRC military writings highlight the seizure of electromagnetic dominance in the early phases of a campaign as among the foremost tasks to ensure battlefield success. PLA theorists have coined the term ‘integrated network electronic warfare’ (*wangdian yitizhan*—网电一体战) to describe the use of electronic warfare, computer network operations, and kinetic strikes to disrupt battlefield information systems that support an adversary’s warfighting and power projection capabilities. PLA writings identify ‘integrated network electronic warfare as one of the basic forms of’ integrated joint operations, suggesting the centrality of seizing and dominating the electromagnetic spectrum in PLA campaign theory.

The PLA has developed the Integrated Network and Electronic Warfare (INEW) doctrine to organize and structure its forces for seizing information supremacy. INEW calls for the immediate seizure of information supremacy at the beginning of a conflict or even before. According to INEW, the goal of IW forces is:¹⁷⁴

Controlling the dominant position in battlefield information within the scope of a particular time and space... It means having the rights of freedom and initiative when using information and controlling the battlefield initiative...

The 2014 DoD report on China found that,

Almost all of the PLA's 2013 exercises focused on operating in "informationized" conditions, a concept that can be viewed as the Chinese corollary to U.S. network-centric warfare. This concept requires enhancing systems and weapons with information capabilities and linking geographically dispersed forces and capabilities into an integrated system capable of unified action.¹⁷⁵

Under the section concerning China's "force modernization goals and trends," the 2014 report found that the dominance of information warfare is a critical component of the evolving modern Chinese military strategy:

An essential element, if not a fundamental prerequisite, of China's emerging A2/AD regime is the ability to control and dominate the information spectrum in all dimensions of the modern battlespace. PLA authors often cite the need in modern warfare to control information, sometimes termed "information blockade" or "information dominance," and to seize the initiative and gain an information advantage in the early phases of a campaign to achieve air and sea superiority.

China is improving information and operational security to protect its own information structures and is also developing electronic and information warfare capabilities, including denial and deception, to defeat those of its adversaries. China's "information blockade" likely envisions the use of military and non-military instruments of state power across the battlespace, including in cyberspace and outer space to deny information superiority to its adversaries. China's investments in advanced electronic warfare (EW) systems, counterspace weapons, and computer network operations (CNO) – combined with propaganda and denial through opacity – reflect the emphasis and priority China's leaders place on building capability for information advantage.¹⁷⁶

INEW holds that this objective can only be obtained by integrating means across the services. As a doctrine, INEW specifically focuses on integrating cyber and electronic warfare forces. However, other PLA forces will be used in conjunction with cyber/electronic attacks to create a hard/soft kill mix of attacking forces: PLA theorists argue that close coordination of operational systems provides the only means for victory in the system-on-system confrontation expected during a fight for information supremacy.¹⁷⁷

Some reports see the focus on information warfare as an element of People's War. Chinese military writers reportedly envision the mobilization of millions of citizens skilled in IT applications as the heroes in a new online People's War.¹⁷⁸ Some military districts have already established reserve and militia units specializing in information warfare, thereby drawing on the vast, untapped potential of civilian software experts. As many as 20 city departments are believed to have information warfare regiments among their military reserve forces.¹⁷⁹

The 2006 DoD report on China pointed out that China's increasing use of IT means that civilian computer hackers *may* support the PLA in protecting Chinese networks while disrupting those of the enemy. It also noted that a PLA cyber-warfare exercise was conducted in 2005. The 2011 report takes a firmer position, stating that such a linkage does exist:¹⁸⁰

These [information warfare] units include elements of the militia, creating a linkage between PLA network operators and China's civilian information technology professionals.

The 2012 report provides the following summaries of related trends in cyberwarfare, space, and espionage, and indicates that there is a rising level of tension between the US and China over some aspects of these trends:¹⁸¹

China's IADS [integrated air defense system] ... includes a C4ISR network to connect early warning platforms, SAM and AAA, and command posts in order to improve communication and response time during operations. The network is intended to include battle damage assessment capability. China continues to make progress on command, communication, and control systems. China's air defense brigades are training to use this information network and mobile C2 platforms to connect different types of weapons systems' operations together by sending automated targeting information to them simultaneously. Weapon systems that are geographically separate, in different units, and a mix of older and newer battalions could achieve compatibility through the use of networked C2. China is also using simulation systems to attempt to train for command of air defense operations in realistic operational conditions, including network warfare. China has deployed air defense brigades employing its newest SAM system to the western part of China to train for long-distance mobility and operations in high-altitude conditions, including operations in the conditions of network warfare. (p. 68)

China has developed a large constellation of imaging and remote sensing satellites under a variety of mission families. These satellites can support military objectives by providing situational awareness of foreign military force deployments, critical infrastructure, and targets of political significance. Since 2006, China has conducted 16 Yaogan remote sensing satellite launches. The Yaogan satellites conduct scientific experiments, carry out surveys on land resources, estimate crop yield, and support natural disaster reduction and prevention. Additionally, China has launched two Tianhui satellites designed to conduct scientific experiments and support land resource surveys and territory mapping with a stereoscopic imaging payload. China has three Huanjing disaster monitoring satellites currently on orbit (the third of which was launched in November 2012). The Ziyuan series of satellites are used for earth resources, cartography, surveying, and monitoring. China also operates the Haiyang ocean monitoring constellation and Fengyun weather satellites in low Earth and geosynchronous orbits. China will continue to increase its on-orbit constellation with the planned launch of 100 satellites through 2015. These launches include imaging, remote sensing, navigation, communication, and scientific satellites, as well as manned spacecraft. (p. 65)

In 2012, China conducted 18 space launches. China also expanded its space-based intelligence, surveillance, reconnaissance, navigation, meteorological, and communications satellite constellations. In parallel, China is developing a multi-dimensional program to improve its capabilities to limit or prevent the use of space-based assets by adversaries during times of crisis or conflict. (p. 9)

During 2012, China launched six Beidou navigation satellites. These six satellites completed the regional network as well as the in-orbit validation phase for the global network, expected to be completed by 2020. China launched 11 new remote sensing satellites in 2012, which can perform both civil and military applications. China also launched three communications satellites, five experimental small satellites, one meteorological satellite, one relay satellite, and a manned space mission. (p. 9)

China continues to develop the Long March 5 (LM-5) rocket, which is intended to lift heavy payloads into space. LM-5 will more than double the size of the Low Earth Orbit (LEO) and Geosynchronous Orbit (GEO) payloads China is capable of placing into orbit. To support these rockets, China began constructing the Wenchang Satellite Launch Center in 2008. Located on Hainan Island, this launch facility is expected to be complete around 2013, with the initial LM-5 launch scheduled for 2014. (p. 9)

Chinese Cyberwarfare

Cyberwarfare is becoming a major aspect of Chinese modernization and has triggered a growing US, ROK, and Japanese response.

Cyberwarfare is a concern of China's most senior leaders, as witnessed by Chinese President Xi Jinping becoming personally involved. Upon taking charge of the Central Internet Security and Informatization Leading Group, the state-run Xinhua News Agency stated that President Xi Jinping sees internet security as "a major strategic issue concerning a country's security and development as well as people's life and work." The President went further when he stated that, "efforts should be made to build our country into a cyber power."¹⁸²

The PLA, under the "Integrated Network Electronic Warfare" doctrine, has been paying significant attention to information warfare in the past 10-15 years, not only looking at Cyberwarfare, but also battlefield EW. The doctrine promotes the PLA's capabilities in paralyzing an opponent's C4ISR capabilities through network warfare and EW tools. Recently, the PRC has apparently moved towards a new "information confrontation" (*xinxi duikang*) concept, integrating non-electronic and electronic information warfare under a single command. It is likely that the PLA perceives information warfare as a national exercise to be undertaken in times of both peace and war, as information sovereignty is an important aspect of national power. In a battle situation, each side would employ integrated air, ground, naval, and electromagnetic forces. As such, the PLA is working to improve battlespace situational awareness by linking all the military branches into one common operating platform.¹⁸³

In addition to enhancing battle space situational awareness, cyberwarfare is also seen as a valuable tool for psychological operations against the public populations of opposing countries. This can involve "public diplomacy measures, propaganda and psychological campaigns, political and cultural subversion, deception of or interference with local media, infiltration of computer networks and databases, and efforts to promote a dissident or opposition movements across computer networks."¹⁸⁴

Such operations target "the emotions, motives, objective reasoning, and behavior of a specific, targeted audience"¹⁸⁵ and essentially attempt to degrade American will to sustain a conflict.¹⁸⁶ This would appear to be one way to take advantage of what the Chinese perceived to be an extreme aversion to casualties by Americans.¹⁸⁷

In an assessment of capabilities, the IISS noted,¹⁸⁸

Three PLA departments – Information, Strategic Planning and Training – have either been established or re-formatted to help bring about this transformation. And since 2008, major PLA military exercises, including Kuayue 2009, Shiming Xingdong 2010 and Lianhe 2011, have all had significant cyber and information operations components that have been both offensive and defensive in nature. China's cyber assets fall under the command of two main departments of the General Staff Department (GSD). Computer network attacks and EW would, in theory, come under the 4th Department (Electronic Countermeasures), and computer network defence and intelligence gathering comes under the 3rd Department (Signals Intelligence). The 3rd Department is supported by a variety of 'militia units' comprising both military cyberwarfare personnel and civilian hackers.

In July 2010, colours were presented by General Cheng Bingde, head of the PLA General Staff Department, to a new 'Information Safeguards Base' tasked with addressing cyber threats and safeguarding China's information security and infrastructure. Some PLA sources claim that the base is not an offensive cyber capability but rather is intended to bolster resilience. In 2011, the PLA said that a much-reported 'Cyber Blue Team' was a body designed to improve the PLA's 'ability to safeguard internet security'

A 2011 report by the US Office of the National Counterintelligence Executive noted that Chinese private companies and government intelligence agencies use Chinese citizens or people with family ties to China to exploit their insider access to US corporate networks to steal trade secrets using emails or thumb drives. Every year, tens of billions of dollars of intellectual property, trade secrets, and technology are copied from US corporations, government agencies, and research institutions, primarily by China and Russia.¹⁸⁹

These Chinese activities have led to a growing US reaction. In early May 2013, the Obama administration – through the DOD – accused the Chinese military of attacking US government and defense contractors' computer systems. Some recent estimates believe that over 90% of cyber-espionage in the US comes from China.¹⁹⁰

The DoD reports on Chinese military power for 2013 and 2014 made it clear that China's cyberwarfare modernization had become a far more challenging issue for the US:¹⁹¹

Cyber Activities Directed Against the Department of Defense. In 2012, numerous computer systems around the world, including those owned by the U.S. government, continued to be targeted for intrusions, some of which appear to be attributable directly to the Chinese government and military. These intrusions were focused on exfiltrating information. China is using its computer network exploitation (CNE) capability to support intelligence collection against the U.S. diplomatic, economic, and defense industrial base sectors that support U.S. national defense programs. The information targeted could potentially be used to benefit China's defense industry, high technology industries, policymaker interest in US leadership thinking on key China issues, and military planners building a picture of U.S. network defense networks, logistics, and related military capabilities that could be exploited during a crisis. Although this alone is a serious concern, the accesses and skills required for these intrusions are similar to those necessary to conduct computer network attacks. China's 2010 Defense White Paper notes China's own concern over foreign cyberwarfare efforts and highlighted the importance of cyber-security in China's national defense.

Cyberwarfare in China's Military. Cyberwarfare capabilities could serve Chinese military operations in three key areas. First and foremost, they allow data collection for intelligence and computer network attack purposes. Second, they can be employed to constrain an adversary's actions or slow response time by targeting network-based logistics, communications, and commercial activities. Third, they can serve as a force multiplier when coupled with kinetic attacks during times of crisis or conflict.

Developing cyber capabilities for warfare is consistent with authoritative PLA military writings. Two military doctrinal writings, *Science of Strategy*, and *Science of Campaigns* identify information warfare (IW) as integral to achieving information superiority and an effective means for countering a stronger foe. Although neither document identifies the specific criteria for employing computer network attack against an adversary, both advocate developing capabilities to compete in this medium.

The *Science of Strategy* and *Science of Campaigns* detail the effectiveness of IW and CNO in conflicts and advocate targeting adversary C2 and logistics networks to affect their ability to operate during the early stages of conflict. As *Science of Strategy* explains, "In the information war, the command and control system is the heart of information collection, control, and application on the battlefield. It is also the nerve center of the entire battlefield."

In parallel with its military preparations, China has increased diplomatic engagement and advocacy in multilateral and international forums where cyber issues are discussed and debated. Beijing's agenda is frequently in line with Russia's efforts to promote more international control over cyber activities. China and Russia continue to promote an Information Security Code of Conduct that would have governments exercise sovereign authority over the flow of information and control of content in cyberspace. Both governments also continue to play a disruptive role in multilateral efforts to establish transparency and confidence-building measures in international fora such as the Organization for Security and Cooperation in Europe (OSCE), ASEAN Regional Forum, and the UN Group of Governmental Experts. Although China has not yet agreed with the U.S. position that existing mechanisms, such as international humanitarian law, apply in cyberspace, Beijing's thinking continues to evolve.

The 2014 DoD report added:¹⁹²

China may be willing to play a more constructive role in these efforts. Notably, in June 2013, China joined a landmark consensus of the UN GGE that addressed here fundamental issues: (1) confirmed that existing international law, including the UN Charter, applies to cyberspace and that the law of state responsibility should guide state behavior with regard to the use of cyberspace; (2) expressed the need to promote international stability, transparency, and confidence in cyberspace; and (3) explored how the international community can help build the cybersecurity capacity of less-developed states.

US Government officials have noted that cyber issues will be a key aspect of the US-PRC relationship.¹⁹³ The DoD summarized the role of cyberspace and cyberwarfare in its new strategy as follows in its FY2014 defense budget overview:¹⁹⁴

In recognition of cyberspace as an operational domain and the emerging mission to Defend the Nation against cyber threats as directed by the President, this year's budget provides funds to increase defensive capabilities and develop the cyber Joint Force under a new force planning model.

The unique attributes of cyberspace operations require trained and ready cyberspace forces to detect, deter, and, if directed, respond to threats in cyberspace. Securing and defending cyberspace requires close collaboration among Federal, state and local governments, private sector partners, and allies and partners abroad. This year's budget establishes dedicated cyber teams to execute this mission on Defense Department networks and in support of Combatant Command and national missions.

This budget reflects an emphasis on enhancing our workforce to successfully execute defensive and offensive missions in cyberspace. The Department is implementing a new cyber force planning model that will realign military, civilian and contractor Personnel positions (with associated support costs) under U.S. Cyber Command (USCYBERCOM) in a three-year phased build-up beginning in FY 2014.

This provides Personnel, training and support costs for regional cyber mission teams to be located in Maryland, Texas, Georgia, and Hawaii as well as other Combatant Command and military service locations. In addition, Personnel at the National Security Agency continues to be funded to provide both cyber security and intelligence support to the USCYBERCOM teams. This overall force construct will provide capacity for the "Defend the Nation" mission, the cyber combat mission (in support of Combatant Command needs), and the cyberspace protection mission which defends Defense Department networks.

- Other cyberspace operations highlights in the FY 2014 President's Budget are:
- Continues to support the construction of the Joint Operations Center for USCYBERCOM at Fort Meade, Maryland. Planned construction begins in FY 2014 with occupancy scheduled in FY 2017.
- Provides funding to develop tools to automate vulnerability detection on classified networks.
- Provides funding for commercial software for data monitoring of defense networks that will identify and isolate suspect files for analysis.
- Continues to robustly support cyberspace operations Science and Technology programs.
- Continues to support defensive cyberspace operations providing information assurance and cyber security to the Defense networks at all levels.
- Provide funding to enhance cyberspace range capabilities by increasing capacity, improving pre- and post- exercise analysis, and mainstreaming and sustaining capabilities of the National Cyber Range developed by the Defense Advanced Research Projects Agency under the oversight of the Department's Test Resource Management Center.

These US actions built on previous US efforts that an IISS analysis summarizes as follows:¹⁹⁵

Each arm of the US military is developing cyber capacity. US Army Cyber Command (ARCYBER) is mandated to 'plan, coordinate, integrate, synchronize, direct, and conduct network operations and defense of all Army networks'. The 24th Air Force manages cyber for the air force, which, in October 2010, issued a doctrine entitled 'Cyberspace Operations'. Fleet Cyber Command (the US 10th Fleet) delivers 'integrated cyber, information operations cryptologic and space capabilities' for the navy. Marine Force Cyber

Command was established in 2009. These service groups are commanded by US Cyber Command (itself under US Strategic Command, and co-located with the NSA).

DoD's November 2011 'Cyberspace Policy Report' report said that 'the Department has the capability to conduct offensive operations in cyberspace to defend our Nation, Allies and interests. If directed by the President, DoD will conduct offensive cyber operations in a manner consistent with the policy principles and legal regimes that the Department follows for kinetic capabilities, including the law of armed conflict.' According to the Cyber Command chief, in March 2012 the command element had 937 staff (with an FY2013 budget request of US\$182m), while service cyber staff totalled over 12,000. For Cyber Command, the government's January 2012 Defense Strategic Guidance 'means we must pay attention to the ways in which nations and non-state actors are developing asymmetric capabilities to conduct cyber espionage – and potentially cyber attacks as well – against the United States'.

Director of National Intelligence, James R. Clapper, addressed the Senate Select Committee on Intelligence as follows in regard to Chinese cyber operations and cybersecurity:¹⁹⁶

Russia and China continue to hold views substantially divergent from the United States on the meaning and intent of international cyber security. These divergences center mostly on the nature of state sovereignty in the global information environment states' rights to control the dissemination of content online, which have long forestalled major agreements. Despite these challenges, the United Nations Group of Governmental Experts concluded in a June 2013 report that international law and the UN Charter apply to cyberspace. This conclusion represents a substantive step forward in developing a legal framework and norms for cyber security.

China's cyber operations reflect its leadership's priorities of economic growth, domestic political stability, and military preparedness. Chinese leaders continue to pursue dual tracks of facilitating Internet access for economic development and commerce and policing online behaviors deemed threatening to social order and regime survival. Internationally, China also seeks to revise the multi-stakeholder model Internet governance while continuing its expansive worldwide program of network exploitation and intellectual property theft.

Attempts to penetrate the US national decision-making apparatus, defense industrial base, and US research establishments will persist. We assess that the leading state intelligence threats to US interests in 2014 will continue to be Russia and China, based on their capabilities, intent, and broad operational scope.

Sophisticated foreign intelligence entities will continue to employ human and cyber means to collect national security information. They seek data on advanced weapons systems and proprietary information from US companies and research institutions that deal with energy, finance, the media, defense, and dual-use technology.

Presidential Policy Directive 20 was signed by President Barack Obama in October 2012 to give US federal agencies clear standards when facing cyberspace threats. Although the Directive's exact terms are unknown, it likely included a distinction between offensive cyber work and network defense.¹⁹⁷

In early 2013, the computer security firm Mandiant released a report detailing the activities of Chinese hackers in stealing business information from companies around the world. One finding that did not receive much attention was that state-sponsored Chinese hackers had penetrated US energy and other critical infrastructure; one US official had said in 2010 that network inspections had "found software tools left behind that could be used to destroy infrastructure components" following hacks from China and Russia. Chinese state-sponsored hackers attacked one company with remote access to over 60% of gas and oil pipelines in North America.¹⁹⁸

Mandiant documented systematic data theft from at least 141 organizations over seven years, tracing the attacks back to a Chinese military unit within the 2nd Bureau of the PLA's General Staff Department's 3rd Department – code named Unit 61398. This unit is just one of dozens working for the Chinese military in cyber-espionage all over the country – there are other units

within the General Staff's 2nd Department and the Ministry of State Security. Unit 61398, employing hundreds or even thousands of employees, is one of the most prolific.¹⁹⁹

Most of the targets were US companies, though approximately a dozen were smaller US local, state, and federal government agencies, as well as international governmental agencies. The hackers generally stayed in a companies' computer systems for about a year, and in many cases, terabyte-size amounts of intellectual property were stolen – including pricing documents, negotiation strategies, manufacturing processes, clinical trial results, technology blueprints, and other proprietary information. Mandiant named 115 victims in the US, along with several each in Britain, Canada, Israel, India, Taiwan, Singapore, Switzerland, Norway, Belgium, France, Japan, South Africa, Luxembourg, and the UAE. The top sectors targeted were aerospace, satellites and telecommunications, public administration, information technology, and scientific research and consulting. Mandiant also stated that it had uncovered “only a small fraction of the cyber-espionage that ‘Unit 61398’ has committed.”²⁰⁰

The Mandiant report came out at the same time as a classified US National Intelligence estimate, which concluded that China was the most aggressive perpetrator of a huge cyber-espionage campaign against US commercial targets.²⁰¹ In April 2013, China and the US held high-level military talks in which a senior Chinese general, Fang Fenghui, pledged to work with the US on cybersecurity. The general said he would be willing to set up a “mechanism” for such cooperation, though progress could be slow; however, the consequences of a major attack “may be as serious as a nuclear bomb.”²⁰²

In May 2014, the U.S. Justice Department, issued an indictment of five military officers reportedly from “Unit 61398” for conducting cyberespionage against private American companies in order to steal trade secrets. The Chinese Defense Ministry denied these allegations stating that China, “has never supported any hacker activities.”²⁰³ Since this indictment, the Chinese have suspended the Cyber-Security Working Group with the United States, and the Chinese Foreign Ministry has characterized the indictment as a “serious violation of the basic norms of international relations” while its State Internet Information Office has said the U.S. action is like “a thief yelling ‘Catch the thief.’”²⁰⁴ The intelligence leaks of self-characterized whistle-blower, Edward Snowden, concerning broad-based cyberespionage conducted by the U.S. National Security Agency have provided ammunition for Chinese accusations that the United States is the most guilty party in this regard.

Additionally, a private U.S. cybersecurity firm, Crowdstrike, based in Irvine, CA released a report on June 9, 2014 that named another secret cyberespionage group, “Unit 61486,” allegedly connected to the Chinese government. This group was reported to have used malware hidden within a bogus email attachment to steal trade and defense secrets from European, American, and Japanese entities.²⁰⁵ As more of these reports and allegations come to the surface, the legal action taken by the U.S. Justice Department could be the first shot fired in a “tit-for-tat” cyber-confrontation between the United States and China.

Integrated Firepower Operations

PLA doctrine states that integrated firepower comes from artillery, air forces, and missile strikes, and is supported by IW operations. As technology has improved, the PLA has identified four characteristics of modern firepower:²⁰⁶

- It is capable of attacking the enemy simultaneously at all depths on the battlefield.

- It can be used at any phase of the campaign.
- It can be highly effective (i.e. accurate) allowing for fewer platforms (aircraft, ships, artillery tubes, etc.) to deliver fewer munitions to achieve results faster and with fewer civilian casualties than in previous wars.
- It can be delivered in a joint manner by a diverse set of weapon systems from all the services appropriate to the type of target.

The PLA believes that modern weapons are more accurate than previous “dumb” weapons and that, as a result, fewer munitions are needed. Nevertheless, the PLA expects to expend large quantities of precision-guided munitions in the event of conflict.²⁰⁷

Mobility

PLA doctrine envisions campaign mobility as its basic method of defeating forces that may be technologically superior to its own. Through the use of agile maneuvering and clever operational deception, the PLA hopes to achieve local superiorities of force and defeat an otherwise stronger adversary. In addition, astute maneuvering enables the PLA to disrupt an adversary while avoiding an enemy’s strength. The developments in military doctrine and training section of the 2014 DoD report on China outlines the following actions the PLA has taken to achieve this goal:²⁰⁸

In 2013, the PLA emphasized training under “realistic combat scenarios” and the ability to execute long-range mobility operations. This type of training was highlighted by the MISSION ACTION 2013 series of exercises and the MANEUVER 5 PLA Navy exercise involving all three PLA Navy fleets. MISSION ACTION 2013 was a multi-week exercise led by the Nanjing and Guangzhou Military Regions (MRs) and the PLA Air Force. The exercise emphasized multiple PLA objectives including long-distance mobility and logistics, joint air-ground, and joint air-naval operations under realistic, high-tech conditions, and a series of amphibious landing operations.

The PLA expects that both sides in a military confrontation will seek to increase the range and ease of their own movements while impeding the ability of the enemy to do the same.²⁰⁹ Advantages at the campaign level will be seized by the side that manages to secure relative freedom of movement. As the *Science of Campaigns* states,²¹⁰

In a modern campaign, the confrontation between maneuver and counter-maneuver will be extraordinarily intense. On the one hand, because maneuver is growing in significance for seizing campaign victory, counter-maneuver operations on the battlefield will receive a high level of attention. Counter-maneuver operations can delay the speed of an opponent’s advance, disrupt their operational plans, kill their effective strengths, and weaken the sharp momentum of their attack.

Highly effective counter-maneuver operations can even directly alter the force strength ratio between ours and their sides, and gain battlefield initiative. Thus, counter-maneuver operations are critical for winning a victory in a modern campaign. On the other hand, campaign maneuver under modern conditions will be implemented on a battlefield of unprecedented “transparency,” and concealing the intention and activities of maneuver will be very difficult.

At the same time, the means of modern operations and strikes will increase and firepower system assault will have high precision, long range, and large lethality. This will result in maneuver to encounter at any time an opponent’s strikes and damage from the battlefield spaces such as air, ground, water surface (underwater) and various operational means.

Hence, in a modern campaign, as both sides engaging in battle strive for and maintain battlefield initiative, not only must they implement initiative and flexible campaign maneuver, they must also adopt active and effective measures to oppose the counter- maneuver activities of the enemy. Maneuver and counter-maneuver have already become an important content of modern campaign confrontation and the struggle between maneuver and counter-maneuver will very intense.

One of the key means the PLA identifies for achieving campaign mobility is vertical envelopment, either by parachute, helicopter, or aircraft.²¹¹ Vertical envelopment has been practiced in PLA exercises, such as in Peace Mission 2012, a Shanghai Cooperation Organization (SCO) military exercise that took place in June 2012.²¹² This development is significant because, while the PLA has an entire airborne corps, it lacks significant air-mobile units. As a result, this doctrinal focus on vertical envelopment may precede the introduction of large-scale air-mobile formations by the PLA ground forces.

One significant manifestation of China's focus on the importance of mobility in a future combat scenario is the formation of Rapid Reactions Forces (RRF). PLA RRF's have been in development since the early 1990's, when the PLA observed the Western experience in the Gulf War and took lessons from that experience that informed the establishment of the Local Wars Under High-Tech Conditions doctrine; this doctrine evolved into today's Local Wars Under Conditional of Informatization doctrine. RRF's not only formed the PLA's response to post-Cold War era strategic perceptions, but had a significant impact on force structure and operational doctrine. These force structure changes have widespread support within the PLA and are increasingly becoming the core of Chinese operational doctrine.²¹³

Comprehensive Support

Comprehensive support includes operational, logistics, and armament support. Several principles are central to comprehensive support.²¹⁴

- First, the PLA intends to take advantage of People's War and utilize the potential of the civilian population's support capabilities.
- Second, support forces should be under a unified command and should give primacy to the primary combat mission.
- Third, support forces comprise organic forces, reinforcing forces (from higher echelons), and mobilized civilian forces.
- Lastly, defense of support elements is vital to the campaign as they will be targeted by adversary forces.

Utilizing these principles, the PLA has developed a single support system based on the Military Regions (MRs). Joint Logistics Sub-Departments (JLSDs) in each MR deploy during times of war to war zones and set up ad-hoc "logistics support brigades" using military and civilian personnel and material resources. As part of this system, support services will be pushed as far forward as possible and will be given "on the spot" as much as possible.²¹⁵

Service Strategy

The PLAN, PLAAF, and SAF each have their own doctrinal concept of how they plan to achieve their objectives within the context of the PLA's shift to the Local Wars doctrine. The development of modern warfare since the 1980s has convinced the PLA that the PLAN, PLAAF, and SAF are capable of achieving strategic objectives independently and that their strength will be a key indicator of overall PLA combat power. Consequently, the PLAN, PLAAF, and SAF have developed independent doctrines outlining how each service and branch will modernize, develop its forces, and fight. As the *Science of Military Strategy* states,²¹⁶

Beneath the military strategy is China's service strategy. It comes up following the development of Chinese army from a single service to the armed forces of modern combined services and arms to meet requirements of modern war. China's navy and air force shoulder the important missions [of safeguarding] the security of China's territorial waters and territorial air [space] and protect China's maritime rights and interests. In

modern war especially high-tech local war, the strategic status and effects of [the] navy and air force are improving day by day [the capabilities].

[The] opportunity for [the] navy and air force to independently accomplish strategic tasks is increasing, and there are objective requirements at [the] strategic level to plan sea and air operations and [the] construction of [a] navy and air force. Accordingly under [the] unified guidance of China's military strategy of active defense, China's navy and air force need to establish the naval strategy of offshore defense and the air force strategy of offensive air defense. As one of the five nuclear power universally acknowledged, the nuclear force is [part of] China's important strategic means.

The nuclear weapons of mass destruction will directly serve not only the purpose of securing the objectives of military strategy but also that of national strategy. This [allows] China's nuclear strategy of effective deterrence [to] have independent status in China's strategic structure, and concurrently have the characteristics of China's national strategy, military strategy, and service strategy, a triad of special strategic pattern.

Accordingly, the PLAN operates under a doctrine of “Near Seas” or “Offshore Defense” in which the PLAN prepares for combat beyond the coasts of China out towards the first island chain.²¹⁷ The PLAAF operates under a doctrine of “Integrated Air and Space Operations, Being Prepared for Simultaneous Offensive and Defensive Operations” that calls for the PLAAF to be capable not only of defending China from long-range attacks, but also of long-range strikes and power projection operations.²¹⁸

The SAF operates under the doctrine of “Dual Deterrence, Dual Operations,” which demands that the SAF be capable of long-range conventional strike missions *and* nuclear counter-attack missions, both under conditions of nuclear deterrence.²¹⁹ A more detailed discussion of these service strategies is presented in later chapters in the context of each service and branch's individual modernization and force development trends.

The Nine-Dash Line

These developments are affected as much by regional issues as any competition with the US. In June 2014, China issued the new map of China shown in **Figure 4.1**, and which showed China's its territorial claims in far more definitive terms than in the past, and without any sections indicating that Chinese claims might be uncertain or options. As People's Daily put it, the Chinese people will “fully, directly know the full map of. China... won't ever think again that China's territory has primary and secondary claims.”

The map included Taiwan as part of China. It gave China suzerainty over the Spratlys and Paracels, the two main archipelagos of the South China Sea, including areas claimed by Vietnam, the Philippines and several other Southeast Asian nations. It also showed a 10-dash line (as opposed to China's earlier and more well-known nine-dash line) that included most of the South China Sea. The map did, however, leave some Chinese claims affecting India and in Northeast Asia less clear – as much as a matter of its scale as anything else.²²⁰

Figure 4.1 China's New Map of Greater China: June 2014



Source: "New vertical atlas of China issued by Hunan map publishing house," Xinhua, June 24, 2014, http://news.xinhuanet.com/english/photo/2014-06/24/c_133434221.htm.

Chinese Actions to Establish Control within the First Island Chain

In addition to achieving its security objectives in the first island chain – stretching from the Aleutians to the Philippines and containing Taiwan and Okinawa – China wants control over the second island chain. This is a series of island groups running from the Japanese archipelago to the Bonin and Marshall islands. The US' control of La Perouse Strait, Tsugaru Strait, and Tsushima Strait allows the US military the capacity to react quickly to a North Korean provocation as well as defend the key naval and air base of Guam. **Figure 4.2** depicts these island chains on a map.

In 1982, Chinese Admiral Liu Huaqing, the mastermind of China's modern naval strategy and the former PLAN commander, said it would be necessary for China to control the first island chain by 2010 and the second island chain by 2020. Further, the PLAN should be ready to challenge US dominance over the Indian Ocean and Western Pacific in 2040.²²¹ As one US military analyst noted in 2011,²²²

China's active defense strategy has a maritime component that aligns with the PRC's 1982 naval maritime plan outlined by then-Vice Chairman of the Military Commission, Liu Huaqing. This naval strategy delineated three stages. In the first stage, from 2000 to 2010, China was to establish control of waters within the first island chain that links Okinawa Prefecture, Taiwan and the Philippines. In the second stage, from 2010 to 2020, China would seek to establish control of waters within the second island chain that links the Ogasawara island chain, Guam and Indonesia. The final stage, from 2020 until 2040, China would put an end to U.S. military dominance in the Pacific and Indian Oceans, using aircraft carriers as a key component of their military force. Recent Chinese military developments, rhetoric, and actions reflect implementation of this maritime strategy, on pace with the projections to seek control of the first island chain.

In order to achieve these goals, China is increasing its territorial sovereignty claims over islands in the Pacific that are also claimed by its neighboring countries. Examples include the Senkaku/Diaoyu Islands and the Philippines' Scarborough Shoal. China has also built facilities on Mischief Reef, which is internationally recognized as part of the Philippines. These are actions many feel violate international law; however, the Philippines lacks the naval and air force capabilities to effectively confront China and negotiations have gone nowhere.²²³

The dispute in the East China Sea reached a new level in November 2013 when China established an Air Defense Identification Zone (ADIZ) in the East China Sea. Within the ADIZ are the disputed Senkaku/Diaoyu Islands (claimed by Japan and China), the Socotra Rock (claimed by South Korea as Jeodo and China as Suyan Jiao), and sections of the Japanese and South Korean ADIZ's. The Chinese claim that this ADIZ will enhance regional security and good order in the air.

They also view the establishment of the ADIZ as an equalizing move, as China did not have an ADIZ in the East China Sea like Japan, South Korea, or Taiwan. Furthermore, the ADIZ was established partly to respond to "changes in foreign and Chinese aircraft capabilities and early warning technologies."²²⁴ Despite Chinese claims that the ADIZ is benign, the timing and lack of consultation with neighbors regarding the establishment of the ADIZ has raised serious concerns about the true purpose of the ADIZ. Highlighting these concerns is a peculiar characteristic of this ADIZ, which is that aircraft that are not planning to enter Chinese airspace still must file a flight plan with Chinese authorities.

The American ADIZ's, which China referred to when establishing their own, only places a requirement to file a flight plan on aircraft intending to enter American airspace.²²⁵ Although there may have been coordination issues between the military and the diplomatic/foreign affairs

systems regarding the development and presentation of the ADIZ, there was broad agreement within the Chinese government that the ADIZ should be established.²²⁶

Observers who do not share the same view as the Chinese believe that the ADIZ is a way to enhance Chinese claims in the region, demonstrate effective control,²²⁷ and help build a *fait accompli* in China's favor. The building of this *fait accompli* is effectively the bit-by-bit strengthening, also called "salami slicing," of *de facto* claims of sovereignty.²²⁸ The establishment of the ADIZ, although claimed to target no one, appears to be a strong response to Japanese claims in the East China Sea. Indeed, although the ADIZ overlaps with Japanese, South Korean, and Taiwanese ADIZ's, Chinese responses to Japanese protest are particularly strong and harsh. On the contrary, Chinese responses to South Korean and Taiwanese protests are more accommodating and friendly.²²⁹

The potential for conflict in the South China Sea is significant. China has slowly been asserting its claims of sovereignty over much of the South China Sea by actions such as land reclamation on the Spratly Islands, construction on islands, and resource exploration in disputed seas. An incident between Vietnam and a Chinese oil rig highlights the tense environment in this region. In May 2014, a Chinese oil rig was placed south of the disputed Paracel Islands, along with 80 ships in escort. Vietnamese ships responded by sending 29 ships of its own, which led to boat rammings and the use of high-pressure water cannons. The conflict sparked anti-Chinese violence in Vietnam, which even killed a number of Chinese factory workers. China sees its activity in the South China Sea as normal activity, underscoring their territorial claims.^{230, 231}

These tensions have reinforced China's generally negative view of the US 'pivot' to Asia. For example, one Chinese newspaper called for the US "to rein in its unruly allies in the region including Japan and the Philippines," in direct reference to the recent island disputes. Further, because the US has a "responsibility for sowing the seeds of conflict," it "shoulders certain responsibilities for the chronic disputes."²³²

Figure 4.2: DoD Representation of the First and Second Island Chains

Source: DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China* 2012, 40, http://www.defense.gov/pubs/pdfs/2012_CMPR_Final.pdf.

The US View

Outside experts have many different views of Chinese strategy and doctrine – and the extent to which China's real strategy and doctrine may differ from its declared strategy and doctrine. It is also true of all countries that they make the best public case they can, and do so largely in

diplomatic terms. Once again, however, it is useful to examine the 2013 and 2014 US DoD reports on China's strategy and doctrine.²³³

China's leaders characterize the first two decades of the 21st century as a "strategic window of opportunity." They assess that during this period, both domestic and international conditions will be conducive to expanding China's "comprehensive national power," a term that encapsulates all elements of state power, including economic capacity, military might, and diplomacy. China's leaders anticipate that a successful expansion of comprehensive national power will serve China's strategic objectives, which include: perpetuating Chinese Communist Party (CCP) rule, sustaining economic growth and development, maintaining domestic political stability, defending national sovereignty and territorial integrity, and securing China's status as a great power.

The 2014 report added:²³⁴

Though there is debate in Chinese academic circles over whether China can sustain the "period of strategic opportunity" through this decade, Chinese leaders have continued to reiterate the centrality of this period to achieving these key strategic objectives.

China's leaders routinely emphasize the goal of reaching critical economic and military benchmarks by 2020. These benchmarks include successfully restructuring the economy to maintain growth and increase the quality of living of China's citizens to promote stability; making major progress in military modernization; and attaining the capability to fight and win potential regional conflicts, including those related to Taiwan, protection of sea lines of communication (SLOCs), defense of territorial claims in the South China Sea and East China Sea, and the defense of western borders. Statements by Chinese leaders indicate that, in their view, the development of a modern military is necessary for China to achieve greater power status. These statements also indicate that the Chinese leadership views a modern military as a critical deterrent to prevent actions by outside powers that could damage Chinese interests, or to allow China to defend itself against such actions should deterrence fail.

Since China launched its "reform and opening" in late 1978, the essential elements of China's strategy to accomplish these goals have remained relatively constant. Rather than challenge the existing global order, China has adopted a pragmatic approach to international relations and economic development that seeks to strengthen the economy, modernize the military, and solidify the CCP's hold on power. China balances the imperative to reassure countries that its rise is "peaceful" with the imperative to strengthen its control over existing sovereignty and territorial claims.

China regards stable relations with its neighbors and the United States as essential to its stability and development. China continues to see the United States as the dominant regional and global actor with the greatest potential to both support and, potentially, disrupt China's rise. In addition, China remains concerned that should regional states come to view China as a threat, they might balance against China through unilateral military modernization or through coalitions, possibly with the United States. Many Chinese officials and the public see the U.S. rebalance to Asia as a reflection of "Cold War thinking" and as a way to contain China's rise.

The 2014 report added:²³⁵

In addition, Chinese leaders have expressed concerns that should regional states come to view China as a threat, they may seek to deepen their relationships with the United States.

Despite its desire to project an image of a developing country engaged in a peaceful development strategy, China's efforts to defend national sovereignty and territorial integrity (underpinned by growing economic and military capabilities) have occasionally manifested in assertive rhetoric and behavior that generate regional concerns about its intentions. Prominent examples of this include China's response to Japan's arrest of a PRC fishing trawler captain following a collision with Japanese coast guard vessels in 2010, its use of punitive trade policies as an instrument of coercion, its actions to shield North Korea from the international response to its sinking of the South Korean naval vessel, *Cheonan*, and its action to pressure Vietnam and the Philippines in the South China Sea and Japan in the East China Sea. Official statements and media during these situations indicate that China sees itself as responding to perceived threats to its national interests or provocations by outside actors. China's lack of transparency surrounding its growing military

capabilities and strategic decision-making has also increased concerns in the region about China's intentions. Absent a move towards greater transparency, these concerns will likely intensify as the PLA modernization progresses.

FACTORS SHAPING CHINA'S LEADERSHIP PERCEPTIONS

Chinese leaders continue to view themselves as operating in a "window of opportunity" to advance their priorities of economic development, territorial integrity, and domestic stability. Although domestic stability is believed to be China's top priority, official documents indicate that China sees its security environment becoming more "complex" as a result of several factors:

Economics. Continued economic development remains the bedrock of social stability. A wide range of economic factors could disrupt this trajectory, including a failure to shift away from its overreliance on investment and exports to drive growth. China's leaders scaled back GDP targets for 2011-2015 (from 8 percent to 7.5 percent) to mitigate risk of overheating and to manage expectations. Other potential economic risks for China include shifting global trade patterns, domestic resource constraints, rising wages driven by labor shortages, or attempts to challenge China's access to global resources, including energy.

The 2014 report added:²³⁶

China is experimenting with a new free trade zone in Shanghai, and additional structural reforms to China's economy were announced at the CCP Third Plenum in November 2013.

Nationalism. Communist Party leaders and military officials continue to be affected by, and in some cases exploit, nationalism to bolster the legitimacy of the Party, deflect domestic criticism, and justify their own inflexibility in dialogues with foreign interlocutors. However, nationalist forces could ultimately restrict the leadership's decision-making on key policy issues or pressure the CCP if these forces perceive party leaders as insufficiently satisfying nationalist goals.

Regional Challenges to China's Interests. Tensions with Japan in the East China Sea and with South China Sea claimants challenge to China's desire to maintain a stable periphery. Combined with a greater U.S. presence in the region, these factors raise Chinese concerns that regional countries will strengthen their military capabilities or increase security cooperation with the United States to balance China.

Domestic Unrest. The CCP continues to face long-term popular demands for limiting corruption and improving government responsiveness, transparency, and accountability. If unmet, these factors likely weaken the legitimacy of the CCP in the eyes of the Chinese people. The Arab Spring and fears of a Jasmine Revolution amplify historical concerns about internal stability.

A national anti-corruption campaign is underway in part to address public concerns.

Environment. China's economic development has come at a high environmental cost. China's leaders are increasingly concerned that environmental degradation could undermine regime legitimacy by threatening economic development, public health, social stability, and China's international image.

Demographics. China faces the dual threat of a rapidly aging population and a declining birth rate, one that now falls below replacement level. Longer life expectancies may force China to allocate more resources to social and health services, while the declining birth rate will continue to reduce China's supply of young and inexpensive labor, a key driver of the country's three decades of economic growth. This dual phenomenon could lead to economic stagnation that could threaten CCP legitimacy....

PLA MILITARY ENGAGEMENT

The PLA's level of engagement with foreign militaries continues to grow significantly. At the operational level, this engagement provides the PLA with opportunities to share doctrines, strategies, tactics, techniques, and procedures with other militaries - both modern and developing. At the strategic level, China uses military engagement as a platform for demonstrating the PLA's growing capabilities, its status as a modern military, and its potential role as a responsible security partner.

Senior-level visits and exchanges provide China with opportunities to increase military officers' international exposure, communicate China's positions to foreign audiences, better understand alternative world views, and advance foreign relations through interpersonal contacts and military assistance programs.

Expanded PLA travel abroad enables China's military officers to observe and study foreign military command structures, unit formations, and operational training.

The PLA is participating in a growing number of bilateral and multilateral military exercises. The PLA derives political benefit from these exercises in terms of increased influence and enhanced ties with partner states and organizations. These exercises also contribute to PLA modernization by providing opportunities to improve capabilities in areas such as counterterrorism, mobility operations, and logistics. The PLA gains operational insight by observing tactics, command decision making, and equipment used by more advanced militaries.

The strategic-level College of Defense Studies at PRC's National Defense University in Beijing welcomes officers from most Latin American and Caribbean countries that diplomatically recognize China, and some of those countries also send officers to PLA and PLA Navy command schools in Nanjing. In addition to furthering PLA modernization, the focus of these engagements will likely remain on building China's political ties, assuaging fears about China's rise, and building China's international influence, particularly in Asia and Latin America.

This US perspective tracks with information in the 2010 South Korean defense white paper and other regional military studies.²³⁷ It reflects concerns that help explain both the changes in US strategy and a range of concerns that are also shared by many of China's neighbors – although not as publically. At the same time, a careful reading of the US view shows that the US does not see China as a threat in terms of posing potential risks and problems for the future, and that it sees many aspects of China's strategy as a natural result of its national interests. It is also clear that in virtually every area in which the US does note its concerns, there is room for dialog and compromise that can serve Chinese, US, and local interests.

These are not casual considerations. It is all too clear that one of the worst possible outcomes for China, the US, and Asia would be for the two major powers to confront each other and engage in a major arms race focusing on the risk of war, forcing other Asian nations to take sides. One only has to recall the Anglo-German naval arms race before World War I, or the end result of US and Japanese confrontation before World War II to see the risks. It is also clear that even without any conflict, the end result would be far more costly to China and the US than making pragmatic compromises and taking steps to ensure that the risk of any form of conflict was kept to an absolute minimum.

The 2014 DoD report fully recognized these imperatives:²³⁸

During their June 2013 Sunnylands summit, U.S. President Xi Jinping emphasized the importance of developing a new model of bilateral relations that avoids the historical trap of conflict between a rising power and an established one, preventing the relationship from unnecessarily deteriorating into strategic rivalry. Both sides have articulated the desire for a new model of military-to-military relations that is an integral part of a broader shared vision for a positive, cooperative, and comprehensive U.S.-China relationship.

The U.S. DoD's approach to military engagements with the PRC's Ministry of National Defense focuses on three lines of effort: building cooperative capacity in areas of mutual interest; fostering greater institutional understanding; and promoting common views of the regional security environment and related security challenges. In 2014, the DoD will pursue these lines of effort to develop a "new model of military-to-military relations" focused on: sustained, substantive dialogue; concrete, practical cooperation; and enhanced risk reduction.

The U.S.-China relationship has elements of both cooperation and competition. A new model of military-to-military relations seeks to manage competition through sustained and substantive dialogue and a commitment to risk reduction, and at the same time deepen practical, concrete cooperation in areas of mutual interest. The relationships and channels of communication developed through military-to-military

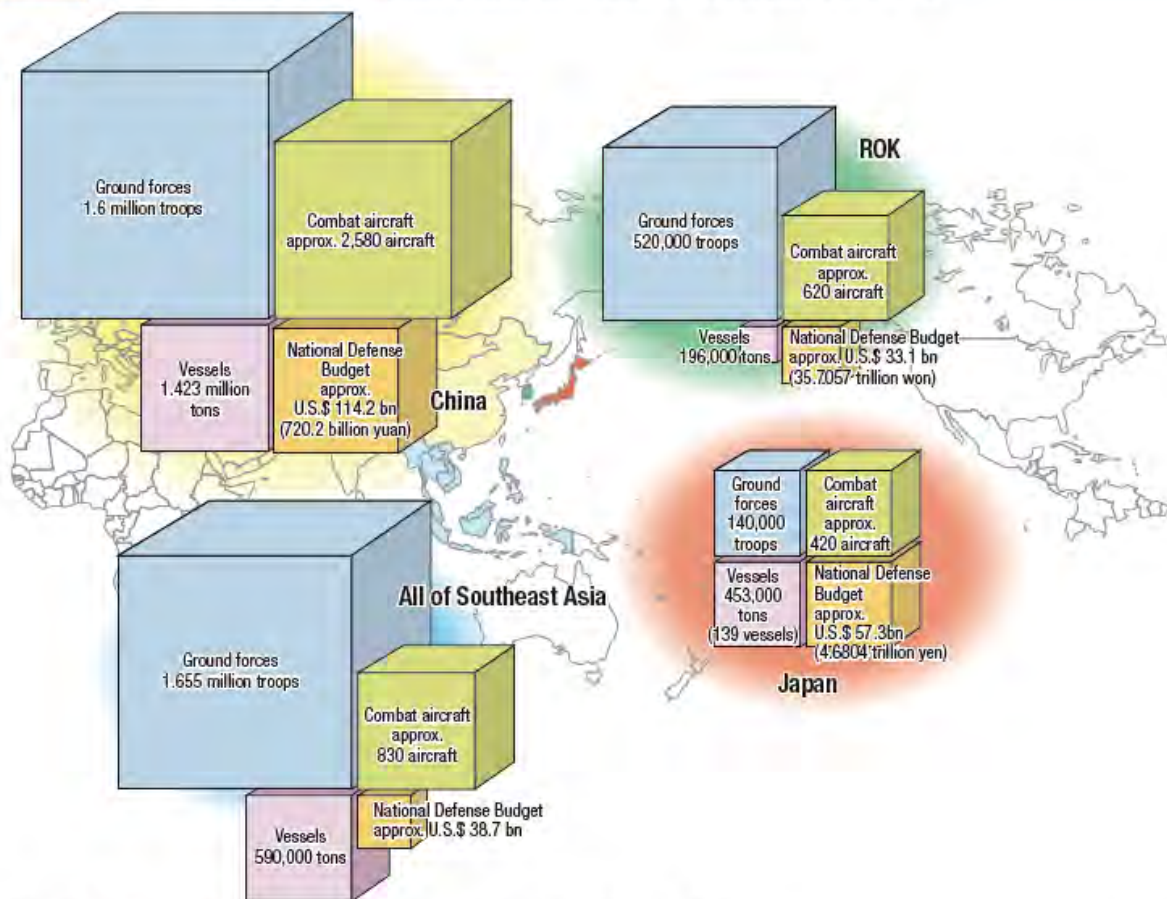
engagements are particularly important during periods of tension, and contacts at all levels can help reduce miscommunication, misunderstanding, and the risks of miscalculation.

Japanese and South Korean Perspectives on the Balance

The Japanese Ministry of Defense White Paper of 2013 provided a somewhat similar perspective, but also gives a relatively current estimate of how China's forces compare with the size of other forces in the region.²³⁹ These comparisons are shown in **Figure 4.3** and **Figure 4.4**. A 2010 South Korean estimate is shown in **Figure 4.5**.

Figure 4.3 Comparison of Forces Strength and Defense Budgets between Southeast Asia, China, Japan, ROK

Fig. I-1-5-1 Comparison of Forces Strength and Defense Budget between Southeast Asia and Japan/China/ROK 2013



Notes: 1. Source: The Military Balance 2014 and others. The size of each block indicates relative size using Japan as the base size.

2. For Japan, the force strength shows the actual strength of each Self-Defense Force as of the end of FY2011; the number of combat aircraft is the sum of the number of combat aircraft of the ASDF (excluding transport aircraft) and that of the MSDF (fixed-wing aircraft only).

The Japanese national defense budget is the initial budget excluding the cost of the SAO and the reduction of the local burden among the U.S. forces realignment costs.

3. The national defense budget of China is from the Finance Minister's Budget Report to the National People's congress in 2013.

4. The national defense budget of the ROK is from the ROK National Defense White Paper 2013.

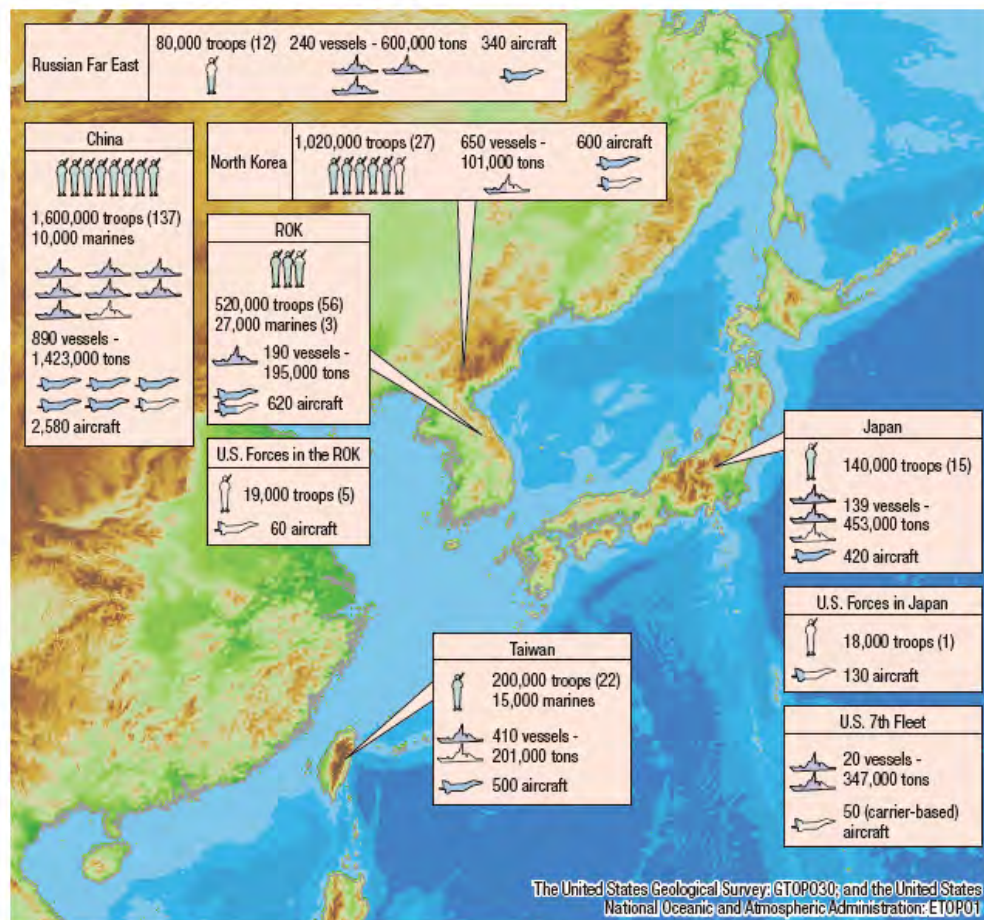
5. The national defense budget of China and the ROK is expressed in U.S. dollars and is calculated using the FY2013 Ministry of Finance exchange rates of 82 yen to 1 dollar, 13 yen to 1 yuan, and 76 yen to 1,000 won.

6. The Japanese national defense budget is expressed in U.S. dollars converting 2013 figures using the FY2013 Ministry of Finance exchange rate of 82 yen to 1 dollar.

Source: Ministry of Defense of Japan, *Defense of Japan*, August 2014.

Figure 4.4: Japanese Ministry of Defense Summary of the Military Balance

Fig. I-0-0-1 Major Military Forces in the Asia-Pacific Region (Approximate Strength)



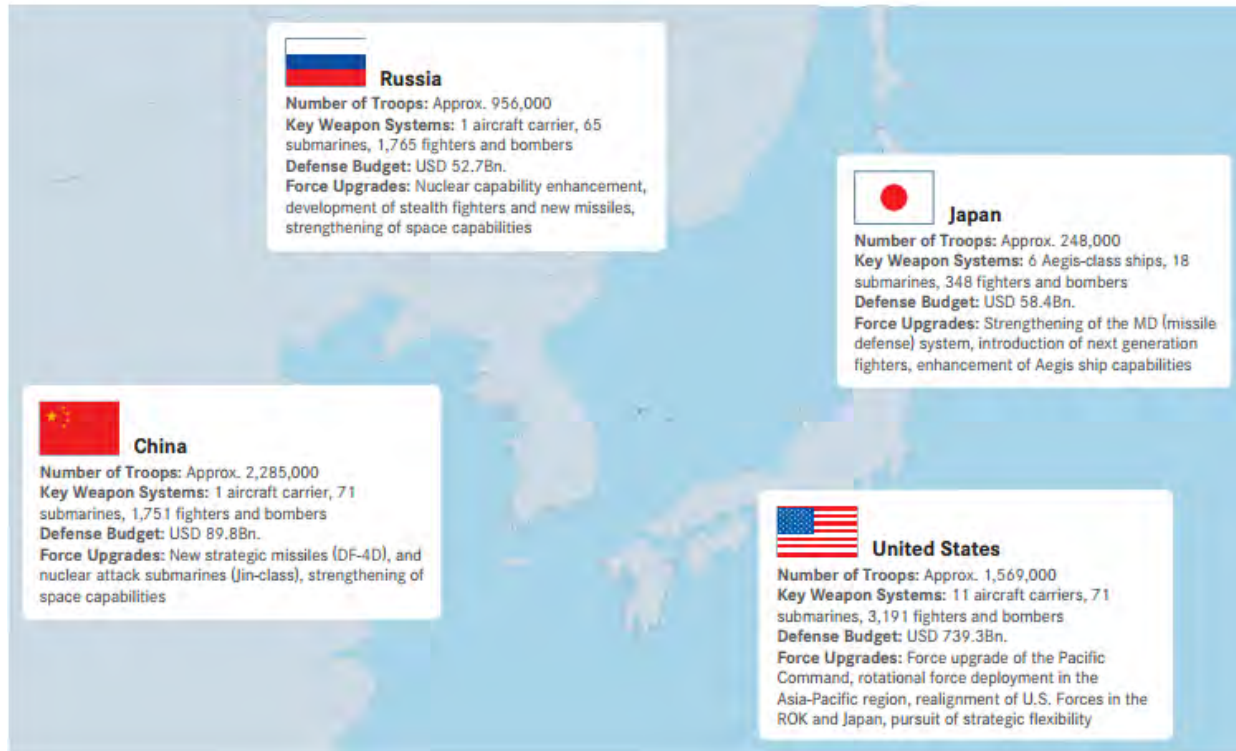
- Notes: 1. Source: "The Military Balance 2014" published by the U.S. Department of Defense, and others.
 2. Figures for Japan, as of the end of 2013, indicate the strength of each SDF; the number of combat aircraft is the sum of ASDF aircraft (excluding transport aircraft) and MSDF aircraft (fixed-wing aircraft only).
 3. Figures of U.S. ground forces in Japan and the ROK are those of Army and Marine Corps personnel combined.
 4. Combat aircraft include Navy and Marine aircraft.
 5. Figures in parentheses show the total number of central units, such as divisions and brigades. Only divisions are included in North Korea.
 6. The number of U.S. 7th Fleet vessels and aircraft indicates those which are forward-deployed in Japan and Guam.

Legend

Ground forces (200,000 troops)	Naval vessels (200,000 tons)	Combat aircraft (500 aircraft)

Source: Ministry of Defense of Japan, *Defense of Japan*, August 2014.

Figure 4.5: South Korean Ministry of Defense Summary of the Military Strength of the Major Northeast Asian Powers



Source: Ministry of Defense of South Korea, *Defense White Paper*, 2012, p. 16,
http://www.mnd.go.kr/user/mnd_eng/upload/pblicitn/PBLICTNEBOOK_201308141005219260.pdf.

CHAPTER 5: CHINESE MILITARY ORGANIZATION

As is the case with strategy, the trends in China's forces need to be analyzed in the broader context of its force structure, military organization, and the relevant size and role of the personnel in each key element. The PLA comprises China's main armed forces and can best be defined through its chain of command. All military units exclusively under the authority of the CMC are part of the PLA. Although it is called the People's Liberation *Army*, the PLA consists of three services and an independent branch – the PLA Army (PLAA), the PLA Navy (PLAN), PLA Air Force (PLAAF), and the PLA Second Artillery Force (SAF). China also uses paramilitary forces – in particular, the Coast Guard – to patrol the waters within the nine-dash line, as discussed previously.

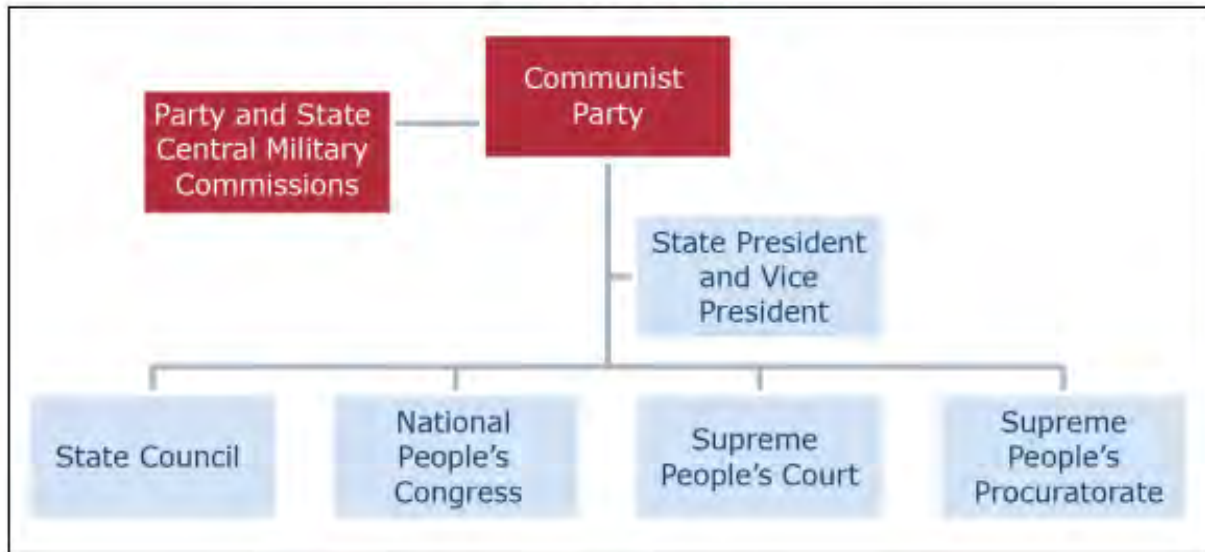
The changes in China's military organization and the character, roles, and missions of each element of Chinese military and security forces reflect a major shift toward modernization over the last two decades, shifts that are also reflected in its military personnel forces, equipment, deployment and tactics summarized in the following chapters.

PLA Military Organization

Like all modern powers, China has a broadly structured national security system. Its military forces are supported by a wide range of other organizations, security structures, and paramilitary forces. China's strategic doctrine describes how China's armed forces will fight in the 21st century, in theory. However, it is necessary to examine the organizational structure of the PLA as well as summarize the effects of institutional modernization in order to provide a more detailed picture of the PLA's ability to fight as its doctrine demands and to understand the changes in each individual service's force structure.

Figure 5.1: China's Political Structure as Implemented

The Communist Party sits atop China's political power structure, controls all political institutions, and commands the military



Source: CRS research.

China officially described its overall command structure and military decision-making process in its 2006 defense white paper:²⁴⁰

The state exercises unified leadership over national defense activities. China's armed forces are under the leadership of the Communist Party of China (CPC). The Central Military Commission (CMC) of the CPC and that of the People's Republic of China (PRC) are completely the same in their composition and in their function of exercising leadership over the armed forces. The CMC chairman has overall responsibility for its work.

The National People's Congress (NPC) elects the chairman of the CMC of the PRC and, upon nomination by the chairman, decides on the choice of all other members of the CMC. The NPC decides on war and peace and exercises other functions and powers relating to national defense as prescribed by the Constitution. When the NPC is in recess, its Standing Committee decides on the proclamation of a state of war, decides on the general or partial mobilization of the country, and exercises other functions and powers relating to national defense as prescribed by the Constitution.

The president of the PRC, in pursuance of the decisions of the NPC and its Standing Committee, may proclaim a state of war, issue mobilization orders, and exercise other functions and powers relating to national defense as prescribed by the Constitution.

The State Council directs and administers national defense building in the following areas: making national defense development programs and plans, formulating principles, policies and administrative regulations for defense building, administering defense expenditure and assets, directing and administering national defense scientific research and production, directing and administering work related to mobilization of the national economy, mobilization of people's armed forces, people's air defense and national defense traffic, directing and administering the work of supporting the military and giving preferential treatment to families of servicemen and martyrs, as well as the resettlement of servicemen discharged from active service. It also directs national defense education and, jointly with the CMC, the building of the Chinese People's Armed Police Force (PAPF) and the militia, the work concerning enlistment and reserve service, and the

administration of border, coastal and air defenses, and exercises other functions and powers relating to national defense building as prescribed by law.

Under the State Council are the Ministry of National Defense (MND) and other departments concerning national defense building. The CMC directs and exercises unified command of China's armed forces. It has the following functions and powers: deciding on the military strategy and operational guidelines of the armed forces, directing and administering the building of the PLA, submitting proposals related to national defense to the NPC or its Standing Committee, formulating military regulations, issuing decisions and orders, deciding on the structure and organization of the PLA, appointing and removing, training, evaluating, and rewarding and punishing members of the armed forces, approving systems and development programs and plans for weaponry and equipment, and exercising other functions and powers as prescribed by law.

A Congressional Research Service (CRS) report entitled *China's Political Institutions and Leaders in Charts* describes the political-military leadership structure as follows:²⁴¹

The communist Party's own constitution provides more detail about Party leadership of the political system, the economy, and society at large, stating that "the Party commands the overall situation and coordinates the efforts of all quarters, and the Party must play the role as the core of leadership among all other organizations at corresponding levels." The Party constitution explicitly states that the Communist Party "persists in its leadership over the People's Liberation Army and other armed forces of the people. The Party exercises that leadership through a **Party Central Military Commission**. It, rather than the State Military Commission, commands China's armed forces; the State Military Commission, which has identical membership to the Party Central Military Commission, is believed to exist in name only. In the Party constitution, Party leadership of the legislature, the State Council, the courts, and the prosecutor's office is not explicitly stated, but is implied. In practice, the Party nominates the leaders of all four bodies and operates Party committees within each of them. The courts and prosecutor's offices, the police, and some ministries report directly to Party Central Committee commissions and departments.

Figure 5.2: The Party Central Military Commission (CMC)



Source: Communist Party of China News Portal, <http://cpc.people.com/cn>, and Xinhua News Agency biographies.

As the white paper makes clear, the Central Military Commission (CMC) is at the top of China's military chain of command. It plays the decisive role in planning and decision-making for military-security policy and all issues related to the armed forces. Since 1982, the CMC has been the most senior decision-making body for military affairs and armed forces in China. The CMC is directly derived from the Central Committee of the CCP, thereby putting the Chinese armed forces under Party control.

The chairman of the CMC – currently China's president, Xi Jinping – is the commander-in-chief of all Chinese forces. The responsibilities of the CMC encompass operational command over all of China's armed forces and its branches, military doctrine development, logistics, and civil-military relations.

In practice, two CMCs – one for the party, one for the state – exist next to each other, but they are almost identical. The National People's Congress elects the state commission's 11 members; the Central Committee of the CCP elects the party commission.²⁴² The existence of two parallel CMCs shows that the PLA and the armed forces play a twin role in the Chinese body politic – the CMC, and therefore the PLA, on the one hand is an integral part of the CCP and on the other hand serves as the highest administrative body for the Chinese state's military. Both CMCs have the same membership structure; the most important difference between the two is the existence of the General Office in the party CMC. The General Office facilitates and manages interaction among China's most senior military leaders.

These relations, however, seem to be in flux. Although not formally a part of the PLA command structure, it should be noted that the new National Security Commission, which was established in November 2013, may play a significant role in informing the decisions and actions of the CMC.

Organization of the PLA

The CMC maintains overall command and control over the armed forces through four general departments (GDs): the General Staff Department, the General Political Department, the General Logistics Department, and the General Armament Department. The GDs are the bureaucratic units that combine military planning and command in lieu of a ministry of defense. Each performs several distinct functions:

- **General Staff Department (GSD):** Responsible for all staff and personnel decisions regarding the entire PLA. Its primary mission is to execute and oversee defense policy vis-à-vis the armed forces and serve as the general command for the PLA. The GSD also holds the General Staff organization for the PLA ground forces. The GSD's second department is responsible for foreign military intelligence. During wartime, the GSD leads the entire PLA under its unified command.
- **General Political Department (GPD):** Oversees the implementation of the political doctrine into the armed forces and ensures political loyalty, high morale, and tight discipline among members of the PLA.
- **General Logistics Department (GLD):** Organizes supply and transport services within the armed forces and provides services like housing and medical treatment to the armed forces.
- **General Armament Department (GAD):** Manages all weapons and equipment testing, procurement, and maintenance. This includes almost exclusive oversight of the production and stockpiles of nuclear weapons.

The same Congressional Research Service report quoted above outlined the CMC's structure and authority within the Party as follows:²⁴³

The Party's Central Military Commission (CMC) exercises unified command over China's armed forces, consisting of the active and reserve forces of China's military, the People's Liberation Army (PLA); a

paramilitary force, the People's Armed Police Force (PAP); and a militia. The PLA, with approximately 2.3 million active personnel and 510,000 reserves, is not a national army belonging to the state. Rather, it serves as the Party's armed wing.

The civilian General Secretary of the Communist Party serves as the CMC's chairman. The rest of the CMC is currently comprised of uniformed officers. They are two vice chairmen (who serve concurrently on the Party's Politburo), the State Councilor for military affairs (who serves concurrently as Minister of Defense), the directors of the PLA's four general departments, and the commanders of the Navy, the Air Force, and the strategic and conventional missile forces, known as the Second Artillery Corps. The Party and State CMC's have identical memberships and are effectively a single body. The institution of the Party CMC is the locus of authority.

The four general departments direct the service branches and serve as the national headquarters for the Army. They also direct China's military regions (MRs), also known as military area commands or theaters of war. The seven military regions are the Shenyang MR, Beijing MR, Lanzhou MR, Jinan MR, Nanjing MR, Guangzhou MR, and Chengdu MR. The Navy, the Air Force, and the Second Artillery Corps each has its own separate national headquarters. The Ministry of National Defense is not in the chain of command.

The 2006 Chinese defense white paper provided the following official description of the organization and command structure of China's forces:²⁴⁴

The PLA's General Staff Headquarters, General Political Department, General Logistics Department and General Armaments Department are departments of the CMC respectively responsible for military, political, logistical and equipment work.

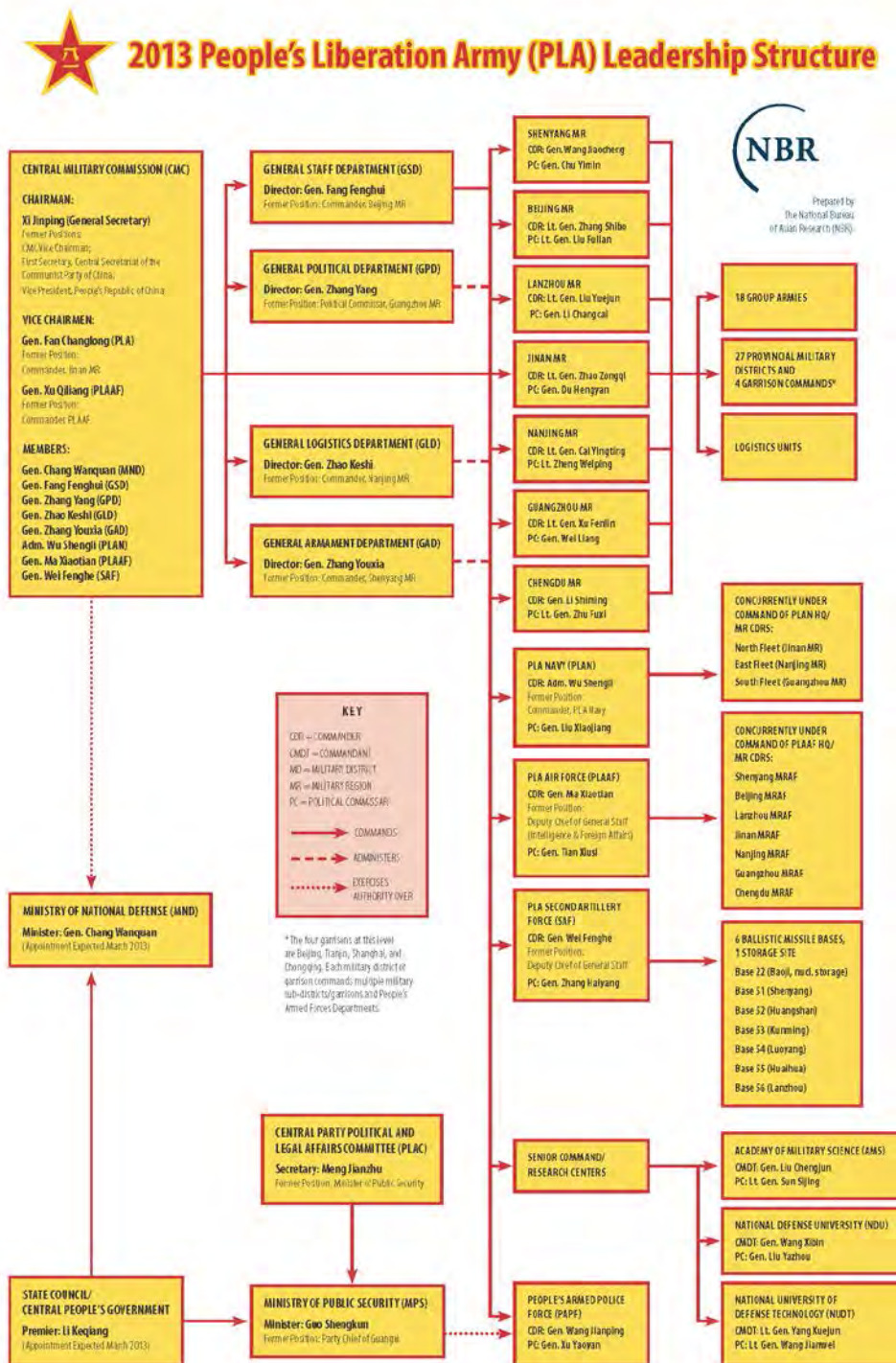
The General Staff Headquarters organizes and directs the development of China's armed forces, and organizes and commands their military operations. Under it are departments in charge of operations, intelligence, communications, military training and arms, adjutant and force structure, mobilization, electronic countermeasures, Army aviation, foreign affairs, etc. Its main functions and powers are to put forward proposals on major issues of military building and operations, organize and exercise strategic command, formulate programs, rules and regulations for military work, and organize and direct war preparations, as well as military training and mobilization.

The General Political Department administers the armed forces' Party work, and organizes their political work. Under it are departments in charge of Party affairs, personnel, publicity, security, discipline inspection, civil-military affairs, etc. Its main responsibilities are to ensure the armed forces' compliance with and implementation of the lines, principles and policies of the Party and the Constitution and laws of the state, draw up general and specific policies for political work, formulate rules and regulations for political work, and make arrangements for, supervise and provide guidance to the political work of the armed forces.

The General Logistics Department administers the logistical work of the armed forces. Under it are departments in charge of financial matters, quartermaster materials and petroleum, oils and lubricants, health administration, military transportation, capital construction and barracks, auditing, etc. Its main responsibilities are to formulate programs, rules and regulations for logistical construction, deploy logistical forces, organize logistical mobilization and provide logistical support, carry out the application, allocation, budgeting and final accounting of military expenditure, and conduct material procurement.

The General Armaments Department administers the provision of equipment for the armed forces. Under it are departments in charge of overall planning, equipment for all services and arms, procurement for Army's military equipment R&D, general-purpose equipment support, electronic information infrastructure, etc. Its main responsibilities are to formulate strategies, programs and plans, policies, and rules and regulations for equipment development, organize equipment R&D, experimentation, procurement, combat service, maintenance and support, and administer the PLA's funds for equipment buildup.

Figure 5.3 provides a visual summary of this information.

Figure 5.3: High Command Structure of the PLA (as of 2013)

Source: National Bureau of Asian Research, 2013 People's Liberation Army Structure.

Operational Command Levels

The operational command levels directly under the CMC and the GDs differ among the branches. China's 2006 defense white paper describes this command process as follows:²⁴⁵

The Army has no independent leading body, and the leadership of it is exercised by the four general headquarters/departments. A military area command exercises direct leadership over the Army units under it.

The Navy, Air Force and Second Artillery Force, each of which has a leading body consisting of the headquarters, the political department, the logistics department and the armaments department, direct the military, political, logistical and equipment work of their respective troops, and take part in the command of joint operations.

The Navy organizes and commands maritime operations conducted independently by its troops or in support of maritime operations. There are three fleets under the Navy, namely, the Beihai Fleet, Donghai Fleet and Nanhai Fleet. Each fleet has flotillas, aviation divisions, etc. under its command.

The Air Force organizes and commands air operations conducted independently by itself or with Air Force personnel as the main fighting force, as well as air defense operations in the capital area. It has an air command in each of the seven military area commands of Shenyang, Beijing, Lanzhou, Jinan, Nanjing, Guangzhou and Chengdu, respectively. Under an air command are aviation divisions, ground-to-air missile divisions (brigades and regiments), antiaircraft artillery brigades (regiments), radar brigades (regiments) and other support troops. In major directions and key target areas there are also corps- or division-level command posts.

The Second Artillery Force organizes and commands its own troops in case of launching nuclear counterattacks with strategic missiles and conducting operations with conventional missiles. Under it are missile and training bases, and relevant support troops.

Military area commands (theaters of war) are military organizations set up according to the administrative divisions of the state, geographical locations, strategic and operational directions, and operational tasks. They are CMC-appointed organs for commanding joint theater operations. They direct the military, political, logistical and equipment work of the troops under them. Under a military area command are the headquarters, the political department, the joint logistics department and the armaments department. A military area command is mainly in charge of formulating programs and plans for combat readiness and operations of troops in the theater and for the reserve force buildup of the theater, organizing and commanding joint theater operations involving different services and arms, and providing joint logistical support. At present, the PLA has seven military area commands, namely, Shenyang, Beijing, Lanzhou, Jinan, Nanjing, Guangzhou and Chengdu.

PLA Army (PLAA)

For the PLA ground forces, the command level below the CMC–GD structure is divided into seven military regions (MRs) that cover all of China's territory. These are further split into subordinate military districts, the number of which varies among the MRs. The MRs also oversee provincial military commands in their areas of responsibility. These provincial commands are responsible for reserve force mobilization, recruitment, and political services. The 2013 white paper noted,²⁴⁶

The PLA Army (PLAA) is composed of mobile operational units, border and coastal defense units, guard and garrison units, and is primarily responsible for military operations on land. In line with the strategic requirements of mobile operations and multi-dimensional offense and defense, the PLAA has been reoriented from theater defense to trans-theater mobility. It is accelerating the development of army aviation troops, light mechanized units and special operations forces, and enhancing building of digitalized units, gradually making its units small, modular and multi-functional in organization so as to enhance their capabilities for air-ground integrated operations, long-distance maneuvers, rapid assaults and special operations. The PLAA mobile operational units include 18 combined corps, plus additional independent

combined operational divisions (brigades), and have a total strength of 850,000. The combined corps, composed of divisions and brigades, are respectively under the seven military area commands (MACs): Shenyang (16th, 39th and 40th Combined Corps), Beijing (27th, 38th and 65th Combined Corps), Lanzhou (21st and 47th Combined Corps), Jinan (20th, 26th and 54th Combined Corps), Nanjing (1st, 12th and 31st Combined Corps), Guangzhou (41st and 42nd Combined Corps) and Chengdu (13th and 14th Combined Corps).

The operational level directly subordinate to the MRs comprises 18 group armies (GAs) for the PLA ground forces. GAs represent the highest, exclusively military command level. They command a mix of divisions and brigades, although some GAs utilize only brigades or divisions. It is reported that the average number of troops under GA command has declined and may decline further in the future, as the PLAA is shifting to a modular brigade structure²⁴⁷ and already deploys GAs made exclusively of brigades.²⁴⁸

These changes have significant implications for the PLAA's force structure and order of battle. Although GAs are compared and roughly similar to a NATO corps, at 30,000-50,000 men, they command fewer men than a corps in the US military. Moreover, a GA with an all-brigade force structure would be more comparable to a US division.²⁴⁹ Consequently, a shift in the PLAA force structure towards brigades would significantly reduce the number of personnel per GA and, unless additional GAs were added, such a trend would ultimately reduce PLAA force numbers.

Below the GA command level, ground forces are organized into divisions, brigades, regiments, battalions, companies, platoons, and squads. The exact order of battle varies between different MRs and GAs.

PLA Navy (PLAN)

For the PLAN, a naval staff headquarters represents the command level below the CMC–GD. The headquarters is responsible for maintaining combat readiness, force planning, and coordination with the GDs. The highest operational command level in the PLAN is made up of three fleets – the North Sea Fleet, the East Sea Fleet, and the South Sea Fleet. These are then divided into flotillas, groups, and squadrons.²⁵⁰ All fleets maintain operational command over the forces in the areas of their responsibility. Each fleet is organized to oversee coastal, deep-water, and naval aviation operations. Forces afloat are divided into divisions, regiments, and squadrons. In wartime, command over naval forces may be transferred to the MRs.²⁵¹

On the PLAN, the 2013 white paper noted,²⁵²

The PLA Navy (PLAN) is China's mainstay for operations at sea, and is responsible for safeguarding its maritime security and maintaining its sovereignty over its territorial seas along with its maritime rights and interests. The PLAN is composed of the submarine, surface vessel, naval aviation, marine corps and coastal defense arms. In line with the requirements of its offshore defense strategy, the PLAN endeavors to accelerate the modernization of its forces for comprehensive offshore operations, develop advanced submarines, destroyers and frigates, and improve integrated electronic and information systems. Furthermore, it develops blue-water capabilities of conducting mobile operations, carrying out international cooperation, and countering non-traditional security threats, and enhances its capabilities of strategic deterrence and counterattack. Currently, the PLAN has a total strength of 235,000 officers and men, and commands three fleets, namely, the Beihai Fleet, the Donghai Fleet and the Nanhai Fleet. Each fleet has fleet aviation headquarters, support bases, flotillas and maritime garrison commands, as well as aviation divisions and marine brigades. In September 2012, China's first aircraft carrier Liaoning was commissioned into the PLAN. China's development of an aircraft carrier has a profound impact on building a strong PLAN and safeguarding maritime security.

PLA Air Force (PLAAF)

The PLAAF maintains a headquarters at a command level below the CMC. Operational command over the PLAAF, however, is dispersed among MR air force commands.²⁵³ The MR headquarters retains control over combined operations, while the MR Air Force commander is responsible for flight operations within the MR.²⁵⁴ Tactical units include divisions, brigades, regiments, groups, squadrons, battalions, companies, platoons, squads, and flights.²⁵⁵

China's 2013 white paper described the PLAAF as follows:²⁵⁶

The PLA Air Force (PLAAF) is China's mainstay for air operations, responsible for its territorial air security and maintaining a stable air defense posture nationwide. It is primarily composed of aviation, ground air defense, radar, airborne and electronic countermeasures (ECM) arms. In line with the strategic requirements of conducting both offensive and defensive operations, the PLAAF is strengthening the development of a combat force structure that focuses on reconnaissance and early warning, air strike, air and missile defense, and strategic projection. It is developing such advanced weaponry and equipment as new-generation fighters and new-type ground-to-air missiles and radar systems, improving its early warning, command and communications networks, and raising its strategic early warning, strategic deterrence and long-distance air strike capabilities. The PLAAF now has a total strength of 398,000 officers and men, and an air command in each of the seven Military Area Commands (MACs) of Shenyang, Beijing, Lanzhou, Jinan, Nanjing, Guangzhou and Chengdu. In addition, it commands one airborne corps. Under each air command are bases, aviation divisions (brigades), ground-to-air missile divisions (brigades), radar brigades and other units.

PLA Second Artillery Force (SAF)

Although formally a branch of the PLA, not a separate service, the SAF – also known as the Second Artillery Corps or SAC – maintains its own headquarters. Beneath this headquarters are six corps also known as bases, which themselves command missile brigades, regiments, battalions, companies, and platoons. However, it is possible for both bases and brigades to operate independently directly under the CMC; according to the *Science of Second Artillery Campaigns*, the SAF has three command levels capable of independent action at the campaign level:²⁵⁷

The participating strength of the Second Artillery Campaign is the Second Artillery Campaign large formation which normally contains the following three types: missile bases, missile base groups, and missile brigade at the campaign level.

As regards the SAF, the PRC's 2013 white paper described,²⁵⁸

The PLA Second Artillery Force (PLASAF) is a core force for China's strategic deterrence. It is mainly composed of nuclear and conventional missile forces and operational support units, primarily responsible for deterring other countries from using nuclear weapons against China, and carrying out nuclear counterattacks and precision strikes with conventional missiles. Following the principle of building a lean and effective force, the PLASAF is striving to push forward its informationization transform, relying on scientific and technological progress to boost independent innovations in weaponry and equipment, modernizing current equipment selectively by applying mature technology, enhancing the safety, reliability and effectiveness of its missiles, improving its force structure of having both nuclear and conventional missiles, strengthening its rapid reaction, effective penetration, precision strike, damage infliction, protection and survivability capabilities. The PLASAF capabilities of strategic deterrence, nuclear counterattack and conventional precision strike are being steadily elevated. The PLASAF has under its command missile bases, training bases, specialized support units, academies and research institutions. It has a series of "Dong Feng" ballistic missiles and "Chang Jian" cruise missiles.

PLA Organizational Reforms

The 3rd Plenum of the 18th Party Congress featured statements strongly backing military reforms, particularly organizational reforms. Organizational reforms have been particularly difficult to

implement because of deeply entrenched interests within the PLA that benefit from the current organization and structure of the PLA. However, PLA theorists have stressed that organizational reform will be vital if the PLA is to successfully conduct integrated joint operations in line with the local wars doctrine. Some of the key organizational reforms include: flattening the command structure, reforming the old Military Region system to better facilitate joint operations, improving personnel education, forming modular force groupings. These reforms are part of a broader embrace of the RMA with Chinese characteristics and joint operations.

The current PLA command structure is top heavy, which hinders joint operations in a local wars context. The joint operations that the PLA envisions it will conduct will require faster decision-making loops and shortened time gaps between sensors and shooters, both of which can be gained by giving lower level officers more authority to command.²⁵⁹ The future battlefield is projected to be more dynamic and fast paced, requiring lower echelon leaders to take the initiative and make battlefield decisions without having to wait for orders from higher up in the command chain.²⁶⁰

Reforming Military Regions and Force Groupings for Joint Operations

One of the more controversial reforms is the proposal to change the Military Region system, which is seen as outdated and unfit for wars in the information age. The current 7 regions will be reduced to 5 regions, each of which will have their own joint commands. Jane's notes that regardless of how many regions there are, geographical divisions of force will likely be irrelevant when a war breaks out. Should armed conflict erupt near China's borders, as the PLA expect it will should conflict break out, the PLA will form War Zone commands that could cut across MR borders.²⁶¹

The undesirable geographical division of force points to another set of reforms the PLA wishes to undertake regarding modular joint force groupings. The PLA explored three options for organizing joint force groupings. The first option was to have "the services each form operation groups (*jituan*), including a SAF operational group and logistics units forming an operation rear group." This first option was noted for a lack of joint integration and "poor independent operational capability."

The second option was to integrate joint forces along functional lines (e.g. amphibious assault, special operations, air operations...). However, this method would "break service support relationships and make command and coordination more difficult."

The third and preferred method was to form "modular groupings combining multiple functions – firepower, information, aviation and support for example – based on mission requirements. Although command and support for such a solution would be complex, the PLA decided that this would be the best way to organize a joint operational force."²⁶²

Continued Importance of Improving Training and Education

Arguably the most important reform that was re-emphasized at the Third Plenum meeting was continued training and education reforms. The PLA stressed that it would need personnel that were well trained and educated in joint operations and the use of new technology if they were to operate using tactics and doctrines that have not yet been battle tested.²⁶³ Moreover, the "PLA also notes that compared to highly advanced armed forces, the PLA's current information literacy is low and its lack of specialized and technical personnel is constraining modernization."²⁶⁴ In order to better train and educate its personnel, the PLA is investing in new facilities and upgrading bases so that they can conduct more complex battlefield simulations and more effectively teach

its personnel how to conduct joint operations. These facilities will also include “battle labs” that will experiment with and refine new and novel tactics.²⁶⁵

The 5 New Leading Small Groups Spearhead Reform

Although these reforms still have many difficulties and challenges that must be overcome, there is evidence to suggest that real reform is underway. Shortly after the 3rd Plenum, 5 new Leading Small Groups were formed to help push forward military reforms. These groups are: The Leading Group for Survey of Military Infrastructure Projects and Real Estate Resources, the Leading Group for the All-Party-Army’s Mass Line Education and Practice Activity, the CMC Leading Group for Inspection Work, the Leading Group for Deepening National Defense and Military Reform.

Although ad hoc groups such as these are not new in Chinese history and have feigned effectiveness before, the fact that these groups appeared shortly after the strong backing for reforms during the 3rd Plenum is not a coincidence. Reforms will likely take time and will be a series of small carefully taken steps, the “bureaucratic log-jam” that has hindered reform appears to be breaking.²⁶⁶

The Leading Group for Deepening National Defense and Military Reform is the most important group of the five. It is chaired by Pres. Xi Jinping and managed by two deputy heads, who are CMC Vice Chairmen Fan Changlong and Xu Qiliang. Xi’s successful consolidation of immense political power within the CCP points to the importance of this the Leading Small Group. The recent anti-graft and corruption investigations into PLA officers, most notably Xu Caihou, suggest that Xi has the political power to push through military reforms and overcome bureaucratic challenges.²⁶⁷

The Broader Anti-Corruption Campaign

These military reforms are only a part of a much broader anti-corruption campaign that President Xi Jinping has made a cornerstone of his administration. High level Chinese officials such as Zhou Yongkang and Gen. Xu Caihou have not been spared from the anti-corruption campaign as investigations have severely tarnished their reputations. Prosecutions for these two high ranking officials are expected to follow. Some observers expect that even former President Jiang Zemin may be a target of this anti-corruption campaign.²⁶⁸ Another scenario is that Xi and Jiang came to an agreement that allowed Xi to maintain his relationship with Jiang while going after high-profile members in Jiang’s network.²⁶⁹

Debate surrounding the anti-corruption campaign has been centered on the true motivations driving the campaign. Some observers see the campaign as nothing more than the manifestation of a power struggle within the CCP. Others believe that Pres. Xi has a sense of urgency that stems from the belief that corruption presents a critical and even existential threat to the CCP.

Those who believe that the campaign is simply an internal power struggle point to the fact that the anti-corruption campaign itself is very opaque.²⁷⁰ Information surrounding the campaign is tightly controlled and released carefully. One Chinese observer asserted that if the campaign was genuine, the anti-corruption campaign would be more transparent.²⁷¹

Those who see the campaign as a truly pivotal point in Chinese politics point to the unprecedented scale of the anti-corruption campaign. They note that the campaign has crossed factional lines rather than staying within them, the latter of which would have strongly suggested that a power

struggle was underway. For instance, although Jiang Zemin's political allies have been a significant target for the campaign, Pres. Xi himself is widely considered to be a protégé of Jiang.²⁷²

If Pres. Xi's anti-corruption campaign is successful in rooting out corruption and creating an environment that discourages it, the entrenched interests that have hampered PLA reform in the past may finally be overcome. In regards to the 5 Leading Small Groups, the Leading Group for Deepening National Defense and Military Reform and the Leading Group for Survey of Military Infrastructure Projects and Real Estate Resources will likely be the two groups that will have the most impact on corruption. The former group is led by Pres. Xi himself and may be involved in the most sweeping changes in the PLA, such as reducing the number of military regions.

These sweeping changes will affect many in the PLA, potentially threatening entrenched interests. The latter group is headed by the General Logistic Department, which has a history of corruption particularly linked with real estate and development.²⁷³ The progress that these two groups make may act as a gauge to measure the effectiveness of the anti-corruption effort and PLA organizational reform.

The Chinese View on the Current State of the PLA in Relation to Local Wars and Joint Operations

These organizational reforms are crucial if China is to resolve a problem that it calls the "Two Incompatibles." The problem is explained as such: "The main contradiction in our army building is that the level of our modernization is incompatible with the demands of winning a local war under informatized conditions, and our military capabilities are incompatible with the demands of carrying out the army's historic missions in the new century and new stage."

Such a characterization would suggest that the PLA views itself as not having reached a level of capability and modernization that can successfully fight the kind of war it expects to fight; real capability is lagging behind requirements. Although the PLA's technical advances have captured much world attention, the PLA is much more concerned about issues regarding organization, logistics, force structure, training, personnel education, and command and control. Jiang Zemin emphasized the importance of non-technical aspects of modernization in the context of personnel education: "Though we're unable to develop all high-technology weapons and equipment within a short period of time, we must train qualified personnel first, for we would rather let our qualified personnel wait for the equipment than the other way round."²⁷⁴

The Organization of the Chinese Security and Paramilitary Forces

At the same time, the Chinese armed forces are only one component of the overall Chinese security apparatus: security responsibilities are shared among the Ministry of State Security, the Ministry of Public Security, the People's Armed Police Force (PAPF), and the PLA. All of these organizations perform different functions, although the greatest burden in an armed conflict against a foreign power would naturally lie with the PLA.

Ministry of State Security (MSS)

The Ministry of State Security serves under the PRC's State Council and conducts foreign and domestic intelligence and counter-intelligence collection. MSS agents perform covert activities, both inside and outside of China.²⁷⁵

Ministry of Public Security (MPS)

Responsibility for internal security falls to the Ministry of Public Security, which is also under the State Council. It is the highest-level administrative body for Chinese law enforcement forces and oversees approximately 1.9 million police personnel throughout China. These police forces have “many functions including domestic patrol, traffic control, detective, anti-crime, anti-riot, and anti-terrorism.”²⁷⁶ In 2001, the MPS ordered major cities to each establish an anti-riot force of no fewer than 300 personnel, many of whom are equipped with armored cars and armored personnel carriers.²⁷⁷

People's Armed Police Force (PAPF)

The People's Armed Police Force (PAPF; also called the People's Armed Police or PAP) serves under the command of the CMC and the State Council, but by definition it is not part of the PLA.²⁷⁸ It serves as an internal security force and was described by the 2010 Chinese white paper as the “shock force in handling public emergencies.”²⁷⁹ In addition, it acts as a light infantry reserve in the event of war and also takes part in reconstruction and rescue efforts after national emergencies.²⁸⁰ The PAPF's 660,000+ personnel are spread between the Internal Security Forces, the Border Defense Force (including the Coast Guard), the China Marine Surveillance Agency, the Maritime Safety Administration, and the Fisheries Enforcement Command. Some PAPF units are responsible for border security and for guarding critical infrastructure,²⁸¹ including critical military infrastructure.²⁸² In addition, China's 2010 white paper stated that the PAPF shares some territorial air defense duties with the PLAAF, PLAN, and PLA ground forces.²⁸³ The 2013 white paper notes,²⁸⁴

In peacetime, the PAPF's main tasks include performing guard duties, dealing with emergencies, combating terrorism and participating in and supporting national economic development. In wartime, it is tasked with assisting the PLA in defensive operations. Based on the national information infrastructure, the PAPF has built a three-level comprehensive information network from PAPF general headquarters down to squadrons. It develops task-oriented weaponry and equipment and conducts scenario-based training so as to improve its guard-duty, emergency-response and counter-terrorism capabilities. The PAPF is composed of the internal security force and other specialized forces. The internal security force is composed of contingents at the level of province (autonomous region or municipality directly under the central government) and mobile divisions. Specialized PAPF forces include those guarding gold mines, forests, hydroelectric projects and transportation facilities. The border public security, firefighting and security guard forces are also components of the PAPF.

CHAPTER 6: FORCE CHANGES AND TRENDS IN TOTAL PERSONNEL

Changes in personnel policies: have been a primary component of the PLA's modernization, -- especially its new Local Wars military doctrine-- and have led to PLA's concurrent cuts to overall force strength while making investments in human capital. The PLA has been significantly reduced in number three times since the 1980s, in 1985, 1997, and 2003. These cuts totally of 1,000,000, 500,000, and 200,000, respectively.

Shifts in Total Personnel

In 2013, Chinese military and security forces consist of about 2,285,000 active PLA, 660,000 People's Armed Police Force (PAPF) service personnel, and at least 510,000 military reserve forces.²⁸⁵ Moreover, according to the defense white papers, there are over eight million militia members.

The 2006 Chinese white paper described some of the reasons for recent changes and cuts in China's military Personnel:²⁸⁶

To effectively fulfill its historic mission in the new stage of the new century, the PLA is speeding up the revolution in military affairs with Chinese features and enhancing in an all-round way its capabilities of defensive operations under conditions of informationization.

... In 1985, 1997 and 2003, China announced that it would cut the size of the PLA by one million, 500,000 and 200,000 persons, respectively. By the end of 2005, China had completed reducing the PLA by 200,000 troops, and the PLA currently has 2.3 million troops. The PLA has made new progress towards the goal of being proper in size, optimal in structure, streamlined in organization, swift and flexible in command, and powerful in fighting capacity.

Downsizing the PLA: The Army was the focus of force reduction, and its authorized number of personnel has been reduced by more than 130,000. Over 60,000 military personnel have been removed from the headquarters and directly affiliated units of military area commands and provincial military commands. Through restructuring, the proportion of the Navy, Air Force and Second Artillery Force in the PLA has been raised by 3.8 percent while that of the Army has been lowered by 1.5 percent.

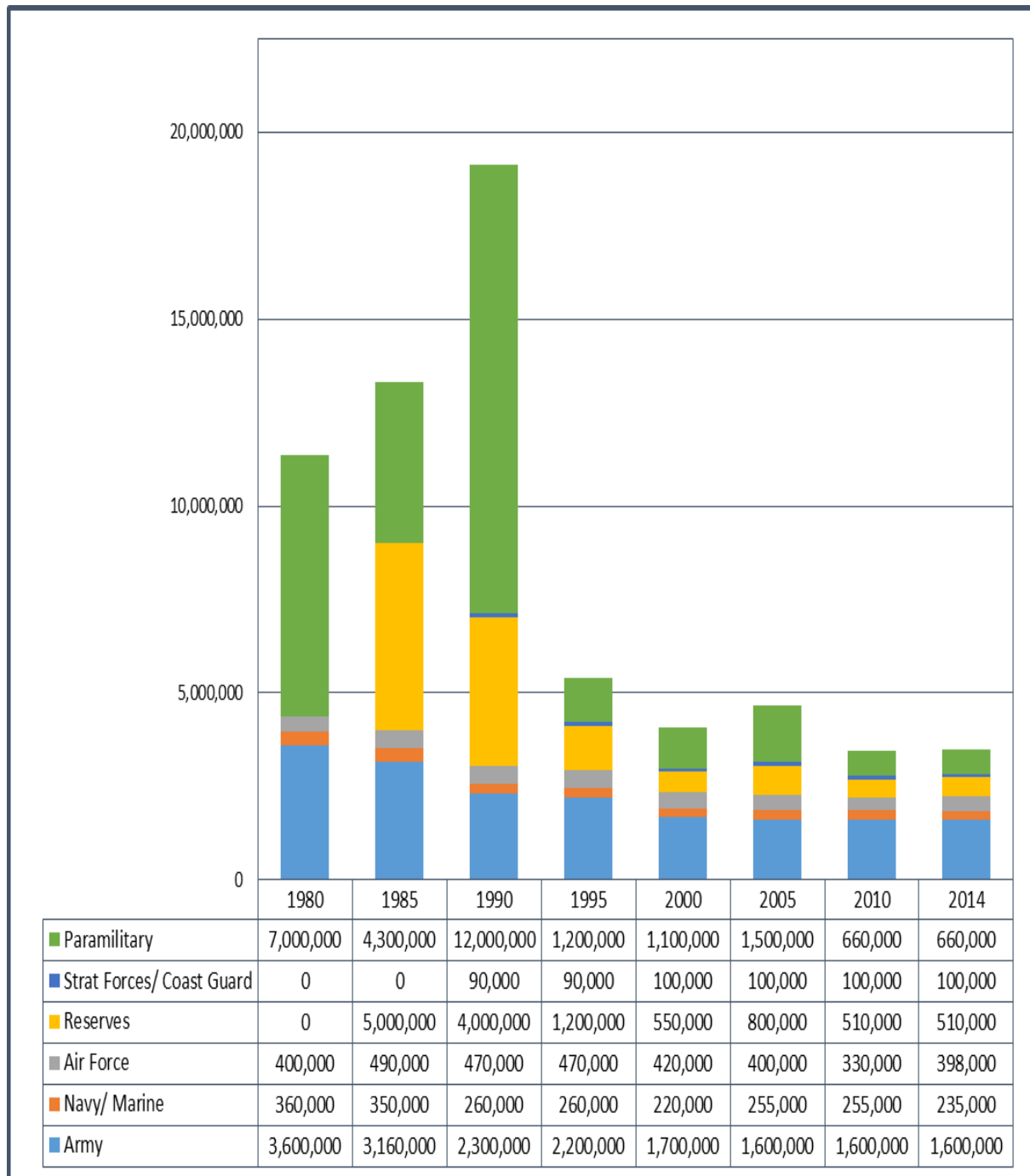
Streamlining the headquarters and directly affiliated units as well as educational institutions: More than 3,000 departments of and over 400 units directly affiliated to the headquarters at and above the regimental level have been cut. A considerable number of agricultural and sideline production units, cultural and sports units, military representative offices at railway stations and material supply organs have been closed. The PLA has also closed 15 educational institutions and 31 training organizations.

Improving the structure of services and arms: The Army has cut a number of combined corps, divisions and regiments, increased the number of combined corps whose order of battle is corps, brigade and battalion, and set up units with new and high-tech weaponry and equipment. The Navy and Air Force have cut some ship groups and aviation divisions, regiments and stations, and set up some high-tech surface ship, aviation and ground-to-air missile units. A number of reserve infantry divisions have been dismantled, but the number of divisions (brigades) of other arms has increased.

The PLA has reduced the number of its officers by 170,000. More than 150 officer posts at or above the corps level have been eliminated, nearly 70,000 posts formerly taken by officers are now filled with non-commissioned officers (NCOs), and over 20,000 posts formerly taken by NCOs are now filled with contract civilians.

As Figure 6.1 shows, the authorized personnel in the various branches of the PLA have decreased significantly over the past 30 years, with the exception of the SAF.

Figure 6.1: Trends in PLA Personnel



Source: IISS *Military Balance*, 1985-2014. Adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

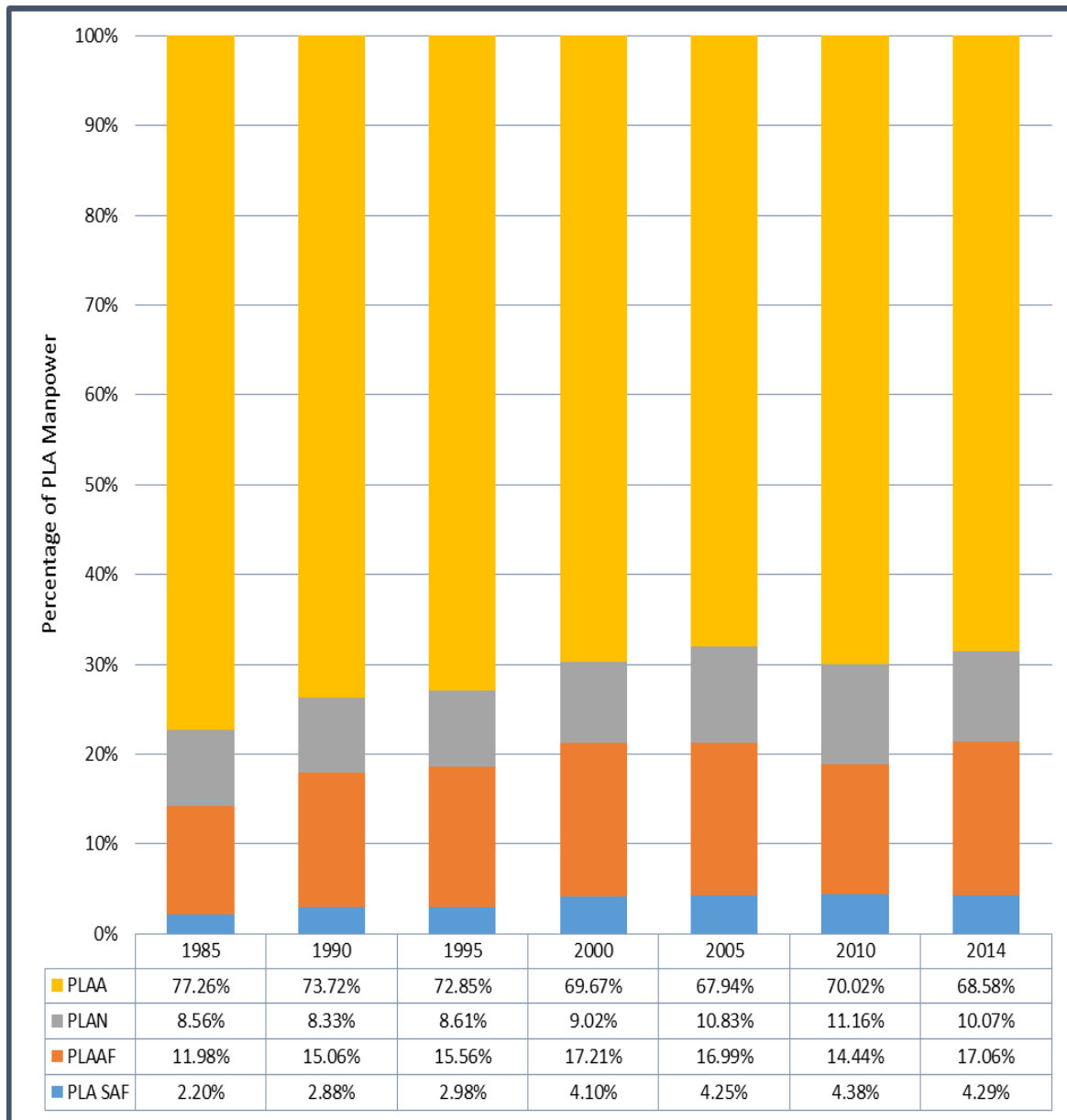
*Figures for SAF in 1985 not available: for purposes of comparison the SAF has been listed at 1990 levels.

Personnel Share by Service and Force Element

Figure 6.2 shows historical changes in the personnel in the PLA's force structure. Again, the trends indicate that the Personnel reductions have disproportionately affected the PLAA, while the other services and the SAF have gained ground in relative terms. This changing force structure is in line with the imperatives generated by the Local Wars doctrine, as quick, decisive wars under conditions of informatization require relatively more naval, air, and missile assets than do total wars or even Deng Xiaoping's "Local Warfare under Modern Conditions" military doctrine.

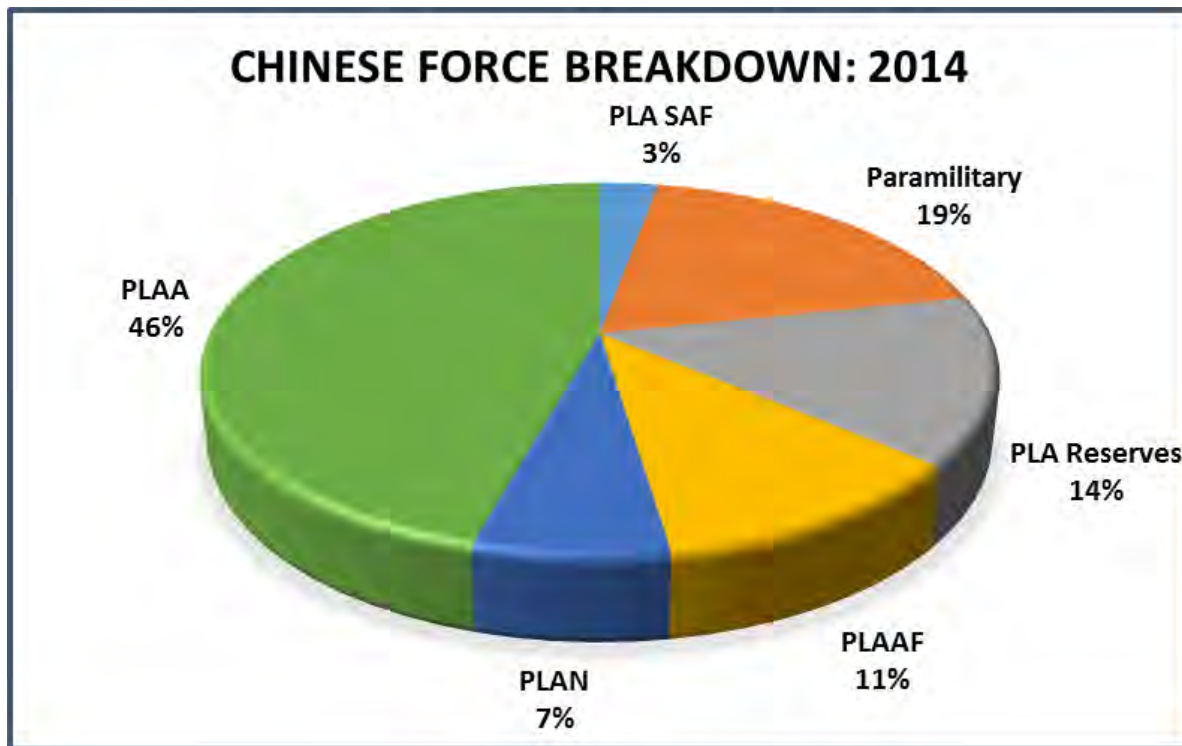
In addition, the concept of "integrated joint operations" requires substantial forces other than ground forces; consequently, the dominance of the PLAA is eroding vis-à-vis the other services and the SAF. Combined with the inclusion of the heads of the PLAN, PLAAF, and SAF in the CMC,²⁸⁷ it is possible to infer that the changes in Personnel reflect changes in relative funding and prestige. At the same time, the Army is still by far the largest and most bureaucratically influential branch of the military and will likely retain its position of power for at least the next decade.

Figure 6.2: Shifts in Percentage of Total Personnel by Service: 1985-2014



Source: IISS *Military Balance*, 1985-2014. Adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

However, the PLAA's current dominance in PLA Personnel is clear. The Army accounts for more than two-thirds of all PLA forces (approximately 70%). Against the background of force reductions in the PLAA, the PLAN and the PLA AF have increased their relative share of PLA Personnel; they currently command 11% and 15% of the PLA, respectively. The SAF's 100,000 personnel make up 4% of all PLA forces. This breakdown is shown in **Figure 6.3**.

Figure 6.3: Active and Reserve Personnel by Service in the PLA: 2014

Source: IISS *Military Balance*, 2014. Adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

Shifts in the PLA's Personnel System

The PLA's personnel system is shifting in response to the increasing human capital requirements of the PLA's modern military doctrine and its more complex technology. These requirements require the PLA to focus on quality over quantity and reshape its total personnel pool to retain qualified personnel, increase individual and small unit proficiency, and attract highly-educated recruits.

As part of this effort, the PLA is attempting to build a professional NCO corps and increase the average level of education among the officer corps by rebalancing the personnel system, recruiting high-level human capital into the PLA, providing opportunities for increased qualification among the non-conscript PLA, and offering greater compensation for the entire force.

Rebalancing the Personnel System

The PLA is currently rebalancing its personnel system by replacing many conscript and officer positions with NCO positions. Prior to new regulations issued in 1999, conscripts had served for three to four years. However, in 1999, the CMC adjusted the conscription obligation to two years, and, in order to account for the drop in conscript numbers, augmented the authorized size of the NCO force.²⁸⁸ This change occurred across the PLA, affecting all branches and the SAF. Complementing this change is a continuing reduction in the number of officers in the PLA and a transfer of many of their duties to the NCO corps.²⁸⁹

Recruiting High-Level Human Capital into the PLA

The PLA is attempting to recruit personnel with higher levels of education and/or technical proficiency into the PLA. By offering bonuses of up to \$3,500 to college graduates who volunteer for the armed forces, the PLA managed to recruit more than 100,000 college graduates in 2009, a number still below the official goal of 130,000.²⁹⁰ As part of this effort to recruit college-educated personnel, Chinese media regularly advertise the need for college-educated recruits.²⁹¹

The PLA's efforts to recruit civilians with technical skills has led to regulations, issued in 2010, in which civilians with specialized skills can be recruited into the military and be granted an NCO rank.²⁹² This option enables skilled civilians to skip the hardships of the first two years of conscript ranks.

The PLA also directly targets college graduates for officer positions through the National Defense Students program, which is roughly equivalent to the US Reserve Officer Training Corps (ROTC).²⁹³

In 2011 and 2012, Chinese media reported a strengthened effort to obtain recruits currently in or graduated from college. Recently introduced benefits included relaxed restrictions on height, weight, tattoos, and ear piercings, as well as signing bonuses based on years of college completed, loans, and tuition subsidies.²⁹⁴ Further targeting college graduates, the PLA offered benefits for veterans seeking advanced degrees and employment, providing exemptions from postgraduate entrance exams and preferential hiring for public sector positions.²⁹⁵

State media report trends that may indicate a successful effort by the PLA to recruit and retain college graduates. One report states that approximately half of the college students and graduates recruited in 2009 entered officer training in 2011,²⁹⁶ ostensibly after a two year period as an enlisted soldier.

Creating Opportunities for Increased Qualification

The PLA has augmented its ability to provide education and training to military personnel. There currently exist military academies for officer and NCO training, with the NCO education accomplished at three specialized academies or at officer academies with specialized courses for NCOs.²⁹⁷ Moreover, the PLA does more than merely offer qualifications to the NCO corps; as one analyst states, NCOs are required to take advantage of qualification opportunities:²⁹⁸

As of 2008, all NCO's are required to earn one or more certificates of professional qualification relevant to their duties. Since 1999, when the professional skill appraisal system was started, more than 860,000 NCO's throughout the PLA are reported to have obtained professional qualification certificates recognized in the civilian community, as well as the army. The target date for all units to implement the full scope of professional skills testing is the end of 2012; those NCO's who do not pass their tests will not be promoted.

One way that NCOs and officers gain qualifications within the PLA is to take short-term specialty training at participating military academies. In addition to classroom instruction, the PLA has promoted and made available other means of qualification such as correspondence and online courses.²⁹⁹

The PLA has a large formal military education system for its officer corps, with three tiers of academy that offer technical, bachelor, master's, and doctorate degrees. Basic PLA academies offer three and four year technical and bachelor degrees that turn civilians into second lieutenants. In addition to intermediate and senior-level PLA academies that confer masters and doctoral degrees, the PLA has begun sending officers to civilian institutions to earn advanced degrees.³⁰⁰

Greater Compensation for PLA Personnel

The PLA is increasing the benefits and pay of its service members to encourage qualified personnel to enter and, just as importantly, remain with the PLA. Consequently, pay raises were authorized in 2006, 2008, and 2011. In particular, NCOs received a substantial pay raise in 2011 – rumored to be motivated in part by political rationales – that saw salaries and benefits increase up to 40%, though civil servants at comparable ranks still make up to twice as much.³⁰¹ In addition, in line with its efforts to attract educated personnel, the PLA is offering tuition allowances to college students who postpone their studies for service in the PLA.³⁰²

The section covering “military doctrine and training” in the 2014 DoD China report stated that:³⁰³

...during 2013, the PLA continued its push toward year-round military training and aligned its recruiting cycle with China’s post-secondary academic calendar to attract better educated recruits. The recruiting period now begins in August rather than October.

Additionally, the PLA is laying the foundation for future changes in military doctrine. To develop a new cadre of officers, the PLA is reshuffling its academies to cultivate junior officers proficient with and capable of leveraging technology in all warfighting functions for joint operations. The National University of Defense Technology, for example, launched a yearlong joint operations staff officer course to serve as a pilot for a future national-level program. The course allows junior officers to rotate to the command elements of other PLA services to enhance their skills in joint operations planning and preparation.

Shifts in Reserve and Militia Force Structure

An often overlooked element of China’s military modernization program has been a sustained shift in the structure of the PLA’s reserve and militia forces. While reliable quantitative data are unavailable, Chinese statements indicate that the reserve and militia forces are shifting from mass formations designed to reinforce PLA maneuver forces to smaller auxiliary formations dedicated to logistics, technical, and air defense roles.

PLA Reserve Forces

Chinese reserve forces consist of roughly 510,000 servicemen and servicewomen. Most reserve forces today are staffed by civilians, many of whom are demobilized from the ground force.³⁰⁴

Reserve officers are chosen mainly from qualified retired servicemen, civil officials, cadres of the people’s armed forces departments, cadres of the militia and civilian technicians with the appropriate military specialties. Reserve soldiers are chosen mainly from qualified discharged soldiers, trained primary militia members, and civilians with the appropriate military specialties.

Information about PLAN, PLAAF, and SAF reserves is largely unavailable, but their numbers are reported to have increased.³⁰⁵ While quantitative data is unavailable, multiple reports, as well as China’s white papers, indicate that the force structure of the PLA’s reserve forces are shifting from their previous emphasis on combat/maneuver units to force structures based on specialized units and logistics units.³⁰⁶ As the 2010 white paper stated,³⁰⁷

To be able to respond to emergencies in peacetime and to fight in war, the focus of the reserve force is shifting from quantity and scale to quality and efficiency, from a combat role to a support role, and from the provision of general-purpose soldiers to soldiers with special skills. It is working to become an efficient auxiliary to the active force and a strong component of the national defense reserve.

It is likely that reserve forces are structured to provide support to regular PLA units during contingencies, especially in the field of logistics. Although some reserve units are staffed with

personnel specializing in information warfare, it is unclear what role reserve forces will play in the future beyond basic service providers.

PLA Militia Forces

The PLA is supported by militias under the command of local military district governments, consisting of young men organized in a standard military command scheme. There are primary and ordinary militias: according to the 2010 white paper, primary militias comprise about 8 million men,³⁰⁸ but numbers for ordinary militias are unavailable.

The militia forces are also undergoing a sustained shift in force structure. Once again, reliable quantitative indicators are unavailable. However, Chinese government statements indicate that the militia is shifting from a mass reserve of maneuver forces to a force dedicated to logistics and technical support as well as air defense and internal security. The 2006 white paper identified these trends:³⁰⁹

Specialized technical units rather than infantry are becoming the backbone of the militia. The proportion of antiaircraft artillery, ground artillery, missile, communications, engineering, anti-chemical, reconnaissance, information and other specialized technical units in the overall militia force is being raised. The building of militia units of the Navy, Air Force and Second Artillery Force is being strengthened. A new organizational structure of the militia has taken shape, with specialized technical units and units with corresponding specialties serving as the main body, and air defense units, units of the Navy, Air Force and Second Artillery Force, and emergency response units playing a leading role.

The state has increased investment in militia weaponry and equipment, with priority given to equipment for air defense, emergency response and maintenance of stability. The state has phased out a number of outdated weapons. Militia training reform has been deepened; a four-level system for organizing training is practiced, the four levels being provincial military commands, prefectural military commands, people's armed forces departments of counties (county-level cities or municipal districts) and basic-level people's armed forces departments. Through interlinked training as well as joint training and exercises with active PLA units, the militia has boosted its capabilities of conducting rapid mobilization and carrying out its specialized tasks.

The 2010 white paper further noted,³¹⁰

The militia force gives priority to reinforcing those units which are tasked with defending border and coastal areas, providing service support for different arms and services, and responding in emergencies. It has been realigned to extend from rural to urban areas as well as to areas along important communication lines, from ordinary locations to key sites and areas, and from traditional industries to new and high-tech ones. As a result, its structure and layout have been further improved....

Its capabilities in dealing with both emergencies and wars have been greatly enhanced. The militia strengthens its building of equipment for the purposes of air defense, emergency response, and maintaining stability, supply of new types of air defense weaponry and equipment, and retrofitting and upgrading of existing weapons...

The militia has taken an active part in such operations as counter-terrorism, stability maintenance, emergency rescue, disaster relief, border protection and control, and joint defense of public security, and has played a unique role in accomplishing diversified military tasks. Each year, it mobilizes more than 90,000 militiamen to serve as guards on bridges, tunnels and railways, more than 200,000 to take part in joint military-police-civilian defense patrols, more than 900,000 to participate in emergency response, rescue and relief operations following major natural disasters, and nearly 2 million to engage in the comprehensive control and management of social order in rural and urban areas.

The 2013 white paper provided less detail, describing the militia as follows:³¹¹

The militia is an armed organization composed of the people not released from their regular work. As an assistant and backup force of the PLA, the militia is tasked with participating in the socialist modernization drive, performing combat readiness support and defensive operations, helping maintain social order and

participating in emergency rescue and disaster relief operations. The militia focuses on optimizing its size and structure, improving its weaponry and equipment, and pushing forward reforms in training so as to enhance its capabilities of supporting diversified military operations, of which the core is to win local wars in informationized conditions. The militia falls into two categories: primary and general. The primary militia has emergency response detachments; supporting detachments such as joint air defense, intelligence, reconnaissance, communications support, engineering rush-repair, transportation and equipment repair; and reserve units for combat, logistics and equipment support.

Importantly, the militia's critical infrastructure protection mission is not only in response to domestic threats; SAF equipment, missile positions, and mobilizations require extensive PAPF and militia protection in light of the PLA's fear of espionage and adversary Special Forces missile suppression missions.³¹²

Shifts in the Personnel of the Chinese Security and Paramilitary Forces

Shifts are also taking place in the personnel of the Chinese security apparatus which affect the Ministry of State Security, the Ministry of Public Security, the People's Armed Police Force (PAPF), and the PLA. These shifts reflect a progressively greater concern with internal unrest centered largely on the Tibetan and Uighur minority populations, but also concern over popular unrest in rural areas, and the Communist Party control over every aspect of the state. The rationale for these shifts is not as clear as it is for the military, and the quality of open source reporting is less clear, but the broad trends involved in the largest elements of Chinese security forces are shown in **Figure 6.4**, and compared with the shifts in the **PLA**.

Ministry of State Security (MSS)

No clear data are available on the trends for the Ministry of State Security. As noted in the previous chapter, it serves under the PRC's State Council and conducts foreign and domestic intelligence and counter-intelligence collection. MSS agents perform covert activities, both inside and outside of China.³¹³

Ministry of Public Security (MPS)

The same lack of reliable trend data affect the Ministry of Public Security. As noted earlier, it is the highest-level administrative body for Chinese law enforcement forces and it is clear that oversees approximately 1.9 million police personnel throughout China. These police forces have "many functions including domestic patrol, traffic control, detective, anti-crime, anti-riot, and anti-terrorism."³¹⁴

People's Armed Police Force (PAPF)

Some data are available on the People's Armed Police Force (PAPF; also called the People's Armed Police or PAP).³¹⁵ It serves as an internal security force.³¹⁶ In addition, it acts as a light infantry reserve in the event of war and takes part in reconstruction and rescue efforts after national emergencies.³¹⁷

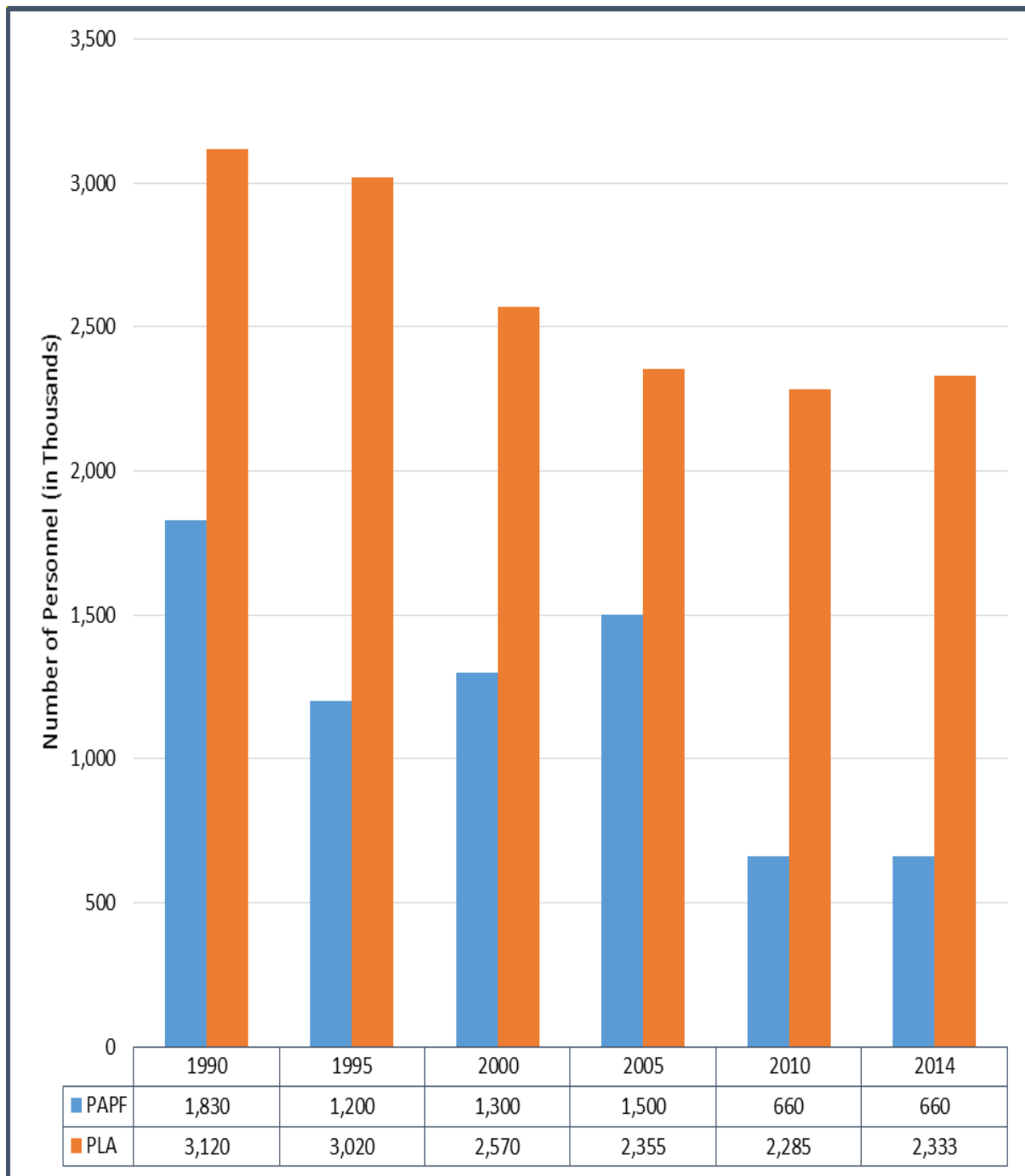
The PAPF's 660,000+ personnel are spread between the Internal Security Forces, the Border Defense Force (including the Coast Guard), the China Marine Surveillance Agency, the Maritime Safety Administration, and the Fisheries Enforcement Command. Some PAPF units are responsible for border security and for guarding critical infrastructure,³¹⁸ including critical military infrastructure.³¹⁹

Various elements of the PAPF have played a growing role in China's confrontations with its neighbors over their conflicting maritime and EEZ claims in the Pacific ranging from Northeast Asia to the South China Sea. In some cases, it is not clear whether the main reason for such efforts has been driven by the central government or provincial governments, but it is clear that they reflect national policy and are at least coordinated – if not directed – with China's top level leadership in Beijing.

The 2014 DoD report on Chinese Military Power discussed China's domestic use of paramilitary forces in various regions of the country over the past year as follows:³²⁰

In 2013, China continued to follow the pattern of using security forces to quell incidents ranging from anti-foreign sentiment to socio-economic protests. PAP units, particularly the mobile security divisions, also continued to receive extensive equipment upgrades. China activated security forces several times in 2013 in response to incidents of violence and also in preparation for sensitive anniversaries such as the July 5 anniversary of the 2009 Uyghur riots in Urumqi.

In April, China dispatched more than 1,000 paramilitary police to Xinjiang after riots resulted in the death of 21 people. Later in June, at least 1,000 paramilitary police shut down large sections of Urumqi and conducted 24-hour patrols in military vehicles after clashes left 35 people dead. In October, paramilitary police were deployed to Biru County in the Tibet Autonomous Region to crack down on Tibetans who protested an order to fly the Chinese national flag at home.

Figure 6.4: Historical Trends in Absolute PLA and PAPF Personnel

Source: IISS *Military Balance*, 1990-2014. Adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

CHAPTER 7: BROAD PATTERNS IN PLA MODERNIZATION AND THE ROLE OF ARMS AND TECHNOLOGY IMPORTS AND EXPORTS

Virtually every aspect of the Chinese armed forces is undergoing modernization. According to the 2006 defense white paper, China is pursuing a three-step strategy to modernize its armed forces. It seeks to create a “solid foundation” by 2010 and reach another phase of “major progress” by 2020. It then seeks to be “capable of winning informationized wars by the mid-21st century.”³²¹

As might be expected, however, trend analyses show that faster progress is occurring in some areas while other areas prove to be more resistant to change. Also important but frequently overlooked is that the results of equipment modernization are strongly influenced by the PLA’s ability to modernize its tactics, strategy, training, and communications networks.

Uncertain Patterns of Change

As Chinese white papers show, the modernization of the Chinese armed forces entails the whole spectrum of armed forces development: war-fighting doctrine, strategic and tactical guidelines, training methods, C4ISR, procurement services, interoperability among PLA services, equipment, and human resources management. Any meaningful assessment of this modernization must establish a benchmark against which the processes that constitute modernization can be judged.

When one uses the most modern technologies and management methods employed by world armies as a comparison, as is often the case, the modernization of the PLA presents a mixed picture that renders quick predictions baseless. It must be understood that any quantitative assessment of increases in modernization spending falls short of describing combat effectiveness.

Military modernization, especially in a large organization like the PLA, proceeds asymmetrically. While some units may use cutting-edge technology that provides war-fighting superiority, it is almost certain that large parts of the armed forces keep outdated and inoperable equipment and have a low standard of training. American PLA analysts have observed such outcomes.³²² At the same time, other countries continue developing new weapons systems and thereby raise the standards against which China’s status quo capabilities can be judged.

Given the hazards mentioned above, this paper measures PLA modernization and force development, not in comparison to the US or other Western militaries, but according to the demands and required capabilities of PLA military doctrine. Given the centrality of the Local Wars theory, this paper will measure the progress of PLA modernization based on the trends in the PLA’s ability to fight and win Local Wars.

This metric is difficult to utilize in practice. While changes in force structure and the modernization of certain equipment categories may ostensibly augment or harm the PLA’s ability to prevail in Local Wars, the intangible, human variables such as combat, technical, and command proficiency also have marked effects on military effectiveness. Quantitative comparisons between third- and fourth-generation fighters, for instance, can blur the fact that well-trained pilots in third-

generation aircraft might display higher combat effectiveness than their counterparts in newer planes. The same holds true for virtually all weapons systems.

China fought its last international war in 1979, a war that was relatively limited in scope and lasted barely a month. Virtually no members of the armed forces possess any war-fighting experience. Although the lack of experience is difficult to quantify and compare with other indicators, it has the potential to become a significant disadvantage in an armed conflict against experienced enemy forces.

With these caveats in mind, the remainder of this chapter will briefly survey key elements of Chinese modernization that will affect the quantitative and service-specific analyses of PLA military modernization and force development in the following chapters.

Shifts in PLA Training Practices

Over the last decade, the PLA has made a sustained effort to improve the quality and realism of the training received by its personnel. In addition, it has augmented its scenario-specific training, especially for situations that require specialized forces.

The CMC issued new training guidelines in 1999, which were codified by the GSD into an “Outline of Military Training and Evaluation” (OMTE) in 2002. The 2002 OMTE set uniform standards and led to an increased focus in many training areas such as combined arms and joint operations, force-on-force training, rapid reaction, information countermeasures, and comprehensive logistical support.³²³

It is impossible to determine the exact effects of the OMTE, but one analyst asserts that the new guidelines have considerably improved training quality.³²⁴ He cites a lack of truly joint, large-scale, or force-on-force exercises in the PLA prior to the 1999 regulations and the 2002 OMTE. Specifically, he argues that the PLA’s training before 1999 was heavily scripted and limited by a lack of funding, experience, and equipment.³²⁵ Corroborating this view, multiple Chinese government media sources from the early 2000s speak of the need to add “realism” to training.³²⁶ Over the course of the decade, this exhortation among official PRC media markedly increased, but changed in tone to a sense of accomplishment as “scripted” exercises were supposedly reduced and units began to “train as you fight.”³²⁷

In the beginning of the second decade of the 21st century, the PLA’s shift in training practices has reportedly broadened to include more challenging training subjects. Following the release of the 2009 OMTE, a revision of the 2002 document, additional training skills have been emphasized such as operating in complex weather, terrain, and electromagnetic conditions and conducting military operations other than war (MOOTW).³²⁸

The DoD has predicted that the PLA will assign greater importance to training and equipment integration in the second decade of the 21st century. Portraying the first decade of the new century as a period of procurement, the DoD stated:³²⁹

The first decade of the 21st century can be characterized as a period of ambitious PLA acquisition and development. Although this trend will continue in the years ahead, the more dominant theme of the 2010-2020 decade is likely to be training and integration. Senior PRC leaders recognize that this period will prove critical to meeting the PLA’s modernization objectives, and they have demanded that the military engage in more realistic training and organizational reform.

In addition, there are several key warfare areas that the PLA has made a specific focus of its training program, explained in the following sections.

Joint Operations

The PLA has made progress in its efforts to train its forces for joint operations. The PLA reportedly did not conduct truly joint operations during the 1980s and 1990s, as formations from different services carried out tasks in proximity to one another rather than truly coordinate actions under a single unified headquarters. However, by the middle of the first decade of the 21st century, the PLA was reportedly conducting joint training exercises with forces that were operating far from their garrison locations.³³⁰

The poor outcome of previous joint exercises led to the 2004 creation of a new term, “Integrated Joint Operations,” to both capture the need for true joint operations and to emphasize the role of support forces in joint operations.³³¹ By the end of the decade, many official media reports on the SAF were keen to report on military exercises taking place under “complex electromagnetic conditions,” or conditions in which an adversary is waging electronic warfare against a PLA unit.³³² Thus, there is evidence that the new term has led to tangible changes in training, such as the focus on the use of electronic warfare support forces.

For example, one recent multi-service military exercise was Joint Action 2010, in which formations at the GA-level conducted air-land operations, especially long-distance mobilization.³³³ The PLA has also been carrying out trans-military area command exercises, such as campaign-level exercises and drills code-named “Mission Action.” As the 2013 white paper noted, “In 2012, the Chengdu, Jinan and Lanzhou MACs and relevant PLAAF troops were organized and carried out the exercise in southwestern China.”³³⁴

Although new Chinese students at mid- and upper-level military academies are receiving training in commanding joint operations, and new C3I equipment has been introduced, problems persist in translating training in the theory of joint operations to actual operational effectiveness. Unreliable and non-standardized C3I platforms make training for joint operations difficult.

After a 2012 Lanzhou MR exercise, the chief of the GSD Training Department stated that further development and research was required to “formalize and standardize the equipment that has been fielded and to solve problems encountered using it in training.” Furthermore, a 2012 report in the *Nanfang Zhoumo* referred to “restrictions of the organization structure and the command system.” The report does not elaborate as to the nature of these “restrictions.”³³⁵

While this may suggest that more organization reform is needed, which has been carried out since the 1990’s, improvements have been made in lessening the influence of the Ground Forces. Until late-2011, joint operations theory was not truly joint. Ground forces were the centerpiece of operations while other branches only played supporting roles. “The promotion of four non-ground officers to the CMC in 2012” reflects Beijing’s efforts to build a truly joint force.³³⁶

Amphibious Operations

Until the late 1990s, amphibious operations were not considered a high priority for training purposes. However by the turn of the millennium, the PLA had shifted its focus; in April 2000, the PLA acknowledged that the Nanjing and Guangzhou MRs had concentrated on amphibious operations. In addition, it has been reported that the Shenyang, Beijing, and Jinan MRs receive enough amphibious training to act as follow-on forces for any amphibious campaign.³³⁷

To build capacity in amphibious operations, the PLA has developed joint amphibious operation training areas and conducted amphibious exercises involving large numbers of forces. One analyst

estimates that one-third to one-quarter of PLA forces have received some type of amphibious warfare training.³³⁸

Focus on C4ISR and Information Technology

Reports indicate that the PLA is investing heavily in the enhancement of all C4ISR and logistics capabilities, drawing on resources of the civilian computer and high-tech industries.³³⁹ Given that military modernization is virtually impossible without comprehensive, modern C4ISR capabilities, China's efforts in this regard will certainly lie at the center of China's modernization strategy.

The PLA increasingly relies on modern IT applications. Evidence for this is the PLA's increased efforts to create an advanced C4ISR network among the PLA branches and services, IT-enabled weapon systems, the proliferation of information warfare units, and efforts to recruit highly qualified civilian IT experts. PLA leaders understand that conducting "integrated joint operations" is virtually impossible without effective, decentralized C4ISR networks, and they have identified the PLA's deficiencies in this sector as a key stumbling block to efforts at joint operations.³⁴⁰

While the PLA recognizes the great importance of exploiting C4ISR and information technology, security sector modernization is contingent upon both civilian and military determinants, most notably China's five-year economic development plans. An unexpected economic crisis or changes in technology accessibility may significantly delay the application of modern weapons systems as well as investments in human capital.

Arms Trade and Technology Transfer: The Role of Imports

Although China has significantly reduced weapon system imports both absolutely and relatively since the mid-2000s, the PRC imports completed weapons systems and promotes foreign-assisted development, licensed production, and reverse engineering – and also engages in cyber espionage of foreign weapons' systems plans, like the US' F-35 Joint Strike Fighter. It seems likely that China will continue to rely on such imports for at least several more years due to continuing difficulties in developing key technologies.³⁴¹

The data available on Chinese arms exports and imports are very uncertain, but SIPRI is almost certainly correct in ranking China the second largest arms importer over the 2008-2012 period,³⁴² with a total of \$7.5 billion in agreements.³⁴³

Russia is a key player in this process. **Figure 7.1** shows the scale of military exports from Russia to China, while **Figure 7.2** shows the value of Russian exports to China relative to all of the PRC's military imports. On Russia's importance to China as a weapons supplier, the 2013 DoD report on China notes,³⁴⁴

Russia has been China's primary weapons and materiel provider, selling China advanced fighter aircraft, helicopters, missile systems, submarines, and destroyers. Relying on Russian components for several of its production programs, China purchased production rights to Russian weapon designs. Though still committed to filling capability gaps with Russian equipment, this trend is changing as China becomes more self-sufficient in research, development, and production

At the same time, the DoD states that China goes far beyond the normal character of arms imports,³⁴⁵

China relies on foreign technology, acquisition of key dual-use components, and focused indigenous research and development (R&D) to advance military modernization. The Chinese utilize a large, well-organized network to facilitate collection of sensitive information and export-controlled technology from U.S. defense sources. Many of the organizations composing China's military-industrial complex have both military and civilian research and development functions. This network of government-affiliated companies and research institutes often enables the PLA to access sensitive and dual-use technologies or knowledgeable experts under the guise of civilian research and development. The enterprises and institutes accomplish this through technology conferences and symposia, legitimate contracts and joint commercial ventures, partnerships with foreign firms, and joint development of specific technologies. In the case of key national security technologies, controlled equipment, and other materials not readily obtainable through commercial means or academia, China has utilized its intelligence services and employed other illicit approaches that involve violations of U.S. laws and export controls. (p. 12)

A high-priority for China's advanced technology acquisition strategy is its Civil-Military Integration policy to develop an innovative dual-use technology and industrial base that serve both military and civilian requirements. China's defense industry has benefited from integration with its expanding civilian economy and science and technology sectors, particularly sectors with access to foreign technology. Examples of technologies include: advanced aviation and aerospace (hot section technologies, avionics and flight controls), source code, traveling wave tubes, night vision devices, monolithic microwave integrated circuits, and information and cyber technologies. (p. 12)

Differentiating between civil and military end-use is very challenging in China due to opaque corporate structures, hidden asset ownership, and the connections of commercial personnel with the central government. Some commercial entities are affiliated with PLA research institutes, or have ties to and are subject to the control of government organizations such as the State-owned Assets Supervision and Administration Commission. (p. 12)

.... PLA participation or observer status in military training exercises of nations in possession of U.S. military equipment, systems, and weapons may, in certain circumstances, have unintended consequences that could result in the unauthorized disclosure of defense articles, technical data, or defense services to China. Public Law 101-246 – the Tiananmen Sanctions – prohibits the transfer or disclosure of U.S.-origin defense articles, defense services, technical data, and/or technology to China. Additionally, Public Law 94-329 – the Arms Export Control Act - and the International Traffic in Arms Regulations list China as a nation for which U.S. policy denies the transfer or export of defense articles (including technical data) and defense services. (p. 23)

Beijing primarily conducts arms sales to enhance foreign relationships and to generate revenue to support its domestic defense industry. China's arms sales range from small arms and ammunition to joint development or transfer of advanced weapons systems. Chinese companies sell mostly to developing countries where China's low-cost weapons sales serve a strategic purpose. For example, China maintains strong and longstanding military-technical cooperation with Pakistan, which includes arms sales and defense industrial cooperation. With other countries of strategic importance to China, such as Sudan, arms sales and other security assistance deepen developing ties and balance China's energy imports. As China's regional and international interests grow more complex, the PLA's international engagement will expand, especially in the areas of peacekeeping operations, counter-piracy, humanitarian assistance/disaster relief (HA/DR), and joint exercises. In addition to furthering PLA modernization, the focus of these engagements will likely remain on building China's political ties, assuaging fears about China's rise, and building China's external influence, particularly in Asia. (p. 23-24)

...China utilizes a large, well-organized network of enterprises, defense factories, affiliated research institutes, and computer network operations to facilitate the collection of sensitive information and export-controlled technology, as well as basic research and science that supports U.S. defense system modernization. Many of the organizations comprising China's military-industrial complex have both military and civilian research and development functions. This network of government-affiliated companies and research institutes often enables the PLA to access sensitive and dual-use technologies or knowledgeable experts under the guise of civilian research and development. Chinese defense enterprises and institutes accomplish this through technology conferences and symposia, legitimate contracts and joint

commercial ventures, partnerships with foreign firms, and joint development of specific technologies. (p. 51)

As in previous years, China utilized its intelligence services and employed other illicit approaches that involve violations of U.S. laws and export controls to obtain key national security technologies, controlled equipment, and other materials not readily obtainable through commercial means or academia. Based on investigations conducted by the law enforcement agencies of the Department of Defense, Department of Justice, Department of Homeland Security, and Department of Commerce, China continues to engage in activities designed to support military procurement and modernization. These include economic espionage, theft of trade secrets, export control violations, and technology transfer. (p. 51)

- In August 2010, Noshir Gowadia was convicted of providing China with classified U.S. defense technology. This assisted China in developing a low-signature cruise missile exhaust system capable of rendering a cruise missile resistant to detection by infrared missiles. (p. 51)
- In September 2010, Chi Tong Kuok was convicted for conspiracy to illegally export U.S. military encryption technology and smuggle it to Macau and Hong Kong. The relevant technology included encryption, communications equipment, and Global Positioning System (GPS) equipment used by U.S. and NATO forces. (p. 52)
- In September 2010, Xian Hongwei and Li were arrested in Hungary and later extradited to the United States for conspiring to procure thousands of radiation-hardened Programmable Read-Only Microchips, classified as defense items and used in satellite systems, for the China Aerospace and Technology Corporation. Both defendants pleaded guilty and were sentenced in September 2011 to two years in prison.
- In January 2012, Yang Bin was arrested in Bulgaria and later extradited to the United States based on a December 2011 criminal indictment related to the attempted export of military-grade accelerometers used in “smart” munitions, aircraft, and missiles.
- In July 2012, Zhang Zhaowei, a naturalized Canadian citizen, was arrested while entering the United States, based on a sealed January 2011 indictment alleging Zhang attempted to illegally acquire and export military gyroscopes used in unmanned aerial systems and for tactical missile guidance.
- In September 2012, Zhang Mingsuan was arrested in the United States and indicted after attempting to acquire up to two tons of aerospace-grade carbon fiber. In a recorded conversation, Zhang claimed he urgently needed the fiber in connection with a scheduled Chinese fighter plane test flight.
- In addition, multiple cases identified since 2009 involved individuals procuring and exporting export controlled items to China. These efforts included attempts to procure and export radiation-hardened programmable semiconductors and computer circuits used in satellites, restricted microwave amplifiers used in communications and radar equipment, export-restricted technical data, and thermal imaging cameras. There were also at least two cases in 2011 in which U.S. companies working on Department of Defense contracts subcontracted manufacturing work on small arms and replacement parts to Chinese companies in violation of the Arms Export Control Act. (p. 52)
- In March 2012, Hui Sheng Shen and Huan Ling Chang, both from Taiwan, were charged with conspiracy to violate the U.S. Arms Export Control Act after allegedly intending to acquire and pass sensitive U.S. defense technology to China. The pair planned to photograph the technology, delete the images, bring the memory cards back to China, and have a Chinese contact recover the images. (p. 12)
- In June 2012, Pratt & Whitney Canada (PWC), a subsidiary of U.S. aerospace firm and defense contractor United Technologies Corporation (UTC), pleaded guilty to illegally providing military software used in the development of China’s Z-10 military attack helicopter.
- UTC and two subsidiaries agreed to pay \$75 million and were debarred from license privileges as part of a settlement with the U.S. Department of Justice and State Department.
- PWC “knowingly and willfully” caused six versions of military electronic engine control software to be “illegally exported” from Hamilton Sundstrand in the United States to PWC in Canada and then to China for the Z-10, and made false and belated disclosures about these illegal exports.

- In September 2012, Sixing Liu, aka “Steve Liu,” was convicted of violating the U.S. Arms Export Control Act and the International Traffic in Arms Regulations (ITAR) and possessing stolen trade secrets. Liu, a Chinese citizen, returned to China with electronic files containing details on the performance and design of guidance systems for missiles, rockets, target locators, and unmanned aerial vehicles. Liu developed critical military technology for a U.S. defense contractor and stole the documents to position himself for employment in China. (p. 13)

The 2014 report added several events to this timeline:³⁴⁶

- In December 2012, federal prosecutors indicted Chinese nationals Yuan Wanli and Song Jiang for export-control and money laundering violations in connection with a scheme to obtain U.S. dual-use programmable logic devices tested to military specifications. While operating from China, Yuan used a fake website and e-mail addresses created using the name of a legitimate New York-based company to conceal his identity and mislead U.S. suppliers. Yuan is associated with China Wingwish Group Co., Ltd., a China-based company involved in the procurement of dual-use technology.
- In March 2013, Chinese national Liu Sixing received 70 months in prison for lying to Federal agents, transporting stolen property, and violating the Arms Export Control Act, the International Traffic in Arms Regulations, and the Economic Espionage Act. Despite his training in U.S. export control laws, Liu stole thousands of files from his U.S. employer in 2010 detailing the performance and design of guidance systems for missiles, rockets, target locators, and unmanned aerial vehicles and transported them to China. While there, Liu delivered presentations describing the technology at several Chinese universities, the Chinese Academy of Sciences, and conferences organized by Chinese government entities.
- In May 2013, Chinese national Ma Lisong pled guilty to violating the International Emergency Economic Powers Act after attempting to export weapon-grade carbon fiber to China. Based in China and using an alias, Ma e-mailed a U.S. undercover agent in February 2013 and negotiated the purchase of five tons of export-controlled carbon fiber. Authorities arrested Ma in the United States after he attempted to ship a sample he requested back to China.
- In August 2013, Chinese national Zhang Mingsuan pled guilty to violating the International Emergency Economic Powers Act by attempting to export thousands of pounds of high-grade carbon fiber for use by the Chinese military. During a recorded conversation in 2012, Zhang claimed he urgently needed the fiber in connection with a scheduled test flight of a Chinese fighter plane.

The report continued:³⁴⁷

In addition, multiple cases identified since 2009 involved non-ethnic Chinese U.S. citizens and naturalized Chinese U.S. citizens or permanent resident aliens procuring and exporting export controlled items to China. These efforts included attempts to procure and export radiation-hardened programmable semiconductors and computer circuits used in satellites, restricted microwave amplifiers used in weapon guidance systems and communications or radar equipment, high-grade carbon fiber, export-restricted technical data, and thermal imaging cameras.

Interestingly, the 2014 report removed a key statement that was made in the 2013 report. The statement removed was: “The Chinese utilize a large, well-organized network to facilitate collection of sensitive information and export-controlled technology from U.S. defense sources.”³⁴⁸ There is no reason to believe that this has changed since the release of the 2013 report.

The acquisition of dual-use goods poses a serious problem when constructing a comprehensive picture of the PLA’s overall technological capabilities. Recent DoD reports have stated that China is pursuing a systematic effort to exploit dual-use goods for modernizing its armed forces.³⁴⁹ The dominance of state-run companies, in combination with a government-mandated policy of secrecy, makes it very difficult to track the potential applications of single items. In light of the information provided in the yearly DoD reports, it seems likely that China is undertaking systematic efforts to exploit dual-use goods for military purposes.

Overall it appears that China no longer *relies* on weapons imports to modernize its army: China has shown the ability to contribute to almost all areas of weaponry development to produce modern weapons systems without outside assistance. Examples of advanced indigenous weapons systems are the J-10 and J-20 aircraft; the PLAN also operates advanced, indigenously-designed surface combatants such as the *Luyang* guided missile destroyer and the *Jiankai* guided missile frigate. However, a sudden cessation of imports would certainly significantly delay weapon system development and procurement.

Underlining this trend is the decreasing value of Russian arms imports. **Figure 6.2** shows the decreasing absolute value of Russian arms imports to China. When compared to the double-digit growth in China's announced defense budgets, it becomes clear that the value of Russian arms imports, relative to the PRC's overall defense budget, is steadily decreasing. One report from the Congressional Research Service (CRS) stated that this trend is a result of Chinese efforts to integrate and reverse engineer existing technology. As the report noted,³⁵⁰

A key Russian arms client in Asia has been China, which purchased advanced aircraft and naval systems. Since 1996, Russia has sold China Su-27 fighter aircraft and agreed to their licensed production. It has sold the Chinese quantities of Su-30 multi-role fighter aircraft, Sovremenny class destroyers equipped with Sunburn anti-ship missiles, and Kilo-class Project 636 diesel submarines. Russia has also sold the Chinese a variety of other weapons systems and missiles. Chinese arms acquisitions seem aimed at enhancing its military projection capabilities in Asia, and its ability to influence events throughout the region. One U.S. policy concern is to ensure that it provides appropriate military equipment to U.S. allies and friendly states in Asia to help offset any prospective threat China may pose to such nations.

There have been no especially large recent Russian arms agreements with China. The Chinese military is currently focused on absorbing and integrating into its force structure the significant weapon systems previously obtained from Russia, and there has also been tension between Russia and China over China's apparent practice of reverse engineering and copying major combat systems obtained from Russia, in violation of their licensed production agreements.

While China is increasingly able to develop its own weapons, the reliance upon reverse engineering means a probable de facto Chinese reliance on foreign technology for at least another decade. Many of China's most modern weapons systems, especially in the aviation sector, are imports from Russia, such as the Su-27 and Su-30, or are copies of Russian goods, such as the J-11. Further, some weapons systems, even those that are indigenous, rely on certain foreign technologies. Helicopter, radar, and engine technologies, for example, are being developed, imported, or produced under licenses with a significant application of Russian and European technology.³⁵¹

Arms Trade and Technology Transfer: The Role of Exports

Imports are partly offset by exports; Chinese weapons exports, though small relative to its demographic and geographic size, have been increasing rapidly; from the 2002-2006 period to the 2007-2011 period, they rose 95%. SIPRI announced in early 2013 that China had become the 5th largest arms exporter by volume in the world.³⁵²

According to Lieutenant General Michael T. Flynn, the former Director of DIA:³⁵³

China is expanding as a supplier of advanced conventional weapons, supplementing its traditional exports of basic battlefield equipment such as small arms, artillery and armored vehicles to include more advanced examples of long-range multiple launch rocket artillery, improved surface to air missile systems and anti-ship cruise missiles, and unmanned aerial vehicles, several of which are armed variants. China's rapid

development of new products, aggressive marketing, and relatively low pricing will allow more countries with limited access to advanced weapons to acquire some of these capabilities.

The DoD has estimated that from 2008 to 2012,³⁵⁴

China signed approximately \$10 billion in agreements for conventional weapons systems worldwide, ranging from general purpose materiel to major weapons systems. In 2013 and the coming years, China's arms exports will likely increase modestly as China's domestic defense industry improves. Chinese defense firms are marketing and selling arms throughout the world with the bulk of their sales to Asia and the Middle East/North Africa. In 2012, China unveiled the Yi Long tactical unmanned aerial vehicle, which will probably be marketed to developing countries.

Pakistan remains China's primary customer for conventional weapons. China engages in both arms sales and defense industrial cooperation with Islamabad, including co-production of the JF-17 fighter aircraft, F-22P frigates with helicopters, K-8 jet trainers, F-7 fighter aircraft, early warning and control aircraft, tanks, air-to-air missiles, anti-ship cruise missiles, and cooperation on main battle tank production.

Sub-Saharan African countries view China as a provider of low-cost weapons with fewer political strings attached compared to other international arms suppliers. China uses arms sales as part of a multifaceted approach to promote trade, secure access to natural resources, and extend its influence in the region.

The DoD estimate of the value of Chinese conventional arms agreements between 2007 and 2011 was \$11 billion.³⁵⁵ A 2012 CRS report provided a brief history of Chinese arms exports:³⁵⁶

It was not until the Iran-Iraq war in the 1980s that China became an important arms supplier, one willing and able to provide weaponry when other major suppliers withheld sales to both belligerents. During that conflict, China demonstrated that it was willing to provide arms to both combatants in quantity and without conditions. Subsequently, China's arms sales have been more regional and targeted in the developing world. From 2008 to 2011, the value of China's arms transfer agreements with developing nations has averaged over \$2 billion annually. During the period of this report, the value of China's arms transfer agreements with developing nations was highest in 2005 and 2007 at \$2.7 billion and \$2.5 billion, respectively (in current dollars). China's arms agreements total in 2011 was \$2.1 billion. China's totals can be attributed, in part, to continuing contracts with Pakistan, a key historic client. More broadly, China's sales figures reflect several smaller valued weapons deals in Asia, Africa, and the Near East, rather than to especially large agreements for major weapons systems....

Most Chinese weapons for export are less advanced and sophisticated than weaponry available from Western suppliers or Russia. China, consequently, does not appear likely to be a key supplier of major conventional weapons in the developing world arms market in the immediate future. That said, China has indicated that increasingly it views foreign arms sales as an important market in which it wishes to compete, and has increased the promotion of its more advanced aircraft in an effort to secure contracts from developing countries. China's weapons systems for export seem based upon designs obtained from Russia through previous licensed production programs. Nonetheless, China's likely client base will be states in Asia and Africa seeking quantities of small arms and light weapons, rather than major combat systems.

China has also been an important source of missiles to some developing countries. For example, China has supplied battlefield and cruise missiles to Iran and surface-to-surface missiles to Pakistan. According to U.S. officials, the Chinese government no longer supplies other countries with complete missile systems. However, Chinese entities are suppliers of missile-related technology. Such activity raises questions about China's willingness to fulfill the government's stated commitment to act in accordance with the restrictions on missile transfers set out in the Missile Technology Control Regime (MTCR). Because China has military products—particularly its missiles—that some developing countries would like to acquire, it can present an obstacle to efforts to stem proliferation of advanced missile systems to some areas of the developing world.

China continues to be source of a variety of small arms and light weapons transferred to African states. The prospects for significant revenue earnings from these arms sales are limited. China likely views such sales as one means of enhancing its status as an international political power, and increasing its ability to obtain access to significant natural resources, especially oil. The control of sales of small arms and light weapons to regions of conflict, especially to some African nations, has been a matter of concern to the United States, and others. The United Nations also has undertaken an examination of this issue in an effort to achieve

consensus on a path to curtail this weapons trade comprehensively. During July 2012, the U.N. attempted to reach agreement on the text of an Arms Trade Treaty (ATT), aimed at setting agreed standards for member states regarding what types of conventional arms sales should be made internationally, and what criteria should be applied in making arms transfer decisions. At the end the month-long period, set aside for negotiations, this effort failed to achieve the necessary consensus on a treaty draft, and the future success of this effort is in doubt. China, while not a member of the group of U.N. states negotiating the final draft, made it publicly clear that it did not support any treaty that would prevent any state from making its own, independent, national decision to make an arms sale.

The following tables are taken from the above CRS report on conventional arms transfers to developing nations. “Developing nations” is defined as excluding the United States, Russia, Europe, Canada, Japan, Australia, and New Zealand. Note that this data does not specify the quality, sophistication, or even the names of the systems transferred. However, “these data show relative trends in the delivery of important classes of military equipment and indicate who the leading suppliers are from region to region over time. These tables examine conventional arms deliveries and conventional arms transfer agreements (represents orders for future delivery). All tables present data from 2004 to 2011.

Figures 7.1 and 7.2 show that although China’s arms transfer agreements are still limited in value when compared to those of other countries, the value of such agreement has grown. Furthermore, all Chinese transfer agreements have gone to the developing world.

Figure 7.1: Worldwide Arms Transfer Agreements, 2004-2011 and Suppliers' Share with Developing World (in millions of current 2011 US dollars)

Supplier	Worldwide Agreements Value 2004-2007	Percentage of Total with Developing World
United States	63,593	50.70%
Russia	43,000	96.30%
France	19,100	44.00%
United Kingdom	20,700	98.60%
China	8,200	100.00%
Germany	10,700	46.70%
Italy	4,500	53.30%
All Other European	24,900	43.40%
All Others	11,400	75.40%
TOTAL	206,093	66.70%

Supplier	Worldwide Agreements Value 2008-2011	Percentage of Total with Developing World
United States	145,702	77.50%
Russia	33,500	92.80%
France	19,600	88.30%
United Kingdom	3,600	77.80%
China	8,300	97.60%
Germany	9,300	55.90%
Italy	8,800	65.90%
All Other European	19,300	73.60%
All Others	13,700	71.50%
TOTAL	261,802	79.20%

Source: Richard F. Grimmett and Paul K. Kerr, *Conventional Arms Transfers to Developing Nations, 2004-2011*, Congressional Research Service, August 24, 2012.

Figure 7.2: Worldwide Arms Deliveries, 2004-2011 and Suppliers' Share with Developing World (in millions of current 2011 US dollars)

	2004	2005	2006	2007	2008	2009	2010	2011	TOTAL 2004-2011
United States	8,193	6,361	9,440	12,528	29,461	15,086	14,273	56,303	151,644
Russia	10,267	9,264	17,124	10,442	6,728	13,449	7,705	4,100	79,078
France	1,329	6,253	560	1,523	3,785	9,518	1,825	2,700	27,491
United Kingdom	4,952	3,242	4,477	10,333	210	1,138	1,217	300	25,869
China	1,208	3,126	2,238	2,719	2,208	2,379	1,622	2,100	17,601
Germany	242	811	2,686	1,849	4,941	517	0	0	11,046
Italy	362	579	672	1,088	1,682	1,345	1,825	1,100	8,652
All Other European	2,899	4,169	3,022	2,284	4,626	4,862	2,737	2,400	26,999
All Others	3,140	1,158	3,470	2,067	1,997	4,035	1,521	2,500	19,887
TOTAL	32,592	34,962	43,688	44,831	55,638	52,330	32,724	71,503	368,268
Dollar inflation Index:(2011=1)a	0.8279	0.8636	0.8935	0.9194	0.9512	0.9666	0.9864	1	

Source: CRS, Richard F. Grimmett and Paul K. Kerr, *Conventional Arms Transfers to Developing Nations, 2004-2011*, August 24, 2012.

Figure 7.3 demonstrates that Chinese arms transfer agreements with Asia are larger than those to any other region, when measured in dollars. But when measuring the percentage of total agreements value by region, China has a lead in Africa, as **Figure 7.4** shows.

Figure 7.3: Percentage of Each Supplier's Agreements Value by Region, 2004-2011

	Asia		Near East		Latin America		Africa		TOTAL	
	2004-2007	2008-2011	2004-2007	2008-2011	2004-2007	2008-2011	2004-2007	2008-2011	2004-2007	2008-2011
United States	32.64%	16.04%	61.94%	81.40%	4.94%	2.29%	0.48%	0.26%	100%	100%
Russia	50.12%	51.75%	39.09%	19.05%	9.83%	24.76%	0.96%	4.44%	100%	100%
France	60.71%	23.70%	32.14%	23.12%	5.95%	49.71%	1.19%	3.47%	100%	100%
United Kingdom	11.82%	48.15%	86.21%	40.74%	1.97%	11.11%	0.00%	0.00%	100%	100%
China	46.91%	51.28%	32.10%	19.23%	4.94%	10.26%	16.05%	19.23%	100%	100%
Germany	51.02%	35.19%	40.82%	59.26%	8.16%	3.70%	0.00%	1.85%	100%	100%
Italy	50.00%	36.21%	37.50%	46.55%	4.17%	15.52%	8.33%	1.72%	100%	100%
All Other European	39.62%	39.73%	26.42%	38.36%	28.30%	15.07%	5.66%	6.85%	100%	100%
All Others	72.53%	70.53%	13.19%	5.26%	9.89%	14.74%	4.40%	9.47%	100%	100%
Major West European ^a	[31.11%	30.13%	64.17%	35.26%	3.89%	32.05%	0.83%	2.56%]	100%	100%
TOTAL	41.55%	29.06%	47.89%	56.16%	8.27%	11.94%	2.29%	2.84%	100%	100%

Source: CRS, Richard F. Grimmett and Paul K. Kerr, *Conventional Arms Transfers to Developing Nations, 2004-2011*, August 24, 2012.

Figure 7.4: Percentage of Total Agreements Value by Supplier to Regions, 2004-2011

	Asia		Near East		Latin America		Africa	
	2004-2007	2008-2011	2004-2007	2008-2011	2004-2007	2008-2011	2004-2007	2008-2011
United States	18.39%	30.05%	30.26%	78.90%	13.97%	10.45%	4.94%	5.02%
Russia	36.53%	27.02%	24.71%	5.15%	35.99%	31.46%	12.67%	23.74%
France	8.91%	6.80%	4.09%	3.43%	4.39%	34.69%	3.17%	10.18%
United Kingdom	4.19%	2.15%	26.53%	0.94%	3.51%	1.21%	0.00%	0.00%
China	6.64%	6.63%	3.94%	1.29%	3.51%	3.23%	41.19%	25.44%
Germany	4.37%	3.15%	3.03%	2.75%	3.51%	0.81%	0.00%	1.70%
Italy	2.10%	3.48%	1.36%	2.32%	0.88%	3.63%	6.34%	1.70%
All Other European	7.34%	9.61%	4.24%	4.80%	26.34%	8.87%	19.01%	16.96%
All Others	11.53%	11.11%	1.82%	0.43%	7.90%	5.65%	12.67%	15.26%
Major West European ^a	[19.57%	15.58%	35.02%	9.44%	12.29%	40.34%	9.51%	13.57%]
TOTAL	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Source: CRS, Richard F. Grimmett and Paul K. Kerr, *Conventional Arms Transfers to Developing Nations, 2004-2011*, August 24, 2012.

In terms of deliveries, **Figure 7.5** shows that China is supplying arms primarily to developing countries, though the value of those transferred arms is relatively low. Moreover, between 2004 and 2011, China only provided a small percentage of all the conventional arms delivered to the developing world, according to **Figure 7.6**. The value of delivered arms per year has fluctuated greatly between 2004 and 2011, as shown by Table 15.

Figure 7.5: Worldwide Arms Deliveries, 2004-2011 and Suppliers' Share with Developing World (in millions of current 2011 US dollars)

Supplier	Worldwide Deliveries Value 2004-2007	Percentage of Total to Developing World
United States	47,974	64.00%
Russia	21,000	96.20%
France	12,600	68.30%
United Kingdom	14,000	72.10%
China	5,100	94.10%
Germany	9,300	28.00%
Italy	2,300	30.40%
All Other European	12,800	38.30%
All Others	11,300	42.50%
TOTAL	136,374	64.10%

Supplier	Worldwide Deliveries Value 2008-2011	Percentage of Total to Developing World
United States	54,270	62.00%
Russia	27,800	92.10%
France	6,500	46.10%
United Kingdom	10,600	50.00%
China	8,100	98.80%
Germany	10,800	30.60%
Italy	4,500	55.60%
All Other European	23,600	41.90%
All Others	16,900	34.30%
TOTAL	163,070	59.50%

Source: CRS, Richard F. Grimmer and Paul K. Kerr, *Conventional Arms Transfers to Developing Nations, 2004-2011*, August 24, 2012.

Figure 7.6: Arms Deliveries to Developing Nations, by Supplier, 2004-2011 (in millions of current US dollars)

	2004	2005	2006	2007	2008	2009	2010	2011	2004-2011
United States	7,385	8,161	7,928	7,198	7,304	7,345	8,458	10,522	64,301
Russia	5,400	3,700	6,000	5,100	6,400	5,400	6,300	7,500	45,800
France	5,200	2,000	500	900	700	600	1,000	700	11,600
United Kingdom	2,400	3,000	3,600	1,100	1,200	1,100	1,500	1,500	15,400
China	900	900	1,400	1,600	2,100	1,700	2,900	1,300	12,800
Germany	800	300	900	600	1,300	1,100	500	400	5,900
Italy	100	100	300	200	200	500	700	1,100	3,200
All Other European	1,100	1,300	1,200	1,300	2,000	1,900	2,700	3,300	14,800
All Others	1,800	1,600	600	800	800	1,600	1,700	1,700	10,600
TOTAL	25,085	21,061	22,428	18,798	22,004	21,245	25,758	28,022	184,401

Source: CRS, Richard F. Grimmett and Paul K. Kerr, *Conventional Arms Transfers to Developing Nations, 2004-2011*, August 24, 2012.

Figure 7.7: Arms Deliveries to Developing Nations, by Supplier, 2004-2011

	2004	2005	2006	2007	2008	2009	2010	2011
United States	29.44%	38.75%	35.35%	38.29%	33.19%	34.57%	32.84%	37.55%
Russia	21.53%	17.57%	26.75%	27.13%	29.09%	25.42%	24.46%	26.76%
France	20.73%	9.50%	2.23%	4.79%	3.18%	2.82%	3.88%	2.50%
United Kingdom	9.57%	14.24%	16.05%	5.85%	5.45%	5.18%	5.82%	5.35%
China	3.59%	4.27%	6.24%	8.51%	9.54%	8.00%	11.26%	4.64%
Germany	3.19%	1.42%	4.01%	3.19%	5.91%	5.18%	1.94%	1.43%
Italy	0.40%	0.47%	1.34%	1.06%	0.91%	2.35%	2.72%	3.93%
All Other European	4.39%	6.17%	5.35%	6.92%	9.09%	8.94%	10.48%	11.78%
All Others	7.18%	7.60%	2.68%	4.26%	3.64%	7.53%	6.60%	6.07%
Major West European ^a	[33.88%	25.64%	23.63%	14.90%	15.45%	15.53%	14.36%	13.20%]
TOTAL	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Source: CRS, Richard F. Grimmett and Paul K. Kerr, *Conventional Arms Transfers to Developing Nations, 2004-2011*, August 24, 2012.

Figure 7.8 demonstrates the importance of the Asian arms market to China, with arms deliveries to Asia making up about half of all Chinese deliveries in 2004-2007 and 2008-2011. China does not have the lead in terms of the value of delivered arms to Africa between 2004 and 2011. Nevertheless, China delivered a substantial amount of conventional arms to Africa during these years.

Figure: 7.8: Percentage of Supplier Deliveries Value by Region, 2004-2011

	Asia		Near East		Latin America		Africa		TOTAL	
	2004-2007	2008-2011	2004-2007	2008-2011	2004-2007	2008-2011	2004-2007	2008-2011	2004-2007	2008-2011
United States	32.20%	28.18%	63.70%	67.33%	3.80%	4.18%	0.30%	0.31%	100.00%	100.00%
Russia	70.79%	51.56%	16.83%	32.81%	9.41%	12.11%	2.97%	3.52%	100.00%	100.00%
France	23.26%	41.38%	69.77%	37.93%	5.81%	13.79%	1.16%	6.90%	100.00%	100.00%
United Kingdom	10.78%	32.69%	77.45%	63.46%	2.94%	3.85%	8.82%	0.00%	100.00%	100.00%
China	52.08%	49.38%	27.08%	32.10%	2.08%	7.41%	18.75%	11.11%	100.00%	100.00%
Germany	51.52%	73.53%	12.12%	11.76%	3.03%	5.88%	33.33%	8.82%	100.00%	100.00%
Italy	33.33%	38.46%	16.67%	34.62%	16.67%	15.38%	33.33%	11.54%	100.00%	100.00%
All Other European	37.25%	37.50%	29.41%	19.79%	23.53%	25.00%	9.80%	17.71%	100.00%	100.00%
All Others	57.14%	61.40%	18.37%	8.77%	18.37%	22.81%	6.12%	7.02%	100.00%	100.00%
Major West European ^a	22.03%	45.39%	63.44%	40.43%	4.41%	8.51%	10.13%	5.67%	100.00%	100.00%
TOTAL	41.16%	41.54%	46.44%	43.15%	7.09%	10.34%	5.31%	4.97%	100.00%	100.00%

Source: CRS, Richard F. Grimmett and Paul K. Kerr, *Conventional Arms Transfers to Developing Nations, 2004-2011*, August 24, 2012.

Figures 7.9 to 7.12 show the types of conventional arms being imported into each region. Chinese arms exports to the Near East and Africa primarily consist of artillery, APCs, and armored cars. The Asian market also receives artillery, APCs, and armored cars in addition to large numbers of surface-to-air missiles and smaller numbers of tanks and self-propelled guns.

Figure 7.9: Numbers of Weapons Delivered by Suppliers to Developing Nations

Weapons Category	U.S.	Russia	China	Major West European*	All Other European	All Others
2004-2007						
Tanks and Self-Propelled Guns	672	300	160	160	420	10
Artillery	240	20	450	10	380	1,020
APCs and Armored Cars	726	480	460	260	2,600	800
Major Surface Combatants	0	3	0	17	6	3
Minor Surface Combatants	0	5	56	57	41	116
Guided Missile Boats	0	0	0	7	9	3
Submarines	0	8	0	5	4	0
Supersonic Combat Aircraft	104	180	20	70	40	40
Subsonic Combat Aircraft	2	0	10	20	0	10
Other Aircraft	50	40	130	20	90	130
Helicopters	73	200	0	80	20	40
Surface-to-Air Missiles	910	6,340	530	650	710	150
Surface-to-Surface Missiles	0	0	0	0	0	30
Anti-Ship Missiles	262	360	120	150	120	50
2008-2011						
Tanks and Self-Propelled Guns	348	570	510	360	550	40
Artillery	150	90	770	30	410	700
APCs and Armored Cars	234	490	590	470	1,200	440
Major Surface Combatants	5	4	3	3	4	4
Minor Surface Combatants	0	6	108	57	40	100
Guided Missile Boats	0	2	0	0	0	4
Submarines	0	2	0	4	1	0
Supersonic Combat Aircraft	53	180	30	50	130	50
Subsonic Combat Aircraft	0	0	20	50	20	40
Other Aircraft	52	20	130	60	130	60
Helicopters	57	270	10	110	70	30
Surface-to-Air Missiles	944	7,750	780	290	470	290
Surface-to-Surface Missiles	0	50	0	0	0	0
Anti-Ship Missiles	176	220	60	60	0	40

Source: CRS, Richard F. Grimmett and Paul K. Kerr, *Conventional Arms Transfers to Developing Nations, 2004-2011*, August 24, 2012.

Figure 7.10: Numbers of Weapons Delivered by Suppliers to Asia and the Pacific

Weapons Category	U.S.	Russia	China	Major West European*	All Other European	All Others
2004-2007						
Tanks and Self-Propelled Guns	115	40	160	0	10	0
Artillery	108	20	210	10	120	30
APCs and Armored Cars	54	220	50	120	470	60
Major Surface Combatants	0	3	0	4	1	2
Minor Surface Combatants	6	3	22	9	8	16
Guided Missile Boats	0	0	0	0	0	0
Submarines	0	8	0	1	2	0
Supersonic Combat Aircraft	0	110	10	40	10	40
Subsonic Combat Aircraft	2	0	10	0	0	0
Other Aircraft	12	30	20	10	20	30
Helicopters	22	90	0	20	10	0
Surface-to-Air Missiles	474	1,180	530	240	190	150
Surface-to-Surface Missiles	0	0	0	0	0	0
Anti-Ship Missiles	175	360	40	50	40	0
2008-2011						
Tanks and Self-Propelled Guns	0	360	260	100	40	0
Artillery	0	40	130	10	60	20
APCs and Armored Cars	25	250	100	0	590	100
Major Surface Combatants	5	4	3	2	3	2
Minor Surface Combatants	0	6	2	10	1	32
Guided Missile Boats	0	2	0	0	0	2
Submarines	0	0	0	3	1	0
Supersonic Combat Aircraft	18	140	10	10	10	0
Subsonic Combat Aircraft	0	0	10	50	0	20
Other Aircraft	14	0	60	40	40	10
Helicopters	2	110	10	20	20	0
Surface-to-Air Missiles	297	1,080	760	290	0	290
Surface-to-Surface Missiles	0	0	0	0	0	0
Anti-Ship Missiles	176	110	60	10	0	0

Source: CRS, Richard F. Grimmett and Paul K. Kerr, *Conventional Arms Transfers to Developing Nations, 2004-2011*, August 24, 2012.

Figure 7.11: Numbers of Weapons Delivered by Suppliers to Near East

Weapons Category	U.S.	Russia	China	Major West European*	All Other European	All Others
2004-2007						
Tanks and Self-Propelled Guns	557	260	0	20	130	0
Artillery	31	0	0	0	40	40
APCs and Armored Cars	672	260	0	90	1,950	560
Major Surface Combatants	0	0	0	3	0	0
Minor Surface Combatants	6	0	0	35	10	89
Guided Missile Boats	0	0	0	6	9	0
Submarines	0	0	0	0	0	0
Supersonic Combat Aircraft	94	30	0	20	10	0
Subsonic Combat Aircraft	0	0	0	0	0	0
Other Aircraft	20	0	60	10	30	40
Helicopters	35	30	0	10	0	20
Surface-to-Air Missiles	436	5,160	0	400	520	0
Surface-to-Surface Missiles	0	0	0	0	0	30
Anti-Ship Missiles	77	0	80	90	70	50
2008-2011						
Tanks and Self-Propelled Guns	348	50	60	0	70	10
Artillery	149	0	230	0	160	50
APCs and Armored Cars	170	130	160	130	300	250
Major Surface Combatants	0	0	0	0	1	0
Minor Surface Combatants	0	0	0	31	19	14
Guided Missile Boats	0	0	0	0	0	0
Submarines	0	2	0	0	0	0
Supersonic Combat Aircraft	35	30	0	20	80	0
Subsonic Combat Aircraft	0	0	0	0	0	0
Other Aircraft	7	20	20	10	30	0
Helicopters	36	30	0	50	0	10
Surface-to-Air Missiles	647	3,480	0	0	150	0
Surface-to-Surface Missiles	0	50	0	0	0	0
Anti-Ship Missiles	0	110	0	50	0	40

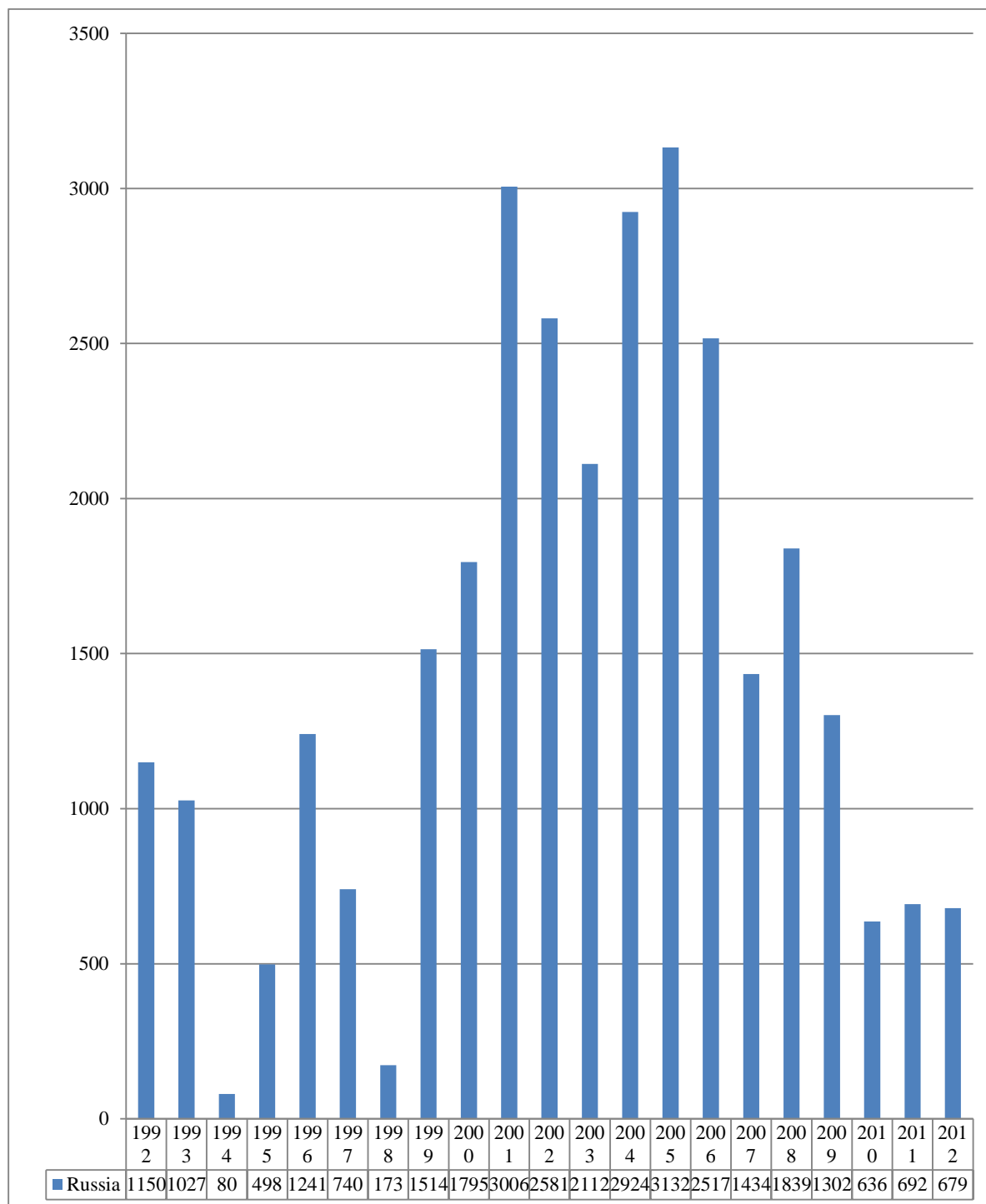
Source: CRS, Richard F. Grimmett and Paul K. Kerr, *Conventional Arms Transfers to Developing Nations, 2004-2011*, August 24, 2012.

Figure 7.12: Numbers of Weapons Delivered by Suppliers to Africa

Weapons Category	U.S.	Russia	China	Major West European*	All Other European	All Others
2004-2007						
Tanks and Self-Propelled Guns	0	0	0	0	280	10
Artillery	0	0	230	0	210	950
APCs and Armored Cars	0	0	380	50	170	140
Major Surface Combatants	0	0	0	3	0	1
Minor Surface Combatants	0	0	34	9	21	9
Guided Missile Boats	0	0	0	1	0	3
Submarines	0	0	0	2	0	0
Supersonic Combat Aircraft	0	20	10	0	0	0
Subsonic Combat Aircraft	0	0	0	20	0	0
Other Aircraft	0	0	50	0	20	10
Helicopters	0	40	0	40	10	10
Surface-to-Air Missiles	0	0	0	10	0	0
Surface-to-Surface Missiles	0	0	0	0	0	0
Anti-Ship Missiles	0	0	0	10	0	0
2008-2011						
Tanks and Self-Propelled Guns	0	50	190	0	440	30
Artillery	0	0	410	0	130	630
APCs and Armored Cars	0	60	310	180	90	70
Major Surface Combatants	0	0	0	0	0	0
Minor Surface Combatants	0	0	104	4	15	42
Guided Missile Boats	0	0	0	0	0	2
Submarines	0	0	0	1	0	0
Supersonic Combat Aircraft	0	0	20	10	20	20
Subsonic Combat Aircraft	0	0	10	0	20	0
Other Aircraft	0	0	20	10	20	10
Helicopters	0	70	0	30	40	10
Surface-to-Air Missiles	0	120	0	0	290	0
Surface-to-Surface Missiles	0	0	0	0	0	0
Anti-Ship Missiles	0	0	0	0	0	0

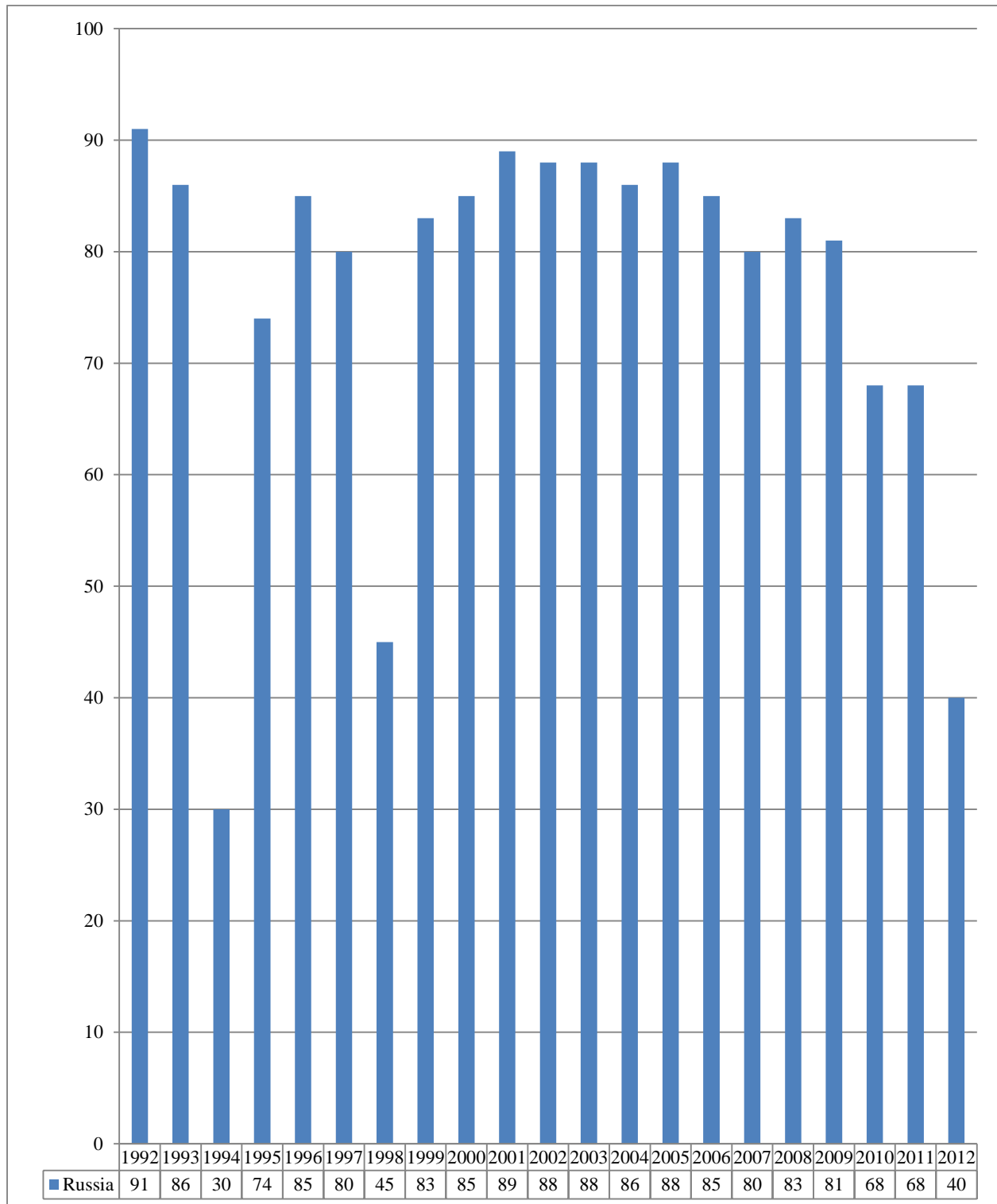
Source: CRS, Richard F. Grimmett and Paul K. Kerr, *Conventional Arms Transfers to Developing Nations, 2004-2011*, August 24, 2012.

**Figure 7.13: Value of Russian Arms Exports to China, 1992-2012
(US\$ millions)**



Source: SIPRI, "Arms Transfers Database, Importer/Exporter TIV Tables," accessed June 18, 2013.
<http://armstrade.sipri.org/armstrade/page/values.php>.

Figure 7.14: Percentage of Overall PRC Arms Imports from Russia, 1992-2012



Source: SIPRI, "Arms Transfers Database, Importer/Exporter TIV Tables," accessed June 18, 2013.
<http://armstrade.sipri.org/armstrade/page/values.php>.

Arms Trade and Technology Transfer: The Role of Espionage

The close relationship between the Chinese government and its domestic military industrial sector means that private sector interests are often directly related to military and national security concerns. The Department of Defense Annual report on China for 2013 discussed this issue as follows:³⁵⁷

China uses a large, well-organized network of enterprises, defense factories, affiliated research institutes, and computer network operations to facilitate the collection of sensitive information, export-controlled technologies, and basic research and science supporting U.S. defense system modernization. Many of the organizations making up China's military-industrial complex have both military and civilian research and development functions. This network of government-affiliated companies and research institutes often enables the PLA to either access, transfer, or purchase sensitive and dual-use technologies or maintain contact with knowledgeable U.S. and foreign experts under the guise of civilian research and development. Chinese defense enterprises and research institutes target technology conferences and symposia, legitimate contracts and joint commercial ventures, partnerships with foreign firms, and joint development projects to obtain specific technologies or military capabilities.

The 2013 also identified multiple specific incidents:³⁵⁸

As in previous years, China utilized its intelligence services and employed other illicit approaches that involve violations of U.S. laws and export controls to obtain key national security technologies, controlled equipment, and other materials not readily obtainable through commercial means or academia. Based on investigations conducted by the law enforcement agencies of the Department of Defense, Department of Justice, Department of Homeland Security, and Department of Commerce, China continues to engage in activities designed to support military procurement and modernization. These include economic espionage, theft of trade secrets, export control violations, and technology transfer.

In August 2010, Noshir Gowadia was convicted of providing China with classified U.S. defense technology. This assisted China in developing a low-signature cruise missile exhaust system capable of rendering a cruise missile resistant to detection by infrared missiles.

In September 2010, Chi Tong Kuok was convicted for conspiracy to illegally export U.S. military encryption technology and smuggle it to Macau and Hong Kong. The relevant technology included encryption, communications equipment, and Global Positioning System (GPS) equipment used by U.S. and NATO forces.

In September 2010, Xian Hongwei and Li Li were arrested in Hungary and later extradited to the United States for conspiring to procure thousands of radiation-hardened Programmable Read-Only Microchips, classified as defense items and used in satellite systems, for the China Aerospace and Technology Corporation. Both defendants pleaded guilty and were sentenced in September 2011 to two years in prison.

In January 2012, Yang Bin was arrested in Bulgaria and later extradited to the United States based on a December 2011 criminal indictment related to the attempted export of military-grade accelerometers used in "smart" munitions, aircraft, and missiles.

In July 2012, Zhang Zhaowei, a naturalized Canadian citizen, was arrested while entering the United States, based on a sealed January 2011 indictment alleging Zhang attempted to illegally acquire and export military gyroscopes used in unmanned aerial systems and for tactical missile guidance.

In September 2012, Zhang Mingsuan was arrested in the United States and indicted after attempting to acquire up to two tons of aerospace-grade carbon fiber. In a recorded conversation, Zhang claimed he urgently needed the fiber in connection with a scheduled Chinese fighter plane test flight.

The 2014 report added more events to this timeline:³⁵⁹

In December 2012, federal prosecutors indicted Chinese nationals Yuan Wanli and Song Jiang for export-control and money laundering violations in connection with a scheme to obtain U.S. dual-use

programmable logic devices tested to military specifications. While operating from China, Yuan used a fake website and e-mail addresses created using the name of a legitimate New York-based company to conceal his identity and mislead U.S. suppliers. Yuan is associated with China Wingwish Group Co., Ltd., a China-based company involved in the procurement of dual-use technology.

In March 2013, Chinese national Liu Sixing received 70 months in prison for lying to Federal agents, transporting stolen property, and violating the Arms Export Control Act, the International Traffic in Arms Regulations, and the Economic Espionage Act. Despite his training in U.S. export control laws, Liu stole thousands of files from his U.S. employer in 2010 detailing the performance and design of guidance systems for missiles, rockets, target locators, and unmanned aerial vehicles and transported them to China. While there, Liu delivered presentations describing the technology at several Chinese universities, the Chinese Academy of Sciences, and conferences organized by Chinese government entities.

In May 2013, Chinese national Ma Lisong pled guilty to violating the International Emergency Economic Powers Act after attempting to export weapon-grade carbon fiber to China. Based in China and using an alias, Ma e-mailed a U.S. undercover agent in February 2013 and negotiated the purchase of five tons of export-controlled carbon fiber. Authorities arrested Ma in the United States after he attempted to ship a sample he requested back to China.

In August 2013, Chinese national Zhang Mingsuan pled guilty to violating the International Emergency Economic Powers Act by attempting to export thousands of pounds of high-grade carbon fiber for use by the Chinese military. During a recorded conversation in 2012, Zhang claimed he urgently needed the fiber in connection with a scheduled test flight of a Chinese fighter plane.

In addition, multiple cases identified since 2009 involved non-ethnic Chinese U.S. citizens and naturalized Chinese U.S. citizens or permanent resident aliens procuring and exporting export controlled items to China. These efforts included attempts to procure and export radiation-hardened programmable semiconductors and computer circuits used in satellites, restricted microwave amplifiers used in weapon guidance systems and communications or radar equipment, high-grade carbon fiber, export-restricted technical data, and thermal imaging cameras.

As with most covert initiatives it is likely that this is the visible tip of the iceberg, and that there are additional attempts both successful and unsuccessful.

The US Intelligence Community's Assessment

The US intelligence community summarized its views on the objectives of China's military modernization in testimony before Congress. Lieutenant General Michael T. Flynn, then Director of the DIA stated:³⁶⁰

The People's Liberation Army (PLA) is building a modern military capable of achieving success on a 21st century battlefield. The PLA is developing capabilities to protect China's defined territorial integrity, which includes Taiwan and other land and maritime claims along around China's periphery, preserve China's political system and ensure sustainable economic and social development. Preparation for a Taiwan conflict with U.S. intervention remains the primary driver of the PLA's evolving force structure, weapons development, operational planning and training.

James R. Clapper, Director of National Intelligence described China's modernization goals and objectives:³⁶¹

China is pursuing a long-term comprehensive military modernization designed to enable its armed forces to achieve success on a 21st century battlefield. China's military investments favor capabilities designed to strengthen its nuclear deterrent and strategic strike options, counter foreign military intervention in a regional crisis, and provide limited, albeit growing, capability for power projection. During 2013, the People's Liberation Army (PLA) introduced advanced weapons into its inventory and reached milestones in the development of key systems. China's first domestically developed heavy transport plane, the Y-20, successfully conducted its initial test flight. Additionally, China has continued to develop multiple advanced ballistic and cruise missiles.

Developments in PLA capabilities support an expansion of operations to secure Chinese interests beyond territorial issues. For example, China is pursuing more effective logistical support arrangements with countries in the Indian Ocean region.

Elements from China's army, navy, air force, and strategic missile forces from multiple military regions participated in *Mission Action 2013* in September and October 2013. The exercise included two large-scale amphibious landings and coordinated long-range air force and naval air operations in a maritime environment.

CHAPTER 8: THE PLA ARMY

Since the mid-1980s, the PLAA has steadily reduced its overall force size and developed modern capabilities and systems in critical areas of the future battlefield. Main Battle Tanks (MBTs), Armored Infantry Fighting Vehicles (AIFVs), Armored Personnel Carriers (APCs), self-propelled artillery, and Air Defense (AD) weaponry have all seen significant improvement with the introduction of newer classes of weapons and upgrades to existing models.

China has steadily restructured its forces to rely more on quality and modernization rather than quantity. **Figure 8.1** below shows a DoD map of the deployment of the PLAA Group Armies issued in May 2013, and **Figure 8.2** shows the DoD's estimate of the PLAA's current strength.

One key goal behind these changes has been improving the PLAA's ability to fight "Local War under Conditions of Informatization" by improving its ability to move quickly, deliver devastating blows without relying on sheer mass, and defending itself from enemy electronic warfare (EW) and air attacks. As a result, the PLAA is more capable of responding to regional contingencies on the Eurasian mainland than it was in the past.

According to Lieutenant General Michael T. Flynn:³⁶²

China's ground force is seeking to restructure itself into a mechanized, modular force that can conduct joint operations anywhere along China's borders. This effort is currently taking shape with an emphasis on building and outfitting brigades as the main operational unit and creating flexible special operations forces, improved army aviation units, and C2 capabilities with improved networks providing real-time data transmissions within and between units.

The US Official View

The DoD's 2012 report on China included the following assessment of the impact of modernization on the PLA:³⁶³

The PLA has about 1.25 million ground force personnel, roughly 400,000 of whom are based in the three MRs opposite Taiwan. China continues to gradually modernize its large ground force. Much of the observed upgrade activity has occurred in units with the potential to be involved in a Taiwan contingency. Examples of ground unit modernization include the Type-99 third-generation main battle tank, a new-generation amphibious assault vehicle, and a series of multiple rocket launch systems.

Along with other branches of the PLA, China's large ground force is undergoing significant modernization, and has steadily improved capabilities in most areas. In mid-2011, the PLA began to transform its ground forces into a modular combined arms brigade-focused force structure.

The PLA fielded new rotary wing aviation assets in 2011, with the initial fielding of a new, domestically-produced attack helicopter, the Z-10, as well as major growth in the number of multi-purpose helicopters in army aviation units across the force. As 2011 ended, numerous indicators pointed to the start of an expansion of the majority of army special forces units. An improved amphibious assault vehicle has also entered service in key PLA units.

Throughout the PLA, growing numbers of modern heavy-armor, long-range strike artillery, and increased-range air defense weapons have entered service in selected units. Concurrent with this modernization, the ground force has emphasized combined arms operations and long-range mobility.

China's ground forces remain challenged by a lack of combat experience and self-identified limitations in the leadership abilities of its command staff, particularly at operational levels.

These problems have long been exacerbated by a lack of realism in training. However, the PLA began executing plans in 2011 designed to help overcome these issues by 2020, including increased force-on-force training against dedicated opposing force units, adopting simulator use for training, developing automated command tools to aid command decisions, and increasing the education levels and science and technology training of PLA commanders and staff officers.

It also provided the following background on PLA missions, capabilities, and potential force utilization,³⁶⁴

The PLA is investing heavily in modernizing its ground force, emphasizing the ability to deploy campaign-level forces across long distances quickly. This modernization is playing out with wide-scale restructuring of PLA ground forces that includes a more rapid, flexible special operations force equipped with advanced technology; improved army aviation units utilizing ultra-low altitude mobility helicopters armed with precision-guided munitions; and command and control (C2) capabilities with improved networks providing real-time data transmissions within and between units.

In addition, the PLA has focused its modernization efforts on transforming from a motorized to a mechanized force, as well as improving the ground force's armored, air defense, aviation, ground-air coordination, and electronic warfare (EW) capabilities. PLA ground forces have benefited from increased production of new equipment, including the Z-10 and Z-19 attack helicopters. New air defense equipment includes the PLA ground force's first medium-range SAM, the CSA-16, as well as domestically-produced CSA-15s (a copy of the Russian SA-15) and a new advanced self-propelled air defense artillery system, the PGZ-07. PLA ground force restructuring is highlighted by the development of brigades as a key operational echelon for combat in diverse terrain and under complex electromagnetic conditions.

The ground force is a proponent of joint operations since it requires transport from other forces to operate beyond China's borders. To assist with its power projection needs, PLA ground forces have practiced using commercial transport assets such as roll-on/roll-off ships, to conduct maritime crossing operations. However, broader joint operations capability are still the primary goal for the ground force, a goal that is now a mandate for all the military services following the General Staff Department's (GSD) December 2011 creation of the Military Training Department to oversee all PLA training, ensuring all military services realize the "prominence of joint training."

The 2014 DoD report again made an interesting subtraction for reasons that do not seem to track with Chinese developments. The 2012 report cited above noted that "PLA ground force restructuring is highlighted by the development of brigades as a key operational echelon for combat in diverse terrain and under complex electromagnetic conditions." Although the paragraph that contains this statement is nearly identical to one in the 2014 report, this key statement is left out. Ground force restructuring is a key part of the PLA's push towards integrated joint operations and building a force that is more mobile. The section on Rapid Reaction Forces (RRF) will go into more detail on this restructuring.

Beijing is investing in military programs and weapons designed to improve extended-range power projection and operations in emerging domains such as cyber, space, and electronic warfare. Current trends in China's weapons production will enable the PLA to conduct a range of military operations in Asia well beyond Taiwan, in the South China Sea, western Pacific, and Indian Ocean. Key systems that have been either deployed or are in development include ballistic missiles (including anti-ship variants), anti-ship and land attack cruise missiles, nuclear submarines, modern surface ships, and an aircraft carrier. The need to ensure trade, particularly oil supplies from the Middle East, has prompted China's navy to conduct counter-piracy operations in the Gulf of Aden. Disputes with Japan over maritime claims in the East China Sea and with several Southeast Asian claimants to all or parts of the Spratly and Paracel Islands in the South China Sea have led to renewed tensions in these areas. Instability on the Korean Peninsula could also produce a regional crisis involving China's military. The desire to protect energy investments in Central Asia, along with potential security implications from cross-border support to ethnic separatists, could also provide an incentive for military investment or intervention in this region if instability surfaces.

The 2014 DoD report described the role of the PLA Army in a Taiwan conflict.³⁶⁵

Preparation for a Taiwan conflict with the possibility of US involvement continues to dominate China's military modernization program... Increasingly armed with more modern systems such as armed attack helicopters, the PLA ground forces are conducting joint training exercises that will prepare them for a Taiwan invasion scenario. Training, including amphibious landing training, is often conducted under realistic conditions, including all-weather and at night. Improved networks provide real-time data transmissions within and between units, enabling better C2 during operations. Additionally, the PLA Army's ongoing fielding of advanced air defense equipment is significantly enhancing the self-defense of key C2 elements and other critical assets assessed as likely tasked for potential use against Taiwan. As the number of these new systems grows in the PLA ground forces, the ability of an amphibious invasion force to successfully defend cross-Straits amphibious lodgments against counterattacks by both legacy and advanced weaponry will inevitably increase.

It also touched on the PLA and military operations other than war (MOOTW):

China's political leaders have also charged the PLA with developing capabilities for missions such as peacekeeping, disaster relief, and counterterrorism operations. These capabilities will increase Beijing's options for military influence to press its diplomatic agenda, advance regional and international interests, and resolve disputes in its favor.

China has become more involved in HA/DR operations in response to the "New Historic Missions." China's ANWEI-class military hospital ship (the *Peace Ark*) has deployed throughout East Asia and to the Caribbean.

China has conducted more than ten joint military exercises with the SCO members, the most prominent being the PEACE MISSION series, with China and Russia as the main participants.

China continues its Gulf of Aden counter-piracy deployment that began in December 2008. Outside of occasional goodwill cruises, this represents the PLA Navy's only series of operational deployments beyond the immediate western Pacific region.

The Japanese Official View

The 2014 Japanese white paper provided the following summary description of the PLA:³⁶⁶

The size of the Chinese ground forces is the largest in the world with approximately 1.6 million personnel. Since 1985, China has continuously sought to modernize its armed forces by curtailing the number of personnel and streamlining organizations and systems in order to improve efficiency. China aims to develop highly capable military forces, while reducing units inferior in equipment and technologies.

Specifically, it is improving mobility by such measures as switching from the past regional-defense model to a nationwide-mobile model, working to motorize and mechanize its infantry. In addition, China is believed to be strengthening its airborne troops (belonging to the Air Force) and special operations forces and helicopter units. It is continuing its efforts to make its military units multi-functional, to build a command system for improvement of its joint operational capabilities and efficient operations, and also to work on reforms to improve its logistical support capabilities.

In 2009, China carried out "Stride 2009" exercises which were deemed the largest ever mobile exercises conducted by multiple military regions, and it has been carrying out similar "Mission Action" mobile exercises since 2010. These exercises are believed to have been designed to verify and improve capabilities necessary for deployment of army units to distant areas, such as the army's long-range maneuvering capabilities and logistical support capabilities, including mobilization of militia and public transportation.

Overall Trends in Personnel and Equipment

Figure 8.3 portrays the declining Personnel of the PLAA as well as the shifts in equipment holdings from 1985-2013. Key indicators shown in later figures relate to force structure, Personnel, and equipment. Regarding force structure, these key indicators include the decreasing number of large formations such as divisions, especially infantry divisions, and the simultaneously increasing number of smaller units, such as brigades and specialized regiments.

Personnel changes are listed at the top of the table and record a nearly 50% decrease in PLAA Personnel. Key indicators regarding equipment trends include the retirement of vintage Soviet systems and the deployment of advanced 90s-type MBTs, 00s-type AIFV/APCs, self-propelled artillery, and self-propelled AD systems.

The **Figures** that follow reinforce the assessment of the growing impact of modernization and show consistent movement from a large force dependent on masses of Personnel and lower quality weaponry to a smaller force reliant on better-trained personnel and improving weapon systems. The balance between modern and non-modern equipment is shown in later figures. It is important to note that a range of sources exists with different figures and estimators. With the exception of the figures that rely on DoD data, the data used in most graphs and tables in Chapter 7 are taken with minor modifications from various editions of the IISS' *Military Balance*.

Figure 8.1: Deployment of PLAA Group Armies

Source: DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2014*, April 2014, 79.

Figure 8.2: PLAA Force Strength in 2014

	Total
Personnel (Active)	1.25 million
Group Armies	18
Infantry Divisions	15
Infantry Brigades	16
Mechanized Infantry Divisions	6
Mechanized Infantry Brigades	17
Armor Divisions	1
Armor Brigades	16
Artillery Divisions	2
Artillery Brigades	17
Airborne Divisions	3
Amphibious Divisions	2
Amphibious Brigades	3
Tanks	7,000
Artillery Pieces	8,000

Note: PLA ground forces are organized into Group Armies. Infantry, armor, and artillery units are organized into a combination of divisions and brigades deployed throughout the PLA's seven MRs.

Source: DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2014*, April 2014, 76.

Shifts in Force Structure

Figure 8.3 reveals a number of key changes in force structure, and in equipment. The open source data on these shifts has significant uncertainties and is often in conflict. It also is not possible to tie it to the specific changes in the order of battle, force deployments, and roles and missions of given elements of the PLAA with any accuracy. Nevertheless, Figure 8.3 is almost certainly correct in reflecting the broad trends involved and their overall impact on the PLAA.

The first is a nearly 50% reduction in Group Armies (GAs) within the PLAA. This reduction coincides with a significant decrease in army divisions within the PLAA, much of which can be

accounted for by the nearly 100% reduction in infantry, artillery, and air defense divisions. In addition, there have been moderate reductions in motorized and armored divisions. The two exceptions to this general trend have been the development of a moderate increase in mechanized divisions and air defense reserve divisions.

The reductions in large unit formations also coincide with significant increases in smaller formations such as brigades and specialized regiments. Although reliable data before 1995 on brigade numbers within the PLAA are not available, the trends since 1995 indicate moderate increases in armored and mechanized brigades, as well as significant increases in motorized, artillery, and AD brigades. In addition, there have been considerable increases in the number of specialized signals regiments, and, despite a decline earlier in the 2000s, there are also significant numbers of engineering regiments. These changes indicate that mechanization and specialization have increased relatively within the PLAA.

These general trends toward smaller forces and specialization indicate that the PLAA has and is reforming itself to meet the demands of winning “Local War under Conditions of Informatization.” The reduction of larger formations, the increase of smaller and specialized formations, and the reduction in the number of GAs all enable the creation of a leaner, more agile, and more mobile force capable of quickly moving from one Military Region (MR) within China to a contingency on any of China’s borders. This skill would better enable the PLAA to win local contingencies which, according to the Local Wars construct, would be immediate instances of conflict that would be limited in time and place: the goal of the PLAA would be to create the circumstances needed for a Chinese victory at the negotiating table, for which speed is a requirement of political success.

Figure 8.3: PLA Ground Forces Force Structure, 1985-2014

Army Combat Units							
	1985	1990	1995	2000	2005	2010	2014
Army Group	35	24	24	21	18	18	18
Armored Division	13	10	10	10	9	8	1
Infantry division	118	80	78	44	15	0	0
Mechanized Infantry Division	?	?	2	7	5	8	9
Motorized Infantry division	?	?	0	0	24	15	14
Amphibious Assault division	?	?	0	0	2	2	0
Artillery Division	17	some	5	5	7	2	2
Air-Defense Artillery Division	16	16	0	0	0	0	0
Armored Brigade	?	?	2	12	12	8	16
Mechanized Infantry brigade	?	?	0	?	1	7	18
Motorized Infantry Brigade	?	?	0	?	22	21	16
Infantry Brigade	?	?	0	13	0	0	0
Artillery Brigade	some	?	0	20	14	16	17
Air-Defense Artillery Brigade	?	?	5	4	12	?	?
Anti-Tank Brigade	?	?	0	0	1	0	0
Air-Defense Brigade	some	some	0	0	9	21	21
Anti-Tank Regiment	?	?	0	0	4	0	0
Helicopter Regiment	?	2 groups	some	7	0	0	0
Engineer Regiment	50	50	15	0	0	15	20
Signals Regiment	21	?	0	0	0	50	50
Army Reserves							
	1985	1990	1995	2000	2005	2010	2013
Infantry Division	?	30+	?	50 inf, arty, AD, 100 inf, arty reg	30	?	18
Air-Defense Division	?	?	?	some	13	?	17
Logistic support brigade	?	?	?	?	7	?	9
Artillery Division	?	?	?	some	3	?	3

Source: IISS *Military Balance*, 1985-2014, and reporting by HIS Jane's. Adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

Figure 8.3: PLA Ground Forces Force Structure, 1985-2014

Army Equipment							
	1985	1990	1995	2000	2005	2010	2014
Major Battle Tanks	8,650 (+lt. tank)	7,500-8,000	7,500-8,000	7,060	7,580	6,550	6,840
T-34	some	0	700	0	0	0	0
T-54	some	some	some	0	0	0	0
Type-59/59D/59-II	some	6,000	6,000	5,500	5,000	4,000+	3,400
Type-69-I	some	200	200	150	0	0	0
Type-79	0	some	some	500	300	300	300
Type-80	0	some	some	0	0	0	0
Type-85	0	0	some	0	0	0	0
Type-88A/88B	0	0	0	900	1,000	500	500
Type-96/96A/88C	0	0	0	0	1,200	1,500	2,000
Type-96G	0	0	0	0	0	0	0
Type-98A/99	0	0	0	10+	80	250	40
Type-99A2	0	0	0	0	0	0	600
Light Tanks/ RECCE	?	2,000	2,000	2,000	1,000	1,000	950
ZTD-05							350
Type-62	some	1,200	800	800	400	400	350
Type-63/63A	some	800	1,200	1,200	600	400	50
	1985	1990	1995	2000	2005	2010	2014
Armored Infantry Fighting Veh	?	some	some	4,800 (+ APC)	1,000	1,140	3,450
Type-03	0	0	0	0	0	40	0
Type-04/04A	0	0	0	0	0	300	750
Type-05	?	0	0	some	1,000	200	300
Type-08	0	0	0	0	0	0	0
Type-86/86A	?	0	0	some	1,000	600	1250
Type-92	0	0	0	0	0	0	600
Type-92B	0	0	0	0	0	0	550

Source: IISS *Military Balance*, 1985-2014, and reporting by HIS Jane's. Adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

Figure 8.3: PLA Ground Forces Force Structure, 1985-2014

	1985	1990	1995	2000	2005	2010	2014
Armored Personnel Carrier	2,800	2,800	2,800	5,500	3,500+	3,300+	4,350
Type-531C/D/E	some	some	some	0	0	0	0
YW-534	0	some	some	0	0	0	0
Type-85 (Type 89 or WZ 534)	0	some	some	0	0	0	0
Type-55 (BTR-40)	some	some	some	0	0	0	0
Type-56 (BTR-152)	some	some	some	0	0	0	0
Type-09	0	0	0	0	0	100	400
Type-63	some	some	some	1,800	2,300	2,000	1,650
Type-89I	0	0	0	some	300	300	1500
Type-77II	0	0	0	some	200	200	0
Type-92 (WZ 551)	0	0	0	some	600+	600+	700
WZ-523/553	0	0	0	some	100	100	100
BMD-3	0	0	0	100	0	0	0

Source: IISS *Military Balance*, 1985-2014, and reporting by HIS Jane's. Adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

Figure 8.3: PLA Ground Forces Force Structure, 1985-2014

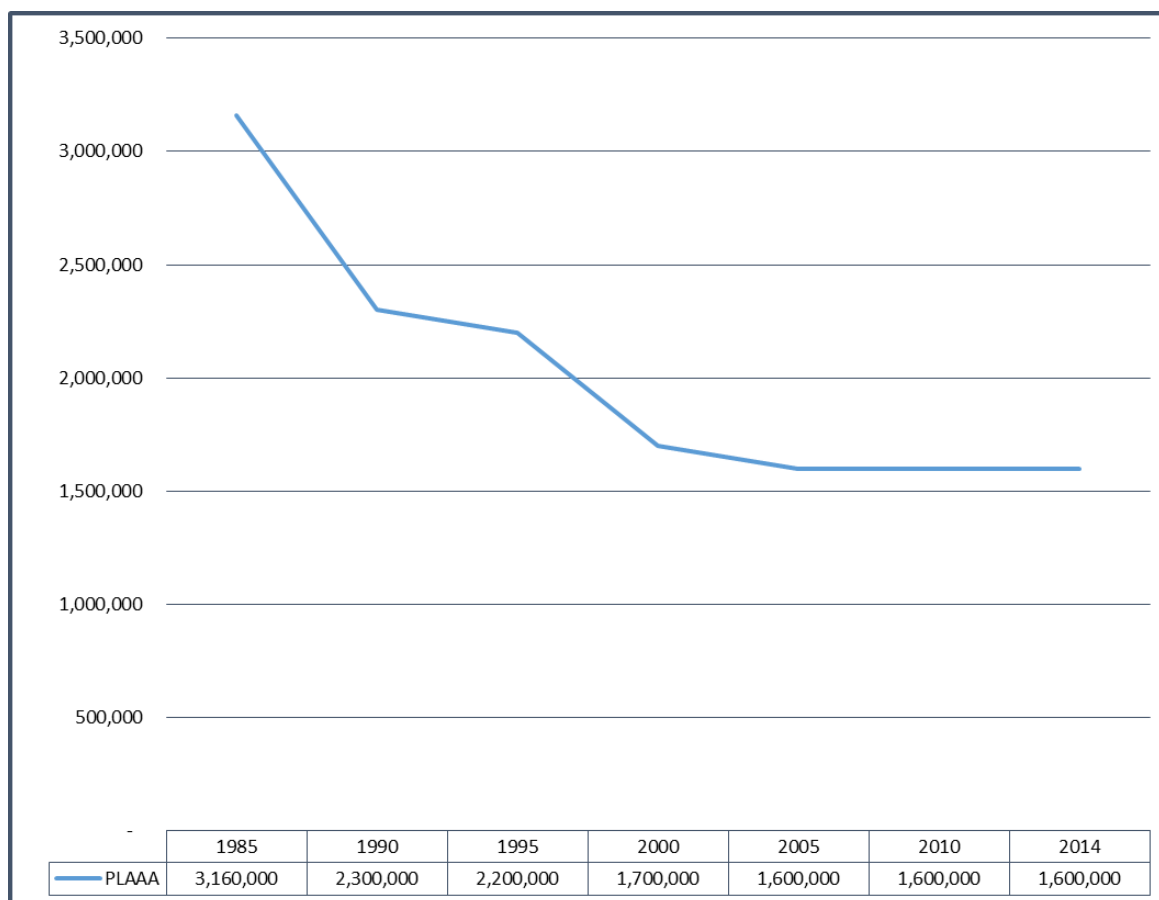
	1985	1990	1995	2000	2005	2010	2014
Artillery	12,800	14,500+	14,500+	15,800+	17,700+	17,700+	13,014
<i>Towed</i>	<i>some</i>	<i>14,500</i>	<i>14,500</i>	<i>12,000</i>	<i>14,000</i>	<i>14,000</i>	<i>6,140</i>
<u>85mm</u> - Type-56	some	0	0	0	0	0	0
<u>100mm</u>	some	some	some	some	some	some	0
Type-59 (M-1944)	?	some	some	some	some	some	0
Type-89	0	some	some	0	0	0	0
<u>122mm</u>	some	some	6,000	some	some	some	3,800
Type-54-1 (M-30)	some	some	some	some	some	some	some
Type-60 (D74)	some	some	some	some	some	some	some
Type-83	0	some	some	some	some	some	some
Type-96 (D-30)	some	some	some	0	0	some	some
<u>130mm</u> - Type-59/59-I (M-46)	some	some	1,000	some	some	some	234
<u>152mm</u>	some	some	1,400+	some	some	some	2,106
Type-54 (D1)	0	some	some	some	some	some	some
Type-56	some	0	0	0	0	0	0
Type-66 (D20)	some	some	1,400	some	some	some	some
Type-83	0	some	some	some	0	0	0
<u>155 mm</u> - Type-88 WAC-21	0	0	30	300+	150	150	150
	1985	1990	1995	2000	2005	2010	2014
<i>Self-Propelled</i>	<i>some</i>	<i>some</i>	<i>some</i>	<i>1,200</i>	<i>1,200</i>	<i>1,280+</i>	<i>2,180</i>
<u>122mm</u>	some	some	some	some	700	700+	1,550
Type-53I	some	0	0	0	0	0	0
Type-54I	0	some	some	0	0	0	0
Type-70I	0	0	0	some	200	200	some
Type-85	0	0	some	0	0	0	0
Type-89	0	0	0	some	500	500	750
Type-07	0	0	0	0	0	some	450
Type-09	0	0	0	0	0	0	350
<u>152mm</u> - Type-83	0	some	some	some	500	500	360
<u>155mm</u> - Type-05	0	0	0	0	0	80	270

	1985	1990	1995	2000	2005	2010	2014
<i>Multiple Rocket Launcher</i>	4,500	3,800	3,800	2,500	2,400	2,400+	1842+
<u>107mm</u> - Type-63 (towed)	some	some	some	0	0	some	54
<u>107mm</u> (self-propelled)	0	0	0	0	0	0	some
<u>122mm</u>	some	some	some	some	some	some	1,638
Type-63	some	0	0	0	0	0	0
Type-81	0	some	some	some	some	some	some
Type-83	0	some	some	0	0	0	0
Type-89 SP	0	0	0	some	some	some	some
<u>130mm</u>	some	some	some	some	some	some	0
Type-63	some	some	some	0	0	some	0
Type-70 SP	0	some	some	some	some	some	0
Type-82	0	0	some	some	some	some	0
Type-85	0	0	some	0	0	0	0
<u>132 mm</u> - BM-13-16	some	some	some	0	0	0	0
<u>140mm</u> - BM-14-16	some	some	some	0	0	0	0
<u>180mm</u>	some	0	0	0	0	0	0
<u>273mm</u> - Type-83	0	some	some	some	some	0	0
<u>284mm</u> - Type-74 minelayer	0	some	some	0	0	0	0
<u>300mm</u> - Type-03	0	0	0	0	0	some	96
<u>320mm</u> - Type-96 (WS-1)	some	some	some	some	some	0	0
<u>400mm</u> - WS-2/WS-2D	0	some	some	0	0	some	0
<u>425mm</u> - Type-762 mine clearance	0	some	some	0	0	0	0
	1985	1990	1995	2000	2005	2010	2014
<i>Gun/Mortar</i>	<i>some</i>	<i>some</i>	<i>some</i>	<i>some</i>	<i>some</i>	<i>some</i>	2,586
<u>81mm</u> - Type-W87	0	0	0	some	some	some	some
<u>82mm</u>	some	some	some	some	some	some	some
Type-53(M-37)	some	some	Some	some	some	some	some
Type-67	0	0	0	some	some	some	some
Type-82	0	0	0	some	some	some	some
Type-84	0	some	0	0	0	0	0
YW-304 SP	0	some	0	0	0	0	0
<u>100mm</u> - Type-71	0	0	0	some	some	some	some
<u>120mm</u>	some	some	some	some	some	some	some
Type-55	some	some	some	some	some	some	some
Type-W86	0	some	0	0	0	0	0
2S23 NONA-SVK	0	0	0	0	0	100	0
Type-05 (PLL-05)	0	0	0	0	0	50	50+
<u>160mm</u> - Type-56(M-160)	some	some	some	some	some	some	some

Source: IISS *Military Balance*, 1985-2014, and reporting by HIS Jane's. Adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies

Shifts in Personnel

As noted in Chapter Six, these changes in force structure and equipment have been matched by changes in PLAA personnel. **Figure 8.4** shows that there has been a nearly 50% reduction in PLAA Personnel since 1985. This Personnel trend, in combination with the increase in specialized and smaller formations, indicates a PLAA focus on agility and mobility over mass, a shift that necessitates higher human capital and higher quality equipment. In addition, reducing Personnel reduction has cut personnel and overall costs in ways that free resources for modernization efforts and improvements in human capital.

Figure 8.4: Historical Trends in total PLAA Personnel, 1985-2014

	1985	1990	1995	2000	2005	2010	2014
Personnel (all PLA + paramilitary forces + reserves)*	9,000,000+	4,230,000	4,130,000	3,570,000	4,655,000	3,455,000	3,503,000
Active	4,000,000	3,120,000	3,020,000	2,470,000	2,355,000	2,285,000	2,333,000
Conscript	?	1,350,000	1,275,000	1,000,000	990,000	?	835,000
Army	3,160,000	2,300,000	2,200,000	1,700,000	1,600,000	1,600,000	1,600,000
Navy	350,000	260,000	260,000	220,000	255,000	255,000	235,000
Air Force	490,000	470,000	470,000	420,000	400,000	330,000	398,000
Strategic Missile Forces	?	90,000	90,000	100,000+	100,000	100,000	100,000
Paramilitary	?	incl. in reserve	1,200,000	1,100,000	1,500,000	660,000	660,000
Reserve	5,000,000	1,200,000 Paramil.)	?	500-600,000	800,000	510,000	510,000

Source: IISS. *Military Balance*, 1985-2014, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

Trends in Major Equipment Strength

Total manning, however, is at best at marginal measure of force quality – a fact confirmed by how rarely force ratios in Personnel have shaped the outcome of battles and war relative to strategy, tactics, leadership, force organization, training, and the quality of arms. **Figures 8.5 and 8.6** supplement the data in **Figure 8.3** by showing the historical changes in the PLAA's inventory of MBTs, AIFV/APCs, Artillery, and Multiple Rocket Launchers (MRLs).

These systems have been chosen for analysis both because they are integral to any land force's combat power and because there exist consistent data on Chinese holdings of these systems. While it would be useful to include PLAA AD holdings, there is simply not enough data on AD to meaningfully analyze it quantitatively.

- **Figure 8.5** shows that the number of MBTs and MRLs in the PLAA have dropped significantly since 1985, and the number of artillery pieces has also significantly dropped since its peak in 2010. In contrast, the number of AIFV/APCs has markedly increased during this time period, an outcome that is unsurprising given the increased mechanization within the PLAA's force structure.
- **Figure 8.6** compares PLAA weapon system numbers to the size of the PLAA's modern weapons system inventory. Such a comparison is necessary in order to better ascertain the PLAA's combat power as well as to track its development towards a force capable of winning Local Wars.

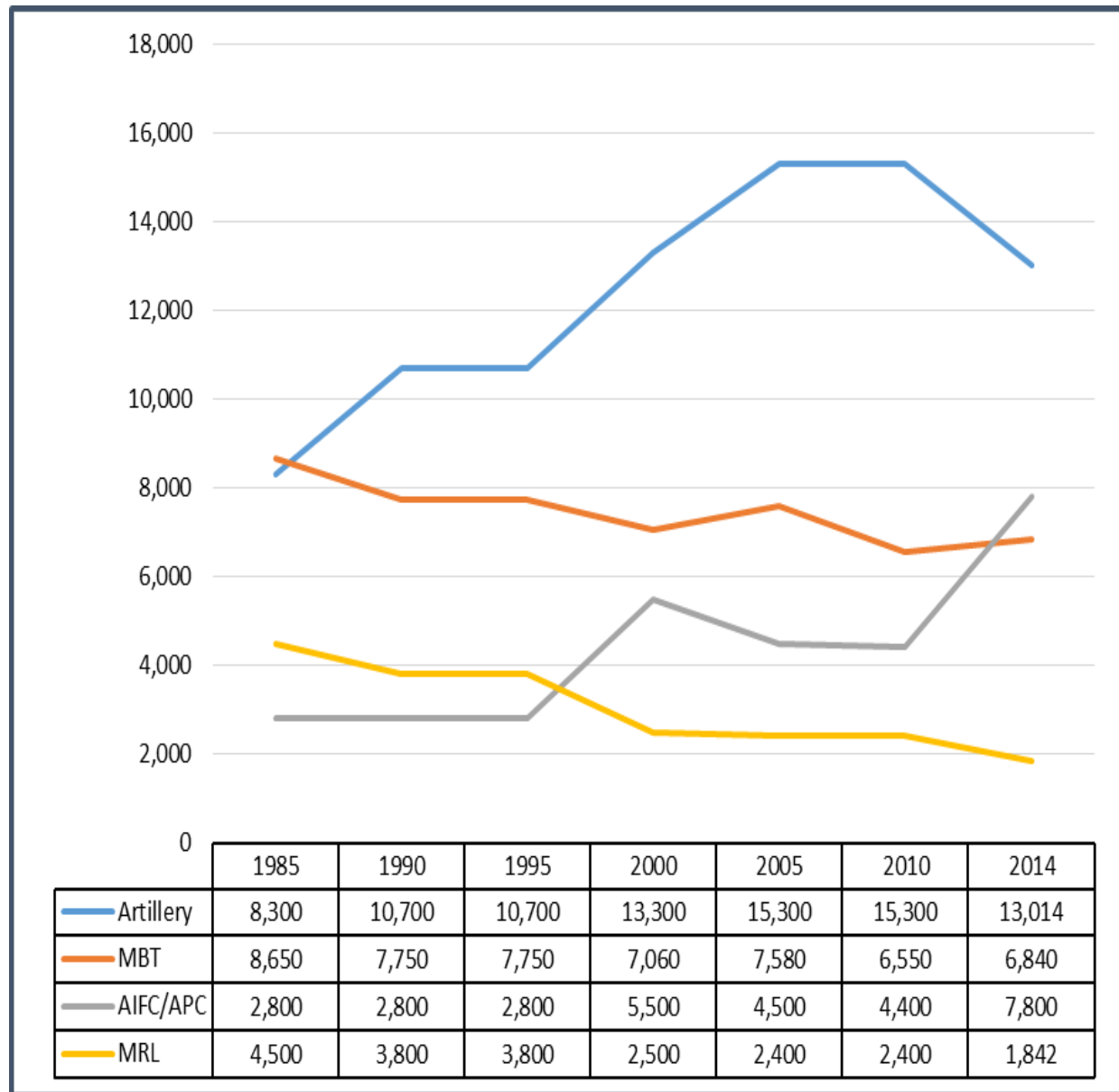
As **Figure 8.6** shows, the relative reduction in major PLA weapons systems shown in **Figure 8.5** coincides with an overall increase in the number of modern systems in the PLAA inventory. Consequently, the PLAA, while reducing its overall force size, is replacing large numbers of its obsolete equipment with much more capable systems.

The weapons systems considered modern are defined as follows:

- Modern MBTs are tanks with sufficient armor, firepower, and electronics to hold third generation or near-third generation capabilities. Third generation tanks have composite and reactive armor, typically fire rounds of 120 mm or larger, and have gun-stabilizers and advanced fire control electronics.
- Modern AIFV/APCs are personnel carriers capable of keeping pace with third generation tanks and surviving in a comparable battlefield environment.
- Self-propelled artillery comprises artillery pieces that are built into motorized chassis and capable of movement without the aid of supporting vehicles.
- MRLs are generally not differentiated between towed and self-propelled because reliable data on self-propelled MRLs are not available.

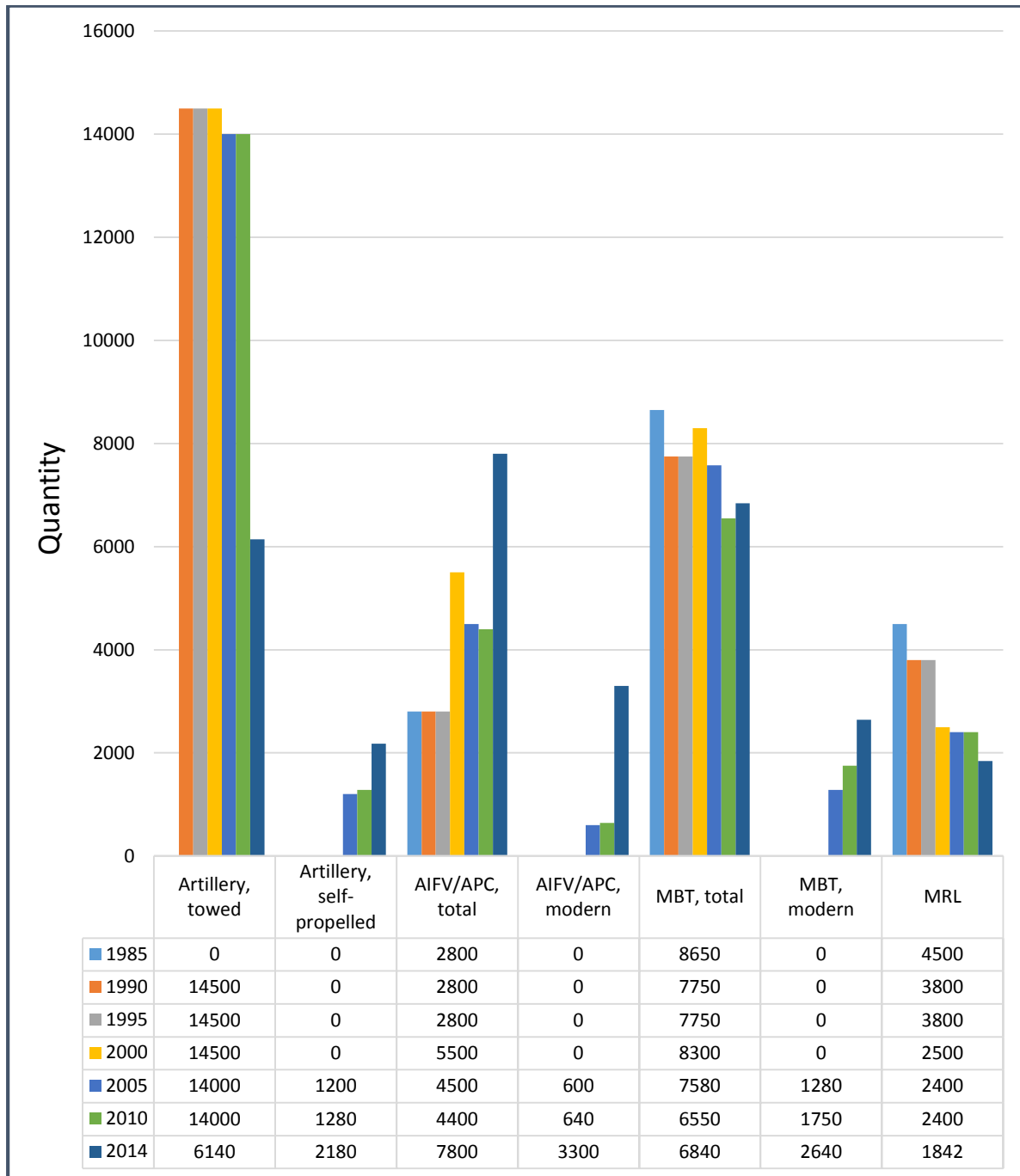
This practice has implications for the PLAA's tactics and strategy. The Local Wars concept requires the PLAA to rapidly overwhelm a regional adversary before political dynamics end the conflict. Moreover, in that short time, the PLAA must obtain the military advantages necessary to ensure success in subsequent negotiations. A more modern force, especially one with modern equipment concentrated into elite units, enables the PLAA to conduct this type of warfare while still in the process of modernization. In fact, the DoD's *Military and Security Developments Involving the People's Republic of China 2011* indicated that the PLAA was deploying its modern weaponry in this manner with a special focus on units suitable for a Taiwan contingency, such as the PLA's amphibious divisions.³⁶⁷

Figure 8.5: Summary Trends in PLA Major Weapon System Inventory, 1985-2014



Source: IISS, *Military Balance* 1985-2014. Adapted by Garrett Berntsen at the Center for Strategic and International Studies.

Figure 8.6: Historical PLAA Equipment Inventory of Major Weapon Systems, 1985-2014



Source: IISS, *Military Balance* 1985-2014. Adapted by Garrett Berntsen and Aaron Lin at the Center for Strategic and International Studies.

Equipment Modernization

The modernization of the PLAA's major weapons system has occurred through a combination of discarding obsolete equipment and procuring modern, information technology-enabled equipment. The larger effect of the PLAA's modernization has been to mechanize a force once heavily comprised of infantry and motorized forces and to integrate weaponized information technology into mechanized systems.

The PLAA's efforts to develop third generation armored systems, as well as high-end MBTs in the Type-99, have led to concentrations of powerful armored formations. These concentrations of modern combat power, especially in the regions opposite Korea and Taiwan as well as in Beijing, are seen by some military analysts as forming quick reaction forces for the most likely contingencies the PLAA may have to face.³⁶⁸

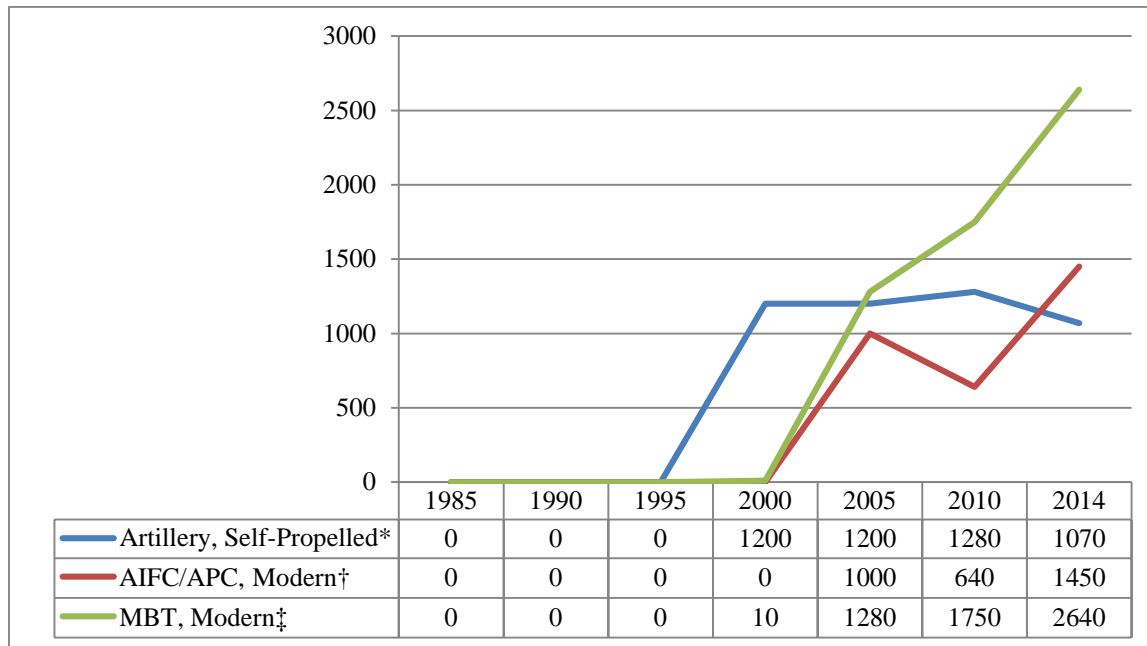
- **Figure 8.7** displays the PLAA's procurement of modern main weapon systems. The procurement began with artillery in 1995 and included MBTs and AIFV/APCs in 2000. Over the last two decades, the modernization of the PLAA has continued at a sustained pace.
- **Figure 8.8** provides indicators of the PLAA's modernization progress. As the data indicate, the PLAA has experienced a sharp rise in the percentage of its equipment that is considered modern. Approximately 15% of all artillery is self-propelled, 31% of MBTs are third generation, and 45% of AIFV/APCs are modern. These numbers are in stark contrast to 9%, 0%, and 0.1%, respectively, in the year 2000. Consequently, the PLAA has engaged in an effective modernization program that has absolutely and relatively increased the modern equipment of the PLAA, significantly altering the composition of the PLAA.

The PLAA's ability to successfully fight Local Wars, as well as its combat power, is strongly affected by the composition of its ground force. This metric enables the observer to track PLAA modernization progress, determine how much or which part of the PLAA is capable of fighting Local Wars, and, in turn, observe indicators of the PLA's total combat power. However, it is important to reiterate that quantitative measures do not show the intangibles of leadership, morale, training, and combat skill and thus, alone, cannot provide a full picture of combat power.

In the case of the PLAA, a relatively more modern force, assuming the personnel manning that force have been adequately trained and led, enables more demanding strategic and tactical maneuvers and battle plans. The ability to rapidly shift MRs and then fight in a border region in good order requires excellent communications, reliable equipment, and potent combat power concentrated in relatively smaller formations.

Moreover, given the time sensitivity predicted by the Local Wars construct, it is unlikely that slow-moving, obsolete secondary or tertiary echelons will reach the battlefield in time to determine diplomatic outcomes. Consequently, the level of modernization of the PLAA has direct effects both on the combat power of the PLAA and also on the types of missions it can conduct and the number of adversaries it can simultaneously fight or deter.

Figure 8.7: Historical Trends in the PLAA's Modern Major Weapon Inventory, 1985-2014



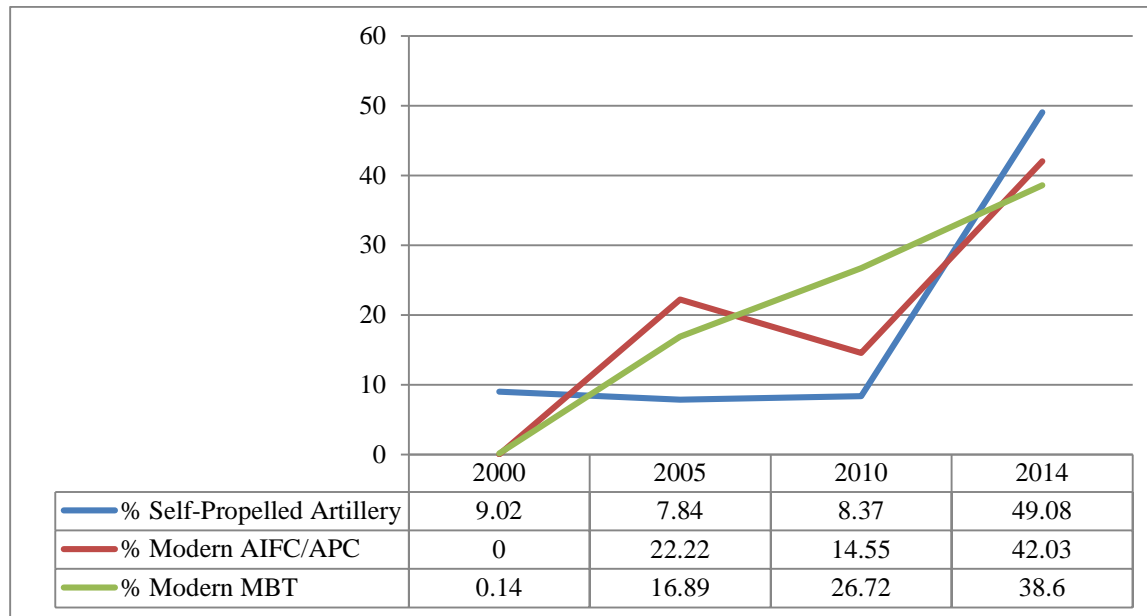
*The following systems are considered modern: Type 07 (PLZ-07), Type 07B (PLZ-07B), Type 09 (PLC-09), Type 09 (PLL-09), Type 05 (PLZ-05)

†The following systems are considered modern: Type 04 (ZBD-04), Type 04A (ZBD-04A), Type 05 AAV (ZBD-05), Type 09 (ZBL-09_

‡The following systems are considered modern: Type 96, Type 96A, Type 98, Type 99, Type 99A

Source: IISS, *Military Balance* 1985-2014.

Figure 8.8: Pace of PLAA Modernization – Percent of Modern Weapon Systems, 2000-2014



Source: IISS, *Military Balance* 2000-2014.

Shifts in Unit Training

The previous sections provided quantitative data regarding the PLAA's force structure, Personnel, and weapons system holdings. It must again be noted that such figures do not account for the vital combat power elements of morale, skill, and leadership. This brief assessment of the PLAA's training indirectly estimates these intangible attributes.

The last decade has seen significant changes in PLAA training that indicate a shift towards more realistic training, joint operations, and trans- and multi-MR operations; the latter two are capabilities needed to fulfill the requirements of the Local Wars doctrine. The most recent edition of the *Outline of Military Training and Evaluation* has promoted unscripted training based on facing an opposition force,³⁶⁹ and multiple PLAA exercises during the decade required forces to mobilize across long distances that involved multiple MRs. Of one recent, large-scale PLAA exercise, Mission Action 2010, the DoD wrote,³⁷⁰

In October 2010, the PLA conducted its first Group Army-level exercise, which it called —MISSION ACTION (SHIMING XINGDONG). The primary participants from the Beijing, Lanzhou, and Chengdu Military Regions practiced maneuver, ground-air coordination, and long-distance mobilization via military and commercial assets as they transited between MRs. Given that these MRs are located along China's land borders, the exercise scenario was likely based on border conflict scenarios. In addition to providing large-scale mobility and joint experience, the exercise allowed PLA command staff to test their ability to plan and execute a large joint campaign while practicing communication between command elements across dispersed forces. This skill is critical to responding to crises along China's periphery.

More recent exercises continue to demonstrate the PLAA's drive for a more mobile and joint force. The 2014 DoD report stated:³⁷¹

MISSION ACTION 2013 was a multi-week exercise led by the Nanjing and Guangzhou Military Regions (MRs) and the PLA Air Force. The exercise emphasized multiple PLA objectives including long-distance mobility and logistics, joint air-ground, and joint air-naval operations under realistic, high-tech conditions, and a series of amphibious landing operations.

The DoD's assessment illustrates a PLAA in the process of testing and refining its training, combat skills, and leadership for the likely scenarios predicted by the Local Wars doctrine.

The PLAA and Power Projection

The character of the PLAA is changing fundamentally as it invests in greater technology, human resources, and a modern force structure; improves its ability to fight wars “under conditions of informatization;” and increases its ability to quickly maneuver forces throughout the country in response to regional contingencies. All of the shifts in force structure, Personnel, and equipment indicate an active PLAA effort to become capable of winning Local Wars. These include reduction of large formations, the development of smaller and more specialized formations, the reduction in Personnel, and the increasing modernity of the PLAA's equipment, all of which indicate efforts to achieve this goal.

Moreover, the PLAA is enabling these tangible aspects of military modernization with the necessary training. The quantitative data presented indicate that, while the PLAA has yet to establish a truly modern force, it has made decisive efforts to transform itself and improve its ability to respond to regional contingencies. However, it is important to note that the effects of these modernization efforts have not been evenly spread across the PLAA. For example, the 2011 DoD report on China noted that, “much of the observed upgrade activity has occurred in units with the potential to be involved in a Taiwan contingency.”³⁷²

The quantitative comparisons presented here do not and cannot provide all of the indicators needed to adequately judge intangible qualities such as combat skill, leadership, and morale, and therefore cannot alone predict PLAA capabilities. However, the data do provide indicators that chart the development of the PLAA and the trends that influence its ability to fight Local Wars. These indicators – force structure, Personnel, and equipment – point to the conclusion that the PLAA is becoming more capable of fulfilling the missions demanded by the Local Wars doctrine.

These changes are already important concerns to China's neighbors, particularly India, South Korea, and Vietnam, although they potentially affect other countries like Taiwan, Pakistan, the rest of Southeast Asia, the Central Asian states to the west of China, and Russia. China is not simply a growing Pacific or East Asian power, and the expanding capabilities of the PLAA and the PLA's other services affect all of Asia.

The growth of the PLAA also has an important impact on US power projection capability and strategy. A Chinese army intervention in a Korean conflict seems unlikely but it would have far more impact, and far more air, naval, and missile support than in 1950. It also could come far more quickly than the US could deploy new US Army or Marine Corps combat units in any serious strength. This makes South Korea far more dependent on US air, missile, and naval power.

More broadly, the US military is debating ways to secure “forced entry” into Asia in the case of conflicts involving China, but this raises the question of forced entry by what elements of US forces and to do what?

The US might send key specialized force elements like trainers or surface-to-air missile and ballistic missile defense units, but once again, the expansion of the PLAA seems likely to drive

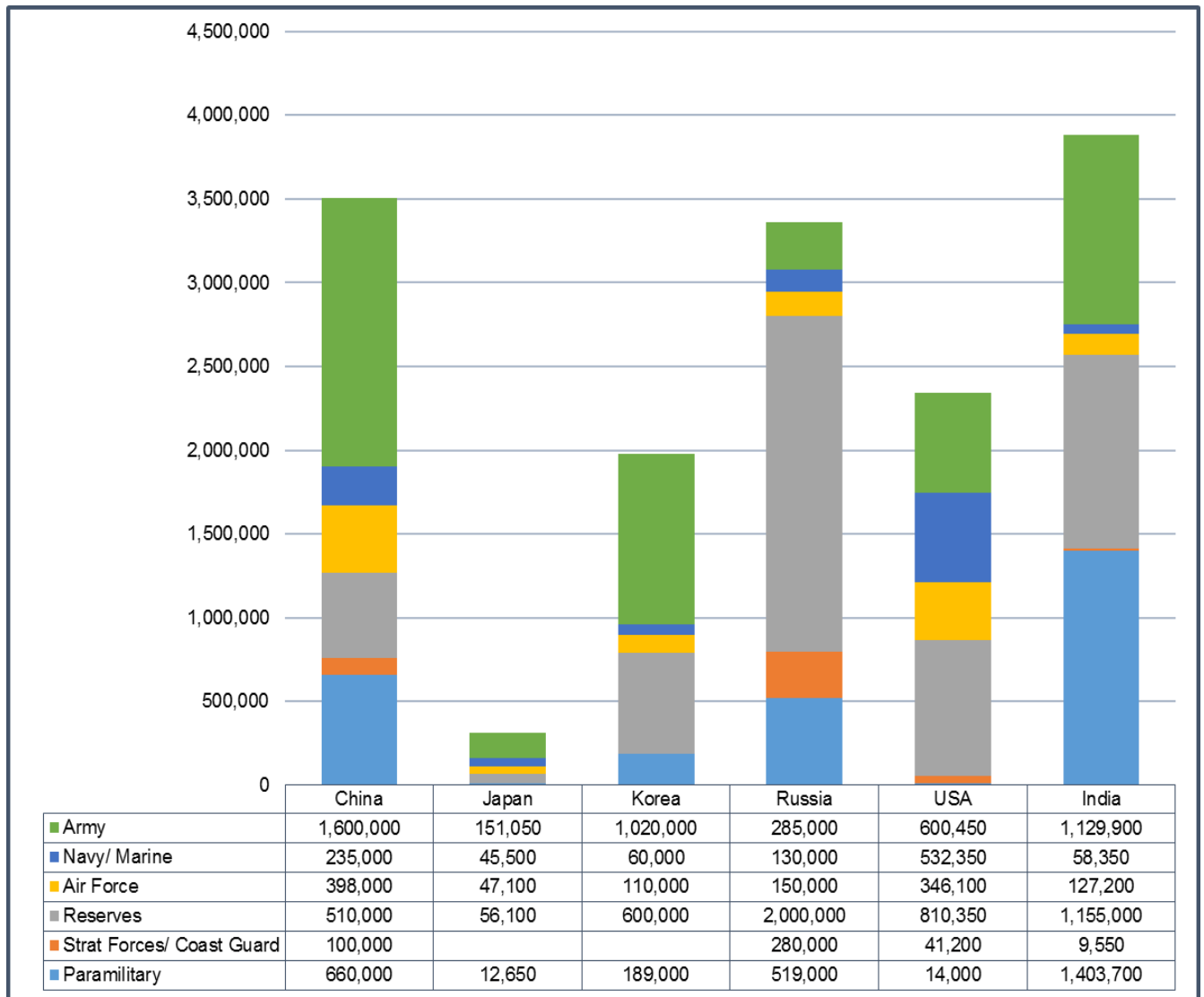
US security partnerships towards contingency plans focused on projecting US sea, air, and missile power. Moreover, while the following analyses show that Chinese sea and airpower are still very much in development – particularly in terms of competing with the US in power projection – the existing limits to the PLAA’s modernization already seem to bound the extent to which US ground forces could play a role in or close to China’s mainland outside of South Korea and Japan.

It might have been possible for the US to play a serious role on the ground in a land war in China or Taiwan involving Chinese ground forces in the 1950s – although this was highly debatable even then. That role does not seem credible today, nor does such a US role in Vietnam or any other state on China’s borders.

The PLAA in Comparison to Regional Militaries and the US

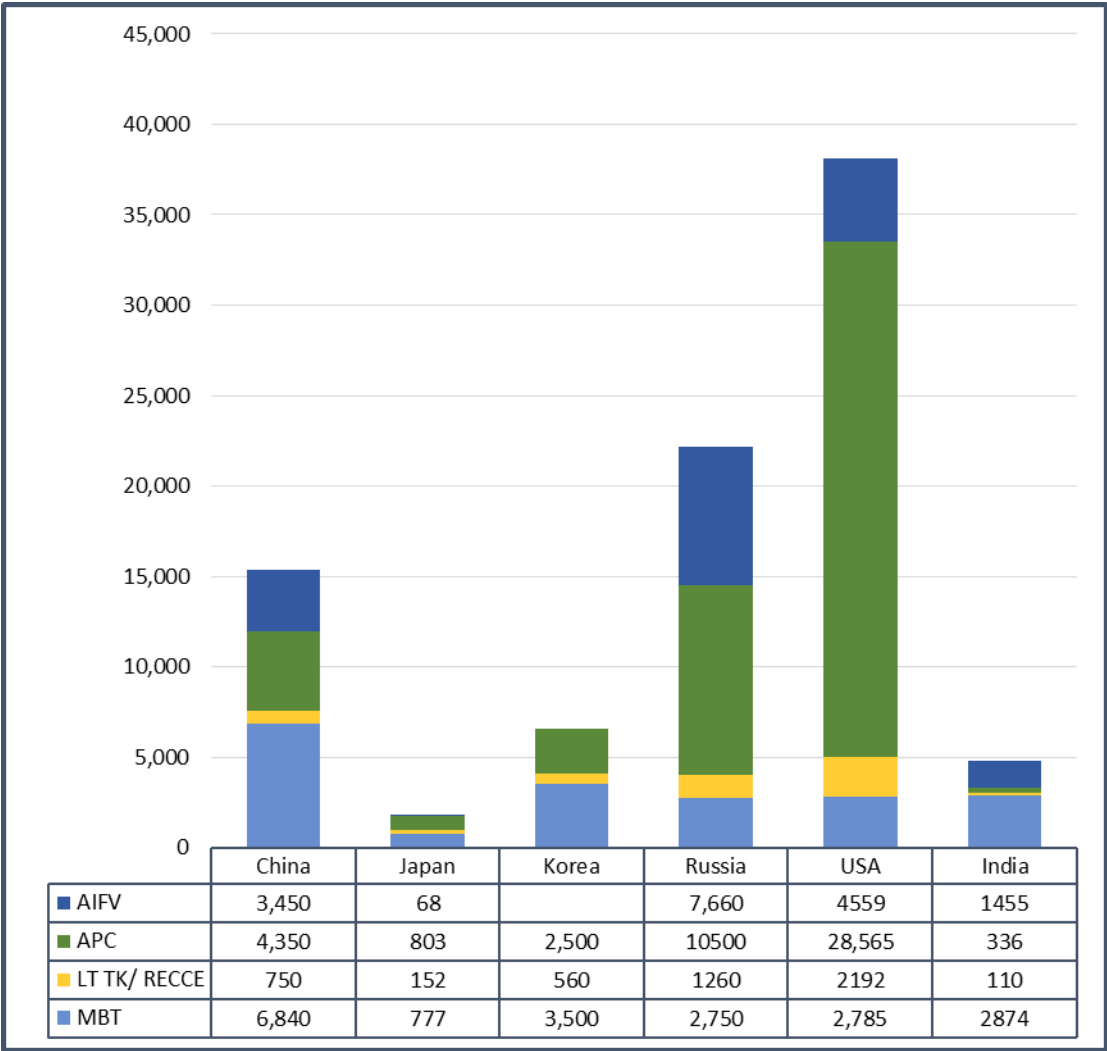
Though the PLA has shrunk over the last two decades in an attempt to create a more capable force, it remains the region’s largest active standing Army in absolute terms. **Figure 8.9** shows the size of China’s force in comparison to regional militaries and the US. Though this does not capture quality of forces, it is useful for estimating potential power and the balance of forces in the region. **Figures 8.10 and 8.11** compares ground forces equipment for the same countries, with heavy ground equipment and artillery pieces broken down by type.

Figure 8.9: PLA Forces in Comparison to Regional Countries and the US



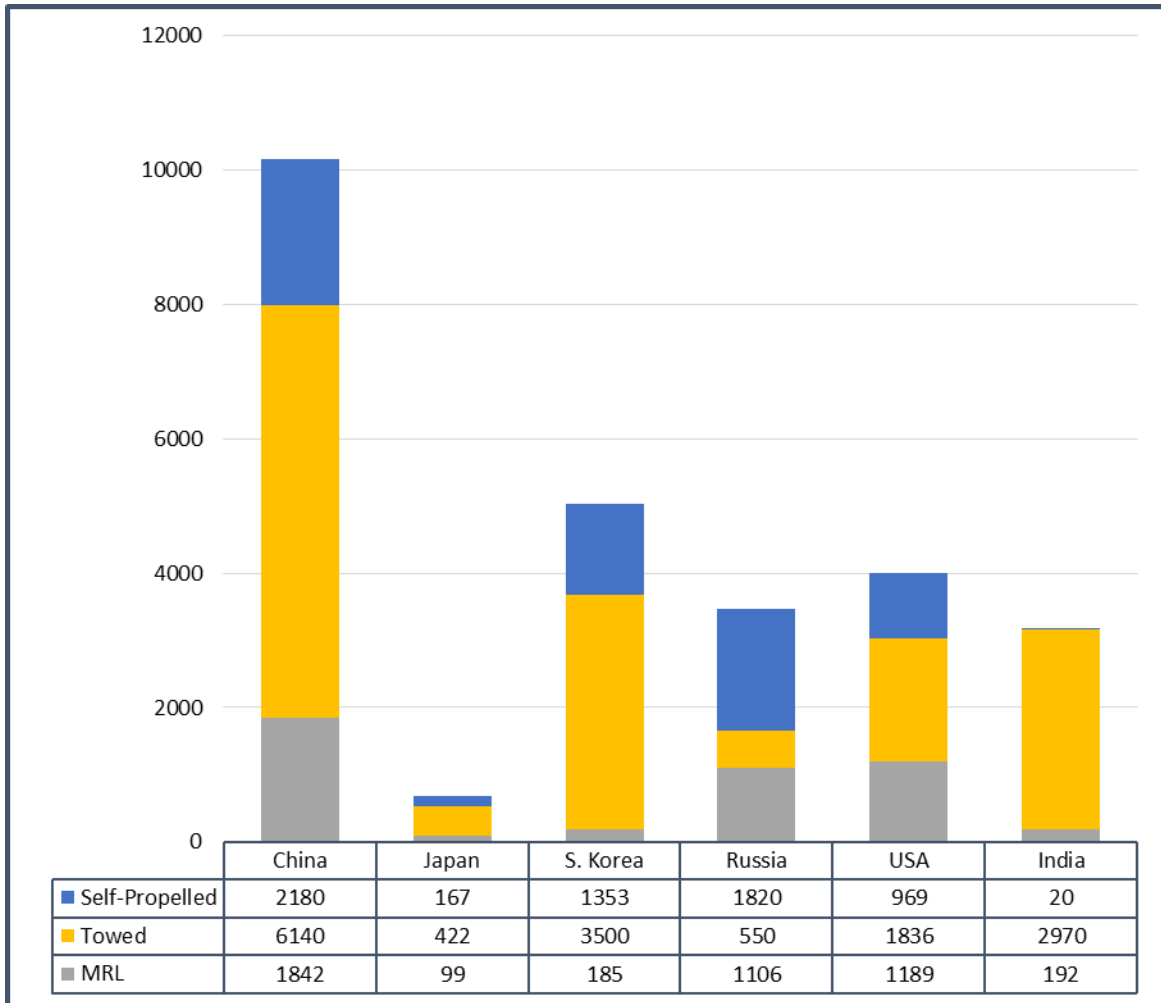
Source: IISS, *Military Balance 2014*, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

Figure 8.10: PLAA Ground Forces Equipment in Comparison to Regional Countries and the US



Source: IISS, *Military Balance 2014*, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

Figure 8.11: PLAA Artillery in Comparison to Regional Countries and the US



Source: IISS, *Military Balance 2014*, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

CHAPTER 9: THE PLA NAVY

The PLA Navy (PLAN) has seen impressive transformation and growth since the 1980s. A “fortress navy” once dependent on land-based support and comprised mostly of patrol craft has begun shifting towards a force more capable of independent action, comprised of major combatants, and better able to project power along China’s periphery and into the Pacific.

The US Official View

The US sees the modernization of Chinese sea power, the expansion of Chinese naval power projection capability, and the PLAN’s slow conversion into a true blue water navy as a far more serious challenge than the modernization of Chinese ground forces. **Figure 9.1** provides a DoD estimate of the size of the PLAN in 2013. The DoD report on *Military and Security Developments Involving the People’s Republic of China* for 2013 and 2014 describes the current structure and trends in the PLAN as follows:³⁷³

The PLA Navy has the largest force of major combatants, submarines, and amphibious warfare ships in Asia. China’s naval forces include some 79 principal surface combatants, more than 55 submarines, 55 medium and large amphibious ships, and roughly 85 missile-equipped small combatants.

The 2014 report added:³⁷⁴

The PLA Navy continues to expand its operational and deployment areas further into the Pacific and Indian Oceans. The October MANEUVER-5 exercise in the Philippine Sea, which included participation from all three PLAN fleets – the North Sea Fleet, the East Sea Fleet, and the South Sea Fleet – was the largest PLAN open-ocean exercise seen to date.

In the most publicized PLA Navy modernization event of 2012, after a year of extensive sea trials, China commissioned its first aircraft carrier, the *Liaoning*, in September 2012. The PLA Navy successfully conducted its first launch and recovery of the carrier-capable J-15 fighter on November 26, 2012. The *Liaoning* will continue integration testing and training with the aircraft during the next several years, but it is not expected to embark an operational air wing until 2015 or later. China also continues to pursue an indigenous aircraft carrier program (the *Liaoning* is a refurbished vessel, purchased from Ukraine in 1998), and will likely build multiple aircraft carriers over the next decade. The first Chinese-built carrier will likely be operational sometime in the second half of this decade.

The 2014 report updated this section with the following information on China’s carriers and submarines:

In 2013, the PLAN’s first aircraft carrier, *Liaoning* (CV-16) shifted home ports from Dalian, where it was located since 2001, to the PLA Navy’s Yuchi Naval Base, located in the North Sea Fleet. The *Liaoning* continued flight integration training throughout 2013, but it is not expected to embark an operational air wing until 2015 or later. In November 2013, the *Liaoning* deployed out of area for the first time to the South China Sea, where it conducted local training near Hainan Island with surface ships. China also continues to pursue an indigenous aircraft carrier program (the *Liaoning* is a refurbished ship, purchased from Ukraine in 1998) and likely will build multiple aircraft carriers over the next decade. The first Chinese-built carrier will likely be operational sometime at the beginning of the next decade.

The PLA Navy places a high priority on the modernization of its submarine force. China continues the production of JIN-class nuclear-powered ballistic missile submarines (SSBN). Three JIN-class SSBNs (Type 094) are currently operational, and up to five may enter service before China proceeds to its next generation SSBN (Type 096) over the next decade. The JIN-class SSBN will carry the new JL-2 submarine launched ballistic missile with an estimated range of more than 4,000 nm. The JIN-class and the JL-2 will give the PLA Navy its first credible sea-based nuclear deterrent.

The 2014 report added the following concerning the Chinese sea-based nuclear deterrent:

The JIN-class SSBN will carry the new JL-2 submarine-launched ballistic missile (SLBM) with an estimated range of 7,400 km. The JIN-class and the JL-2 will give the PLA Navy its first credible sea-based nuclear deterrent. China is likely to conduct its first nuclear deterrence patrols with the JIN-class SSBN in 2014.

China also has expanded its force of nuclear-powered attack submarines (SSN). Two SHANG-class SSNs (Type 093) are already in service, and China is building four improved variants of the SHANG-class SSN, which will replace the aging HAN-class SSNs (Type 091). In the next decade, China will likely construct the Type 095 guided-missile attack submarine (SSGN), which may enable a submarine-based land-attack capability. In addition to likely incorporating better quieting technologies, the Type 095 will fulfill traditional anti-ship roles with the incorporation of torpedoes and anti-ship cruise missiles (ASCMs).

The current mainstay of the Chinese submarine force is modern diesel powered attack submarines (SS). In addition to 12 KILO-class submarines acquired from Russia in the 1990s and 2000s (eight of which are equipped with the SS-N-27 ASCM), the PLA Navy possesses 13 SONG-class SS (Type 039) and eight YUAN-class SSP (Type 039A). The YUAN-class SSP is armed similarly to the SONG-class SS, but also includes an air-independent power system. China may plan to construct up to 20 YUAN-class SSPs.

Since 2008, the PLA Navy has embarked on a robust surface combatant construction program of various classes of ships, including guided missile destroyers (DDG) and guided missile frigates (FFG). During 2012, China continued series production of several classes, including construction of a new generation of DDG. Construction of the LUYANG II-class DDG (Type 052C) continued, with one ship entering service in 2012, and an additional three ships under various stages of construction and sea trials, bringing the total number of ships of this class to six by the end of 2013. Additionally, China launched the lead ship in a follow-on class, the LUYANG III-class DDG (Type 052D), which will likely enter service in 2014. The LUYANG III incorporates the PLA Navy's first multipurpose vertical launch system, likely capable of launching ASCM, land attack cruise missiles (LACM), surface-to-air missiles (SAM), and anti-submarine rockets. China is projected to build more than a dozen of these ships to replace its aging LUYANG I-class destroyers (DD). China has continued the construction of the workhorse JIANGKAI II-class FFG (Type 054A), with 12 ships currently in the fleet and six or more in various stages of construction, and yet more expected. These new DDGs and FFGs provide a significant upgrade to the PLA Navy's area air defense capability, which will be critical as it expands operations into "distant seas" beyond the range of shore-based air defense.

Augmenting the PLA Navy's littoral warfare capabilities, especially in the South China Sea and East China Sea, is a new class of small combatant. At least six of the JIANGDAO-class corvettes (FFL) (Type 056) were launched in 2012. The first of these ships entered service on February 25, 2013; China may build 20 to 30 of this class. These FFLs augment the 60 HOUBEI-class wave-piercing catamaran missile patrol boats (PTG) (Type 022), each capable of carrying eight YJ-83 ASCMs, for operations in littoral waters.

The 2014 report also updated the US discussion of China's amphibious forces:

No significant amphibious construction was observed in 2013. However, it appears likely that China will build its first amphibious assault ship during this decade.

The PLA Navy also increased its amphibious force in 2012. Two YUZHAO-class amphibious transport docks (LPD) (Type 071) were accepted into service during the year bringing the total of YUZHAO LPDs to three.

.... The PLA Navy remains at the forefront of the military's efforts to extend its operational reach beyond East Asia and into what China calls the "far seas." Missions in these areas include protecting important sea lanes from terrorism, maritime piracy, and foreign interdiction; providing humanitarian assistance and disaster relief; conducting naval diplomacy and regional deterrence; and training to prevent a third party, such as the United States, from interfering with operations off China's coast in a Taiwan or South China Sea conflict. The PLA Navy's ability to perform these missions is modest but growing as it gains more experience operating in distant waters and acquires larger and more advanced platforms. The PLA Navy's goal over the coming decades is to become a stronger regional force that is able to project power across the globe for high-intensity operations over a period of several months, similar to the United Kingdom's

deployment to the South Atlantic to retake the Falkland Islands in the early 1980s. However, logistics and intelligence support remain key obstacles, particularly in the Indian Ocean.

In the last several years, the PLA Navy's distant seas experience has primarily derived from its ongoing counter-piracy mission in the Gulf of Aden and long-distance task group deployments beyond the first island chain in the western Pacific. China continues to sustain a three-ship presence in the Gulf of Aden to protect Chinese merchant shipping from maritime piracy. This operation is China's first enduring naval operation beyond the Asia region.

Additionally, the PLA Navy has begun to conduct military activities within the Exclusive Economic Zones (EEZs) of other nations, without the permission of those coastal states. Of note, the United States has observed over the past year several instances of Chinese naval activities in the EEZ around Guam and Hawaii. One of those instances was during the execution of the annual Rim of the Pacific (RIMPAC) exercise in July/August 2012. While the United States considers the PLA Navy activities in its EEZ to be lawful, the activity undercuts China's decades-old position that similar foreign military activities in China's EEZ are unlawful.

The PLA Navy has made long-distance deployments a routine part of the annual training cycle. In 2012, it deployed task groups beyond the first island chain seven times with formations as large as seven ships. These deployments are designed to complete a number of training requirements, including long-distance navigation, C2, and multi-discipline warfare in deep sea environments beyond the range of land-based air defense.

The PLA Navy's force structure continues to evolve, incorporating more platforms with the versatility for both offshore and long-distance operations. In addition to the recently-commissioned KUZNETSOV-class aircraft carrier (CV) *Liaoning*, China is engaged in series production of the LUYANG-class III DDG, the JIANGKAI-class II FFG, and the JIANGDAO-class FFL. China will also begin construction on a new Type 081-class landing helicopter assault ship within the next five years. China will probably build several aircraft carriers over the next 15 years.

Limited logistical support remains a key obstacle preventing the PLA Navy from operating more extensively beyond East Asia, particularly in the Indian Ocean. China desires to expand its access to logistics in the Indian Ocean and will likely establish several access points in this area in the next 10 years (potential sites include the Strait of Malacca, Lombok Strait, and Sunda Strait). These arrangements will likely take the form of agreements for refueling, replenishment, crew rest, and low-level maintenance. The services provided will likely fall short of U.S.-style agreements permitting the full spectrum of support from repair to re-armament.

Finally, the 2014 DoD report analyzed China's approach to maritime security over the course of the previous year:

During the 2012 Scarborough Reef and 2013 Senkaku Islands tensions, the China Maritime Surveillance (CMS) and Fisheries Law Enforcement Command (FLEC) ships were responsible for directly asserting Chinese sovereignty on a daily basis, while the PLA Navy maintained a more distant presence from the immediate vicinity of the contested waters. China prefers to use its civilian maritime agencies around these islands, and uses the PLA Navy in a back-up role or as an escalatory measure. China's diplomats also apply pressure on rival claimants. China identifies its territorial sovereignty as a core interest and emphasizes its willingness to protect against actions that China perceives challenge Chinese sovereignty. China almost certainly wants to assert its maritime dominance without triggering too harsh of a regional backlash.

In 2013, China consolidated four of its maritime law enforcement agencies into the China Coast Guard (CCG). Subordinate to the Ministry of Public Security, the CCG is responsible for a wide range of missions, including maritime sovereignty enforcement missions, anti-smuggling, maritime rescue and salvage, protecting fisheries resources, and general law enforcement. Prior to the consolidation, different agencies were responsible for each of these mission sets, creating organizational redundancies and complicating interagency coordination.

In the next decade, a new force of civilian maritime ships will afford China the capability to patrol its territorial claims more robustly in the East China and the South China Seas. China is continuing with the second half of a modernization and construction program for the CCG. The first half of this program, from

2004 to 2008, resulted in the addition of almost 20 ocean-going patrol ships. The second half of this program, from 2011 to 2015, includes at least 30 new ships for the CCG. Several less capable patrol ships will be decommissioned during this period. In addition, the CCG will likely build more than 100 new patrol craft and smaller units, both to increase capability and to replace old units. Overall, The CCG's total force level is expected to increase by 25 percent. Some of these ships will have the capability to embark helicopters, a capability that only a few MLE ships currently have. The enlargement and modernization of China's MLE forces will improve China's ability to enforce its maritime sovereignty.

A separate analysis by Andrew Erickson, Lyle Goldstein, and Carnes Lord reported that,³⁷⁵

The platforms and weapons systems that have emerged... are asymmetric in nature and anti-access in focus; they target a full spectrum of vulnerabilities inherent in CSGs and other power-projection platforms. Navigation satellites, new-generation submarines, sea mines and cruise and ballistic missiles promise to give China an ability to defend its maritime periphery in ways that were simply impossible 15 years ago. It is unlikely, however, that the Chinese think they can or should prepare to challenge the United States in a head-to-head clash of major surface forces in the Pacific. For the time being, they value the U.S. Seventh Fleet as a means to reassure regional stability that underwrites Chinese commerce and costs China nothing. However, they have recently shown signs of moving beyond a maritime strategy heavily reliant on submarines and land-based air and missile attack... toward one that also includes major surface combatants....

... [C]ommerce protection and the importance of sea lines of communication clearly resonate with the Chinese leadership. As China has become more dependent on seaborne oil imports from the Persian Gulf and Africa in recent years—a dependence that no amount of overland pipeline construction is likely to reduce anytime soon—it is plainly worried about a potential threat to its oil tankers in transit through the Strait of Malacca and the Indian Ocean... it appears to be in the process of helping to develop facilities and infrastructure of various kinds (most notably, the deep-water port at Gwadar in Pakistan) in friendly countries throughout this region.

The Japanese Official View

The 2013 Japanese white paper provided the following summary description of the PLAN:³⁷⁶

The naval forces consist of three fleets—the North Sea, East Sea, and South Sea Fleets. The Chinese Navy has approximately 890 ships (including approximately 60 submarines), with a total displacement of approximately 1.42 million tons. The Navy is in charge of maritime national defense and protection of the sovereignty of territorial waters and maritime rights and interests. The Chinese Navy introduced Kilo-class submarines from Russia and is actively constructing new types of domestic submarines in order to enhance its submarine force. Additionally, the Navy is increasing surface combatant ships with improved air defense and anti-ship attack capabilities, large landing ships, and supply ships. Also, it commissioned a large hospital ship in October 2008.

With regard to aircraft carriers, China has renovated the Varyag, an incomplete Kuznetsov-class aircraft carrier purchased from Ukraine. China began trial navigations in August 2011, and named the carrier “Liaoning” and put it into commission in September 2012. Even after the carrier was commissioned, China seems to be continuing training of carrier-based aircraft pilots and research and development of necessary technologies including the development of a domestic carrier based fighter, J-15, such as its takeoff and landing tests on the “Liaoning.” In November 2013, the carrier sailed in the South China Sea for the first time and conducted sea trials in this sea area. Some analysts point out that China may also be constructing its first domestic aircraft carrier.

In view of these developments concerning the strengthening of the naval forces, it is believed that China is trying to build capabilities for conducting operations in more distant waters in addition to the near sea defense. It is necessary to continue to monitor the development of the Chinese naval forces.

PLAN Service Strategy

The PLAN's modernization vision developed during the 1980s, prior to the 1993 promulgation of the Local Wars doctrine. Pioneered by Admiral Liu Huaqing, the PLAN devised "Offshore Defense" (alternatively translated as "Near Seas Defense") as a successor to the previous "Coastal Defense" PLAN mission.

The coastal defense doctrine had promoted a PLAN capable of conducting a defense of China's coasts from the Soviet Pacific fleet in what was predicted to be a largely land-based war.³⁷⁷ In contrast, offshore defense envisioned a PLAN structured to conduct combat in an area bounded by the first island chain. Proponents of the new doctrine argued that it was necessary to extend China's maritime active defense perimeter in order to protect China's vulnerable maritime flank and to reduce the efficacy of adversary long-range precision strike.³⁷⁸

In order to achieve these objectives, the PLAN needed the ability to operate at longer ranges, to rapidly concentrate combat power, and to be capable of defeating an opposing navy in the open ocean. These capabilities in turn necessitated the procurement of more modern vessels and the personnel qualified to crew them.

This theory behind offshore defense fit well into the Local Wars doctrine when the latter was promulgated in 1993. The focus on warfare in local areas, high technology capabilities, and modern vessels all fit into the CMC's overarching concept. One of the focal points of the Local Wars doctrine will be the South China Sea, where critical sea lanes of communications are located. Aptly called China's "Malacca dilemma," China faces a problem in that it is dependent on trade and energy imports that go through the Malacca, Sunda, and Lombok Straits, which all go through the South China Sea on their way to China. These chokepoints present areas of vulnerability to Chinese imports, particularly energy imports. China's expanding power projection is driven in large part by its need to protect its imports as they go through these vulnerable chokepoints in and around the South China Sea.

- **Figure 9.2** below illustrates the DoD's understanding of the first and second island chains.
- **Figure 9.3 and Figure 9.4** show how these island chains interact with many of China's territorial claims.
- **Figure 9.5** shows China's dependence on maritime lines of communication and transit routes as well as efforts to find ways to reduce that dependence.

Figure 9.1: Size of the PLAN in 2014

	Total
Aircraft Carriers	1
Destroyers	24
Frigates	49
Corvettes	8
Tank Landing Ships/ Amphibious Transport Dock	29
Medium Landing Ships	28
Diesel Attack Submarines	51
Nuclear Attack Submarines	5
Coastal Patrol (Missile)	85

Note: The PLA Navy has the largest force of principal combatants, submarines, and amphibious warfare ships in Asia. After years of neglect, the force of missile-armed patrol craft is also growing.

Source: DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2014*, April 2014, 77.

Figure 9.2: DoD Representation of the First and Second Island Chains



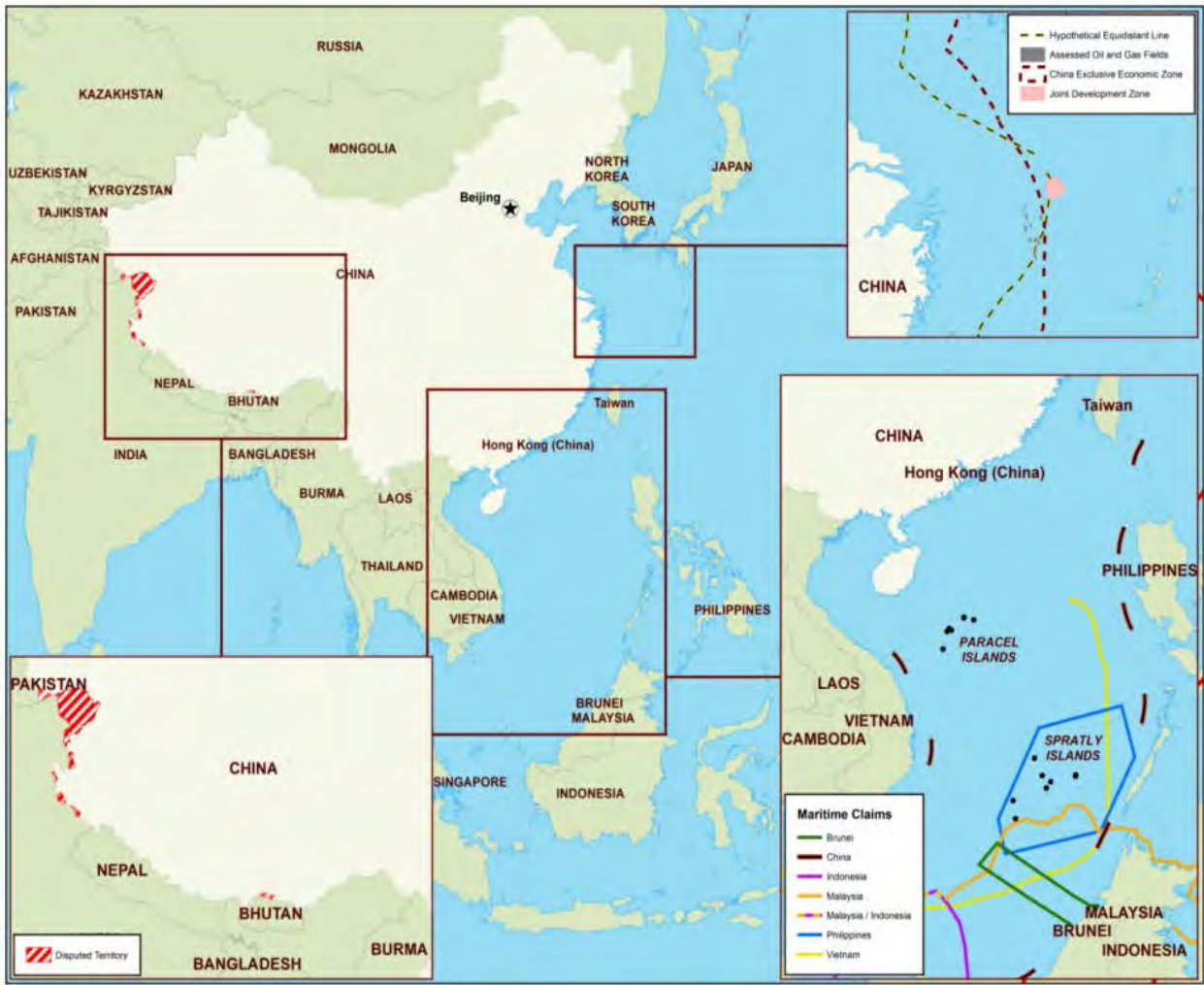
Source: DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China* 2012, 40, http://www.defense.gov/pubs/pdfs/2012_CMPR_Final.pdf.

Figure 9.3: Competing Sovereignty Claims in the South China Sea (2012)



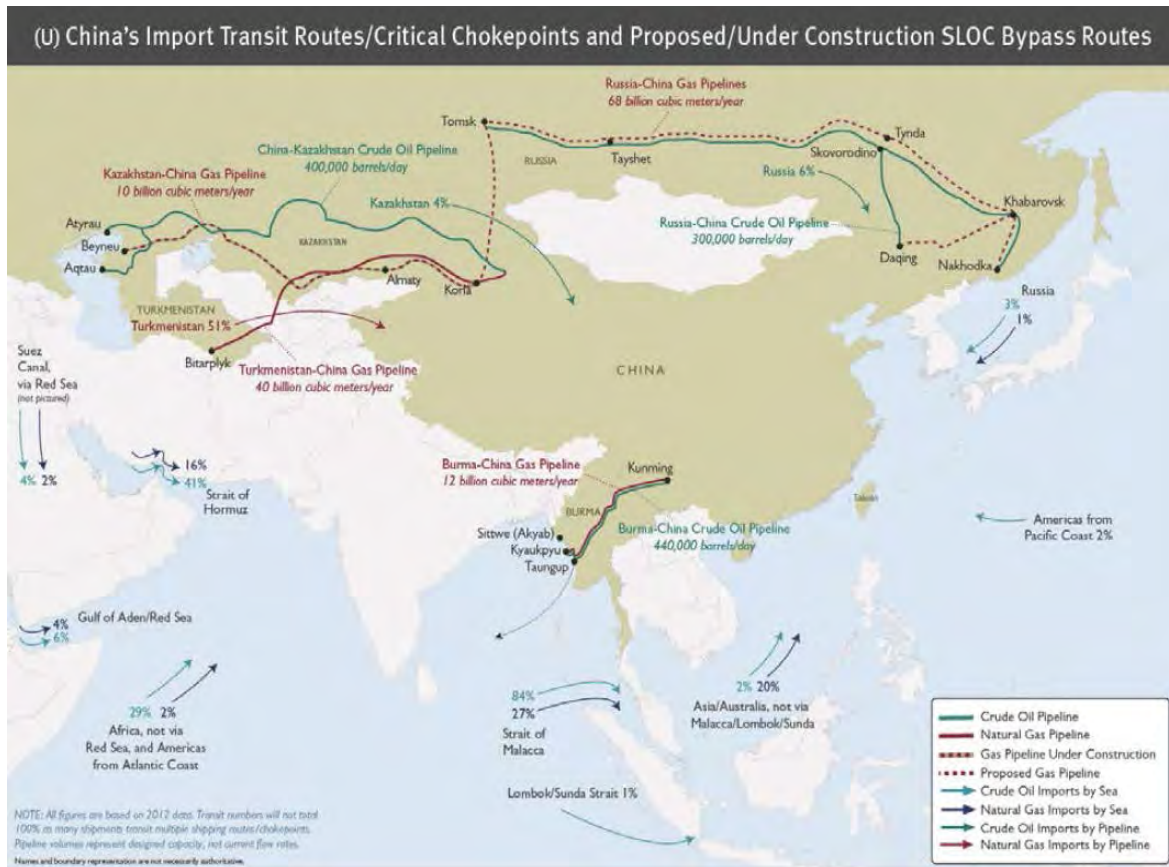
Source: DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2012*, http://www.defense.gov/pubs/pdfs/2012_CMPR_Final.pdf.

Figure 9.4: Competing Sovereignty Claims (2014)



Source: DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2014*, April 2014, 83.

Figure 9.5: China's Dependence on Maritime Lines of Communication and Efforts to Reduce Dependence



Source: DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2014*, April 2014, 84.

Figure 9.5 illustrates China's efforts to bring imports into the country without using SLOCs that go through Southeast Asian straits. One of the efforts that is not shown is China's drive to expand its domestic energy resources, particularly natural gas from shale and coal seams.³⁷⁹ Although China has the largest theoretically recoverable reserves of shale gas in the world, they are located in very hard-to-reach areas that would require expensive drilling and extraction techniques.³⁸⁰ Consequently, while China may be able to access these resources in the future as technology improves, China will continue to remain dependent on Southeast Asian SLOCs in the short to medium term.

Shifts in Force Structure, Equipment Composition, and Personnel

The result of the PLAN's modernization and development along these doctrinal lines has been a sustained shift from a navy of large numbers of single-mission vessels, mostly patrol craft, to a navy boasting significant numbers of modern major combatants, as well as modernized patrol craft. The PLAN has modernized by changing its force structure to meet new doctrinal needs, increasing the categories of ships under its command and developing new capabilities and their necessary systems.

Lieutenant General Michael T. Flynn highlighted some of the critical systems that China is developing:³⁸¹

The PLA navy is developing the JIN-class nuclear-powered ballistic missile submarine and JL-2 submarine-launched ballistic missile. We expect the navy will make their first nuclear deterrence patrols in 2014. It has also recently deployed for the first time a nuclear-powered attack submarine to the Indian Ocean. China is also continuing negotiations for the joint-design and production for a new advanced conventional submarine based on the Russian LADA-class. China's investment in naval weapons primarily focuses on anti-air and anti-surface capabilities to achieve periodic and local sea and air superiority within the first island chain. China's first aircraft carrier, commissioned in late 2012, will not reach its full potential until it acquires an operational fixed-wing air regiment over the next several years.

The PLAN has also modernized its weapon systems in a manner similar to the PLAA. Large numbers of obsolete vessels, mostly coastal combatants, have been discarded and replaced by modernized imported and indigenously-manufactured ocean-going combatants. New PLAN frigates and destroyers are multi-mission combatants capable of effectively conducting a variety of missions, in stark contrast to their single-mission predecessors.

Additionally, the PLAN is replacing its patrol craft with modern variants such as the *Houbei*, which has a wave-piercing hull design and can carry eight anti-ship cruise missiles. Large numbers of obsolete vessels, mostly coastal combatants, have been discarded and replaced by modernized imported and indigenously-produced designs. Furthermore, the PLAN's procurement of new diesel and nuclear-powered submarines has significantly modernized its undersea combatant arsenal. The introduction of the *Liaoning* aircraft carrier, as well as flight-testing of the J-15 (Su-33) carrier-fighter, indicate future PLAN developments toward greater power-projection capabilities.

Personnel policies cannot be neglected, and the PLAN has not done so. In addition to reducing its Personnel, it has conducted exercises and deployments that are developing the skills necessary to perform offshore defense and producing experiences vital for a service that has little combat experience.

The combination of these modernization and force development efforts is an increase in the capabilities of the PLAN. In particular, the PLAN has recently augmented its anti-surface warfare, naval air defense, and force projection capabilities.³⁸² In contrast, one area in which the PLA lacks significant improvement is its anti-submarine warfare capability. However, the PLAN has been shifting rotary wing assets into the anti-submarine role to mitigate this deficiency. Thus, overall, the PLAN's force modernization trends are augmenting China's naval capabilities and improving the PLAN's ability to react to regional contingencies in line with the Local Wars doctrine.

Shift in Force Structure

Figure 9.7 shows the current structure of the PLAN's fleets. **Figure 9.8** displays the trends in PLAN forces in detail. The period 1985-2013 is a story of the PLAN rapidly discarding obsolete coastal naval assets and procuring, by foreign import if necessary, advanced major surface combatants capable of creating a hazardous environment in East Asia for adversary surface forces.

Figure 9.8 displays significant changes in the Personnel, force structure, and mix of naval assets between 1985 and 2013. The most significant change is the relative growth of major combatants in the PLAN. The period 1990-2000 saw significant reductions in coastal craft while, throughout the period, the numbers of major surface combatants increased. The PLAN submarine force suffered an initial decrease in force size during the period as obsolete submarines were retired, but has since regrown. These changes indicate the doctrinal shift from coastal combat by swarms of single-mission ships to combat within the first island chain by major combatants.

Figure 9.9 shows the growth of the PLAN in a line graph format to better illustrate force structure trends. **Figure 9.9** also displays the historical PLAN combatant holdings and compares them with the future trends. Furthermore, **Figure 9.9** illustrates the significant decrease in PLAN coastal combatants and a roughly 30% decrease in its submarine holdings.

These losses were compensated by increases in major surface combatants such as frigates and destroyers. In addition, much of the increase in major surface combatants is due to increases in modern equipment. Consequently, the force structure indicates a navy in transition towards deeper water operations by smaller numbers of multi-mission ships.

Figure 9.6: Size and Deployments of China's Fleets (as of 2012)



Source: DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China* 2012, May 2012, 37.

Figure 9.7: Force Structure of the PLA Navy 1985-2014-Part I

	1985	1990	1995	2000	2005	2010	2014
Personnel	350,000	295,000	300,000	260,00	295,000	255,000	255,000
Navy	350,000	260,000	260,000	220,000	255,000	215,000	215,000
Conscript	?	35,000	40,000	40,000	40,000	40,000	40,000
Reserve	?	?	?	?	?	?	?
Naval Aviation	some	25,000	25,000	26,000	26,000	26,000	26,000
Marines	some	6,000	5,000	5,000	10,000	10,000	10,000

Naval Vessels

Aircraft Carriers		1985	1990	1995	2000	2005	2010	2014
	Liaoning	0	0	0	0	0	0	1
Total		0	0	0	0	0	0	1

Submarines		1985	1990	1995	2000	2005	2010	2014
Strategic	Qing (SLBM trials / SSB)	0	0	0	0	0	0	1
	Golf (SLBM trial)	1	1	1	1	1	1	0
	Xia (Type 092)	0	0	0	0	1	1	1
	Jin (Type 094)	0	0	0	0	0	2	3
Tactical	Han (Type 091)	2	4	5	5	5	4	3
	Shang (Type-093)	0	0	0	0	0	2	2
	Romeo (Type S5G)	0	1	1	1	1	1	0
	Kilo (RF Type EKM 636/636N)	0	0	0	3	2	10	10
	Kilo (RF Type EKM 877)	0	0	0	2	2	2	2
	Ming (Type-035)	0	3	0	2	3	3	4
	Ming (Type-035G/B)	0	0	9	15	16	16	16
	Romeo (E3SB)	79	85	34	35	36	8	0
	Song (Type-039/039G)	0	0	0	1	3	13	16
	Yuan (Type-041)	0	0	0	0	0	2	0
	Yuan (Type-039A/B)	0	0	0	0	0	0	12
	W-class	21	0	0	0	0	0	0
Total		103	93	49	65	68	65	70

Source: IISS *Military Balance*, 1985-2014, and reporting by HIS Jane's. Adapted by Anthony H. Cordesman and Tyler Duhamel at the Center for Strategic and International Studies.

Figure 9.7: Force Structure of the PLA Navy 1985-2014-Part II

Guided Missile Destroyers		1985	1990	1995	2000	2005	2010	2014
	Hangzhou (Sovremenny)	0	0	0	1	2	4	4
	Luda III (Type-051GII)	0	0	0	1	1	1	0
	Luda (Type-051)	10	16	15	13	11	10	0
	Luda (Type-051DT)	0	0	0	0	2	3	0
	Luda II (Type-051G)	0	1	2	2	2	1	0
	Luhai (Type-051B)	0	0	0	1	1	1	1
	Luhu (Type-052)	0	0	1	2	2	2	2
	Luyang I (Type-052B)	0	0	0	0	0	2	2
	Luyang II (Type-052C)	0	0	0	0	0	2	4
	Luyang III (Type-052D)	0	0	0	0	0	0	1
	Luzhou (Type-051C)	0	0	0	0	0	2	2
	Anshan (Soviet Gordy)	4	2	0	0	0	0	0
Total		14	19	18	20	21	28	15

Guided Missile Frigates		1985	1990	1995	2000	2005	2010	2014
	Jianghu I (Type-053H)	11	13	13	26	26	11	2
	Jianghu II (Type-053H1)	0	9	9	1	1	9	6
	Jianghu III (Type-053H2)	0	2	5	3	3	3	1
	Jianghu IV (Type-053H1Q)	0	2	2	0	0	1	1
	Jianghu V (Type-053H1G)	0	0	0	0	0	6	6
	Jiangwei I (Type-053H2G)	0	0	3	4	4	4	4
	Jiangwei II (Type-053H3)	0	0	0	6	8	10	10
	Jiangdong	2	2	1	0	0	0	0
	Chengdu	4	4	2	0	0	0	0
	Jiangkai I (Type-054)	0	0	0	0	0	2	2
	Jiangkai II (Type-054A)	0	0	0	0	0	6	15
	Luda II (Type-051)	0	0	0	0	0	0	3
	Luda III (Type-051DT/G)	0	0	0	0	0	0	4
Total		22	37	37	40	42	52	54

Source: IISS *Military Balance*, 1985-2014, and reporting by HIS Jane's. Adapted by Anthony H. Cordesman and Tyler Duhamel at the Center for Strategic and International Studies.

Figure 9.7: Force Structure of the PLA Navy 1985-2014-Part III

Patrol and Coastal Combatants		1985	1990	1995	2000	2005	2010	2014
	Jiangdao (Type-056)	0	0	0	0	0	0	8
	Houbei (Type-022)	0	0	0	0	0	60+	65+
	Huangfeng/Hola (Type-021)	0	125	120	38	38	0	11
	Houjian (Type-037/II)	0	0	0	0	0	7	6
	Houxin (Type-037/IG)	0	0	6	20	22	16	20
	Haijui (Type-037/I)	0	10	4	2	2	2	2
	Hainan (Type-037)	28	90	96	96	88	93	48
	Haiqing (Type-037/IS)	0	0	0	20	19	25	22
	Haizui (Type-062/I)	0	0	0	11	8	15	34+
	Shanghai III (Type-072/I)	305	290	300	100	79	35	some
	Total	333	515	526	287	256	193	117

Mine Warfare		1985	1990	1995	2000	2005	2010	2014
	Wochi	0	0	0	0	0	4	8
	Wozang	0	0	0	0	0	0	2
	Wosao	?	?	1	7	5	4	16
	Futi	0	0	0	0	0	46	4
	Wolei	?	?	0	1	1	1	1
Total		0	0	1	8	6	55	31

Source: IISS *Military Balance*, 1985-2014, and reporting by HIS Jane's. Adapted by Anthony H. Cordesman and Tyler Duhamel at the Center for Strategic and International Studies.

Figure 9.7: Force Structure of the PLA Navy 1985-2014-Part IV

Amphibious Vessels		1985	1990	1995	2000	2005	2010	2014
	Yuzhao (Type-071)	0	0	0	0	0	1	3
	Yubei	0	0	0	0	0	0	10
	Yudeng (Type-073)	?	0	0	0	1	1	1
	Yuliang (Type-079)	?	30	30	28	17	31	28
	Yuhai	?	0	0	12	12	13	10
	Yunshu (Type-073A)	0	0	0	0	0	10	10
	Yukan	0	3	3	7	7	7	7
	Yuting	0	0	0	8	9	10	9
	Yuting II	0	0	0	0	0	10	10
	Yunnan (Landing Craft, Utility)	0	0	0	0	0	130	120
	Yuchin (Landing Craft, Medium)	0	0	0	0	0	20	20
	Landing Craft, Air Cushion	0	0	0	0	0	0	2
	Utility Craft, Air Cushion	0	0	0	0	0	10	10
Total		0	33	33	55	46	243	240

Logistics and Support		1985	1990	1995	2000	2005	2010	2014
	Sea-going buoy tender	0	0	0	0	0	7	7
	Storage	23	1	14	14	14	23	23
	Miscellaneous auxiliary	0	0	0	0	0	6	6
	Icebreaker	0	3	4	4	4	4	4
	Intelligence collection vessel	0	0	0	0	0	1	1
	Space and missile tracking	0	0	0	0	0	5	5
	Oceanographic research	0	35	33	33	33	5	5
	Survey ship	0	0	0	0	0	6	6
	Hospital ship	0	0	0	2	6	1	1
	Tanker	0	3	2	2	3	5	5
	Tanker and transport	23	25	33	33	33	50	50
	Tanker with helicopter	0	0	0	0	0	5	5
	Repair/rescue ship	0	2	2	2	2	2	2
	Submarine support	0	0	0	10	10	8	8
	Submarine rescue	0	0	2	1	1	1	1
	Tug, ocean-going	0	23	25	25	25	51	51
	Water tanker	0	0	0	0	0	18	18
	Transport	?	17	30	30	30	0	0

	Training ship	?	1	1	1	2	2	2
	Degaussing ship	0	0	0	0	0	5	5
Total		46	110	146	157	163	205	205

Source: IISS *Military Balance*, 1985-2014, and reporting by HS Jane's. Adapted by Anthony H. Cordesman and Tyler Duhamel at the Center for Strategic and International Studies.

Figure 9.7: Force Structure of the PLA Navy 1985-2014-Part V

Naval Aviation

		1985	1990	1995	2000	2005	2010	2014
Bombers	H-5/ F-5/ F-5B	100	130	130	50	50	20	0
	H-6	some	50	25	7	0	0	0
	H-6G	0	some	some	18	18	30	30
	IL-28	50	0	0	0	0	0	0
Fighters	J-5	some	some	some	0	0	0	0
	J-6	some	some	some	250	0	0	0
	J-7/7E Fishbed (MiG-21)	some	some	some	66	26	36	24
	J-8/8A/B/D/F Finback	0	0	some	52	42	24+	24
	J-8IIA	0	0	some	0	12	0	0
	J-8H Finback	0	0	0	0	0	0	24
Fighter/Ground Attack	JH-7/7A	0	0	0	20	20	84	120
	Q-5 Fantan	0	100	10	30	30	30	0
	Su-30Mk2	0	0	0	0	0	0	24
	J-6 (MiG-19S)	0	0	0	0	200	0	0
	J-10A/S	0	0	0	0	0	0	24
	J-11B/BS	0	0	0	0	0	0	48
Total		150	280	165	493	398	200	318

		1985	1990	1995	2000	2005	2010	2014
Anti-Submarine Aircraft	PS-5 (SH-5)	0	4	5	4	4	4	3
	Be-6 Madge	8	10	15	0	0	0	0
	ISR	some	some	some	7	7	13	7
	H-5	some	some	some	0	0	0	0
	HZ-5 Beagle	0	0	0	7	7	7	7
	Y-8J/Y-8JB	0	0	0	0	0	6	4
	Y-8X	0	0	0	4	4	4	3
	Y-8JB High New 2	0	0	0	0	0	0	4
	AEW&C	0	0	0	0	0	0	10

	Y-8J	0	0	0	0	0	0	4
	Y-8W High New 5	0	0	0	0	0	0	6
	Tanker	0	0	0	0	3	3	3
	HY-6	0	0	0	0	3	3	0
	H-6DU	0	0	0	0	0	0	3
Total		8	14	20	22	28	40	54

Source: IISS *Military Balance*, 1985-2014, and reporting by HIS Jane's. Adapted by Anthony H. Cordesman and Tyler Duhamel at the Center for Strategic and International Studies.

Figure 9.7: Force Structure of the PLA Navy 1985-2014-Part VI

Transport & Training		1985	1990	1995	2000	2005	2010	2014
	Y-8 (An-12)	?	?	0	0	4	4	4
	Y-5 (An-2)	?	?	0	50	50	50	50
	Y-7 (An-24)	?	?	0	4	4	4	4
	Y-7H (An-26)	?	?	0	6	6	6	6
	Y-8	?	?	some	6	0	0	0
	Yak-42	?	?	0	2	2	2	2
	JJ-5	?	?	some	0	0	0	0
	JJ-6 (Mig-19)	?	?	some	16	16	14	14
	JJ-7	?	?	0	4	4	4	4
	PT-6 (CJ-6)	?	?	0	53	53	38	38
	HJ-5	0	0	0	0	0	33	5
	HY-7	0	0	0	0	0	21	21
	JL-8 (K-8)	0	0	0	0	0	12	12
	JL-9	0	0	0	0	0	0	12+
Total		0	0	0	141	139	188	160

Helicopters		1985	1990	1995	2000	2005	2010	2014
	SA-321	0	12	0	9	15	15	0
	Z-5	some	50	40	0	0	0	0
	Z-8/Z-8A	0	0	3	12	12	20	20
	Z-8S	0	0	0	0	0	2	2
	Z-8JH	0	0	0	0	0	3	4
	Z-9	0	6	10	0	0	0	0
	Z-9C	0	0	0	12	8	25	25
	SA-321	12	0	15	0	0	0	0
	Ka-28 (Ka-27PL) Helix A	0	0	0	4	8	13	19

	Mi-8	0	0	0	10	8	8	8
	Ka-31	0	0	0	0	0	0	9
	Z-8 AEW	0	0	0	0	0	0	1+
Total		12	68	68	47	51	86	87

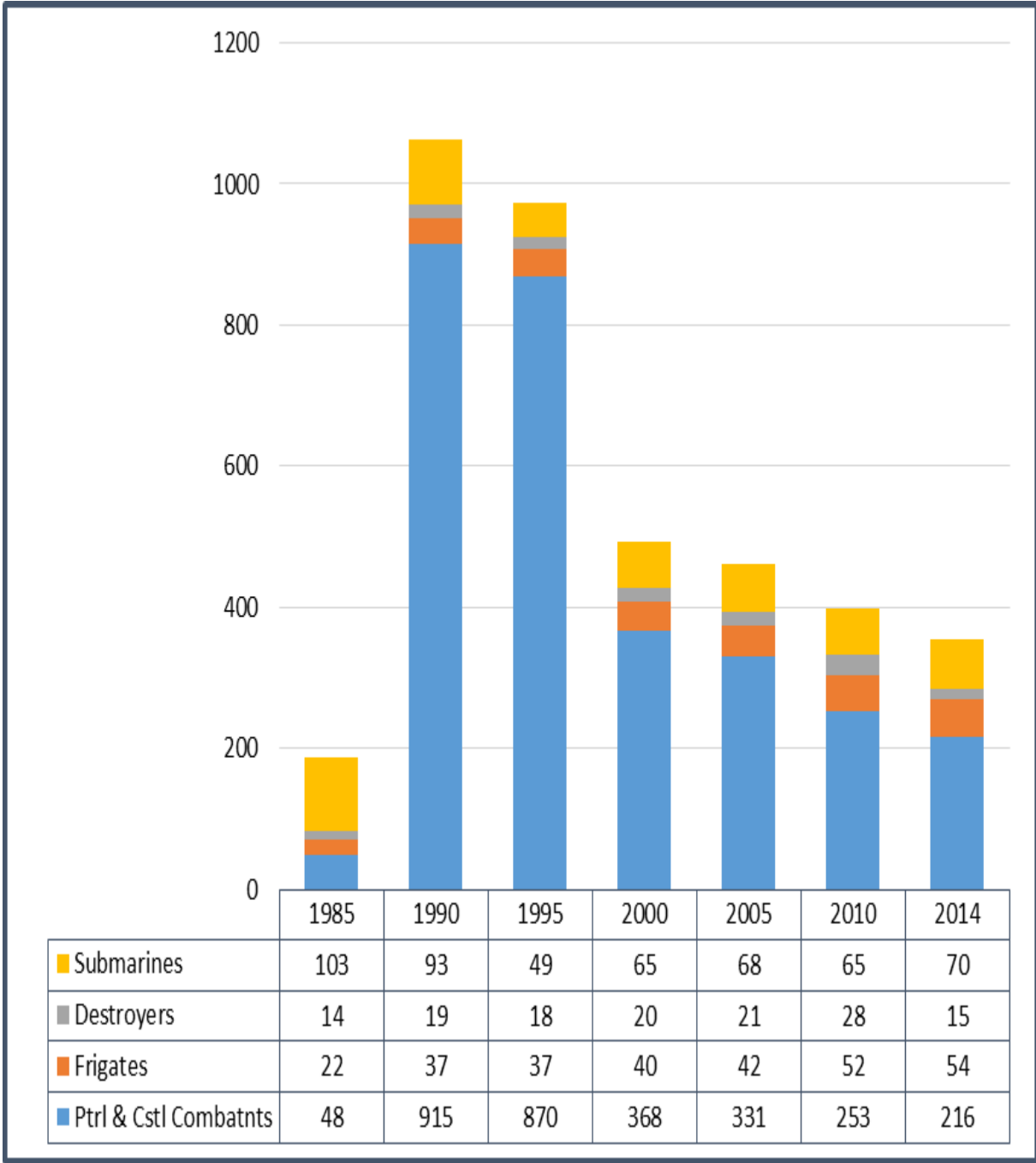
Source: IISS *Military Balance*, 1985-2014, and reporting by HIS Jane's. Adapted by Anthony H. Cordesman and Tyler Duhamel at the Center for Strategic and International Studies.

Figure 9.7: Force Structure of the PLA Navy 1985-2014-Part VII

Missile (Tactical)		1985	1990	1995	2000	2005	2010	2014
	YJ-6/C-601 (CAS-1)	?	some	some	some	some	0	0
	YJ-61/C-611 (CAS-1)	?	0	0	some	some	some	some
	YJ-8K (CSS-N-4)	?	0	0	0	some	some	some
	YJ-83 (CSSC-8)	0	0	0	0	0	some	some
	YJ-81/C-801K	?	0	0	some	some	0	0
	Kh-31A (AS-17B Krypton)	0	0	0	0	0	0	some
	KD-88	0	0	0	0	0	0	some

Source: IISS *Military Balance*, 1985-2014, and reporting by HIS Jane's. Adapted by Anthony H. Cordesman and Tyler Duhamel at the Center for Strategic and International Studies.

Figure 9.8: Trends in PLAN Combatants Holdings



Source: IISS, *Military Balance*, 1985-2014, adapted by Tyler Duhamel at the Center for Strategic and International Studies.

Shift in Equipment Composition and Modernization

In addition to changes in force structure, the PLAN's modernization program is generating significant changes in the composition of the Navy's major weapons systems. Concurrent with relative increases in major combatants, especially surface combatants, the proportion of combatants that can be considered modern is also steadily increasing. Through a combination of domestic production and foreign purchases, the PLAN has created a powerful core of a modern navy in its modern system holdings.

Submarines

The PLAN's tactical submarine force has undergone significant qualitative improvements since 1985. With the procurement of Russian *Kilo*-class SSKs and the production of the *Yuan* class SSKs, the PLAN has made significant improvements in submarine quieting. Moreover, the *Yuan*, *Song*, and *Kilo* class submarines are Anti-Ship Cruise Missile (ASCM) capable.³⁸³ The PLAN has also advanced its SSN fleet with the Type-095 SSN, quieter than previous PLAN SSNs and with an ASCM capability, expected by the US Office of Naval Intelligence to reach initial operational capability by 2015.³⁸⁴

The PLAN also has 4 strategic ballistic missile submarines (SSBN): one *Xia* and three *Jin* class. The one first-generation *Xia* class SSBN is not considered operational, but the more modern *Jin* class SSBNs "give the PLA Navy its first credible second-strike capability."³⁸⁵ Consequently, the PLAN's submarine modernization efforts are generating results. **Figure 9.10** illustrates the advances made in submarine modernization.

China has worked to develop its submarine force with both conventional and nuclear submarines over the past 15 years: Andrew S. Erickson summarizes such developments as follows:³⁸⁶

China's submarine force is one of its core strengths, but it contains considerable variety. On the nuclear-powered ballistic-missile submarine (SSBN) front, three Type 094 hulls are already in service. Their armament awaits deployment of the JL-2 submarine-launched ballistic missile (SLBM), which is currently undergoing flight testing. The underground base at Yalong Bay on Hainan Island, which is emerging as a likely center of Chinese SSBN operations, offers proximity to deep water in otherwise cluttered and possibly closely monitored water space.

...The Office of Naval Intelligence's most recent unclassified report characterizes the Type 094 as relatively noisy compared to equivalent Russian platforms. This noisiness, and the lack of an operational SLBM, leave it unable as yet to take full advantage of its South China Sea location. Follow-on variants of both hull and missile, as well as further training and operational experience, may be required before the system as a whole is capable of effective deterrence patrols. Moreover, command and control issues inherent in successful SSBN operations may give Beijing pause and slow development. Meanwhile, China's land-based, partially mobile nuclear-missile forces are already extensive and highly capable. Their stealth is greatly enhanced by use of decoys and secure fiber-optic communications, options unavailable to submarines. While China is heading toward a nuclear dyad (Second Artillery and PLAN), it is likely to be a slow and cautious road.

For current nonnuclear operations, the key platforms are not SSBNs but rather conventional and nuclear-powered attack submarines (SSN). The relative emphasis between them is an important indicator of China's prioritization of near-seas versus far-seas operations. China's conventionally powered submarines, already quiet but constrained by the speed and power limitations of their type, are relevant primarily to near-seas operations. This applies even to the advanced *Yuan*-class, whose likely air-independent propulsion (AIP) would permit several weeks of low-speed submerged operations without snorkeling, which makes antisubmarine warfare against them more difficult. AIP also saves batteries to support several hours of high-speed engagement and escape maneuvers. SSNs, by contrast, are important for far-seas power projection

because of their unparalleled power and endurance. China's numbers and capabilities remain limited here, but this will be an important indicator to watch.

Within the surface force, PLAN modernization has resulted in reductions in low-capability single-mission ships and the development of multi-mission major surface combatants. Moreover, these multi-mission capabilities are extending beyond self-defense and certain classes are developing fleet-defense capabilities.

For example, the *Crotale*-based HHQ-7 was the longest-range ship-borne surface-to-air missile (SAM) approximately a decade ago. Now, the PLAN has new ships with at least four different SAMs of varying Area-Air Defense (AAD) capabilities.³⁸⁷ The *Luzhou* guided missile destroyer (DDG), armed with the SA-N-20, is capable of attacking air threats within 80 nautical miles (nm) of the ship.³⁸⁸

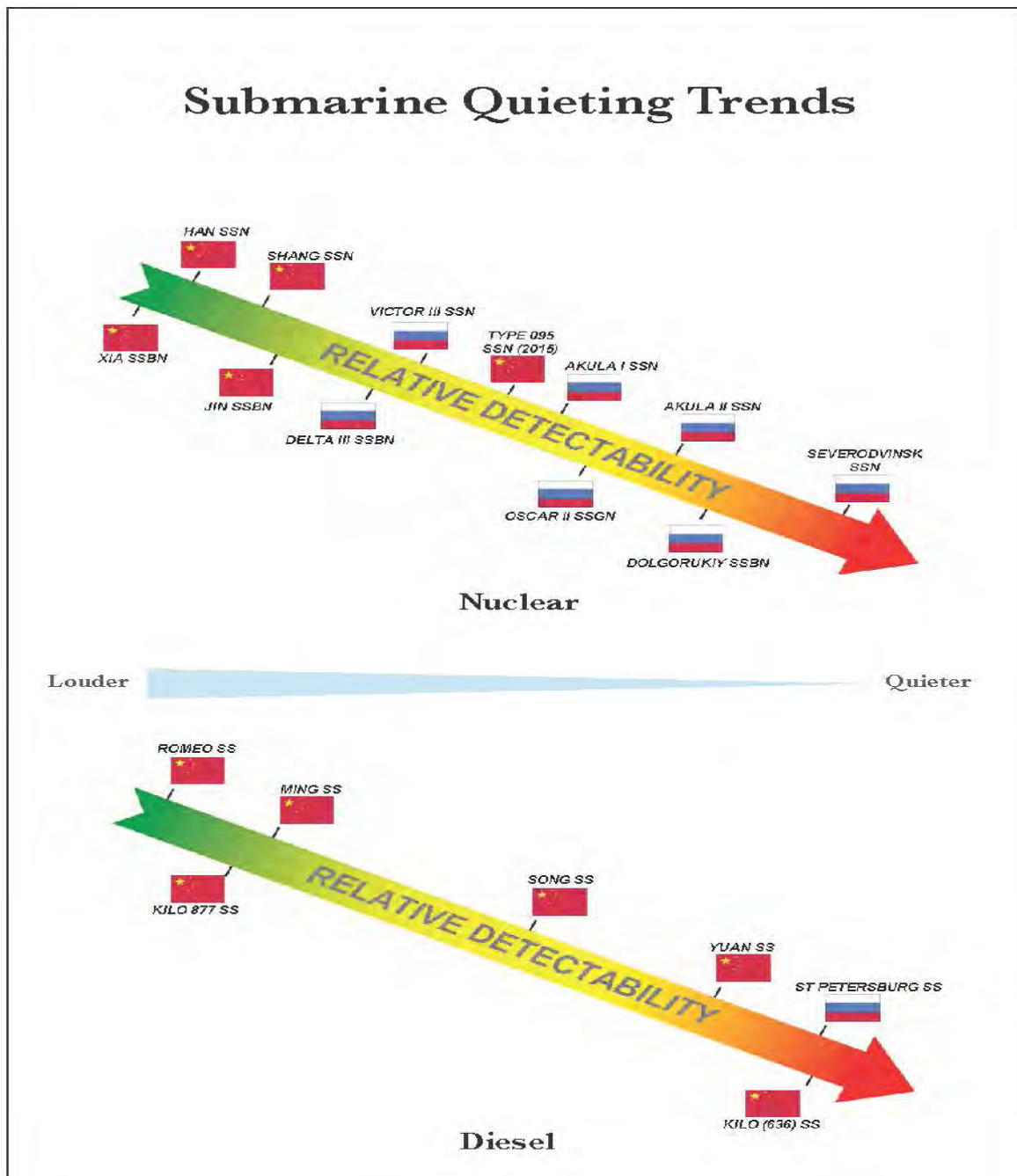
As a result, PLAN surface ships are now more secure when venturing beyond land-based air cover. A similar trend is occurring with the PLAN's growing anti-surface warfare capability. Ships such as the *Sovremeny* I/II DDGs armed with ASCMs and Over-the-Horizon (OTH) radar are capable of targeting opposing surface vessels at ranges of 130 nm.³⁸⁹

The larger picture of this sustained modernization effort is a PLAN that is simultaneously shifting its force structure to ship types capable of fighting Local Wars while procuring modern vessels in categories more capable of fighting Local Wars than the PLAN's older ship classes. Thus, to track the PLAN's modernization efforts, it is necessary to compare both the shifts in force structure and force composition.

These extensive modernization efforts are mirrored by modernization of regional navies as well. Michael Raska highlights one key regional naval development, the increasing deployment of conventionally powered submarines in Asia-Pacific navies.³⁹⁰

Over the past decade, the operational utility of submarines in East Asia has widened: from anti-submarine warfare to force protection such as close submarine escort missions, intelligence surveillance, and reconnaissance (ISR), support of Special Forces, and other complementary deterrence and defensive tasks supporting territorial defense. At the same time, the introduction of submarine-launched anti-ship and land-attack cruise missiles, anti-submarine sensors and weapons, as well as air independent propulsion systems have increased their stealth capacity to remain undetected shortened their target-identification-and-attack cycle, and ultimately, improved their flexibility, mobility, endurance, reach, and lethality.

For smaller, defensively-oriented navies in East and Southeast Asia, these attributes enable "sea-denial" capabilities aimed at preventing an opponent from using the sea, rather than providing a degree of sea control to use the sea for own power projection. Submarines will therefore become an increasingly valuable strategic asset in the region, particularly with installed AIP systems. The key difference, however, will be in the experience, training, and skill set of its operators.

Figure 9.9: PLAN Progress in Submarine Technology

Source: Office of Naval Intelligence, *People's Liberation Army Navy: A Modern Navy with Chinese Characteristics*, p. 22. http://www.oni.navy.mil/Intelligence_Community/docs/china_army_navy.pdf.

Major Combatant Holdings

Figures 9.11 and 9.12 track the development of the PLAN's force composition. They illustrate the sustained procurement of modern vessels and their growth, absolutely and relatively, in the PLAN arsenal. Moreover, as **Figure 9.11** indicates, the PLAN's modern major combatant inventory is larger than most of the region's navies'.³⁹¹

It is important to note the parameters for "modern" combatants:

- Submarines: quiet and capable of firing ASCMs
- Major Surface Combatants: multi-mission capable, containing strong capabilities in at least two warfare areas

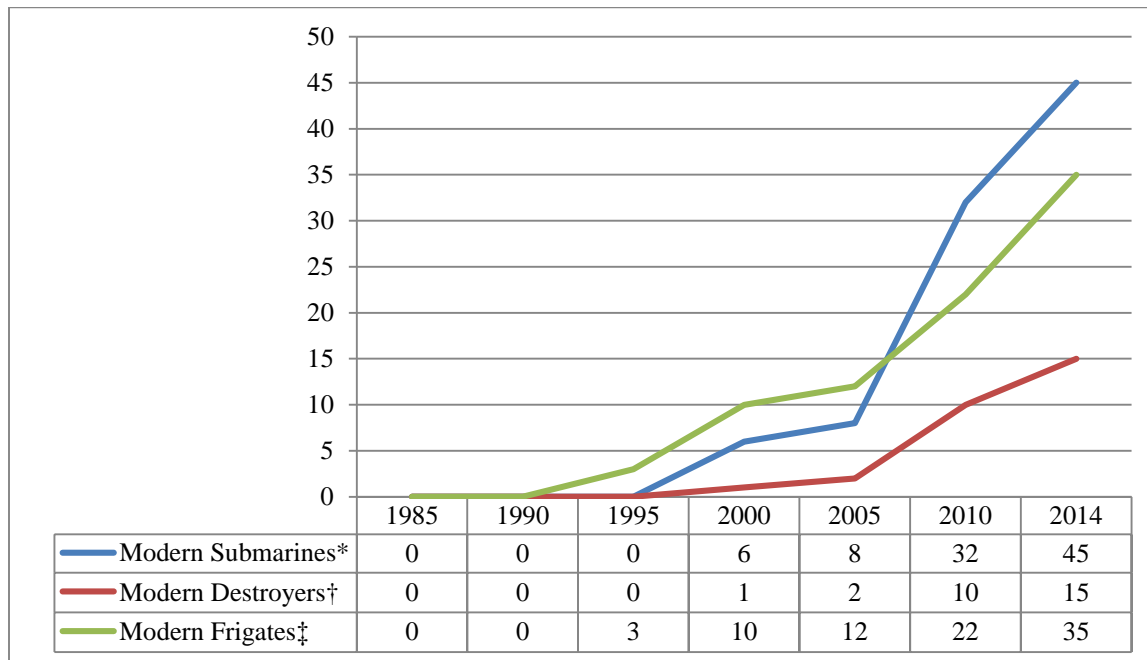
Analyst Andrew S. Erickson also provides useful background on China's commissioning of its first aircraft carrier on September 25, 2012.³⁹²

According to China's Ministry of National Defense, Liaoning will facilitate PLAN integrated combat force modernization, help address sovereignty issues, and advance new historic missions by "developing far seas cooperation" and capabilities to deal with nontraditional security threats. Particularly important is its future significance for "enhancing protection operations capabilities" (*zengqiang fangwei zuozhan nengli*) by using air power to cover vessels operating out of area.

While *Liaoning* will initially serve as a training and test platform, and cannot threaten capable forces such as the U.S. Navy or the Japan Maritime Self-Defense Force, PLAN-affiliated experts advocate using its formidable symbolism and potential for future air power to deter smaller neighbors such as Vietnam from pursuing competing claims in the South China Sea. [C]arriers will constitute part of... lower-intensity tertiary layer of Chinese naval and air power development... China will probably develop multiple aircraft carriers so that one can always remain at sea while the others are undergoing refitting or being used for training.

Liaoning is a short takeoff but arrested recovery (STOVAR) carrier, which combines an un-catapulted, rolling takeoff assisted by a ski jump with a traditional arrested recovery system that permits the landing of fighter aircraft in short deck space. The STOVAR design entails several major limitations.... To increase its deck aviation capabilities substantially, China must develop a catapult-assisted takeoff but arrested recovery (CATOVAR) carrier; the question is how soon it will actually do so. It is uncertain whether China has started "indigenous construction," and how that might be defined. Chinese shipyards may already be working on components. More broadly, will China seek to construct its own version of *Liaoning* first? Alternatively, might China wait to master more complex processes, and then construct a CATOVAR carrier? The nature of China's second indigenously constructed aircraft carrier will tell much about its deck aviation trajectory.

The US DoD has reported that Chinese carrier-based jets – evidently the Shenyang J-15 – were conducting take-off and landing training on the *Liaoning* in late 2012.³⁹³ Furthermore, the deputy chief designer of the *Liaoning* said in an interview that China was planning for more aircraft carriers: "China's perception of interest demands has a bearing on the number of aircraft carriers. How many aircraft carriers China should have depends on its needs. What I can tell you is that the 'Liaoning Ship' is just a beginning."³⁹⁴

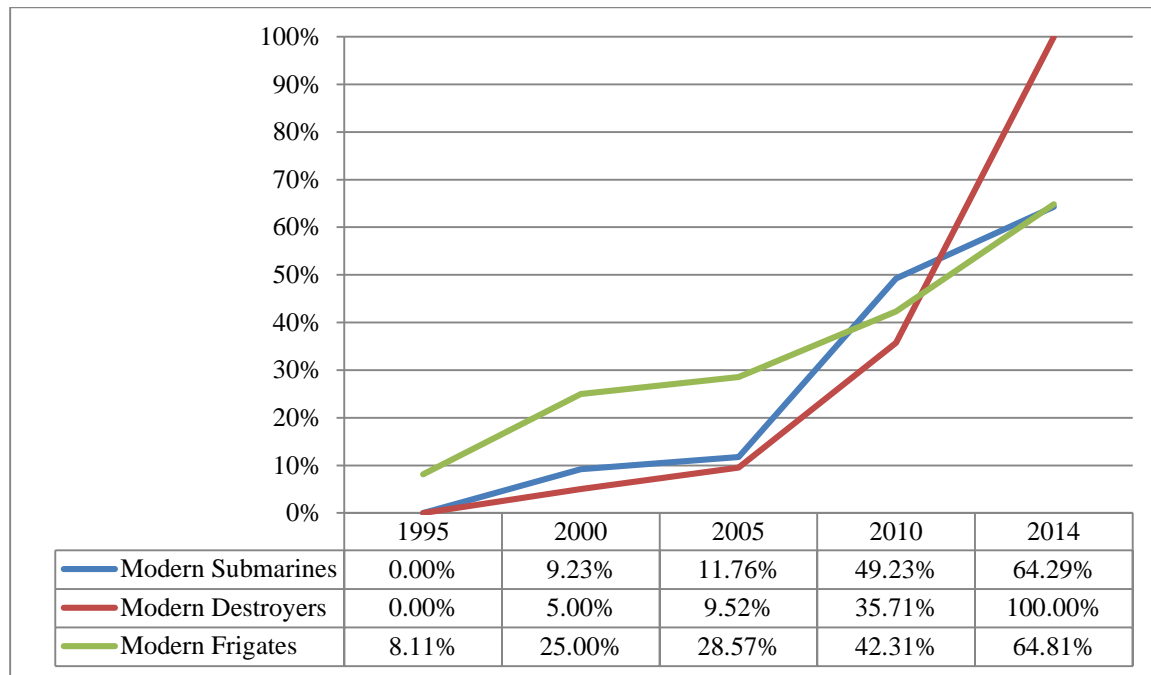
Figure 9.10: PLAN Major Combatant Holdings

*The following systems are considered modern: *Kilo* class, *Song* class (Type 039/039G), *Yuan* class (Type 039A/039B), *Shang* class (Type 093), *Jin* class (Type 094)

†The following systems are considered modern: *Sovremenny* class, *Luyang* class (Type 052B), *Luyang II* class (Type 052C), *Luhai* class (Type 051B), *Luhu* class (Type 052)

‡The following systems are considered modern: *Jiangkai* class (Type 054), *Jiangkai II* class (Type 054A), *Jiangwei* class (Type 053H2G), *Jiangwei II* class (Type 053H3), *Luda III* class (Type 051DT), *Luda III* class (Type 051G)

Source: IISS, *Military Balance* 1985-2014.

Figure 9.11: Relative PLAN Major Combatant Holdings

Source: IISS, *Military Balance* 1985-2014.

Shifts in Personnel

The requirements of fighting Local Wars under Conditions of Informatization and of using modern naval systems generate the need for high human capital within the PLAN. As a result, the PLAN has significantly reduced its Personnel since 1985 and has initiated a campaign to develop a professional naval force. In addition, it has augmented investments in its human capital with military exercises and long-distance deployments. **Figure 9.13** shows the historical Personnel of the PLAN.

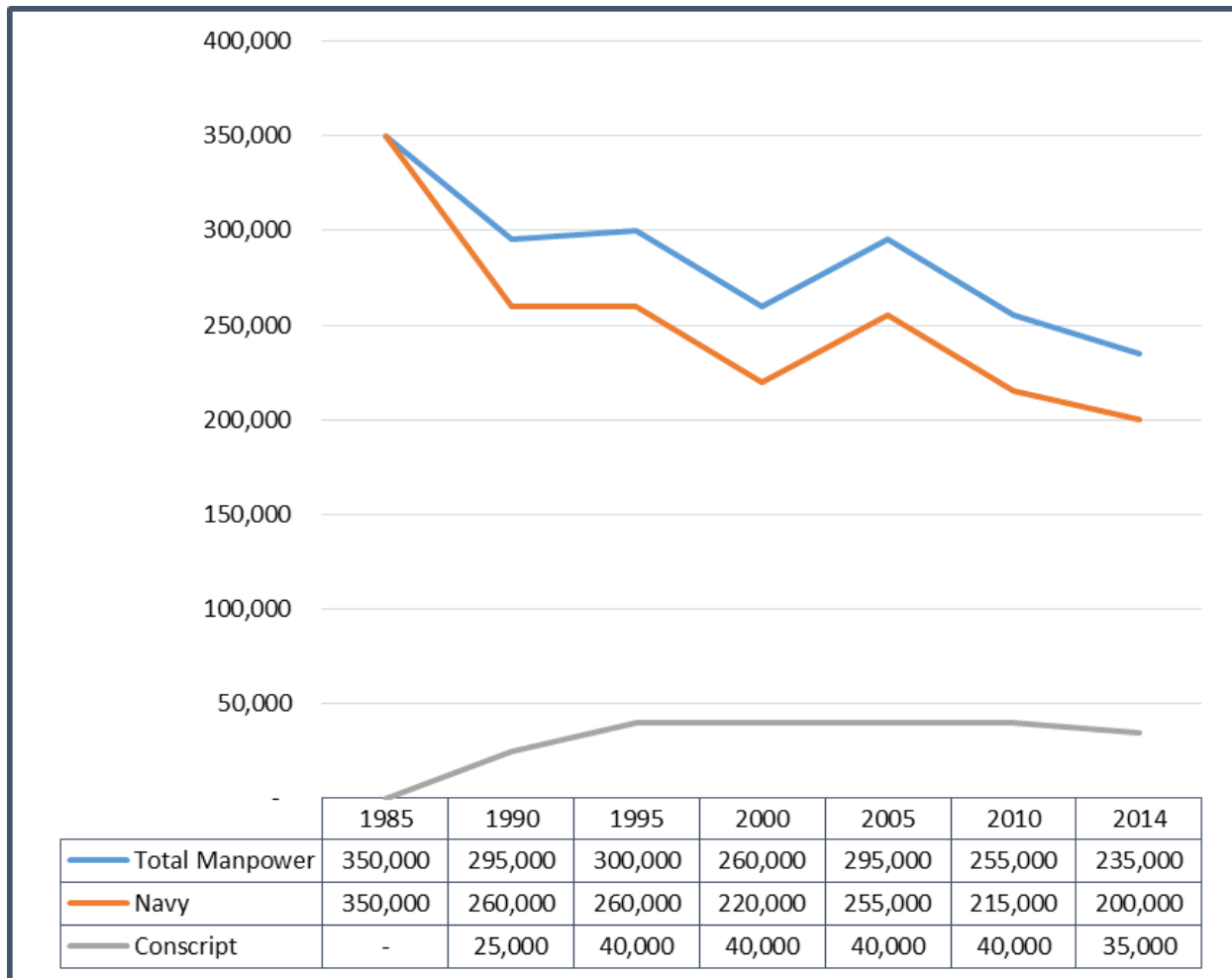
The PLAN's efforts to develop a professional force rest on three pillars: professional NCOs, academically-qualified officers, and improved advancement and educational opportunities for currently-serving enlisted personnel. Since 1999, the PLAN has reduced the conscription obligation from four to two years, while doubling the maximum years of service for NCOs from 15 to 30. Furthermore, now NCOs are taking over many of the shipboard jobs previously performed by officers or conscripts.³⁹⁵

The number of officers is shrinking as the PLAN aims to attract fewer but more qualified personnel. In order to realize these efforts, the PLAN has expanded reserve officer academic scholarships, increased technical training in the fleet, and targeted higher degree holders for officer positions.³⁹⁶ Regarding opportunities for currently serving personnel, the PLAN has developed on-the-job, short-term, and on-line training programs.³⁹⁷

The PLAN has also utilized military exercises and deployments to measure and improve the leadership and combat skills of its personnel. Over the last decade, military exercises have become

more realistic and integrated opposition forces. At least once a year, each fleet undertakes a major fleet-level exercise, and there are occasional multi-fleet exercises.³⁹⁸

Figure 9.12: PLAN Personnel Trends



Source: IISS, *Military Balance*, 1985-2014, adapted by Garrett Berntsen at the Center for Strategic and International Studies.

The PLAN and Power Projection

The shift in PLAN force structure, the changing composition of the PLAN's combatant inventory, and the efforts to develop personnel proficient with their equipment and expert at their jobs indicate that the PLAN is modernizing and developing a force suited for the Local Wars and offshore defense concepts. The PLAN's modern combatants provide each of the three PLAN fleets a core of concentrated combat power, ideally suited to rapidly achieving military objectives within the first island chain and capable of producing significant combat power in a limited, local war.

The Chinese View

These shifts in the strategy and capability of the Chinese Navy, coupled with equally important shifts in Chinese air and missile power, also have broader implications throughout the Pacific and are beginning to affect naval operations in the Indian Ocean. China has already deployed some units in anti-piracy missions off the coast of Somalia and has asked to join in US joint naval exercises in the Gulf.

The PLAN has recently been conducting long-range naval patrols, the longest of which occurs in the Gulf of Aden. Within the Asia-Pacific, there has been a seemingly concerted effort to get PLAN forces to patrol farther from China's coastline. As the Office of Naval Intelligence states:³⁹⁹

The PLA(N) has conducted surface deployments to the Sea of Japan, South China Sea, Philippine Sea, Eastern Pacific, and, for the first time in China's modern naval history, deployed task groups made up of two combatants and a naval auxiliary to the Gulf of Aden.

Given the PLAN's lack of recent combat experience, these efforts are critical to Chinese efforts to develop the combat and leadership skills necessary to fight Local Wars in the manner of Offshore Defense. They also indicate a growing PLAN proficiency in its doctrinal combat capabilities. The geographic expansion of PLAN naval exercises is shown in **Figure 9.14**.

As has been noted previously, China has been increasing the use of paramilitary and policing forces in interventions relating to nine-dash line sovereignty cases, as well as increasing its ability to expand on the concept of Local Wars at a distance and challenge the US for control of the second island chain and the Asian-Pacific maritime region overall.

The 2013 Chinese defense white paper highlighted the expanding "blue water" range of Chinese naval forces, improved readiness and training, and joint warfare capabilities – all of which increase Chinese capabilities to project power and execute area denial activities. If all of the various sections in the white paper that deal with the PLAN are assembled together, they provide a considerable amount of detail on both current PLAN capabilities and the trends in these forces:⁴⁰⁰

The PLA Navy (PLAN) is China's mainstay for operations at sea, and is responsible for safeguarding its maritime security and maintaining its sovereignty over its territorial seas along with its maritime rights and interests. The PLAN is composed of the submarine, surface vessel, naval aviation, marine corps and coastal defense arms. In line with the requirements of its offshore defense strategy, the PLAN endeavors to accelerate the modernization of its forces for comprehensive offshore operations, develop advanced submarines, destroyers and frigates, and improve integrated electronic and information systems. Furthermore, it develops blue-water capabilities of conducting mobile operations, carrying out international cooperation, and countering non-traditional security threats, and enhances its capabilities of strategic deterrence and counterattack. Currently, the PLAN has a total strength of 235,000 officers and men, and commands three fleets, namely, the Beihai Fleet, the Donghai Fleet and the Nanhai Fleet. Each fleet has fleet aviation headquarters, support bases, flotillas and maritime garrison commands, as well as aviation divisions and marine brigades. In September 2012, China's first aircraft carrier Liaoning was commissioned into the PLAN. China's development of an aircraft carrier has a profound impact on building a strong PLAN and safeguarding maritime security.

...The PLAN strengthens maritime control and management, systematically establishes patrol mechanisms, effectively enhances situational awareness in surrounding sea areas, tightly guards against various types of harassment, infiltration and sabotage activities, and copes promptly with maritime and air incidents and emergencies. It advances maritime security cooperation, and maintains maritime peace and stability, as well as free and safe navigation. Within the framework of the Military Maritime Consultative Agreement (MMCA), the Chinese and US navies regularly exchange maritime information to avoid accidents at sea.

According to the Agreement on Joint Patrols by the Navies of China and Vietnam in the Beibu Gulf, the two navies have organized joint patrols twice a year since 2006.

...Intensifying blue water training...The PLAN is improving the training mode of task force formation in blue water. It organizes the training of different formations of combined task forces composed of new types of destroyers, frigates, ocean-going replenishment ships and shipborne helicopters. It is increasing its research and training on tasks in complex battlefield environments, highlighting the training of remote early warning, comprehensive control, open sea interception, long-range raid, anti-submarine warfare and vessel protection at distant sea. The PLAN organizes relevant coastal forces to carry out live force-on-force training for air defense, anti-submarine, anti-mine, anti-terrorism, anti-piracy, coastal defense, and island and reef sabotage raids. Since 2007, the PLAN has conducted training in the distant sea waters of the Western Pacific involving over 90 ships in nearly 20 batches. During the training, the PLAN took effective measures to respond to foreign close-in reconnaissance and illegal interference activities by military ships and aircraft. From April to September 2012, the training vessel Zhenghe completed global-voyage training, paying port calls to 14 countries and regions.

To fulfill China's international obligations, the Chinese navy carries out regular escort missions in the Gulf of Aden and waters off Somalia. It conducts exchanges and cooperation with other escort forces to jointly safeguard the security of the international SLOCs. As of December 2012, Chinese navy task groups have provided protection for four WFP ships and 2,455 foreign ships, accounting for 49% of the total of escorted ships. They helped four foreign ships, recovered four ships released from captivity and saved 20 foreign ships from pursuit by pirates.

Chinese navy escort task forces have maintained smooth communication with other navies in the areas of joint escort, information sharing, coordination and liaison. They have conducted joint escorts with their Russian counterparts, carried out joint anti-piracy drills with naval ships of the ROK, Pakistan and the US, and coordinated with the European Union to protect WFP ships. It has exchanged boarding visits of commanders with task forces from the EU, NATO, the Combined Maritime Forces (CMF), the ROK, Japan and Singapore. It has exchanged officers for onboard observations with the navy of the Netherlands. China takes an active part in the conferences of the Contact Group on Piracy off the Coast of Somalia (CGPCS) and "Shared Awareness and Deconfliction" (SHADE) meetings on international merchant shipping protection.

Since January 2012, independent deployers such as China, India and Japan have strengthened their convoy coordination. They have adjusted their escort schedules on a quarterly basis, optimized available assets, and thereby enhanced escort efficiency. China, as the reference country for the first round of convoy coordination, submitted its escort timetable for the first quarter of 2012 in good time. India and Japan's escort task forces adjusted their convoy arrangements accordingly, thereby formulating a well-scheduled escort timetable. The ROK joined these efforts in the fourth quarter of 2012.

...The routine combat readiness work of the PLAN serves to safeguard national territorial sovereignty and maritime rights and interests. It carries out diversified patrols and provides whole-area surveillance in a cost-effective way. The PLAN organizes and performs regular combat readiness patrols, and maintains a military presence in relevant sea areas. All fleets maintain the necessary number of ships patrolling in areas under their respective command, beef up naval aviation reconnaissance patrols, and organize mobile forces to conduct patrols and surveillance in relevant sea areas, as required.

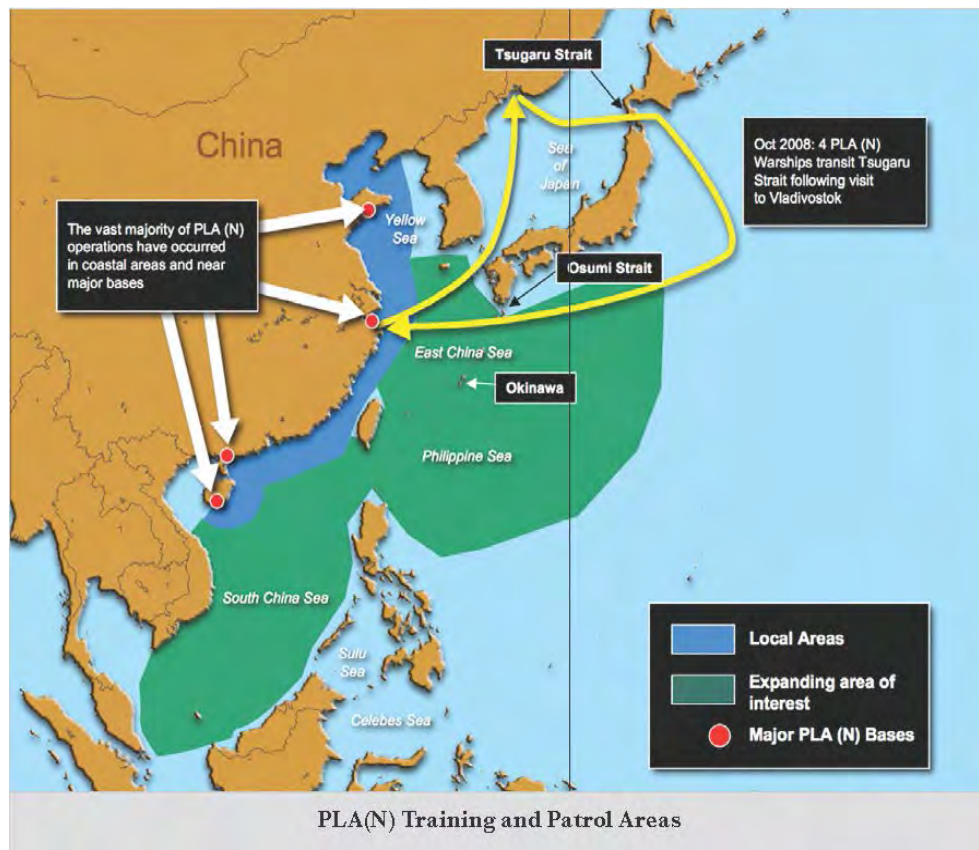
Joint maritime exercises and training are being expanded. In recent years, the Chinese navy has taken part in the "Peace-07," "Peace-09" and "Peace-11" multinational maritime exercises hosted by Pakistan on the Arabian Sea. The PLA and Russian navies held the "Maritime Cooperation-2012" military drill in the Yellow Sea off China's east coast focusing on joint defense of maritime traffic arteries. Chinese and Thai marine corps held the "Blue Strike-2010" and "Blue Strike-2012" joint training exercises. During mutual port calls and other activities, the Chinese navy also carried out bilateral or multilateral maritime exercises and training in such tasks as communications, formation movement, maritime replenishment, cross-deck helicopter landing, firing at surface, underwater and air targets, joint escort, boarding and inspection, joint search and rescue and diving with its counterparts of India, France, the UK, Australia, Thailand, the US, Russia, Japan, New Zealand and Vietnam.

... In combination with its routine combat readiness activities, the PLAN provides security support for China's maritime law enforcement, fisheries, and oil and gas exploitation. It has established mechanisms to coordinate and cooperate with law-enforcement organs of marine surveillance and fishery administration, as well as a joint military-police-civilian defense mechanism. Further, the PLAN has worked in coordination with relevant local departments to conduct maritime survey and scientific investigation; build systems of maritime meteorological observation, satellite navigation, radio navigation and navigation aids; release timely weather and sea traffic information; and ensure the safe flow of traffic in sea areas of responsibility.

Together with the marine surveillance and fishery administration departments, the PLAN has conducted joint maritime exercises and drills for protecting rights and enforcing laws, and enhanced its capabilities to coordinate command and respond to emergencies in joint military-civilian operations to safeguard maritime rights. The "Donghai Collaboration-2012" joint exercise was held in the East China Sea in October 2012, involving 11 ships and eight planes.

As an important armed maritime law-enforcement body, the border public security force exercises jurisdiction over both violations of laws, rules and regulations relating to public security administration and suspected crimes committed in China's internal waters, territorial seas, contiguous zones, exclusive economic zones and continental shelf. In recent years, the border public security force has endeavored to guarantee the security of sea areas, strengthened patrols, surveillance and management along the sea boundary in the Beibu Gulf and around the Xisha sea areas, and effectively maintained maritime public order and stability.

Figure 9.13: Geographic Expansion in PLAN Military Exercises Locations



Source: Office of Naval Intelligence, *People's Liberation Army Navy: A Modern Navy with Chinese Characteristics*, p. 38.

The US View

The 2012 DoD report on Chinese military power summarized such developments in China's naval forces as follows:⁴⁰¹

Since the 1990s, the PLA Navy has transformed from a large fleet of single mission platforms to a leaner force equipped with more modern, multi-mission platforms. In contrast to the fleet of just a decade ago, many PLA Navy combatants are equipped with advanced area air-defense systems, modern ASCMs, and torpedoes. These capabilities not only increase the lethality of PLA Navy platforms, particularly in the area of anti-surface warfare, but also enable them to operate beyond the range of land-based air cover. The PLA Navy possesses some 79 principal surface combatants (destroyers and frigates), 50 submarines, 51 amphibious and medium landing ships, and 86 missile-equipped patrol craft.

The PLA Navy has now completed construction of a major naval base at Yalong, on the southernmost tip of Hainan Island. The base is large enough to accommodate a mix of nuclear-powered attack and ballistic-missile submarines and advanced surface combatants, including aircraft carriers. Submarine tunnel facilities at the base could also enable deployments from this facility with reduced risk of detection.

China's aircraft carrier research and development program includes renovation of the KUZNETSOV-class aircraft carrier Hull 2 (formerly the Varyag), which began sea trials in 2011. It will likely serve initially as a training and evaluation platform. Once China deploys aircraft capable of operating from a carrier, it should offer a limited capability for carrier-based air operations.

Some components of China's first indigenously-produced carrier may already be under construction; that carrier could achieve operational capability after 2015. China likely will build multiple aircraft carriers and associated support ships over the next decade. China currently has a land-based training program for carrier pilots; however, it will still take several additional years for China to achieve a minimal level of combat capability for its aircraft carriers.

The PLA Navy is improving its long-range surveillance capability with sky-wave and surface wave over-the-horizon (OTH) radars. In combination with early-warning aircraft, unmanned aerial vehicles (UAVs), and other surveillance and reconnaissance equipment, the radars allow China to carry out surveillance and reconnaissance over the western Pacific. These radars can be used in conjunction with reconnaissance satellites to locate targets at great distances from China, thereby supporting long-range precision strikes, including employment of ASBMs.

China has developed torpedo and mine systems capable of area denial in a Taiwan scenario. Estimates of China's naval mine inventory exceed 50,000 mines, with many more capable systems developed in the past 10 years.

China is producing a new class of nuclear-powered ballistic missile submarine (SSBN). The JIN-class SSBN (Type-094) will eventually carry the JL-2 submarine-launched ballistic missile with an estimated range of some 7,400km. The JIN-class SSBN and the JL-2 will give the PLA Navy its first credible sea-based nuclear capability. The JL-2 program has faced repeated delays, but may reach initial operating capability within the next two years.

China has expanded its force of nuclear-powered attack submarines (SSN). Two second generation SHANG-class (Type-093) SSNs are already in service and as many as five third generation SSNs will be added in the coming years. When complete, the new class of SSNs will incorporate better quieting technology, improving China's capability to conduct a range of missions from surveillance to the interdiction of surface vessels with torpedoes and ASCMs.

The current mainstay of modern diesel powered attack submarines (SS) in the PLA Navy submarine force are the 13 SONG-class (Type-039) units. Each can carry the YJ-82 ASCM. The follow-on to the SONG is the YUAN-class (a Type-039 variant), as many as four of which are already in service. The YUAN-class probably includes an air-independent power system. The SONG, YUAN, SHANG and the still-to-be-deployed new SSN-class all will eventually be capable of launching a new long-range ASCM.

China has deployed approximately 60 of its HOUBEI-class (Type-022) wave-piercing catamaran-hull guided missile patrol craft. Each boat can carry up to eight YJ-83 ASCMs. These boats have increased the

PLA Navy's littoral warfare capabilities. The PLA Navy has acquired modern, domestically-produced surface combatants.

These include at least two LUYANG II-class (Type-052C) guided missile destroyers (DDG) fitted with the indigenous HHQ-9 long-range SAM, with additional hulls under construction; two LUZHOU-class (Type-051C) DDGs equipped with the Russian SA-N-20 long-range SAM; and at least nine JIANGKAI II-class (Type-054A) guided-missile frigates, fitted with the medium range HHQ-16 vertically launched SAM. These ships improve the PLA Navy's area air defense capability significantly, which will be critical as the PLA Navy expands its operations into areas beyond the range of shore-based air defense.

Maritime Paramilitary Forces

During the 2012 Scarborough Reef and Senkaku Island tensions, the China Maritime Surveillance (CMS) and Fisheries Law Enforcement Command (FLEC) ships were responsible for directly managing the disputes on a daily basis, while the PLA Navy maintained a more distant presence away from the immediate vicinity of the contested waters. China prefers to use its civilian maritime agencies in these disputes, and use the PLA Navy further ashore from disputed areas or as an escalatory measure. The five civilian agency entities, commonly referred to as the "Five Dragons" are:

- *Anti-Smuggling Bureau (ASB)*: Subordinate to the General Administration of Customs and Ministry of Public Security. Armed entity responsible for criminal investigations and smuggling cases along China's inland border posts and rivers. (p.40)
- *China Coast Guard (CCG)*: Subordinate to the Ministry of Public Security. Active duty maritime police force responsible for combating maritime crime. (p.40)
- *China Maritime Surveillance (CMS)*: Subordinate to the State Oceanic Administration and Ministry of Land and Resources. Responsible for asserting China's marine rights and sovereignty claims in disputed maritime regions. (p.40)
- *Fisheries Law Enforcement Command (FLEC)*: Subordinate to the Ministry of Agriculture. Enforces PRC fisheries laws and handles fishery disputes with foreign entities across China's exclusive economic zone (EEZ).
- *Maritime Safety Administration (MSA)*: Subordinate to the Ministry of Transport. Responsible for safety of life at sea (SOLAS), maritime pollution control, and cleanup, port inspection, and maritime investigation.

In the next decade, an expanded and modernized force of civilian maritime ships will afford China the capability to more robustly patrol its territorial claims in the ECS and SCS. China is continuing with the second half of a modernization and construction program for its maritime law enforcement agencies. The first half of this program, from 2004-2008, resulted in the addition of almost 20 ocean-going patrol ships for the CMS (9), Bureau of Fisheries (BOF) (3), Maritime Safety Administration (MSA) (3), and China Coast Guard (2). The second half of this program, from 2011-2015, includes at least 30 new ships for the CMS (23), BOF (6), and MSA (1). Several agencies have also acquired ships that were decommissioned from the PLA Navy. Some old patrol ships will be decommissioned during this period. In addition, MLE agencies will likely build more than 100 new patrol craft and smaller units, both to increase capability and to replace old units. Overall, CMS total force level is expected to increase 50 percent by 2020 and BOF by 25 percent. MSA, China Coast Guard, and Maritime Customs force levels will probably remain constant, but with larger and more capable units replacing older, smaller units. Some of these ships will have the capability to embark helicopters, a capability that only a few MLE ships currently have. The enlargement and modernization of China's MLE forces will improve China's ability to enforce its maritime sovereignty. (p.40)

The Japanese View

The 2014 Japanese defense white paper provides another useful perspective on these developments.⁴⁰²

In recent years, China is believed to be aiming to build up capabilities to conduct operations in more distant waters and airspace. Accordingly, China has been rapidly expanding its maritime activities based on sea power and air power, both qualitatively and quantitatively. With regard to its activity in the sea areas and airspace surrounding Japan, Chinese naval vessels and navy and air force aircraft have been observed conducting training exercises of some kind, such as carrier-based helicopter flights and fleet formation and maneuver exercises, as well as information gathering activities.

A large number of Chinese government ships and aircraft belonging to maritime law-enforcement agencies have also been observed, which were engaged in monitoring activities for the protection of its maritime rights and interests. Such activities by China include those that involve incursion into Japan's territorial waters, violation of Japan's airspace, and dangerous acts that could cause unintended consequences, including a Chinese vessel's direction of a fire control radar at a JMSDF destroyer, the flight of fighters abnormally close to JSDF aircraft, and activities that could infringe upon the freedom of overflight over the high seas, such as the establishment of the "East China Sea Air Defense Identification Zone," and are extremely regrettable. China is urged to accept and comply with international norms.

Regarding the activities of naval forces, the number of Chinese naval surface vessels advancing to the Pacific Ocean has increased in recent years, and such advancements are currently conducted routinely. Every year since 2008, Chinese naval fleets have been passing the sea area between the main island of Okinawa and Miyako Island. However, in April 2012, a naval fleet passed the Osumi Strait eastward for the first time, and in October of the same year, they navigated the sea area between Yonakuni Island and Nakanokami Island near Iriomote Island northward for the first time. In July 2013, Chinese naval fleets passed the Soya Strait eastward for the first time. As such, the Chinese naval fleets' advancement and homing routes between the East China Sea and the Pacific Ocean continue to become diverse by incorporating the areas north of Japan, and it is understood that China seeks to improve its deployment capabilities to the open ocean. Furthermore, in October 2013, China reportedly conducted "Maneuver 5," the first joint exercise by its three naval fleets in the western Pacific Ocean.

In addition, Chinese naval vessels appear to routinely conduct operations in the East China Sea. After referring to its own position regarding the Senkaku Islands, China alleges that patrols by Chinese naval vessels in the sea areas under its jurisdiction are completely justifiable and lawful. In January 2013, a Chinese naval vessel directed fire-control radar at a JMSDF destroyer and is suspected to have directed fire-control radar at a helicopter based on the JMSDF destroyer.

With regard to the activities of Chinese government vessels, in December 2008, "Haijian" vessels belonging to the State Oceanic Administration (SOA) of the Ministry of Land and Resources of China hovered and drifted inside Japan's territorial waters near the Senkaku Islands – operations which are not permitted under international law. Subsequently, in August 2011 as well as in March and July 2012, "Haijian" vessels and "Yuzheng" vessels belonging to (then) Bureau of Fisheries of the Ministry of Agriculture of China intruded into Japan's aforementioned territorial waters. As these examples demonstrate, "Haijian" and "Yuzheng" vessels have gradually intensified their activities in Japan's territorial waters in recent years. Such activities intensified considerably and Chinese government vessels began to intrude into the aforementioned territorial waters intermittently after September 2012, when the Japanese government acquired property rights to and ownership of three of the Senkaku Islands (Uotsuri Island, Kitakojima Island, and Minamikojima Island). In April and September 2013, eight Chinese government vessels intruded into the aforementioned territorial waters simultaneously.

In September 2010, Japan Coast Guard patrol vessels and a Chinese fishing trawler collided in Japan's territorial sea surrounding the Senkaku Islands. In October 2012, vessels of the East Sea Fleet of the Chinese Navy and "Haijian" and "Yuzheng" vessels conducted a joint exercise with a focus on maintaining and defending China's territorial sovereignty and maritime interests. Furthermore, the Navy is believed to be supporting maritime law enforcement agencies both in terms of operation and equipment, including handing over retired Navy vessels to the China Coast Guard that was formally launched in July 2013.

In recent years, activities by Chinese naval and air force aircraft, which appear to be activities for gathering information about Japan of some form, have been observed frequently. The number of scrambles by the JASDF against Chinese aircraft is also increasing dramatically.

With regard to the activities of air forces in the airspace above the East China Sea, Chinese aircraft have been diversifying their flight patterns. In September 2007, multiple H-6 bombers flew into Japan's Air Defense Identification Zone above the East China Sea and advanced near the Japan-China median line. Similarly, in March 2010, a Y-8 early warning aircraft advanced near the Japan-China median line. In March 2011, a Y-8 patrol aircraft and Y-8 intelligence gathering aircraft crossed the Japan-China median line and approached within approximately 50km of Japan's airspace near the Senkaku Islands. In 2012, China intensified the activities of its aircraft, including fighters. In January 2013, the Chinese Ministry of National Defense made public the fact that Chinese military aircraft regularly conducted warning and surveillance activities and that Chinese fighters conducted activities believed to be Combat Air Patrols (CAP) in the East China Sea. In addition, in the most recent Chinese defense white paper, the phrase "air vigilance and patrols at sea" was added for the first time ever.

On November 16 and 17, 2013, a Tu-154 intelligence gathering aircraft flew over the East China Sea on two consecutive days. On November 23, the Chinese government announced that it established "the East China Sea Air Defense Identification Zone (ADIZ)" including the Senkaku Islands which China described as if they were a part of China's "territory," that it obligated aircraft flying in the said zone to abide by the rules set forth by the Chinese Ministry of National Defense, and that the Chinese Armed Forces would take "defensive emergency measures" in the case where such aircraft does not follow the instructed procedures.

Japan is deeply concerned about such measures, which are profoundly dangerous acts that unilaterally change the status quo in the East China Sea, escalating the situation, and that may cause unintended consequences in the East China Sea. Furthermore, the measures unduly infringe the freedom of overflight over the high seas, which is the general principle of international law. Japan is demanding China to revoke any measures that could infringe upon the freedom of overflight over the high seas. The United States, the Republic of Korea, Australia, and the European Union (EU) have expressed concern about China's establishment of such zone.

On the very day that China announced the establishment of the East China Sea ADIZ, a Tu-154 intelligence gathering aircraft and a Y-8 intelligence gathering aircraft flew over the East China Sea, respectively. On the same day, the Chinese Air Force announced that it conducted its first patrol flight since the establishment of the ADIZ. Subsequently, the Chinese Armed Forces announced on November 28 that its KJ-2000 Airborne Early Warning and Control system and Su-30 and J-11 fighters conducted patrol flights in the ADIZ, and announced on the following day that its Su-30 and J-11 fighters scrambled. On December 26, 2013, the Chinese Armed Forces announced that in the one month that passed since the establishment of the ADIZ, a total of 87 reconnaissance aircraft, early warning aircraft and fighters were mobilized to the relevant airspace.

In March and April 2011 and in April 2012, Chinese helicopters, etc. that appeared to belong to the SOA flew close to JMSDF destroyers which were engaged in monitoring and surveillance in the East China Sea. Further still, in May and June 2014, two Su-27 fighters of China flew abnormally close to the aircraft of JMSDF and JASDF that were conducting routine monitoring and surveillance activities in the East China Sea. The Chinese Ministry of National Defense announced that JSDF aircraft conducted dangerous acts against Chinese aircraft. However, the operations of JSDF aircraft were legitimate activities in compliance with the international law. There is no truth to the Chinese assertion that JSDF aircraft carried out dangerous acts.

With respect to air forces' advancement into the Pacific Ocean, it was confirmed for the first time by the JASDF's scrambling fighters that a Y-8 early warning aircraft and a H-6 bomber flew through the airspace between the main island of Okinawa and Miyako Island and advanced to the Pacific Ocean in July and September 2013, respectively. Similar flights were conducted by two Y-8 early warning aircraft and two H-6 bombers (total: four aircrafts) on three consecutive days in October of the same year and by one Y-8 intelligence gathering aircraft and two H-6 bombers (total: three aircrafts) in March 2014. As such activities demonstrate, China has been further intensifying the activities of its aircraft, including fighters.

China has also been intensifying its activities in the South China Sea, including waters around the Spratly Islands and the Parcel Islands, over which territorial disputes exist with neighbors, including some ASEAN (Association of Southeast Asian Nations) member states. In March 2009, Chinese ships, including a naval vessel, a maritime research ship of the SOA, a Bureau of Maritime Fisheries' patrol ship, and trawlers, approached a U.S. Navy acoustic research ship operating in the South China Sea to obstruct its operations.

In addition, in December 2013, a Chinese naval vessel cut across the bow of a U.S. Navy cruiser operating in the South China Sea at point blank range. It is also reported that Chinese naval vessels fired warning shots at fishing boats of neighboring countries. Furthermore, in recent years, there has been growing friction between China and its neighboring countries over the South China Sea, as illustrated by protests by Vietnam and the Philippines against China's activities in these waters.

Additionally, Chinese naval vessels have advanced into the Indian Ocean. Since December 2008, Chinese naval vessels have been navigating in the Indian Ocean and advanced into the coast of Somalia and in the Gulf of Aden to take part in international anti-piracy efforts. In 2010 and 2013, a Chinese Navy's hospital ship carried out "Mission Harmony," a medical service mission, to assist countries, including countries off the coast of the Indian Ocean. Furthermore, from the end of 2013 to the beginning of 2014, a Chinese naval nuclear submarine reportedly advanced into the Indian Ocean and conducted operations off the coast of Somalia and in the Gulf of Aden. In the same year, a Chinese naval vessel is said to have advanced into the Indian Ocean from the Sunda Strait and conducted trainings. As such examples demonstrate, the Chinese Navy has improved its capacity to execute operations in more distant waters, including the Indian Ocean.

Taking into consideration such factors as the situation of the development of Chinese naval and air forces, situation of activities in sea areas and airspace, statements in defense white papers, China's geographical location and economic globalization, the maritime activities of the Chinese Navy, Air Force and other organizations are considered to have the following objectives.

The first one is to intercept operations by enemies in waters and airspace as far as possible from China in order to defend its territory, territorial waters and territorial airspace. Behind this objective is an increase in effectiveness of long-range attacks due to recent progress in science and technology.

The second one is to develop military capabilities to deter and prevent Taiwan's independence. For example, China maintains that it will not allow any foreign intervention in solving the Taiwan issue and realizing the unification of China. In order for China to try to prevent foreign intervention into Taiwan surrounded by the sea in all directions through China's use of force, it needs to enhance its military operational capabilities at sea and airspace.

The third one is to weaken the control of other countries over the islands to which China claims territorial sovereignty, while strengthening the claim of its territorial sovereignty, through various surveillance activities and use of force in the seas and air space surrounding the islands.

The fourth one is to acquire, maintain, and protect its maritime rights and interests. China is engaged in oil and gas drilling as well as building facilities and surveying for the drilling in the East China Sea and South China Sea.

The fifth one is to defend its sea lanes of communications. In the background is the fact that its sea lanes of communications, including its crude oil transportation routes from the Middle East, are extremely important for the globalizing Chinese economy. The question of which parts of its sea lanes of communication the Chinese Navy deems it should defend depends on such factors as the international situation at the time. However, given the recent strengthening of the Chinese Navy and Air Force, it is believed that the Chinese Navy and Air Force will develop a capacity to defend areas going beyond the waters near China. Given these objectives and recent trends in China's activities in sea areas and airspace, it is believed that China plans to further expand the sphere of its maritime activities, and further intensify its operations in waters surrounding Japan, including the East China Sea and the Pacific Ocean, as well as the South China Sea and the airspaces over these seas areas. Therefore, more attention needs to be paid to activities such as operations of naval vessels as well as Navy and Air Force aircraft, various surveillance operations near Japan, developments of facilities that serve as bases for these activities, and evolution of China's interpretation regarding the legal status of coastal areas in China's exclusive economic zones.

The US Reaction and the Air Sea Battle

As noted in earlier discussions of the modernization of the PLAA, these increases in Chinese long-range naval capacity have already affected US power projection planning – although no clear decisions have yet been taken as to how US forces will change as a result. They have led the DoD to put a new emphasis on the role of the air sea battle in the Pacific and Asia:⁴⁰³

Recognizing that antiaccess/area-denial capabilities present a growing challenge to how joint forces operate, the Secretary of Defense directed the Department of the Navy and the Department of the Air Force to develop the Air-Sea Battle Concept.

The intent of Air-Sea Battle is to improve integration of air, land, naval, space, and cyberspace forces to provide combatant commanders the capabilities needed to deter and, if necessary, defeat an adversary employing sophisticated antiaccess/area-denial capabilities.

It focuses on ensuring that joint forces will possess the ability to project force as required to preserve and defend U.S. interests well into the future.

The Air-Sea Battle Concept is both an evolution of traditional U.S. power projection and a key supporting component of U.S. national security strategy for the 21st Century. However, it is important to note that Air-Sea Battle is a limited operational concept that focuses on the development of integrated air and naval forces in the context of antiaccess/area-denial threats. The concept identifies the actions needed to defeat those threats and the materiel and nonmateriel investments required to execute those actions.

There are three key components of Air-Sea Battle designed to enhance cooperation within the Department of the Air Force and the Department of the Navy.

The first component is an *institutional* commitment to developing an enduring organizational model that ensures formal collaboration to address the antiaccess/area-denial challenge over time.

The second component is *conceptual* alignment to ensure that capabilities are integrated properly between Services.

The final component is doctrinal, organizational, training, materiel, leadership and education, personnel, and facilities *initiatives* developed jointly to ensure they are complementary where appropriate, redundant when mandated by capacity requirements, fully interoperable, and fielded with integrated acquisition strategies that seek efficiencies where they can be achieved.

In 2013, a US military report on Air-Sea Battle discussed the concept at more length:⁴⁰⁴

ASB is a limited objective concept that describes what is necessary for the joint force to sufficiently shape A2/AD environments to enable concurrent or follow-on power projection operations. The ASB Concept seeks to ensure freedom of action in the global commons and is intended to assure allies and deter potential adversaries. ASB is a supporting concept to the Joint Operational Access Concept (JOAC), and provides a detailed view of specific technological and operational aspects of the overall A2/AD challenge in the global commons. The Concept is not an operational plan or strategy for a specific region or adversary. Instead, it is an analysis of the threat and a set of classified concepts of operations (CONOPS) describing how to counter and shape A2/AD environments, both symmetrically and asymmetrically, and develop an integrated force with the necessary characteristics and capabilities to succeed in those environments. ASB is about building conceptual alignment, programmatic collaboration and institutional commitment in an integrated way, across the military Services in order to develop forces and capabilities that can jointly address A2/AD challenges. The purpose of ASB is not to simply conduct operations more jointly. It is to increase operational advantage across all domains, enhance Service capabilities and mitigate vulnerabilities. In addition to other joint and service concepts, ASB will help ensure the U.S.'s ability to gain and maintain freedom of action in the global commons, and to the conduct of concurrent or follow-on operations against a sophisticated adversary.

Central Idea. The ASB Concept's solution to the A2/AD challenge in the global commons is to develop networked, integrated forces capable of attack-in-depth to disrupt, destroy and defeat adversary forces (NIA/D3). ASB's vision of networked, integrated, and attack-in-depth (NIA) operations requires the application of cross-domain operations across all the interdependent warfighting domains (air, maritime, land, space, and cyberspace, to disrupt, destroy, and defeat (D3) A2/AD capabilities and provide maximum operational advantage to friendly joint and coalition forces.

Cross-domain operations are conducted by integrating capabilities from multiple interdependent warfighting domains to support, shape, or achieve objectives in other domains. Cross-domain operations are those that can exploit asymmetric advantages in specific domains to create positive and potentially cascading effects in other domains. For cross-domain operations to be fully effective, commanders, whether

defending or attacking, must have ready access to capabilities, no matter what domain they reside in or which commander owns them, to support or achieve operational objectives and create the effects required for advantage over an adversary. This interoperability may require multi-pathing, or the ability to use multiple, alternative paths from among all domain capabilities to achieve a desired end. While cross-domain operations are more complex than single domain or single Service options, their multi-pathing possibilities can provide distinct operational advantages over single domain or single Service solutions to operational problems.

The ability to integrate capabilities, equipment, platforms, and units across multiple domains and to communicate, interact, and operate together presents a joint force commander with more numerous and powerful options, which in turn, offer greater probability of operational success. For example, cyber or undersea operations can be used to defeat air defense systems, air forces can be used to eliminate submarine or mine maritime threats, or space assets can be used to disrupt adversary command and control. Put simply, traditional understandings of Service missions, functional responsibilities, or employment of capabilities from particular domains should not be barriers that hamper imaginative joint operations in an A2/AD environment. Each of the elements of ASB's construct offer joint force commanders increased flexibility and capability.

Networked. In the ASB Concept, networked actions are tightly coordinated in real time by mission-organized forces to conduct integrated operations across all domains without being locked into Service-specific procedures, tactics, or weapons systems. A networked force is people and equipment linked in time and purpose with interoperable procedures; command control (C2) structures; and appropriate authorities capable of translating information into actions. These joint forces are able to attack the adversary A2/AD system-of-systems in depth and across all domains to create and exploit vulnerabilities.

Networked capabilities are both the physical means by which forces communicate and exchange information and the relationships, protocols, and procedures used by warfighters to complete their assigned missions. To be effective, networked forces need interoperable procedures, (C2) structures, and equipment. Authorities must also be provided at the appropriate C2 level in order for joint and coalition forces to gain and maintain decision advantage. In the ASB Concept, networked does not only mean having assured communications and access to data; it also means having a force trained to conduct operations using mission-type orders and being able to operate even in the absence of continuous connectivity. The joint force can achieve that ability in part by establishing habitual relationships across Service, component, and domain lines so that forces can be effectively trained to operate together in a contested and degraded environment.

Integrated. Integration is the arrangement of military forces and their actions to create a force that operates networked across domains as a whole. An integrated joint force is better able to combine capabilities across multiple domains to conduct specific missions. The basic concept of integration has further evolved into seeking the development of pre-integrated joint forces. In order to maintain an advantage over potential adversaries, air, naval, and land forces must fully integrate their operations. Integration, traditionally viewed as strictly the combatant commander's job, needs to begin across Service lines as part of force development.

Forces should be integrated prior to entering a theater. Effective integration requires enhanced joint and combined training against A2/AD capabilities, including training and exercise for cross-domain operations before deployment. In some cases, pre-integration will also require Services' collaboration in materiel programming to ensure interoperability to avoid overly redundant or incompatible systems.

Attack-in-depth to Disrupt, Destroy and Defeat. The attack-in-depth methodology is based on adversary effects chains, or an adversary's process of finding, fixing, tracking, targeting, engaging and assessing an attack on U.S. forces. Attack-in-depth is offensive and defensive fires, maneuver, and command and control with the objective of disrupting, destroying, or defeating an adversary's A2/AD capabilities, conducted across domains in time, space, purpose, and resources. Attack-in-depth seeks to apply both kinetic and non-kinetic means to address adversary critical vulnerabilities without requiring systematic destruction of the enemy's defenses (e.g., a rollback of an adversary's integrated air defense system).

D3 represents the 3 lines of effort of the ASB Concept:

- **Disrupt** Adversary Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR or C4I);

- **Destroy** adversary A2/AD platforms and weapons systems; and,
- **Defeat** adversary employed weapons and formations.

Disrupting these effects chains includes impacting an adversary's C4ISR or C4I capabilities, ideally precluding attack on friendly forces. **Destroying** or neutralizing adversary weapons platforms enhances friendly survivability and provides freedom of action. **Defeating** employed weapons post-launch defends friendly forces from an adversary's attacks and allows sustained operations.

Due to the nature of A2/AD threats and potentially short indications and warning timelines posed by adversaries, joint forces must be capable of effective offensive operations as soon as conflict begins, while simultaneously defending or re-positioning deployed forces, protecting land and sea bases, and bringing forces forward from garrison with acceptable levels of risk. The ability to attack and defend through the entire depth of the desired battlespace, in all the interdependent warfighting domains, is critical to establishing joint freedom of action.

These concepts are not targeted against China or the Pacific. They are equally important in US contingency planning for dealing with Iran and power projection missions throughout the world. At the same time, their development will be critical to US security partnerships throughout Asia and the Pacific, and in cases that do involve land forces, they mean that the US must pay far more attention to securing its lines of access and resupply, and that air and missile power are likely to play a far greater role compared to US land power.

CHAPTER 10: THE PLA AIR FORCE

The PLAAF is an air force in transition. For much of the Cold War, it was designed to act as a mass air defense force flying second and third generation aircraft. During the 1990s, the PLAAF began to shift to a more diversified force structure; since 2000, the PLAAF has fully embraced a shift from a singular focus on air defense and interceptor fighter aircraft to a multi-mission force, capable of carrying out AD, strike, transport, ISR, and, since 2010, electronic warfare missions.⁴⁰⁵

These changes in force structure, as well as the procurement of modern aircraft, have augmented the ability of the PLAAF to conduct both defensive and offensive missions, thereby increasing the PLAAF's utility to the wider PLA in the context of the Local Wars doctrine.

The US Official View

Like the modernization of Chinese sea power and the expansion of Chinese naval power projection capability, the US sees the expansion of Chinese air and missile power, and overall air-sea capabilities, as a far more serious challenge than the modernization of Chinese ground forces. **Figure 10.1** shows a DoD estimate of the size of the PLAAF in 2014. The 2014 DoD report on *Military and Security Developments Involving the People's Republic of China* described the current structure and trends in the PLAAF as follows:⁴⁰⁶

The PLAAF is the largest air force in Asia and the third-largest air force in the world, with approximately 330,000 personnel and more than 2,800 total aircraft, not including unmanned aerial vehicles (UAV). Of these PLAAF aircraft, approximately 1,900 are combat aircraft (includes fighters, bombers, fighter-attack and attack aircraft), 600 of which are modern. The PLAAF is pursuing modernization on a scale unprecedented in its history and is rapidly closing the gap with Western air forces across a broad spectrum of capabilities including aircraft, command and control (C2), jammers, electronic warfare (EW), and data links. Although it still operates a large number of older second- and third-generation fighters, it will likely become a majority fourth-generation force within the next several years. (p.9)

To bolster its tactical air forces, China is attempting to procure the Su-35 advanced Flanker aircraft from Russia along with its advanced IRBIS-E passive electronically scanned array radar system. If China does procure the Su-35, these aircraft could enter service in 2016 or 2018. (p.9)

China is also vigorously pursuing fifth-generation capabilities. Within two years of the J-20 stealth fighter's first flight in January 2011, China tested a second next-generation fighter prototype. The prototype, referred to as the J-31, is similar in size to a U.S. F-35 fighter and appears to incorporate design characteristics similar to the J-20. It conducted its first flight on October 31, 2012. At present, it is unclear if the J-31 is being developed for the PLAAF or the PLA Navy Air Force, or as an export platform to compete with the U.S. F-35. (p.9)

China continues upgrading its H-6 bomber fleet, which was originally adapted from the late-1950s Soviet Tu-16 design, to increase operational effectiveness and lethality by integrating new stand-off weapons. China also uses a modified version of the H-6 aircraft for aerial refueling. The H-6G variant, in service with the PLA Navy Air Force, has four weapons pylons that are probably for ASCMs. China has developed the H-6K variant with new turbofan engines for extended range. It is believed to be capable of carrying six LACMs. Modernizing the H-6 into a cruise missile carrier has given the PLA Air Force a long-range stand-off offensive capability with precision-guided munitions. (p.9)

The PLA Air Force possesses one of the largest forces of advanced SAM systems in the world, consisting of a combination of Russian-sourced SA-20 (S-300PMU1/2) battalions and domestically produced CSA-9 (HQ-9) battalions. China may become the first country to import Russia's S-400/Triumpf SAM system as a follow-on to the SA-20, while simultaneously developing its indigenous HQ-19 which appears to be very similar to the S-400. (p. 10)

China has developed a national integrated air defense system (IADS) to defend key strategic cities and borders, territorial claims. Overall, China's IADS represents a multilayered defense consisting of weapon systems, radars, and C4ISR platforms working together to counter air threats at various ranges and altitudes. One of China's primary goals is to defend against precision strike munitions such as cruise and ballistic missiles, especially those launched from long distances. Defense against stealth aircraft and unmanned aerial vehicles is also a growing priority. (p.69)

Another element of China's multilayered IADS is its extensive ground-based radar network. In the past, this ground-based early warning network and China's Russian-acquired SAMs primarily protected Beijing and other key strategic locations in the eastern part of the country. China has since developed the KONGJING-2000 (KJ-2000) airborne early warning aircraft to provide coverage at long ranges and low altitudes for faster response and command targeting to weapon systems. In the future, China may expand its national early warning network to protect China's territorial air space and waters farther from the mainland, as well as to provide space defense. This effort would include China's growing constellation of reconnaissance, data relay, navigation, and communications satellites. China is also improving reconnaissance technologies to include infrared, multiple-spectrum, pulsed Doppler, phased array, and passive detection. Over-the-horizon skywave radar is also an important component of China's improvement in its strategic early warning capabilities. (p.69)

China's IADS also includes a C4ISR network to connect early warning platforms, SAM and ADA, and command posts to improve communication and response time during operations. The network is intended to include battle damage assessment capability. China continues to make progress on command, communication, and control systems. China's air defense brigades are training to use this information network and mobile command and control platforms to connect the operations of different types of weapon systems by sending automated targeting information to them simultaneously. China is also using simulation systems to attempt to train for command of air defense operations in realistic operational conditions, including network warfare. China has deployed air defense brigades employing its newest SAM system to the western part of China to train for long-distance mobility and operations in high-altitude conditions, including operations under the conditions of network warfare. (p.69)

China's aviation industry is testing a large transport aircraft (referred to as the Y-20) to supplement China's fleet of strategic airlift assets, which currently consists of a limited number of Russian-made IL-76 aircraft. The Y-20 made its maiden flight during January 2013 and is reported to be using the same Russian engines as the IL-76. These heavy-lift transports are intended to support airborne C2, logistics, paradrop, aerial refueling, and reconnaissance operations, as well as humanitarian assistance/disaster relief missions. (p. 10)

China's commercial and military aviation industries have advanced to produce indigenously improved versions of older aircraft and modern fourth- and fifth-generation fighters, which incorporate low-observable technologies, as well as attack helicopters. China's commercial aircraft industry has invested in high-precision and technologically advanced machine tools, avionics, and other components that can also be used in the production of military aircraft. However, production in the aircraft industry will be limited by its reliance on foreign sourcing for dependable, proven aircraft engines. Infrastructure and experience for the production of large-body commercial and military aircraft are believed to be limited, but growing with continued investments. (p. 46)

The 2013 DoD report, though not the latest report on China, still provides information that the 2014 report overlooks but is still useful.⁴⁰⁷

Developments in China's commercial and military aviation industry indicate improved aircraft manufacturing, associated technology, and systems development capabilities. Some of these advances have been made possible by business partnerships with Western aviation and aerospace firms (including cleared U.S. defense contractors), which provide overall benefit to China's military aerospace industry. China will continue to seek advancement in aerospace technology, capability, and proficiency to rival Western capabilities. (p. 8)

Regarding China's IADS:⁴⁰⁸

Another aspect of China's IADS development is the deployment of land-based air defense brigades beyond the eastern coast of China and improving the air defense of China's naval fleets in the ECS and SCS. This

is part of China's longstanding effort to expand its capabilities from focusing on territorial defense to supporting both defensive and offensive operations. (p. 67)

Figure 10.1: The Size of the PLAAF in 2014

Aircraft	Total
Fighters	1,700
Bombers/Attack	400
Transport	475

Note: The PLAAF and the PLA Navy have about 2,100 operational combat aircraft. These consist of air defense and multi-role fighters, ground attack aircraft, fighter-bombers, and bombers. An additional 1,450 older fighters, bombers and trainers are employed for training and R&D. The two air arms also possess roughly 475 transports and over 100 surveillance and reconnaissance aircraft with intelligence, surface search, and airborne early warning capabilities. The PLAAF would likely supplement its military transports with civilian aircraft in a combat situation. The majority of PLAAF and PLA Navy aircraft are based in the eastern half of the country.

Source: DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2014*, April 2014, 78.

PLAAF Strategy

The PLAAF has fundamentally changed its force structure, composition, and Personnel policies since 1985. Originally meant as a large air defense force, the PLAAF's force structure was made up primarily of obsolete interceptor aircraft. Its objective was largely to destroy aircraft attacking China and to maintain a small, air-based nuclear deterrent.

The promulgation of the Local Wars concept altered this situation. The CMC had concluded that air power, especially when utilizing precision-guided munitions, would be decisive in future conflicts. Thus, the PLAAF was expected to obtain a long-range precision strike capability.⁴⁰⁹ However, given the PLAAF's large inventory of second- and third-generation interceptor aircraft which lacked Beyond-Visual-Range (BVR) capability, advanced radar, and specialized electronic warfare (EW) support aircraft, the PLAAF would have to fundamentally change in order to successfully fight and win Local Wars.

In particular, it would have to be restructured to comprise more heavily of strike, rather than interceptor, aircraft. Furthermore, it would have to procure more advanced aircraft that were capable of carrying out these missions despite adversary defenses. Most importantly, the PLAAF would have to develop the human capital needed to utilize advanced systems and operate according to the Local Wars doctrine.

In response to this challenge, the PLAAF released its own service strategy in 2004, "Integrated Air and Space Operations, Being Prepared for Simultaneous Offensive and Defensive Operations."⁴¹⁰ A response to the Local Wars doctrine, it stated that the PLAAF was to become a force capable of defending China's air space and of strike operations against China's adversaries. Moreover, the PLAAF was expected to augment the operational reach of the PLA and function

as a “strategic service” capable of obtaining China’s political objectives in concert with the rest of the PLA or separately.⁴¹¹

Shift in Force Structure, Equipment Composition, and Personnel

The PLAAF has altered its force structure in response to the necessities of the Local Wars concept and its own service strategy by both increasing aircraft types and dramatically reducing the proportion of aircraft allocated to the interception role. Currently, the PLAAF has large inventories of fighter, ground attack, and transport aircraft, as well as the beginnings of ISR, command and control (C2), Airborne Early Warning and Control (AEW&C), EW, and Electronic Intelligence (ELINT) aircraft. Its force structure and major headquarters are shown in **Figure 10.2**.

The PLAAF has also changed its force composition. It is currently in the midst of replacing obsolete, single-purpose aircraft with multi-role modern aircraft. At this time, the PLAAF is roughly 1/3 modern. This development is a significant improvement from the 1990s when the PLAAF was dependent on a handful of Russian fourth generation fighters to provide modern aircraft capabilities.

Personnel policies are also furthering the development of a force capable of fighting Local Wars. PLAAF Personnel has declined significantly since 1985, while policies are in place to improve the combat capability of the PLAAF’s personnel. A combination of improved academic performance in recruits, more intensive training, and joint military exercises are developing the skills needed for Local Wars.

Shift in Force Structure

The shift in force structure has been decisive and has significant implications for the PLAAF’s ability to conduct the missions required by the Local Wars concept: precision strike, air defense, ISR, EW, and strategic airlift.

Lieutenant Michael T. Flynn characterized the PLAAF’s transformation:⁴¹²

China’s air force is transforming from a force oriented solely on territorial defense into one capable of both offshore offensive and defensive roles – including strike, air and missile defense, early warning, and reconnaissance. It is also seeking to improve its strategic projection by increasing its long-range transport and logistical capabilities. Modernization efforts include investing in stealth technology.

As the data in **Figure 10.3** show, the PLAAF has altered its force structure by increasing the categories of aircraft in its inventory. Some aspects important to note are the significant drop in fighter aircraft numbers over the period, the absolute and relative increase in ground attack aircraft, the steady decline of bomber numbers, and the development of different aircraft categories.

Figure 10.2: Deployment of China's Air Forces

Source: DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2014*, April 2014, 80.

Figure 10.3: Force Structure of the PLA Air Force, 1985-2014 – Part I

Fixed Wing								
Bombers		1985	1990	1995	2000	2005	2010	2014
	H-5/F-5/F-5B	500	275+	350	200	40	20	0
	H-6 (Tu-16)	120	120	120	0	0	30	0
	H-6A/E/H/K/M	0	0	0	120	120	82	90
	Possibly with YJ-63 missiles	0	0	0	0	20	some	some
Total		620	395+	470	320	180	132	90

Fighters		1985	1990	1995	2000	2005	2010	2014
	J-5	400	400	400	0	0	0	0
	J-6B/D/E	3000	3000	3000	1500	0	0	0
	J-7	200	300	500	0	0	48	216
	J-7II/B	0	0	0	400	400	192	0
	J-7IIIH/J-7H	0	0	0	?	50	48	0
	J-7IIM	0	0	0	?	24	0	0
	J-7III	0	0	0	100	0	0	0
	J-7C	0	0	0	0	50	48	0
	J-7D	0	0	0	0	50	24	0
	J-7E	0	0	0	200	150	144	192
	J-7G	0	0	0	0	0	48	120
	J-8	30	200	100	100	20	24	0
	J-8IIA	0	0	0	0	40	60	0
	J-8IIB/J-8B	0	0	0	150	50	108	24
	J-8IID	0	0	0	0	24	36	0
	J-8IIE	0	0	0	0	50	12	0
	J-8F	0	0	0	0	0	24	24
	J-8H	0	0	0	0	0	48	96
	J-10	0	0	0	0	0	120+	78
	Su-27SK	0	0	24	65	78	some	43
	Su-27UBK	0	0	0	0	0	0	32
	J-11	0	0	0	0	0	116	95
Total		3630	3900	4024	2515	986	980	920

Source: IISS *Military Balance*, 1985-2014, and reporting by HIS Jane's. Adapted by Anthony H. Cordesman and Tyler Duhamel at the Center for Strategic and International Studies.

Figure 10.3: Force Structure of the PLA Air Force, 1985-2014 – Part II

Fighter, Ground Attack		1985	1990	1995	2000	2005	2010	2014
	J-4	some	0	0	0	0	0	0
	J-6	0	0	0	0	300	0	0
	J-6A	0	0	0	0	50	0	0
	J-6B/D/E	0	0	0	1500	0	0	0
	JH-7/HJ-7A	0	0	0	0	0	72	120
	Q-5	some	500	500	0	0	0	0
	Q-5C/D/E	0	0	0	300	300	120	120
	MiG-19	0	0	0	0	0	0	0
	J-10A/S	0	0	0	0	0	0	240+
	J-11B/BS	0	0	0	0	0	18+	110+
	Su-30MKK	0	0	0	40 (delivered)	76	73	73
	HZ-5	some	40	40	40	40	0	0
	JZ-5	0	150	150	0	0	0	0
	JZ-6 (MiG-19R)	some	100	100	100	100	72	0
	JZ-7 (MiG-21)	0	0	0	some	some	0	0
	JZ-8 Finback	0	0	0	0	20	24	24
	JZ-8F Finback	0	0	0	0	0	24	24
	Y-8H1	0	0	0	0	0	3	3
	Total	0	790	790	1940	886	388	364
Tanker		1985	1990	1995	2000	2005	2010	2014
	HY-6	0	0	0	6	10	0	0
	H-6U	0	0	0	0	0	10	10
Total		0	0	0	6	10	10	10

Source: IISS *Military Balance*, 1985-2014, and reporting by HIS Jane's. Adapted by Anthony H. Cordesman and Tyler Duhamel at the Center for Strategic and International Studies.

Figure 10.3: Force Structure of the PLA Air Force, 1985-2014 – Part III

Transport		1985	1990	1995	2000	2005	2010	2014
	Bae Trident 1E/2E	18	18	18	0	0	0	0
	An-12	some	25	25 (some tankers)	68	49	0	0
	B-737-200 (VIP)	0	0	0	6	8	15	9
	CL 601 Challenger	0	0	0	2	5	5	0
	CRJ-200	0	0	0	0	0	0	5
	CRJ-700	0	0	0	0	0	0	5
	Il-14	some	30	30	0	0	0	0
	Il-18	some	10	10	2	2	2	0
	Il-76MD/TD Candid	0	0	10	14	20	18	16+
	Li-2	some	50	50	0	0	0	0
	Tu-154	0	0	0	15	15	17	12
	Y-11	0	some	15	15	15	20	20
	Y-12	0	some	2	8	8	8	8
	Y-5 Colt	300	300	300	300	300	170	170
	Y-7/Y-7H (An-26)	10	20	25	45	93	41	41
	Y-8	0	0	0	0	0	some	40
	Y-9	0	0	0	0	0	0	1+
	EW	0	0	0	0	0	10	13
	Y-8CB	0	0	0	0	0	0	4
	Y-8G	0	0	0	0	0	0	7
	Y-8XZ	0	0	0	0	0	0	2
	Y-8D	0	0	0	0	0	10	0
Total		328	453	460	475	515	316	336

Source: IISS *Military Balance*, 1985-2014, and reporting by HIS Jane's. Adapted by Anthony H. Cordesman and Tyler Duhamel at the Center for Strategic and International Studies.

Figure 10.3: Force Structure of the PLA Air Force, 1985-2014 – Part IV

		1985	1990	1995	2000	2005	2010	2014
Airborne Early Warning & Control	KJ-200	0	0	0	0	0	4	4+
	KJ-2000	0	0	0	0	0	4	4
Command & Control	B-737-200	0	0	0	0	0	0	2
	Y-8T	0	0	0	0	0	0	3
Training	CJ-5	some	some	some	0	0	0	0
	CJ-6/6A/6B	some	some	some	0	0	400	400
	HJ-5	some	some	some	some	some	0	5
	J-2	0	some	some	0	0	0	0
	JJ-2	0	some	some	0	0	0	0
	JJ-4	some	some	some	0	0	0	0
	JJ-5	some	some	some	0	0	0	0
	JJ-6 (MiG-19UTI)	some	some	some	some	0	0	14
	JJ-7 Mongol A	0	0	0	some	50+	50	200
	JL-8 (K-8)	0	0	0	some	8+	40	350
	PT-6 (CJ-6)	0	0	0	some	0	0	0
	Su-27UBK	0	0	0	0	0	32	32
Total		some	some	some	some	58+	530	1010

Source: IISS *Military Balance*, 1985-2014, and reporting by HIS Jane's. Adapted by Anthony H. Cordesman and Tyler Duhamel at the Center for Strategic and International Studies.

Figure 10.3: Force Structure of the PLA Air Force, 1985-2014 – Part V

Rotary Wing								
Multi-Role		1985	1990	1995	2000	2005	2010	2014
	Z-9 (AS-365N Dauphin 2)	some	10	50	30	20	20	20
	Mi-17-V5	0	0	0	0	0	0	2
Total		some	10	50	30	20	20	22
Transport		1985	1990	1995	2000	2005	2010	2014
	S-70C-2	0	24	20	0	0	0	0
	Z-5	some	300	250	100	0	0	0
	Z-6	some	some	100	0	0	0	0
	Z-8/SA321	some	0	15	0	0	some	18+
	AS-332 Super Puma	0	6	6	6	6	6	6+
	Mi-8	0	30	30	30	50	50	0
	Mi-17	0	0	28	0	0	0	0
	Mi-171	0	0	0	0	0	some	4+
	Bell 214	0	4	4	4	4	4	0
Total		some	364	436	140	60	60+	28
UAV's		1985	1990	1995	2000	2005	2010	2014
	CH-1 <i>Chang Hong</i>	0	0	0	some	some	some	some
	<i>Chang Kong 1</i>	0	0	0	0	0	some	some
	BQM-32	0	0	0	0	0	some	some
	Harpy	0	0	0	0	0	some	some
Total		0	0	0	0	0	some	some

Source: IISS Military Balance, 1985-2014, and reporting by HIS Jane's. Adapted by Anthony H. Cordesman and Tyler Duhamel at the Center for Strategic and International Studies.

Figure 10.3: Force Structure of the PLA Air Force, 1985-2014 – Part VII

Air-to-Air and Air-to-Ground Combat Missiles		1985	1990	1995	2000	2005	2010	2014
	ASMs/LACM	0	some	some	some	some	some	some
	HY-2	0	0	0	Some	0	0	0
	HY-4	0	0	0	some	0	0	0
	C-601	0	some	some	0	0	0	0
	C-801	0	some	some	0	0	0	0
	Kh-29 (AS-14 Kedge)	0	0	0	0	some	some	some
	Kh-31A/P (AS-17 Krypton)	0	0	0	0	some	some	some
	Kh-59 (AS-18 Kazoo)	0	0	0	0	some	some	some
	YJ-61	0	0	0	some	0	0	0
	YJ(KD)-63	0	0	0	0	some expected	some	some
	YJ-81K	0	0	0	some	0	0	0
	KD/YJ-88	0	0	0	0	0	some	0
	YJ-91 (X-31 II)	0	0	0	0	0	some	some
	CJ-10	0	0	0	0	0	0	some
	AAM/ARH	0	0	0	600+	4,500+	some	some
	R-77/AA-12 Adder	some	some	some	100 on order for Su-30	100	some	some
	R-27/P-27 (AA-10 Alamo)	0	0	0	250+	1200	some	some
	R-73/P-37 (AA-11 Archer)	0	0	0	250+	3200	some	some
	PL-2/2B	some	some	some	some	some	some	some
	PL-5B/C	0	0	0	some	some	some	some
	PL-7	0	some	some	?	?	0	0
	PL-8	0	some	some	some	some	some	some
	PL-9	0	0	some	some	0	0	0
	PL-11	0	0	0	0	0	0	some
	PL-12	0	0	0	0	some	some	some
Total								

Source: IISS, *Military Balance 2014*, adapted by Anthony H. Cordesman and Tyler Duhamel at the Center for Strategic and International Studies.

The Pace of Modernization

The PLAAF has made major progress in many areas. **Figures 10.4 through 10.6** summarize several of key trends as follows:

- **Figure 10.4** provides a visualization of the force trends presented in **Figure 10.3**.
- **Figure 10.5** aggregates these numbers to show both a historical comparison of overall combat aircraft numbers and also the relative size of the PLAAF dedicated to each mission category.
- **Figure 10.6** illustrates change over time for each individual aircraft category, and charts the changes in the relative portion of each category in the PLAAF.

There are a number of indicators that are best observed visually. The first is the magnitude and speed of the decline in fighter-interceptor aircraft, both absolutely and relatively. Between 1995 and 2013, roughly 3,000 fighter-interceptors were removed from the PLAAF's inventory: fighter-interceptor aircraft dropped from ~80% of the PLAAF to ~50%. Fighter-ground attack aircraft faced a different trend; overall numbers did not markedly increase but their relative share of the PLAAF's inventory increased by more than 2.5 times. Training and transport aircraft both increased in absolute numbers significantly, but their impact is best shown by their relative share of the PLAAF's aircraft holding.

The 2014 Japanese defense white paper summarized the modernization of Chinese air forces as follows:⁴¹³

The Chinese Air Force and Navy have approximately 2,580 combat aircraft in total. The number of fourth generation modern fighters is rising steadily. China imported from Russia and produced under license the Su-27 fighters, and imported from Russia the Su-30 fighters equipped with anti-surface and anti-ship attack capabilities. China is also mass-producing the J-11B fighter, which is pointed out to be an imitation of the Su-27 fighter, as well as the domestic J-10 fighter.

Additionally, China is developing the J-20 and J-31, which are pointed out to become next-generation fighters. It is also making continuous efforts to improve capabilities which are essential for operations of modern air forces by introducing the H-6 tanker and KJ-2000 Airborne Early Warning and Control system.

Furthermore, it is reported that China is developing a new Y-20 large cargo aircraft in order to improve its transportation capability. In addition to domestically developing, producing and deploying a variety of aircraft and introducing them from Russia, China seems to be domestically developing a variety of unmanned aircraft, including those capable of long-hour flights at high altitude for reconnaissance and other purposes and those capable of carrying missiles and other weapons for attack purposes. China also appears to be producing and deploying some of these unmanned aircraft.

Judging from the modernization of air forces, it is believed that China is not only improving its air defense capabilities for its national territory, but also aiming to build up capabilities for air superiority and anti-surface and anti-ship attacks in areas which are further distant from China, and improving long-range transportation capabilities. Further attention needs to be paid to these activities conducted by the Chinese air forces.

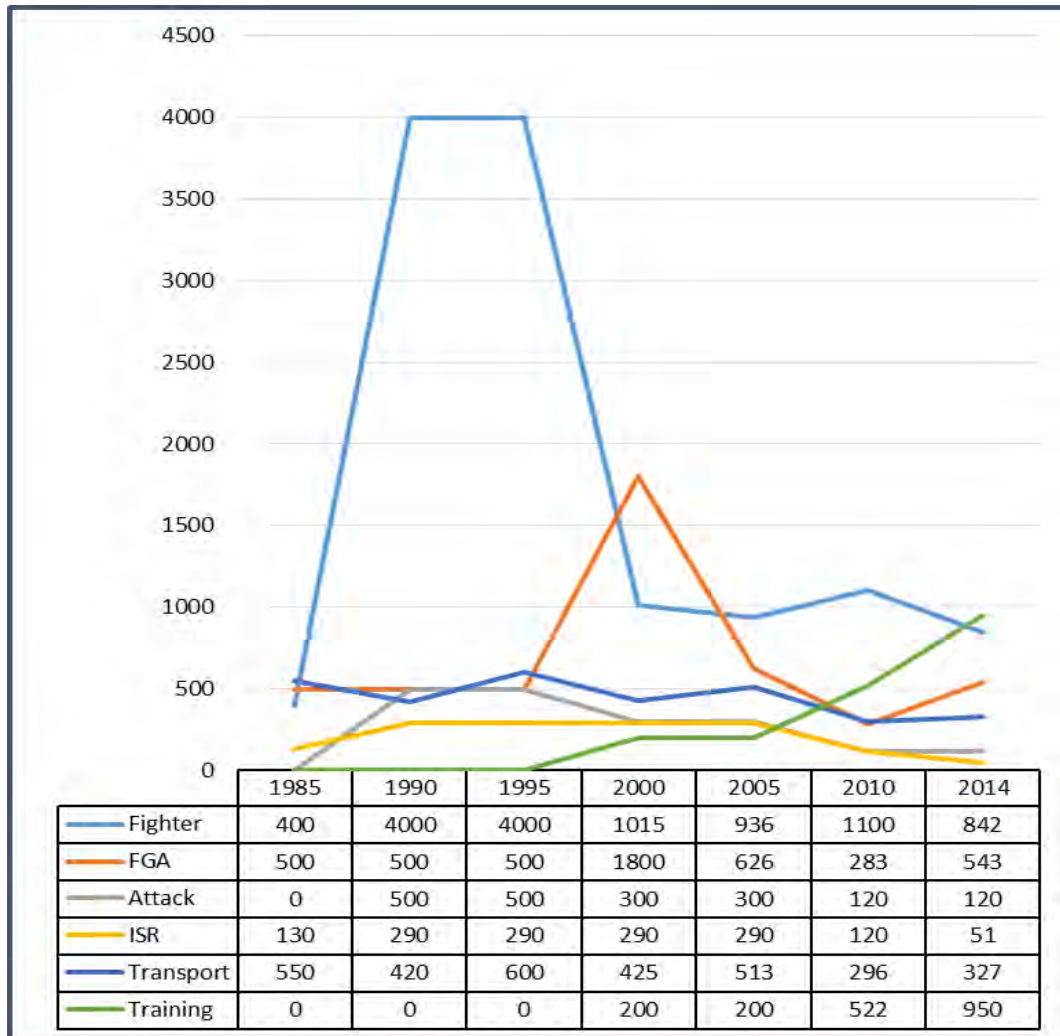
As the figures below show, the dominance of the fighter-interceptor in the PLAAF has eroded and other categories of aircraft are making up larger and larger portions of the PLAAF. This trend indicates a significant change in doctrine and military objectives: more specifically, the changing force structure indicates greater doctrinal emphasis on ground attack, transport, and training missions. All of these are in line with the Local Wars concept.

In addition to the previously-described changes in the numbers of fighter-interceptor, fighter-ground attack, transport, and training aircraft, changes in the other categories also have significance.

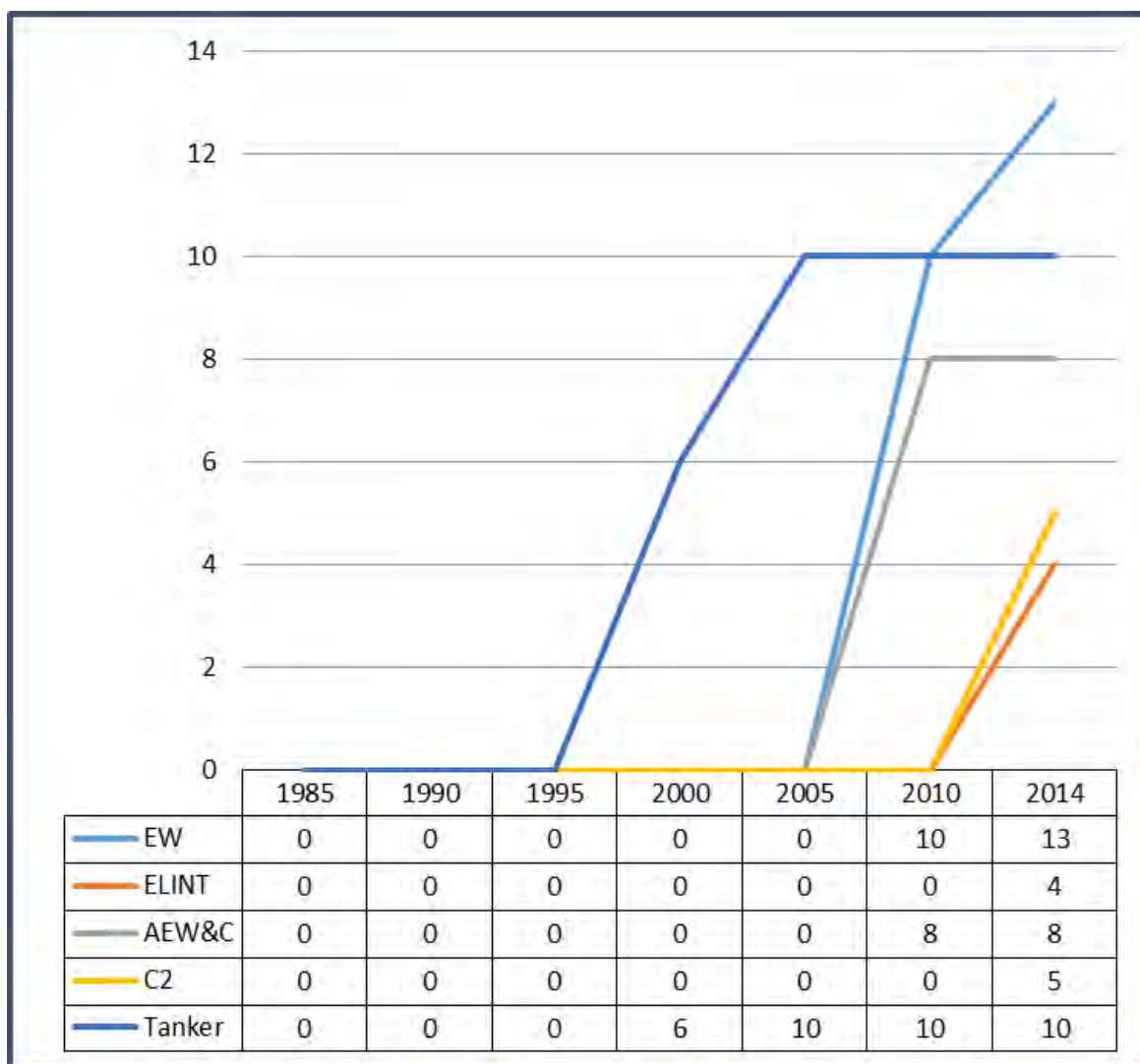
The decline and the steady plateau of PLAAF bombers, combined with small numbers of tanker aircraft, indicate that the PLAAF is limiting the majority of its strike missions to targets within the first island chain. The H-6 variants forming the entirety of the PLAAF's bomber force appear to be cruise-missile buses suitable for use against distant targets.⁴¹⁴ However, even if one considers the number of cruise missiles they could potentially carry, the number of bombers is so limited relative to fighter-ground attack aircraft that it appears that the PLAAF has either decided to concentrate its scarce resources within the first island chain, has not identified many targets worth striking outside of the first island chain, or potentially has abdicated medium-range strike to the Second Artillery Force.

Some American experts argue that the small number of tankers, EW, ELINT, AEW&C, and C2 aircraft indicates two things: first, that the PLAAF still does not function as effectively as the Western or Russian air forces, and also that the PLAAF has begun to plant the seeds of its own modernization and force development, and plans to develop similar capabilities as have the Western and Russian air forces.

Figure 10.4: Historical PLAAF Force Structure, 1985-2014, Part I

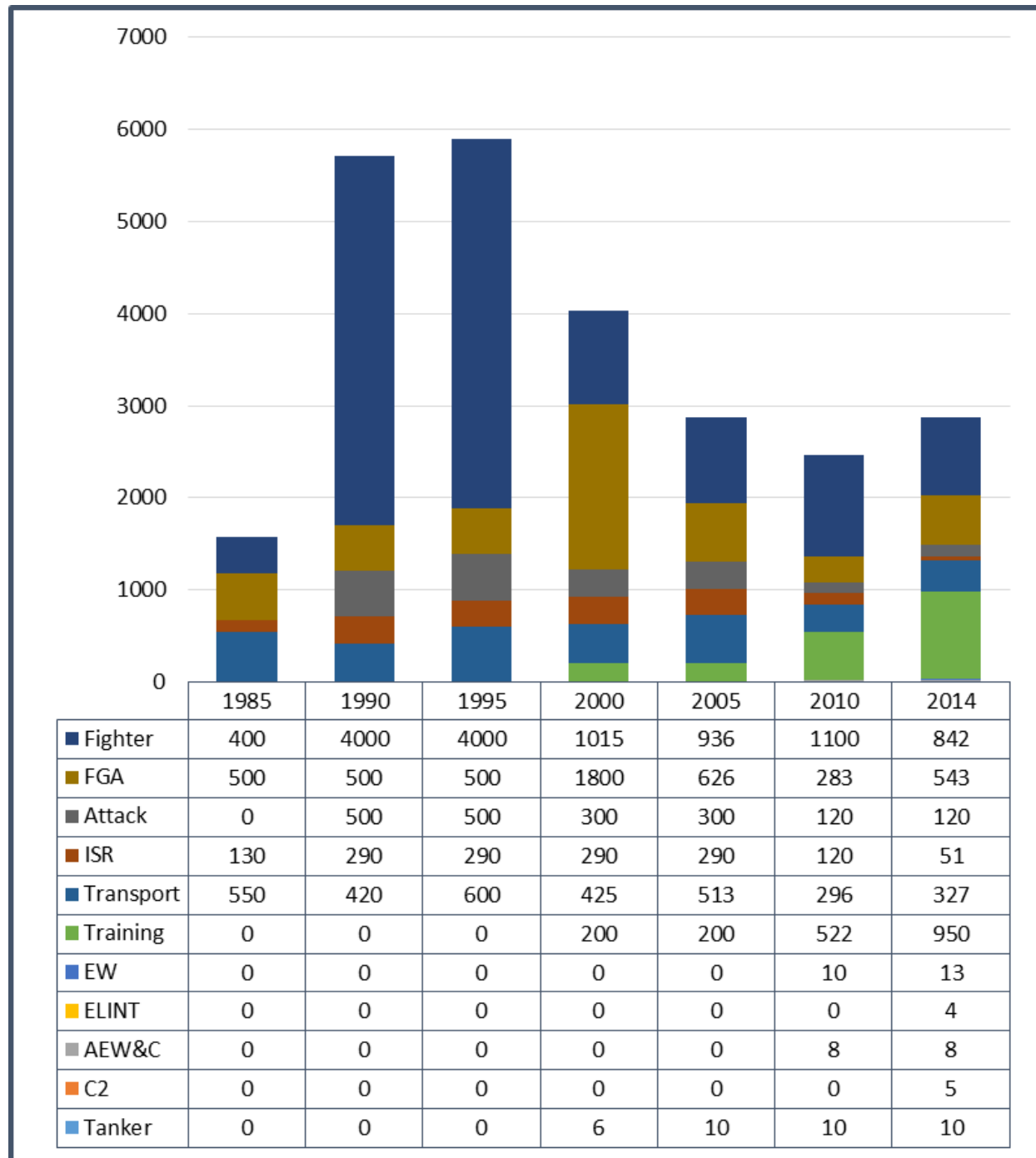


Source: IISS, *Military Balance*, 1985-2014, adapted by Garrett Berntsen at the Center for Strategic and International Studies.

Figure 10.5: Historical PLAAF Force Structure, 1985-2014, Part II

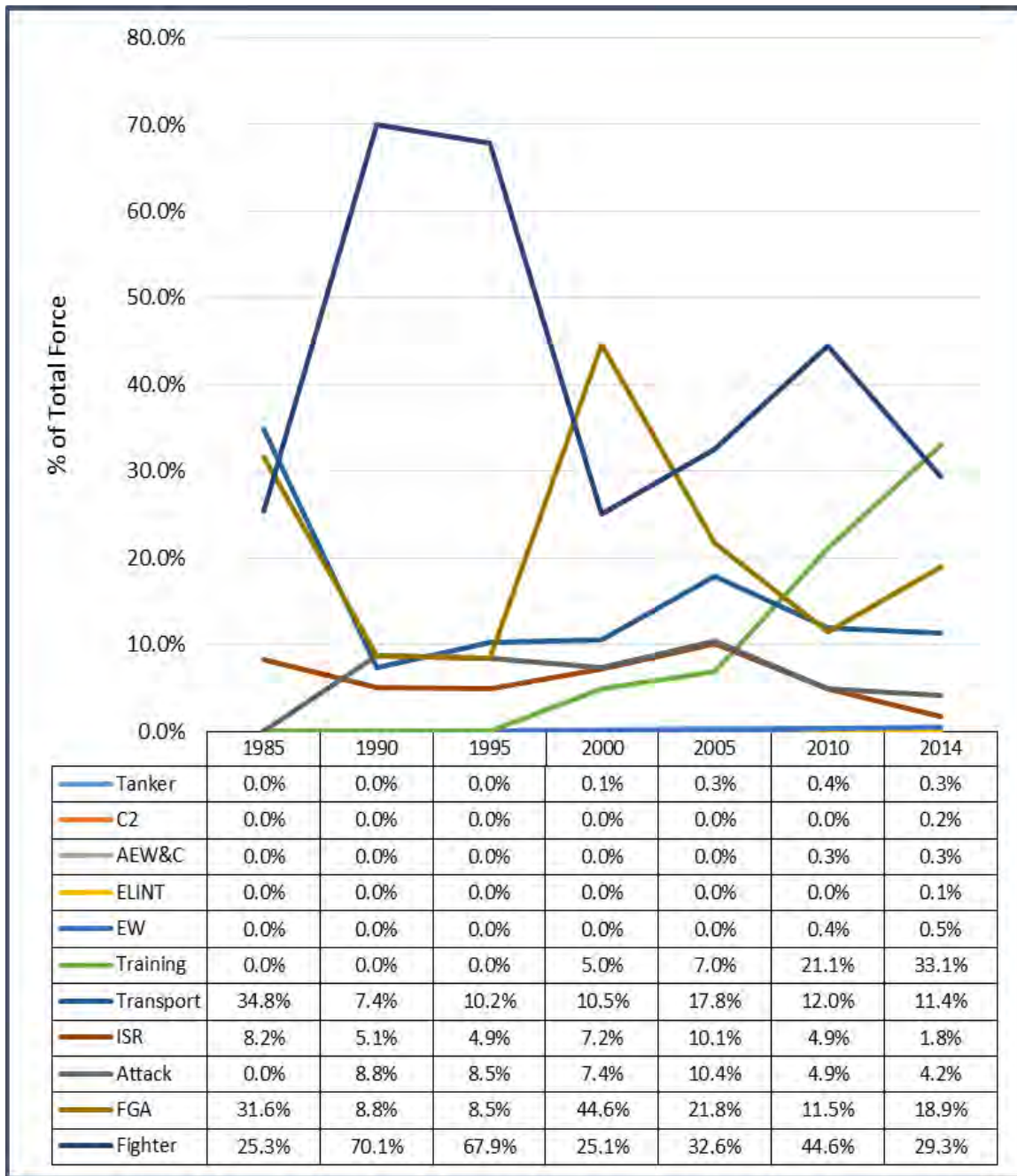
Source: IISS, *Military Balance*, 1985-2014, adapted by Garrett Berntsen at the Center for Strategic and International Studies.

Figure 10.6: Historical Trend PLAAF Numbers by Key Missions Area, 1985-2014



Source: IISS, *Military Balance*, 1985-2014, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

Figure 10.7: Historical Relative Trends in the PLAAF's Force Structure by Percent of Total Force



Note: Percentages may not add up to 100 due to rounding.

Source: IISS, *Military Balance*, 1985-2014, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

Shifts in Equipment Composition

While the changing force structure of the PLAAF has significant consequences for its combat capabilities, the rapid modernization of the PLAAF's aircraft inventory has also augmented PLAAF combat power; relative to as late as 2000, the PLAAF is now a decisively more modern force and its combat power has improved as a consequence.

Tied to the Local Wars doctrine, the PLAAF requires the capability to conduct precision strikes, air defense, ISR, EW, and strategic airlifts. The nimble, powerful military force envisioned by the Local Wars doctrine calls for an air force that can support the other services along the entire periphery of China despite any potential adversarial exploitation of weaponized information technology.

Key Aspects of Equipment Modernization

The 2014 DoD report on Chinese military power noted that China was focusing on both A2/AD capabilities and stealth, as well as on precision strike capabilities and improved air defenses:⁴¹⁵

China's A2/AD capabilities will be bolstered by the development of fifth-generation fighter aircraft, which is not likely to be fielded before 2018. Key characteristics of fifth-generation fighters include high maneuverability, low observability, and an internal weapons bay. Other key features include modern avionics and sensors that offer more timely situational awareness for operations in network-centric combat environments, radars with advanced targeting capabilities and protection against enemy electronic countermeasures, and integrated electronic warfare systems with advanced communication and GPS navigation functions. These next-generation aircraft will improve China's existing fleet of fourth-generation aircraft (Russian-built Su-27/Su-30 and indigenous J-10 and J-11B fighters) to support regional air superiority and strike operations. Additionally, China's continuing upgrades to its bomber fleet gives the bombers the capability to carry long-range cruise missiles. Similarly, the acquisition and development of longer-range UAVs will increase China's ability to conduct long-range reconnaissance and strike operations. (p.33)

China is incrementally advancing its development and employment of UAVs. According to a 2013 report by the Defense Science Board, China's move into unmanned systems is "alarming" and combines unlimited resources with technological awareness that might allow China to match or even outpace U.S. spending on unmanned systems in the future. During September 2013, a probable Chinese UAV was noted for the first time conducting reconnaissance over the East China Sea. This past year, China unveiled details of four UAVs under development, three of which are designed to carry weapons: the Xianglong (Soaring Dragon); Yilong (Pterodactyl); Sky Saber; and Lijian, China's first stealthy flying wing UAV, for which China announced its first maiden flight on November 21, 2013. (p.33)

The PLA seeks to develop aircraft with low observable features, advanced avionics, super-cruise engines, and stealth applications as demonstrated by the January 2011 flight test of the J-20 prototype and recent observations of a second indigenously produced aircraft with stealth features, referred to as the J-31. China seeks to develop these advanced aircraft to improve its regional power projection capabilities and strengthen its ability to strike regional airbases and facilities. China's first fifth-generation fighter, the multi-role J-20, is not expected to enter service prior to 2018, and China faces numerous challenges to achieving full operational capability, including developing high-performance jet engines. China's second fifth-generation fighter, the smaller but likely also multi-role, J-31, conducted its first flight in October 2012. The PLA Air Force has observed how foreign militaries employ stealth aircraft and views this technology as critical to its transformation from a predominantly territorial air force to one capable of conducting both offensive and defensive operations. The PLA Air Force believes that stealth provides an offensive operational advantage that denies an adversary the time to mobilize and conduct defensive operations. (p. 67)

China's ground-based air defense will likely be focused on countering long-range airborne strike platforms with increasing numbers of advanced SAMs. These include the indigenous CSA-9 (HQ-9) and Russian SA-10 (S-300PMU) and SA-20 (S-300PMU1/PMU2), which have the advertised capability to protect against

both aircraft and low-flying cruise missiles. China continues to pursue acquisition of the Russian extremely long-range SA-X-21b (S-400) SAM system (400 km), and is also expected to continue research and development to extend the range of the domestic CSA-9 SAM to beyond 200 km. (p.33)

The 2013 DoD Report contains some useful information that was either not retained or modified in the 2014 report:⁴¹⁶

... the acquisition and development of longer-range unmanned aerial vehicles (UAV), including the BZK-005, and unmanned combat aerial vehicles (UCAV), will increase China's ability to conduct long-range reconnaissance and strike operations. (p. 35)

The PLA Air Force has observed foreign military employment of stealth aircraft and views this technology as a core capability in its transformation from a predominantly territorial air force to one capable of conducting offensive and defensive operations. The PLA Air Force also perceives there is an imbalance between offensive and defensive operations due to advances in stealth aircraft and related technologies with stealth aircraft providing an offensive operational advantage that denies an adversary the time to mobilize and conduct defensive operations. The PLA Air Force also sees the offensive advantage to combining an aircraft's stealthy features with information systems that enhance situational awareness and improve coordination of forces during combat. (p. 64)

The development of stealth aircraft incorporated with advanced fifth generation capabilities, including super-cruise engines and advanced avionics, would make the aircraft capable of supporting a variety of tactical and regional missions. Furthermore, stealth aircraft the size of China's J-20 could be used as a multi-role fighter to strike ground targets within the region in addition to supporting air superiority missions beyond China's borders. Although China's second developmental fifth generation fighter is smaller in size than the J-20, this aircraft (tentatively identified as the J-31) may be designed for multi-role missions, providing China with a second stealth platform for regional operations. In addition to manned fighter aircraft, the PLA Air Force also views stealth technology as integral to unmanned aircraft, specifically those with an air-to-ground role, as this technology will improve the system's ability to penetrate heavily protected targets. (p. 64)

Stealth

The Chinese development of stealth capabilities has been particularly striking. It became clear in early 2011 that China was developing its own "stealth" strike fighter, the J-20, although its capabilities and deployment schedule remain unknown.⁴¹⁷ DNI James R. Clapper described the US assessment of this development as follows in his testimony to the US Intelligence Community for the House Permanent Select Committee on Intelligence on February 10, 2011.⁴¹⁸

China's ongoing military modernization program began in earnest in the late 1990s, after Beijing observed the threat posed by long-range precision guided warfare in DESERT STORM and the Balkans. China's defense policies—initially aimed at creating credible options to forcibly bring Taiwan under Beijing's authority and developing the corresponding capabilities to prevent US intervention in a cross-Strait conflict—led Beijing to invest heavily in short- and medium-range ballistic missiles, modern naval platforms, improved air and air defense systems, counterspace capabilities, and an Intelligence, Surveillance, and Reconnaissance (ISR) system. For example, the Chinese have recently conducted the first flight test of what we refer to as a fifth-generation fighter, the J-20. We have known about this program for a long time and the flight test was not a surprise. We judge that this event is another indication of China's aspiration to develop a world-class military, and it is a capability we take seriously. But this program, like others in China, will have to overcome a number of hurdles before reaching its full potential.

The J-20 underwent its first test flight in January 2011, while more recently China test flew a second prototype stealth fighter model, the J-31 Falcon Eagle, on October 31, 2012. The J-31 appears to be a smaller version of the J-20. The J-31 looks similar in size and shape to Lockheed Martin's F-35 and F-22 fighters. It has been reported that Chinese hackers stole data on the design, performance, and other characteristics of the F-35 from the British defense firm BAE Systems. Though both Chinese planes display stealth design features, their true capabilities in terms of

radar-absorbing coatings, sensors, and other stealth attributes remain unknown. It is also unknown when or if either plan will enter production.⁴¹⁹

According to the IISS,⁴²⁰

In September 2012, China's aerospace ambitions were again confirmed when images emerged of a twin-engine medium fighter manufactured by the Shenyang Aero-space Company, unofficially identified as either the J-21 or J-31. Unlike the Chengdu J-20 heavy fighter, unveiled in January 2011 and gauged by some analysts as of possibly Russian heritage, the J-21 reflects US designs, with echoes of the F-22 and the F-35. This has led to speculation of industrial espionage during its development. As with the J-20, Beijing has yet to comment formally on the nature or specific purpose of the J-21 project. The J-21 airframe has almost all the hallmarks of a low observable design, and is missing the large canards that feature on the J-20. That said, the aft quadrant and engine nozzles do not appear optimised to minimise radar and infrared signatures, although this may reflect its prototype status.

The extent to which the structural materials used are appropriate for a low-observable design remains unclear, as does the degree to which the sensor suite would support stealth operations. It is widely speculated that the first aircraft could be fitted with the Russian RD-93 engine, which is being exported to China for Pakistan-bound JF-17 light fighters. The J-21 is smaller than the J-20, and it may be intended to complement the larger aircraft. At the end of 2012, however, it remained unclear which of the services was the project's initial sponsor, or indeed whether the design began as a competitor to the J-20. The Shenyang prototype also features characteristics of a carrier-borne fighter. However, the PLAN already has a carrier-borne multi-role fighter under development, in the Shenyang J-15. The J-15 is based on the locally produced variant of the Su-27, while Chinese industry may also have benefitted from the purchase of a proto-type Su-33 from Ukraine. At least five J-15 prototypes are being tested.

The DoD summarized the place of low-observable technology in the PLA and a short timeline of PLA employment of low-observable technology in 2013.⁴²¹

For decades, the PLA has been incorporating low-observable technology into each of its services to suppress signals from its weapons and equipment that can be exploited by high-technology militaries to locate and target Chinese forces. PLA doctrinal publications, such as the 2009 *Science of Army Operations*, suggest that the PLA considers low-observable technologies as part of a broader suite of information countermeasures, specifically referring to it as a type of radar jamming:

“There are two major forms of information countermeasures as far as effects are relevant Radar jamming is meant to mainly weaken or destroy the normal operating capability of the enemy's radar system by irradiating or transmitting jamming electromagnetic waves through radar jamming equipment; or **use equipment that does not produce electromagnetic radiation by itself to reflect, scatter, or absorb electromagnetic waves transmitted from enemy radar so as to prevent the enemy radar from detecting and tracking real targets** or causing mistakes in the enemy radar.” [Emphasis added.]

New weapons and equipment that use low-observable technology that were demonstrated in 2013 include:

In February 2013, the PLA Navy launched the first ship in the new Type 056 class of corvettes, which incorporates stealth features making it more difficult to detect using radar. Although these ships can fulfill a variety of missions, they increase the PLA Navy's ability to impose a naval blockade on Taiwan.

After four years in development, in November 2013, the PLA flight tested its new stealth drone, the Lijian, which a Chinese news source described as “highly maneuverable and capable in air-to-air combat.”

In July the PLA, which has long used camouflage, introduced a new type of camouflage netting that has multiple layers of special paints, digital camouflage, and the ability to counter detection from infrared, thermal imaging and radar reconnaissance sensors.

Throughout 2013, the PLA Air Force continued testing its two fifth-generation stealth fighters—the J-20 and the J-31.

Other Advanced Fighters and Carrier Aircraft

It was also reported in March 2013 that China's second stealth fighter, the J-31, could be developed into an aircraft carrier-borne fighter. It is the smaller of the two, resembles the F-25, and has two wheels on its nose landing gear. Meanwhile, the larger J-20 is likely to be a multi-role fighter designed to attack both ground and air targets, a stealthy interceptor like the USSR's MiG-25 Foxbat able to shoot down incoming fleets of attack plans, or a stealth bomb truck designed to speedily evade enemy radars and attack ships and bases with bombs and cruise missiles.⁴²²

Chinese manufacturers have unveiled the two next-generation fighter aircraft prototypes, the J-20 and J-31, as well as the J-15 carrier-based fighter and the accelerated modernization of Shenyang J-11 and Chengdu J-10 fleets. The Chinese defense industry has clearly been developing a diverse portfolio of new aircraft designs, including modernizing its traditional fighters and developing indigenous fourth generation – and potentially fifth generation – fighters.⁴²³

These important advances owe to the implementation of a multi-pronged strategy across the sector's largest defence-industrial group, Aviation Industry Corporation of China (AVIC) and its five core prime contractors: Chengdu Aircraft Industry Corporation, Shenyang Aircraft Corporation, Hongdu Aviation Industry Group, Xi'an Aircraft Company and Changhe/Hafei Aviation. This strategy has included corporate reforms and organisational restructuring, coupled with sustained investment and expansion. China's aeronautic development strategy has also focused on key projects, such as indigenous platform and critical sub-system programs, and on building research, development and innovation capacity. Finally, this strategy has aimed to integrate civil and military aircraft manufacturing and leverage international commercial partnerships and acquisitions.

As AVIC upgrades its existing third- and fourth-generation fighters, it is also focusing on next-generation stealth fighters (J-31) and strategic transport aircraft (Y-20), designed to complement the PLA's long-term military transformation. These programs are currently in their development stages and have yet to overcome technical hurdles — AVIC is finding it particularly difficult to integrate reliable high-performance power plants. Nevertheless, these programs represent the Chinese defence industry's growing potential for innovation.

China still lacks the sophisticated technology required for highly advanced innovation in military equipment – in particular, advanced capabilities in material selection, process standardization, quality control, and ensuring structural strength. When combined with integration, systems design, and management problems, the result has been cost overruns, extensive testing and delays, and many modifications of the design. Furthermore, the fragmented corporate structure of AVIC makes it difficult for the group to gain compliance from its sub-units.⁴²⁴

China is, however, making major progress. Analyst Andrew S. Erickson has assessed China's stealth prototype developments in further depth. In particular, Chengdu Aircraft Corporation's (CAC's) production and design abilities are growing, and the company's Project 718 J-20 could become the PRC's first fifth generation (or, in Chinese terminology, fourth generation) aircraft – meaning it would include high maneuverability, supercruise, helmet-mounted sights, thrust vectoring, low observability, and sensor fusion characteristics. The J-20 prototype – which resembles the F-22 – is also large and has a significant weapons bay; when combined with China's strategic goals (as discussed in Chapter 1), it is likely that the plane could have several different applications, especially important to attack aircraft and strike fighter missions.⁴²⁵

One of these missions could be offensive counterair, meaning that due to its low-detection capabilities, it would be able to strike high-value airborne assets. The J-20 could also be used to

destroy key targets in heavily-defended areas inside an air-defense system. This capability could be used against both land-based targets – like air-defense radars – or ship-based assets. However to achieve these potential capabilities, the plane needs to overcome difficulties with avionics, engine design, and systems integration. One PLAAF deputy commander projected 2017-19 as a possible first deployment for the plane.⁴²⁶

Shanghai Aircraft Corporation (SAC) is also working on its own stealth aircraft prototype, which has been called the F-60, J-31, and J-21 in various sources. The plane could be exported, as well. A scale model was presented in 2010, and in 2012 photographs and videos – allegedly of the prototype – appeared online, depicting a plane with “31001” painted on it, indicating that J-31 is likely the best name for the plane until something more official is announced. The plane is the second significant fighter aircraft produced by SAC in less than a year. The other is the J-16, a plane that is similar to the Russian Su-30MKK and the US F-15E – a two-seat version of the Chinese J-11B. The J-31 is likely to be a multirole combat aircraft that can be used in both air-to-air and air-to-surface roles requiring modern precision munitions.⁴²⁷

Because both the J-20 and the J-31 prototypes were completed at roughly the same time, it seems likely that CAC and SAC have developed a competitive relationship, instead of the previous geographic division of labor. Or, the J-31 could simply be a lighter J-20 (similar to the US F-35 as a complement to the F-22, or the Chinese J-10 as a complement to the J-11B). A key point, however, is that “Beijing has finally decided that it can sustain multiple overlapping advanced programs, with SAC alone currently working on four major fighter aircraft: the J-31 and the aforementioned J-16, as well as the J-16’s single-seat parent the J-11B and the carrier-borne J-15, also based on the J-11B.”⁴²⁸

UAVs, Drones, and More Advanced IS&R

It would appear that China’s ability to sustain multiple overlapping advanced programs in its shipbuilding and aviation industries could be an important strategic breakthrough for the Chinese.⁴²⁹

China is also working on the development of unmanned aerial vehicles. One Chinese newspaper reported that the *Lijian* weaponized stealth drone, designed jointly by the Hongdu Aviation Industry Group and Shenyang Aviation Corporation, completed taxi tests in December of 2012 and is ready for its maiden flight. The drone is similar to the US X-47B and the European nEUROn. The first picture of the drone in flight was posted on the Internet in early May 2013.⁴³⁰ The *Lijian* is meant to replace the current slow, low-flying, propeller-driven UAVs that the PLA currently has.⁴³¹

China is developing a wide range of information, ISR, and battle management systems to support all of its services, including its Air Force. The broad goals of this effort are described in Chapter 1, and the space-related efforts have been discussed in Chapter 9. The DoD does note, however, that they involve a new and much broader Chinese interest in electronic warfare that would affect Chinese tactical operations in any Asian regional contingency:⁴³²

The PLA believes electronic warfare (EW) is one method to reduce or eliminate U.S. technological advantage. Chinese EW doctrine emphasizes using electromagnetic spectrum weapons to suppress or deceive enemy electronic equipment. PLA EW strategy focuses on radio, radar, optical, infrared, and microwave frequencies, in addition to computer and information systems.

Chinese strategy stresses that EW is a vital fourth dimension to combat and should be considered equal to ground, sea, and air, and that it can be decisive during military operations. The Chinese see EW as an

important force multiplier and would likely employ it in support of all combat arms and services during a conflict.

PLA EW units have conducted jamming and anti-jamming operations, testing the military's understanding of EW weapons, equipment, and performance, which helped improve confidence in conducting force-on-force, real-equipment confrontation operations in simulated EW environments. The advances in research and deployment of EW weapons are being tested in these exercises and have proven effective. These EW weapons include jamming equipment against multiple communication and radar systems and GPS. EW systems are also being deployed with other sea and air-based platforms intended for both offensive and defensive operations.

China's second and third generation fighter, strike, and bomber aircraft are unlikely to survive the high-attrition military conflicts predicted by the Local Wars concept given their lack of advanced radar, BVR-combat capabilities, or reduced radar profiles. The PLAAF has responded to this reality by significantly reducing its holdings of second and third generation aircraft while developing and purchasing fourth generation or near-fourth generation aircraft. Indigenously developed J-10, J-11, and JH-7 fighter and strike aircraft, as well as the continued development of the J-20 and J-31 fifth generation aircraft, improve the survivability and effectiveness of the PLAAF. As of late June 2013, there have been at least two J-20 test jets. Chinese officials have previously said that they expect to have a stealth fighter in service as early as 2017.⁴³³

The purchase of Su-27 and Su-30 aircraft quickly provided the PLAAF with a fourth generation fighter capability. The production and purchase of these aircraft has and will improve the capability of the PLAAF to an extent greater than can be predicted solely by analyzing force structure or aircraft numbers. Consequently, it is necessary to examine both force structure and force composition in order to measure the PLAAF's progress towards becoming an air force capable of winning Local Wars.

It is important to note that all aircraft with fourth generation or near-fourth generation capabilities are considered modern. In the PLAAF arsenal, this includes J-10, J-11, Su-27, Su-30, and JH-7 aircraft. As they are developed, J-15, J-20, and J-31 aircraft will be added to this list.

Figures 10.7 and 10.8 show the numbers of modern PLAAF aircraft in comparison to overall PLAAF holdings. They indicate both the absolute progress the PLAAF is making in its drive to acquire modern aircraft and also its relative progress in becoming a modern air force. In 2013, with over 500 modern fighters or fighter bombers, the modern portion of the PLAAF outnumbers most air forces in the Asia-Pacific region.

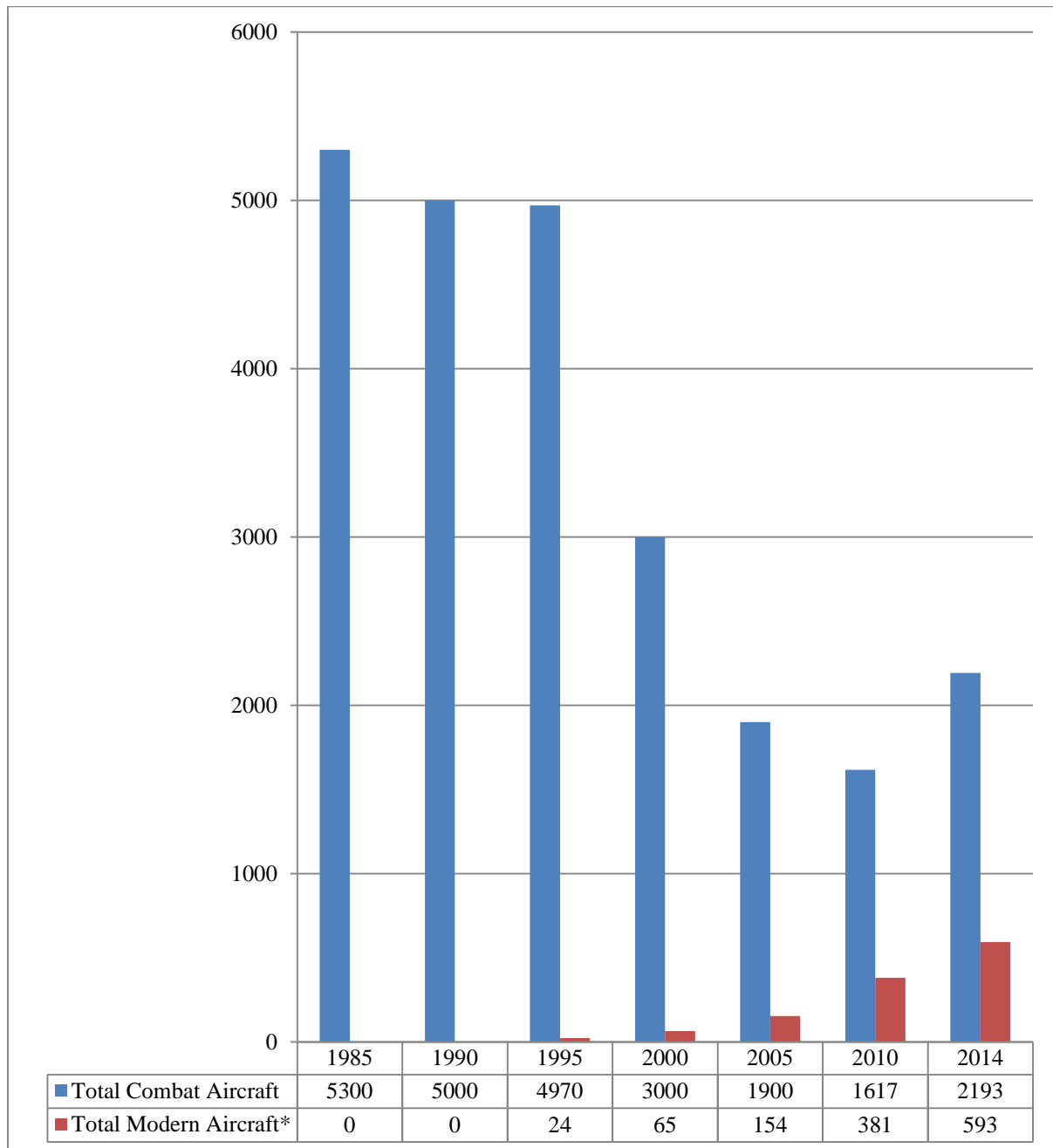
In addition, the import of Su-27 and Su-30 aircraft, along with the manufacture of indigenous fourth generation fighter aircraft such as the J-10 and J-11, suggest that the PLAAF will continue developing into a modern air force which fields a higher proportion of fourth generation systems. Moreover, the J-20 and J-31 stealth fighter prototypes indicate that the PLAAF is seeking a fifth generation combat capability – though there remain significant technological hurdles to be overcome in this quest.

Figure 10.9 tracks the percentage of the PLAAF that is considered modern from 1985 to place these modernization trends into better perspective and help the observer see concurrent changes in force composition and capability. The graph demonstrates the rapid modernization of the PLAAF since the year 2000 and displays the trends that are augmenting the PLAAF's ability to win Local Wars.

Most striking is the level of modernization in the ground attack force: it is currently completely made up of fourth or near-fourth generation aircraft. The rapid modernization of this segment of the PLAAF shows compelling evidence of a wider shift from an air defense focus to a multi-mission, especially strike, focus for the PLAAF.

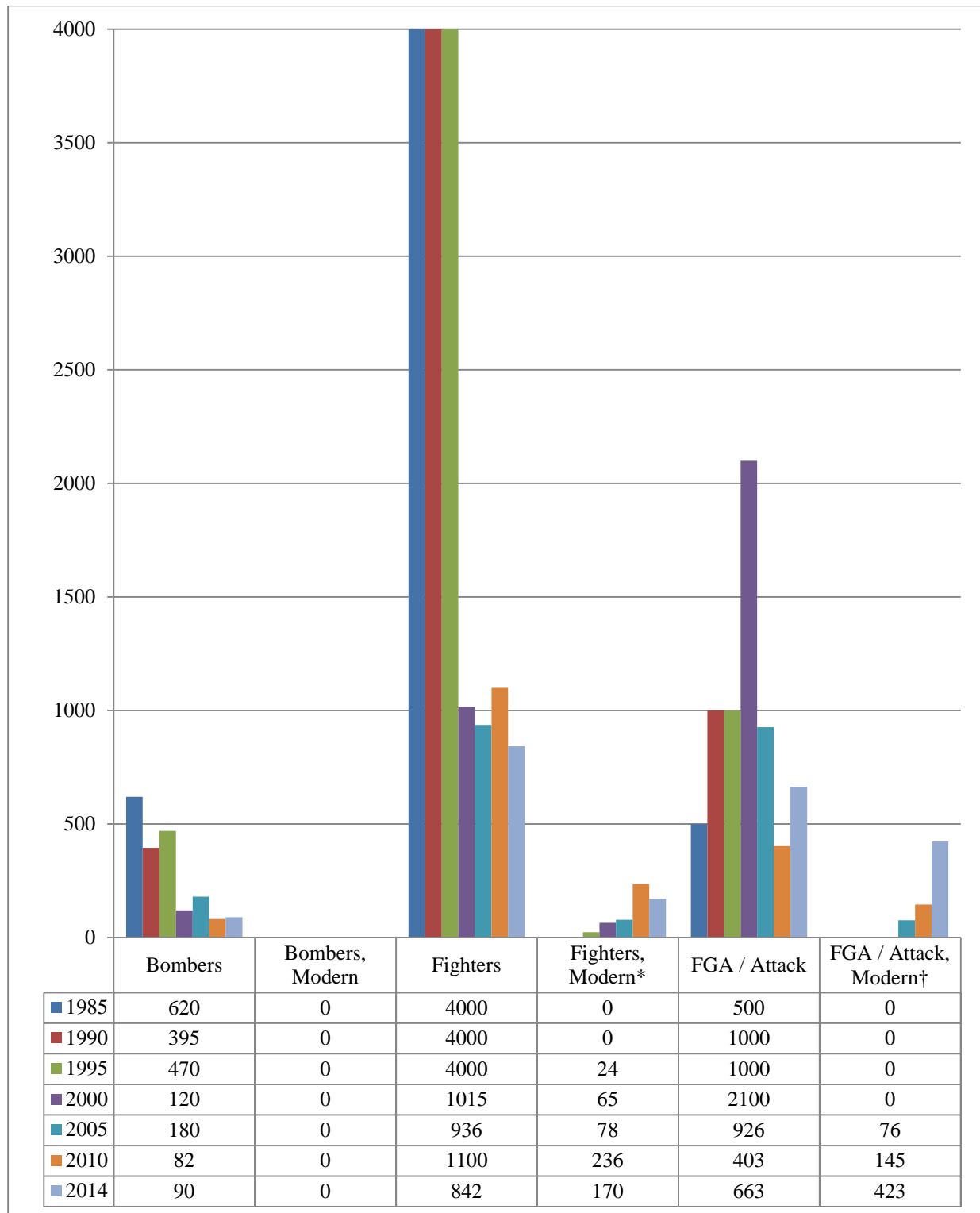
Compared to the bomber arm which currently has no modern aircraft, it appears that the indications given by the PLAAF's force structure also hold true in its force composition: the modernization of both aircraft categories indicates a PLAAF focus on targets within the first island chain. Such a posture is consistent with the Local Wars doctrine and is one indication that the doctrine is indeed influencing PLAAF modernization.

As the PLAAF's modernization trends continue, China's Air Force is likely to have greater and greater military capabilities, increasing its ability to decisively act in contingencies along its borders. In other words, it will be more capable of fighting and winning Local Wars.

Figure 10.8: Total versus Modern Aircraft in the PLAAF

*The following systems are considered modern: J-10, J-10A, J-10S, J-11, J-11B, J-11BS, Su-27SK, Su-27UBK, Su-30MKK

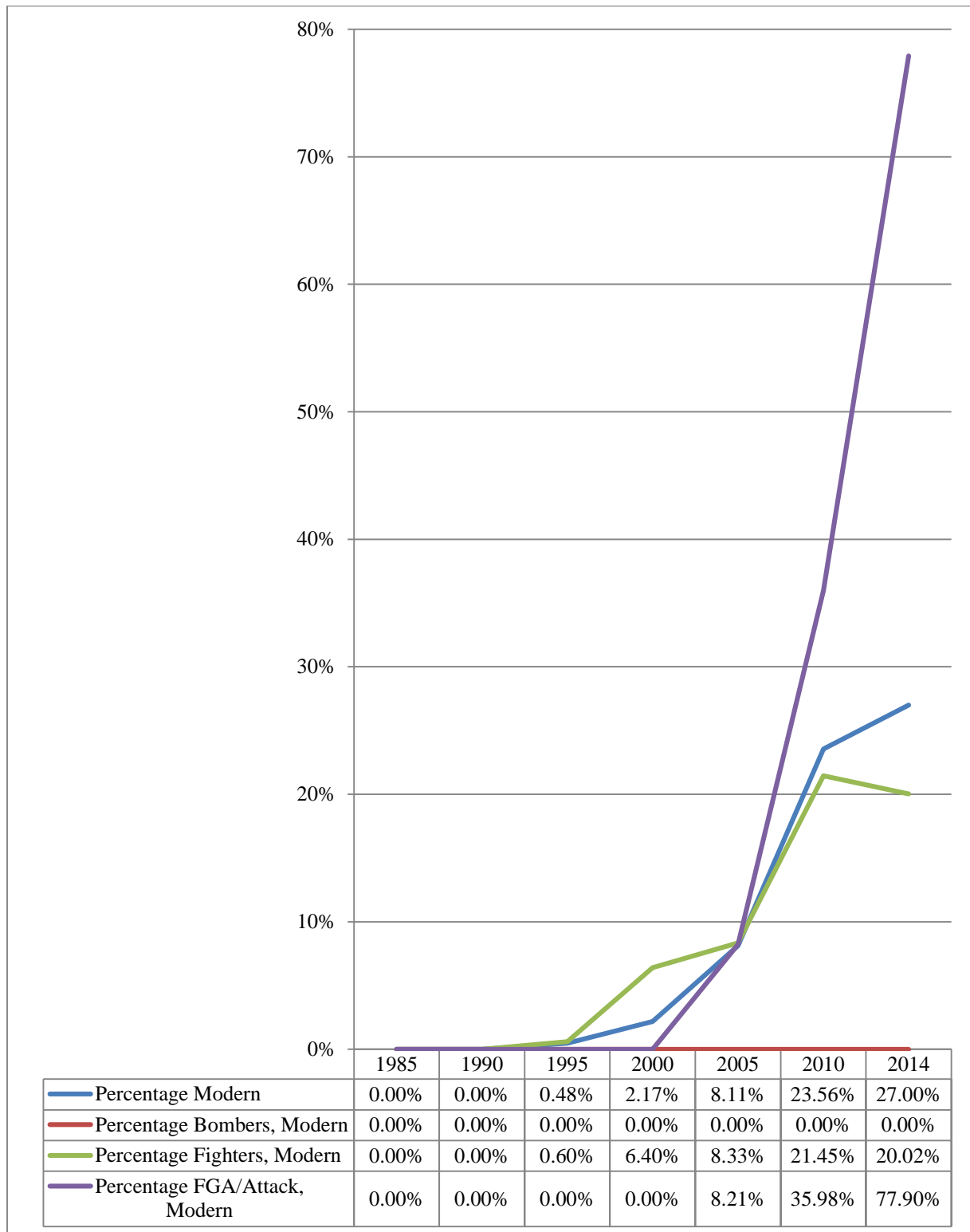
Source: IISS, *Military Balance* 1985-2014.

Figure 10.9: Modern versus Total PLAAF Aircraft by Major Mission Type

*The following aircraft fall into this category: J-11, Su-27SK, Su-27UBK

†The following aircraft fall into this category: J-10, J-10A, J-10S, J-11B, J-11BS, Su-30MKK

Source: IISS, *Military Balance* 1985-2014.

Figure 10.10: Percentage of Modern PLAAF Aircraft

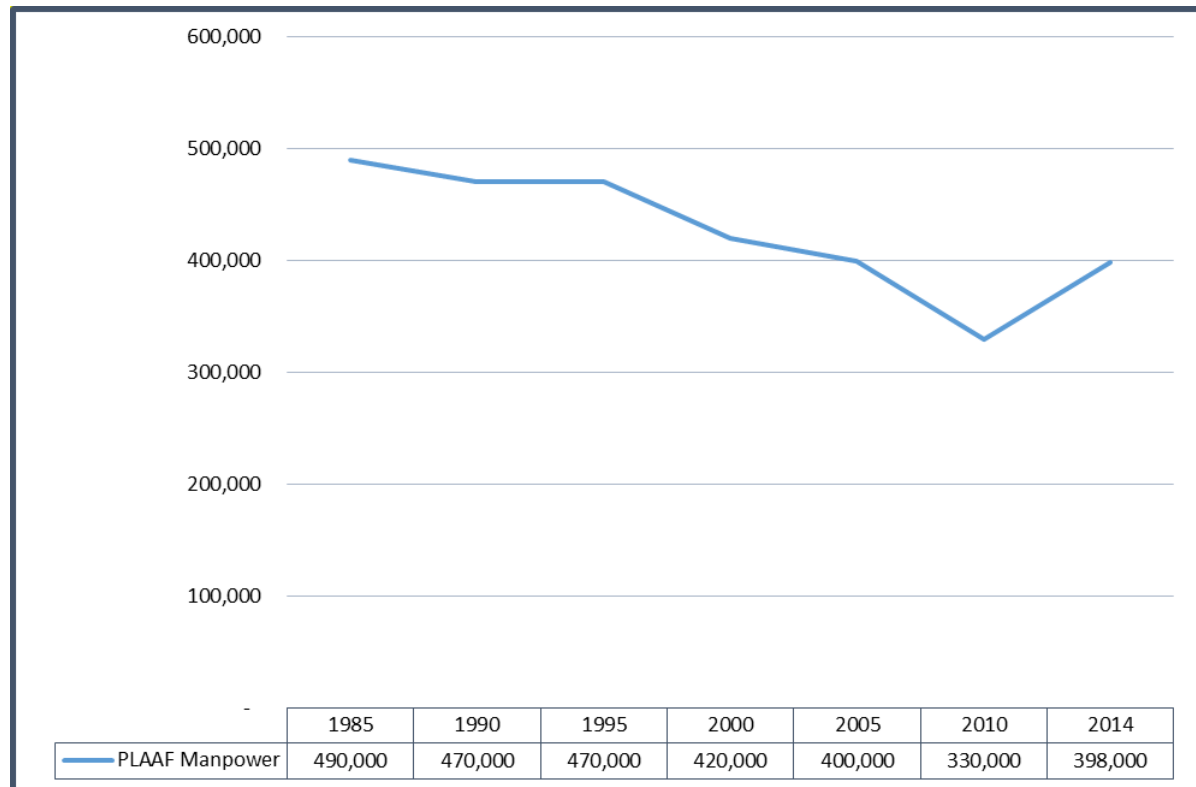
Source: IISS, *Military Balance* 1985-2014.

Note: "Percentage Modern" assesses only combat capable aircraft.

Shifts in Personnel

As is the case with the other services, the PLAAF's Personnel policies have sought to reduce the size of the PLAAF while improving the combat and leadership skills of its personnel. The PLAAF aims to achieve the second goal by increasing the realism of training, offering academic courses to currently serving personnel, and conducting military exercises with other countries. These Personnel trends are shown in **Figure 10.10**.

Figure 10.11: Historical PLAAF Personnel Trends



Source: IISS, *Military Balance* 1985-2014, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

Expansion of Chinese Air Power Projection Capabilities, US Forced Entry, and the Outer Island Chain

As is the case with the PLAN, the PLAAF has emphasized “realistic” combat training that simulates force on force engagements in accordance with the 2009 *Outline of Military Training and Evaluation*. Such training forces the PLAAF’s personnel to compete with an opposing force over objectives in a complex electro-magnetic environment. As part of this process, the PLAAF emphasizes the following four “guiding thoughts”: “adapt to the revolution in military affairs, prepare for battles to combat Taiwan’s independence, integrate advanced equipment into the PLAAF, and counter an excessive focus on safety during training.”⁴³⁴

Besides realistic training, the PLAAF has sought to develop a grass-roots movement towards self-education and academic achievement within the ranks. In addition to formal military education institutions, which offer high school through doctoral degrees, there exist online, correspondence, and short-term courses in which 60% of enlisted soldiers and officers have reportedly taken part.⁴³⁵ These educational efforts are aided by information-technology communications. Also, there are significant numbers of PLAAF officers that enroll in graduate programs at civilian universities.⁴³⁶

As is also the case with the PLAN, the PLAAF has been an active participant in joint military exercises. For example, in 2010, the PLAAF conducted bilateral exercises with Turkey that involved PLAAF fighters flying to Turkey and refueling in flight. Furthermore, PLAAF fighters used bases in the PRC to fly over Kazakhstan during PEACE MISSION 2010, a Shanghai Cooperation Organization military exercise.⁴³⁷ These exercises indicate that the PLAAF is not only practicing necessary combat skills, but also practicing long-distance flight.

The PLAAF and Power Projection

The PLAAF's efforts to alter its force structure, equipment composition, and Personnel policies have resulted in a force more suited to fighting Local Wars. The shift from an air-defense to a multi-mission air force enables the PLAAF to support the wider PLA in multiple ways, whether through fire support, air defense, or transport.

Moreover, the planes flown by the PLAAF are steadily becoming more capable, a trend which ensures that the PLAAF is gaining combat power faster than a pure force structure analysis would indicate. The synergy between force restructuring, aircraft modernization, and Personnel policies ensures that the PLAAF will consistently become more capable of fighting and winning Local Wars as its modernization program continues.

This progress has made Chinese forces far more competitive with US air and missile power. As was touched upon earlier, this has helped the US to focus on the air-sea battle and the use of land and sea-based air and missile power in projecting power in Asia. It is important to note, however, that only one third of the PLAAF's aircraft are modern, that modern fighter-interceptors only account for ~20% of the fighter arsenal, and that numerous categories such as C2, ELINT, and AEW&C aircraft are just beginning to enter the PLAAF. Despite the PLAAF's improvements, it still requires much more development before it becomes equivalent to the US or Russian air forces.

At the same time, China has put more efforts into ship and land-based missiles. These now include efforts to create a long-range ability to strike carrier-sized targets and the growing mix of SRBMs, MRBMs, and IRBMs, discussed in the next chapter.

CHAPTER 11: PLA MISSILE FORCES: THE SECOND ARTILLERY FORCE

Chinese missile forces are grouped under the Second Artillery Force (SAF) – also called the Second Artillery Corps (SAC). **Figure 11.1** shows a DoD estimate of the size of Chinese missile forces in 2012.

The forces in **Figure 11.1** have undergone significant transformation over the past 30 years. Since 1985, the SAF has shifted from a nuclear deterrent force based primarily on intermediate- and medium-range missiles to a force of intercontinental- and medium-range nuclear forces combined with a powerful conventional missile arm capable of conducting precision attacks at a medium range.

With the addition of intercontinental nuclear missiles beginning in the mid-1980s, as well as new modernized missile classes, the SAF is now capable of credibly deterring adversaries at intercontinental ranges. Moreover, with the introduction of conventional short-range ballistic missiles (SRBMs), medium-range ballistic missiles (MRBMs), and land attack cruise missiles (LACMs), means the SAF is now capable of conventionally holding at risk adversary forces within 1,500 km of China.

These changes are the result of major doctrinal modifications made during the 1980s that fundamentally altered the SAF's overarching mission as well as its position within the wider PLA.

Figure 11.1: The Size of the China's Missile Forces in 2012

China's Missile Force			
System	Missiles	Launchers	Estimated Range
ICBM	50-75	50-75	5,500+ km
IRBM	5-20	5-20	3,000-5,500 km
MRBM	75-100	75-100	1,000-3,000 km
SRBM	1,000-1,200	200-250	< 1,000 km
GLCM	200-500	40-55	1,500+ km

Source: DoD, *Report to Congress on Military and Security Developments Involving the People's Republic of China 2012*, May 2012, p. 29.

The US Official view

The 2013 and 2014 DoD reports, *Military and Security Developments Involving the People's Republic of China*, described the current structure and trends in the SAF in some detail.

Missile Developments

The US summarized Chinese missile developments as follows:⁴³⁸

The Second Artillery controls China's nuclear and conventional ballistic missiles. It is developing and testing several new classes and variants of offensive missiles, forming additional missile units, upgrading older missile systems, and developing methods to counter ballistic missile defenses.

By December 2012, the Second Artillery's inventory of short-range ballistic missiles (SRBM) deployed to units opposite Taiwan stood at more than 1,100. This number reflects the delivery of additional missiles and the fielding of new systems. To improve the lethality of this force, the PLA is also introducing new SRBM variants with improved ranges, accuracies, and payloads.

The 2014 report updated this section by reporting that:⁴³⁹

By November 2013, the Second Artillery possessed more than 1,000 short-range ballistic missiles (SRBMs) in its inventory. China is increasing the lethality of this missile force by fielding new conventional medium-range ballistic missiles (MRBMs) to improve its ability to strike not only Taiwan but other regional targets.

China is fielding a limited but growing number of conventionally armed, medium-range ballistic missiles, including the DF-21D anti-ship ballistic missile (ASBM). The DF-21D is based on a variant of the DF-21 (CSS-5) medium-range ballistic missile (MRBM) and gives the PLA the capability to attack large ships, including aircraft carriers, in the western Pacific Ocean. The DF-21D has a range exceeding 1,500 km and is armed with a maneuverable warhead.

The Second Artillery continues to modernize its nuclear forces by enhancing its silo-based intercontinental ballistic missiles (ICBMs) and adding more survivable mobile delivery systems. In recent years, the road-mobile, solid-propellant CSS-10 Mod 1 and CSS-10 Mod 2 (DF-31 and DF-31A) intercontinental-range ballistic missiles have entered service. The CSS-10 Mod 2, with a range in excess of 11,200 km, can reach most locations within the continental United States. China may also be developing a new road-mobile ICBM, possibly capable of carrying a multiple independently targetable re-entry vehicle (MIRV)....

The 2014 report also updated the section about China's mobile ICBM capability:

China also is developing a new road-mobile ICBM known as the Dong Feng-41 (DF-41), possibly capable of carrying multiple independently targetable re-entry vehicles (MIRV).

Short-Range Ballistic Missiles (< 1,000 km): The Second Artillery had more than 1,100 SRBMs at the end of 2012, a modest increase over the past year. The Second Artillery continues to field advanced variants with improved ranges and more sophisticated payloads, while gradually replacing earlier generations that do not possess true precision strike capability.

Medium-Range Ballistic Missiles (1,000-3,000 km): The PLA is fielding conventional MRBMs to increase the range at which it can conduct precision strikes against land targets and naval ships (including aircraft carriers) operating far from China's shores out to the first island chain.

Intermediate-Range Ballistic Missiles (3,000-5,000 km): The PLA is developing conventional intermediate-range ballistic missiles (IRBM), increasing its capability for near-precision strike out to the second island chain. The PLA Navy is also improving its over-the-horizon (OTH) targeting capability with sky wave and surface wave OTH radars, which can be used in conjunction with reconnaissance satellites to locate targets at great distances from China (thereby supporting long-range precision strikes, including employment of ASBMs).

Land-Attack Cruise Missiles: The PLA continues to field air- and ground-launched LACMs for stand-off, precision strikes. Air-launched cruise missiles include the YJ-63, KD-88, and the CJ-20.

The latest development was the accidental revelation and subsequent confirmation of the existence of the DF-41, a missile that was rumored to be in production for several years. This is predicted to be capable of carrying multiple (MIRV) warheads.⁴⁴⁰

The 2014 report added that following data on China's MRBM capability:

Second Artillery: ...[T]he Second Artillery is expanding its conventional MRBM force and developing IRBMs to extend the distance from which it can threaten other countries with conventional precision or near-precision strikes.

....China has prioritized land-based ballistic and cruise missile programs to extend its strike warfare capabilities further from its borders. It is developing and testing several new classes and variants of offensive missiles, forming additional missile units, upgrading older missile systems, and developing methods to counter ballistic missile defenses. The Second Artillery has deployed more than 1,100 SRBMs to garrisons across from Taiwan and is fielding cruise missiles, including the ground-launched CJ-10 land-attack cruise missile. China continues to field an ASBM based on a variant of the DF-21 (CSS-5) medium-range ballistic missile that it began deploying in 2010. Known as the DF-21D, this missile provides the PLA the capability to attack large ships, including aircraft carriers, in the western Pacific. The DF-21D has a range exceeding 1,500 km and is armed with a maneuverable warhead.

.... China has made efforts to go beyond defense from aircraft and cruise missiles to gain a ballistic missile defense capability in order to provide further protection of China's mainland and strategic assets. China's existing long-range SAM inventory offers limited capability against ballistic missiles. The SA-20 PMU2, the most advanced SAM Russia offers for export, has the advertised capability to engage ballistic missiles with ranges of 1,000km and speeds of 2,800m/s. China's domestic CSA-9 long-range SAM system is expected to have a limited capability to provide point defense against tactical ballistic missiles with ranges up to 500km. China is proceeding with the research and development of a missile defense umbrella consisting of kinetic energy intercept at exo-atmospheric altitudes (>80km), as well as intercepts of ballistic missiles and other aerospace vehicles within the upper atmosphere. In January 2010, and again in January 2013, China successfully intercepted a ballistic missile at mid-course, using a ground-based missile.

.... China has developed a large constellation of imaging and remote sensing satellites under a variety of mission families. These satellites can support military objectives by providing situational awareness of foreign military force deployments, critical infrastructure, and targets of political significance. Since 2006, China has conducted 16 Yaogan remote sensing satellite launches. The Yaogan satellites conduct scientific experiments, carry out surveys on land resources, estimate crop yield, and support natural disaster reduction and prevention. Additionally, China has launched two Tianhui satellites designed to conduct scientific experiments and support land resource surveys and territory mapping with a stereoscopic imaging payload. China has three Huanjing disaster monitoring satellites currently on orbit (the third of which was launched in November 2012). The Ziyuan series of satellites are used for earth resources, cartography, surveying, and monitoring. China also operates the Haiyang ocean monitoring constellation and Fengyun weather satellites in low Earth and geosynchronous orbits. China will continue to increase its on-orbit constellation with the planned launch of 100 satellites through 2015. These launches include imaging, remote sensing, navigation, communication, and scientific satellites, as well as manned spacecraft.

It summarized China's progress in tactical missiles as follows:

China recently revealed the CM-802AKG LACM.

Ground Attack Munitions: The PLA Air Force has a small number of tactical air-to-surface missiles as well as precision-guided munitions including all-weather, satellite-guided bombs, anti-radiation missiles, and laser-guided bombs.

China is developing smaller-sized ASMs such as the AR-1, HJ-10 anti-tank, Blue Arrow 7 laser-guided and KD-2 in conjunction with its increasing development of UAVs. China is also adapting GPS-guided munitions such as the FT-5 and LS-6 that are similar to the U.S. Joint Direct Attack Munitions (JDAM) to UAVs.

Anti-Ship Cruise Missiles: The PLA Navy is deploying the domestically-produced, ship-launched YJ-62 ASCM; the Russian SS-N-22/SUNBURN supersonic ASCM, which is fitted on China's SOVREMENNY-class DDGs acquired from Russia; and the Russian SS-N-27B/SIZZLER supersonic ASCM on China's Russian-built KILO SS. It has, or is acquiring, nearly a dozen ASCM variants, ranging from the 1950s-era CSS-N-2 to the modern Russian-made SS-N-22 and SS-N-27B. China is working to develop a domestically-built supersonic cruise missile capability. The pace of ASCM research, development, and production has accelerated over the past decade.

In addition, the PLA Navy Air Force employs the YJ-83K ASCM on its JH-7 and H-6G aircraft. China has also developed the YJ-12 ASCM for the Navy. The new missile provides an increased threat to naval assets, due to its long range and supersonic speeds. It is capable of being launched from H-6 bombers.

Anti-Radiation Weapons: China is starting to integrate an indigenous version of the Russian Kh-31P (AS-17) known as the YJ-91 into its fighter-bomber force. The PLA imported Israeli-made HARPY UAVs and Russian-made anti-radiation missiles during the 1990s.

Artillery-Delivered High Precision Munitions: The PLA is developing or deploying artillery systems with the range to strike targets within or even across the Taiwan Strait, including the PHL-03 300 mm multiple-rocket launcher (MRL) (100+ km range) and the longer-range AR-3 dual-caliber MRL (out to 220 km).

Space Developments

The 2014 report included the following developments concerning Chinese satellites:

China launched the Gaofen-1 satellite in April 2013. The Gaofen program is one of 16 programs announced by the State Council for its national scientific and technology programs. Gaofen will become the main civilian Earth observation project, combining the use of satellites, aircraft, and even stratosphere balloons, with at least 14 satellites set to launch by 2020. Gaofen-2 is expected to launch this year. The Kuaizhou (“quick vessel”) imagery satellite was launched on September 25, 2013. Kuaizhou-1 was built by the Harbin Institute of Technology and is projected to be used for emergency data monitoring and imaging under the control of the Chinese Academy of Sciences’ National Remote Sensing Center.

Additionally, China has launched two Tianhui satellites designed to conduct scientific experiments and support land resource surveys and territory mapping with a stereoscopic imaging payload. China has three Huanjing disaster monitoring satellites currently on orbit (the third of which was launched in November 2012). The Ziyuan series of satellites are used for earth resources, cartography, surveying, and monitoring. China also operates the Haiyang ocean monitoring constellation and Fengyun weather satellites in low Earth and geosynchronous orbits. China plans to continue to increase its on-orbit constellation with the launch of 100 satellites through 2015. The future launches will include imaging, remote sensing, navigation, communication, and scientific satellites, as well as manned spacecraft.

Space: In 2012, China conducted 18 space launches. China also expanded its space-based intelligence, surveillance, reconnaissance, navigation, meteorological, and communications satellite constellations. In parallel, China is developing a multi-dimensional program to improve its capabilities to limit or prevent the use of space-based assets by adversaries during times of crisis or conflict.

During 2012, China launched six Beidou navigation satellites. These six satellites completed the regional network as well as the in-orbit validation phase for the global network, expected to be completed by 2020. China launched 11 new remote sensing satellites in 2012, which can perform both civil and military applications. China also launched three communications satellites, five experimental small satellites, one meteorological satellite, one relay satellite, and a manned space mission.

China continues to develop the Long March 5 (LM-5) rocket, which is intended to lift heavy payloads into space. LM-5 will more than double the size of the Low Earth Orbit (LEO) and Geosynchronous Orbit (GEO) payloads China is capable of placing into orbit. To support these rockets, China began constructing the Wenchang Satellite Launch Center in 2008. Located on Hainan Island, this launch facility is expected to be complete around 2013, with the initial LM-5 launch scheduled for 2014.

The 2014 report included the following developments concerning Chinese space capabilities:

In 2013, China conducted at least eight space launches to expand its space-based intelligence, surveillance, reconnaissance, meteorological, and communications satellite constellations. In addition to expanding its in-orbit assets, China successfully launched its first “Kuaizhou” (“quick vessel”) space launch vehicle (SLV), which is designed to launch a small satellite of the same name quickly into a low-Earth orbit to support “natural disaster monitoring.” Chinese media also reported development of a second Chinese responsive space launch vehicle dubbed the Long March 11 (LM-11). The LM-11 will provide China with “a vehicle to rapidly enter space and meet the emergency launching demand in case of disasters and contingencies,” and could be launched as early as 2014 and no later than 2016. In parallel, China is

developing a multi-dimensional program to improve its capabilities to limit or prevent the use of space-based assets by adversaries during times of crisis or conflict.

During 2013, China focused on testing the current constellation of Beidou navigation satellites (NAVSATs) and released the Beidou signal interface control document to allow for the production of ground receivers. Beidou NAVSAT launches will likely resume in 2014, with a global NAVSAT constellation expected to be completed by 2020. China launched five new remote sensing satellites in 2013, which can perform both civil and military applications. China also launched one communications satellite, four experimental small satellites, one meteorological satellite, and one manned space mission.

China continues to develop the LM-5 SLV, designed for lifting heavy payloads into space. The LM-5 will more than double the size of payloads China may place into geosynchronous orbits. More than just a single heavy-lift launch vehicle, the LM-5 has propulsion technologies that are reconfigurable to produce the LM-6 light-lift- and LM-7 medium-lift launch vehicles. The Wenchang Satellite Launch Center, designed to host these new launch vehicles, is expected to be complete in time for the first LM-7 launch in late-2014. The first LM-5 launch, delayed by recent manufacturing difficulties, is expected no sooner than 2015.

Counter-Space. PLA strategists regard the ability to utilize space and deny adversaries access to space as central to enabling modern, informatized warfare. Although PLA doctrine does not appear to address space operations as a unique operational “campaign,” space operations form an integral component of other PLA campaigns and would serve a key role in enabling A2/AD operations. Publicly, China attempts to dispel any skepticism over its military intentions for space. In 2009, PLA Air Force Commander General Xu Qiliang publically retracted his earlier assertion that the militarization of space was a “historic inevitability” after President Hu Jintao swiftly contradicted him. General Xu Qiliang is now a Vice Chairman of the Central Military Commission and the second highest-ranking officer in the PLA.

The 2014 report added:

A PLA analysis of U.S. and coalition military operations reinforced the importance of operations in space to enable “informationized” warfare, claiming that “space is the commanding point for the information battlefield.” , PLA writings emphasize the necessity of “destroying, damaging, and interfering with the enemy’s reconnaissance ... and communications satellites,” suggesting that such systems, as well as navigation and early warning satellites, could be among the targets of attacks designed to “blind and deafen the enemy.” The same PLA analysis of U.S. and coalition military operations also states that “destroying or capturing satellites and other sensors ... will deprive an opponent of initiative on the battlefield and [make it difficult] for them to bring their precision guided weapons into full play.”

The PLA is acquiring a range of technologies to improve China’s space and counter-space capabilities. China demonstrated a direct-ascent kinetic kill anti-satellite capability to low Earth orbit when it destroyed the defunct Chinese FY-1C weather satellite during a test in January 2007. Although Chinese defense academics often publish on counterspace threat technologies, no additional anti-satellite programs have been publicly acknowledged. A PLA analysis of U.S. and coalition military operations reinforced the importance of operations in space to enable “informatized” warfare, claiming that “space is the commanding point for the information battlefield.” PLA writings emphasize the necessity of “destroying, damaging, and interfering with the enemy’s reconnaissance...and communications satellites,” suggesting that such systems, as well as navigation and early warning satellites, could be among the targets of attacks designed to “blind and deafen the enemy.” The same PLA analysis of U.S. and coalition military operations also states that “destroying or capturing satellites and other sensors...will deprive an opponent of initiative on the battlefield and [make it difficult] for them to bring their precision guided weapons into full play.”

Another US official assessment of Chinese missile forces took place in May 2013. This assessment was made by the US National Air and Space Intelligence Center, with contributions from the Defense Intelligence Agency Missile and Space Intelligence Center and the Office of Naval Intelligence.⁴⁴¹ This assessment summarized Chinese missile developments as follows:⁴⁴²

China has the most active and diverse ballistic missile development program in the world. It is developing and testing offensive missiles, forming additional missile units, qualitatively upgrading missile systems, and developing methods to counter ballistic missile defenses.

...The Chinese ballistic missile force is expanding in both size and types of missiles. China continues to field conventionally armed SRBMs opposite Taiwan, and is developing a number of new mobile, conventionally armed MRBMs. Missiles such as the CSS-5 ASBM are key components of the Chinese military modernization program, specifically designed to prevent adversary military forces' access to regional conflicts.

...China continues to maintain regional nuclear deterrence, and its long-term, comprehensive military modernization is improving the capability of its ballistic missile force to conduct high-intensity, regional military operations, including "anti-access and area denial" (A2/AD) operations. The term A2/AD refers to capabilities designed to deter or counter adversary forces from deploying to or operating within a defined space. Currently, China deploys the nuclear armed CSS-2, CSS-5 Mod 1, and CSS-5 Mod 2 for regional nuclear deterrence. China is also acquiring new conventionally armed CSS-5 MRBMs to conduct precision strikes. These systems are likely intended to hold at-risk or strike logistics nodes, regional military bases including airfields and ports, and naval assets. Notably, China has likely started to deploy the DF-21D, an ASBM based on a variant of the CSS-5.

...China is strengthening its strategic nuclear deterrent force with the development and deployment of new ICBMs...China currently has a single XIA Class SSBN that is intended to carry 12 CSS-NX-3/JL-1 missiles. In addition, China will deploy the new CSS-NX-14/JL-2 SLBM on new 12-tube JIN Class SSBNs. This missile will, for the first time, allow Chinese SSBNs to target portions of the United States from operating areas located near the Chinese coast...The CJ-10 (DH-10) is the first of the Chinese Changjian series of long-range missiles and LACMs. It made its public debut during a military parade in 2009 and is currently deployed with the Second Artillery Corps.

SAF Strategy

During the 1980s, the CMC ordered the SAF to operate according to the concept of "Dual Deterrence and Dual Operations." This doctrine was developed in response to recent changes in the nature of modern warfare, and the CMC believed that these changes required the SAF to maintain both a conventional strike capability and augmented security for its nuclear deterrent. As the *Science of Second Artillery Campaigns* states,⁴⁴³

In the late 1980s, the Central Military Commission assigned the Second Artillery Force the mission to build and develop a conventional guided missile force. Especially after the Gulf War, the PLA, under the correct leadership of President Jiang Zemin (江泽民), formulated the military strategic guidelines of the new era. To meet the needs of future high tech local wars, the Central Military Commission issued the new task of "dual deterrence and dual operations" and set up a new conventional guided missile force.

The basic logic of dual deterrence and dual operations was that both conventional and nuclear missile capabilities could deter China's adversaries, while both conventional and nuclear operations were necessary in wartime. By nuclear operations, the SAF refers to nuclear counter-attack and nuclear deterrence operations.

The requirements placed on the SAF by the new service strategy had significant implications for force structure, equipment composition, and Personnel policies. In the mid-1980s, the SAF was a force comprised mostly of medium- and intermediate-range nuclear and atomic weapons. The SAF had few intercontinental ballistic missiles (ICBMs) and no conventional capabilities. The requirements of the new service strategy created doctrinal and practical challenges. As the *Science of Second Artillery Campaigns* states, several theoretical changes had to occur:⁴⁴⁴

First is to shift the footing of the theoretical research of Second Artillery Force campaigns from dealing with a nuclear war in the past to participating in a high tech local war under the condition of nuclear deterrence; Second is to shift the focus of the research from using the single nuclear means to accomplish the mission of nuclear counter attack in the past to using two types of means, both nuclear and conventional, namely to a mission of "dual deterrence and dual operations." Third is to change the content of research from focusing on strategizing in the past to focusing on a combined use of strategizing and technical means.

When the PLA adopted the Local Wars concept in 1993, the SAF's dual deterrence and dual operations strategy easily fit into the new construct – the emphasis on developing a conventional strike capability fit in with the Local Wars requirements for long-range precision strikes.

The SAF plays an important supporting role for the Army, Navy, and Air Force in joint operations. Long range conventional strikes and nuclear counterattacks (assuming that China has already been attacked with nuclear weapons), targeting enemy C4ISR, air bases, and... However, the SAF is described as being capable of conducting independent operations if necessary. Improvements in the realism of training appear to reflect the SAF's ability to conduct joint and independent operations. In addition to training exercises in conjunction with other services across multiple military regions, the SAF has practiced operating under harsh conditions, which may describe contingencies such as loss of communication with the command chain, constrained mobility, and electronic attacks.⁴⁴⁵

The conventional and nuclear assets of the SAF cannot be separated. Indeed, the *Science of Second Artillery Campaigns* emphasizes that “nuclear missile force deterrence actions and conventional missile strike operations must be fused together and mutually interwoven.”⁴⁴⁶ Although China's no first use policy would suggest that only conventional missiles will be active in a campaign, provided that China is not attacked by nuclear weapons, nuclear tipped missiles still have a role to play. These missiles serve as a nuclear “backstop” to escalation of a conflict. The SSAC says:

These units aim mainly to fully demonstrate their role in nuclear deterrence and prevent the war from moving towards widening or spreading, and to deter the enemy from initiating nuclear war, and thereby controlling the war by keeping it localized, limited and bearable in scope.⁴⁴⁷

The SAF can undertake various activities in order to “demonstrate their role.” These activities can include exercises, feints in order to confuse enemy intelligence, revealing certain capabilities, preparing launch facilities to give the appearance of escalation, increasing readiness levels, conducting missile tests (tests closer to enemy assets will send stronger messages), and possibly lowering the nuclear deterrence threshold or adjust nuclear policy.⁴⁴⁸ Analysts are concerned that some of these actions can be easily misinterpreted as preparation for an attack, potentially sparking an unwanted conflict.⁴⁴⁹

As the following section will show, the SAF has succeeded in facing the theoretical and practical challenges of the CMC's imperatives and is currently in the process of a modernization and force development program designed to enable it to conduct dual deterrence, dual operations, and to fight and win Local Wars.

Shifts in Force Structure, Equipment Composition, and Personnel

The SAF responded to these twin imperatives by fundamentally altering its force structure, equipment composition, and Personnel policies. Force structure changes are illustrated by the proliferation of missile categories and units within the SAF as well as by the dual development of conventional and nuclear weapons systems.

Equipment-wise, the nuclear and conventional objectives necessitate similar capabilities: they both require missile systems that are mobile and survivable. However, the differing requirements of nuclear and conventional missile campaigns mean that the SAF requires both conventional

missiles accurate enough to target mobile or small targets and nuclear missiles capable of evading and surviving enemy nuclear attacks. Neither capability is simple or easy to achieve, and the SAF is still making progress towards both.

As the data below indicate, however, the SAF has made significant progress in all of these capabilities compared to its position in 1985. In the conventional field, the SAF, which had no conventional missiles in 1985, now has the largest conventional missile arsenal in the Asia-Pacific.⁴⁵⁰ Since 1985, the SAF has developed conventional systems that are mobile, solid-fueled, and precise or near-precise in accuracy.⁴⁵¹ Moreover, it has also developed indigenous cruise missiles and the resulting precision-strike capability offered by such systems. In addition, these conventional systems now enjoy increased survivability due to the development of a reportedly 5,000 kilometer-long tunnel network⁴⁵² and improving PLAAF air defenses.⁴⁵³

The nuclear forces have also made significant progress. Since 1985 the SAF has retired much of its liquid-fueled nuclear missile arsenal. In turn, these systems have been replaced by new, solid-fueled, mobile missile systems. Unlike the conventional forces, however, the nuclear forces still retain a number of obsolete, liquid-fueled missiles and lack modern technologies such as multiple independent targetable reentry vehicles (MIRVs) or ballistic missile defenses. Consequently, while the SAF's nuclear delivery modernization continues, it has yet to achieve a fully modern force.

All of these developments have been occurring within the context of the SAF's efforts to create a force capable of winning Local Wars along China's periphery. Consequently, the SAF has developed its strongest capabilities in precision-strike weapon systems that can hit targets within 600 km of China's borders: the DoD has estimated that the SAF has 1,200-1,700 SRBMs and GLCMs.⁴⁵⁴ In addition, the SAF has been reported by the DoD to be increasing its numbers of MRBMs, anti-ship ballistic missiles (ASBMs), and long-range GLCMs. Consequently, the SAF enables the PLA to mitigate some of the weaknesses still existent in its other branches. This dynamic, combined with the SAF's proven anti-satellite capability, illustrates the importance of the SAF to the PLA's Local Wars concept.

Trends in Total Missile Forces

The trends in these developments – which have played out over the course of nearly three decades – are illustrated by shifts in the number of missile forces in the SAF order of battle from 1985-2012. The data in **Figures 11.2 to 11.4** are drawn from the IISS and show the historical trends in Second Artillery Personnel and missile strength.

- **Figure 11.2** provides detailed quantitative data on the SAF's order of battle since 1985.
- **Figures 11.3 to 11.4** compare both absolute and relative trends – absolute numbers alone do not indicate institutional change; it is necessary to tie changes in absolute numbers to changes in relative force structure. **Figures 10.3 and 10.4** also demonstrate such a change between 1985 and 2013: the SAF's evolving force structure illustrates a shift from a medium-/intermediate-range nuclear force to a bifurcated force dually dedicated to conventional short-medium range missions and a nuclear force capable of medium-range and intercontinental strikes.
- **Figure 11.5** shows the range of China's missiles and how they affect its full range of operations – in Asia and in extending its sea-air extension of operations in the second island chain and in areas affecting the South China Sea.

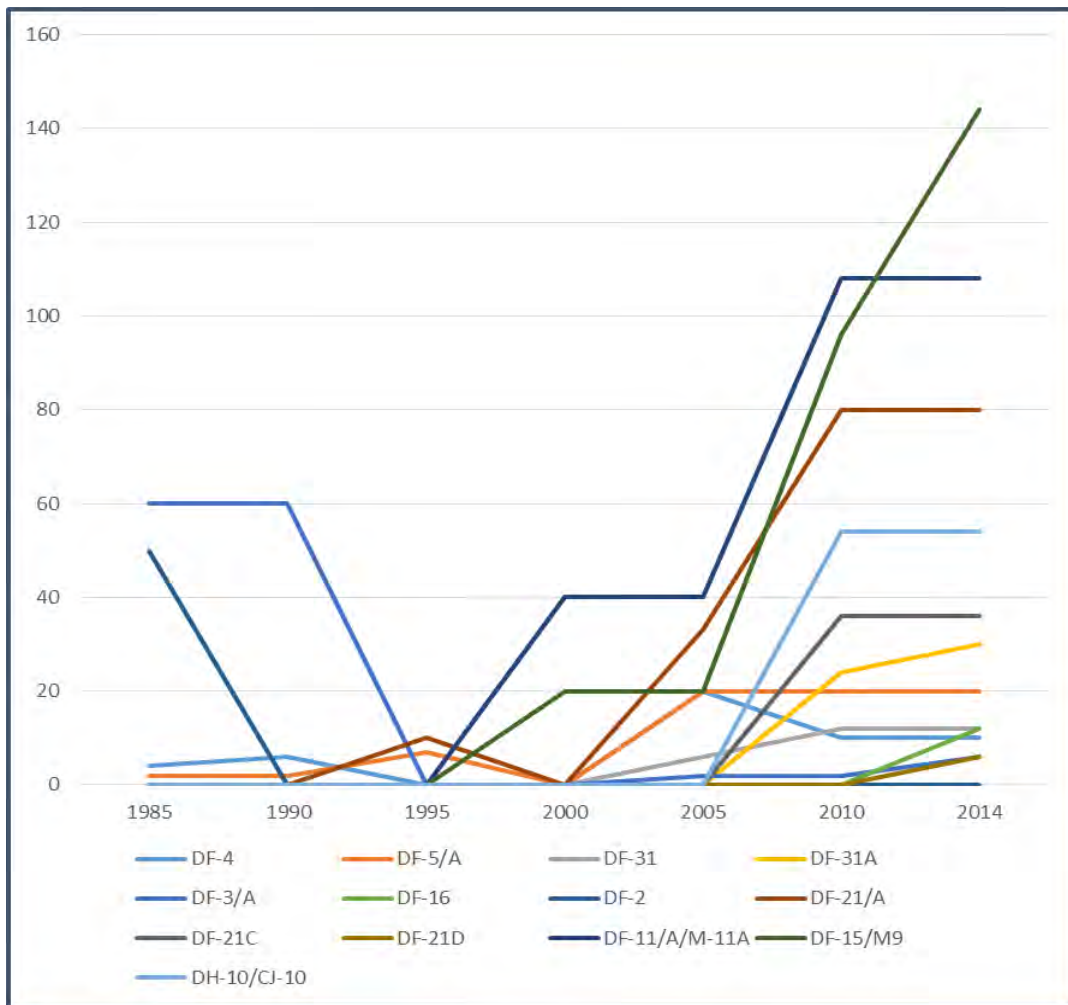
There are several key indicators of this shift from a medium-/intermediate-range nuclear force to a bifurcated multi-mission force shown in the Figures. The first such indicator is the diminishing

number of missile launchers solely suited to nuclear missions. Even if an observer ignores the DF-21C/D and counts the DF-21 series as a nuclear-only class, the percentage of the SAF's missile launcher strength suited only for nuclear missions drops from 100% in 1985 to slightly over 40% in 2012.

Roughly 60% of the current SAF arsenal can conduct effective conventional missions and thus contribute to victory in non-nuclear Local Wars under Conditions of Informatization. As the Figures show, the reason for this significant change is the introduction of precision or near-precision strike SRBMs and LACMs. When SRBMs first appeared on the graph in 2000, they accounted for 30% of the SAF's missile launchers; by 2013, SRBMs accounted for approximately 50%. This change is complemented by the introduction of cruise missiles: by 2010, LACMs accounted for roughly 11% of SAF strength. These trends occur in contrast to the effective destruction of the SAF's nuclear intermediate-range ballistic missile (IRBM) force. In 1985, the SAF's nuclear IRBMs accounted for over 50% of the force; by 2013, the total was roughly 0.4%.

The second major indicator of a shift in SAF doctrine and capability is the significant growth in the relative size of the ICBM arsenal. Not only does the ICBM force increase in relative size from 5% to 14%, but also much of the growth is due to modern DF-31 and DF-31A ICBMs. This trend may be an indication of a shifting priority from regional and Eurasian deterrence missions to intercontinental deterrence missions. Consequently, not only have the SAF's equipment holdings revealed a shift from nuclear to nuclear and conventional missions, it is possible that the same equipment holdings also indicate a shift in the priority of nuclear deterrence missions.

The third indicator is the change in the geographic range of the force. In 1985, 100%⁴⁵⁵ of the SAF's missile force could reach the critical US base on Guam, located in the second island chain.⁴⁵⁶ In 2012, the composition of the SAF is such that only roughly 15% of the SAF's capabilities can hit the US base on Guam. This change indicates a significant shift in priorities from the second island chain and beyond to China's immediate periphery. Such a shift is fully in line with the Local Wars concept.

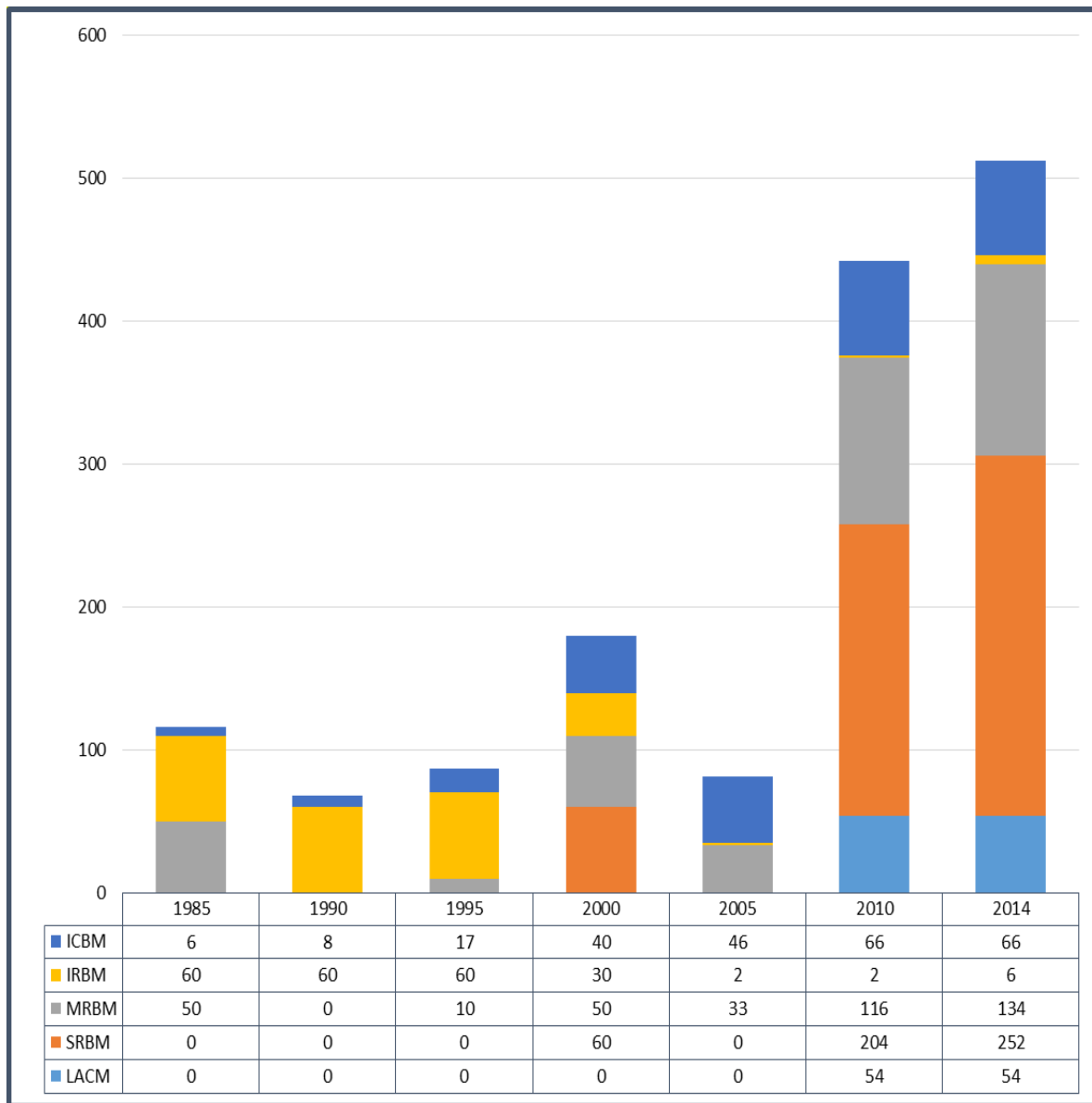
Figure 11.2: Historical Quantitative Data on the SAF- Part I

Source: IISS, *Military Balance* 1985-2014, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

Figure 11.2: Historical Quantitative Data on the SAF- Part II

	1985	1990	1995	2000	2005	2010	2013
DF-2 (CSS-1)	50	0	0	0	0	0	0
DF-3/A (CSS-2 Mod) [IRBM]	60	60	60+	30+	2	2	2
DF-4 (CSS-3) [ICBM]	4	6	10+	20+	20	10	10
DF-5/A (CSS-4 Mod 2) [ICBM]	2	2	7	20+	20	20	20
DF-21/A (CSS-5 Mod1/2) [MRBM]	0	0	10	50+	33	80	80
DF-21C (CSS-5 Mod 3) [MRBM]	0	0	0	0	0	36	36
DF-21D (CSS-5 Mod 4 – ASBM) [MRBM]	0	0	0	0	0	0	6
DF-15/M9 (CSS-6) [SRBM]	0	some	some	20	some	96	144
DF-11/A/M-11A (CSS-7 Mod 2) [SRBM]	0	some	some	40	some	108	108
DF-31 (CSS-9) [ICBM]	0	0	0	0	6	12	12
DF-31A (CSS-9 Mod 2) [ICBM]	0	0	0	0	0	24	30
DH-10/CJ-10 [LACM]	0	0	0	0	0	54	54

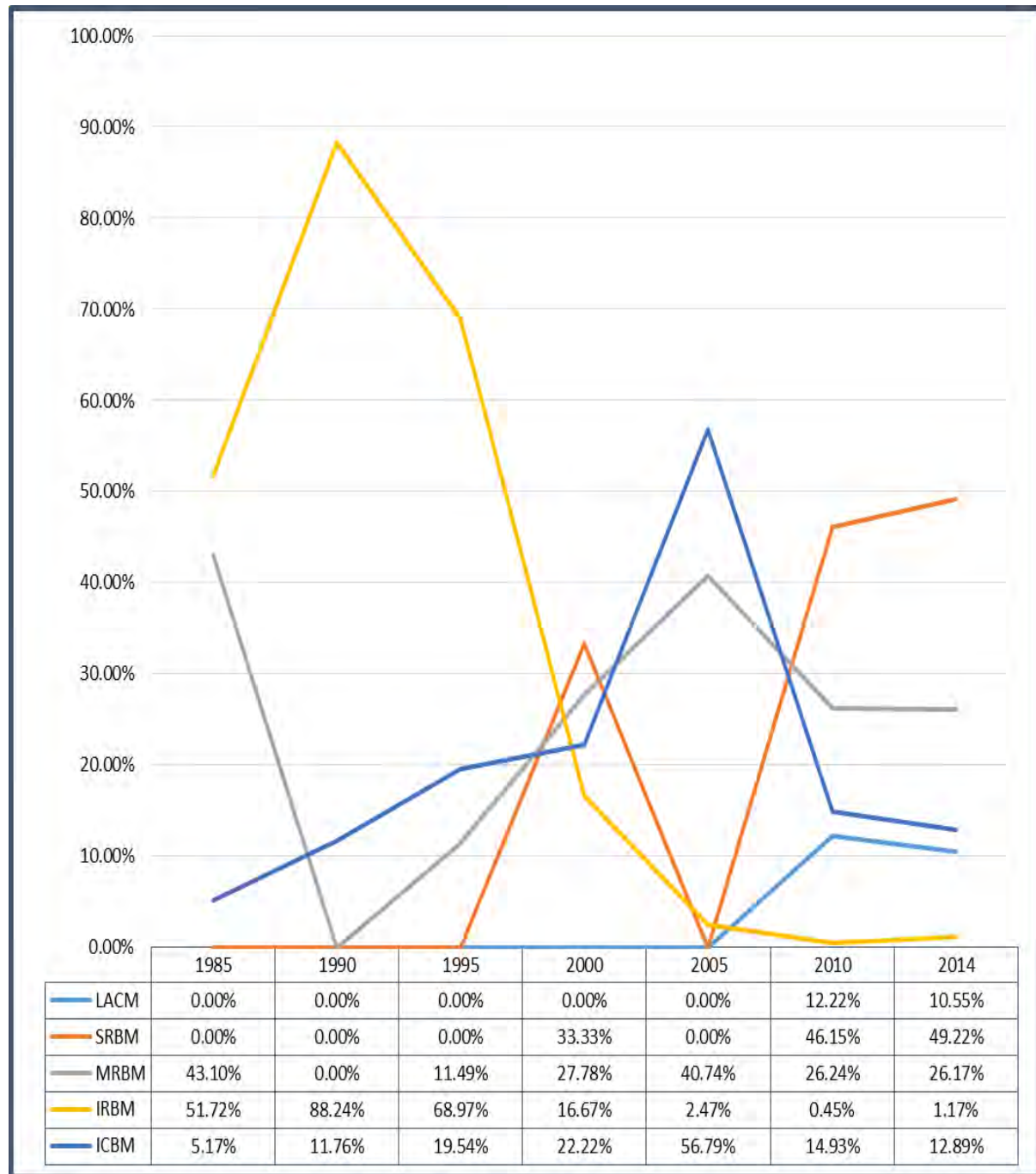
Source: IISS, *Military Balance* 1985-2014, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

Figure 11.3: Historical Size and Composition of the SAF Arsenal

Note: IISS lists total SRBM missile numbers, not SRBM missile launchers for 2005. Consequently, while it is possible to estimate the number of launchers, such estimates are very rough given uncertainty regarding missile-to-launcher ratios and the uneven distribution of both types of equipment to missile forces. Consequently, the authors have chosen to leave the field for 2005 SRBM numbers blank, but it should be kept in mind that there was a sustained increase in SRBM launcher numbers between 2000 and 2010.

Source: IISS, *Military Balance* 1985-2014, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

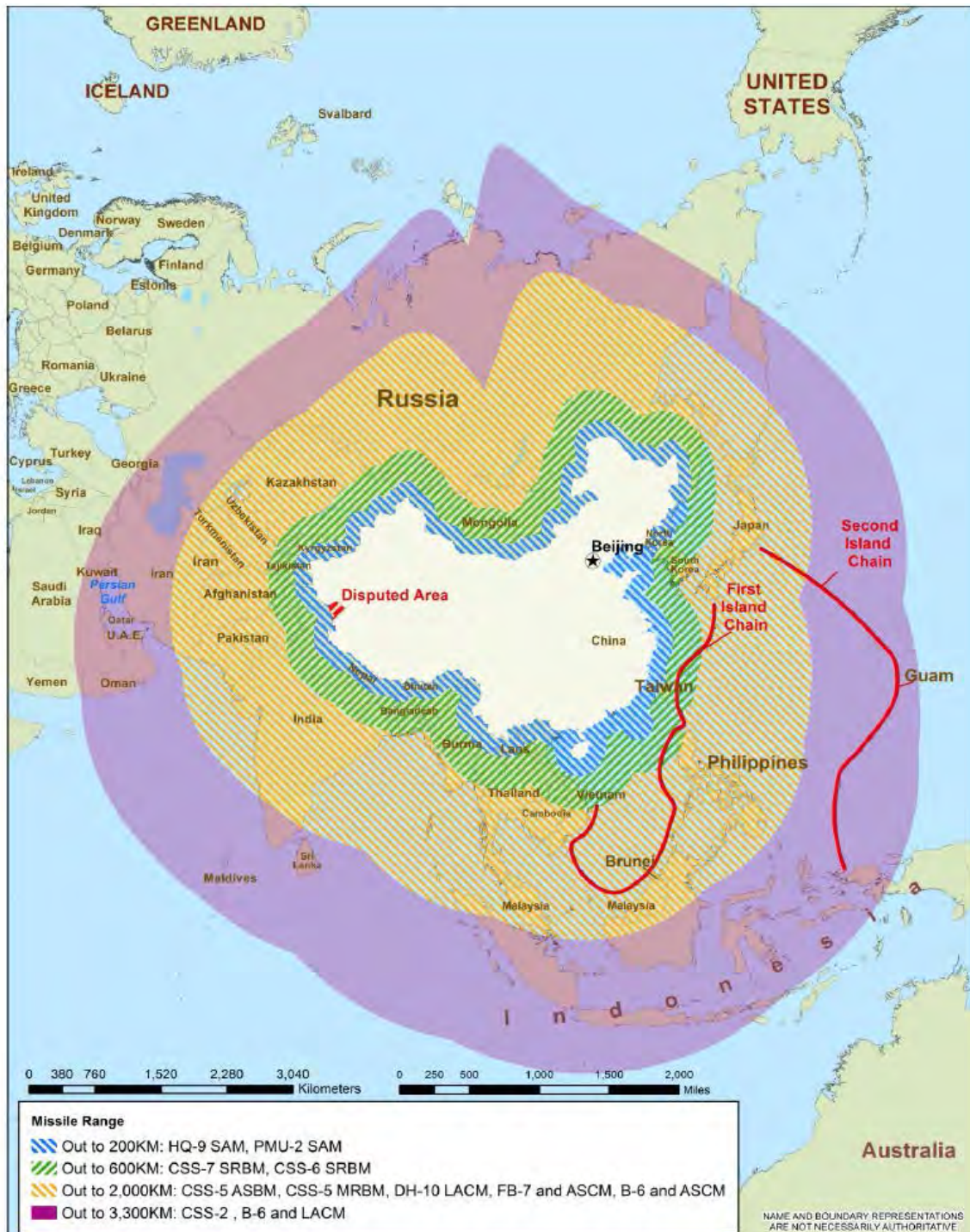
**Figure 11.4: The SAF's Changing Force Structure, 1985-2013
(Percent)**



Note: Due to rounding, numbers may not add up to 100.

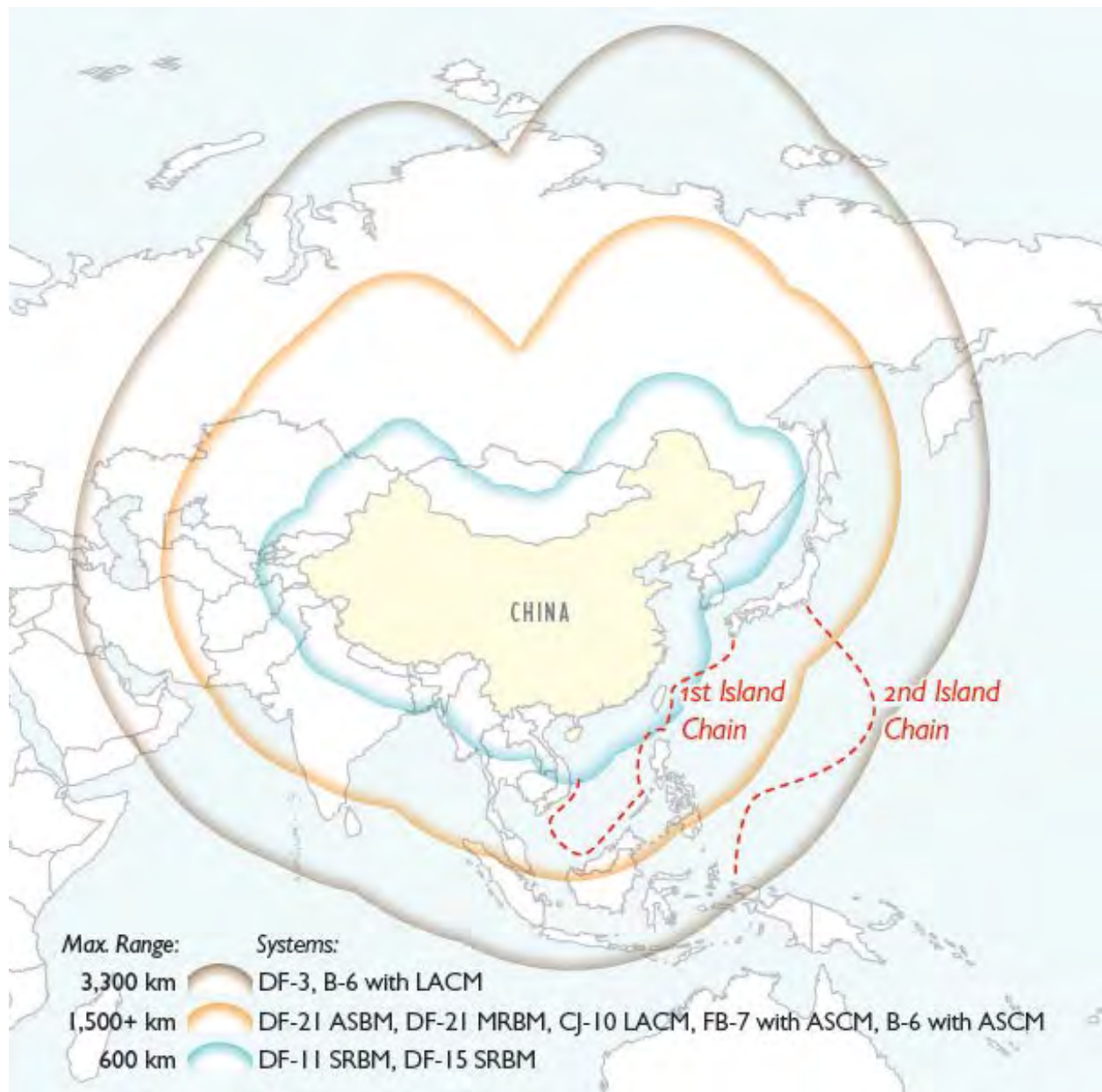
Source: IISS, *Military Balance* 1985-2014, adapted by Anthony H. Cordesman and Garrett Berntsen at the Center for Strategic and International Studies.

Figure 11.5: The Expanding Range of China's Theater Missile Forces – Part I



Source: DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China* 2014, April 2014, 85.

Figure 11.5: The Expanding Range of China's Theater Missile Forces – Part II



Note: the PLA's conventional forces are currently capable of striking targets well beyond China's immediate periphery (counter-intervention capability). Not included are ranges for naval surface- and sub-surface-based weapons, whose employment distances from China would be determined by doctrine and the scenario in which they are employed.

Source: DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2013*, May 2013, 42.

Figures 11.2 to 11.4 relied on missile launcher statistics provided by the IISS. However, the arsenal of actual missiles, not just missile launchers, also has important implications for the SAF's force structure. The number of missiles per missile launcher indicates military planning, operational concepts, and SAF progress towards its stated goals. Using DoD-reported data through 2012 – the 2013 report did not include any updates – it is possible to analyze the SAF's missile holdings.

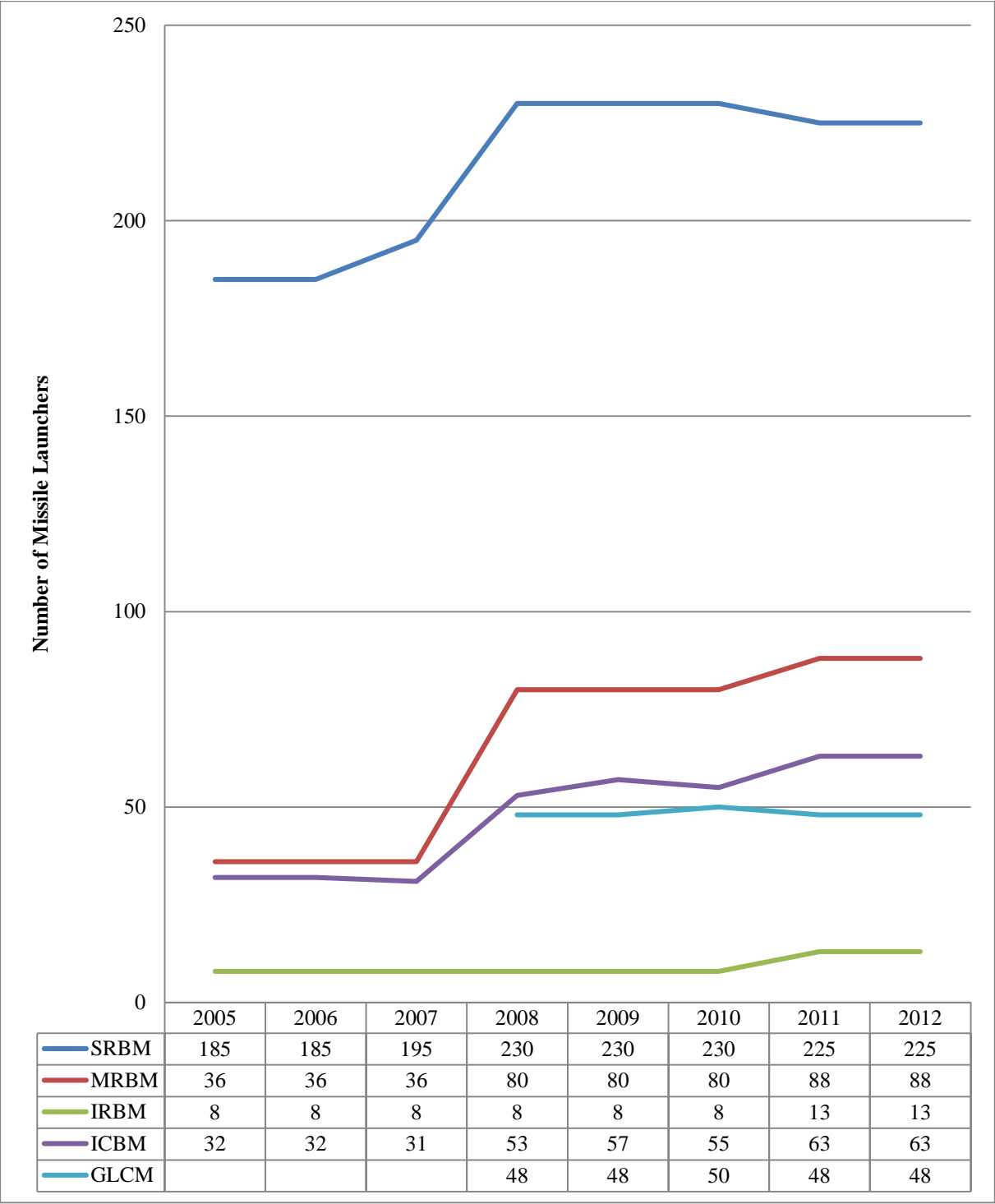
Figures 11.6 and 11.7 have significant implications.

- **Figure 11.6** shows DoD-reported numbers for year-on-year growth in SAF missile launchers.
- **Figure 11.7** shows DoD-reported SAF missile strength from 2002 onwards, on a year-on-year basis.

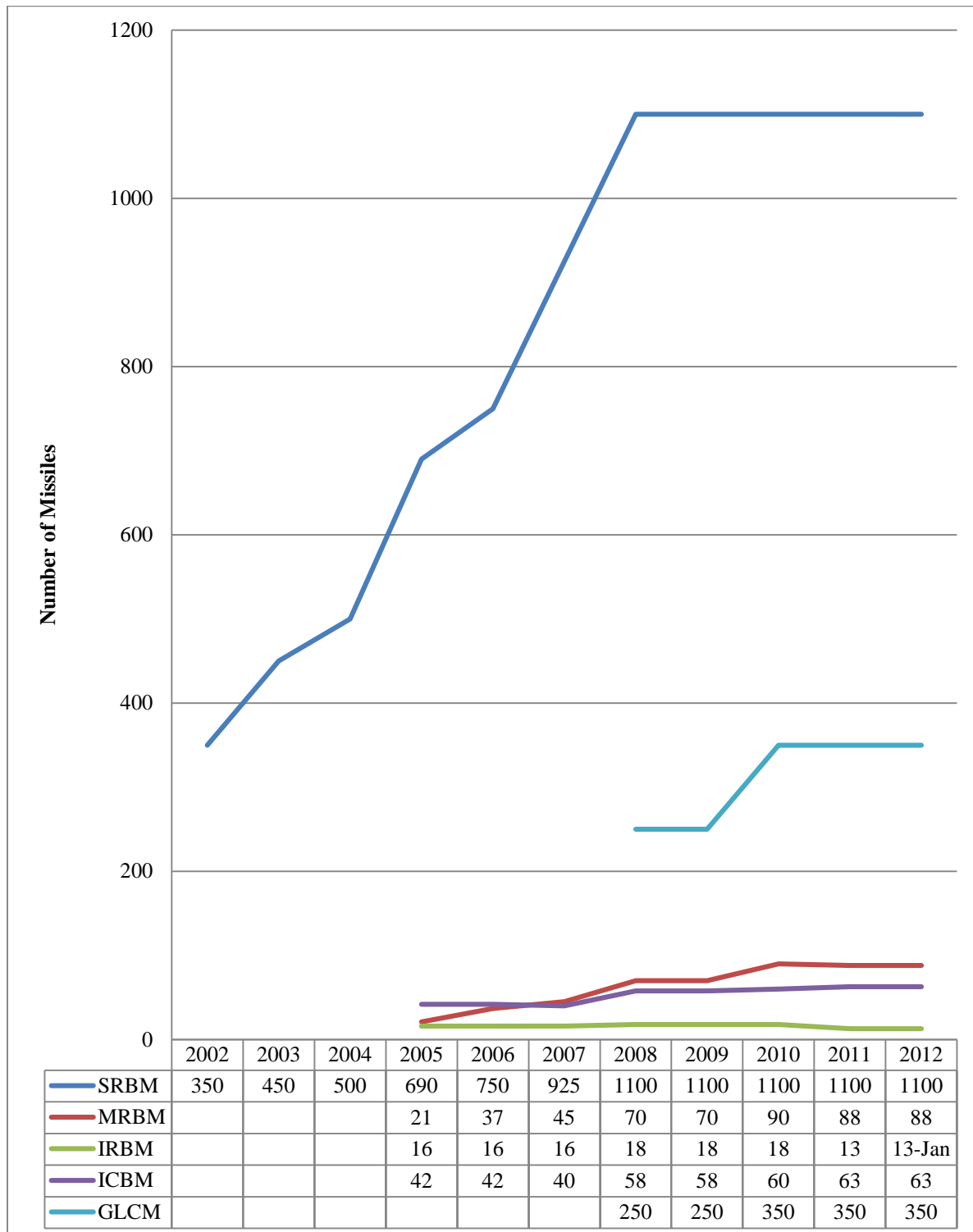
These Figures show that, unlike every other missile category, the SRBM and LACM launchers are assigned a relatively large number of missiles per launcher. Moreover, trend lines indicate growing gaps between missile and missile launcher numbers leading to larger and larger reserve stockpiles of SRBMs and LACMs. This may indicate that the SAF plans to fire repeated salvos of SRBMs and LACMs during hypothetical contingencies.

Unlike the SAF's inventory of medium- and longer-range missiles, potential adversaries could face multiple salvos per SRBM or GLCM launcher, possibly in a counter-air role as has been proposed by RAND.⁴⁵⁷ Such a capability falls perfectly in line with the conventional requirements of Local Warfare under Conditions of Informatization and, when supplemented by an increasingly secure nuclear second-strike capacity, provide the PLA with critical capabilities necessary for fighting and winning Local Wars while deterring further escalation.

Figure 11.6: Year-on-Year Missile Launcher Strength, 2005-2012



Sources: DoD, *Military Power of the People’s Republic of China*, 2005-2008; DoD, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China*, 2009-2012.

Figure 11.7: Year-on-Year Missile Inventory, 2005-2012

Sources: DoD, *Military Power of the People's Republic of China*, 2005-2008; DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China*, 2009-2012.

Shifts in Equipment Composition

As noted earlier, the trends in **Figure 11.2** reflected several important trends in the modernization of the SAF. Since 1985, in line with the PLA concept of winning Local Wars under Conditions of Informatization, the SAF has reduced its relative holdings of non-mobile, liquid-fueled missiles with nuclear warheads and shifted to a force structure heavily comprised of mobile, solid-fueled conventional missile systems.

SRBMs

It is important to note that China is scarcely the only power deploying SRBMs. A US National Air and Space Intelligence Center estimate of regional balance in short-range ballistic missile forces is shown in **Figure 11.8**. It shows that many other powers have such systems, and these figures do not include US capability to launch cruise missiles and South Korea's decision to acquire SRBMs. The NASIC summarizes key regional trends as follows:⁴⁵⁸

Several countries are now producing and/or developing SRBM systems, while many other countries have purchased missiles or missile technologies from one or more of the missile producers.

The Russian SS-1C Mod 1, also called the SCUD B, has been exported to more countries than any other type of guided ballistic missile, and has proven to be a versatile and adaptable weapon.

For example, North Korea has produced its own version of the SCUD B and the SCUD C, which is an extended-range version of the SCUD B. Although the SCUD was originally designed as a tactical battlefield support weapon, many countries view it and other SRBM systems as strategic weapons to be used against urban areas.

... Other countries could modify SCUD missiles to significantly improve their accuracy and use them against high-value military targets and cities.

New SRBM systems are in development in several countries. China has deployed a very large force of modern solid-propellant SRBMs in the vicinity of Taiwan, and according to Taiwanese government officials, China has recently started to deploy a new SRBM known as the Dong Feng 16 (DF-16/CSS-11 Mod 1).

Since 1985, the SAF has steadily increased the number of Short-Range Ballistic Missiles (SRBMs) in its arsenal. All are mobile and solid-fueled, enabling the SAF to conduct rapid strikes against regional threats while limiting the risk of preemption. Moreover, in line with the Local Wars concept, the SAF has increased the range of its SRBMs to improve their regional utility, created numerous variants for different purposes, and improved their accuracy.

On this last point, the 2011 DoD report stated, "the PLA continues to field advanced variants with improved ranges and more sophisticated payloads that are gradually replacing earlier generations that do not possess true precision strike capability."⁴⁵⁹ The 2013 DoD on Chinese military power report noted that, "the PLA is also introducing new SRBM variants with improved ranges, accuracies, and payloads."⁴⁶⁰

Figures 11.9 and 11.10 showed the rise in SRBM strength as well as a plateau and later a slight decrease in SRBM missile launcher numbers. However, this drop in force numbers does not necessarily indicate a drop in SRBM combat power. As the 2014 DoD Report stated:⁴⁶¹

The Second Artillery had more than 1,000 SRBMs at the end of 2013. The Second Artillery continues to field advanced variants with improved ranges and more sophisticated payloads, while gradually replacing earlier generations that do not possess true precision strike capability.

The DoD has since confirmed what has been reported throughout the decade in open-source literature: the SAF is creating new variants of both its DF-11 and DF-15 SRBMs that have

improved range and, most importantly, significantly improved circular error probability (CEP). Consequently, a reduction in overall force numbers, if the result of a reduction in older SRBMs that are concurrently being replaced with fewer – but newer – models, will most likely result in an overall increase in SAF SRBM combat power.

A RAND report released in 2009 illustrates this point effectively. Comparing open-source information on various SAF SRBM classes and their variants, the report estimated the number of SRBMs needed to completely, albeit temporarily, neutralize the Republic of China (ROC or Taiwanese) Air Force. The report drew two conclusions: first, older, less accurate SRBMs had very little conventional utility in precision-strike operations. Second, newer SRBMs with significantly improved CEPs are capable of achieving ambitious operational objectives with a much smaller quantity of SRBMs than earlier variants of the same class. **Figures 11.11 and 11.12** illustrate these developments.

- **Figure 11.11** is a graph that shows open-source data collected and used by RAND to estimate the parameters of the SAF's SRBM capability.
- **Figure 11.12** uses that data to compute the number of SRBMs necessary to achieve a given probability of neutralizing a single runway.

As these Figures show, the replacement of newer SRBMs with precision strike capabilities has a significant impact on the combat utility of each individual SRBM. For example, the replacement of a DF-15 with a DF-15A, according to the RAND data, would augment the SAF's combat power by 500% – in other words, it would take 5 DF-15s to achieve the same kill probability as a single DF-15A. Consequently, replacing older SRBMs with newer ones, even if not on a one-to-one basis, will significantly augment the SAF's SRBM-based combat power. Thus, while the growth in SRBM numbers indicates growth in the SAF's SRBM capacity, the converse is not automatically true – a reduction in SRBM numbers may simply reflect the impact of missile modernization and represent an increase in overall capability.

Figure 11.8: NASIC Estimate of the Regional Balance of Short-range Ballistic Missiles (SRBMs)

MISSILE	PROPELLANT	DEPLOYMENT MODE	MAXIMUM RANGE (km)	Number of Launchers (By Country)*
RUSSIA				Fewer than 200
SCUD B (SS-1c Mod 1)	Liquid	Road-mobile	300	
SS-1c Mod 2	Liquid	Road-mobile	240+	
SS-21 Mod 2	Solid	Road-mobile	70	
SS-21 Mod 3	Solid	Road-mobile	120	
SS-26	Solid	Road-mobile	300	
Iskander-E	Solid	Road-mobile	280	
CHINA				More than 200
CSS-11 Mod 1	Solid	Road-mobile	800+	
CSS-6 Mod 1	Solid	Road-mobile	600	
CSS-6 Mod 2	Solid	Road-mobile	850+	
CSS-6 Mod 3	Solid	Road-mobile	725+	
CSS-7 Mod 1	Solid	Road-mobile	300	
CSS-7 Mod 2	Solid	Road-mobile	600	
CSS-8	Solid/Liquid	Road-mobile	150	
CSS-9 Mod 1	Solid	Road-mobile	150	
CSS-9 Mod-X-2	Solid	Road-mobile	260	
CSS-14 Mod-X-1	Solid	Road-mobile	150	
CSS-14 Mod-X-2	Solid	Road-mobile	280	
CSS-X-16	Solid	Road-mobile	200	
CSS-X-15	Solid	Road-mobile	280	
NORTH KOREA				Fewer than 100
SCUD B	Liquid	Road-mobile	300	
SCUD C	Liquid	Road-mobile	500	
Toksa	Solid	Road-mobile	120	
ER SCUD	Liquid	Road-mobile	700-995	
INDIA				Fewer than 75
Prithvi I	Liquid	Road-mobile	150	
Prithvi II	Liquid	Road-mobile	250	
Dhanush	Liquid	Ship-based	400	
Agni I	Solid	Road-mobile	700	
PAKISTAN				Fewer than 50
Hatf-9	Solid	Road-mobile	60	
Hatf-1	Solid	Road-mobile	50	
Shaheen I	Solid	Road-mobile	750	
Ghaznavi	Solid	Road-mobile	250	
IRAN				Fewer than 100
Fateh-110	Solid	Road-mobile	200-300	
Shahab 1	Liquid	Road-mobile	300	
Shahab 2	Liquid	Road-mobile	500	
CSS-8 (M-7)	Solid/Liquid	Road-mobile	150	
Qiam -1	Liquid	Road-mobile	unknown	
SYRIA				Fewer than 100
SCUD D	Liquid	Road-mobile	700	

Note: All ranges are approximate.

* The missile inventory may be larger than the number of launchers; launchers can be reused to fire additional missiles

Source: Defense Intelligence Agency Missile and Space Intelligence Center and Office of Naval Intelligence, *Ballistic & Cruise Missile Threat*, NASIC, May 2013, p. 11-13.

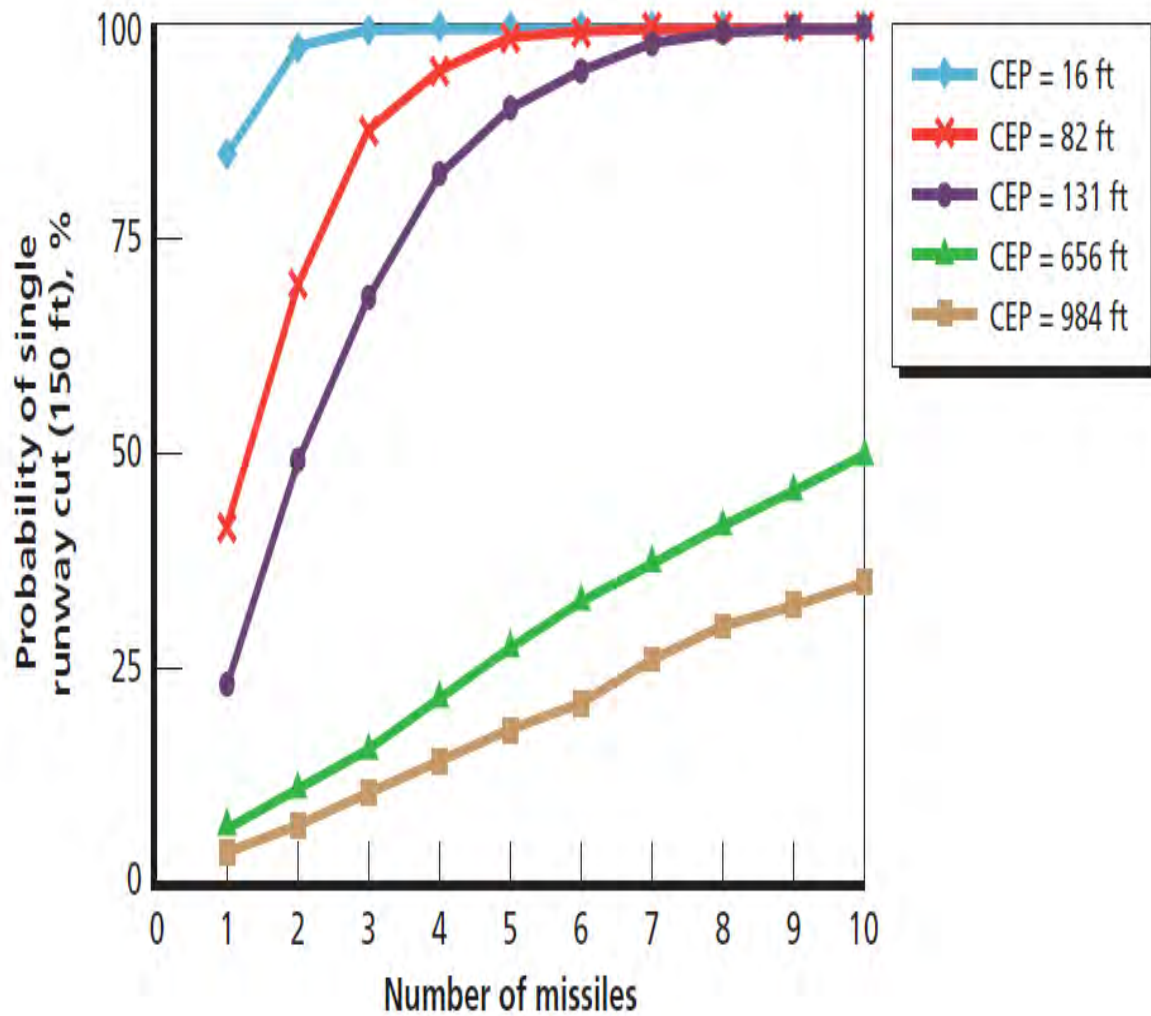
Figure 11.9: RAND Data on PRC SRBMs and the “Notional SRBM” Model (2009)

Characteristics of CSS-7, CSS-6, and Notional SRBM

Characteristic	CSS-7		CSS-6			Notional SRBM
	DF-11	DF-11A	DF-15	DF-15A	DF-15B	
Range (km)	280–350	350–530	600	600	600	>280
Warhead (kg)	800	500	500	600	600	500
CEP (m)	600	20–30; 600 for oldest version	300	30–45	5	5, 25, 40, 200, 300
Number of missiles	675–715			315–355		900
Number of launchers	120–140			90–110		200

Source: David A. Shlapak et al, *A Question of Balance: Political Context and Military Aspects of the China-Taiwan Dispute*, RAND, 2009, p. 34, <http://www.rand.org/pubs/monographs/MG888.html>.

Figure 11.10: SRBMs Needed to Obtain Given Probabilities of Neutralizing a Single Runway



Source: Shlapak, et al, *A Question of Balance: Political Context and Military Aspects of the China-Taiwan Dispute*, RAND, 2009, p. 41. <http://www.rand.org/pubs/monographs/MG888.html>.

Cruise Missiles

Cruise missiles often do not receive the same attention as ballistic missiles but they serve as both a method of delivering nuclear weapons and can provide precision strikes with conventional weapons. As such, they are as important – if not more important in terms of probable use and the ability to conduct lethal attacks – than most SRBMs and MRBMs without high-yield nuclear weapons.

The US National Air and Space Intelligence Center estimate of the regional balance in short-range ballistic missile forces is shown in **Figure 11.13**. *It should be stressed that this assessment does not include sea-launched or air-launched cruise missiles, which sharply understate the capabilities of US forces and the potential threat perceived by China.*

The NASIC summarizes key regional trends as follows:⁴⁶²

Unlike ballistic missiles, cruise missiles are usually categorized by intended mission and launch mode (instead of maximum range). The two broadest categories are LACMs and antiship cruise missiles. Each type can be launched from an aircraft, ship, submarine, or ground-based launcher.

A LACM is an unmanned, armed aerial vehicle designed to attack a fixed or mobile ground-based target. It spends the majority of its mission in level flight, as it follows a preprogrammed path to a predetermined target. Propulsion is usually provided by a small jet engine.

Because of highly accurate guidance systems that can place the missile within a few feet of the intended target, the most advanced LACMs can be used effectively against very small targets, even when armed with conventional warheads. LACM guidance usually occurs in three phases: launch, midcourse, and terminal.

During the launch phase, a missile is guided using only the inertial navigation system. In the midcourse phase, a missile is guided by the inertial navigation system updated by one or more of the following systems: a radar-based terrain contour matching system, a radar or optical scene matching system, and/or a satellite navigation system such as the US Global Positioning System or the Russian Global Navigation Satellite System. The terminal guidance phase begins when a missile enters the target area and uses either more accurate scene matching or a terminal seeker (usually an optical or radar-based sensor).

Defending against LACMs will stress air defense systems. Cruise missiles can fly at low altitudes to stay below enemy radar and, in some cases, hide behind terrain features. Newer missiles are incorporating stealth features to make them even less visible to radars and infrared detectors. Modern cruise missiles also can be programmed to approach and attack a target in the most efficient manner. For example, multiple missiles can attack a target simultaneously from different directions, overwhelming air defenses at their weakest points. Furthermore, LACMs may fly circuitous routes to get to the target, thereby avoiding radar and air defense installations.

Some developmental systems may incorporate chaff or decoys as an added layer of protection, though concealment will remain a cruise missile's main defense. The cruise missile threat to US forces will increase over the next decade. At least nine foreign countries will be involved in LACM production during the next decade, and several LACM producers will make their missiles available for export.

The success of US Tomahawk cruise missiles has heightened interest in cruise missile acquisition in many countries. Many cruise missiles available for purchase will have the potential to perform precision-strike missions. Many of these missiles will have similar features: a modular design, allowing them to be manufactured with a choice of navigational suites and conventional warhead options; the incorporation of stealth technology; the ability to be launched from fighter-size aircraft; and the capability to fly high-subsonic, low-altitude, terrain-following flight profiles.

The cruise missile threat to US forces will continue to increase. At least nine foreign countries will be involved in LACM production during the next decade, and several of the LACM producers will make their missiles available for export.

The CJ-10 (DH-10) is the first of the Chinese Changjian series of long-range missiles and LACMs. It made

its public debut during a military parade in 2009 and is currently deployed with the Second Artillery Corps.

Iran recently announced the development of the 2,000-km range Meshkat cruise missile, with plans to deploy the system on air-, land-, and sea-based platforms.

The Club-K cruise missile “container launcher” weapons system, produced and marketed by a Russian firm, looks like a standard shipping container. The company claims the system can launch cruise missiles from cargo ships, trains, or commercial trucks.

The first flight test of the Brahmos, jointly developed by India and Russia, took place in June 2001. India plans to install Brahmos on a number of platforms, including destroyers, frigates, submarines, maritime patrol aircraft, and fighters. Russia and India are also working on a follow-up missile, the Brahmos 2, which was flight-tested in 2012. Pakistan continues to develop the Babur (Hatf-VII) and the air-launched Ra’ad (Hatf-VIII). Each missile was flight tested in 2012.

The Japanese 2014 defense white paper made only a short statement regarding Chinese SRBMs:⁴⁶³

Concerning SRBM, China possesses a large number of solid-propellant DF-15 and DF-11, and they are believed to be deployed facing Taiwan. It is believed that their ranges cover also a part of the Southwestern Islands including the Senkaku Islands, which are inherent territories of Japan.

While Chinese and other cruise missiles achieve considerable attention in non-governmental reporting, their importance is badly understated in the official reporting – which is the focus of this report. There also is no matching literature on the balance in air- and sea-launched cruise missiles. Cruise missiles need far more attention in official reports, dialogue, and arms control negotiations, and cannot meaningfully be separated from the balance of ballistic missiles.

A recent publication by the National Defense University’s Center for the Study of Chinese Military Affairs focuses on Chinese cruise missile development and direction and is a step towards greater attention and understanding of this underreported aspect of the PLA. Cruise missiles and their development apparatuses have long been a part of the PLA’s and even received protection during the upheaval of the Cultural Revolution. Today, China has made striking progress in developing and fielding high-end cruise missiles, both anti-ship (ASCM) and land attack (LACM). Chinese cruise missile doctrine appears to emphasize a scenario that involves Taiwan-based targets and the prevention of US intervention.⁴⁶⁴ Accordingly, extensive studies have been made in order to determine how best to penetrate missile defenses and deter carrier groups from approaching the battlefield.⁴⁶⁵

Indeed, cruise missiles form a vital part of China’s A2/AD concept and present a very serious threat to anyone who intends to engage the PLA in battle. The PLA has a wide variety of cruise missiles that can be launched from land, air, sea, and sub-surface platforms. Thanks to help from Russian technicians and an increasingly skilled indigenous R&D sector, Chinese cruise missiles can conceivably strike targets thousands of kilometers away. Potential ASCM targets include aircraft carriers, AEGIS-equipped destroyers and potential LACM targets include Taiwan and American bases in the Asia-Pacific as far as Guam.⁴⁶⁶

While these modern cruise missiles are rendering older missiles obsolete, these older missiles may still have use in exhausting anti-cruise missile defenses through large saturation attacks, in conjunction with modern missiles. Saturation attacks with modern cruise missiles are not out of the question either. Despite Chinese concerns about whether or not their missiles can penetrate American missile defenses, there exists a clear cost-efficiency advantage for the attacker; missile defense is extremely difficult and costly compared to missile attack. In short, quantity may have a quality all its own.⁴⁶⁷ But unlike the PLA of old, which could only field a handful of modern

systems with large numbers of older systems, the PLA is building a cruise missile force that can contain large numbers of both modern and older systems.

What is even more striking is the apparent neglect that the US has had regarding its own cruise missile development, particularly ASCM's.⁴⁶⁸ Some Flight IIA *Arleigh Burke* class destroyers are not equipped with Harpoon missiles, the sole American ASCM which was developed in the 1960's and entered service in the 1970's.⁴⁶⁹ Although the LRASM is being developed by DARPA to rectify this issue, it is still in a development stage.

Figure 11.11: NASIC Estimate of the Regional Balance of Land Attack Cruise Missiles

MISSILE	LAUNCH MODE	WARHEAD TYPE	RANGE (km)	IOC
CHINA				
YJ-63	Air	Conventional	Undetermined	Undetermined
DH-10	Undetermined	Conventional or nuclear	Undetermined	Undetermined
FRANCE				
APACHE-AP	Air	Submunitions	100+	2002
SCALP-EG	Air and ship	Penetrator	250+	2003
Naval SCALP	Sub and surface ship	Penetrator	250+	2013+
UAE				
BLACK SHAHEEN*	Air	Penetrator	250+	2006
GERMANY, SWEDEN, SPAIN				
KEPD-350	Air	Penetrator	350+	2004
INDIA, RUSSIA				
Brahmos 1	Air, ground, ship, and sub	Conventional	less than 300	2010+
Brahmos 2	Air, ground, ship, and sub	Conventional	less than 300	2013+
ISRAEL				
Popeye Turbo	Air	Conventional	300+	2002
PAKISTAN				
RA'AD	Air	Conventional or nuclear	350	Undetermined
Babur	Ground	Conventional or nuclear	350	Undetermined
RUSSIA				
AS-4	Air	Conventional or nuclear	300+	Operational
AS-15	Air	Nuclear	2,800+	Operational
SS-N-21		Nuclear	12,800+	Operational
Kh-555	Air	Conventional	Undetermined	Undetermined
Kh-101	Air	Conventional	Undetermined	2013
3M-14E	Ground, ship, and sub	Conventional	275	Undetermined
SOUTH AFRICA				
MUPSOW	Air and ground	Conventional	150	2002
Torgos	Air and ground	Conventional	300	Undetermined
TAIWAN				
Wan Chien	Air	Conventional	250+	2006
HF-2E	Ground	Conventional	Undetermined	Undetermined
UNITED KINGDOM				
Storm Shadow	Air	Penetrator	250+	2003
IRAN				
Meshkat	Air, ground, and ship	Conventional	Undetermined	Undetermined

Note: All ranges are approximate and represent the range of the missile only. The effective system range may be greatly increased by the range of the launch platform.

*The BLACK SHAHEEN is an export version of the SCALP-EG.

Source: Defense Intelligence Agency Missile and Space Intelligence Center and Office of Naval Intelligence, *Ballistic & Cruise Missile Threat*, NASIC, May 2013, p. 11-13.

MRBMs

A US National Air and Space Intelligence Center estimate of the regional balance in MRBMs and IRBMs is shown in **Figure 11.14**. It again illustrates a broad set of trends in the regional balance that both affects and is affected by China, and once again, these figures do not include US capability to launch cruise missiles. The NASIC summarizes key regional trends as follows:⁴⁷⁰

New MRBM and/or IRBM systems are in development in China, North Korea, Iran, India, and Pakistan. These are strategic systems, and many will be armed with nonconventional warheads. All of these countries... have tested nuclear weapons. Neither Russia nor the United States produce or retain any MRBM or IRBM systems because they are banned by the Intermediate-Range Nuclear Forces Treaty, which entered into force in 1988.

China continues to maintain regional nuclear deterrence, and its long-term, comprehensive military modernization is improving the capability of its ballistic missile force to conduct high-intensity, regional military operations, including “anti-access and area denial” (A2/AD) operations.

The term A2/AD refers to capabilities designed to deter or counter adversary forces from deploying to or operating within a defined space. Currently, China deploys the nuclear armed CSS-2, CSS-5 Mod 1, and CSS-5 Mod 2 for regional nuclear deterrence. China is also acquiring new conventionally armed CSS-5 MRBMs to conduct precision strikes. These systems are likely intended to hold at-risk or strike logistics nodes, regional military bases including airfields and ports, and naval assets.

Notably, China has likely started to deploy the DF-21D, an ASBM based on a variant of the CSS-5. North Korea has an ambitious ballistic missile development program and has exported missiles and missile technology to other countries, including Iran and Pakistan. North Korea has also admitted its possession of nuclear weapons. It has displayed new IRBMs and older No Dong MRBMs in recent military parades.

... India continues to develop and improve its ballistic missiles. All of India’s long-range missiles use solid propellants. Indian officials have stated that the Agni II MRBM is deployed. The Agni III IRBM has been flight tested four times since 2006, and has been pronounced ready for deployment. The Agni IV IRBM has been flight tested twice since 2010, with the 2011 launch successful.

Pakistan continues to improve the readiness and capabilities of its Army Strategic Force Command and individual strategic missile groups through training exercises that include live missile firings. Pakistan has tested its solid-propellant Shaheen 2 MRBM six times since 2004, and this missile system probably will soon be deployed.

The 2014 Japanese defense white paper summarizes these developments as follows:⁴⁷¹

As for the IRBM/MRBM covering the Asia-Pacific region including Japan, China has deployed the solid-propellant DF-21, which can be transported and operated on a TEL, in addition to the liquid-propellant DF-3 missiles. These missiles are capable of carrying nuclear warheads. It is believed that China possesses conventional ballistic missiles with high targeting accuracy based on the DF-21, and it has been pointed out that China has deployed conventional anti-ship ballistic missiles (ASBM), which could be used to attack ships at sea including aircraft carriers.

In addition to IRBM/MRBM, China also possesses the DH-10 (CJ-10), a cruise missile with a range of at least 1,500 km, as well as the H-6 (Tu-16), bombers that are capable of carrying nuclear weapons and cruise missiles. It is deemed that these missiles will complement ballistic missile forces, covering the Asia-Pacific region including Japan.

China announced that it had conducted tests on midcourse missile interception technology in January 2010 and 2013. Attention will be paid to China’s future trends in ballistic missile defense.

Chinese development of mobile, solid-fueled Medium-Range Ballistic Missiles (MRBMs) provides a further indication of a larger institutional shift towards missile forces, as “the PLA is acquiring and fielding conventional MRBMs to increase the range at which it can conduct precision strikes against land targets and naval ships, including aircraft carriers, operating far

from China's shores out to the first island chain."⁴⁷² The 2013 DoD report reiterated this point, assessing, "China is fielding a limited but growing number of conventionally armed, medium-range ballistic missiles."⁴⁷³ This trend is evident in the development of the more precise DF-21C and DF-21D missile systems.

The SAF's nuclear forces underwent a similar modernization experience. The need to deter nuclear attacks on the mainland and, according to the *Science of Second Artillery Campaigns*, to reduce the scope of conventional warfare,⁴⁷⁴ forced the SAF to increase the survivability of its nuclear counter-attack forces. In turn, this requirement necessitated mobility, rapid deployment, and quick firing of the missile system.

The SAF replaced the aging, liquid-fueled DF-2 MRBM with the solid-fueled mobile DF-21A/B MRBM. Between 1985 and 2000, the SAF not only entirely retired the DF-2 but also completely replaced it with nuclear-tipped DF-21s, missile for missile. Such a change in MRBM holdings illustrates several important elements of the SAF nuclear modernization: a shift from liquid to solid fuel, a shift from transportable to mobile systems, and a shift to more accurate missiles.

These trends are fully detailed in **Figure 11.15**, which provides a visual representation of the data and trends described above. Important elements to notice are: the rapid expansion in SRBM numbers, the brief dip in MRBM numbers (the DF-2 to DF-21 series transition), the drawdown of IRBMs (China has yet to develop a mobile solid-fueled IRBM), the growth in ICBMs as the SAF seeks an invulnerable second-strike capability, and the sudden appearance of cruise missile units.

Figure 11.12: NASIC Estimate of the Regional Balance of MRBMs and IRBMs

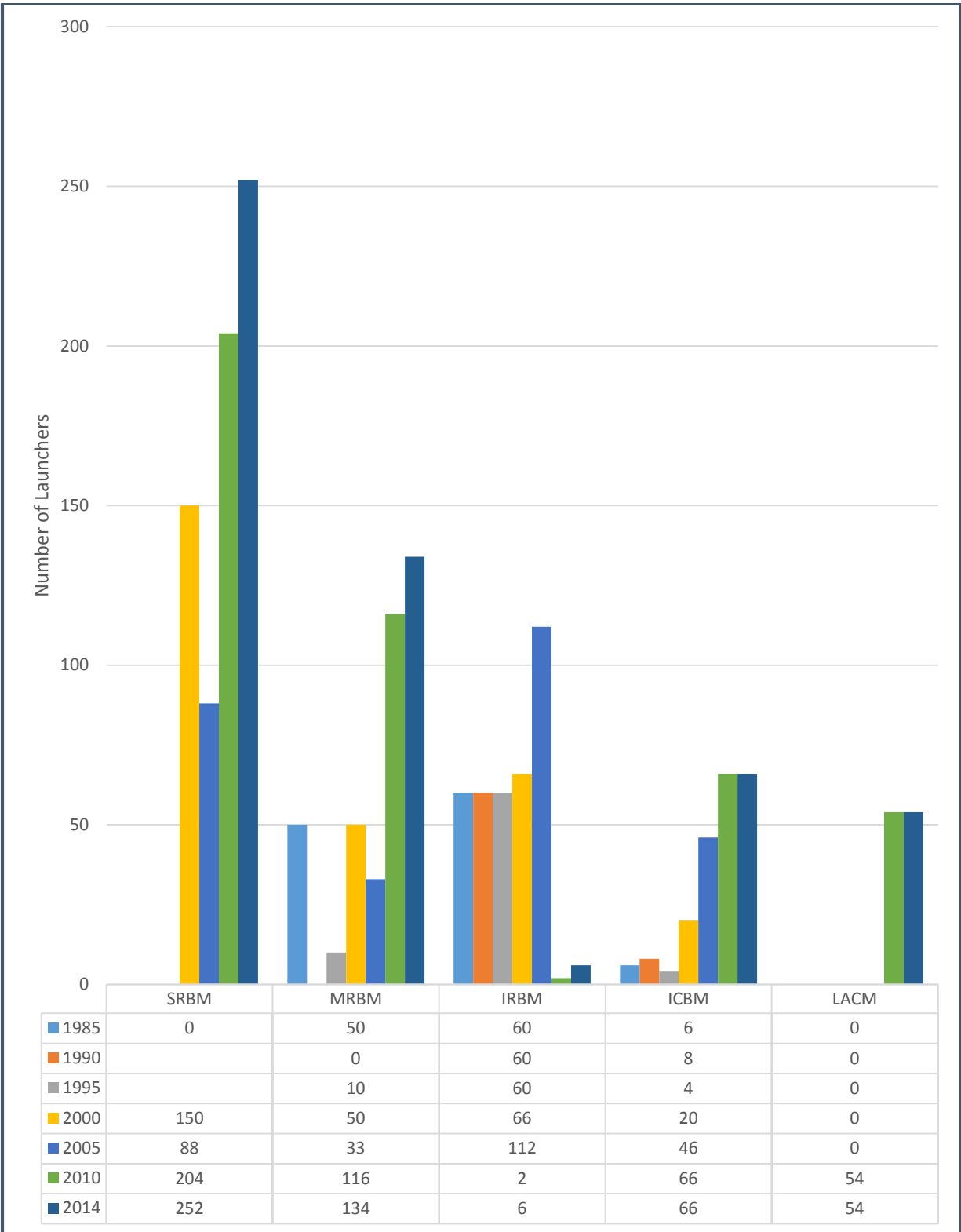
MISSILE	NUMBER OF STAGES	PROPELLANT	DEPLOYMENT MODE	MAXIMUM RANGE (km)	NUMBER OF LAUNCHERS*
China					
CSS-2	1	Liquid	Transportable	3,000	5 to 10 (Limited Mobility)
CSS-5 Mod 1	2	Solid	Road-mobile	1,750+	Fewer than 50
CSS-5 Mod 2	2	Solid	Road-mobile	1,750+	Fewer than 50
CSS-5 Conventional	2	Solid	Mobile	1,750+	Fewer than 30
CSS-5 ASBM	2	Solid	Mobile	1,500+	Unknown
Saudi Arabia (Chinese-produced)					
CSS-2 (conventional)	1	Liquid	Transportable	3,000	Fewer than 50 (Limited Mobility)
North Korea					
No Dong	1	Liquid	Road-mobile	1,250	Fewer than 50
IRBM	1	Liquid	Road-mobile	3,000+	Fewer than 50
India					
Agni II	2	Solid	Rail-mobile	2,000+	Fewer than 10
Agni III	2	Solid	Rail-mobile	3,200+	Not yet deployed
Agni IV	2	Solid	Rail-mobile	3,500+	Not yet deployed
Pakistan					
Ghauri	1	Liquid	Road-mobile	1,250	Fewer than 50
Shaheen 2	2	Solid	Road-mobile	2,000	Unknown
Iran					
Shahab 3	1	Liquid	Silo & road-mobile	2,000	Fewer than 50
Sejjil	2	Solid	Road-mobile	2,000	Unknown
IRBM/ICBM	Undetermined	Undetermined	Undetermined	Undetermined	Undetermined

Note: All ranges are approximate.

* The missile inventory may be larger than the number of launchers; launchers can be reused to fire additional missiles

Source: Defense Intelligence Agency Missile and Space Intelligence Center and Office of Naval Intelligence, *Ballistic & Cruise Missile Threat*, NASIC, May 2013, p. 16.

Figure 11.13: Development of Ballistic and Cruise Missile Launchers, 1985-2014



Source: IISS, *Military Balance* 1985-2014.

ICBMs and SLBMs

A US National Air and Space Intelligence Center estimate of regional balance of ICBMs and SLBMs is shown in **Figure 11.16**. This Figure again illustrates a broad set of trends in the regional balance – a balance that both affects and is affected by China. The NASIC summarizes key regional trends as follows:⁴⁷⁵

ICBMs

Russia retains about 1,200 nuclear warheads on ICBMs. Most of these missiles are maintained on alert, capable of being launched within minutes of receiving a launch order. Although the size of the Russian ICBM force will continue to decrease because of arms control agreements, aging missiles, and resource constraints, Russia probably will retain the largest ICBM force outside the United States. Efforts to maintain and modernize the force are underway. Russia successfully tested a new type of mobile ICBM in 2012 according to Russian press reports. The Russian SS-27 Mod 1 ICBM, a missile designed with countermeasures to ballistic missile defense systems, is now deployed in silos in six regiments. Russia began deployment of the road-mobile version of the SS-27 Mod 1 in 2006. A MIRV version of the SS-27, the SS-27 Mod-2 (RS-24), was deployed in 2010.

In addition, Russian officials claim a new class of hypersonic vehicle is being developed to allow Russian strategic missiles to penetrate missile defense systems, and the Russian press has indicated deployment of a new rail-mobile ICBM is being considered. Furthermore, Russia has stated that a new heavy liquid-propellant ICBM is under development to replace the aging SS-18. Russia's goal is to begin its deployment in the 2018-2020 timeframe.

In 2011, the New Strategic Arms Reduction Treaty, which limits the United States and Russia to no more than 1,550 warheads each (including those on ICBMs, SLBMs, and heavy bombers), entered into force.

China is strengthening its strategic nuclear deterrent force with the development and deployment of new ICBMs. China retains a relatively small number of nuclear armed, liquid-propellant CSS-3 limited range ICBMs and CSS-4 ICBMs capable of reaching the United States. It is also modernizing solid-propellant CSS-10 Mod 1 and the longer range CSS-10 Mod 2 ICBMs have been deployed to units within the Second Artillery Corps. The CSS-10 Mod 1 is capable of reaching targets throughout Europe, Asia, and parts of Canada and the northwestern United States. The longer range CSS-10 Mod 2 will allow targeting of most of the continental United States. China may also be developing a new road-mobile ICBM capable of carrying a MIRV payload, and the number of warheads on Chinese ICBMs capable of threatening the United States is expected to grow to well over 100 in the next 15 years.

North Korea continues development of the TD-2 ICBM/SLV, which could reach the United States if developed as an ICBM. Launches in July 2006, April 2009, and April 2012 ended in failure, but a December 2012 launch successfully placed a satellite in orbit. In an April 2012 military parade, North Korea unveiled the new Hwasong-13 road-mobile ICBM. This missile has not yet been flight tested. Either of these systems could be exported to other countries in the future. Continued efforts to develop the TD-2 and the newly unveiled ICBM show the determination of North Korea to achieve long-range ballistic missile and space launch capabilities.

Since 2008, Iran has conducted multiple successful launches of the two-stage Safir SLV. In early 2010, Iran unveiled the larger Simorgh SLV. Iran will likely continue to pursue longer range ballistic missiles and more capable SLVs, which could lead to the development of an ICBM system. Iran could develop and test an ICBM capable of reaching the United States by 2015.

India conducted the first flight test of the Agni V ICBM in April 2012. An even longer range Agni VII is reportedly in the design phase.

SLBMs

Russia maintains a substantial force of nuclear powered ballistic missile submarines (SSBNs) with intercontinental-range missiles. Russia is developing new and improved SLBM weapon systems to replace its current inventory of Cold War vintage systems. Upgraded SS-N-23s are intended to replace older SS-N-23s on DELTA IV Class SSBNs. The SS-NX-32/Bulava is a new solid-propellant SLBM that is primarily

intended for deployment on new DOLGORUKIY class SSBNs. Russian SLBMs are capable of launch from surfaced and submerged SSBNs from a variety of launch locations.

China currently has a single XIA Class SSBN that is intended to carry 12 CSS-NX-3/JL-1 missiles. In addition, China will deploy the new CSS-NX-14/JL-2 SLBM on new 12-tube JIN Class SSBNs. This missile will, for the first time, allow Chinese SSBNs to target portions of the United States from operating areas located near the Chinese coast.

India is developing a new ballistic missile-capable submarine, the INS Arihant. The K-15 is reportedly ready for induction when the Arihant is deemed ready.

Japan provides a somewhat similar summary in its 2014 defense white paper:⁴⁷⁶

China has made independent efforts to develop nuclear capabilities and ballistic missile forces since the middle of the 1950s, seemingly with a view to ensuring deterrence, supplementing its conventional forces, and maintaining its voice in the international community. With regard to the nuclear strategy, it is recognized that China employs a strategy where it can deter a nuclear attack on its land by maintaining a nuclear force structure able to conduct retaliatory nuclear attacks on a small number of targets such as cities in the enemy country.

China possesses various types and ranges of ballistic missiles: intercontinental ballistic missiles (ICBM); submarine-launched ballistic missiles (SLBM); intermediate-range ballistic missiles/medium-range ballistic missiles (IRBM/ MRBM); and short-range ballistic missiles (SRBM).

The update of China's ballistic missile forces from a liquid propellant system to a solid propellant system is improving their survivability and readiness. Moreover, it is also believed that China is working to increase performance by extending ranges, improving accuracy, mounting warheads, introducing Maneuverable Reentry Vehicles (MaRV) and Multiple Independently Targetable Reentry Vehicles (MIRV), and other means.

China has deployed the DF-31, which is a mobile type ICBM with a solid propellant system mounted onto a Transporter Erector Launcher (TEL), and the DF-31A, a model of the DF-31 with extended range. According to some analysts, China has already deployed the DF-31A and will increase its numbers¹⁹. Regarding SLBM, China currently appears to be developing a new JL-2 whose range is believed to be approximately 8,000 km, and constructing and commissioning Jin-class nuclear-powered ballistic missile submarines (SSBN) to carry the missiles. Once the JL-2 reaches a level of practical use, it is believed that China's strategic nuclear capabilities will improve by a great margin.

The numbers of Chinese ICBMs shown earlier in **Figure 11.6** and **Figure 11.7** have shown a steady increase in the ICBM force, but one that understates the actual rise in Chinese capabilities because obsolete ICBMs have been retired as more modern versions were produced. During this time period, the SAF reduced its holdings of its relatively vulnerable, liquid-fueled, and non-mobile DF-4s while it deployed DF-31 and DF-31A ICBM systems.

As a result, it is necessary to combine the analysis of absolute ICBM numbers with an analysis of the relative modernization of the ICBM arsenal. Such a combined analysis is not necessary for the other missile classes because the ICBM category is the only one in which the deployment of modern systems occurred at the same time as obsolete missiles were discarded; the culling of obsolete MRBMs happened before modern versions were produced, no modern IRBMs have been developed, and the SAF never had obsolete SRBMs or LACMs.

Figure 11.17 shows that the introduction of the DF-31 and DF-31A significantly increased the percentage of the ICBM force that is modern, and **Figure 11.18** shows the expanding range of China's conventional weapons, ICBMs, and MRBMs. This figure shows that China can now reach any target in the world, including the US.

As a result, the growth in ICBM numbers during the 2005-2013 period understates the growth in the SAF's intercontinental deterrence capability and its increasing survivability. Paired with

improved PLAAF AD and the development of the SAF's tunnel network, the modernization of the SAF's ICBM arsenal has positive implications for the SAF's ICBM survivability, and thus for one of the SAF's two core missions.

Moreover, China's newer missiles could eventually be equipped with MIRV warheads. In December 2012, China successfully conducted a second test of its DF-31A missile, allowing it to reach any city in the US. The missile is believed to have three warheads per missile and a range of approximately 7,000 miles. While the Chinese CSS-4 has similar capabilities, the CSS-4 requires a stationary launch pad and contains only one nuclear warhead. In contrast, the DF-31A is portable and can be launched from the back of a truck, train, or tank.⁴⁷⁷ China appears to have supplied missiles to Saudi Arabia, Iran, Iraq, Libya, Pakistan, Syria, and North Korea.⁴⁷⁸

The US assessment of China's military capabilities has long focused on China's growing nuclear and missile forces and increasing capability to target the US and Japan in ways that directly affect the regional balance of power and the potential risk of US involvement any regional crisis or conflict. The 2011 DoD report on *Military and Security Developments Affecting the People's Republic of China* stated that,⁴⁷⁹

China has prioritized land-based ballistic and cruise missile programs. It is developing and testing several new classes and variants of offensive missiles, forming additional missile units, upgrading older missile systems, and developing methods to counter ballistic missile defenses.

The PLA is acquiring large numbers of highly accurate cruise missiles, many of which have ranges in excess of 185 km. This includes the domestically-produced, ground-launched DH-10 land-attack cruise missile (LACM); the domestically produced ground- and ship-launched YJ-62 anti-ship cruise missile (ASCM); the Russian SS-N-22/SUNBURN supersonic ASCM, which is fitted on China's SOVREMENNY-class DDGs acquired from Russia; and, the Russian SS-N-27B/SIZZLER supersonic ASCM on China's Russian-built, KILO-class diesel-electric attack submarines.

By December 2010, the PLA had deployed between 1,000 and 1,200 short-range ballistic missiles (SRBM) to units opposite Taiwan. To improve the lethality of this force, the PLA is introducing variants of missiles with improved ranges, accuracies, and payloads.

China is developing an anti-ship ballistic missile (ASBM) based on a variant of the CSS-5 medium-range ballistic missile (MRBM). Known as the DF-21D, this missile is intended to provide the PLA the capability to attack large ships, including aircraft carriers, in the western Pacific Ocean. The DF-21D has a range exceeding 1,500 km and is armed with a maneuverable warhead.

China is modernizing its nuclear forces by adding more survivable delivery systems. In recent years, the road mobile, solid propellant CSS-10 Mod 1 and CSS-10 Mod 2 (DF-31 and DF-31A) intercontinental-range ballistic missiles (ICBMs) have entered service. The CSS-10 Mod 2, with a range in excess of 11,200 km, can reach most locations within the continental United States.

China may also be developing a new road-mobile ICBM, possibly capable of carrying a multiple independently targetable re-entry vehicle (MIRV).

.... China's nuclear arsenal currently consists of approximately 55-65 intercontinental ballistic missiles (ICBMs), including the silo-based CSS-4 (DF-5); the solid-fueled, road-mobile CSS-10 Mods 1 and 2 (DF-31 and DF-31A); and the more limited range CSS-3 (DF-3). This force is complemented by liquid-fueled CSS-2 intermediate-range ballistic missiles and road-mobile, solid-fueled CSS-5 (DF-21D) MRBMs for regional deterrence missions. The operational status of China's single XIA-class ballistic missile submarine (SSBN) and medium-range JL-1 submarine-launched ballistic missiles (SLBM) remain questionable.

By 2015, China's nuclear forces will include additional CSS-10 Mod 2s and enhanced CSS-4s. The first of the new JIN-class (Type 094) SSBN appears ready, but the associated JL-2 SLBM has faced a number of problems and will likely continue flight tests. The date when the JIN-class SSBN/JL-2 SLBM combination will be fully operational is uncertain. China is also currently working on a range of technologies to attempt to counter U.S. and other countries' ballistic missile defense systems, including maneuvering re-entry

vehicles, MIRVs, decoys, chaff, jamming, thermal shielding, and anti-satellite (ASAT) weapons. PRC official media also cites numerous Second Artillery Corps training exercises featuring maneuver, camouflage, and launch operations under simulated combat conditions, which are intended to increase survivability. Together with the increased mobility and survivability of the new generation of missiles, these technologies and training enhancements strengthen China's nuclear force and enhance its strategic strike capabilities.

The introduction of more mobile systems will create new command and control challenges for China's leadership, which now confronts a different set of variables related to deployment and release authorities. For example, the PLA has only a limited capacity to communicate with submarines at sea, and the PLA Navy has no experience in managing a SSBN fleet that performs strategic patrols with live nuclear warheads mated to missiles. Land-based mobile missiles may face similar command and control challenges in wartime, although probably not as extreme as with submarines.

Beijing's official policy towards the role of nuclear weapons continues to focus on maintaining a nuclear force structure able to survive an attack, and respond with sufficient strength to inflict unacceptable damage on the enemy. The new generation of mobile missiles, maneuvering and MIRV warheads, and penetration aids are intended to ensure the viability of China's strategic deterrent in the face of continued advances in U.S. and, to a lesser extent, Russian strategic intelligence, surveillance, and reconnaissance; precision strike; and missile defense capabilities.

Beijing has consistently asserted that it adheres to a "no first use" (NFU) policy, stating it would use nuclear forces only in response to a nuclear strike against China. China's NFU pledge consists of two stated commitments: China will never use nuclear weapons first against any nuclear-weapon state, and China will never use or threaten to use nuclear weapons against any non-nuclear-weapon state or nuclear-weapon-free zone. However, there is some ambiguity over the conditions under which China's NFU policy would apply, including whether strikes on what China considers its own territory, demonstration strikes, or high altitude bursts would constitute a first use.

Moreover, some PLA officers have written publicly of the need to spell out conditions under which China might need to use nuclear weapons first; for example, if an enemy's conventional attack threatened the survival of China's nuclear force, or of the regime itself. However, there has been no indication that national leaders are willing to attach such nuances and caveats to China's "no first use" doctrine.

Beijing will likely continue to invest considerable resources to maintain a limited nuclear force, also referred to by some PRC writers as "sufficient and effective" to ensure the PLA can deliver a damaging retaliatory nuclear strike.

The DoD provided updates in the 2013 edition of *Military and Security Developments Affecting the People's Republic of China*, describing China's latest nuclear-armed missile developments as follows:⁴⁸⁰

The Second Artillery controls China's nuclear and conventional ballistic missiles. It is developing and testing several new classes and variants of offensive missiles, forming additional missile units, upgrading older missile systems, and developing methods to counter ballistic missile defenses. (p. 5-6)

By December 2012, the Second Artillery's inventory of short-range ballistic missiles (SRBM) deployed to units opposite Taiwan stood at more than 1,100. This number reflects the delivery of additional missiles and the fielding of new systems. To improve the lethality of this force, the PLA is also introducing new SRBM variants with improved ranges, accuracies, and payloads.

China is fielding a limited but growing number of conventionally armed, medium-range ballistic missiles, including the DF-21D anti-ship ballistic missile (ASBM). The DF-21D is based on a variant of the DF-21 (CSS-5) medium-range ballistic missile (MRBM) and gives the PLA the capability to attack large ships, including aircraft carriers, in the western Pacific Ocean. The DF-21D has a range exceeding 1,500 km and is armed with a maneuverable warhead. (p. 5-6)

The Second Artillery continues to modernize its nuclear forces by enhancing its silo-based intercontinental ballistic missiles (ICBMs) and adding more survivable mobile delivery systems. In recent years, the road-mobile, solid-propellant CSS-10 Mod 1 and CSS-10 Mod 2 (DF-31 and DF-31A) intercontinental-range

ballistic missiles have entered service. The CSS-10 Mod 2, with a range in excess of 11,200 km, can reach most locations within the continental United States. China may also be developing a new road-mobile ICBM, possibly capable of carrying a multiple independently targetable re-entry vehicle (MIRV). (p. 5-6)

Land-Based Platforms. China's nuclear arsenal currently consists of approximately 50-75 ICBMs, including the silo-based CSS-4 (DF-5); the solid-fueled, road-mobile CSS-10 Mods 1 and 2 (DF-31 and DF-31A); and the more limited range CSS-3 (DF-4). This force is complemented by liquid-fueled CSS-2 intermediate-range ballistic missiles and road-mobile, solid-fueled CSS-5 (DF-21) MRBMs for regional deterrence missions. By 2015, China's nuclear forces will include additional CSS-10 Mod 2 and enhanced CSS-4 ICBMs. (p. 31)

The 2014 DoD report updated this section by stating that:

China's nuclear arsenal currently consists of the silo-based CSS-4 (DF-5); the solid-fueled, road-mobile CSS-10 Mod 1 and Mod 2 (DF-31 and DF-31A); and the more limited-range CSS-3 (DF-4). This force is complemented by road-mobile, solid-fueled CSS-5 (DF-21) MRBMs for regional deterrence missions. By 2015, China's nuclear forces will include additional CSS-10 Mod 2s.

Sea-Based Platforms. China continues to produce the JIN-class SSBN, with three already delivered and as many as two more in various stages of construction. The JIN-class SSBNs will eventually carry the JL-2 submarine-launched ballistic missile with an estimated range of 7,400 km. The JIN-class and the JL-2 will give the PLA Navy its first long-range, sea-based nuclear capability. After a round of successful testing in 2012, the JL-2 appears ready to reach initial operational capability in 2013. JIN-class SSBNs based at Hainan Island in the South China Sea would then be able to conduct nuclear deterrence patrols. (p. 31-32)

...Future Efforts. China is working on a range of technologies to attempt to counter U.S. and other countries' ballistic missile defense systems, including maneuverable reentry vehicles (MaRVs), MIRVs, decoys, chaff, jamming, thermal shielding, and anti-satellite (ASAT) weapons. China's official media also cite numerous Second Artillery training exercises featuring maneuver, camouflage, and launch operations under simulated combat conditions, which are intended to increase survivability. Together with the increased mobility and survivability of the new training enhancements strengthen China's nuclear force and enhance its strategic strike capabilities. Further increases in the number of mobile ICBMs and the beginning of SSBN deterrence patrols will force the PLA to implement more sophisticated command and control systems and processes that safeguard the integrity of nuclear release authority for a larger, more dispersed force. (p. 32)

Outside sources provide further insights into these developments. The IISS reported in 2013,⁴⁸¹

In July 2012, unnamed US officials reportedly said that China had test-fired a DF-41 intercontinental ballistic missile, although little information was provided. The DF-41 would, if deployed, be the first land-based missile able to reach the entire continental United States. The July test was reported to include a multiple independently targetable re-entry vehicle (MIRV), though it is unclear whether MIRVed warheads have yet been deployed on China's current longest-range ICBM, the DF-31A. This continues to be produced, with satellite imagery from 2011 suggesting that the 809 Brigade in Datong was receiving DF-31s in place of DF-21s. Taiwan's 2010 report on Chinese military power claimed that the Second Artillery had also deployed a few new DF-16 MRBMs.

Within a month, China also conducted a successful test of the JL-2 ballistic missile. The JL-2 is the submarine-launched version of the DF-31 road-mobile ICBM, to be deployed on the Type-094 nuclear-ballistic-missile submarine. Successful development and deployment of the hitherto troubled JL-2 would give China a more secure second-strike deterrent, as the four Type-094 submarines currently in the water would then be able to provide continuous at-sea deterrence.

China's deployment anti-ship ballistic missile (ASBM) is another facet of China's growing ballistic missile based deterrent, as Andrew Erickson explained:⁴⁸²

A number of sources agree with the US Department of Defense assessment that China has completed development of the DF-21D anti-ship ballistic missile (ASBM). Andrew Erickson, in his article titled "China Channels Billy Mitchell: Anti-Ship Ballistic Missiles Alters Region's Military Geography," states that, China's DF-21D anti-ship ballistic missile (ASBM) is no longer merely an aspiration. Beijing has

successfully developed, partially tested and deployed in small numbers the world's first weapons system capable of targeting the last relatively uncontested U.S. airfield in the Asia-Pacific from long-range, land-based mobile launchers. This airfield is a moving aircraft carrier strike group (CSG), which the Second Artillery, China's strategic missile force, now has the capability to at least attempt to disable with the DF-21D in the event of conflict. With the ASBM having progressed this far, and representing the vanguard of a broad range of potent asymmetric systems, Beijing probably expects to achieve a growing degree of deterrence with it.

Figure 11.14: NASIC Estimate of the Regional Balance of ICBMs and SLBMs

ICBMs

MISSILE	NUMBER OF STAGES	WARHEADS PER MISSILE	PROPELLANT	DEPLOYMENT MODE	MAXIMUM RANGE (km)	NUMBER OF LAUNCHERS*
Russia						
SS-18 Mod 5	2 + PBV	10	Liquid	Silo	10,000+	About 50
SS-19 Mod 3	2 + PBV	6	Liquid	Silo	9,000+	About 50
SS-25	3 + PBV	1	Solid	Road-mobile	11,000	More than 150
SS-27 Mod 1	3 + PBV	1	Solid	Silo & road-mobile	11,000	About 80
SS-27 Mod-2	3 + PBV	Multiple	Solid	Silo & road-mobile	11,000	About 20
New ICBM	At least 2	Undetermined	Solid	Road-mobile	5,500+	Not yet deployed
China						
CSS-3	2	1	Liquid	Transportable	5,500+	10 to 15
CSS-4 Mod 1	2	1	Liquid	Silo	12,000+	About 20
CSS-10 Mod 1	3	1	Solid	Road-mobile	7,000+	5 to 10
CSS-10 Mod 2	3	1	Solid	Road-mobile	11,000+	More than 15
North Korea						
Taepo Dong-2	2 or 3	1	Liquid	Fixed	5,500+	Unknown**
Hwasong-13	Undetermined	Undetermined	Undetermined	Road-mobile	5,500+	Unknown
India						
Agni V	3	1	Solid	Undetermined	5,000+	Not yet deployed

SLBMs

MISSILE	NUMBER OF STAGES	WARHEADS PER MISSILE	PROPELLANT	SUBMARINE CLASS	MAXIMUM RANGE (km)	NUMBER OF LAUNCHERS
RUSSIA						
SS-N-18	2 + PBV	3	Liquid	DELTA III	5,500+	96
SS-N-23	3 + PBV	4	Liquid	DELTA IV	8,000+	96
SS-NX-32 Bulava	3 + PBV	6	Solid	DOLGORUKIY (BOREY) TYPHOON	8,000+	16; Not yet deployed 20; Not yet deployed
CHINA						
CSS-NX-3/JL-1	2	1	Solid	XIA	1,700+	12; Not yet deployed
CSS-NX-14/JL-2	3	1	Solid	JIN	7,000+	12; Not yet deployed
INDIA						
K-15	2	1	Solid	ARIHANT	700	12; Not yet deployed

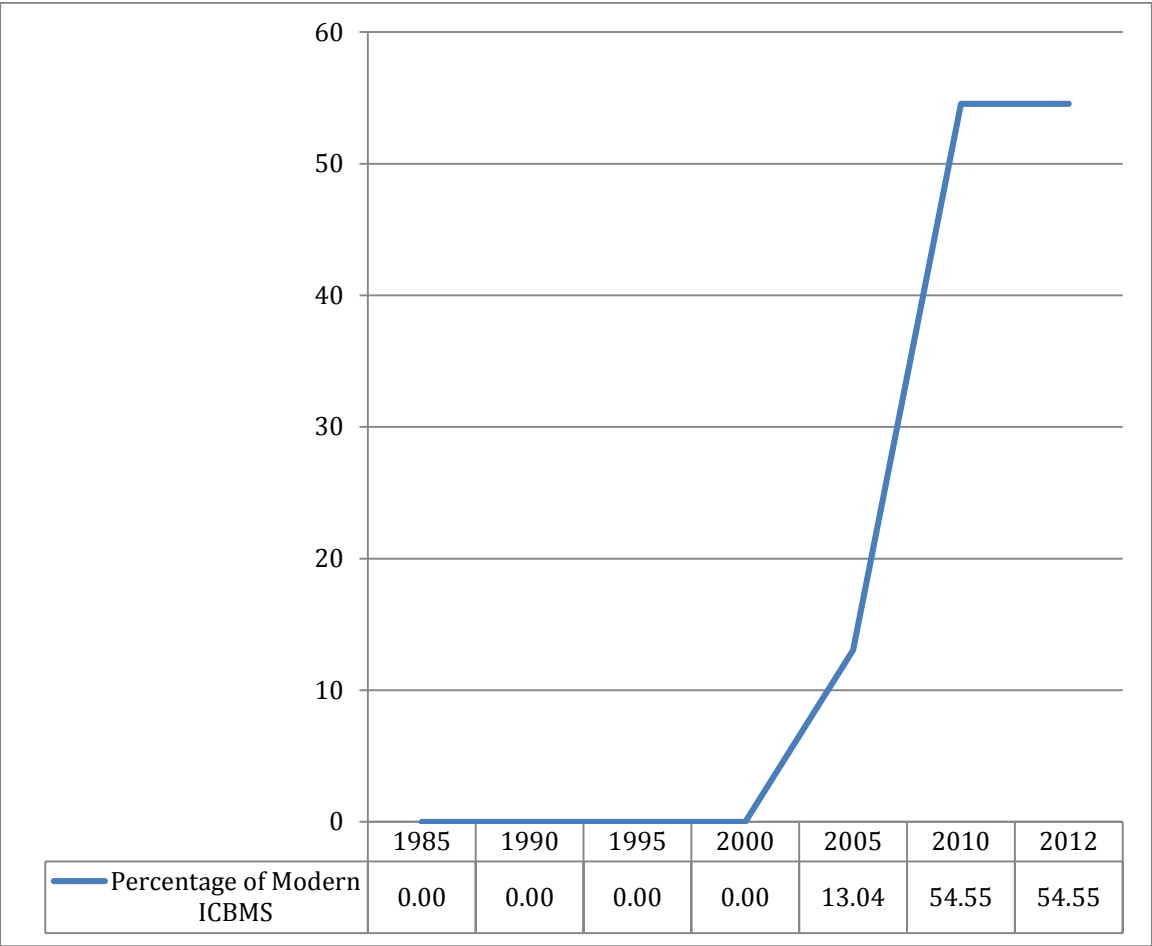
Note: All ranges are approximate.

* The missile inventory may be much larger than the number of launchers; launchers can be reused to fire additional missiles.

** Launches of the TD-2 space vehicle have been observed from both east and west coast facilities.

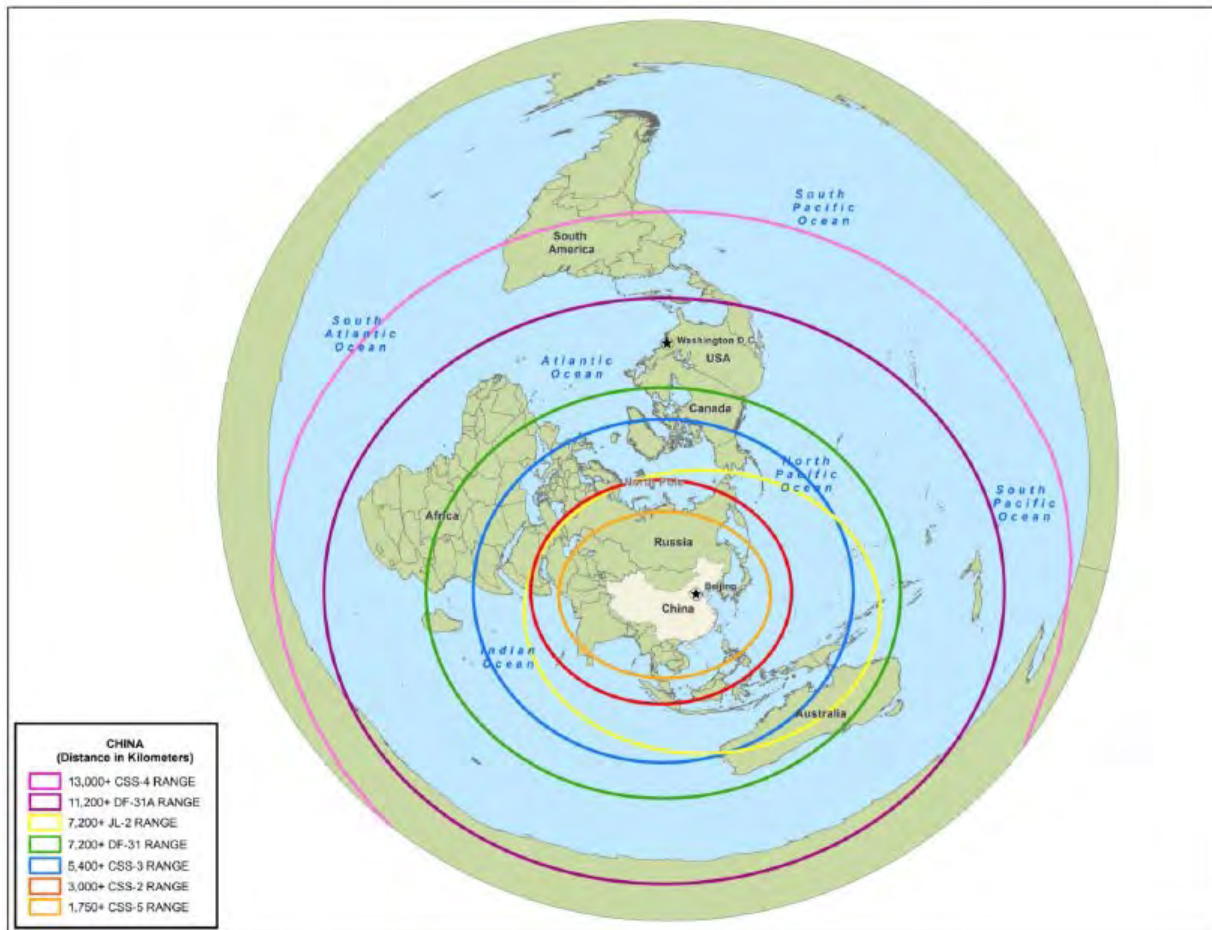
Source: adapted from Defense Intelligence Agency Missile and Space Intelligence Center and Office of Naval Intelligence, *Ballistic & Cruise Missile Threat*, NASIC, May 2013, p. 21.

Figure 11.15: Percentage of Modern ICBMs in the SAF’s Arsenal, 1985-2012



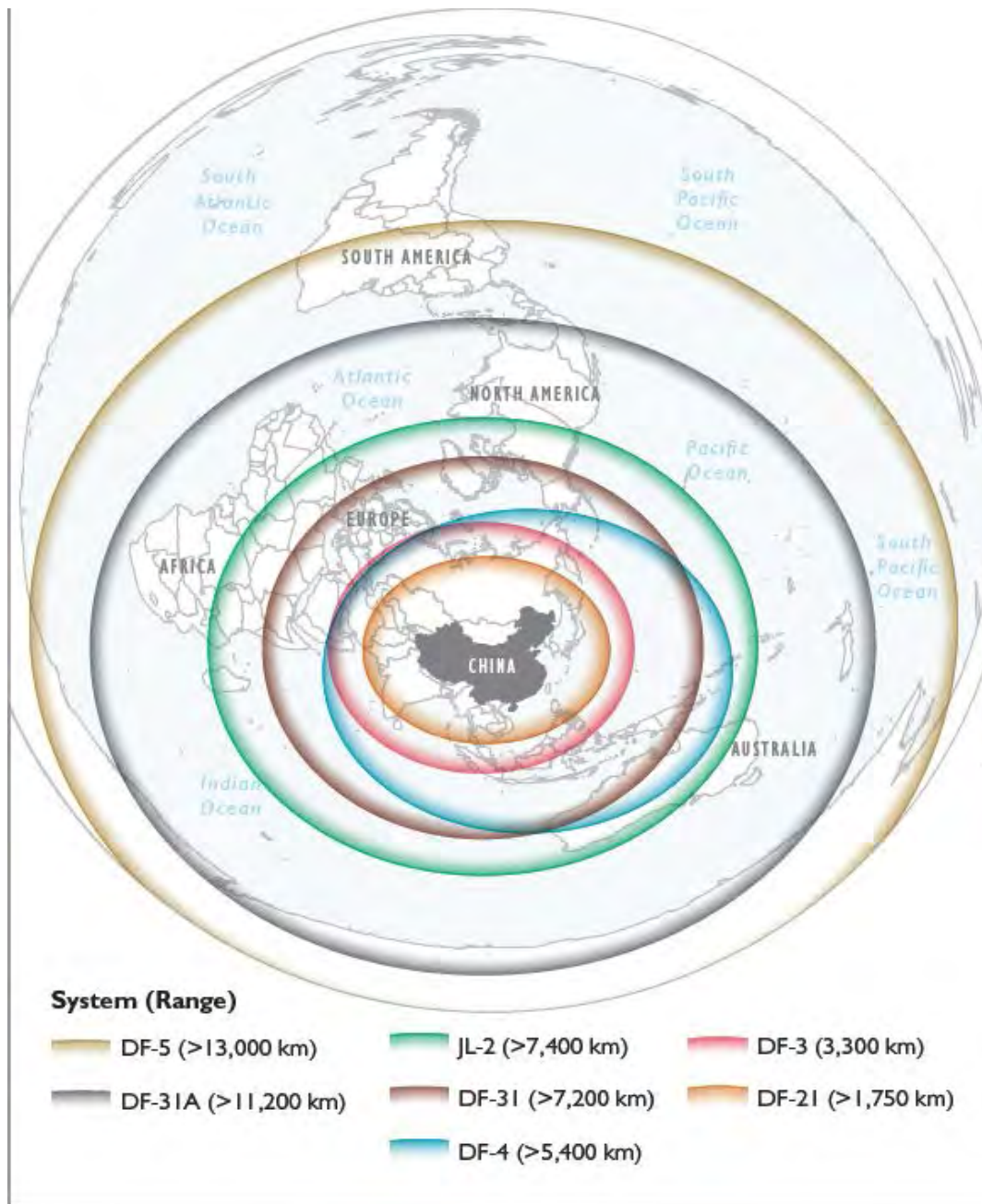
Sources: DoD, *Military Power of the People’s Republic of China*, 2005-2009; DoD, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China*, 2009-2012.

Figure 11.16: The Expanding Range of China's ICBM and Longer-Range Forces – Part I



Source: DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China* 2013, May 2014, 86.

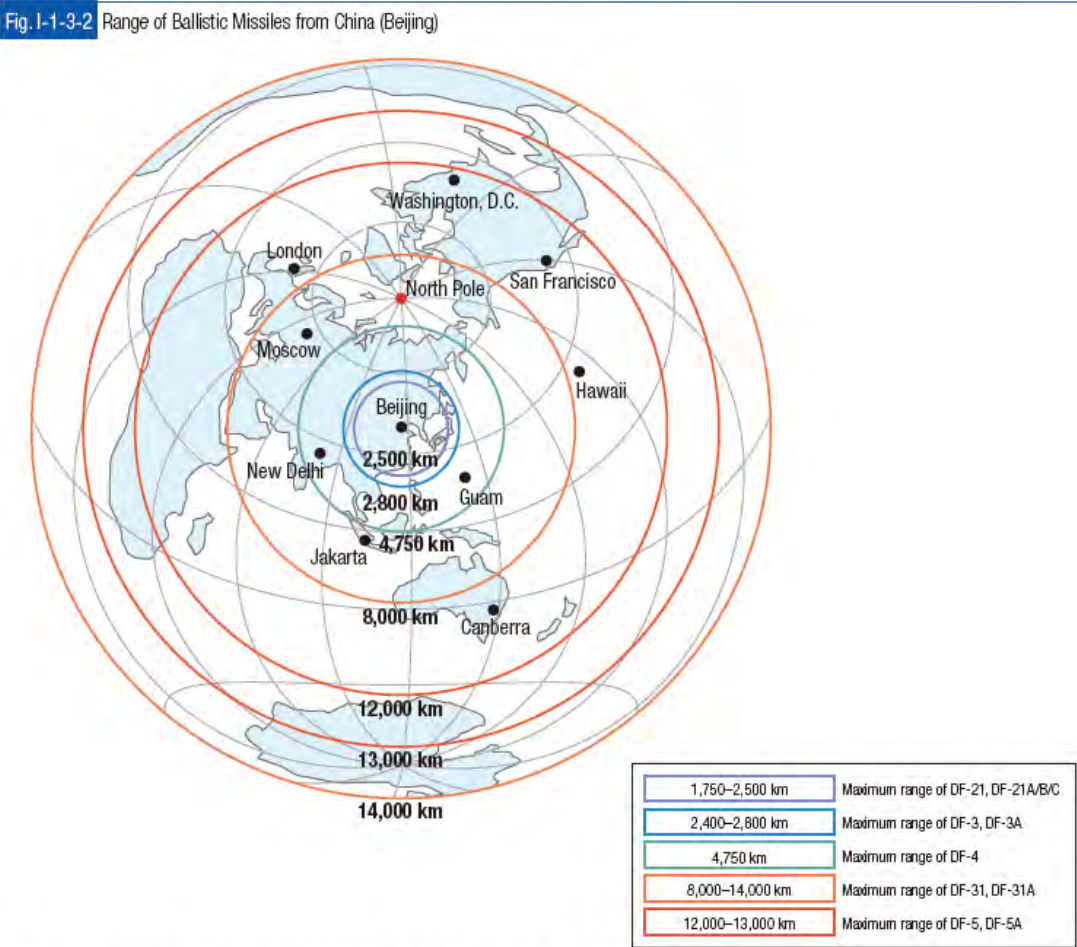
Figure 11.16: The Expanding Range of China's ICBM and Longer-Range Forces – Part II



Note: Medium and Intercontinental Range Ballistic Missiles. China is capable of targeting its nuclear forces throughout the region and most of the world, including the continental United States. Newer systems such as the DF-31, DF-31A, and JL-2 will give China a more survivable nuclear force.

Source: DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China* 2012, 43.

Figure 11.16: The Expanding Range of China’s ICBM and Longer-Range Forces – Part III



Note: The above image shows a simplified indication of the potential reach of each type of missile taking Beijing as a central point.

Source: Japanese Ministry of Defense, *Defense of Japan 2014*.

Chinese Missile Defense Capabilities

There are other important aspects of China's missile and space programs. The 2010 Chinese defense white paper argued against international missile defense programs. The paper also included sections on the desire to prohibit biological and chemical weapons, prevent an arms race in outer space, promote military expenditure transparency, and work towards conventional arms control. In the section on non-proliferation, the PRC wrote,⁴⁸³

China maintains that the global missile defense program will be detrimental to international strategic balance and stability, will undermine international and regional security, and will have a negative impact on the process of nuclear disarmament. China holds that no state should deploy overseas missile defense systems that have strategic missile defense capabilities or potential, or engage in any such international collaboration.

The 2013 white paper mentioned missile defense but did not address the issue in much depth. In contrast, the 2013 DoD report on *Military and Security Developments Involving the People's Republic of China* noted that,⁴⁸⁴

China has made efforts to go beyond defense from aircraft and cruise missiles to gain a ballistic missile defense capability in order to provide further protection of China's mainland and strategic assets. China's existing long-range SAM inventory offers limited capability against ballistic missiles. The SA-20 PMU2, the most advanced SAM Russia offers for export, has the advertised capability to engage ballistic missiles with ranges of 1,000km and speeds of 2,800m/s. China's domestic CSA-9 long-range SAM system is expected to have a limited capability to provide point defense against tactical ballistic missiles with ranges up to 500km. China is proceeding with the research and development of a missile defense umbrella consisting of kinetic energy intercept at exo-atmospheric altitudes (>80km), as well as intercepts of ballistic missiles and other aerospace vehicles within the upper atmosphere. In January 2010, and again in January 2013, China successfully intercepted a ballistic missile at mid-course, using a ground-based missile.

China tested an advanced missile defense system on January 11, 2010. The test, entitled the *Test of the Land-based Mid-course Phase Anti-ballistic Missile Interception Technology*, targeted a missile during the mid-course phase when it was exoatmospheric. According to press reports, the US DoD stated, "We detected two geographically separated missile launch events with an exoatmospheric collision also being observed by space-based sensors."⁴⁸⁵

Reportedly, China carried out a second land-based mid-course missile interception test on January 27, 2013 in the Xinjiang Uyghur Autonomous Region. Although no other information was given, the Chinese Defense Ministry remarked that the test was "defensive in nature" and appeared to be successful. In all likelihood, the system is a reconfigured DF-21C or DF-25 (KS/SC-19), both of which are two-stage medium-range (1500-1700 km) ballistic missiles capable of carrying a 600 kg payload – in this case, an exoatmospheric kill vehicle. However, China likely remains far from an operational anti-missile shield.⁴⁸⁶

China is also working to increase its tactical ballistic missile defense capabilities – which add another level of deterrence and defense capabilities. China is beginning to produce its own variant of the S300 and may be able to deploy significantly more advanced theater missile defense systems in the mid-term.

Chinese Counterspace Capabilities

China is developing counterspace capabilities that affect the country's entire spectrum of warfighting capacities, from the tactical to the strategic levels. Both China and Russia "continue developing systems and technologies that can interfere with or disable vital U.S. space-based navigation, communication, and intelligence collection satellites."⁴⁸⁷ China has tested anti-

satellite weapons that could also have a massive impact on US battle management and ISR systems, and may have some capability to use EMP weapons.

The DoD's 2013 report on *Military and Security Developments Involving the People's Republic of China* notes that,⁴⁸⁸

PLA strategists regard the ability to utilize space and deny adversaries access to space as central to enabling modern, informatized warfare. Although PLA doctrine does not appear to address space operations as a unique operational "campaign," space operations form an integral component of other PLA campaigns and would serve a key role in enabling A2/AD operations. Publicly, China attempts to dispel any skepticism over its military intentions for space. In 2009, PLA Air Force Commander General Xu Qiliang publically retracted his earlier assertion that the militarization of space was a "historic inevitability" after President Hu Jintao swiftly contradicted him. General Xu Qiliang is now a Vice Chairman of the Central Military Commission and the second highest-ranking officer in the PLA.

The 2014 DoD report added:⁴⁸⁹

A PLA analysis of U.S. and coalition military operations reinforced the importance of operations in space to enable "informatized" warfare, claiming that "space is the commanding point for the information battlefield." , PLA writings emphasize the necessity of "destroying, damaging, and interfering with the enemy's reconnaissance ... and communications satellites," suggesting that such systems, as well as navigation and early warning satellites, could be among the targets of attacks designed to "blind and deafen the enemy." The same PLA analysis of U.S. and coalition military operations also states that "destroying or capturing satellites and other sensors ... will deprive an opponent of initiative on the battlefield and [make it difficult] for them to bring their precision guided weapons into full play."

The PLA is acquiring a range of technologies to improve China's space and counter-space capabilities. China demonstrated a direct-ascent kinetic kill anti-satellite capability to low Earth orbit when it destroyed the defunct Chinese FY-1C weather satellite during a test in January 2007. Although Chinese defense academics often publish on counterspace threat technologies, no additional anti-satellite programs have been publicly acknowledged. A PLA analysis of U.S. and coalition military operations reinforced the importance of operations in space to enable "informatized" warfare, claiming that "space is the commanding point for the information battlefield."

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Space

China is expanding its own space-based systems in ways that will enhance its deterrent, missile, and other military capabilities. The new Party leadership has emphasized such activities as long-range missiles and other aerospace programs in its military modernization push. Chinese companies are also looking at increasing domestic development and production through the acquisition of parts manufacturers, leasing businesses, cargo airlines, materials producers, and airport operators. However, many of these Chinese companies that are pursuing joint ventures and technical cooperation agreements alongside acquisitions have deep ties to the military, raising issues for American regulators:⁴⁹⁰

The main contractor for the country's air force, the state-owned China Aviation Industry Corporation, known as AVIC, has set up a private equity fund to purchase companies with so-called dual-use technology that has civilian and military applications, with the goal of investing as much as \$3 billion. In 2010, AVIC acquired the overseas licensing rights for small aircraft made by Epic Aircraft of Bend, Ore., using lightweight yet strong carbon-fiber composites — the same material used for high-performance fighter jets.

Provincial and local government agencies in Shaanxi Province, a hub of Chinese military aircraft testing and production, have set up another fund of similar size for acquisitions. Last month, a consortium of Chinese investors, including the Shaanxi fund, struck a \$4.23 billion deal with the American International Group to buy 80 percent of the International Lease Finance Corporation, which owns the world's second-largest passenger jet fleet.

In 2010, China conducted 15 space launches while expanding its space-based surveillance, reconnaissance, intelligence, meteorological, navigation, and communications satellites. At the same time, China is developing a multi-dimensional program in order to improve its ability to prevent or limit adversaries' use of space-based assets.⁴⁹¹

The 2013 DoD report on China cited earlier stated that,⁴⁹²

In 2012, China conducted 18 space launches. China also expanded its space-based intelligence, surveillance, reconnaissance, navigation, meteorological, and communications satellite constellations. In parallel, China is developing a multi-dimensional program to improve its capabilities to limit or prevent the use of space-based assets by adversaries during times of crisis or conflict. (p. 9)

During 2012, China launched six Beidou navigation satellites. These six satellites completed the regional network as well as the in-orbit validation phase for the global network, expected to be completed by 2020. China launched 11 new remote sensing satellites in 2012, which can perform both civil and military applications. China also launched three communications satellites, five experimental small satellites, one meteorological satellite, one relay satellite, and a manned space mission. (p. 9)

China continues to develop the Long March 5 (LM-5) rocket, which is intended to lift heavy payloads into space. LM-5 will more than double the size of the Low Earth Orbit (LEO) and Geosynchronous Orbit (GEO) payloads China is capable of placing into orbit. To support these rockets, China began constructing the Wenchang Satellite Launch Center in 2008. Located on Hainan Island, this launch facility is expected to be complete around 2013, with the initial LM-5 launch scheduled for 2014. (p. 9-10)

China is the third country to develop an independent human spaceflight program, and early in 2012 the PRC achieved its first manned space docking at an orbital laboratory. The country has a stated goal of building a 60-ton space station for future missions. China has traditionally been relying on its manned Shenzhou spacecraft, capsule-based vehicles. It would also appear that China is in the test-flight stages of a new Shenlong space plane, a drone that is similar to, though less capable than, the US' X-37B.⁴⁹³

China's growing space capabilities translate into military capabilities that affect all aspects of conventional and nuclear targeting, ground-air-sea operations, precision conventional strike capacities, and missile defense. China is also using its intelligence collection efforts to improve technological capacity. In his 2012 Senate testimony, DIA Director Ronald L. Burgess, Jr. remarked,⁴⁹⁴

China is beginning to develop and test technologies to enable ballistic missile defense. The space program, including ostensible civil projects, supports China's growing ability to deny or degrade the space assets of potential adversaries and enhances China's conventional military capabilities. China operates satellites for communications, navigation, earth resources, weather, and intelligence, surveillance, and reconnaissance, in addition to manned space and space exploration missions. China successfully tested a direct ascent anti-satellite weapon (ASAT) missile and is developing jammers and directed-energy weapons for ASAT missions. A prerequisite for ASAT attacks, China's ability to track and identify satellites is enhanced by technologies from China's manned and lunar programs as well as technologies and methods developed to detect and track space debris. Beijing rarely acknowledges direct military applications of its space program and refers to nearly all satellite launches as scientific or civil in nature.

China has used its intelligence services to gather information via a significant network of agents and contacts utilizing a variety of methods to obtain U.S. military technology to advance their defense industries, global command and control, and strategic warfighting capabilities. The Chinese continue to improve their

technical capabilities, increasing the collection threat against the U.S. The Chinese also utilize their intelligence collection to improve their economic standing and to influence foreign policy. In recent years, multiple cases of economic espionage and theft of dual-use and military technology have uncovered pervasive Chinese collection efforts.

One example of Chinese space technologies is the Beidou satellite position, navigation, and timing system, which has been in development and regional use since 2000. The second generation version has been operational in the region since 2012 and is planned to be available globally by 2020. The system will “enable subscribers outside of China to purchase receivers and services that give civilian and military applications greater redundancy and independence in a conflict scenario that employs space assets.”⁴⁹⁵

China conducted anti-satellite (ASAT) weapons tests in January 2007 and 2010. Over the next several years, China plans to put more than 20 new navigational satellites in medium-earth orbit to improve the functionality of its Beidou system. An editorial in the state-run Global Times stated, “it is necessary for China to have the ability to strike US satellites. This deterrent can provide strategic protection to Chinese satellites and the whole country’s national security.”⁴⁹⁶

Anti-Access/Area Denial Sea-based Space Programs

China’s A2AD programs rely on a mix of space-based systems. China is relying on land and sea launch capabilities as well as sea-based systems that utilize “Long View” space support ships to perform tasks like monitoring and tracking space vehicles – such as spacecraft, missiles, and rockets – while also coordinating and communicating with ground-based assets. This system can increase space operations and situational awareness while also providing potential military applications.

In a conflict, ship-based C4ISR capabilities could have advantages over ground-based installations. Again, Andrew S. Erickson provides a history and more in-depth description of the program, which began in 1965 with Premier Zhou Enlai and was further developed in the 1970s under Project 718. In order to support Chinese ICBM sea tests, the Yuanwang program was initiated, though it was soon delayed by subsequent political events. It was jointly designed and developed by the Seventh Academy of the Sixth Ministry of Machine Building, the Seventh Ministry of Machine Building, and the Commission of Science and Technology for National Defense’s concept-study team.⁴⁹⁷

Design and development of the Yuanwang started in 1974, with construction from 1975 and the first ships ready for trials in the late 1970s. Though six were originally built, only three are in operation today. It appears that the Yuanwang-class ship was first used in 1980 to retrieve the instrument package from China’s first successful DF-5/CSS-4 ICBM test – showing that the ships were able to successfully track missiles from the sea. The ships were further deployed in support of civilian and military space launches and tracking of space operations, including communications satellites, ballistic missile tests, and manned spacecraft (the Shenzhou). The fleet complements the PRC’s two Tianlian data-relay satellites and many ground stations, facilitating communication between satellites and these stations.⁴⁹⁸

The Yuanwang fleet was technologically upgraded starting in the 1980s; for example, the ships were initially able to track almost 25,000 miles above Earth, later increasing to almost 250,000 miles. Better radars improved the communication and tracking systems; most of the ships in the fleet have C- and S-band monopulse tracking radar, velocimetry systems, cinetheodolite laser ranging and tracking systems, computers, and navigation and positioning approaches. A variety

of communications systems can secure data transfer, and the ships can operate in any maritime environment except polar areas. The ships could be used to detect and track foreign satellites and provide support to any PRC attempt to threaten them.⁴⁹⁹

While a ship-based tracking system has advantages such as flexibility, there are also disadvantages – it is expensive to operate and maintain, and during longer missions the lack of necessary engineers and equipment could make repairs difficult. Deploying such critical systems overseas makes them vulnerable targets, and any signals interference – or PRC supporting vessels – could affect their operation. Their sea-based nature also makes advanced communications connectivity difficult, especially during bad weather. There are still technological issues, such as calibration and stabilization that frustrate the ships' operations.⁵⁰⁰

As of mid-2008, the fleet had “completed 68 maritime space-tracking missions, sailed more than 1.4 million nautical miles safely, and performed more than 7,600 days of operations at sea.... During 2011-12, Yuanwang ships 3, 5, and 6 completed a cumulative 120,000-nautical-mile, 539-day trip to provide space-tracking and control support for the docking of the Tiangong-1 space-lab module and Shenzhou-8 spacecraft.” There have also been reports that a seventh ship was under construction; in 2006 the chief engineer of Yuanwang 6 noted that another boat was in the pre-research stages and could potentially be used in deep-space exploration missions. There has also been significant research on ship-based multi-target simulators to track and control satellite launches or missiles, which the PLA sees as a key capability. The Yuanwang could also provide support to PRC development of ground-based laser and kinetic anti-satellite capabilities. Overall, Andrew S. Erickson notes,⁵⁰¹

In reapplying indispensable positioning information and controlling space assets overseas, the *Yuanwang* fleet represents a vital node in China's aerospace infrastructure. The construction and proliferation of these ships over the past four decades underscores their importance and utility to the country's space and military operations. Space-tracking vessels have successfully participated in full-range ICBM tests, submarine-to-shore guided-missile underwater-launch tests, communications-satellite launches, manned and unmanned space-vehicle launches, and an Antarctic visit. They have played a significant role in the development and testing of technologies and weapons.... Chinese research literature also points to a larger role for space TT&C ships as the nation's space operations continue to expand.

Anti-Access/Area Denial Land-based Space Programs

China also has a broad range of land-based stations that enhance its space warfare capabilities in ways that can threaten or attack US power projection capabilities.⁵⁰²

China has three satellite launch centers and stations: Jiuquan (also known as Base 20 and Dongfeng Space City), Xichang (Base 27), and Taiyuan (Base 25). The country is currently constructing a station in Wenchang (also known as Wenchang Space City and Wenchang Satellite Launch Center), which should be operational in 2013. Additionally, it has two control facilities: an Aerospace Command and Control Center in Xi'an (also known as Base 26). The Aerospace Telemetry Oceanic Ship Base is a crucial ground station, as it tracks *Yuanwang* data on both commercial satellites and spacecraft. Established in 1978 in Jiangyin, Jiangsu Province, the base sends the ships it operates primarily to the Pacific and Indian Oceans. China operates three integrated land-based space-monitoring and control network stations in Kashi, Jiamusi, and Sanya....

China has overseas tracking stations in Karachi, Pakistan; Malindi, Kenya; and Swakopmund, Namibia. The Malindi station, in an Indian Ocean coastal town, became operational in July 2005 to support the *Shenzhou* 6 mission. In Swakopmund, the station works in conjunction with *Yuanwang* 3 to provide telemetry, tracking and command (TT&C) support during *Shenzhou* spacecraft landings. China also had a ground station in Tarawa, Kiribati; but it was dismantled in 2003 after Kiribati recognized Taiwan. Beijing plans to construct

three ground-control stations in South America by 2016 for deep-space network support. Additionally, China reportedly shares space-tracking facilities with France, Sweden, and Australia.

Improved Personnel

The doctrinal, operational, tactical, and technical requirements generated by the SAF's modernization and development program have required a SAF comprised of technically proficient officers and men with higher levels of human capital and academic achievement. This necessity has led to a shift in Personnel policies toward greater formal military education of officers and men, greater recruitment of university graduates, and more intensive and realistic military training.

The 2010 Chinese defense white paper asserted that one of the main drivers of greater military spending is greater investments in training and education. If accurate, such spending has led to specialized military education institutions such as the Non-Commissioned Officer (NCO) School of the Second Artillery Force, which has been reported by Chinese media to have trained several thousand NCOs in the last several years.⁵⁰³ Officers have also enjoyed the benefits of improving military education, as Chinese media has reported that officer's colleges have begun developing warfighting simulators and other training and education equipment based on information-technology.⁵⁰⁴

The recruitment of qualified personnel with undergraduate or graduate academic degrees has become a major SAF imperative. PLA media frequently cite some percentage of personnel in a given unit as undergraduate degree holders, emphasizing a self-reported increase in undergraduate degree holders. In one specific instance, it was claimed that a certain SAF brigade's officers were 85% undergraduate degree holders.⁵⁰⁵

The 2009 revision of the PLA's *Outline of Military Training and Evaluation* emphasized joint training, training in "complex electromagnetic environments," and the use of opposition forces to increase training realism;⁵⁰⁶ the SAF seeks to develop these training techniques so as to better conduct integrated joint operations under conditions of informatization. It is impossible to discern if these new training regulations have had a significant effect on SAF forces, but Chinese media reports corroborate the new emphasis on "realistic training."⁵⁰⁷ These reports frequently describe training exercises along the lines of the 2009 Outline of Military Training and Education, discussed previously – one story in *Jiefangjun Huabao* described joint training at the brigade level.⁵⁰⁸ Such efforts, if carried out on a sustained and well-resourced basis, form a significant means of augmenting SAF combat skills.

Progress in Power Projection

China's missile programs cannot be separated from the nuclear capabilities discussed in the next chapter, but they do have a major impact on its power projection capabilities and interact with the ongoing improvements in its naval and air forces discussed earlier. The SAF's force development and modernization efforts indicate that China has sought to obtain both the conventional and nuclear capabilities necessary for fighting and winning Local Wars under Conditions of Informatization in the 21st century. However, the SAF's modernization and force development is an ongoing process, one that will likely continue into the near future.

The SAF's equipment procurement policies are fully in line with the Local Wars concept. The SAF has modernized its missile systems and built a conventional arsenal comprised entirely of

modern missiles that utilize solid fuel and are road-mobile. Moreover, the SAF's conventional missile systems are increasing in accuracy, thus augmenting the potency of a hypothetical SAF long-range precision strike. In addition, the nuclear element of the SAF's dual mission is enjoying similar progress, although the nuclear deterrent is lagging behind the conventional force in its development of a solid-fueled, mobile forces – China's nuclear deterrent posture still partially relies on fixed, liquid-fueled missiles.

The SAF's modernization and force development is not merely an issue of developing new missiles. The SAF has also fundamentally changed its force structure over the last twenty years, shifting from a medium-/intermediate-range nuclear force to a bifurcated force armed with an array of missile categories, classes, and variants. The SAF is now capable of and required to carry out a variety of missions. Capabilities such as regional conventional precision strike, which did not exist in 1995, now make up more than half of the SAF's missile launcher arsenal.

At the operational level, the SAF is preparing to conventionally fight Local Wars. It has built a 5,000-kilometer-long tunnel network to provide protection for its mobile missile systems, thus reducing the risk of preemption and complicating targeting by any potential adversary. Moreover, the forces with the greatest precision, the SRBM and LACM forces, have large numbers of reserve missiles per missile launcher, thus ensuring the possibility of sustained combat operations and repeated salvo fire. This combination of enhanced mobility, survivability, and large supplies of ammunition ensures that, in the case of any potential conflict, adversary forces in the region must operate in an environment in which there would be no sanctuaries within hundreds of kilometers of China.

These important developments come together to form a larger picture of a SAF in transition. It is currently modernizing its forces and developing a new force composition in accordance with the Local Wars theory. It is within this context that new weapons systems such as the DF-21D ASBM, Anti-Satellite missiles, and conventional DF-21Cs are developed, deployed, and used.

Appendix to Chapter 11: NASIC Data on SAF Ballistic Missiles

Second Artillery Force SRBMs

MISSILE	PROPELLANT	DEPLOYMENT MODE	MAXIMUM RANGE (MILES)
CHINA			
CSS-6 Mod 1	Solid	Road-mobile	370
CSS-6 Mod 2	Solid	Road-mobile	550+
CSS-6 Mod 3	Solid	Road-mobile	450+
CSS-7 Mod 1	Solid	Road-mobile	185
CSS-7 Mod 2	Solid	Road-mobile	370
CSS-8	1st stage: solid 2nd stage: liquid	Road-mobile	93
B611	Solid	Road-mobile	93

Second Artillery Force MRBM/IRBMs

MISSILE	NUMBER OF STAGES	PROPELLANT	DEPLOYMENT MODE	MAXIMUM RANGE (MILES)	NUMBER OF LAUNCHERS*
China					
CSS-2	1	Liquid	Transportable (Limited Mobility)	1,900	5 to 10
CSS-5 Mod 1	2	Solid	Road-mobile	1,100+	Fewer than 50
CSS-5 Mod 2	2	Solid	Road-mobile	1,100+	Fewer than 50
CSS-5 Conventional	2	Solid	Mobile	1,100	Fewer than 30
CSS-5 ASBM	2	Solid	Mobile	900+	Not Yet Deployed

Second Artillery Force ICBMs

Missile	Number of Stages	Warheads per Missile	Propellant	Deployment Mode	Maximum Range* (miles)	Number of Launchers
China						
CSS-3	2	1	Liquid	Silo & transportable	3,400+	10 to 15
CSS-4 Mod 2	2	1	Liquid	Silo	8,000+	About 20
CSS-10 Mod 1	3	1	Solid	Road-mobile	4,500+	Fewer than 15
CSS-10 Mod 2	3	1	Solid	Road-mobile	7,000+	Fewer than 15

Source: National Air and Space Intelligence Center (NASIC), Ballistic and Cruise Missile Threat, Wright-Patterson Air Force Base, April 2009. <http://www.fas.org/programs/ssp/nukes/NASIC2009.pdf>.

CHAPTER 12: CHINA'S NUCLEAR FORCES AND WEAPONS OF MASS DESTRUCTION

There is no way to assess the exact probability that the US or China will ever make threats to use nuclear weapons in a regional conflict or ever escalate to their actual use, but the probability they would even make explicit threats seems extremely low.

Each side's nuclear weapons have a deterrent impact in restraining the other's behavior without such threats, and even raising the possibility of an actual nuclear exchange would threaten the stability of Asia, the global economy, and the US and Chinese economies in ways in which the end result could not be calculated. Both sides seem likely to calculate that moving beyond the tacit threat posed by the existence of the other's nuclear forces and would almost certainly be so destructive as to be more costly than any strategic or military gains in a limited war could ever be worth.

At the same time, history is a grim warning that deterrence sometimes fails. Moreover, China must take the fact that North Korea, Russia, India and Pakistan have nuclear weapons into account in calculating the size and nature of its forces, as well as the possibility that the ROK or Japan might eventually develop nuclear weapons.

The Strategic Nuclear Balance

Unclassified estimates of the present structure of US, Chinese, and other outside nuclear forces are shown in the following figures:

- **Figure 12.1** compares the overall strength of US and major Northeast Asian nuclear powers.
- **Figure 12.2** provides an estimate of the global holdings of nuclear weapons.

These nuclear balances include Russia, and it is important to note that most US thinking about the nuclear balance still focuses on Russia, North Korea, and the risk of Iran acquiring nuclear weapons – not on China. The forces on each side are also anything but static. The US is pursuing a reduction in nuclear forces. China is increasing its forces and their capabilities, although there is little credible unclassified data on Chinese plans and activities.

It is also unclear that weapons numbers shown in these figures will affect future contingencies unless events forced both sides into a major nuclear engagement. The fact the US will have much larger weapons numbers for the foreseeable future might mean the US could theoretically “win” in terms of inflicting the most strikes and damage, but such a victory would be as pyrrhic a “victory” as a feared Cold War-era exchange between the US and Russia. Nevertheless, the US and China are major nuclear powers with boosted and thermonuclear weapons. While neither is likely to use these weapons, they have the capability and – at a minimum – their possession of nuclear weapons plays a major role in the balance of deterrence and in shaping the risks of asymmetric escalation.

Figure 12.1: Chinese, US and Russian Nuclear Forces**China**

Quantity	Role/Type
Strategic Missiles (figures are estimates)	
ICBM	
12	DF-31 (CSS-9)
24	DF-31A (CSS-9 Mod 2)
10	DF-4 (CSS-3)
20	DF-5A (CSS-4 Mod 2)
MRBM	
80	DF-21/21A (CSS-5 Mod 1/2)
36	DF21C (CSS-5 Mod 3)
6	DF-21D (CSS-5 Mod 4 – ASBM)
12	DF-16
IRBM	
6	DF-3A (CSS-2 Mod)
SRBM	
108	DF-11A/M-11A (CSS-7 Mod 2)
144	DF-15/M-9 (CSS-6)
LACM	
54	CJ-10 (DH-10)
Navy	
1	Xia <i>With 12 JL-1 (CSS-N-3) strategic SLBM</i>
3	Jin <i>With up to 12 JL-2 (CSS-NX-4) strategic SLBM (operational status unknown, 1 additional vessel in build)</i>

United States

Quantity	Role/Type
Navy	
14	Ohio SSBN 730 <i>Each with up to 24 UGM-133A Trident D-5 strategic SLBM</i>
Air Force	
6	SQN with 71 B-52H Stratofortress <i>Each with up to 20 AGM-86B nuclear ALCM</i>
2	SQN with 19 B-2A Spirit <i>Each with up to 16 free-fall bombs</i>
9	SQN with 450 LGM-30G Minuteman III <i>Each with a capacity of 1-3 MIRV Mk12/Mk12A per missile</i>

Russia

Quantity	Role/Type
Navy	
3	Kalmar (Delta III) <i>Each with 16 RSM-50 (SS-N-18 Stingray) strategic SLBM</i>
6	Delfin (Delta IV) <i>Each with 16 R-29RMU Sineva (SS-N-23Skiff) strategic SLBM (1 vessel in repair, 2014 expected return to service)</i>
1	Akula (Typhoon) <i>Each with 20 RSM-52 Sturgeon strategic SLBM</i>
1	Borey <i>Each with 16 Bulava (SS-N-X-32) SLBM (missiles not yet operational), (2 additional units completed sea trials with notional ISD 2014; 2 further units in build)</i>
Strategic Rocket Force Armies	
3	Strategic Rocket Forces is a separate branch of the Russian Armed Forces, directly subordinate to the General Staff. The Strategic Rocket Forces were demoted to this status from that of a separate service of the Armed Forces by a presidential decree of March 24, 2001. Strategic Rocket Forces include three missile armies: the 27th Guards Missile Army (HQ in Vladimir), the 31st Missile Army (Orenburg), the 33rd Guards Missile Army (Omsk). The 53rd Missile Army (Chita) was disbanded in 2002. It appears that the 31st Missile Army (Orenburg) will be liquidated by 2016. As of 2012, the missile armies included 11 missile divisions with operational ICBMs.* As of January 2014, the Strategic Rocket Forces were estimated to have 311 operational missile systems of five different types. Intercontinental ballistic missiles of these systems could carry 1078 warheads.*†
Strategic Missiles	
54	RS-20 (SS-18) Satan (mostly mod 5, 10 MIRV per msl)
160	RS-12M (SS-25) Sickle
40	RS-18 (SS-19) Stiletto (mostly mod 3, 6 MIRV per msl)
60	RS-12M2 Topol-M (SS-27M1), silo based
18	RS-12M2 Topol-M (SS-27M1), road mobile
24	RS-24 Yars (SS-27M2; estimated 3 MIRV per msl)
Long-Range Aviation Command	
1	Sqn Tu-160 Blackjack <i>16 Tu-160 each with up to 12 Kh-55SM (AS-15A/B Kent) nuclear ALCM</i>
3	Sqn Tu-95MS Bear <i>31 Tu-95MS6 (Bear H-6) each with up to 6 Kh-55 (AS-15A/B Kent) nuclear ALCM</i> <i>31 Tu-95MS16 (Bear H-16) each with up to 16 Kh-55 nuclear ALCM; (Kh-102 likely now in service on Tu-95MS)</i>

Source: Based primarily on material in IISS, *The Military Balance 2014*. Figures do not include equipment used for training purposes. Some equipment and personnel figures are estimates. All equipment figures represent equipment in active service.

* Based on “Strategic Nuclear Forces” section of Russian Forces Project, <http://russianforces.org/missiles/>.

†Based on IISS, *The Military Balance 2014*, the Strategic Rocket Force Troops have 356 strategic missiles and are divided into 3 armies, further divided into 12 divisions (reducing to 8). Launcher groups normally have 10 silos (6 for RS-20/SS-18), or 9 mobile launchers, and one control center.

Figure 12.2: Comparative Estimate of Global Holdings of Nuclear Weapons

Country	Russia		US		China		DPRK	
Information Source	FAS ⁵⁰⁹	CAC ⁵¹⁰	FAS	CAC	FAS	CAC	FAS	CAC
Operational: Strategic	1,740	1,740	1,950	1,950	0	n/a	0	n/a
Operational: Non-strategic	0	0	200	200	?	n/a	n/a	n/a
Non-deployed/ Reserve	2,700	2,700 (+ 4,000 awaiting dismantlement)	2,500	2,650 (+ 3,000 awaiting dismantlement)	180	240-300	<10	<10
Total Inventory	8,500	8,500	7,700	7,700	240	300	<10	<10
Growth Trend	Decrease		Decrease		Growing		Growing	

Country	UK		Israel		Pakistan		India		France	
Information Source	FAS	CAC	FAS	CAC	FAS	CAC	FAS	CAC	FAS	CAC
Operational: Strategic	160	<160	0	n/a	0	n/a	0	n/a	290	<300
Operational: Non-strategic	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	50
Non-deployed/Reserve	65	65	80	80	90-110	90-110	80-100	80-100	?	n/a
Total Inventory	225	225	80	80 (200)	90-110	90-110	80-100	80-100	300	298-300
Growth Trend	Decrease		Growing		Steady		Steady		Slight decrease	

Note: FAS – Federation of American Scientists; CAC – Center for Arms Control and Non-Proliferation.

Source: FAS, Status of World Nuclear forces, December 18, 2012.

<http://www.fas.org/programs/ssp/nukes/nuclearweapons/nukestatus.html>; Prepared by Lesley McNiesh, Updated by Justin Bresolin; *Fact Sheet: Global Nuclear Weapons Inventories in 2013*, Center for Arms Control and Non-Proliferation, March 2013,

http://armscontrolcenter.org/issues/nuclearweapons/articles/fact_sheet_global_nuclear_weapons_inventories_in_2012/.

The Regional Nuclear Balance

As noted earlier, North Korea's growing missile forces and nuclear programs, create an unstable wild card that might trigger US threats to use nuclear weapons or even the development of a nuclear weapons capability by Japan and South Korea, leading to further regional nuclear instability. North Korea now, at most, has very limited numbers of nuclear weapons and no nuclear armed missiles; but if North Korea can create larger and more effective nuclear weapons, both China and the US would confront the risk of North Korean use of such weapons – or even a serious threat to use such weapons – which could force the US to respond and ultimately confront China with a nuclear crisis on its borders.

China

The US has not provided detailed data on Chinese nuclear forces, nor has the US made them a focus of its arms control efforts. Conversely, the US only gives them passing mention in its recent unclassified reporting on US doctrine for sizing and employing US nuclear forces. A number of leading sources on nuclear forces and arms control do, however, provide considerable detail. The data involved are sometime contradictory, but generally provide a common picture of Chinese nuclear weapons stockpiles and designs.

The Nuclear Threat Initiative (NTI) Estimate

The Nuclear Threat Initiative (NTI) describes China's nuclear forces as follows:⁵¹¹

China's nuclear weapons program began in 1955 and culminated in a successful nuclear test in 1964. China conducted 45 nuclear tests, including tests of thermonuclear weapons and a neutron bomb. The series of nuclear tests in 1995-96 prior to China's signature of the Comprehensive Nuclear Test Ban Treaty (CTBT) resulted in a smaller and lighter warhead design for a new generation of intercontinental ballistic missiles (ICBMs).

China closely guards information about its nuclear arsenal, making estimation unusually difficult. However, China has approximately 250 nuclear warheads. The U.S. Department of Defense asserts that China has approximately 50-75 nuclear-capable ICBMs, and three operational JIN-class (Type 094) nuclear-powered ballistic missile submarines (SSBN) with two more under construction, which will carry the JL-2 submarine launched ballistic missile (SLBM).

Although not announced officially, China is reported to have placed a moratorium on fissile material production. The International Panel on Fissile Materials estimates that China produced 20 ± 4 metric tons of Highly Enriched Uranium (HEU), and still holds 16 ± 4 metric tons. In terms of plutonium, it estimates China produced approximately 2 ± 0.5 tons of plutonium, with 1.8 ± 0.5 tons remaining.

China joined the International Atomic Energy Agency (IAEA) in 1984, but supplied nuclear technology and reactors to several countries of proliferation concern in the 1980s and early 1990s. Most notably, the Chinese are widely understood to have supplied design information (including warhead design), and fissile material to the development of Pakistan's nuclear weapons program that were later transferred to Libya's program.

China is the first nuclear weapon state to adopt a nuclear "no first use (NFU)" policy and an official pledge not to use nuclear weapons against non-nuclear weapons states. China acceded to the Treaty on the Non-Proliferation of Nuclear Weapons in 1992 as a nuclear weapon state and has since improved its export controls, including the promulgation of regulations on nuclear materials and nuclear dual-use exports, and has pledged to halt exports of nuclear technology to un-safeguarded facilities. In 2004, China joined the Nuclear Suppliers Group (NSG). China ratified the IAEA Additional Protocol, making it the first nuclear weapon state to do so. There has been some controversy following the release of China's 2013 Defense White Paper, which did not explicitly use the phrase "no first-use," as it did in the 2010 Defense White Paper, and previous white papers. China's current nuclear posture focuses on survivability and maintaining a second-strike capability.

The NTI's report on recent Chinese weapons developments is as follows:⁵¹²

On 16 October 1964 China exploded its first nuclear device. China has since consistently asserted that its nuclear doctrine is based on the concept of no-first-use, and Chinese military leaders have characterized the country's nuclear weapons as a minimum deterrent against nuclear attacks. Although the exact size of China's nuclear stockpile has not been publicly disclosed, reports indicate that as of 2011 China has produced a total of 200 to 300 nuclear warheads. In 2011, Robert S. Norris and Hans M. Kristensen estimated the size of China's current nuclear stockpile to be approximately 254 warheads.

Since the inception of its nuclear weapons program, China has relied on a mixture of foreign and indigenous inputs to steadily develop and modernize its nuclear arsenal from its first implosion device to the development of tactical nuclear weapons in the 1980s. As a result, The Federation of American

Scientists assesses China to have at least six different types of nuclear payload assemblies: a 15-40 kiloton (kt) fission bomb; a 20 kt missile warhead; a 3 megaton (mt) thermonuclear missile warhead; a 3 mt thermonuclear gravity bomb; a 4-5 mt missile warhead; and a 200-300 kt missile warhead. China is thought to possess a total of some 150 tactical nuclear warheads on its short-range ballistic, and possibly cruise missiles.

Only limited data are available on Chinese military nuclear facilities as well. The NTI reports that,⁵¹³

China possesses a comprehensive nuclear infrastructure for both military and civilian purposes, including enrichment and reprocessing capabilities. China initially constructed its military nuclear facilities with Soviet assistance, but after withdrawing in 1959, completed them independently. In the late 1960s China constructed numerous military nuclear facilities as a part of its “Third Line” policy of duplicating essential military infrastructure. Beginning in the late 1980s, China initiated a policy of “military to civilian” conversion of industries, including nuclear energy, and has established many nuclear corporations for civilian nuclear energy programs. China currently has 17 nuclear power reactors in operation and 28 under construction, in addition to 15 operational research reactors.

The Chairman of the Central Military Commission (CMC) is the ultimate authority with regards to China’s nuclear weapons, and the management of relevant facilities. The CMC has delegated authority over the Chinese military’s nuclear facilities to the General Armaments Department (GAD) under the People’s Liberation Army, which oversees the China Academy of Engineering Physics (CAEP). CAEP is responsible for most of the research, development, testing and production of China’s nuclear weapons.

...Soviet assistance was critical in the early stages of China’s nuclear facility construction. Between 1955 and 1958 the two nations signed six accords on the development of China’s nuclear science, industry, and weapons program. In these accords, Soviet assistance included the supply of a nuclear reactor, cyclotron, aid in building China’s nuclear industries and research facilities, and a prototype atomic bomb. The Sino-Soviet Split prevented the transfer of a prototype weapon, and the Chinese had to independently finish the construction of the gaseous diffusion plant at Lanzhou, Jiuquan’s plutonium-producing reactor and plutonium-processing plant, and the Baotou Nuclear Fuel Component Plant. China duplicated these facilities in its Third Line Policy with the construction of the Heping Uranium Enrichment Plant, Guangyuan facility (Plant 821), and the Yibin Nuclear Fuel Factory.

...During the “Third Line Policy” of duplicating critical infrastructure, one fifth of expenditures, or 28 billion Yuan (1965-1980) went to defense purposes. This budget included nuclear facilities constructed in Sichuan Province, such as the Heping Uranium Enrichment Plant, the Yibin Nuclear Fuel Component Plant, and the Guangyuan Facility (Plant 821).

...Highly enriched uranium (HEU) production was based primarily in the Lanzhou and Heping gaseous diffusion plants. Both facilities stopped HEU production in 1979 and 1987 respectively. China’s current inventory of HEU for weapons is estimated to total 16 ± 4 tons. China has produced plutonium for weapons at two sites, the Jiuquan Atomic Energy Complex and Guangyuan plutonium production complex. China’s current inventory of weapon-grade plutonium is estimated to total 1.8 ± 0.5 tons. Many HEU research reactors in China are being converted to low enriched uranium (LEU) or shut down. In 2007 the Nuclear Power Institute of China converted its high flux engineering test reactor (HFETR) as well as the HFETR Critical Assembly from HEU to LEU. China shut down the MNSR-SH at the Shanghai Testing and Research Institute in March 2007, and confirmed the shutdown of the MNSR-Shandong reactor in December 2010.

For its civilian nuclear sector China is actively indigenizing foreign technology and investing heavily in new technologies. The State Nuclear Power Technology Corporation (SNPTC), directly under the State Council, managed foreign bidding processes for new nuclear power plants to be deployed SNPTC selected the Westinghouse AP1000, a Generation III technology reactor. In exchange, Westinghouse is assisting in the development of Chinese designs, and eventually may transfer intellectual property rights. Independently China is investing in the development of Generation IV technologies, such as the pebble-bed high temperature gas-cooled reactor (HTGR).

China is exploring options for reprocessing spent nuclear fuel to close the fuel cycle, in particular at the 404 Reprocessing Plant in Gansu Province. On 3 January 2011, state media hailed a “breakthrough” of mastering

reprocessing technology. The process poses proliferation concerns of plutonium being extracted, and cost and feasibility problems may hinder the commercialization of reprocessing technology.

The Union of Concerned Scientists (UCS) Estimate

The Union of Concerned Scientists (UCS) provides another good unclassified summary of China's nuclear weapons programs.⁵¹⁴

U.S. governmental and non-governmental assessments¹ indicate China currently possesses a small nuclear arsenal, with an estimated 155 nuclear warheads ready to be deployed on six different types of land-based missiles. Approximately 50 of those missiles can reach the continental United States.

...Warheads: Estimates of the current number of Chinese nuclear warheads vary, but China is believed to have manufactured a total of between 200 and 300 warheads, roughly 50 of which have been used for nuclear tests. Currently, approximately 155 of those are believed to be prepared for deployment.

China's stocks of military plutonium limit how much it could expand its arsenal without restarting plutonium production. Estimates of the size of China's existing plutonium stocks are uncertain, but imply that the number of new warheads China could produce from existing stocks ranges from very few to possibly several hundred.

China has halted production of military plutonium but has not declared an official moratorium. Its dedicated military plutonium production facilities have been decommissioned. However, China recently began operating a pilot plant for reprocessing spent fuel from its commercial reactors and is discussing plans for a larger commercial reprocessing facility. These facilities extract plutonium that is created in the reactor from the spent fuel. China also operates an experimental fast breeder reactor, which is optimized to produce plutonium that would be used as fuel, and is considering purchasing two additional fast breeder reactors from Russia. If necessary, China could divert plutonium extracted from these experimental and commercial facilities for military use.

Satellite observations of the production facilities suggest they are not producing plutonium but they are well maintained. China officially supports negotiation of a Fissile Material Cut-off Treaty (FMCT) that would ban all future production for military use. This would cap China's capability to produce new warheads and place an upper bound on the size of its nuclear arsenal.

...China has conducted 45 nuclear tests. This relatively small number of tests (the United States conducted 1,054 and the Soviet Union/Russia conducted 715) suggests there are a limited number of tested Chinese warhead designs certified for deployment. China accelerated the pace of its nuclear testing during the three years it took to negotiate the Comprehensive Test Ban Treaty (CTBT) in the mid- 1990s in order to complete a series of tests on a smaller warhead design...U.S. analyses of that final test series suggest this smaller warhead is still too large for China to place multiple warheads on the long-range mobile missile designed deliver it, the DF-31...

... Unlike other nuclear weapons states, China keeps all of its warheads in storage. China's nuclear warheads and nuclear-capable missiles are kept separate and the warheads are not mated to the missiles until they are prepared for launch. Interestingly, for this reason under the counting rule for New START the number of Chinese weapons would be counted as zero...

... Estimates of the number, ranges, and payloads of Chinese nuclear-capable missiles vary. The estimates indicate China deploys approximately 150 land- based missiles that can carry nuclear payloads, fewer than 50 of which are long-range and can reach the United States....China is not believed to currently place multiple warheads on its missiles. However, some sources say DF-4 and DF- 5 missile tests have included testing of multiple re-entry vehicles...These tests may allow China to replace the older, larger single warheads on these two liquid-fueled missiles with smaller warheads and penetration aids. Chinese reports indicate that these may be tests of dummy warheads and penetration aids designed to defeat missile defenses...

China is experimenting with submarine-launched ballistic missiles but the one nominally operational nuclear-armed ballistic missile submarine it currently possesses does not patrol and Chinese experts describe it as a failure...China built two new ballistic missile submarines and is rumored to be building more, but the

nuclear-capable missile designed for deployment on those submarines failed initial flight tests...

... U.S. governmental and non- governmental reports indicate China possesses a stockpile of air-deliverable nuclear weapons but they have no “primary mission,” according to U.S. assessments. Chinese cruise missiles can be armed with nuclear payloads but U.S. assessments state they are not. U.S. observations of China’s military facilities, equipment, and training suggest China does not maintain a stockpile of tactical nuclear weapons...

...Chinese nuclear experts believe the risk that a nuclear- armed adversary would threaten to use nuclear weapons in an attempt to coerce China in some way is greatly reduced if this adversary doubts its ability to launch a strike that could eliminate China’s ability to retaliate. China therefore values secrecy over transparency, since China believes transparency undermines its confidence in the survivability of its nuclear arsenal. Moreover, this confidence waxes and wanes in response to perceived trends in technological development. Technological improvements by a potential adversary that may increase its willingness to risk an attack against China with nuclear weapons, or an attack against China’s nuclear weapons with conventional weapons, decreases Chinese confidence in its ability to retaliate. This precipitates requests by China’s leadership to adjust or improve its arsenal.

Because of this sensitivity to technological change, China’s defense scientists and engineers play a decisive role in determining China’s nuclear posture. The open source literature published by this technically oriented community over the past several decades suggests it sees improvements in space and missile defense technology as the most significant and likely challenges to the credibility of China’s ability to retaliate with nuclear weapons. For example, China is concerned that improvements in satellite reconnaissance may reveal the location of Chinese weapons and command and control facilities, and may increase the ability of adversaries to track and target mobile weapons. Or that missile defenses may increase the willingness of foreign adversaries to threaten a strike against China’s nuclear arsenal, thus exposing Chinese leaders to the “nuclear blackmail” their arsenal is designed to prevent.

...A comparative look at China’s arsenal relative to the arsenals of its principal rivals reveals that the evolution of China’s nuclear weapon systems has occurred more slowly and on a smaller scale than that of the United States and the Soviet Union/Russia... China’s modernization efforts are focused on developing solid-fueled missiles that can be deployed on mobile platforms, to reduce the likelihood its missiles could be destroyed in a first strike, compared to its original liquid- fueled missiles at fixed launch sites. In the past few years it

...The small size and limited capabilities of China’s nuclear arsenal make the threat of a first use of nuclear weapons against the United States or Russia highly unlikely and not at all credible, since it would invite massive nuclear retaliation as well as international condemnation. None of the improvements to China’s arsenal that are currently underway would present Chinese decision-makers with a more credible ability to threaten the first use of nuclear weapons against the United States or Russia. Therefore, it is reasonable to assume that the improvements being made to the Chinese nuclear arsenal are limited to maintaining a credible threat to retaliate.

...Because of the lack of nuclear testing, China is not modernizing or improving the design or nuclear components of its warheads. If China needs to manufacture warheads for the new nuclear-capable missiles it is deploying, these warheads would be manufactured according to existing, tested warhead designs certified for deployment before it stopped testing in 1996. As noted above, the size of China’s existing stocks of military plutonium will place a limit on how many additional warheads it could build without producing more plutonium.

...China is also deploying a 1,700-km range nuclear missile, the DF-21, which is mobile and uses solid fuel. As with China’s other missiles, the nuclear-capable DF-21 has been produced in small batches and progressively modified to accommodate different conventional military objectives, such as to launch the anti-satellite interceptor China tested in 2007 and the anti-ship

.. Chinese efforts to develop a submarine-launched nuclear missile, despite decades of effort, have yet to produce a deployable capability. This may be in part because it is not a high priority. Based on the history of Soviet submarines, if these first-generation submarines are eventually deployed they are expected to be

noisy enough to be easily detectable at sea, which would restrict them to patrolling in shallow areas around the Chinese coast inside its territorial waters and beyond interference from U.S. forces.

Moreover, should China eventually begin to deploy submarine-launched missiles, deployment would require placing both the warheads and missiles on the submarine, giving the commander greater responsibility and independence under conditions in which continuous secure and reliable communications with the political leadership are more difficult to maintain than with China's land-based missiles. This would be a major change, and could be seen as weakening the Chinese leadership's tight control over its development and testing of penetration aids. The development of these aids may be responsible for the increase in Chinese missile testing observed by U.S. satellites during the past decade.

The Global Security Estimate

In terms of China's historical development of nuclear weapons and potential future steps, Global Security reports that,⁵¹⁵

By 1953 the Chinese, under the guise of peaceful uses of nuclear energy, had initiated research leading to the development of nuclear weapons. The decision to develop an independent strategic nuclear force was made no later than early 1956 and was to be implemented within the Twelve-Year Science Plan presented in September 1956 to the Eighth Congress of the CCP. The decision to enter into a development program designed to produce nuclear weapons and ballistic missile delivery systems was, in large part, a function of the 1953 technology transfer agreements initiated with the USSR.

In 1951 Peking signed a secret agreement with Moscow through which China provided uranium ores in exchange for Soviet assistance in the nuclear field. In mid-October 1957 the Chinese and Soviets signed an agreement on new technology for national defense that included provision for additional Soviet nuclear assistance as well as the furnishing of some surface-to-surface and surface-to-air missiles. The USSR also agreed to supply a sample atomic bomb and to provide technical assistance in the manufacture of nuclear weapons. The Soviets provided the Chinese with assistance in building a major gaseous diffusion facility for production of enriched uranium. Subsequently the Chinese accused Moscow of having abrogated this agreement in 1959, and having "refused to supply a simple atomic bomb and technical data concerning its manufacture."

China began developing nuclear weapons in the late 1950s with substantial Soviet assistance. Before 1960 direct Soviet military assistance had included the provision of advisors and a vast variety of equipment. Of the assistance provided, most significant to China's future strategic nuclear capability were an experimental nuclear reactor, facilities for processing uranium, a cyclotron, and some equipment for a gaseous diffusions plant.

When Sino-Soviet relations cooled in the late 1950s and early 1960s, the Soviet Union withheld plans and data for an atomic bomb, abrogated the agreement on transferring defense technology, and began the withdrawal of Soviet advisers in 1960. Despite the termination of Soviet assistance, China committed itself to continue nuclear weapons development to break "the superpowers' monopoly on nuclear weapons," to ensure Chinese security against the Soviet and United States threats, and to increase Chinese prestige and power internationally.

When China decided in 1955 to develop atomic bombs it faced a number of technological choices as to the most appropriate route to follow. At that time China could only work on one path, and had to choose between producing Pu239 from a reactor, or developing the method of producing U235 through isotope separation. The uranium path offered two alternatives, either system, either chemical separation or physical separation. Chemical separation of Pu235 from the mixed system of U235 and U238 would have been easier than physical separation, but the separation of plutonium and uranium was difficult due to the high radioactivity of the Pu-U system, and the severe toxicity of plutonium. Therefore, the chosen path was the physical separation of U235 and U238 isotopes. The implosion method of detonating an atomic bomb was considered more technically advanced, though there were questions as to whether China was capable of producing a uranium bomb detonated by the implosion method.

China made remarkable progress in the 1960s in developing nuclear weapons. In a thirty-two-month period, China successfully exploded its first atomic bomb (October 16, 1964), launched its first nuclear missile (October 25, 1966), and detonated its first hydrogen bomb (June 14, 1967).

The first Chinese nuclear test was conducted at Lop Nor on 16 October 1964 (CHIC 1). It was a tower shot involving a fission device with a yield of 25 kilotons. Uranium 235 was used as the nuclear fuel, which indicates Beijing's choice of the path of creating high-yield nuclear weapons right away. Of the ten test shots that followed by 29 September 1969, six are believed to have been related to thermonuclear development. The others had as their goals the adaptation of CHIC 1 for bomber delivery and test of a missile warhead (CHIC 4). The third nuclear test was conducted on 9 September 1966 using a Tu-16 bomber. In addition to uranium 235, this nuclear device, with a yield around 100 KT, this time contained lithium 6, which attested to China's readiness to test a thermonuclear explosion. CHIC 6, an airdrop test on 17 June 1967, was the first full-yield, two-stage thermonuclear test.

Although the Cultural Revolution disrupted the strategic weapons program less than other scientific and educational sectors in China, there was a slowdown in succeeding years. The successes achieved in nuclear research and experimental design work permitted China to begin series production of nuclear (since 1968) and thermonuclear (since 1974) warheads.

Subsequent nuclear tests (CHIC 12, CHIC 13) were suggestive of a new phase of the PRC test programs. Both were low yield weapons. It appeared possible that CHIC 13 was delivered by an F-9 fighter aircraft and may have been a proof test of a weapon.

The PRC's nuclear weapons intelligence collection efforts began after the end of the Cultural Revolution in 1976, when the PRC assessed its weaknesses in physics and the deteriorating status of its nuclear weapons programs. The PRC's warhead designs of the late 1970s were large, multi-megaton thermonuclear weapons that could only be carried on large ballistic missiles and aircraft. The PRC's warheads were roughly equivalent to US warheads designed in the 1950s. The PRC may have decided as early as that time to pursue more advanced thermonuclear warheads for its new generation of ballistic missiles.

In addition to the development of a sea-based nuclear force, China began considering the development of tactical nuclear weapons. PLA exercises featured the simulated use of tactical nuclear weapons in offensive and defensive situations beginning in 1982. Reports of Chinese possession of tactical nuclear weapons remained unconfirmed in 1987. In 1988 Chinese specialists tested a 1-5 KT nuclear device with an enhanced radiation yield, advancing the country's development of a very low yield neutron weapon and laying the foundation for the creation of nuclear artillery.

The PRC has already begun working on smaller thermonuclear warheads. During the 1990s, the PRC was working to complete testing of its modern thermonuclear weapons before it signed the Comprehensive Test Ban Treaty in 1996. The PRC conducted a series of nuclear tests from 1992 to 1996. Based on what is known about PRC nuclear testing practices, combined with data on PRC warhead yield and on PRC missile development, it is clear that the purpose of the 1992 to 1996 test series was to develop small, light warheads for the PRC's new nuclear forces.

One of the objectives of the final series of Chinese nuclear tests was to miniaturize China's nuclear warheads, dropping their weight from 2200 kgs to 700 kgs in order to accommodate the next generation of solid-fueled missile systems. This series of PRC nuclear weapons test explosions from 1992 to 1996 began a debate in the US Government about whether the PRC's designs for its new generation of nuclear warheads were in fact based on stolen U.S. classified information. The apparent purpose of these PRC tests was to develop smaller, lighter thermonuclear warheads, with an increased yield-to-weight ratio.

The United States did not become fully aware of the magnitude of the counterintelligence problem at Department of Energy national weapons laboratories until 1995. In 1995, a "walk-in" approached the Central Intelligence Agency outside the PRC and provided an official PRC document classified "Secret" that contained specific design information on the W-88 Trident D-5, and technical information on other thermonuclear warheads. The CIA later determined that the "walk-in" was directed by the PRC intelligence services. Nonetheless, CIA and other Intelligence Community analysts that reviewed the document concluded that it contained US warhead design information.

Completing the development of its next-generation warhead poses challenges for the PRC. The PRC may not currently be able to match precisely the exact explosive power and other features of U.S. weapons. Nonetheless, the PRC may be working toward this goal, and the difficulties it faces are surmountable.

Work-arounds exist, using processes similar to those developed or available in a modern aerospace or precision-guided munitions industry. The PRC possesses these capabilities already.

Assessing the extent to which design information losses accelerated the PRC's nuclear weapons development is complicated because so much is unknown. The full extent of U.S. information that the PRC acquired and the sophistication of the PRC's indigenous design capabilities are unclear. Moreover, there is the possibility of third country assistance to the PRC's nuclear weapons program, which could also assist the PRC's exploitation of the stolen U.S. nuclear weapons information.

There is some uncertainty in published estimates of the size of the Chinese nuclear weapons stockpile. Between January 1971 and late 1972 a second set of new nuclear facilities was identified in the West. This included a gaseous diffusion plant at Chinkouho which was estimated to be able to produce more U-235 than the original plant at Lanchow. This new facility was predicted to begin partial production in late 1972 with full operation in late 1974. There was an additional reactor for production of plutonium at Kuangyuan and additional weapons grade material could enter the stockpile by 1974-75. Also, there was a possible new weapons fabrication facility located at Tzutung. All of these new facilities would give the PRC the capability of becoming the third largest nuclear power in the world. Based on their production capability, DIA assessed in 1972 that the Chinese could have as many as 120 thermonuclear warheads and 260 fission nuclear weapons in their stockpile.

In the late 1980s it was generally held that China was the world's third-largest nuclear power, possessing a small but credible nuclear deterrent force of 225 to 300 nuclear weapons.

Other estimates of the country's production capacities suggested that by the end of 1970 China had fabricated around 200 nuclear weapons, a number which could have increased to 875 by 1980. With an average annual production of 75 nuclear weapons during the 1980s, some estimates suggest that by the mid-1990s the Chinese nuclear industry had produced around 2,000 nuclear weapons for ballistic missiles, bombers, artillery projectiles and landmines.

The retired Russian General Viktor Yesin, former chief of staff of the Russian Strategic Missile Forces, claimed that China's HEU stockpile was actually 40 tons, and a plutonium inventory of up to 10 tons. He says that these are the best estimates of Russian experts. Based on these estimates of nuclear weapon material production, Yesin estimates that China could have 1,600 to 1,800 warheads.

Jeffrey Lewis writes that "China operated exactly two nuclear reactors for the production of military plutonium through 1991. Open-source estimates reliably band China's production of plutonium at 2-5 metric tons. Classified Department of Energy estimates, leaked to the press, provide a narrower band of 1.7-2.8 metric tons. (Hui Zhang, a former colleague of mine at Harvard who previously worked in the Chinese nuclear weapons establishment, calculates Chinese production as being on the low end of that estimate in the most recent International Panel on Fissile Materials report.) Using a conservative estimate of 4-8 kilograms of plutonium per warhead, that yields a total force of probably no more than 375 warheads, with an extreme upper bound of no more than 700 warheads."

China's nuclear forces, in combination with the PLA's conventional forces, served to deter both nuclear and conventional attack. Chinese leaders repeatedly have pledged never to be the first to use nuclear weapons, and they have accompanied the no first use pledge with a promise of certain nuclear counterattack if nuclear weapons are used against China. China envisioned retaliation against strategic and tactical attacks and would probably strike countervalue rather than counterforce targets. The combination of China's few nuclear weapons and technological factors such as range, accuracy, and response time might further limit the effectiveness of nuclear strikes against counterforce targets. China is seeking to increase the credibility of its nuclear retaliatory capability by dispersing and concealing its nuclear forces in difficult terrain, improving their mobility, and hardening its missile silos.

The Federation of American Scientists (FAS) Estimate

The Federation of American Scientists (FAS) provides additional detail on Chinese tests and weapons developments:⁵¹⁶

When China decided in 1955 to develop atomic bombs it faced a number of technological choices as to the most appropriate route to follow. At that time China could only work on one path, and had to choose

between producing Pu239 from a reactor, or developing the method of producing U235 through isotope separation. The uranium path offered two alternatives, either system, either chemical separation or physical separation. Chemical separation of Pu235 from the mixed system of U235 and U238 would have been easier than physical separation, but the separation of plutonium and uranium was difficult due to the high radioactivity of the Pu-U system, and the severe toxicity of plutonium. Therefore, the chosen path was the physical separation of U235 and U238 isotopes. The implosion method of detonating an atomic bomb was considered more technically advanced, though there were questions as to whether China was capable of producing a uranium bomb detonated by the implosion method.

China made remarkable progress in the 1960s in developing nuclear weapons. In a thirty-two-month period, China successfully exploded its first atomic bomb (October 16, 1964), launched its first nuclear missile (October 25, 1966), and detonated its first hydrogen bomb (June 14, 1967).

The first Chinese nuclear test was conducted at Lop Nor on 16 October 1964 (CHIC 1). It was a tower shot involving a fission device with a yield of 25 kilotons. Uranium 235 was used as the nuclear fuel, which indicates Beijing's choice of the path of creating high-yield nuclear weapons right away. Of the ten test shots that followed by 29 September 1969, six are believed to have been related to thermonuclear development. The others had as their goals the adaptation of CHIC 1 for bomber delivery and test of a missile warhead (CHIC 4). The third nuclear test was conducted on 9 September 1966 using a Tu-16 bomber. In addition to uranium 235, this nuclear device, with a yield around 100 KT, this time contained lithium 6, which attested to China's readiness to test a thermonuclear explosion. CHIC 6, an airdrop test on 17 June 1967, was the first full-yield, two-stage thermonuclear test.

Although the Cultural Revolution disrupted the strategic weapons program less than other scientific and educational sectors in China, there was a slowdown in succeeding years. The successes achieved in nuclear research and experimental design work permitted China to begin series production of nuclear (since 1968) and thermonuclear (since 1974) warheads.

Subsequent nuclear tests (CHIC 12, CHIC 13) were suggestive of a new phase of the PRC test programs. Both were low yield weapons. It appeared possible that CHIC 13 was delivered by an F-9 fighter aircraft and may have been a proof test of a weapon.

One of the objectives of the final series of Chinese nuclear tests was to miniaturize China's nuclear warheads, dropping their weight from 2200 kgs to 700 kgs in order to accommodate the next generation of solid-fueled missile systems.

In addition to the development of a sea-based nuclear force, China began considering the development of tactical nuclear weapons. PLA exercises featured the simulated use of tactical nuclear weapons in offensive and defensive situations beginning in 1982. Reports of Chinese possession of tactical nuclear weapons remained unconfirmed in 1987. In 1988 Chinese specialists tested a 1-5 KT nuclear device with an enhanced radiation yield, advancing the country's development of a very low yield neutron weapon and laying the foundation for the creation of nuclear artillery.

There is considerable uncertainty in published estimates of the size of the Chinese nuclear weapons stockpile. In the late 1980s it was generally held that China was the world's third-largest nuclear power, possessing a small but credible nuclear deterrent force of 225 to 300 nuclear weapons. Other estimates of the country's production capacities suggested that by the end of 1970 China had fabricated around 200 nuclear weapons, a number which could have increased to 875 by 1980. Assuming an average annual production of 75 nuclear weapons during the 1980s, some estimates even suggested that by the mid-1990s the Chinese nuclear industry had produced around 2,000 nuclear weapons for ballistic missiles, bombers, artillery projectiles and landmines.

The Bulletin of the Atomic Scientists Estimate

The Bulletin of the Atomic Scientists briefly addressed the distribution of China's nuclear weapons in its 2014 report on worldwide deployments of nuclear weapons:⁵¹⁷

Researching Chinese nuclear weapons storage is difficult given the almost complete official secrecy that surrounds China's nuclear forces. Moreover, as is the case with other nuclear-armed states, Western governments say very little about what they know.

Even so, important new information has become available from other sources since our previous estimate was made in 2009. This includes more satellite images on Google Earth that allow the public to monitor developments of Chinese forces. Moreover, a number of publications by Mark Stokes at the Project 2049 Institute have made invaluable new information and analysis available to the public.

One of Stokes' reports describes China's central underground nuclear weapons storage site near Baoji in the western part of Shaanxi province in central China. China's use of underground facilities to conceal and protect military equipment and provide leadership and civil defense shelters has been reported for many years but gained new attention in 2011 due to a Georgetown University study.

We cautiously estimate that China may have nuclear warheads at 12 facilities. Nearly all of China's 250 nuclear warheads are concentrated in the central nuclear weapons storage site, known as 22 Base. The Second Artillery missiles intended to deliver these warheads are dispersed across China at approximately 25 brigade bases organized under six Base Headquarters. Each of these Base Headquarters probably has a small number of nuclear warheads in regional storage sites.

The navy has two bases with nuclear capable missile submarines, each of which might have an adjacent warhead storage facility. The Air Force has a couple of intermediate-range bomber bases that might have a secondary nuclear mission. China has also started deploying ground-launched cruise missiles that US Air Force intelligence characterizes as nuclear-capable.

China has a small number of warhead design, production, and maintenance Kristensen and Norris facilities, presumably with a small number of warheads present.

While these analyses differ in detail, they still track broadly with what several experts in the US government felt could be said about Chinese nuclear weapons on an unclassified basis. There are other US experts, however, who believe that China may be concealing a much larger nuclear effort, have much larger stockpiles – including theater and smaller tactical weapons – and be moving more aggressively towards MIRVing and improving its strategic nuclear warhead numbers.

The United States

Since the end of the Cold War, the US has been removing its deployed nuclear weapons from Europe and Asia. In 2008, the US informed Japan it would be retiring its sea-based nuclear warhead Tomahawk cruise missiles from the region.⁵¹⁸

The US had over 1,700 deployed strategic warheads as of March 2013. It had an additional 200 active theater nuclear weapons. The FAS reported that the US had an estimated 2,200 strategic and 300 non-strategic warheads in central storage. Some 260 nonstrategic W80-0 warheads for the Tomahawk land-attack cruise missile (TLAM/N) have been retired. Another 3,000 retired warheads were "awaiting dismantlement." In addition, more than 15,000 plutonium cores (pits) and some 5,000 Canned Assemblies (secondary's) from dismantled warheads are in storage at the Pantex Plant in Texas and Y-12 plant in Tennessee.⁵¹⁹

The US summarized its strategy in dealing with deterrence and nuclear forces as follows in its FY2014 defense budget overview:⁵²⁰

The United States will maintain a safe, secure, and effective nuclear arsenal. We will field nuclear forces that can operate effectively under all conditions to deny a potential adversary their war aims, and confront them with the prospect of unacceptable damage. This posture is essential for deterring potential adversaries and assuring U.S. allies and other security partners that they can count on America's security commitments. DoD will maintain effective nuclear forces even as it seeks to reduce the role and number of nuclear weapons and as it proceeds with New START implementation. Key enhancements and protected capabilities associated with this mission area include developing a new penetrating bomber and a next-generation ballistic missile submarine.

... DoD conducts a range of activities in partnership with other elements of the U.S. Government and international allies and partners aimed at preventing the proliferation and use of nuclear, biological, and chemical weapons. These activities include strengthening non-proliferation regimes, building partner capacity to counter WMD, Cooperative Threat Reduction (CTR) initiatives, and planning and operations to locate, monitor, track, intercept, interdict, secure, and dispose of WMD and WMD-related components and the means to make them. They also include participation in an active whole-of-government effort to frustrate the ambitions of nations and non-state actors bent on possessing WMD. DoD will continue to invest in capabilities to predict, detect, protect against, and respond to WMD proliferation and use, should preventive measures fail. Key enhancements associated with this mission area include: maintaining the Chemical Biological Incident Response Force (CBIRF); continuing efforts to expand the geographic reach of the CTR program; and providing additional funds for ground-based prompt nuclear forensics diagnostics systems.

Theater nuclear weapons present another set of complex issues because US policy has changed and the current status of such forces in contingencies outside Europe remains somewhat ambiguous. A report by Amy Woolf of the US Congressional Research Service notes that,⁵²¹

In 1991, the United States and Soviet Union both withdrew from deployment most and eliminated from their arsenals many of their nonstrategic nuclear weapons. The United States now has approximately 760 nonstrategic nuclear weapons, with around 200 deployed with aircraft in Europe and the remaining stored in the United States. Estimates vary, but experts believe Russia still has between 1,000 and 6,000 warheads for nonstrategic nuclear weapons in its arsenal. The Bush Administration quietly redeployed and removed some of the nuclear weapons deployed in Europe. Russia, however seems to have increased its reliance on nuclear weapons in its national security concept. Some analysts argue that Russia has backed away from its commitments from 1991 and may develop and deploy new types of nonstrategic nuclear weapons.

Recent discussions about the U.S. nuclear weapons policy have placed a renewed emphasis on the role of U.S. nonstrategic nuclear weapons in extended deterrence and assurance. Extended deterrence refers to the U.S. threat to use nuclear weapons in response to attacks, from Russia or other adversaries, against allies in NATO and some allies in Asia. Assurance refers to the U.S. promise, made to those same allies, to come to their defense and assistance if they are threatened or attacked. The weapons deployed in Europe are a visible reminder of that commitment; the sea-based nonstrategic nuclear weapons in storage that could be deployed in the Pacific in a crisis served a similar purpose for U.S. allies in Asia. Recent debates, however, have focused on the question of whether a credible U.S. extended deterrent requires that the United States maintain weapons deployed in Europe, and the ability to deploy them in the Pacific, or whether other U.S. military capabilities, including strategic nuclear weapons and conventional forces, may be sufficient....

In the 2010 Nuclear Posture Review, the Obama Administration stated that the United States “will continue to assure our allies and partners of our commitment to their security and to demonstrate this commitment not only through words, but also through deeds.” The NPR indicated that a wide range of U.S. military capabilities would support this goal, but also indicated that U.S. commitments would “retain a nuclear dimension as long as nuclear threats to U.S. allies and partners remain.” The Administration did not, however, specify that the nuclear dimension would be met with nonstrategic nuclear weapons; the full range of U.S. capabilities would likely be available to support and defend U.S. allies. In addition, the Administration announced that the United States would retire the nuclear-armed sea-launched cruise missiles that had helped provide assurances to U.S. allies in Asia. In essence, the Administration concluded that the United States could reassure U.S. allies in Asia, and deter threats to their security, without deploying sea-based cruise missiles to the region in a crisis.

Moreover, the possible use of nuclear weapons, and extended nuclear deterrence, were a part of a broader concept that the Administration referred to as “regional security architectures.” The NPR indicated that regional security architectures were a key part of “the U.S. strategy for strengthening regional deterrence while reducing the role and numbers of nuclear weapons.” As a result, these architectures would “include effective missile defense, counter-WMD capabilities, conventional power-projection capabilities, and integrated command and control—all underwritten by strong political commitments.” In other words, although the United States would continue to extend deterrence to its allies and seek to assure them of the U.S. commitment to their security, it would draw on a political commitments and a range of military capabilities to achieve these goals.

...In the past, U.S. discussions about nonstrategic nuclear weapons have also addressed questions about the role they might play in deterring or responding to regional contingencies that involved threats from nations that may not be armed with their own nuclear weapons. For example, former Secretary of Defense Perry stated that, “maintaining U.S. nuclear commitments with NATO, and *retaining the ability to deploy nuclear capabilities to meet various regional contingencies*, continues to be an important means for deterring aggression, protecting and promoting U.S. interests, reassuring allies and friends, and preventing proliferation (emphasis added).”

... Specifically, both during the Cold War and after the demise of the Soviet Union, the United States maintained the option to use nuclear weapons in response to attacks with conventional, chemical, or biological weapons. For example, in 1999, Assistant Secretary of Defense Edward Warner testified that “the U.S. capability to deliver an overwhelming, rapid, and devastating military response with the full range of military capabilities will remain the cornerstone of our strategy for deterring rogue nation ballistic missile and WMD proliferation threats. The very existence of U.S. strategic and theater nuclear forces, backed by highly capable conventional forces, should certainly give pause to any rogue leader contemplating the use of WMD against the United States...”

The George W. Bush Administration also emphasized the possible use of nuclear weapons in regional contingencies in its 2001 Nuclear Posture Review. The Bush Administration appeared to shift towards a somewhat more explicit approach when acknowledging that the United States might use nuclear weapons in response to attacks by nations armed with chemical, biological, and conventional weapons, stating that the United States would develop and deploy those nuclear capabilities that it would need to defeat the capabilities of *any* potential adversary whether or not it possessed nuclear weapons. This does not, by itself, indicate that the United States would plan to use nonstrategic nuclear weapons. However, many analysts concluded from these and other comments by Bush Administration officials that the United States was planning for the tactical, first use of nuclear weapons. The Bush Administration never confirmed this view, and, instead, indicated that it would not use nuclear weapons in anything other than the most grave circumstances.

The Obama Administration, on the other hand, seemed to foreclose the option of using nuclear weapons in some regional contingencies. Specifically, it stated, in the 2010 NPR, that, “the United States will not use or threaten to use nuclear weapons against non-nuclear weapons states that are party to the Nuclear Non-Proliferation Treaty (NPT) and in compliance with their nuclear nonproliferation obligations.” Specifically, if such a nation were to attack the United States with conventional, chemical, or biological weapons, the United States would respond with overwhelming conventional force, but it would not threaten to use nuclear weapons if the attacking nation was in compliance with its nuclear nonproliferation obligations and it did not have nuclear weapons of its own...At the same time, though, the NPR stated that any state that used chemical or biological weapons “against the United States or its allies and partners would face the prospect of a devastating conventional military response—and that any individuals responsible for the attack, whether national leaders or military commanders, would be held fully accountable.”...

...Through the late 1990s and early in George W. Bush Administration, the United States maintained approximately 1,100 nonstrategic nuclear weapons in its active stockpile. Unclassified reports indicate that, of this number, around 500 were air-delivered bombs deployed at bases in Europe. The remainder, including some additional air-delivered bombs and around 320 nuclear-armed sea-launched cruise missiles, were held in storage areas in the United States...

After the Clinton Administration’s 1994 Nuclear Posture Review, the United States eliminated its ability to return nuclear weapons to U.S. surface ships (it had retained this ability after removing the weapons under the 1991 PNI). It retained, however, its ability to restore cruise missiles to attack submarines, and it did not recommend any changes in the number of air-delivered weapons deployed in Europe. During this time, the United States also consolidated its weapons storage sites for nonstrategic nuclear weapons. It reportedly reduced the number of these facilities “by, over 75%” between 1988 and 1994. It eliminated two of its four storage sites for sea-launched cruise missiles, retaining only one facility on each coast of the United States. It also reduced the number of bases in Europe that store nuclear weapons from over 125 bases in the mid-1980s to 10 bases, in seven countries, by 2000...

The Bush Administration did not recommend any changes for U.S. nonstrategic nuclear weapons after completing its Nuclear Posture Review in 2001. Reports indicate that it decided to retain the capability to

restore cruise missiles to attack submarines because of their ability to deploy, in secret, anywhere on the globe in time of crisis. The NPR also did not recommend any changes to the deployment of nonstrategic nuclear weapons in Europe, leaving decisions about their status to the members of the NATO alliance.

Nevertheless, according to unclassified reports, the United States did reduce the number of nuclear weapons deployed in Europe and the number of facilities that house those weapons during the George W. Bush Administration. Some reports indicate that the weapons were withdrawn from Greece and Ramstein Air Base in Germany between 2001 and 2005. In addition reports indicate that the United States also withdrew its nuclear weapons from the RAF Lakenheath air base in the United Kingdom in 2006.⁵²² According to a recent unclassified report, the United States now deploys 160-200 bombs at six bases in Belgium, Germany, Italy, the Netherlands, and Turkey. Some of these weapons are stored at U.S. bases and would be delivered by U.S. aircraft. Others are stored at bases operated by the “host nation” and would be delivered by that nation’s aircraft if NATO decided to employ nuclear weapons.

The Obama Administration has not announced any further reductions to U.S. nuclear weapons in Europe and has indicated that the United States would “consult with our allies regarding the future basing of nuclear weapons in Europe.” In the months prior to the completion of NATO’s new Strategic Concept, some politicians in some European nations did propose that the United States withdraw these weapons. For example, Guido Westerwelle, Germany’s foreign minister, stated that he supported the withdrawal of U.S. nuclear weapons from Germany. Some reports indicate that Belgium and the Netherlands also supported this goal.... As was noted above, NATO did not call for the removal of these weapons in its new Strategic Concept, but did indicate that it would be open to reducing them as a result of arms control negotiations with Russia.

Moreover, in the 2010 NPR, the Obama Administration indicated that it would take the steps necessary to maintain the capability to deploy U.S. nuclear weapons in Europe. It indicated that the U.S. Air Force would retain the capability to deliver both nuclear and conventional weapons as it replaced aging F-16 aircraft with the new F-35 Joint Strike Fighter. The NPR also indicated that the United States would conduct a “full scope” life extension program for the B61 bomb, the weapon that is currently deployed in Europe, “to ensure its functionality with the F-35.” This life extension program will consolidate four versions of the B61 bomb, including the B61-3 and B61-4 that are currently deployed in Europe, into one version, the B61-12. Reports indicate that this new version will reuse the nuclear components of the older bombs, but will include enhanced safety and security features and a new “tail kit” that will increase the accuracy of the weapon....

On the other hand, the NPR indicated that the U.S. Navy would retire its nuclear-armed, sea-launched cruise missiles (TLAM-N). It indicated that “this system serves a redundant purpose in the U.S. nuclear stockpile” because it is one of several weapons the United States could deploy forward. The NPR also noted that, “U.S. ICBMs and SLBMs are capable of striking any potential adversary.” As a result, because “the deterrence and assurance roles of TLAM-N can be adequately substituted by these other means,” the United States could continue to extend deterrence and provide assurance to its allies in Asia without maintaining the capability to redeploy TLAM-N missiles....

The US remains committed to civil nuclear programs as well. It has 104 nuclear power reactors producing approximately 20% of US energy needs and is considering the construction of 28 further reactors.⁵²²

The documents submitted with the US proposed FY2014 budget describe several other current US plans for strategic forces, deterrence, and defense. It is not clear how they will affect the future US stockpile of nuclear weapons, but they do reflect both budget cutbacks and ongoing improvements in other areas:⁵²³

The Department will maintain a strong nuclear deterrence posture in the face of all potential threats, including developments in North Korea and risks from Iran. We are also committed to providing effective missile defense and maintaining a safe, secure, and effective nuclear arsenal. Despite budget pressures, DoD has ensured robust funding for these mission areas, making investments and taking actions to ensure the U.S. remains ahead of threat developments, including:

- Refocusing technologically advanced systems unlikely to be fielded quickly towards tech development activities to reduce risk and cost but that will field later (SM-3 IIB)
- Cancelling expensive surveillance systems and reinvesting in achievable, near-term upgrades to ground based radars (PTSS)
- Adding to national hedge against ballistic missile attack from rogue states (GBIs)
- Partnering with the National Nuclear Security Agency (NNSA) to assess the true requirements of the nuclear stockpile and associated infrastructure.

SM-3 IIB.

The SM-3 IIB missile defense interceptor was previously planned to be based in Europe and provide an additional capability to defend the U.S. from ballistic missile attack. Given the advancing threat posed by North Korea in particular, the DoD assessed that the SM-3 IIB would be late to need and therefore restructured the program by reinvesting the funds into advanced interceptor technology development to include a common kill vehicle, and other enabling programs. The restructuring also funds the increased number of Ground Based Interceptors (GBIs), from 30 to 44. The SM-3 IIB program would have provided an expensive niche capability while homeland defense gaps widen. Changing the investment strategy to advanced technology development and additional deployment of GBIs will better address current and future threat challenges.

Precision Tracking Space Sensor.

PTSS was intended to be a constellation of satellites to track medium and intermediate range ballistic missiles as well as intercontinental ballistic missiles. A review of the program found significant cost growth, schedule concurrency, technical risk, and utility concerns. Therefore, DoD terminated the PTSS program and reinvested some of the savings in evolutionary upgrades to existing systems. Reinvesting PTSS funds addresses key sensor gaps, including discrimination, raid size, and coverage. These investments provide upgrades to existing radars and strengthen operational support of missile defense systems.

Ground Based Interceptors. GBIs are missile interceptors based in Alaska and California, intended to defend the U.S. from limited ballistic missile attack. Restructure of the SM-3 IIB program allowed for additional buys of 14 GBIs and corresponding refurbishment of the Alaskan missile field at Fort Greely. This restructure decision was driven by increased concerns and intelligence regarding the current threat environment. The increase in GBIs closes the near-term gap between our defense capabilities and threat intelligence projections.

Partnering with the Department of Energy.

In addition to missile defense, DoD partnered with the Department of Energy's National Nuclear Security Agency to assess nuclear stockpile and infrastructure requirements. As an outcome, the DoD and DoE better postured the nation to ensure an executable, safe nuclear weapons program for years to come by:

- Funding maintenance, upgrades, and replacements for aging nuclear infrastructure.
- Finding cost-effective approaches to extending the life of our nuclear arsenal without compromising safety, security, or effectiveness.
- Robustly funding a broad array of non-proliferation projects to reduce global nuclear dangers.
- Restructuring efforts for disposition of excess plutonium on a path to ensure efforts are both effective and fiscally responsible.
- Initiating efforts to gain numerous efficiencies across the enterprise.

However, as regards its nuclear forces, the US has long focused on Russia, paying little attention to Chinese nuclear forces. The US has also begun to promote significant nuclear weapons reductions. President Obama declared in April 2009 that the US was committed to the long-term goal of zero nuclear weapons, and there has been a unilateral Congressional moratorium on nuclear tests since 1992. Although the 2001 Nuclear Posture Review suggested that the US might

develop new types of nuclear weapons, the 2010 Nuclear Posture Review reversed course. The new posture is that nuclear weapons research will only involve components based on previous designs, not new capabilities or missions.

After the 2010 Review and the ratification of the new START Treaty, President Obama directed the Departments of State, Energy, Defense, and the intelligence community to analyze US nuclear deterrence requirements and policy in the current security environment. A White House fact sheet released on June 19, 2013 described Obama's new guidance on nuclear employment planning, force structure, and posture decisions, which:⁵²⁴

- affirms that the United States will maintain a credible deterrent, capable of convincing any potential adversary that the adverse consequences of attacking the United States or our allies and partners far outweigh any potential benefit they may seek to gain through an attack.
- directs DOD to align U.S. defense guidance and military plans with the policies of the NPR, including that the United States will only consider the use of nuclear weapons in extreme circumstances to defend the vital interests of the United States or its allies and partners. The guidance narrows U.S. nuclear strategy to focus on only those objectives and missions that are necessary for deterrence in the 21st century. In so doing, the guidance takes further steps toward reducing the role of nuclear weapons in our security strategy.
- directs DOD to strengthen non-nuclear capabilities and reduce the role of nuclear weapons in deterring non-nuclear attacks.
- directs DOD to examine and reduce the role of launch under attack in contingency planning, recognizing that the potential for a surprise, disarming nuclear attack is exceedingly remote. While the United States will retain a launch under attack capability, DOD will focus planning on the more likely 21st century contingencies.
- codifies an alternative approach to hedging against technical or geopolitical risk, which will lead to more effective management of the nuclear weapons stockpile.
- reaffirms that as long as nuclear weapons exist, the United States will maintain a safe, secure and effective arsenal that guarantees the defense of the U.S. and our allies and partners. The President has supported significant investments to modernize the nuclear enterprise and maintain a safe, secure, and effective arsenal. The administration will continue seeking congressional funding support for the enterprise.

The DoD's June 12, 2013 *Report on Nuclear Employment Strategy of the United States Specified in Section 491 of 10 U.S.C.* referenced China directly, making clear that the US will continue to seek maintenance of strategic stability with China and Russia:⁵²⁵

While addressing the increasingly urgent threats of nuclear terrorism and proliferation, the United States must continue to address the more familiar challenge of ensuring strategic stability with Russia and China....

The United States is concerned about many aspects of China's conventional military modernization efforts and is watching closely the modernization and growth of China's nuclear arsenal. The lack of transparency surrounding its nuclear programs, specifically their pace and scope, as well as the strategy and doctrine that guides them, raises questions about China's long-term intentions.

The United States remains committed to maintaining strategic stability in U.S.-China relations and supports initiation of a dialogue on nuclear affairs aimed at fostering a more stable, resilient, and transparent security relationship with China.

.... The new guidance states that the United States will maintain a nuclear Triad, consisting of intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs), and nuclear-capable heavy bombers. Retaining all three triad legs will best maintain strategic stability at reasonable cost, while hedging against potential technical problems or vulnerabilities. These forces should be operated on a

day-to-day basis in a manner that maintains strategic stability with Russia and China, deters potential regional adversaries, and assures U.S. Allies and partners....

Russian President Putin and President Obama discussed non-proliferation at the June 2013 G8 summit, and Obama gave a public speech on the issue on a June 19 visit to Germany, calling for reductions in strategic nuclear weapons stockpiles of one-third.⁵²⁶ While concentrating on Russia and the European theatre, it seems that China was not mentioned once.

North and South Korea

The official view of the US intelligence community is that North Korea has not yet been successful in obtaining high yields from its fission devices. Its initial tests produced only very low yields. The third test on February 12, 2013 seems to have produced a yield of only “several kilotons” to 6-7 kilotons, versus 12-20 kilotons for the first US weapons.⁵²⁷ This would present serious problems for the regime in terms of targeting anything but city-sized targets, especially any capacity to hit targets at long missile ranges, given the combined uncertainties surrounding the reliability of both the warhead and North Korean missiles, as well as the reliability and accuracy of North Korean systems overall.

North Korea may not have the ability to build small warheads and bombs – although this seems to be a subject of dispute within the US intelligence community and outside experts; for instance, ISIS estimates that, “it should not come as a surprise to the international community that North Korea may now have the capability to explode a miniaturized nuclear device.”⁵²⁸

ISIS (and key members of the US intelligence community) have assessed for some time that North Korea likely has the capability to miniaturize a nuclear weapon for its 800-mile range *Nodong* missile, although more information is needed to make a sound assessment. ISIS has also argued that North Korea still lacks the ability to deploy a warhead on an ICBM, though it shows progress at this effort. North Korea would need to conduct missile flight tests with a re-entry vehicle and mock warhead, increase the explosive yield of the warhead, possibly requiring its further miniaturization, and improve the operational reliability of the warhead and missile.”⁵²⁹

It seems clear that North Korea does not have boosted or thermonuclear weapons production capabilities, but there is no way to predict when or if it might acquire these. Again, ISIS estimates that, “North Korea does not appear to have detonated a more sophisticated nuclear device, such as a thermonuclear device. Before the test, concern was expressed by some analysts that North Korea could test a more advanced nuclear weapon. The data from this test so far indicate that this is not the case. One important question is whether the nuclear test used only plutonium or involved highly enriched uranium either alone or in combination with plutonium.”⁵³⁰

There is no clear way to estimate North Korea’s stocks of plutonium. ISIS has estimated that, “North Korea had produced a total plutonium stockpile of between 46 and 64 kilograms, of which 28-50 kilograms could be in separated form and usable in nuclear weapons.” This estimate was made in 2007, after the North’s first nuclear test. There have since been two other tests, illustrating the difficulty in making such estimates.⁵³¹ Current estimates may or may not take account North Korea’s third test, but give estimates of enough plutonium to make up to six weapons.^{532, 533}

North Korea has publically stated that it is refueling its 5 MWe reactor at Yongbyon and is building a new 50-100 MWe there as well as a 200 MWe reactor at Taechon.⁵³⁴ It displayed a large centrifuge facility at Yongbyon in 2010 that could give it uranium fissile material for its weapons as well as fuel its reactors to make more plutonium. However, experts indicate the

capacity of this facility is still limited: "...North Korea announced on April 2 that it would restart its nuclear facilities, including its 5-megawatt nuclear reactor in Yongbyon, north of the capital, which had been disabled and mothballed since an agreement in October 2007. North Korea's nuclear arsenal is severely limited by a lack of fissile materials – plutonium or highly enriched uranium (HEU) – to fuel its bombs. Despite its recent threats, North Korea does not yet have much of a nuclear arsenal because it lacks fissile materials and has limited nuclear testing experience."⁵³⁵

In the long term, it is important that North Korea does not produce more fissile materials and does not conduct more nuclear tests; otherwise it would pose a much more serious threat. The Kim Jong-un regime has already threatened to conduct more tests, this announcement indicates that they are going to make more bomb fuel, which they also need to conduct more nuclear tests.⁵³⁶

North Korea has deployed its own version of the *Scud B* with a nominal range of 186 miles and *Scud C* with a range of 310 miles. It has four longer-range systems in development that include the *Nodong* (620 miles?), *Taepodong-1* (900+ miles), *Musudan* (1,680-2,100 miles), and *Taepodong-2* (2,500-3,700 miles).⁵³⁷

A recent CRS analysis notes that,⁵³⁸

A DNI report to Congress says that 'North Korea has short and medium range missiles that could be fitted with nuclear weapons, but we do not know whether it has in fact done so.' North Korea has several hundred short-range Scud-class and medium-range No-Dong-class ballistic missiles, and is developing an intermediate range ballistic missile. The Taepo-Dong-2 that was tested unsuccessfully in July 2006 would be able to reach the continental United States if it becomes operational. DNI assessed in 2008 that the Taepo-Dong-2 has the potential capability to deliver a nuclear-weapon-sized payload to the United States, but that absent successful testing the likelihood of this is low. A launch of a Taepo-Dong-2 missile as part of a failed satellite launch in April 2009 traveled further than earlier unsuccessful launches but still did not achieve a complete test. An April 2012 launch of a Taepo-Dong-2 (called the Unha-3 by North Korea) also failed in the first stage. The December 2012 launch of a Taepo-Dong-2 (Unha-3) was North Korea's first successful launch of a satellite into space. However, putting a satellite into orbit, while moving North Korea technically to its goal, does not translate into a reliable missile. Further testing would be required.

North Korea has already threatened nuclear strikes on the US even though it lacks a credible capability to launch them and makes no secret of the nuclear threat it poses to its neighbors. North Korea also seems set on a course in which it will steadily deploy nuclear-armed missiles and aircraft with progressively longer ranges, higher yields, and more accuracy and reliability over time. It will exploit any failure to match these forces, and there is no clear way to estimate how a mature and survivable nuclear force would affect North Korean uses of force at lower levels or its perceptions of risk.

There is no way China or the US can calculate North Korea's willingness to take nuclear risks, though the fact its threats and strategic rhetoric are extreme does not mean its actions will be. However, that it remains the only power that openly threatens nuclear war and whose strategic leadership is openly uncertain enough to raise serious questions about its judgment and restraint.

US options are limited by the fact that North Korea has a powerful – if cautious and sometimes restraining – protector in China. It is far harder for the US to talk about preventive strikes after the fact and in the face of Chinese desire to keep a buffer state between it and the US. In addition, US options are affected by the fact that any deployment of US nuclear forces or extended deterrence that focuses on North Korea will be seen by China as a potential threat.

At the same time, the US faces the reality that the risks of a growing North Korean nuclear force – coupled with a large stock of chemically-armed bombs and missiles and possible biological weapons – mean it cannot simply let a key ally like South Korea bear a one-sided threat or leave Japan in the position where it, too, has no balancing force. While arms control options are not impossible, it is also all too clear that they offer only a limited chance of success. Accordingly, North Korea seems to be a nuclear wildcard that both the US and China will have to live with indefinitely into the future, though recently China has announced, along with both the US and South Korea, on separate occasions, itself in favor of a denuclearized North Korea and a resumption of disarmament negotiations.

India and Pakistan

North Korea is not the only regional nuclear power that can be a wild card in China's military development and that needs to be considered in any US and Chinese dialogue or negotiations on nuclear weapons. South Korea, Japan, and Iran are all potential nuclear forces. More importantly China faces current potential nuclear threats from India and must consider the risk Pakistan might lose control of some of its nuclear weapons.

At present, both countries continue to build up their nuclear-armed missile forces and stockpiles of nuclear weapons. While unclassified estimates are very uncertain and differ greatly in detail, an Open Briefing report on Indian nuclear forces drawing on material published in the Bulletin of the Atomic Scientists noted that India continued to improve the nuclear strike capabilities of its combat aircraft and develop sea-based ballistic and cruise missiles, and that its nuclear weapons stocks and missiles could be summarized as follows:⁵³⁹

India is estimated to have produced approximately 520 kilograms of weapons-grade plutonium (IPFM, 2011), sufficient for 100–130 nuclear warheads; however, not all of the material has been converted into warheads. Based on available information about its nuclear-capable delivery vehicles, we estimate that India has produced 80–100 nuclear warheads. It will need more warheads to arm the new missiles it is currently developing. In addition to the Dhruva plutonium production reactor near Mumbai, India plans to construct a second reactor near Visakhapatnam, on the east coast. India is building an unsafeguarded prototype fast-breeder reactor at the Indira Gandhi Centre for Atomic Research near Kalpakkam (about 1,000 kilometers or 620 miles south of Visakhapatnam), which will significantly increase India's plutonium production capacity once it becomes operational.

... India has three types of land-based missiles that may be operational: the short-range Prithvi I, the short-range Agni I, and the medium-range Agni II. The Prithvi I has been deployed for almost 15 years, but the Agni I and II, despite being declared operational, both have reliability issues that have delayed their full operational service.

India has been busy growing its missile program, with four more Agni versions in progress: an Agni II+ was test-launched in 2010 but failed; the longer-range Agni III, after at least four flight-tests, remains under development; and the Agni IV may be a technology bridge to the newest type, the long-range Agni V, which had its first test-launch in April. Some of these Agni programs may serve as technology-development platforms for longer-range versions.

The bulk of the Indian ballistic missile force is comprised of three versions of Prithvi missiles, but only one of these versions, the army's Prithvi I, has a nuclear role. Given its small size (9 meters long and 1 meter in diameter), the Prithvi I is difficult to spot on satellite images, and therefore little is known about its deployment locations. The Prithvi I is a short-range missile (up to 150 kilometers or 93 miles) and is the mainstay of the Strategic Forces Command, India's designated nuclear weapons service.

In December 2011, India successfully test-launched its two-stage Agni I missile, which has a range of 700 kilometers (435 miles), for the eighth time—suggesting that the missile might finally have become fully operational. But a ninth test-launch scheduled for early May 2012 was postponed due to a technical glitch.

The road- or rail-launched Agni II, an improvement on the Agni I, can fly up to 2,000 kilometers (1,243 miles) and can carry a 1,000-kilogram payload, and it takes just 15 minutes for the missile to be readied for firing. The missile has been test-fired eight times with several failures, but more recent test-flights, on May 19, 2010 and September 30, 2011, were successful, demonstrating some progress toward making the Agni II fully operational. A 2010 test-launch of an extended-range Agni II, known as the Agni II+, failed.

Still under development is India's rail-mobile Agni III, a two-stage, solid-fuel missile with a range of more than 3,000 kilometers (1,864 miles). . . . India took a significant step forward with the successful test-launch of the Agni V ballistic missile on April 19, 2012. With a range reportedly greater than 5,000 kilometers (3,107 miles), the Agni V can reach any target in China; however, the missile needs more testing and is still several years away from operational deployment.

A slightly more dated article in the *Bulletin of Atomic Scientists* describes Pakistan's nuclear program as including its F-16 fighters and the following nuclear and missile capabilities:⁵⁴⁰

Pakistan is building two new plutonium production reactors and a new reprocessing facility with which it will be able to fabricate more nuclear weapons fuel. It is also developing new delivery systems. Enhancements to Pakistan's nuclear forces include a new nuclear-capable medium-range ballistic missile (MRBM), the development of two new nuclear-capable short-range ballistic missiles, and the development of two new nuclear-capable cruise missiles.

We estimate that Pakistan has a nuclear weapons stockpile of 90–110 nuclear warheads, an increase from the estimated 70–90 warheads in 2009 (Norris and Kristensen, 2009). The US Defense Intelligence Agency projected in 1999 that by 2020 Pakistan would have 60–80 warheads (Defense Intelligence Agency, 1999); Pakistan appears to have reached that level in 2006 or 2007 (Norris and Kristensen, 2007), more than a decade ahead of predictions. In January 2011, our estimate (DeYoung, 2011) of Pakistan's stockpile was confirmed in the *New York Times* by "officials and outsiders familiar with the American assessment," who said that the official US estimate for "deployed weapons" ranged from the mid-90s to more than 110 (Sanger and Schmitt, 2011).¹ With four new delivery systems and two plutonium production reactors under development, however, the rate of Pakistan's stockpile growth may even increase over the next 10 years.

The Pakistani government has not defined the number and type of nuclear weapons that its minimum deterrent requires. But Pakistan's pace of nuclear modernization—and its development of several short-range delivery systems—indicates that its nuclear posture has entered an important new phase and that a public explanation is overdue.

...Pakistan has three operational nuclear-capable ballistic missiles: the short-range Ghaznavi (Hatf-3) and Shaheen-1 (Hatf-4) and the medium-range Ghaury (Hatf-5). It has at least three other nuclear-capable ballistic missiles under development: the medium-range Shaheen-2 (Hatf-6), which may soon be operational, and the short-range Abdali (Hatf-2) and Nasr (Hatf-9) systems.

... Pakistan is developing two new cruise missiles, the Babur (Hatf-7) and Ra'ad (Hatf-8), and it uses similar language to describe both missiles. According to the ISPR, the Babur and Ra'ad both have "stealth capabilities" and "pinpoint accuracy," and each is described as "a low-altitude, terrain-hugging missile with high maneuverability"

One has to assume that there should be a high level of rational restraint and deterrence, but both states have a history of overreaction, nationalism, and failure to demonstrate stability and restraint in arms control. More broadly, historical precedent, particularly over the 20th century, does not make a strong case for behavior based on rational bargaining.

Finally, it is important to note that North Korea also has extensive stocks of chemical weapons and that many powers in the region can now develop and produce advanced nerve agents and biological weapons.

So far, China has shown only limited overt concern about the risks posed by regional nuclear weapons and proliferation, but almost certainly sees these risks as all too real and thus sizes and deploys its forces accordingly.

China's Evolving Nuclear Forces

China is one of the five nuclear weapons states acknowledged in the Nuclear Non-Proliferation Treaty (NPT). China's first nuclear test occurred in 1964. Since then, China has conducted 45 nuclear tests, including thermonuclear weapons and a neutron bomb.⁵⁴¹ It has also become a party to the Comprehensive Test Ban Treaty, the Biological and Toxin Weapons Convention, and the Chemical Weapons Convention.

Until at least 2010, China maintained a no-first-use policy. China's 2008 Defense White Paper stated that,⁵⁴²

The Second Artillery Force is a strategic force under the direct command and control of the CMC, and the core force of China for strategic deterrence. It is mainly responsible for deterring other countries from using nuclear weapons against China, and for conducting nuclear counterattacks and precision strikes with conventional missiles.

The Second Artillery Force sticks to China's policy of no first use of nuclear weapons, implements a self-defensive nuclear strategy, strictly follows the orders of the CMC, and takes it as its fundamental mission the protection of China from any nuclear attack. In peacetime the nuclear missile weapons of the Second Artillery Force are not aimed at any country. But if China comes under a nuclear threat, the nuclear missile force of the Second Artillery Force will go into a state of alert, and get ready for a nuclear counterattack to deter the enemy from using nuclear weapons against China.

If China comes under a nuclear attack, the nuclear missile force of the Second Artillery Force will use nuclear missiles to launch a resolute counterattack against the enemy either independently or together with the nuclear forces of other services. The conventional missile force of the Second Artillery Force is charged mainly with the task of conducting medium- and long-range precision strikes against key strategic and operational targets of the enemy.

Similarly, China's 2010 White Paper argued that,⁵⁴³

China has never evaded its obligations in nuclear disarmament and pursues an open, transparent and responsible nuclear policy. It has adhered to the policy of no-first-use of nuclear weapons at any time and in any circumstances, and made the unequivocal commitment that under no circumstances will it use or threaten to use nuclear weapons against non-nuclear-weapon states or nuclear-weapon-free zones. China has never deployed nuclear weapons in foreign territory and has always exercised the utmost restraint in the development of nuclear weapons, and has never participated in any form of nuclear arms race, nor will it ever do so. It will limit its nuclear capabilities to the minimum level required for national security

China's 2013 Defense White Paper did not address these issues. China is, however, in the process of a major modernization of its nuclear-armed missile forces and is developing a "stealth" strike aircraft – the J-20. It is also now MIRVing its nuclear systems. As a result, the US DoD report on Chinese military power for 2013 provided the following analysis of how these developments interact with China's no first use policy.⁵⁴⁴

China's official policy on nuclear weapons continues to focus on maintaining a nuclear force structure able to survive an attack and respond with sufficient strength to inflict unacceptable damage on an enemy. The new generation of mobile missiles, with warheads consisting of MIRVs and penetration aids, are intended to ensure the viability of China's strategic deterrent in the face of continued advances in U.S. and, to a lesser extent, Russian strategic intelligence, surveillance, and reconnaissance (ISR), precision strike, and missile defense capabilities. The PLA has deployed new command, control, and communications capabilities to its nuclear forces. These capabilities improve the Second Artillery's ability to command and control multiple units in the field. Through the use of improved communications links, the ICBM units now have better access to battlefield information, uninterrupted communications connecting all command echelons, and the unit commanders are able to issue orders to multiple subordinates at once, instead of serially via voice commands.

China has consistently asserted that it adheres to a “no first use” (NFU) policy, stating it would use nuclear forces only in response to a nuclear strike against China. China’s NFU pledge consists of two stated commitments: China will never use nuclear weapons first against any nuclear-weapon state, and China will never use or threaten to use nuclear weapons against any non-nuclear-weapon state or nuclear-weapon-free zone. However, there is some ambiguity over the conditions under which China’s NFU policy would apply, including whether strikes on what China considers its own territory, demonstration strikes, or high-altitude bursts would constitute a first use. Moreover, some PLA officers have written publicly of the need to spell out conditions under which China might need to use nuclear weapons first; for example, if an enemy’s conventional attack threatened the survival of China’s nuclear force or of the regime itself. However, there has been no indication that national leaders are willing to attach such nuances and caveats to China’s NFU doctrine.

China will likely continue to invest considerable resources to maintain a limited, but survivable, nuclear force (sometimes described as “sufficient and effective”), to ensure the PLA can deliver a damaging retaliatory nuclear strike.

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Estimates of Chinese nuclear forces differ by source, as has been seen in **Figure 11.2**. An estimate by the Nuclear Threat Initiative (NTI) estimated that China has approximately 130-195 deployed nuclear-capable ballistic missiles. It also appears that their XIA- and JIN-class ballistic missile submarines are able to be deployed, while the associated JL-1 and JL-2 systems are not yet ready.⁵⁴⁵ The NTI describes the Chinese nuclear-armed forces as follows:⁵⁴⁶

In its... (2011) Annual Report to Congress on the Military and Security Developments of the People’s Republic of China, the U.S. Department of Defense noted that “China is both qualitatively and quantitatively improving its strategic missile forces.”...The report stated that China’s nuclear capable missile arsenal consists of a total of 55-65 intercontinental ballistic missiles (ICBMs), including: silo-based, liquid-fueled DF-5 (CSS-4) ICBMs; solid-fueled, road-mobile DF-31 (CSS 10 Mod-1) and DF-31A (CSS-10 Mod 2) ICBMs; limited-range CSS-3 ICBMs; and liquid-fueled CSS-2 intermediate-range ballistic missiles; DF-

21 (CSS-5) road-mobile, solid-fueled MRBMs; and JL-1 submarine-launched ballistic missiles (SLBM) for China's single XIA-class SSBN.

China also possesses DF-15 (CSS-6) and 700-750 DF-11 (CSS-7) short-range ballistic missiles (SRBMs), though China maintains significantly fewer launchers, and 200-500 DH-10 (a cruise missile thought to be able to support a nuclear payload). The Department of Defense assesses that all Chinese SRBMs are deployed near Taiwan. Most recently, China has developed the long-range DF-31 and DF-31A ICBMs. The 2011 report assessed that while the JIN-class submarine appeared ready, its accompanying JL-2 SLBM system had failed several flight tests and remained in the development stage. It is currently uncertain when the JIN/JL-2 combination will become fully operational....

There is an ongoing effort to shift from liquid-fueled missiles to solid-fueled ones which, among other advantages, can be launched more rapidly...China has also continued to develop new missile launch sites and underground storage facilities in remote inland regions, including the Gobi Desert and the Tibetan highlands. As there is no evidence of long-range missiles being deployed to these new locations, the launch sites appear to be intended primarily as forward bases for potential launches against Russia and India.

Even as it continues to develop its arsenal, however, China has also slowly moved towards increased openness in its willingness to share a limited amount of deployment information and strategy. For example, the 2010 China Defense White Paper details Beijing's no-first-use policy and roughly outlines several stages of nuclear alert. The paper states that "nuclear-weapon states should negotiate and conclude a treaty on no-first-use of nuclear weapons against each other." The White Paper also states China's "unequivocal commitment that under no circumstances will it use or threaten to use nuclear weapons against non-nuclear-weapon states or nuclear-weapon-free zones."...

...China's 1996 signing of the CTBT was the latest in a series of policy shifts on nuclear nonproliferation issues. In fact, it was during the 1980s that China's position on nuclear proliferation first started to change. Since the 1960s, Beijing had criticized the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) as imbalanced and discriminatory, but by the 1980s the country had also indicated that it accepted in principle the norm of nuclear nonproliferation ...

In August 1991, shortly after France acceded to the NPT, China also declared its intention to join, though it again expressed its reservations about the treaty's discriminatory nature...China formally acceded to the NPT in March 1992, as a nuclear weapon state. In its statement of accession, the Chinese government called on all nuclear weapon states to issue unconditional no-first-use pledges, to provide negative and positive security assurances to non-nuclear weapon states, to support the development of nuclear weapon-free zones, to withdraw all nuclear weapons deployed outside of their national territories, and to halt the arms race in outer space. Since its accession, China has praised the NPT's role in preventing the proliferation of nuclear weapons, and also supported the decision to indefinitely extend the NPT at the 1995 Review and Extension Conference...

However, China has continued to state that it views nonproliferation not as an end in itself, but rather as a means to the ultimate objective of the complete prohibition and thorough destruction of nuclear weapons. Despite this, China was embroiled in nuclear proliferation scandals throughout the late 1980's and early 1990's, particularly with respect to its sale of ring magnets to Pakistan in 1995.. China provided Pakistan with a nuclear bomb design (used in China's October 1966 nuclear test). These designs were later passed to Libya by the A.Q. Khan network, and discovered by IAEA inspectors in 2004 after then President Muammar Qadhafi renounced his nuclear weapons program and allowed inspectors to examine related facilities.

The plans contained portions of Chinese text with explicit instructions for the manufacture of an implosion device....In the late 1990s, the U.S. Congress formed the Select Committee on U.S. National Security and Military-Commercial Concerns with China (also known as the Cox Committee). According to the Cox Committee Report, China engaged in an active espionage program and stole several nuclear bomb designs as early as the late 1970s. Designs compromised include the United States' then-most advanced W-88 warhead and a design for an enhanced radiation weapon (neutron bomb). However, the Cox Report has been severely criticized by both experts and officials in the United States and China as a political document that has several technical inaccuracies...

...There is much speculation that China's nuclear modernization program may be geared toward developing the capacity to move from a strategy of minimum deterrence to one of limited deterrence. Under a "limited

deterrence” doctrine, China would need to target nuclear forces in addition to cities, which would require expanded deployments. However, such a limited deterrence capability may still be a long way off. According to Alastair Johnston, “...is fairly safe to say that Chinese capabilities come nowhere near the level required by the concept of limited deterrence.”...

Meanwhile, tensions between China and Taiwan have declined, and in the wake of Japan’s 2011 nuclear crisis, China and Taiwan are taking concrete measures to cooperate on nuclear safety issues. Such cross-strait cooperation includes establishing a formal nuclear safety agreement and an official contact mechanism between the two sides, which will be used to facilitate information exchanges and emergency responses in case of an accident...

While China’s decreased threat perception may not slow its nuclear modernization efforts, which are seen simply as representing the replacement of obsolete equipment, it does have the potential to slow acquisitions in key areas — for example, the buildup of short-range missiles. If sustained, the shift may also make both sides more amenable to nonproliferation efforts such as ratification of the Comprehensive Nuclear Test Ban Treaty.

Chinese Nuclear Strategy

Since the Mao era, the Chinese have seen nuclear weapons as important but ultimately of limited use. This philosophy is reflected in recent force structure changes in the SAF, where conventional missiles make up the bulk of China’s ballistic missile forces and have grown dramatically faster than nuclear forces. However, nuclear weapons have by no means become unimportant. China is in a heavily nuclearized part of the world, with two countries that have nuclear arsenals that number thousands of warheads. Deterring nuclear attack and coercion under threat of nuclear attack is the primary goal of China’s nuclear forces.

Characterizing the doctrine that China’s nuclear forces operate under has been the subject of much discussion. Some characterize China’s nuclear forces as small and operating under the concept of minimum deterrence, similar to France and Great Britain. However, the Chinese do not feel that their nuclear forces are secure. Their Jin-class SSBNs are very new and are presumably not very quiet. Land based missiles are detached from warheads when in storage, and missile units consist of a large group of ground vehicles and helicopters when on the move.⁵⁴⁷

Assured retaliation and uncertainty better describe Chinese thinking nuclear strategy. Assured retaliation states that China can be certain that a significant portion of their nuclear forces will survive a nuclear first strike in order to launch a second-strike. This second-strike only has to be large enough to inflict a degree of damage that the enemy sees as unacceptable.⁵⁴⁸ The concept of uncertainty helps achieve the “assured” portion of the assured retaliation doctrine. Uncertainty in this context points to an enemy not confident in its ability to significantly damage or destroy China’s nuclear arsenal. Not disclosing the size of the nuclear arsenal, mobility, hardening, and tunneling, all contribute to uncertainty.⁵⁴⁹

Recent advances in ballistic missile defense (BMD) have raised concerns in China that they may threaten assured retaliation and uncertainty. If BMD system are made effective, assured retaliation will depend not only on nuclear weapons surviving a first-strike but also on warheads penetrating missile defenses and reaching their targets. Likewise, Chinese nuclear weapons must develop in a way such that an enemy cannot be certain that its missile defenses can minimize damage to an acceptable level or destroy all oncoming warheads.

Although ballistic missile defense systems are still under development and can now be saturated and overwhelmed, Chinese strategists have been forming their analyses based on a worst-case scenario where BMD systems are very effective. Even if some BMD systems were to be curtailed

or even scrapped, Chinese analysts tend to believe that an American defense project never truly ends.⁵⁵⁰ Consequently, considering the effects of BMD systems on their own nuclear strategy will be a fixture in Chinese nuclear strategists thinking for the foreseeable future.

Perceived threats to Chinese nuclear strategy by programs like national missile defense (NMD) and prompt global strike (PGS) have led to debates within China about whether or not to add caveats to the NFU policy or even scrap it altogether. Western analysts began debating the status of China's NFU policy especially after Philip Karber released his report on the extensive tunnel systems that the SAF uses to store, hide, and protect its nuclear weapons.⁵⁵¹ Chinese officials have grudgingly admitted that such debates have taken place, but have decided that it was in China's best interest to maintain the NFU.⁵⁵²

The US repeatedly calls for China to be more transparent regarding its nuclear forces. However, it is unlikely that China will cooperate in this regard unless China fundamentally changes its nuclear strategy. Considering the importance of uncertainty in China's nuclear strategy, disclosure of the size, location, and capabilities of its nuclear forces would degrade uncertainty. If China does only have a few hundred nuclear weapons, then the small size of its nuclear deterrent would reinforce the need to be secretive in order to preserve uncertainty. China's reactions to ballistic missile defense reflect this stance as well. While Chinese strategists are concerned about the capabilities of anti-ballistic missile systems, they are even more concerned about C4ISR systems that can be used to gather information about the size, location, and capabilities of China's nuclear weapons and ballistic missiles.⁵⁵³

Chinese Biological and Chemical Weapons

While China is a party to many of the international agreements regulating biological weapons, past US government reports have alleged that China maintains a small offensive weapons program and has engaged in proliferation of related items to countries such as Iran. There have also historically been concerns in the US about Chinese will to enforce export controls on dual use items, but the State Department concluded in 2011 that there were no compliance issues raised between the two.

In ratifying the Chemical Weapons Convention in 1997, China declared three former production facilities. While the US has doubted that China was fully declaring its previous and current activities in this area, the US reported most of its concerns resolved in 2011.⁵⁵⁴

Role of Chinese Tunnel Facilities

The PLA has also been building underground tunnels to protect and conceal its key assets since the early 1950s; the underground tunnel network reportedly stretches for over 5,000 km.⁵⁵⁵ Experts like Phillip Karber note their value in terms of both missile deployments and the potential ability to stockpile much larger numbers of nuclear weapons than are normally estimated to be in China's forces.⁵⁵⁶

While the US DoD sees the tunnel network as a defensive asset, the 2014 DoD report also acknowledges the role PLA underground facilities can play in denial and deception:⁵⁵⁷

China maintains a technologically advanced underground facility (UGF) program protecting all aspects of its military forces, including command and control, logistics, and missile and naval forces. Given China's NFU nuclear policy, China has assumed it might have to absorb an initial nuclear blow while ensuring leadership and strategic assets survive.

China determined it needed to update and expand its military UGF program in the mid- to late-1980s. This modernization effort took on a renewed urgency following China's observation of U.S. and NATO air operations during the 1991 Gulf War, as well as air operations during OPERATION ALLIED FORCE in Kosovo in 1999. A new emphasis on "winning high tech battles" in the future precipitated research into advanced tunneling and construction methods. These military campaigns convinced China it needed to build more survivable, deeply buried facilities, resulting in the widespread UGF construction effort detected throughout China for the last decade.

Denial and Deception

In historical and contemporary PLA texts, Chinese military theorists routinely emphasize the importance of secrecy and deception for both the protection of personnel and infrastructure and the concealment of sensitive military activities. In 2012 and 2013, the Chinese press featured the PLA using a variety of denial and deception (D&D) methods, including camouflage, decoys, and satellite avoidance activities during training events to protect PRC forces from enemy surveillance and targeting. Key D&D principles identified in official PLA monographs include:

- Conforming to what the enemy expects and creating false images that correspond to the target's psychological tendencies and expectations;
- Detailed pre-planning, centralized control, and operational integration to ensure strategic coherence at the political, diplomatic, and economic levels;
- Extensive, current, and sophisticated understanding of enemy psychology, predisposition, capabilities (particularly C4ISR), intentions, and location; and
- Operational flexibility, rapid response, and the ability and willingness to employ new D&D techniques and devices.

Contemporary PLA writings also indicate that the Chinese view D&D as a critical enabler of psychological shock and force multiplication effects during a surprise attack, allowing the PLA to offset the advantages of a technologically superior enemy and to reinforce its military superiority against weaker opponents.

Lieutenant General Michael Flynn, Director of the DIA, also noted the importance of tunnel facilities in protecting nuclear assets and improving denial and deception tactics:⁵⁵⁸

- The use of underground facilities (UGFs) to conceal and protect critical military and other assets and functions is widespread and expanding. UGFs conceal and increase the survivability of weapons of mass destruction, strategic command and control, leadership protection and relocation, military research and development, military production and strategic military assets. A significant trend of concern is the basing of ballistic and cruise missiles and other systems designed for anti-access/area denial weapons directly within UGFs. In addition, Russia, China, Iran, and North Korea operate national-level military denial and deception programs. These four states are devoting increased resources, and particular attention, to improving the denial and deception tactics, techniques, and procedures, for their road-mobile missile and cruise missile forces.

CHAPTER 13: CHINESE MILITARY MODERNIZATION AND THE TAIWAN STRAIT MILITARY BALANCE

Three major flashpoints exist within the Asia-Pacific which many analysts consider especially capable of generating conflict and potentially war: the Korean Peninsula, the Pacific and the South China Sea, and the Taiwan Strait. Due to the many intricacies of the issues involved, this report does not attempt to address all of these flashpoints or their impact on US and Chinese strategic relations.

The Korean military balance in the Northeast Asian strategic environment – including a detailed analysis of Chinese forces and modernization – has already been analyzed in a separate three-volume Burke Chair report.⁵⁵⁹ The issues affecting the South China Sea have been summarized in this report's examination of the PLAN.

There does not seem to be any imminent risk of a US and Chinese military confrontation over the Taiwan Strait. Even so, it is an area of constant tension between the US and China, and it provides a key case study for examining the effects of Chinese military modernization on an existing and continuous military balance.

The US Perspective

Figure 13.1 shows a DoD estimate of the balance of forces in 2013. The *Military and Security Developments Involving the People's Republic of China* report stresses that the PRC and Taiwan are improving their relations and that neither side has shown it is seeking a conflict. At the same time, it describes the current balance as follows:⁵⁶⁰

Dealing with a potential contingency in the Taiwan Strait remains the PLA's primary mission despite an overall reduction of cross-Strait tensions—a trend that continued following the re-election of Taiwan President Ma Ying-Jeou in January 2012. Should conditions change, the PLA could be called upon to compel Taiwan to abandon possible moves toward independence or to re-unify Taiwan with the mainland by force of arms while deterring or defeating any third-party intervention on Taiwan's behalf.

Cross-Strait Stability. In the months following China's 2012-2013 leadership transition, China does not appear to have fundamentally altered its approach to Taiwan. Both sides continue to explore ways to make progress on historically contentious issues. President Xi stated in October 2013 that, "the political divide that exists between the two sides must reach a final resolution step-by-step and cannot be passed from generation to generation." In return, Taiwan President Ma offered an "economics first, politics later" policy for dealing with the mainland, though the Taiwan legislature continues to debate the passage of a Trade in Services agreement with the mainland to further economic cooperation.

Despite occasional signs of impatience, China appears content to respect Taiwan's current approach to cross-Strait relations. In November 2012, China's President Xi sent a message to Taiwan's President Ma – in the latter's capacity as chairman of the ruling Kuomintang Party – emphasizing the need to continue promoting the peaceful development of cross-Strait relations. On February 11, 2014, Taiwan's Mainland Affairs Council Director Wang Yu-Chi and China's Taiwan Affairs Office Director Zhang Zhijun held a historic cross-Strait meeting in Nanjing, addressing each other by their official titles. The meeting focused on opening a cross-Strait communication channel, and the two leaders promised future meetings to discuss a broad range of cross-Strait issues.

.... Security in the Taiwan Strait is largely a function of dynamic interactions between and among mainland China, Taiwan, and the United States. China's strategy toward Taiwan has been influenced by what it sees as positive developments in Taiwan's political situation and approach to engagement with China. The two sides have made progress in expanding cross-Strait trade and economic links and people-to-people contacts. However, China's overall strategy continues to incorporate elements of persuasion and coercion to deter or repress the development of political attitudes in Taiwan favoring independence.

Despite positive public statements about cross-Strait dynamics from top leaders in China following the re-election of Taiwan President Ma Ying-Jeou in 2012, there have been no signs that China's military disposition opposite Taiwan has changed significantly. The PLA has continued to develop and deploy military capabilities to coerce Taiwan or to attempt an invasion, if necessary. In particular, the MISSION ACTION 2013 large-scale joint exercises seen may have been designed to develop the integrated operational capabilities necessary for a cross-Strait invasion of Taiwan. These improvements pose major challenges to Taiwan's security, which has historically been based upon the PLA's inability to project power across the 100-nm-wide Taiwan Strait due to natural geographic advantages of island defense, Taiwan's armed forces' technological superiority, and the possibility of U.S. intervention. 53

CHINA'S STRATEGY IN THE TAIWAN STRAIT

China appears prepared to defer the use of force, as long as it believes that unification over the long-term remains possible and the costs of conflict outweigh the benefits. China argues that the credible threat to use force is essential to maintain the conditions for political progress, and to prevent Taiwan from making moves toward de jure independence. China has refused for decades to renounce the use of force to resolve the Taiwan issue, despite simultaneously professing its desire for peaceful unification under the principle of "one country, two systems."

The circumstances under which the mainland has historically warned it would use force have evolved over time in response to the island's declarations of political status, changes in PLA capabilities, and China's view of Taiwan's relations with other countries. These circumstances, or "red lines," have included:

- Formal declaration of Taiwan independence;
- Undefined moves toward Taiwan independence;
- Internal unrest on Taiwan;
- Taiwan's acquisition of nuclear weapons;
- Indefinite delays in the resumption of cross-Strait dialogue on unification;
- Foreign intervention in Taiwan's internal affairs; and
- Foreign troops stationed on Taiwan.

Article 8 of the March 2005 "Anti-Secession Law" states that China may use "non-peaceful means" if "secessionist forces ... cause the fact of Taiwan's secession from China;" if "major incidents entailing Taiwan's secession" occur; or, if "possibilities for peaceful reunification" are exhausted. The ambiguity of these "redlines" preserves China's flexibility.

CHINA'S COURSES OF ACTION AGAINST TAIWAN

The PLA is capable of increasingly sophisticated military action against Taiwan. It is possible China would first pursue a measured approach characterized by signaling its readiness to use force, followed by a deliberate buildup of force to optimize the speed of engagement over strategic deception. Another option is that China would sacrifice overt, large-scale preparations in favor of surprise to force rapid military and/or political resolution before other countries could respond. If a quick resolution is not possible, China would seek to:

- Deter potential U.S. intervention;
- Failing that, delay intervention and seek victory in an asymmetric, limited, quick war; and,
- Fight to a standstill and pursue a political settlement after a protracted conflict.

Maritime Quarantine or Blockade. In addition to direct military engagement, PLA writings describe potential alternative solutions—air blockades, missile attacks, and mining to force capitulation. China could declare that ships en route to Taiwan must stop in mainland ports for inspection and/or transshipment prior to transiting to Taiwan ports. China could also attempt the equivalent of a blockade by declaring exercise or missile closure areas in approaches to ports, in effect closing port access and diverting merchant traffic. The PLA employed this method during the 1995-96 missile firings and live-fire exercises. There is a risk, however, that China would underestimate the degree to which any attempt to limit maritime traffic to and from Taiwan would trigger countervailing international pressure and military escalation. China today probably could not enforce a full military blockade, particularly if a major naval power intervened. However, its ability to do so will improve significantly over the next five to ten years.

Limited Force or Coercive Options. China might use a variety of disruptive, punitive, or lethal military actions in a limited campaign against Taiwan, likely in conjunction with overt and clandestine economic and political activities. Such a campaign could include computer network or limited kinetic attacks against Taiwan's political, military, and economic infrastructure to induce fear in Taiwan and degrade the populace's confidence in the Taiwan leadership. Similarly, PLA special operations forces could infiltrate Taiwan and conduct attacks against infrastructure or leadership targets.

Air and Missile Campaign. China could use missile attacks and precision strikes against air defense systems, including air bases, radar sites, missiles, space assets, and communications facilities to degrade Taiwan's defenses, neutralize Taiwan's leadership, or break the Taiwan people's will to fight.

Amphibious Invasion. Publicly available Chinese writings describe different operational concepts for amphibious invasion. The most prominent of these, the Joint Island Landing Campaign, envisions a complex operation relying on coordinated, interlocking campaigns for logistics, air and naval support, and EW. The objective would be to break through or circumvent shore defenses, establish and build a beachhead, transport personnel and materiel to designated landing sites in the north or south of Taiwan's western coastline, and launch attacks to seize and occupy key targets and/or the entire island.

The PLA is capable of accomplishing various amphibious operations short of a full-scale invasion of Taiwan. With few overt military preparations beyond routine training, China could launch an invasion of small Taiwan-held islands in the South China Sea such as Pratas or Itu Aba. A PLA invasion of a medium-sized, better defended offshore island such as Matsu or Jinmen is within China's capabilities. Such an invasion would demonstrate military capability and political resolve while achieving tangible territorial gain and simultaneously showing some measure of restraint. However, this kind of operation includes significant, if not prohibitive, political risk because it could galvanize pro-independence sentiment on Taiwan and generate international opposition.

Large-scale amphibious invasion is one of the most complicated and difficult military operations. Success depends upon air and sea superiority, rapid buildup and sustainment of supplies on shore, and uninterrupted support. An attempt to invade Taiwan would strain China's armed forces and invite international intervention. These stresses, combined with China's combat force attrition and the complexity of urban warfare and counterinsurgency (assuming a successful landing and breakout), make amphibious invasion of Taiwan a significant political and military risk. Taiwan's investments to harden infrastructure and strengthen defensive capabilities could also decrease China's ability to achieve its objectives. Moreover, China does not appear to be building the conventional amphibious lift required to support such a campaign. 53-55

THE PLA'S CURRENT POSTURE FOR A TAIWAN CONFLICT

Preparation for a Taiwan conflict with the possibility of U.S. intervention has largely dominated China's military modernization program. Despite decreased cross-strait tensions since 2008, Taiwan remains a primary military focus.

Missile Forces. The Second Artillery is prepared to conduct SRBM attacks and precision strikes against Taiwan's air defense systems, air bases, radar sites, missiles, space assets, C2 and communications facilities, in an attempt to degrade Taiwan's defenses, neutralize Taiwan's leadership, or break the public's will to fight.

Air Forces. The PLA Air Force has maintained a force posture that provides it with a variety of capabilities to leverage against Taiwan in a contingency. First, it has stationed a large number of advanced aircraft

within an unrefueled range of Taiwan, providing them with a significant capability to conduct air superiority and ground attack operations against Taiwan. Second, a number of long-range air defense systems provide a strong layer of defense of China's mainland against a counterattack. Third, China's development of support aircraft provide it improved ISR to support PLA Air Force operations in a contingency.

Navy Forces. The PLA Navy is improving anti-air and anti-surface warfare capabilities, developing a credible at-sea nuclear deterrent, and introducing new platforms that are positioned to strike Taiwan in a cross-Strait conflict. The additional attack submarines, multi-mission surface combatants, and fourth-generation naval aircraft entering the force are designed to achieve sea superiority within the first island chain and counter any potential third party intervention in a Taiwan conflict. The PLA Navy currently lacks the massive amphibious lift capacity that a large-scale invasion of Taiwan would require.

Ground Forces. Increasingly armed with more modern systems such as armed attack helicopters, the PLA ground forces are conducting joint training exercises that will prepare them for a Taiwan invasion scenario. Training, including amphibious landing training, is often conducted under realistic conditions, including all-weather and at night. Improved networks provide real-time data transmissions within and between units, enabling better command and control during operations. Additionally, the PLA Army's ongoing fielding of advanced air defense equipment is significantly enhancing the self-defense of key command and control elements and other critical assets assessed as likely tasked for potential use against Taiwan. As the number of these new systems grows in the PLA ground forces, the ability of an amphibious invasion force to successfully defend cross-Strait amphibious lodgments against counterattacks by both legacy and advanced weaponry will inevitably increase.

TAIWAN'S DEFENSIVE CAPABILITIES

Taiwan has historically relied upon multiple military variables to deter PLA aggression: the PLA's inability to project sufficient power across the 100 mile Taiwan Strait, the Taiwan military's technological superiority, and the inherent geographic advantages of island defense. China's increasingly modern weapons and platforms (more than 1,100 ballistic missiles, an anti-ship ballistic missile program, ships and submarines, combat aircraft, and improved C4ISR capabilities) have largely negated many of these factors.

Taiwan has taken important steps to build its war reserve stocks, grow its defense industrial base, improve joint operations and crisis response capabilities, and increase its officer and noncommissioned officer (NCO) corps. These improvements partially address Taiwan's eroding defensive advantages. Taiwan is following through with its transition to a volunteer military and reducing its active military end-strength from 275,000 to 215,000 personnel to create a "small but smart and strong force." Under this plan, which is slated for completion by December 2014, the cost savings from a smaller force will free up resources to increase volunteer salaries and benefits, although these savings are not sufficient to cover the costs of volunteers. However, the transition has led to additional personnel costs needed to attract and retain personnel under the volunteer system, diverting funds from foreign and indigenous acquisition programs, as well as near-term training and readiness. The actual number of active-duty service members is approximately 235,000 – well below the 275,000 currently authorized. In addition, Taiwan military spending has dropped to approximately 2 percent of GDP – well below President Ma's pledge of 3 percent. China's official defense budget is about 10 times that of Taiwan. Realizing that Taiwan cannot match China's military spending, Taiwan is working to integrate innovative and asymmetric measures into its defense planning in order to counter-balance China's growing capabilities.

U.S. policy toward Taiwan derives from its One-China Policy, based on the three Joint Communiqués and the Taiwan Relations Act (TRA). U.S. policy opposes any unilateral changes to the status quo in the Taiwan Strait by either side. The United States continues to support peaceful resolution of cross-Strait differences in a manner acceptable to the people on both sides.

Consistent with the TRA, the United States has helped to maintain peace, security, and stability in the Taiwan Strait by providing defense articles and services to enable Taiwan to maintain a sufficient self-defense capability. To this end, the United States has announced more than \$12 billion in arms sales to Taiwan since 2010. This includes, most recently, in September 2011, the U.S. announcement of its intent to sell to Taiwan \$5.85 billion worth of defensive arms and equipment, including an advanced retrofit program for Taiwan's F-16 A/B fighter jets, training, and spare parts for Taiwan's air force.

Taiwanese and Japanese Perspectives

There are many different ways to count and portray the balance of forces in the region. The governments of both the Republic of China (ROC or Taiwan) and Japan have issued their own assessments. **Figure 13.2** shows the Taiwanese view of the balance as described in its 2011 defense white paper. **Figure 13.3** shows a Japanese estimate of the PRC-ROC balance, issued in 2013, which covers a wider range of data, but with numbers that track broadly with the data in the DoD and IISS estimates that follow.

The unclassified narratives in the discussions of these issues in the Japanese and South Korean white papers are limited and broadly correspond with the assessments made by the US and the IISS. As might be expected, Taiwanese military assessments go into more detail. Taiwan is careful to note the improvements in PRC-ROC relations, but its analyses still present a more urgent threat in what is the most serious area of potential US-Chinese military confrontation in the near-to-mid-term.

This makes the ROC's view of Chinese strategy, military modernization, and warfighting capabilities important to a US-Chinese security dialogue and an understanding of some of the key trends in Chinese military modernization and strategy. Taiwan's *National Defense Report – 100th Anniversary*, issued in July 2011, provides a good, unclassified picture of the ROC's thinking and perception of the PRC's strategy and capabilities. It should be stressed that the following excerpts are a small portion of a much longer document and focus on the Taiwanese threat assessment but not the overall assessment of strategic risk – which does emphasize the improvement in Chinese and Taiwanese relations:⁵⁶¹

The PRC views the beginning of the 21st century to 2020 as an important “strategic opportunity period,” and is gradually shifting towards technological force developments with an emphasis on winning limited wars under conditions of informatization. Furthermore, the PRC has stepped up its defense and military modernization, and is gradually establishing “external” military developments. Although cross-strait relations have somewhat relaxed, the PRC has not slowed its military preparations against Taiwan, and even stressed that Taiwan was its “core interest” in 2010. The PRC has not abandoned military options against Taiwan; therefore, the risk of cross-strait military conflicts still exists.

... Even though cross-strait relations have somewhat relaxed, the PRC has not slowed its military preparations against Taiwan. The PRC issued a white paper titled “China's National Defense in 2010” on March 31st, 2011. The white paper indicated that China's military preparations are aimed at large scale operations at its southeast coasts to “oppose the independence of Taiwan and advance the unity of China.”

Although the PRC claims that it will continue to promote peaceful developments across the Taiwan Strait, it remains concerned of U.S. arms sales to Taiwan, and expressed its dissatisfaction with the ROC and U.S. deepening military exchanges, believing that it will endanger future U.S.-PRC relations. This shows that even though cross strait relations have relaxed, the PRC has not ceased its military preparations against Taiwan.

Furthermore, the PRC's continuous expansion of its military force, frequent military activities in the Asia-Pacific in recent years, and tough attitude over territorial sovereignty has raised suspicion and alert in surrounding countries, forming the strategic situation of the U.S. and PRC both competing and cooperating in regional security issues, showing that the PRC has adjusted its military strategy in response to the growth of its national strength.

... The PRC's military strategies are founded on “active defense,” and after Hu Jintao assumed office in 2002, the PRC's strategic objectives and concepts have been adjusted in response to the growth of its national strength. Following the increasing importance of information technologies in warfare, the PLA adopted “win limited wars under conditions of informatization” as its strategic objective and “stopping wars and winning wars” as its strategic concept. Since 2008, the PLA adjusted its military strategic concept to

“preventing crises and stopping wars,” and enhanced the capabilities of its military for completing multifaceted military missions.

In addition, the PRC stressed that its “active defense” insists on the principle of “defend, self-defense and strike only after the enemy has struck.” Although it appears that the PRC will not actively provoke war, it is in fact prepared, and will be able to overcome the enemy and control the war situation once the enemy strikes; however, in essence this is a strategy to “take the initiative.” ... The PLA is actively implementing military modernization developments to adapt to requirements of new situations. After the strategic objective of defense and military modernization was proposed in 1997, the PRC clearly indicated in 2009 that “future efforts will be to achieve development objectives of the ‘Three Step’ strategy, and step up defense and military modernization.”

In addition, in order to fundamentally achieve mechanization and achieve greater developments for information infrastructure before 2020, the PRC insists on using mechanization as a foundation and informatization as its orientation for extensively applying information technology results, driving mechanization and informatization developments and integration in hopes of modernizing its defense and military, and gradually expanding to areas outside the Asia-Pacific.

... To develop into an informatized armed force, the PLA proposed talent cultivation objectives and military knowledge requirements for the next two decades, planning to enhance the competencies of military personnel, as well as equip cadres with leadership skills that will enable them to meet future joint operations requirements before 2020. The “Outline of Military Training and Evaluation,” which the PLA announced in 2008, clearly states that the focus of cadre cultivation has gradually changed from the conventional “armed service” to “joint operations, joint education and joint training,” aiming to create a good talent cultivation environment to substantially improve the quality of military strategy talents, which are required for future joint operations, and also foster their joint operations command skills; this outline aims to enhance the PLA’s ability to cultivate new cadres for the future.

... Based on the PLA’s preparedness for taking military action against Taiwan and developments of the situation in the Taiwan Strait, high level officers of the PLA upgraded the military strategy against Taiwan at the end of 2008 from “using military force to oppose Taiwan independence” to “opposing Taiwan independence and advancing the unity of China.” At the end of 2009, the PLA was required to enhance preparation results for contingency response operations, in hopes of gaining the ability to launch large scale operations against Taiwan and prevent interference from foreign forces before 2020. It is obvious that although the possibility of military conflict has decreased after cross-strait relations relaxed, and dealing with the “Taiwan issue” might even be delayed, the PRC’s objective to unify Taiwan has not changed. As the military strength of the two sides of the Taiwan Strait becomes even more imbalanced, we are bound face growingly severe military threats.

.. The PLA has continued to actively enhance its capabilities in recent years according to its original plans. However, in view of its diplomatic policy “to become a good neighbor and a good partner,” its exercises are based on “contingency operations against Taiwan” and target tactics and techniques of the ROC Armed Forces. In which its joint landing exercises still mainly target Taiwan, and apply enhanced capabilities of area-denial, accumulating large scale operations capabilities.

... The PLA’s Ground Force development focuses on “mechanization” and “informatization” according to its force restructuring plans. The PLA is actively building a ground force with Chinese characteristics, and continues to refine its organizational structure and improve training results, so as to strengthen combat and contingency response capabilities. Over the past year, guided by the transformation from “regional defense” to “global mobility,” the PLA has concentrated on equipping the Nanjing and Guangzhou military regions with new amphibious assault vehicles and new MLRS, and expanding armored outfits and electronic countermeasure outfits in the Tibet and Xinjiang Autonomous Regions, implementing “mechanization” and “informatization” to enhance its capabilities of operations across the Taiwan Strait and defense operations on its western frontier.

... The PRC Navy’s developments focus on enhancing its strategic intimidation and counter attack capabilities, gradually developing open water management and cooperation and unconventional threat response capabilities (e.g. counter-terrorism operations, right-safeguard cruise and disaster relief). The PLA Navy has sent battleships in batches to execute commercial ship convoy missions in the Gulf of Aden since

2008, besides verifying the performance and combat capabilities of new equipment, these missions serve to intensify joint operations training for multiple armed services, as well as live exercises. This shows that its strategic concept has gradually shifted from “offshore defense” to “open water defense,” as it is actively building battleships and deploying long-range anti-ship missiles on its coasts, and gradually expanding the depth of maritime operations and anti-access capabilities.

The PLA’s Air Force developments focus on enhancing reconnaissance, early warning, air strike, air-defense, anti-missile and strategic delivery capabilities. In recent years, the PLA Air Force has been actively acquiring new precision strike weapons and informatized command and control equipment, and has been participating in joint exercises and training, which have significantly strengthened its long-range precision strike and strategic delivery capabilities. Furthermore, it is actively improving its air force bases and battlefield protection facilities, and strengthening its logistics protection system, thereby elevating its comprehensive protection capabilities for combat equipment. In addition, guided by the change in strategy from “homeland air defense” to “balanced offense and defense,” the PLA Air Force continues to upgrade its equipment to third generation fighters and new air defense missiles to strengthen its overall air defense capabilities.

...Developments of the PLA’s Second Artillery seek a balance between nuclear and conventional and use both solid and liquid. The Second Artillery has continued to improve the precision and effectiveness of its missiles; develop middle range ballistic missiles for targeting ships and independently targetable intercontinental range ballistic missiles; strengthen the penetration, precision and nuclear intimidation capabilities of its missiles; and, established a new ballistic missiles brigade outfitted with middle range ballistic missiles, so as to strengthen its overall missile strike effectiveness. The Second Artillery already has some capability of attacking aircraft carriers. Furthermore, the current quantity, accuracy and effectiveness of the Second Artillery’s missiles, combined with forces of the Air Force and Navy, are already capable of launching large scale joint fire support strikes and sea and air blockades.

... Military satellites currently in orbit are capable of supporting operation command and control of PLA forces west of the first island chain, daytime and nighttime surveillance and reconnaissance, and intelligence transmission. Furthermore, after the “Beidou” navigation satellite system consisting of 35 satellites is completed in 2020, the PRC will no longer be dependent on the U.S. GPS, and will effectively enhance the precision of its long-range precision weapons.

The PLA stresses that gaining an electromagnetic advantage early in battle is a key task to ensuring the success of operations, and has thus been strengthening its “integrated network and electronic warfare” capabilities in recent years. Using electronic warfare and computer network warfare as a means, coupled with the application of hardware kills, the PLA will adopt “integrated network and electronic warfare” as a basic form of joint operations, so as to gain control over electromagnetic spectrums. If the PRC engages in a military conflict with its surrounding countries, this will help it seize “electromagnetic control” over the battlefield early in battle.

... To this day the PLA’s force deployment against Taiwan has not changed, only that its military build-up and exercises targeting Taiwan have been more “subtle,” shifting to either the north or south. In terms of the security situation in the Taiwan Strait, evaluations show gradual improvement in cross-strait relations, and the PRC deleted its statement “Taiwan authorities taking a radical Taiwan independence route threatens regional peace.” Nevertheless, the PRC continues to stress that the “Taiwan independence” separatist force is a threat to its territorial sovereignty and security, and objected that the U.S. continuing arms sales to Taiwan was a violation of the “Three Joint Communiqués.”

In recent years, the PLA has continued to outfit its Fukien and Guangdong military regions with amphibious assault vehicles, long range MLRS, battleships, long-range anti-ship missiles, third generation fighters, air defense missiles and middle range ballistic missiles with an emphasis on the enhancement of long-range delivery capabilities. Up to now the PRC has not showed military good will towards Taiwan, making it evident that its thoughts of intimidation and unification have not changed.

... At the beginning of the 21st century, the PLA established “winning limited wars under conditions of informatization” as a basis for its military preparations, and focused on developing its Navy, Air Force and Second Artillery. In which the Air Force’s new generation fighters were dispatched to southeast coastal bases to take part

in defense affairs, and were outfitted with long-range air defense missiles; the Navy deployed long-range anti-ship missiles and new missile boats on the coasts of Fukien and Guangdong; the Ground Force prioritized the Nanjing and Guangzhou military regions for outfitting new long-range MLRS and amphibious assault vehicles. These actions enhance the PLA's firepower for suppressing our offshore islands and its amphibious landing capabilities.

Furthermore, the PLA uses garrison training and exercises to verify the performance of its new equipment and capabilities of its forces. In summary, the PLA has continued to follow through with its military readiness against Taiwan, and is stepping up the development of armed services (forces) under the guidance of its strategic goals for overall national security and defense and military modernization. At present, the PLA is already capable of blockading Taiwan and seizing our offshore islands.

In order to successfully execute multifaceted military missions, the PRC's military diplomacy has changed towards "practicality." Utilizing the diplomatic strategies of large states, the PRC used its dissatisfaction of U.S. arms sales to Taiwan for the high-profiled reestablishment of strategic cooperation with Russia, and went into the vicinities of the U.S. in search of energy, while cozying up with anti-U.S. forces. The PRC's "earthquake diplomacy" served as a catalyst for the establishment of a multinational joint disaster relief mechanism, and it initiated its MND press release system to improve the PLA's image.

Furthermore, the PRC held joint counterterrorism exercises with numerous countries, and bilateral joint search and rescue exercises in its surrounding sea areas in the Asia-Pacific, in hopes of effectively increasing its influence on international affairs. The PRC emphasized that "military operations other than war is an important way of using national military strength," and thus stepped up its counter-terrorism, stability safeguard, contingency response, disaster relief and international peacekeeping operations, enhancing its international influence by demonstrating that the PLA is capable of responding multiple security threats and completing multifaceted military missions.

... The PLA gained a profound understanding of the importance of modernized warfare from the Gulf War and Kosovo War, and is actively learning from battlefield experiences and operational concepts of the U.S. Army. Furthermore, the PRC in 2010 for the first time sent Air Force fighters to Turkey's "Anatolia" air force base to participate in the "Anatolian Eagle" joint exercise, hoping to use the opportunity of joint training of different fighters with the Turkey Air Force and gain related experience. The PLA Air Force was invited to Pakistan in March 2011 to take part in the joint air force exercise held for the 60th anniversary of the PRC and Pakistan establishing diplomatic relations. Due to the fact that Pakistan has the same F-16 and Mirage fighters as us, besides deepening military exchanges with Pakistan, the PLA also used to opportunity to become familiar with characteristics of western fighters and verify its counter measures, absorbing operational concepts of foreign armed forces to enhance the combat capabilities of its own forces.

In response to the future trend of increasing war protection difficulty, the PLA is actively strengthening and making overall plans for military-civilian joint protection, and is devoted to the integration of force, local and defense mobilization protection capabilities. The PLA has thus carried out joint logistics exercises and training involving military transportation, maritime hygiene and air delivery, thereby gaining military-civilian contingency response capabilities.

Furthermore, the PLA established large regional comprehensive protection bases, and signed joint protection agreements with private enterprises for equipment, fuel and supplies. The PLA also implemented social protection works and utilized the advantages of integrating military and civilian for logistics protection. In addition, the PLA evaluates the professional competencies of logistics protection personnel, and provides integrated combat and protection training, so as to verify the protection performance of new logistics equipment.

... The PLA began actively waging non-military "three warfares" (public opinion warfare, psychological warfare and legal warfare) against Taiwan in December 2003, and formally included them in the "Regulations for the CPLA on Political Work." Since 2008 the two sides of the Taiwan Strait have engaged in economic and cultural exchanges, and although the tense atmosphere has somewhat relaxed, the PRC is still actively using its military for intimidation and making preparations for invasion. Besides incorporating the "three warfares" as a part of military school education and force exercises, the PRC has also mobilized local governments and scientific research institutions to engage in the three warfares as well. The PRC

attempts to disunite the ROC with talks of “peace,” to intimidate and pressure the ROC with talks of “war,” hoping to achieve “wage small wars and win big victories” and “win without fighting.”

At the present stage the PLA emphasizes intangible combat capability as an important means for utilizing its soft power; therefore, the “three warfares” is a means for bringing the PLA’s military soft power into full play. In recent years, besides strengthening infrastructure for the “three warfares,” the PLA is also actively building a psychological warfare force, establishing training research institutes, and training dedicated psychological warfare officers; the PRC also established a Ministry of Defense news spokesperson mechanism, which will serve to breakdown psychological defenses and affect public opinion when infiltrating the enemy. In addition, seeing that the “three warfares” are among main operations of local wars, the PRC is gradually strengthening “three warfares” capabilities at each stage for future military confrontations. The PRC’s current attitude towards Taiwan still stresses that “non-peaceful measures will be adopted to resolve the Taiwan issue when Taiwan’s separation inclination is apparent,” showing that its strategic concept is still “to be softer when the enemy is soft and to be tougher when the enemy is tough.”

... Over the past year the PLA’s exercises and training continues to be directed against Taiwan; combat preparations are required to be completed according to its timetable, and then verified of its effectiveness in offensive operations against Taiwan. Determining based on the PLA’s current capabilities, training and exercise conditions and military action plans targeting Taiwan, the PLA now has emergency mobilization and combat capabilities against Taiwan, in addition to its large scale joint fire support strike capabilities. Moreover, the continuous rise of the PLA’s capabilities in both quality and quantity will enable it to elevate the intensity of its military operations and mobility for making adjustments to force deployment, showing that the PRC’s determination to use military force against Taiwan and its military threat has not changed.

In terms of the PRC’s military capabilities, its current primary threats against Taiwan are still military intimidation and partial blockades. However, in terms of “military modernization, strategic ideology, force structure and deployment, and weapons research and development,” the PRC now possesses “diverse air-and-ground reconnaissance and surveillance methods, versatile fire support opposite Taiwan, and multiple intimidation options against Taiwan,” which can be summarized as follows:

... Besides accelerating the establishment of infrastructure for various armed forces, the PLA is also actively incorporating military, civilian and international cooperation to gradually establish various intelligence, surveillance and reconnaissance platforms. With regard to the PRC’s overall reconnaissance and surveillance force buildup and deployment, its diverse reconnaissance and surveillance methods allow it to cover air and ground throughout the entire eastern Asia. This capability enables the PRC to use military means to resolve the Taiwan Strait issue and territorial disputes over the South China Sea, posing a threat to regional security and stability, and thus increasing the difficulty for our defense preparations and readiness missions to be executed undetected.

... The PLA’s existing land attack weapons include various models of tactical ballistic missiles, cruise missiles, air-to-ground precision missiles, and guided bombs. In particular, PRC tactical ballistic missiles can now carry warheads that can attack multiple targets. There are also air launched antiradiation missiles and unmanned attack vehicles capable of attacking command, control, and radar systems on the ground within the PRC’s arsenal of air-launched precision missiles. The PRC possesses firepower variety, large area coverage, and tactical versatility, all of which adds difficulty to Taiwan’s defensive operations.

The PLA’s recent exercises and training still aim to strengthen its readiness against Taiwan. The PLA formally added “Armed Police” to its array of forces for operations against Taiwan in 2007; the Armed Police can rapidly be converted into backup for contingency operations during wartime. Determining based on training and exercise conditions and related military preparations, the PLA now has multiple intimidation options against Taiwan. Moreover, the continuous rise of the PLA’s capabilities will enable it to elevate the intensity of its military operations and mobility for making adjustments to force deployment.

Based on the PLA’s timetable for military readiness against Taiwan, at the current stage the PLA has large scale joint fire support strike and key sea area and air space blockade capabilities, which could develop into joint military intimidation, joint blockade operations, joint fire support strike, joint landing operations and area-denial capabilities. The scope of joint blockade operations extends to the sea area west of the first island chain; joint landing operations include seizing Penghu and limited operations on Taiwan. Possible options are summarized below:

1. Joint Military Intimidation

The PRC may employ psychological warfare against ROC Armed Forces, which may involve intensifying military activities, adjusting force deployment and using the media to publicize military risks in the Taiwan Strait, attempting to cause panic in Taiwan and lower the morale of our military and civilians.

2. Joint Blockade Operations

The PLA may use its Air Force and Navy to set up partial blockades targeting important ports in Taiwan and offshore islands, as well as external transportation routes, so as to weaken the morale of our military and civilians, sever our economic lifeline, deteriorate our living environment, and force us to seek peace agreements.

3. Joint Fire Support Strike

The PLA may use its Second Artillery and air-launched land attack missiles to attack our command system, political and economic centers and symbolic targets. The PLA will then gradually escalate the situation by crippling our air defense, sea control and counter strike systems, and seizing and maintaining electromagnetic control, air control and sea control, thus shattering our will to fight, forcing us to surrender, or creating a foundation for subsequent strategic operations.

4. Joint Landing Operations

The PLA may combine its ground forces, navy, air force and second artillery to launch a triphibian invasion of Taiwan in the sequence, preliminary engagement, electromagnetic control operations, air superiority operations, sea control operations and landing. The PRC will aim for a short battle and quick victory before foreign forces can intervene, thus establishing a political reality that will prevent further intervention.

5. Area-Denial

The scope of area-denial has been expanded to partial sea areas and air space west of Guam, and is directed towards the U.S. and Japan.

At present, the PRC is not yet fully equipped to launch a full scale invasion of Taiwan as it still has insufficient amphibious transport equipment. Therefore, it is more likely that the PRC will adopt military intimidation, partial blockade (including seizing our offshore islands) and firepower strike as measures for achieving its military readiness objectives for the current stage. In the future, once the PLA is capable of invading Taiwan, or when the need arises, it considers the direct invasion of Taiwan an option for achieving its ultimate political goal.

The PLA's three armed services (including the Second Artillery) has a total force of some 2.3 million personnel; the ROC's three armed services (no second artillery) has a total force of some 270 thousand personnel; the PLA has roughly 10 times the number of troops as the ROC Armed Forces. The PLA has an absolute advantage in terms of ballistic missiles and submarines. Furthermore, superiority in ground forces, navy and air force is also gradually tipping towards the PLA.

Using the 2010 defense budget of both sides for comparison, the PRC's defense budget was roughly U.S.\$78 billion, while the ROC's defense budget was roughly U.S.\$9 billion, which appears to be a difference of over 8-fold. Yet, the PRC's actual military funding is somewhere between 2 to 3 times the figure it has disclosed. Therefore, the actual difference in defense budgets on the two sides may reach up to 21-fold.

The gap in terms of weapons and equipment is even wider, and should be followed with great concern. Although the risk of military conflict has subsided in recent years as cross-strait relations improved, this development has benefitted the PRC's defense and military modernization and strengthened its military, which increases the threat to our national security and impacts regional military balance; this is truly a risk to regional and our national security. Provided that at the current stage the PLA has not renounced the use of military force against Taiwan, the risk of cross-strait military conflicts still exists.

Moreover, the PLA has deployed over one thousand missiles along its southeast coasts opposite Taiwan, established a network of air defense and anti-ship bases, and continued to outfit long-range precision strike fighters and missile boats with stealth capabilities. Furthermore, the PLA is sending navy ships to the

western Pacific for long-term voyage training, hoping to gradually improve the effectiveness of its joint fire support strikes and strengthen its force delivery capabilities, using military force to support its plans to overpower Taiwan.

In recent years, the PRC has boasted its contributions to the international society to shape its image as a peacekeeper. From a strategic point of view, the PRC has switch from a passive strategy of responding to matters of concern of the international society, to actively manipulating international military control, disarmament and proliferation prevention issues, attempting to play the role as a leader of the third world and arbitrator of regional affairs.

Furthermore, although the PRC agrees that cross-strait relations have been improved, it remains discontent with developments of U.S. arms sales to Taiwan, and has continued to strengthen its military readiness against Taiwan, this includes strengthening precision strike capabilities of the Second Artillery, improving long distance target guidance and strike capabilities of the Navy and Air Force, and refining exercises of the Ground Force for (controlling) seizing nearby islands. It is apparent that the PRC's concepts of "opposing Taiwan independence and advancing the unity of China" and "using military force to advance the unity of China" have not changed. In the light of this, we must continue to solidify our force development and defense readiness, so as to meet the PRC's military challenge.

...typhoons and landslides. Based on the concept of "active disaster relief," the ROC Armed Forces has adopted the approach of "preparing for disasters in advance, deploying troops with an eye to disaster preparedness, and ensuring readiness for rescue operations" for responding to the threat of major natural disasters to national security. In view of the strong earthquake that occurred in Japan on March 11th, 2011, which became a "complex" disaster as it caused a tsunami that resulted in a nuclear disaster, the ROC Armed Forces is strengthening its contingency response capabilities to meet new challenges. Our nation is engaged in frequent international exchanges, and is thus at risk of foreign infectious diseases causing an epidemic in our borders. In the light of this, the ROC Armed Forces assists with epidemic prevention in coordination with the government's health policy and medical system, so as to prevent epidemic situations from further escalating.

In addition, the ROC is a nation highly dependent on imports for energy and food.

Therefore, food and energy security is a matter of the nation's overall development. With global raw material prices trending upwards, we must continue to place emphasis on the source, transportation, import and storage of energy and food; this will allow us to prevent inadequate supply for people's livelihood and economic development from becoming a threat to our national security. Furthermore, the gradual decrease in draft age men as a result of the rapid outflow of talents and trend of aging population is also a matter of national security, and also a secret worry of our national defense.

The above describes challenges to our national security. The ROC Armed Forces must implement defense transformation and build a solid defense force under the policy to "prevent war" and to "prepare for war but not provoke war," so that it may back cross-strait peaceful and positive interaction.

At the same time, the Armed Forces must serve as a "guardian of national security" and remain aware that "to bring peace it must first be capable of war," establishing innovative and asymmetrical military deterrence capabilities, reinforcing disaster relief mechanisms, and actively handling major threats in our exclusive economic zone, including ground, air, marine, submarine, electromagnetic spectrum and network. The Armed Forces will thus become a contributor to peace and stability of the western Pacific, ensuring the stability of the Asia-Pacific and the continued prosperous development of the global economy.

Figure 13.1: The Balance in the Taiwan Straits in 2014

Taiwan Strait Military Balance, Ground Forces			
	China		Taiwan
	Total	Taiwan Strait Area	Total
Personnel (Active)	1.25 million	400,000	130,000
Group Armies	18	8	3
Infantry Divisions	15	5	0
Infantry Brigades	16	6	8
Mechanized Infantry Divisions	6	2	0
Mechanized Infantry Brigades	17	7	3
Armor Divisions	1	0	0
Armor Brigades	16	7	4
Artillery Divisions	2	2	0
Artillery Brigades	17	6	5
Airborne Divisions	3	3	0
Amphibious Divisions	2	2	0
Amphibious Brigades	3	3	3
Tanks	7,000	3,000	1,100
Artillery Pieces	8,000	3,000	1,600

Taiwan Strait Military Balance, Air Forces			
	China		Taiwan
	Total	Within range of Taiwan	Total
Aircraft			
Fighters	1,700	130	388
Bombers/Attack	400	200	22
Transport	475	150*	21

Taiwan Strait Military Balance, Naval Forces			
	China		Taiwan
	Total	East and South Sea Fleets	Total
Aircraft Carriers	1	0	0
Destroyers	24	14	4
Frigates	49	40	22
Corvettes	8	6	0
Tank Landing Ships/ Amphibious Transport Dock	29	26	12
Medium Landing Ships	28	21	4
Diesel Attack Submarines	51	32	4
Nuclear Attack Submarines	5	2	0
Coastal Patrol (Missile)	85	67	45

Notes: PLA active ground forces are organized into group armies. Infantry, armor, and artillery units are organized into a combination of divisions and brigades deployed throughout the PLA's seven military regions (MRs). A significant portion of these assets are deployed in the Taiwan Strait area, specifically the Nanjing, Guangzhou, and Jinan MRs. Taiwan has seven defense commands, three of which have field armies. Each army contains an artillery command roughly equivalent to a brigade plus.

The PLA Navy has the largest force of principal combatants, submarines, and amphibious warfare ships in Asia. In the event of a major Taiwan conflict, the East and South Sea Fleets would be expected to participate in direct action against the Taiwan Navy. The North Sea Fleet would be responsible primarily for protecting Beijing and the northern coast, but could provide mission-critical assets to support other fleets.

The PLA Air Force and the PLA Navy have approximately 2,100 operational combat aircraft. These consist of air defense and multi-role fighters, ground attack aircraft, fighter-bombers, and bombers. An additional 1,450 older fighters, bombers and trainers are employed for training, research, and development. The two air arms also possess approximately 475 transports and more than 100 surveillance and reconnaissance aircraft with intelligence, surface search, and airborne early warning capabilities. The PLAAF would likely supplement its military transports with civilian aircraft in a combat scenario. The majority of PLA Air Force and PLA Navy aircraft are based in the eastern half of the country. Currently, 330 aircraft could conduct combat operations against Taiwan without refueling. However, this number could be significantly increased through any combination of aircraft forward deployment, decreased ordnance loads, or altered mission profiles.

* This number is 250 aircraft fewer than last year's transport total, but reflects a change in methodology versus aircraft acquisition.

Source: DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2014*, April 2014, 76-78.

Figure 13.2: Taiwanese (ROC) Ministry of Defense Summary of the PRC-ROC Military Balance

Category Items		ROC Armed Forces	People's Liberation Army
Total Force		Over 240,000(The amount will be cut down to 215,000 in the end of 2014)	Over 2,270,000
Ground Forces	Force	Over 170,000	Over 1,250,000
	Combat Equipment	Tanks and armored vehicles: Over 1,500 Helicopters: Over 200 Heavy artillery: Over 1,000	Tanks and armored vehicles: Over 15,400 Helicopters: Over 600 Heavy artillery: Over 7,200 (including anti-tank guns)
Navy	Force	Over 30,000	Over 260,000
	Battleships	Over 190	Over 800
	Principal Combatants	Large battleships: Over 20 Amphibious ships: Over 10 Submarines: 4	Large battleships: Over 70 Amphibious ships: Over 40 Submarines: Over 60
	Aviation servicemen	Anti-submarine helicopters: Over 20	All kind aviation vehicles: Over 600
Air Forces	Force	Over 30,000	Over 370,000
	Principal Combatants	Fighters: Over 370 (F-16, M-2000, IDF and F-5)	Fighters: Over 2,900 (J-7, J-8, J-10, Su-27, Su-30) bomber: Over 400 Attack aircraft: Over 280 Unmanned aircraft: Over 280 Air defense missile systems: Roughly 1,000
Air Defense Missile Command	Force	Over 5,000	
	Principal Combatants	Air Defense Missile: Over 30	
Second Artillery	Force	n/a	Force: Over 149,000
	Principal Combatants	n/a	Strategic Missiles: Over 190
			Tactical Missiles: Over 1,400 Nuclear Warheads: Over 200

Source: Republic of China (Taiwan), *National Defense Report 2013*, October 2013, 59, <http://report.mnd.gov.tw/en/pdf/all.pdf>.

Figure 13.3: Japanese Ministry of Defense Summary of the PRC-ROC Military Balance



Source: The Military Balance (2014) and others.

Source: Japanese Ministry of Defense, *Defense of Japan*, 2014.

Historical Trends in the Taiwan Strait Military Balance

The US DoD has issued a wide range of unclassified reporting on the security situation in the Taiwan Strait and the US view of the changing balance in the Strait over the last decade. By nature, military balances are relative, and therefore they must exist between two or more countries. While numerous countries have an interest in cross-strait relations, this study focuses on the PRC-ROC military balance in the Taiwan Strait.

Figures 13.4 to 13.6 depict DoD-reported data on the military forces of the PRC and ROC as well as a comparison of forces in the immediate vicinity of the Strait.⁵⁶² It is important to state that force numbers do not tell the whole story – differences in equipment quality, military doctrine, and personnel proficiency also influence the Taiwan Strait military balance. However, as the 2014 DoD report on China stated,⁵⁶³

Taiwan has historically relied upon multiple military variables to deter PLA aggression: the PLA's inability to project sufficient power across the 100 mile Taiwan Strait, the Taiwan military's technological superiority, and the inherent geographic advantages of island defense. China's increasingly modern weapons and platforms (more than 1,100 ballistic missiles, an anti-ship ballistic missile program, ships and submarines, combat aircraft, and improved C4ISR capabilities) have largely negated many of these factors.

The Japanese 2013 defense white paper took a somewhat different perspective.⁵⁶⁴

On the military front, China has been strengthening its military forces broadly and rapidly by sustaining large increases in its defense budget. In particular, China gives priority to the Taiwan issue as a core issue of national sovereignty. It is deemed that China is strengthening its military forces for the time being with the aim of improving military capabilities to prevent Taiwan's independence. As part of such efforts, it is believed that China is enhancing its asymmetric military capabilities to deter military forces of other countries from approaching and advancing to China's surrounding region, and to inhibit their military activities in the region (so-called "Anti-Access/Area Denial" ["A2/AD"] capabilities). Additionally, China has been actively trying to acquire capabilities for missions other than for dealing with the Taiwan issue. With China now having considerable influence in the international community not only politically and economically but also militarily, other countries are closely watching China's military trends.

... China is believed to be strengthening its military forces with its top priority foremost in mind, namely, dealing with the Taiwan issue, more specifically, improving China's capabilities to hinder the independence of Taiwan and foreign military support for the independence of Taiwan. Furthermore, in recent years, China is working actively to acquire capabilities for missions other than dealing with the Taiwan issue, and stresses the use of the military in non-traditional security areas.

China upholds the principle that Taiwan is a part of China, and that the Taiwan issue is therefore a domestic issue. The country maintains that the "one-China" principle is the underlying premise and foundation for discussions between China and Taiwan. China also claims that it would never abandon its efforts for peaceful unification, and expresses that it will take up policies and measures to solve issues of Taiwanese people's interest and to protect their due authority. Meanwhile, China is strongly opposed to any foreign intervention in the unification of China as well as any move towards the independence of Taiwan, and on this basis, has repeatedly stated that it has not renounced the use of force. The Anti-Secession Law, enacted in March 2005, clearly lays out the non-renunciation of the use of military force by China.

Ma Ying-jeou (Kuoimintang), re-elected in the presidential election in January 2012, continues to advocate, in his second term, a policy of pursuing Taiwanese economic development by expanding economic exchanges with China and the status quo rather than independence. As exemplified by the entry into force of the Economic Cooperation Framework Agreement (ECFA), the bilateral relationship is deepening primarily along the economic realm. In February 2014, the Minister of the Taiwan Affairs Office of the State Council of China and the Minister of the Mainland Affairs Council of Taiwan held the first ministerial meeting between China and Taiwan. On the security front, while China urged that the two countries make

contact and hold exchanges over military issues at an appropriate time in order to explore the creation of mechanisms for building mutual trust over military security, Taiwan has shown a cautious stance, stating that the conditions are not yet met. Regarding the Senkaku Islands, China and Taiwan have their own assertions, and Taiwan has expressed reluctance to work with China. Attention will be paid to trends in the future relations between China and Taiwan including trends of political dialogues on military affairs.

Taiwan, under the guidance of building the “hard rock” defense advocated by President Ma Jeou Ying, identifies prevention of war, homeland defense, response to contingencies, deterrence of conflict, and regional stability as the strategic objectives, and takes the military strategy of “resolute defense and credible deterrence.”

Taiwan, for improved expertise of its military personnel and other purposes, aims to transform its armed forces currently consisting of drafted personnel and volunteers into all-volunteer forces, while reducing the total forces from 275,000 to 215,000 personnel by the end of 2014. However, the Ministry of National Defense reportedly stated that the transformation into all-volunteer forces would not be feasible until 2016. At the same time, the Taiwanese armed forces attribute importance to the introduction of advanced technologies and improvement of

joint operational capabilities. Additionally, in light of the serious damage that occurred from the typhoon in August 2009, the Taiwanese armed forces identify disaster prevention and relief as one of their major missions.

With regard to Taiwan’s military power, at present, ground forces, including the Navy Marine Corps, have a total of approximately 215,000 personnel. In addition, it is believed that approximately 1.65 million reserve personnel of the air, naval, and ground forces would be available in case of war. Regarding naval capabilities, in addition to Kidd-class destroyers which were imported from the United States, Taiwan possesses relatively modern frigates and other vessels. Regarding air capabilities, Taiwan possesses F-16 A/B fighters, Mirage 2000 fighters, Jing Guo fighters, etc.

In view of the fact that the PLA is enhancing its missile, naval, and air forces, the Taiwanese military believes it still needs to modernize its equipment. The U.S. Department of Defense has notified Congress of possible arms sales to Taiwan based on the Taiwan Relations Act, but Taiwan also wishes to purchase the F-16C/D fighter aircraft and other arms from the United States. The issue is to be observed. Taiwan is also promoting the independent development of military equipment. The Tien Kung II surface-to-air missiles and Hsiung Feng II anti-ship missiles are deployed and it is believed that the Hsiung Feng IIE cruise missiles are being developed in order to acquire long-range attack capabilities, while the Tien Kung III surface-to-air missiles are being developed in order to ensure the capabilities to deal with ballistic missiles.

The military capabilities of China and Taiwan are generally characterized as follows:

- 1) Regarding ground forces, China possesses an overwhelming number of troops; however, their capability of landing on and invading the island of Taiwan is limited. Nevertheless, China is making efforts to improve its landing and invasion capabilities in recent years, such as building large landing ships.
- 2) Regarding naval and air forces, China, which overwhelms Taiwan in terms of quantity, has also been steadily strengthening its naval and air forces in recent years in terms of quality, where Taiwan had superiority over China.
- 3) Regarding missile attack capabilities, China possesses numerous short-range ballistic missiles, etc. with a range that covers Taiwan, and Taiwan seems to have few effective countermeasures.

In addition to the sizes of forces and performance and quantity of military equipment, a comparison of military capabilities should take into account various factors such as the objectives and characteristics of envisioned military operations, the operational posture, proficiency in military personnel, and logistics. Nevertheless, as China is rapidly strengthening its military power, the overall military balance between China and Taiwan is shifting in favor of China. Attention should be paid to the strengthening of both the Chinese and Taiwanese military capabilities and U.S. weapon sales to Taiwan.

China’s ongoing military modernization, combined with the previously-discussed improvements in human capital, training, and military exercises, are eroding the effectiveness of the ROC’s prior

reliance on intangible factors. Thus, as intangible differences between the two forces are slowly decreasing, tangible factors such as force numbers are becoming more important indicators of the Taiwan Strait military balance.

As has been emphasized throughout this report, a military balance is inherently a dynamic and uncertain construct. While it is impossible to perfectly determine the magnitude of intangible variables and how they interact with the changes in force numbers, it is possible to determine the direction of the changing Taiwan Strait military balance. Given the changes in numbers, equipment, and training on both sides, it is possible to determine that the balance is shifting in the PRC's favor.

It is important to again point out that a military balance is not a prediction of the outcome of a war. To say that trends are shifting in the PRC's favor does not indicate that the PRC could win a war with the ROC, that the PRC's combat power is greater than the ROC's, or that the ROC's weapons systems are qualitatively inferior to PRC weapons systems. What it does mean is that, regardless of the military balance in the past, the military balance between the two sides is currently becoming *relatively* more favorable to one side. Thus, a *relative* shift in the favor of one side could still occur in a situation in which that side is at a crushing disadvantage. It is important to remember this important distinction when examining the *relative* trends depicted in the following pages.

- **Figure 12.4** illustrates a brief summary of trends in force structure and strength of the PLA.
- **Figure 12.5** displays trends in PLA forces in the immediate vicinity of the Taiwan Strait.
- **Figure 12.6** shows trends in the force structure of the ROC armed forces.

It should also be remembered that additional PRC forces beyond the vicinity of the Strait could be committed to a potential Taiwan contingency.

Figure 13.4: A Summary of Trends in the PLA

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Millions of Personnel (Active)	1.6	1.4	1.4	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Group Armies	18	18	18	18	18	18	18	18	18	18
Infantry Divisions	20	25	25	19	19	19	17	-	15	15
Infantry Brigades	20	33	33	24	24	25	22	-	16	16
Mot. Infantry Divisions	-	-	-	-	-	-	-	18	-	
Mot. Infantry Brigades	-	-	-	-	-	-	-	22	-	
Mech. Infantry Divisions	5	-	-	4	4	4	6	8	6	6
Mech. Infantry Brigades	5	-	-	5	5	5	6	6	17	17
Armor Divisions	10	9	9	9	9	9	9	9	1	1
Armor Brigades	10	11	11	8	8	8	8	9	16	16
Artillery Divisions	5	3	3	2	2	2	2	2	2	2
Artillery Brigades	15	15	15	17	17	17	17	17	17	17
Airborne Divisions	*	3	3	3	3	3	3	3	3	3
Amphibious Divisions	-	-	-	2	2	2	2	-	2	2
Amphibious/Marine Brigades	2	2	2	3	3	3	3	2	3	3
Tanks	6500	7000	7000	6700	6700	7000	7000	7000	7000	7000
Artillery Pieces	11000	11000	11000	7400	7400	8000	8000	8000	8000	8000

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Aircraft Carriers	0	0	0	0	0	0	0	0	1	1
Destroyers	21	25	25	29	25	25	26	26	23	24
Frigates	43	45	47	45	48	49	53	53	52	49
Corvettes	-	-	-	-	-	-	-	-	-	8
Tank Landing Ship/Amphibious Transport Dock	20	25	25	26	27	27	27	28	29	29
Medium landing Ships	23	25	25	28	28	28	28	23	26	28
Diesel Attack Submarines	51	50	53	54	54	54	49	48	49	51
Nuclear Attack Submarines	6	5	5	5	6	6	5	5	5	5
Coastal patrol (Missile)	51	45	41	45	70	85	86	86	85	85

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Fighters	1,500	1,525	1,550	1,630	1,655	1,680	1,680	1,570	1,700	1700
Bombers/ Attack	780	775	775	620	645	620	620	550	600	400
Transport	500	450	450	450	450	450	450	300	475	475

*Included in figures for Infantry Division

Sources: DoD, *Military Power of the People's Republic of China*, 2005-2008; DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China*, 2009-2014.

Figure 13.5: Trends in PLA Forces Deployed in the Vicinity of the Taiwan Strait

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Personnel (Active)	375,000	400,000	400,000	440,000	400,000	400,000	400,000	400,000	400,000	400,000
Group Armies	9	8	8	8	8	8	8	8	8	8
Infantry Divisions	9	9	9	8	8	6	5	-	5	5
Infantry Brigades	11	12	12	11	11	11	9	-	6	6
Mot. Infantry Divisions	-	-	-	-	-	-	-	5	-	-
Mot. Infantry Brigades	-	-	-	-	-	-	-	11	-	-
Mech. Infantry Divisions	3	-	-	1	1	1	2	4	2	2
Mech. Infantry Brigades	1	-	-	1	1	1	1	1	7	7
Armor Divisions	4	4	4	4	4	4	4	4	0	0
Armor Brigades	4	4	4	3	3	3	3	4	7	7
Artillery Divisions	3	3	3	2	2	2	2	2	2	2
Artillery Brigades	5	5	5	6	6	6	6	6	6	6
Airborne Divisions	*	3	3	3	3	3	3	3	3	3
Amphibious Divisions	-	-	-	2	2	2	2	-	2	2
Amphibious/Marine Brigades	2	2	2	3	3	3	3	2	3	3
Tanks	2,500	2,700	2,700	2,800	2,800	3,100	3,100	3,100	3,000	3,000
Artillery Pieces	5,500	3,200	3,200	2,900	2,900	3,400	3,400	3,400	3,000	3,000

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Aircraft Carriers	0	0	0	0	0	0	0	0	0	0
Destroyers	13	16	16	17	17	15	16	16	16	14
Frigates	34	40	40	36	39	40	44	44	44	40
Corvettes	-	-	-	-	-	-	-	-	-	6
Tank Landing Ships	20	22	22	24	25	25	25	26	27	26
Medium landing Ships	15	20	20	23	23	23	21	18	24	21
Diesel Attack Submarines	29	28	28	32	32	32	33	30	33	32
Nuclear Attack Submarines	-	-	-	1	1	2	2	2	2	2
Coastal patrol (Missile)	34	34	34	35	55	65	68	67	67	67

Tank Landing Ship/ Amphibious Transport Dock	12	12	12	12	12	12	12	12	12	12
Medium landing Ships	4	4	4	4	4	4	4	4	4	4
Diesel Attack Submarines	4	4	4	4	4	4	4	4	4	4
Nuclear Attack Submarines	-	-	-	-	-	-	-	-	0	0
Coastal patrol (Missile)	50	50	50	51	59	61	61	61	45	45
Corvette	-	-	-	-	-	-	-	-	-	0

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Fighters	420	330	330	390	390	388	388	388	388	388
Bombers/Attack	-	-	-	-	-	22	22	22	22	22
Transport	40	40	40	40	40	21	21	21	21	21

Sources: DoD, *Military Power of the People's Republic of China*, 2005-2008; DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China*, 2009-2014.

The Naval Balance

The numerical indicators presented in **Figures 13.1 to 13.6** have shown that the naval balance in the Taiwan Strait is shifting in favor of the PRC. The Figures for the years 2005-2013 indicate that, while Taiwan has kept its naval force numbers at a relatively stable level (with the exception of patrol craft), the PRC has engaged in a constant, if moderate, increase in the number of naval forces allocated to the Taiwan Strait.

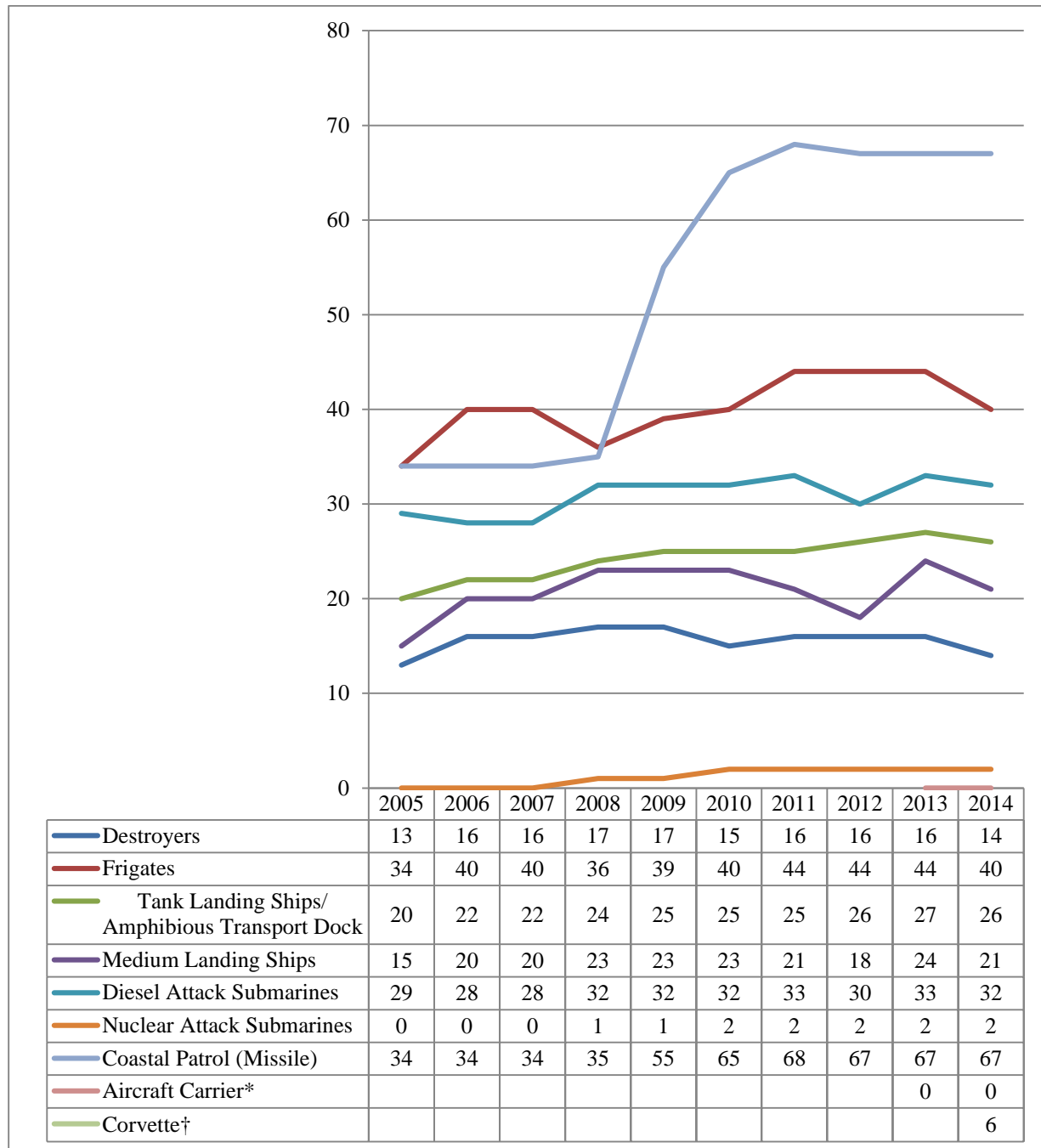
Figures 13.7 and 13.8 illustrate the numerical changes in naval forces on both sides over time; these data show that the PLAN has allocated significantly larger numbers of patrol craft, frigates, and tank landing ships to the East and South Sea Fleets. In addition, there were moderate increases in the number of destroyers and medium landing ships. Perhaps most significantly, the PLAN allocated two nuclear attack submarines (one in 2008 and another in 2010), when historically all of the PLAN's SSNs have been concentrated in the North Sea Fleet.

In contrast, the ROC Navy deployed significantly more patrol craft but saw few increases in any other ship category. One additional frigate was deployed in the fleet, but two destroyers were decommissioned in turn. Furthermore, the 2013 balance shows a significant ROC reduction in coastal patrol boats. While the ROC has historically relied on quality, rather than quantity, to militarily balance the PRC, the increasing numerical advantage of the PLAN as well as the ongoing PLAN modernization program, which has resulted in advanced combatants such as the Luyang II DDG, indicate that the naval balance in the Strait is shifting in the favor of the PLAN.

It is important to note that the comparisons presented here have significant drawbacks. Both sides operate land-based anti-ship cruise missiles, maritime strike aircraft, land-based artillery, and electronic and cyberwarfare forces. Moreover, the PRC has a reportedly operational anti-ship ballistic missile. Successes or failures by either side in the air, space, land, and cyber domains, as

well as the electro-magnetic spectrum, will have significant implications for any potential naval combat. In addition, both the PRC and the ROC are attempting to realize joint operations among their services. All of these variables will influence naval combat. However, the lack of reliable data on many of these variables and the intangible nature of others preclude effective comparison. Consequently, this study presents naval force numbers in the Strait in order to provide a quantitative analysis of one portion of the military balance.

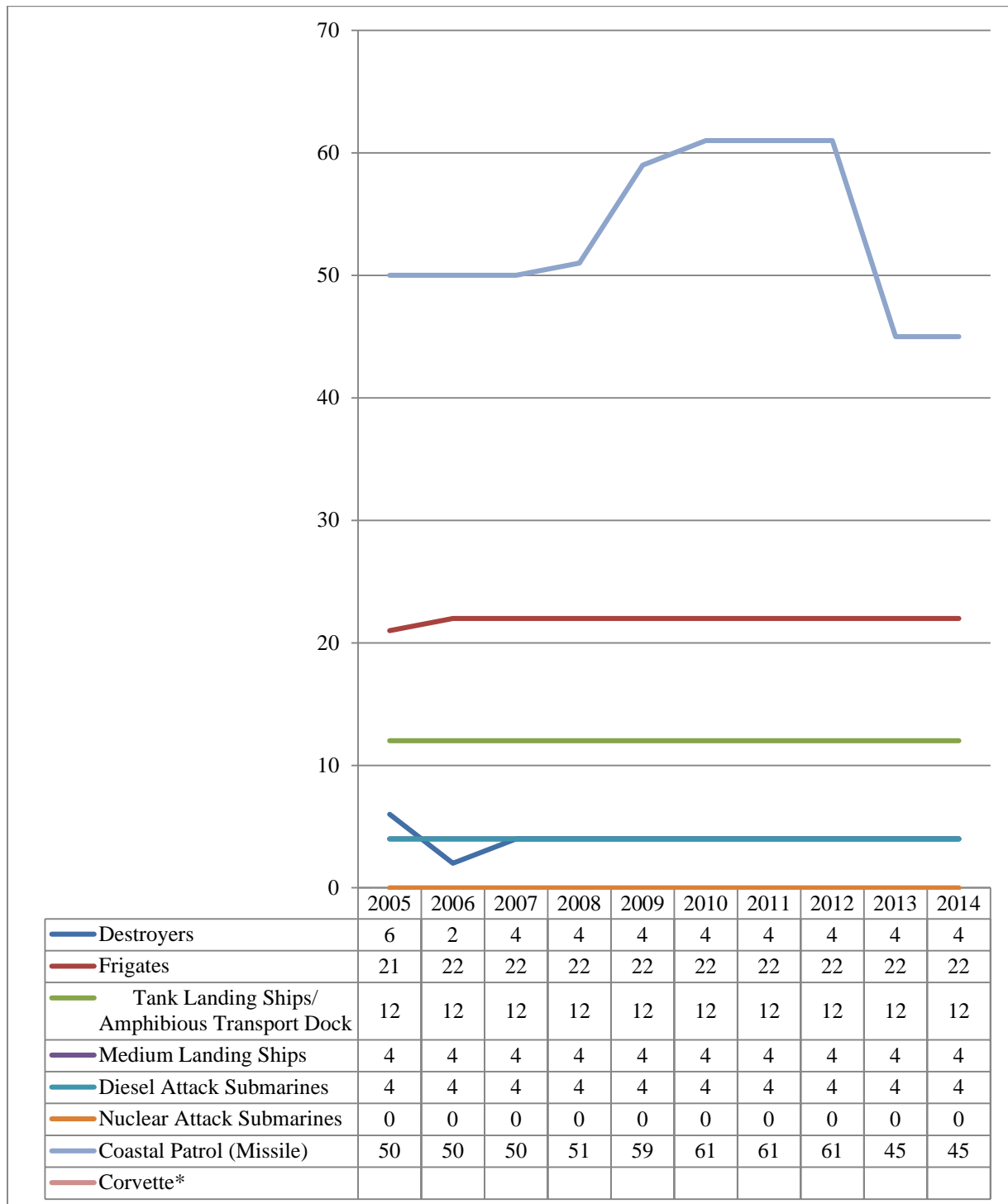
Figure 13.7: Absolute Trends in PLAN Deployments to the East and South Sea Fleets



*Aircraft carriers were recently introduced into the PLAN. Therefore, a comparison between current force levels and 2005 force levels could not be made. The carrier *Liaoning*, is currently deployed with the North Sea Fleet.

†The Type 056 *Jiangdao* class corvette entered service in 2012 and is currently the only class of corvette in the PLAN. Previous iterations of this report did not count corvettes; this is the first year corvettes were counted. The PLAN has a total of 8 Type 056 corvettes, 6 of which are in the East and South Sea fleets.

Sources: DoD, *Military Power of the People's Republic of China*, 2005-2008; DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China*, 2009-2014.

Figure 13.8: Absolute Trends in ROC Naval Forces

*This is the first year that this DoD Report counts corvettes. Taiwan does not have corvettes, according to the 2014 DoD Report.

Sources: DoD, *Military Power of the People's Republic of China*, 2005-2008; DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China*, 2009-2014.

Figures 13.7 and 13.8 indicate that, while the ROC's forces have been largely numerically stagnant or, in the case of coastal patrol boats, decreasing, the PLAN's deployments to the Taiwan Strait have been moderately – and in some cases, significantly – increasing.

However, the PRC and ROC are not engaging in a symmetric competition. The ROC has mostly based its defense strategy on assumptions of numerical inferiority, qualitative superiority, and asymmetric strategic imperatives. Consequently, a more meaningful assessment compares *relative* changes in the Taiwan Strait balance to compare the changing balance of forces. Thus, regardless of strategic assumptions, a changing relative balance indicates a meaningfully changing military balance and thus changing effects on bilateral relations.

Figures 13.9 and 13.10 illustrate this changing relative balance by using 2005 as a baseline and charting relative increases in force numbers on both sides. **Figure 13.9** demonstrates the changing relative force strength of PLAN deployments to the Taiwan Strait while **Figure 13.10** shows the changing relative force strength of ROC naval deployments. Even assuming a ROC strategic posture based on operating against numerically larger forces, such a comparison enables an observer to identify a military balance in flux in the PRC's favor. As the data in both Figures show, the ROC's naval forces are being forced to deter or defeat larger numbers of the PRC's forces *per individual ROC combatant*.

This outcome is the result of numerous trends within both navies. On the PLAN side, nearly every ship category has seen more than a 20% increase in force numbers since 2005. Importantly, nuclear submarines have been newly introduced into the region and so do not appear in the Figures below, because the PLAN's nuclear submarine force strength has increased by an infinite percentage. Also impressive, the PLAN's patrol craft force has increased by nearly 100% over the 2005 figure.

In contrast, the ROC's naval forces have experienced stagnant growth in naval force structure, with the 30% decrease in destroyers and the recent cuts to coastal patrol craft holdings being especially significant. These decreases have only been answered by a 5% increase in frigates and stagnant growth in other ship categories.

As a result, the Taiwan Strait naval balance shifted significantly in the favor of the PRC by 2012. Of course, this trend does not mean that the ROC cannot or will not engage in creative and asymmetric means of maintaining cross-strait deterrence in order to compensate for adversary trends in the Strait. However, these trends indicate that such asymmetric approaches are becoming necessary for the ROC: symmetric deterrence and war-fighting is becoming less and less feasible for Taiwan's armed forces.

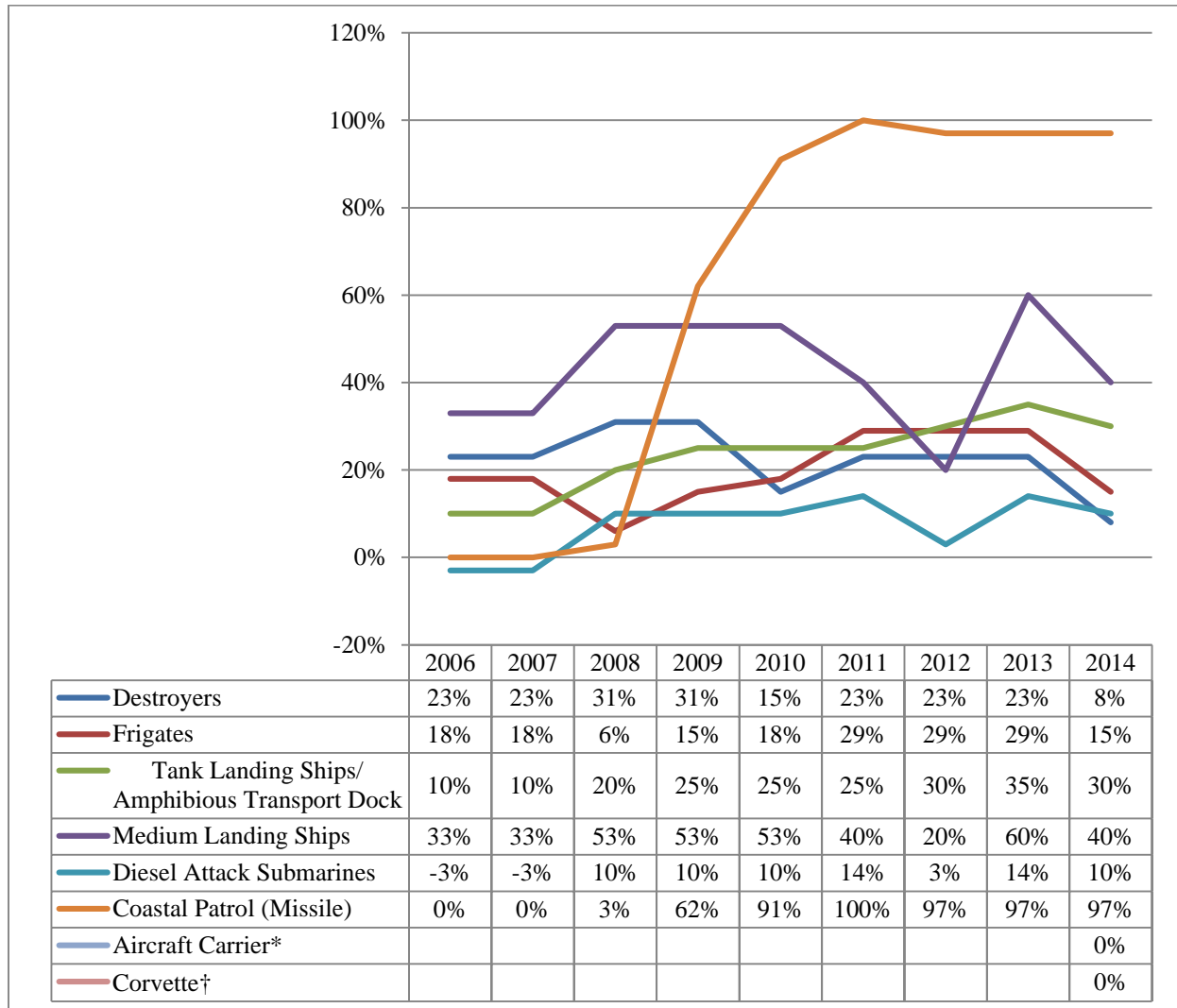
It is necessary to reiterate that these trends do not account for the myriad factors that would influence a PRC-ROC naval contest. Both sides operate numerous systems and forces not shown in the quantitative data below that would influence the naval contest. However, numbers do play a role in determining the outcome of combat.

It is interesting in this regard that the DoD report on *Military and Security Developments Involving the People's Republic of China for 2014* highlights the following largely naval scenario:⁵⁶⁵

In addition to direct military engagement, PLA writings describe potential alternative solutions—air blockades, missile attacks, and mining to force capitulation. China could declare that ships en route to Taiwan must stop in mainland ports for inspection and/or transshipment prior to transiting to Taiwan ports. China could also attempt the equivalent of a blockade by declaring exercise or missile closure areas in

approaches to ports, in effect closing port access and diverting merchant traffic. The PLA employed this method during the 1995-96 missile firings and live-fire exercises. There is a risk, however, that China would underestimate the degree to which any attempt to limit maritime traffic to and from Taiwan would trigger countervailing international pressure and military escalation. China today probably could not enforce a full military blockade, particularly if a major naval power intervened. However, its ability to do so will improve significantly over the next five to ten years.

Figure 13.9: Relative Increases in PLAN Deployments to the East and South Sea Fleets since 2005 (percentage increase)

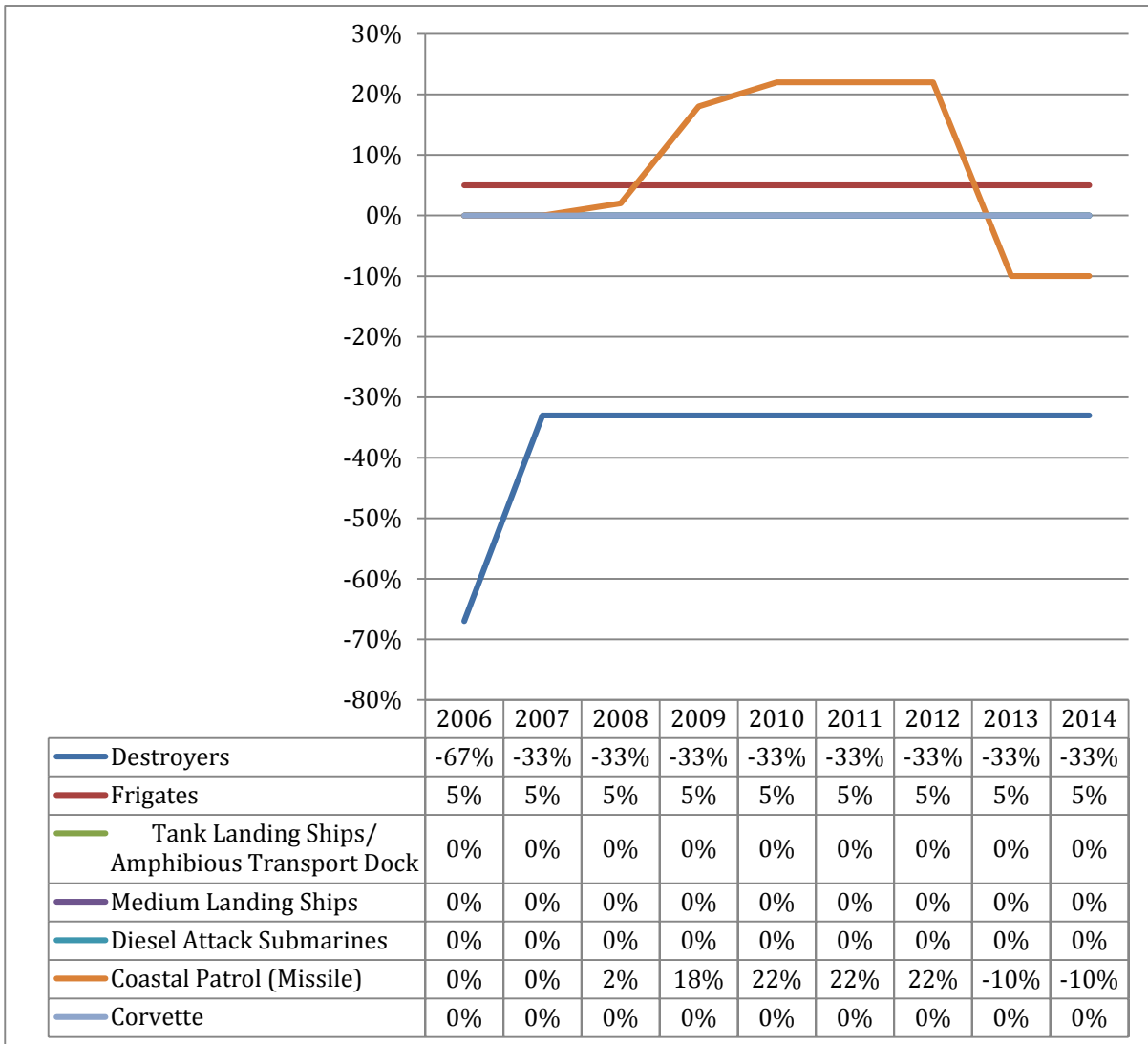


*Aircraft carriers were recently introduced into the PLAN. Therefore, a comparison between current force levels and 2005 force levels could not be made. The carrier *Liaoning*, is currently deployed with the North Sea Fleet.

†The Type 056 *Jiangdao* class corvette entered service in 2012 and is currently the only class of corvette in the PLAN. Previous iterations of this report did not count corvettes; this is the first year corvettes were counted. The PLAN has a total of 8 Type 056 corvettes, 6 of which are in the East and South Sea fleets.

Sources: DoD, *Military Power of the People's Republic of China*, 2005-2008; DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China*, 2009-2014.

**Figure 13.10: Increases in ROC Naval Deployments since 2005
(percentage increase)**



Sources: DoD, *Military Power of the People's Republic of China, 2005-2008*; DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China, 2009-2014*.

The Air and Missile Balance

The air and missile balance in the Taiwan Strait is changing in more complex ways than the naval balance. Rather than a clear shift in the favor of one country or another, the numbers of aircraft alone cannot indicate a shift in the military balance. Although the ROC Air Force (ROCAF) has introduced bomber aircraft as well as reduced its fighter holdings at roughly one-third the rate the PLAAF has, the PLAAF reductions coincide with the previously-discussed introduction of modern aircraft into the PLAAF fleet.

Moreover, there exist numerous components of the aerial balance that lie outside a symmetric comparison of aircraft: long-range SAMs, SRBMs, naval forces, and long-range artillery all have

the potential to influence any aerial combat over the Taiwan Strait. Consequently, based the DoD-supplied numbers alone, it is difficult to state definitively whether the military balance is shifting in one direction or another in this area. Such a determination would require an analysis of changes over time in numerous equipment categories as well as qualitative trends in training, skill, and leadership.

Considering this reality, the air and missile balance has a synergistic effect on the sea and land military balances that make up the Taiwan Strait balance. Changes in the aerial balance especially affect the naval balance, and vice versa. The deployment of ASCM-capable fighters and bombers in Taiwan, as well as the relative increase in Taiwanese fighters compared to the PLAAF's holdings, may compensate for the shifting trends in the naval balance.

Concurrently, the deployment of more DDGs and guided missile frigates (FFGs) with more capable SAMs by the PLAN may also have a significant effect on the aerial balance. Moreover, the air forces involved have missions in addition to air superiority and close air support; for example, the PLAAF transport aircraft near the Strait indicate that tactical and operational airlift is an important mission for the PLAAF's Taiwan Strait forces. Thus, one aspect of the aerial balance could be the PLAAF's ability to land and supply ground forces on Taiwan and the ROCAF's ability to prevent such actions.

Most significantly, the DoD has reported that the SAF has over 1,200 SRBMs deployed opposite Taiwan.⁵⁶⁶ these forces are capable of fulfilling a counter-air role, and the 2009 RAND report mentioned above documents how effectively a SRBM force of such a size and sophistication could significantly impede ROCAF air operations. To quote the RAND report:⁵⁶⁷

...if the entire first wave of missiles is devoted to air base attack, a greater than 90 percent chance of cutting all [ROCAF] runways could be achieved with 40m CEP missiles.

Complementing these SRBMs are PLAA MRLs that have ranges of up to 200 km.

With these caveats in mind, **Figures 13.11 and 13.12** show the changing absolute trends in the PLAAF and ROC Taiwan Strait aerial balance affecting deployments in the Taiwan Strait area. These Figures show that both air forces have decreased the absolute number of fighter and transport aircraft in the Taiwan Strait. However, the ROCAF's fighter strength has made a significant rebound since 2007. The ROC has made a moderate increase in bomber/attack aircraft from a baseline of zero, while the PLAAF made significant reductions in its bomber fleet. However, the PLAAF still holds roughly eight times as many bombers as the ROCAF in the Taiwan Strait area.

As the DoD noted in its 2014 report,⁵⁶⁸

China could use missile attacks and precision strikes against air defense systems, including air bases, radar sites, missiles, space assets, and communications facilities to degrade Taiwan's defenses, neutralize Taiwan's leadership, or break the Taiwan people's will to fight. (p. 55)

The Second Artillery is prepared to conduct missile attacks and precision strikes against Taiwan's air defense systems, air bases, radar sites, missiles, space assets, and C2 and communications facilities, in an attempt to degrade Taiwan's defenses, neutralize Taiwan's leadership, or break the public's will to fight. (p.56)

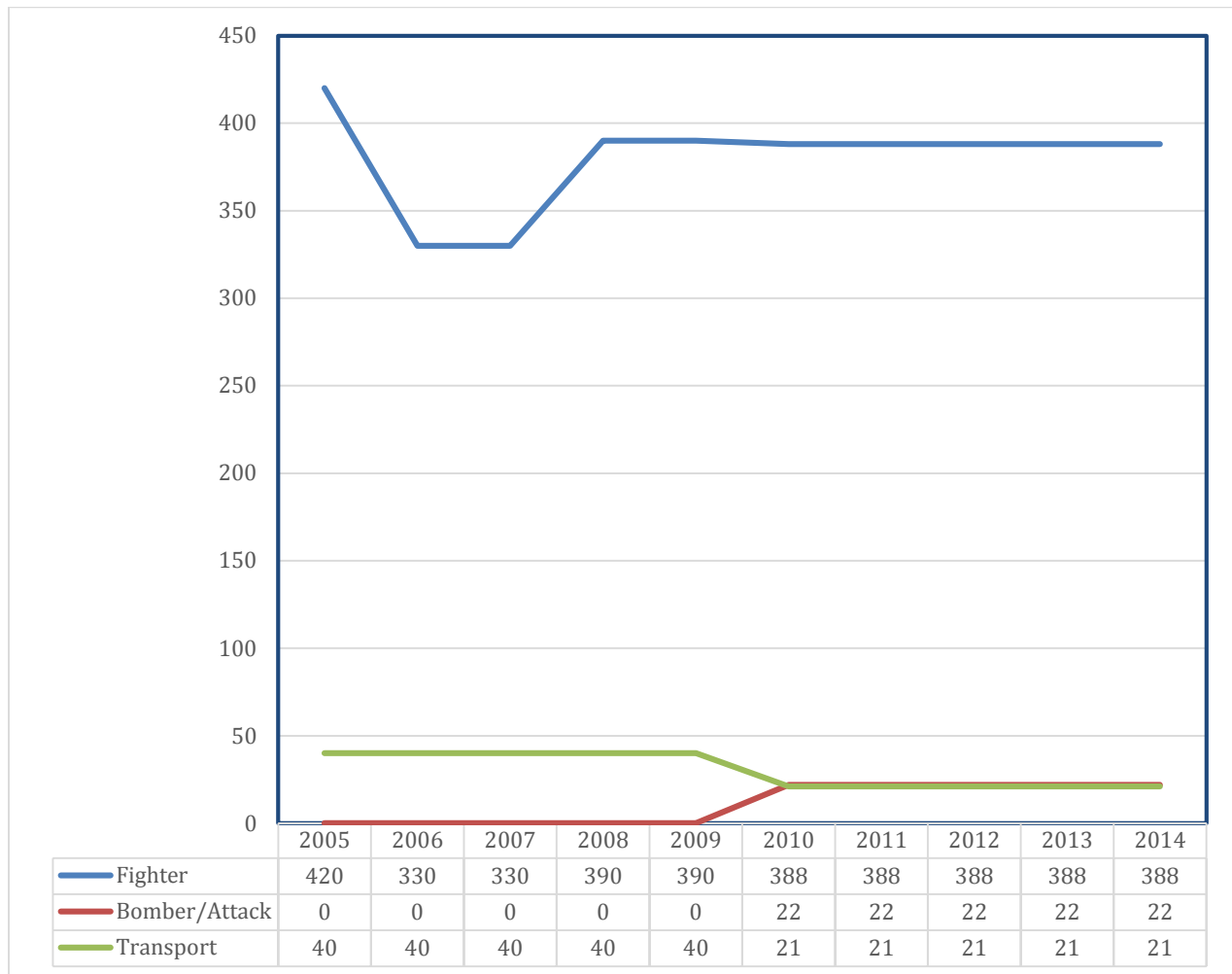
Figure 13.11: Absolute Trends in PLAAF Forces Deployed Near the Taiwan Strait



*The 2014 DoD Report gives the peculiar figure of 130. The number is suspected to be an error, meant to be 310. The higher figure is used here as it would appear to be more reasonable. However, it should be noted that the figure given in the report is different than the one used here.

†This number is 250 aircraft fewer than last year's transport total, but reflects a change in methodology versus aircraft acquisition.

Sources: DoD, *Military Power of the People's Republic of China*, 2005-2008; DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China*, 2009-2014.

Figure 13.12: Absolute Trends in the ROCAF Aircraft Inventory

Sources: DoD, *Military Power of the People's Republic of China*, 2005-2008; DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China*, 2009-2014.

It is difficult to judge the significance of the individual national trends shown in **Figures 13.11 and 13.12** without also looking at the relative trends that result from these numbers. As stated previously, the ROC armed forces operate on the assumption of numerical inferiority, so it is difficult to determine whether the reductions on both sides actually alter the military balance.

In order to provide context for these numbers, as well as to better enable an estimation of the changes occurring in the Taiwan Strait military balance, **Figures 13.13 and 13.14** show the relative trends in the force numbers of both the PLAAF and ROCAF. **Figure 13.15** shows a Japanese Ministry of Defense comparison of the trend in modern fighters.

These Figures indicate that both air forces have engaged in significant numerical reductions in their respective force strengths. As mentioned earlier, these numbers must be placed in the context of dual modernization programs that augment the capabilities of each individual aircraft on both sides. Consequently, a smaller force may counter-intuitively be more capable than a larger one.

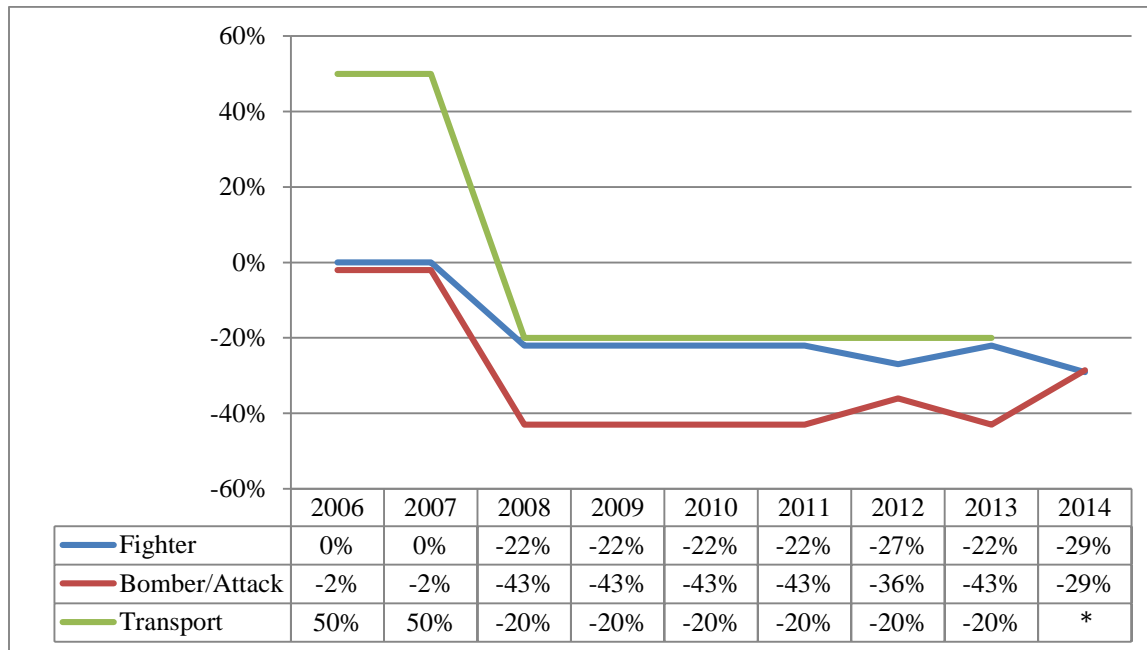
With that caveat, the relative numbers indicate that the PLAAF has reduced combat aircraft at a relatively higher pace than the ROCAF. Between 2005 and 2013, the ROCAF fighter arm decreased in number at approximately one-third the pace of the PLAAF's fighter strength deployed to the Taiwan Strait area. Moreover, as the ROC's fighter forces have grown slightly in strength since 2008, the 2005-2007 reduction may indicate the culling of obsolete aircraft and their replacement with more advanced systems. In addition, as the ROCAF has introduced bombers while the PLAAF has reduced its bomber holdings, the ROCAF bomber force has increased relative to the PLAAF's bomber force. These relative numbers indicate a shift in the aerial balance in the favor of the ROCAF.

Of course, a comparison of aircraft numbers alone only tells part of the story. How the ROCAF's relatively improving fighter and bomber force would perform against improving PLAA and PLAAF long-range SAMs as well as sea-based PLAN SAMs is a standing question.

As **Figure 13.16** illustrates, much would depend upon whether the ROC's air defense systems would provide the ROCAF with a relatively greater advantage than the PLA's air defense systems would provide the PLAAF. The air balance would also be shaped – perhaps critically – by the use of PLA SAF's SRBMs and the ROC's cruise missile forces, as well as by both sides' electronic warfare and cyberwarfare forces.

It is clear, however, that the quantitative trends indicate that the ROCAF is gaining ground at the expense of the PLAAF. As far as relative numbers determine the outcome of deterrence and combat, the ROCAF has seen a relative shift in its favor.

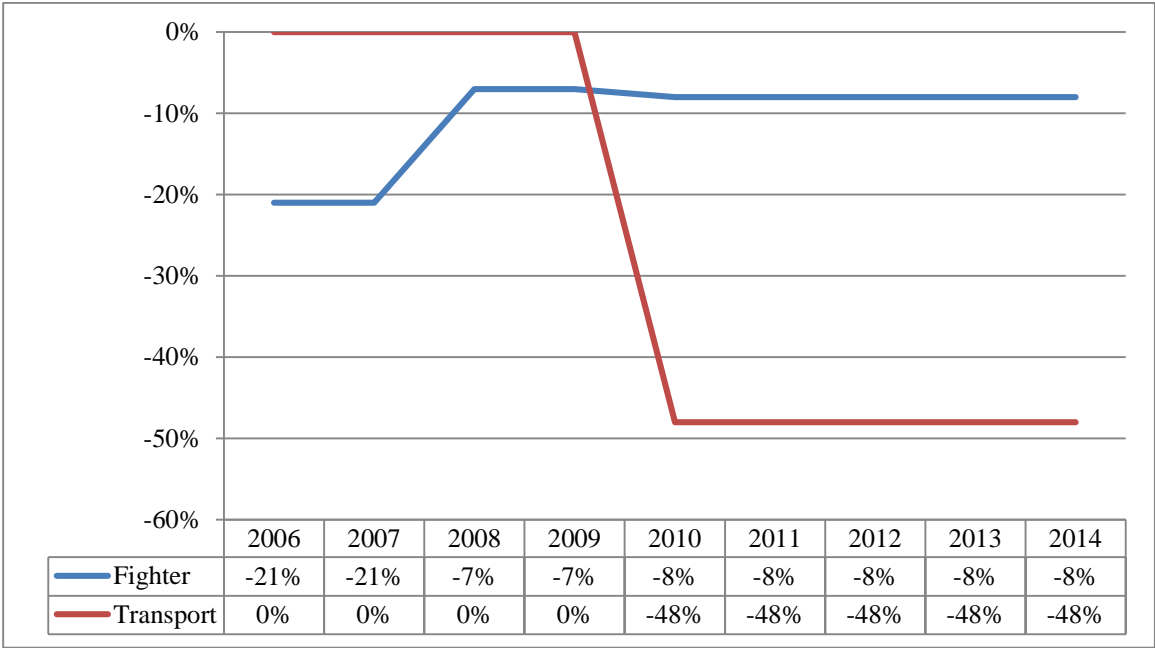
Figure 13.13: Relative Changes in PLAAF Force Deployments to the Taiwan Strait, since 2005 (percentage increase)



*This figure is left out due to the change in methodology and a desire to keep the graph simple. The actual figure is 200%, based on the different methodology. See the footnote on Figure 13.11.

Sources: DoD, *Military Power of the People's Republic of China*, 2005-2008; DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China*, 2009-2014.

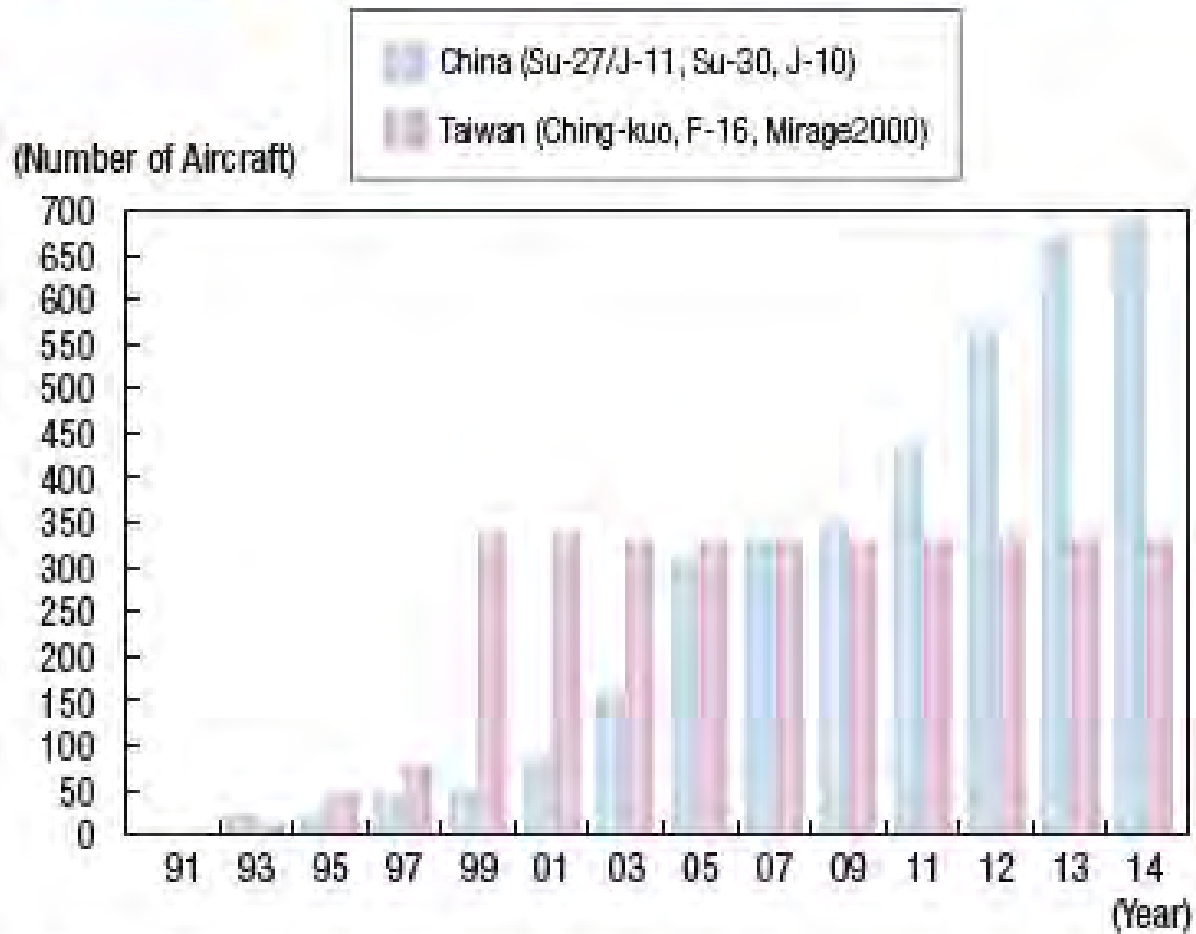
**Figure 13.14: Changes in ROCAF Force Numbers, since 2005
(percentage increase)**



Sources: DoD, *Military Power of the People’s Republic of China*, 2005-2008; DoD, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China*, 2009-2014.

Figure 13.15: Japanese Ministry of Defense Summary of the Trends in the Balance of Modern PRC-ROC Fighter Aircraft

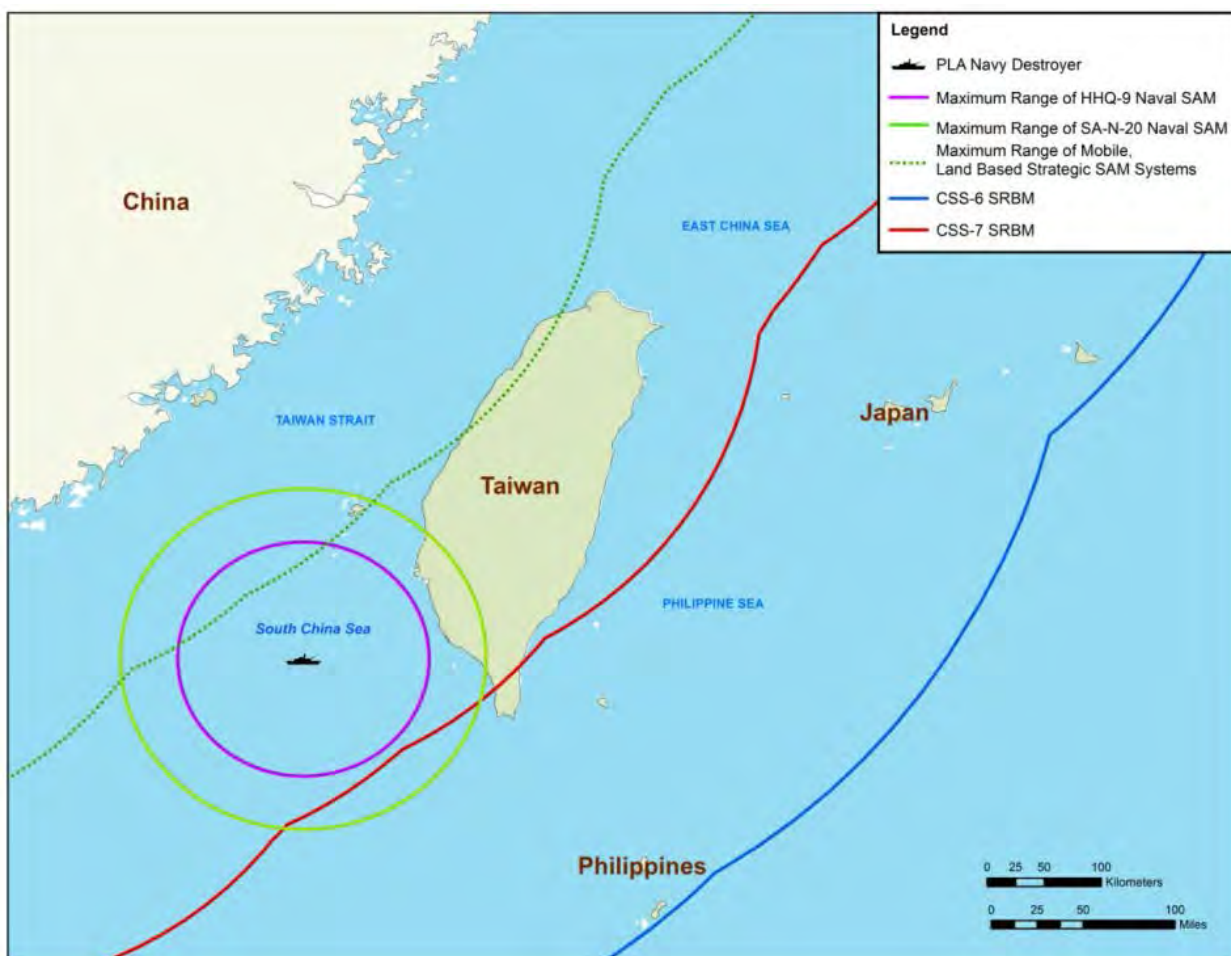
Fig. I-1-3-8 Changes in Modern Fighter Aircraft of China and Taiwan



Source: Military Balance (of respective years)

Source: Japanese Ministry of Defense, *Defense of Japan*, 2014.

Figure 13.16: Department of Defense Estimate of PLA SAM and SRBM Coverage



Source: DoD, *Annual Report to Congress: Report to Congress on Military and Security Developments Involving the People's Republic of China 2014*, April 2014, 87.

The Ground Force Balance

Figures 13.17 and 13.18 provide comparative data on the Personnel and equipment strengths on both sides of the Taiwan Strait. As **Figure 13.17** indicates, the PLAA has moderately increased its Personnel levels in the Taiwan Strait area while the ROC has decreased the size of its army by over one-third. The ROC's Personnel reduction is likely a symptom of its transition to an all-volunteer, more modern force. The PLA is also making similar changes, so an increase in Personnel levels indicates that the PLA is increasing the relative resources dedicated to the Taiwan Theater. However, the moderate size of the increase, combined with discrepancies in year-on-year accounting in the DoD's annual reports to Congress, mean that the increase may merely represent different DoD accounting practices.

The ground force balance is difficult to extrapolate from force numbers, however, because Taiwan's island geography, as well as the necessity of amphibious operations for either side to conduct large-scale offensive operations, leads to extraordinary asymmetry in land operations.

The attacking side must cross 185 km of sea in the face of air and sea defenses, forcibly enter terrain in the face of reinforced defenses while vulnerable, establish a beachhead, and continuously supply a very large military force across the ocean despite adversary actions. In this context, the effect of numbers is highly scenario-dependent, and full numbers can only be brought to bear once the most difficult elements of amphibious operations have already succeeded.

In addition, combat in all other domains will influence the conduct and success of land operations. Furthermore, these effects will be persistent: the necessity of logistics means that an amphibious operation is *always* vulnerable to logistics interdiction in *all* domains, regardless of the progress made by land forces on the offensive.

As previously noted, the US DoD makes this clear in its 2014 report,⁵⁶⁹

Publicly available Chinese writings describe different operational concepts for amphibious invasion. The most prominent of these, the Joint Island Landing Campaign, envisions a complex operation relying on coordinated, interlocking campaigns for logistics, air and naval support, and EW. The objective would be to break through or circumvent shore defenses, establish and build a beachhead, transport personnel and materiel to designated landing sites in the north or south of Taiwan's western coastline, and launch attacks to seize and occupy key targets and/or the entire island.

The PLA is capable of accomplishing various amphibious operations short of a full-scale invasion of Taiwan. With few overt military preparations beyond routine training, China could launch an invasion of small Taiwan-held islands in the South China Sea such as Pratas or Itu Aba. A PLA invasion of a medium-sized, better defended offshore island such as Matsu or Jinmen is within China's capabilities. Such an invasion would demonstrate military capability and political resolve while achieving tangible territorial gain and simultaneously showing some measure of restraint. However, this kind of operation includes significant, if not prohibitive, political risk because it could galvanize pro-independence sentiment on Taiwan and generate international opposition.

Large-scale amphibious invasion is one of the most complicated and difficult military operations. Success depends upon air and sea superiority, rapid buildup and sustainment of supplies on shore, and uninterrupted support. An attempt to invade Taiwan would strain China's armed forces and invite international intervention. These stresses, combined with China's combat force attrition and the complexity of urban warfare and counterinsurgency (assuming a successful landing and breakout), make amphibious invasion of Taiwan a significant political and military risk. Taiwan's investments to harden infrastructure and strengthen defensive capabilities could also decrease China's ability to achieve its objectives. Moreover, China does not appear to be building the conventional amphibious lift required to support such a campaign.

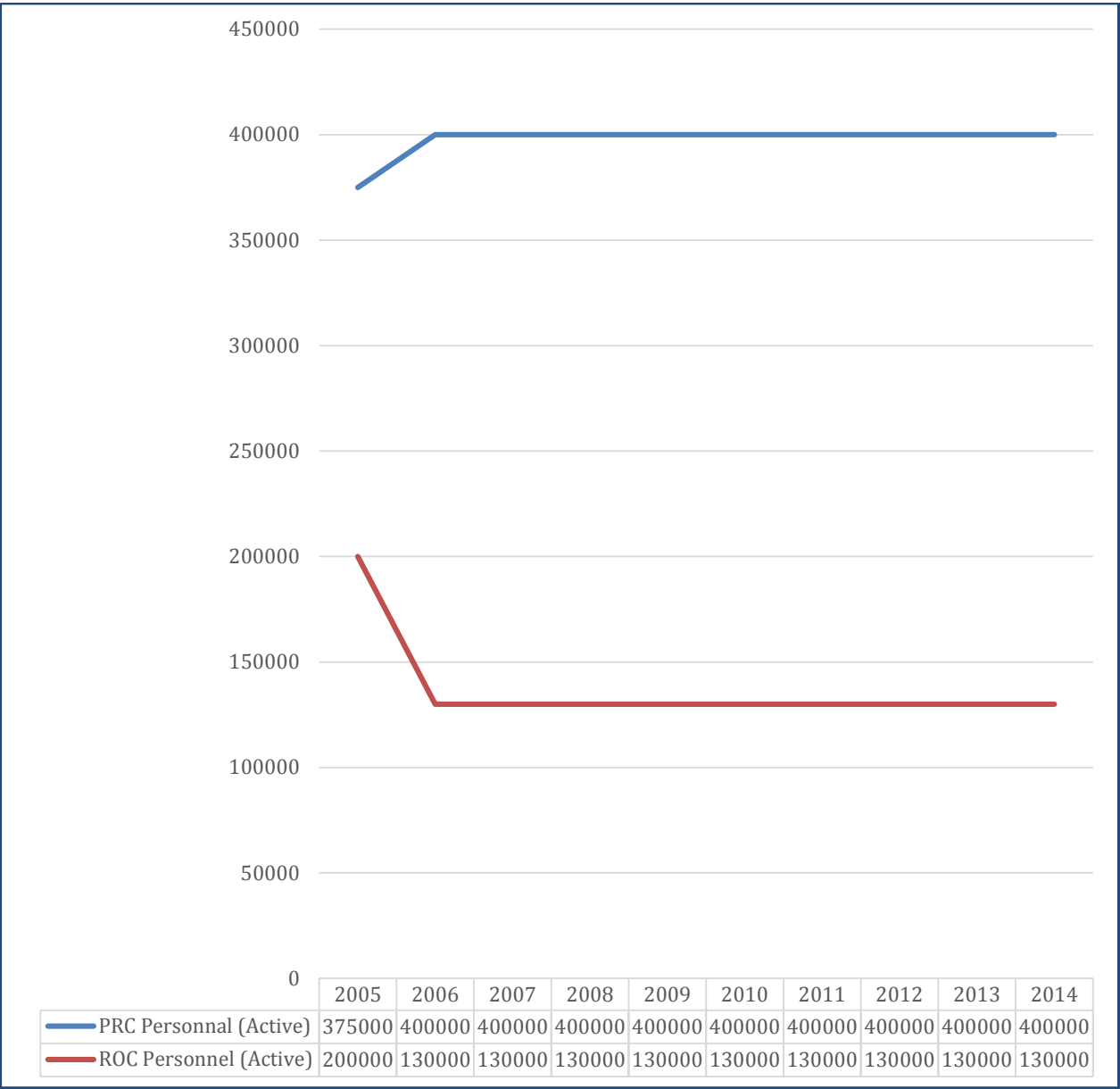
Figure 13.18 shows the comparative trends in MBT and artillery holdings. As the Figure indicates, the ROC has engaged in a significant reduction of both MBTs and artillery systems. The PLAA has also decreased its artillery holdings, but at the same time it has deployed additional tanks to the Taiwan Strait region – though in 2013, both of these deployments decreased over 2012 levels (but not relative to 2005 levels). These absolute trends indicate that the ground force balance has shifted in the PLAA's favor, as the PLAA has seen a relative increase in Personnel and tanks compared to the ROC.

While the absolute trends in tanks lend themselves to easy comparison, the absolute trends in artillery are more difficult – both forces are reducing their artillery system numbers. **Figure 13.19** illustrates the relative trend in artillery force numbers and shows that the balance in artillery forces has shifted in the PLAA's favor – there are more PLAA artillery pieces per ROC artillery piece in 2013 than in 2005.

This trend in the PLAA's favor is only strengthened if the PLAA's rebound in artillery numbers is caused by the introduction of modern artillery pieces; such an action would reinforce the PLAA's relative combat advantage over ROC artillery.

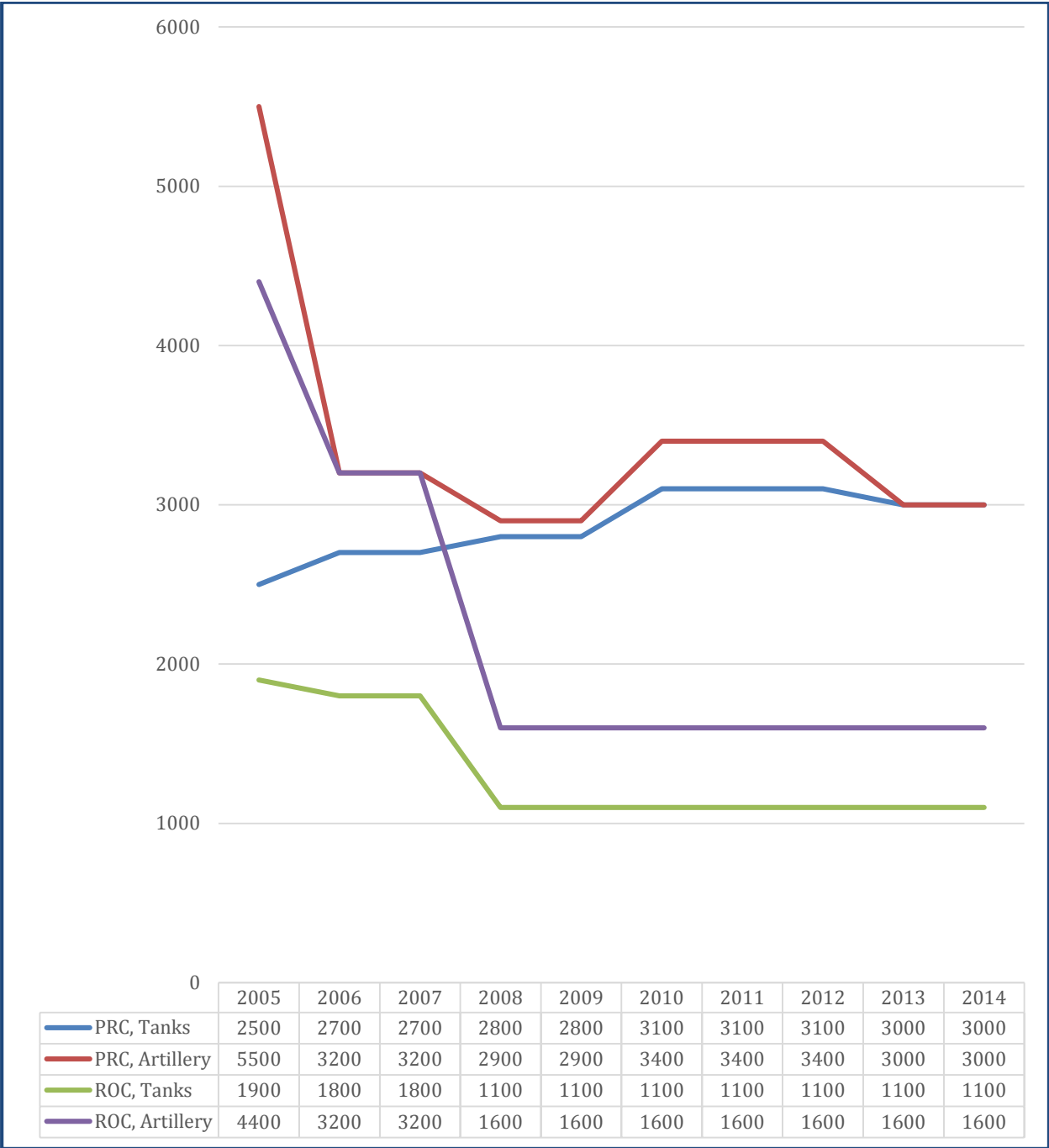
Finally, **Figure 13.20** provides the DoD’s 2013 assessment of PRC forces arrayed near Taiwan, in graphical format.

Figure 13.17: A Comparison of Personnel Trends in PLAA and ROC Army in the Taiwan Strait Region



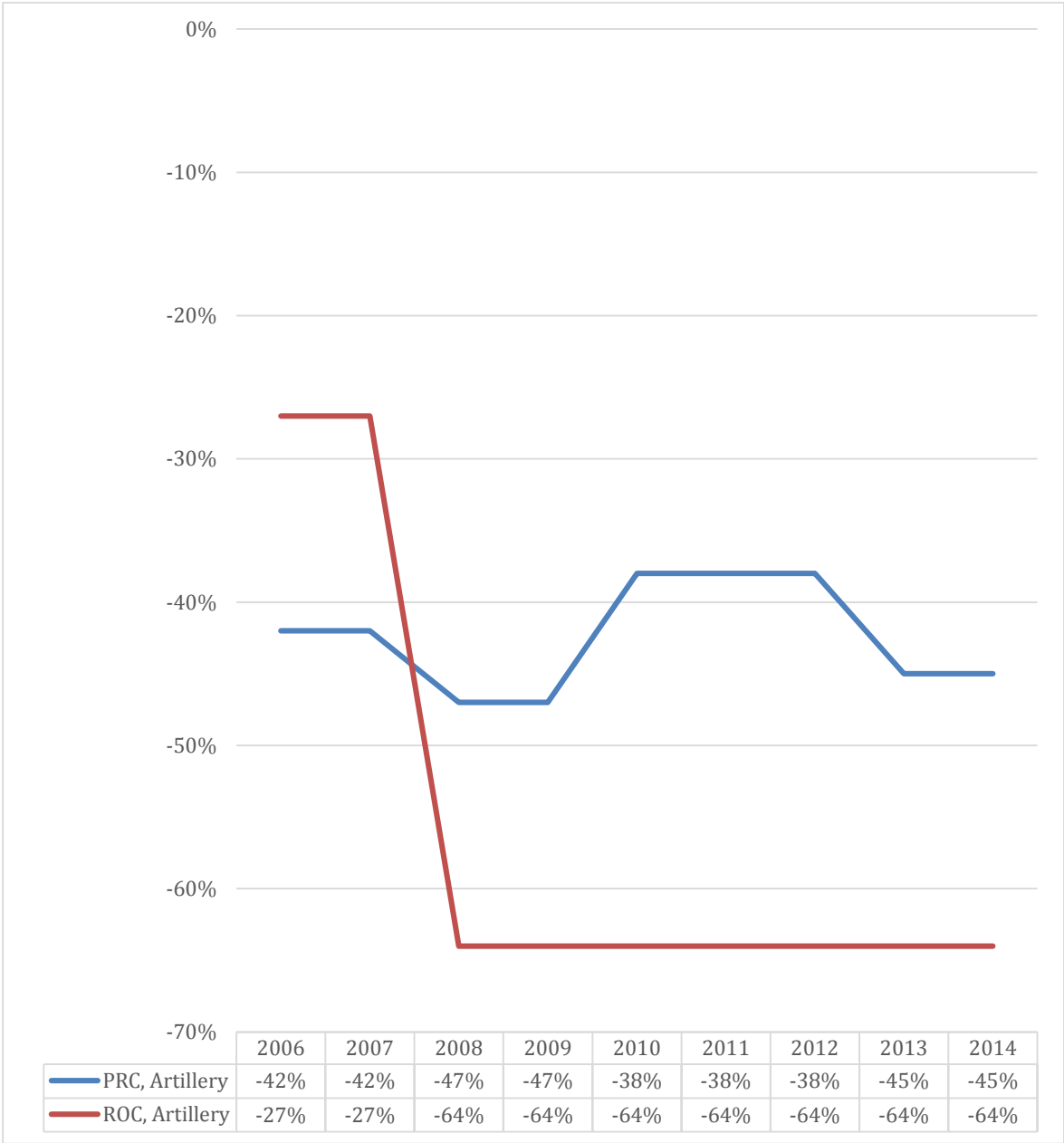
Sources: DoD, *Military Power of the People’s Republic of China*, 2005-2008; DoD, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China*, 2009-2014.

Figure 13.18: A Comparison of Trends in PLAA and ROC Equipment Holdings in the Taiwan Strait Region



Sources: DoD, *Military Power of the People's Republic of China*, 2005-2008; DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China*, 2009-2014.

Figure 13.19: A Comparison of Relative Trends in PRC and ROC Artillery Forces (percentage increase over 2005 levels)



Sources: DoD, *Military Power of the People’s Republic of China*, 2005-2008; DoD, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China*, 2009-2014.

Figure 13.20: PRC Force Deployment near Taiwan - Part One

Source: DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2014*, April 2014, 81.

Figure 13.20: PRC Force Deployment near Taiwan – Part Two



Source: DoD, *Military and Security Developments Involving the People's Republic of China* 2014, April 2014, 82.

CHAPTER 14: US AND CHINESE STRATEGIC COMPETITION OR COOPERATION: THE IOR AND PACIFIC AS A CASE STUDY

The tensions that now affect China's dealings with Southeast Asia are only part of a broader pattern of strategic change in the Indian Ocean region (IOR) and the Pacific that are shaped by shifts by regional debates over maritime territorial and Exclusive Economic Zone (EEZ) debates and by the changes in US, Chinese, and other Asia forces. Much of the future stability and security of the IOR and Pacific region will be determined by the level of forces the US continues to deploy in the region, the level of forces China deploys, and each country's evolving power projection capabilities and partnerships with local powers.

At present, the United States dominates the overall naval and air balance outside the littoral areas. The US does not, however, plan to deploy large air-sea forces in the IOR on a permanent basis, and relies heavily on strategic partners for basing, support, and additional forces in the Pacific. China is an emerging air and seapower in the Pacific and already plays an anti-piracy role in the IOR. It may come to play a major role in the IOR in the future. China is still, however, focusing on the Pacific and developing the mix of naval, air, and sea power to help enforce its claims from the China Sea to the waters and air space of Korea and Japan. China is focusing on being able to deter and challenge US forces in the Pacific, and is at least five years – and probably ten years – away from the level of strength it will need to achieve parity with US air-sea forces.

Much will depend, however, on the level of forces and the quality of the strategic partnerships the US can maintain in the Gulf, the IOR, and the Pacific over the next decade. The shift in US energy import dependence described in Chapter I, and US budget debates, have so far prevented the US from translating its declared strategy into developing stable force plans. Similarly, China faces its own problems in terms of the reaction of other states in Asia, demographic problems, and the ability to sustain the economic growth that is the key to competing directly with the US.

Accordingly, the present military balance between the US and China is not a key strategic issue. It is rather how each side's role in the Pacific and IOR will evolve over time, how its military capabilities and partnership will develop, and the extent to which both powers come to compete in terms that have a major impact.

US Strategy Affecting the Pacific and the IOR

The US announced major shifts in its national strategy in a document called *Sustaining US Global Leadership: Priorities for 21st Century Defense* the DoD issued on January 3, 2012.⁵⁷⁰ The new US strategy for the IOR did not focus on a “pivot to Asia” -- a phrase sometimes used in US speeches. The strategy described a limited “rebalancing” of forces from NATO and Europe to the US and Pacific. Aside from this, it gave equal priority to both Asia and the Middle East.⁵⁷¹

U.S. economic and security interests are inextricably linked to developments in the arc extending from the Western Pacific and East Asia into the Indian Ocean region and South Asia, creating a mix of evolving challenges and opportunities. Accordingly, while the U.S. military will continue to contribute to security globally, *we will of necessity rebalance toward the Asia-Pacific region.*

Our relationships with Asian allies and key partners are critical to the future stability and growth of the region. We will emphasize our existing alliances, which provide a vital foundation for Asia-Pacific security. We will also expand our networks of cooperation with emerging partners throughout the Asia-Pacific to ensure collective capability and capacity for securing common interests. The United States is also investing in a long-term strategic partnership with India to support its ability to serve as a regional economic anchor and provider of security in the broader Indian Ocean region. Furthermore, we will maintain peace on the Korean Peninsula by effectively working with allies and other regional states to deter and defend against provocation from North Korea, which is actively pursuing a nuclear weapons program.

The maintenance of peace, stability, the free flow of commerce, and of U.S. influence in this dynamic region will depend in part on an underlying balance of military capability and presence. Over the long term, China's emergence as a regional power will have the potential to affect the U.S. economy and our security in a variety of ways. Our two countries have a strong stake in peace and stability in East Asia and an interest in building a cooperative bilateral relationship. However, the growth of China's military power must be accompanied by greater clarity of its strategic intentions in order to avoid causing friction in the region.

The United States will continue to make the necessary investments to ensure that we maintain regional access and the ability to operate freely in keeping with our treaty obligations and with international law. Working closely with our network of allies and partners, we will continue to promote a rules-based international order that ensures underlying stability and encourages the peaceful rise of new powers, economic dynamism, and constructive defense cooperation.

In the Middle East, the Arab Awakening presents both strategic opportunities and challenges. Regime changes, as well as tensions within and among states under pressure to reform, introduce uncertainty for the future. But they also may result in governments that, over the long term, are more responsive to the legitimate aspirations of their people, and are more stable and reliable partners of the United States.

Our defense efforts in the Middle East will be aimed at countering violent extremists and destabilizing threats, as well as upholding our commitment to allies and partner states. Of particular concern are the proliferation of ballistic missiles and weapons of mass destruction (WMD). U.S. policy will emphasize Gulf security, in collaboration with Gulf Cooperation Council countries when appropriate, to prevent Iran's development of a nuclear weapon capability and counter its destabilizing policies. The United States will do this while standing up for Israel's security and a comprehensive Middle East peace. *To support these objectives, the United States will continue to place a premium on U.S. and allied military presence in – and support of – partner nations in and around this region.*

Former US Secretary of Defense Leon Panetta described these shifts in US strategy in more detail in a speech to the Shangri-La Security Dialogue in Singapore on June 2, 2012. It is critical to note, however, that Secretary Panetta did not discuss major increases in US forces, acknowledged the constraints on US military resources, and focused on the need for US and Chinese cooperation and dialogue:⁵⁷²

The purpose of this trip, and of my remarks today, is to explain a new defense strategy that the United States has put in place and why the United States will play a deeper and more enduring partnership role in advancing the security and prosperity of the Asia-Pacific region, and how the United States military supports that goal by rebalancing towards this region.

... America's fate is inexorably linked with this region. This reality has guided more than six decades of U.S. military presence and partnership in this region -- a defense posture that, along with our trading relations, along with our diplomatic ties, along with our foreign assistance, helped usher in an unprecedented era of security and prosperity in the latter half of the 20th century.

In this century, the 21st century, the United States recognizes that our prosperity and our security depend even more on the Asia-Pacific region. After all, this region is home to some of the world's fastest growing economies: China, India, and Indonesia to mention a few. At the same time, Asia-Pacific contains the world's largest populations, and the world's largest militaries. Defense spending in Asia is projected by this institute, the IISS, to surpass that of Europe this year, and there is no doubt that it will continue to increase in the future.

Given these trends, President Obama has stated the United States will play a larger role in this region over the decades to come. This effort will draw on the strengths of the entire United States government. We take on this role not as a distant power, but as part of the Pacific family of nations. Our goal is to work closely with all of the nations of this region to confront common challenges and to promote peace, prosperity, and security for all nations in the Asia-Pacific region.

... We will play an essential role in promoting strong partnerships that strengthen the capabilities of the Pacific nations to defend and secure themselves. All of the U.S. military services are focused on implementing the president's guidance to make the Asia-Pacific a top priority. Before I detail these specific efforts, let me provide some context for our broader defense strategy in the 21st century.

The United States is at a strategic turning point after a decade of war. We have significantly weakened al-Qaida's leadership and ability to attack other nations. We have sent a very clear message that nobody attacks the United States and gets away with it.

Our military mission in Iraq has ended and established—established an Iraq that can secure and govern itself.

In Afghanistan, where a number of Asia-Pacific nations are playing a critical role in the international coalition, we have begun our transition to the Afghan security lead and to an Afghanistan that can secure and govern itself. Recent meeting in Chicago, NATO and its partners—over 50 nations—came together to support General Allen's plan to accomplish this goal. In addition to that, we joined in a successful NATO effort to return Libya to the Libyan people.

But even as we have been able to draw these wars to a hopeful end, we are confronted today by a wide range of complex global challenges. From terrorism—terrorism still remains a threat to the world—from terrorism to the destabilizing behavior of Iran and North Korea, from nuclear proliferation to the new threat of cyberattack, from continuing turmoil in the Middle East to territorial disputes in this region.

At the same time, the United States, like many other nations, is dealing with large debt and large deficits, which has required the Department of Defense to reduce the planning budget by nearly half a trillion dollars or specifically \$487 billion that were directed to be reduced by the Congress in the Budget Control Act over the next decade. But this new fiscal reality, challenge that many nations confront these days, has given us an opportunity to design a new defense strategy for the 21st century that both confronts the threats that we face and maintains the strongest military in the world.

This strategy makes clear the United States military, yes, it will be smaller, it will be leaner, but it will be agile and flexible, quickly deployable, and will employ cutting-edge technology in the future. It makes equally clear that while the U.S. military will remain a global force for security and stability, we will of necessity rebalance towards the Asia-Pacific region. We will also maintain our presence throughout the world. We will do it with innovative rotational deployments that emphasize creation of new partnerships and new alliances. We will also invest, invest in cyber, invest in space, invest in unnamed systems, invest in special forces operations. We will invest in the newest technology and we will invest in the ability to mobilize quickly if necessary.

We have made choices and we have set priorities, and we have rightly chosen to make this region a priority.

Our approach to achieving the long-term goal in the Asia-Pacific is to stay firmly committed to a basic set of shared principles -- principles that promote international rules and order to advance peace and security in the region, deepening and broadening our bilateral and multilateral partnerships, enhancing and adapting the U.S. military's enduring presence in this region, and to make new investments in the capabilities needed to project power and operate in Asia-Pacific. Let me discuss each of these shared principles.

The first is the shared principle that we abide by international rules and order. Let me underscore that this is not a new principle, our solid commitment to establish a set of rules that all play by is one that we believe will help support peace and prosperity in this region. What are we talking about? These rules include the principle of open and free commerce, a just international order that emphasizes rights and responsibilities of all nations and a fidelity to the rule of law; open access by all to their shared domains of sea, air, space, and cyberspace; and resolving disputes without coercion or the use of force.

Backing this vision involves resolving disputes as quickly as possible with diplomatic efforts. Backing these principles has been the essential mission of the United States military in the Asia-Pacific for more than 60 years and it will be even a more important mission in the future. My hope is that in line with these rules and international order that is necessary that the United States will join over 160 other nations in ratifying the Law of Seas Convention this year.

The second principle is one of partnerships. Key to this approach is our effort to modernize and strengthen our alliances and partnerships in this region. The United States has key treaty alliances with Japan, South Korea, Australia, Philippines and Thailand. We have key partners in India, Singapore, Indonesia, and other nations. And we are working hard to develop and build stronger relations with China.

As we expand our partnerships, as we strengthen our alliances, the United States-Japan alliance will remain one of the cornerstones for regional security and prosperity in the 21st century. For that reason, our two militaries are enhancing their ability to train and operate together, and cooperating closely in areas such as maritime security and intelligence, surveillance and reconnaissance. We are also jointly developing high-tech capabilities, including the next generation missile defense interceptor, and exploring new areas of cooperation in space and in cyberspace.

In the past several months we have strengthened the alliance and our broader strategic objectives in the region with a revised plan to relocate Marines from Okinawa to Guam. This plan will make the U.S. presence in Okinawa more politically sustainable, and it will help further develop Guam as a strategic hub for the United States military in the Western Pacific, improving our ability to respond to a wide range of contingencies in the Asia-Pacific region.

Another linchpin of our Asia-Pacific security is the U.S. alliance with the Republic of Korea. During a year of transition and provocation on the Korean Peninsula, this alliance has been indispensable, and I have made it a priority to strengthen it for the future. To that end, even as the United States reduces the overall size of its ground forces in the coming years in a transitional way over a five-year period, we will maintain the United States Army's significant presence in Korea. We are also boosting our intelligence and information sharing with the Republic of Korea, standing firm against hostile provocations from North Korea while transforming the alliance with new capabilities to meet global challenges.

The third shared principle is presence. While strengthening our traditional alliances in Northeast Asia and maintaining our presence there, as part of this rebalancing effort we are also enhancing our presence in Southeast Asia and in the Indian Ocean region.

A critical component of that effort is the agreement announced last fall for a rotational Marine Corps presence and aircraft deployments in northern Australia. The first detachment of Marines arrived in April, and this Marine Air-Ground Task Force will be capable of rapidly deploying across the Asia-Pacific region, thereby enabling us to work more effectively with partners in Southeast Asia and the Indian Ocean and tackle common challenges such as natural disasters and maritime security.

These Marines will conduct training and exercises throughout the region and with Australia, strengthening one of our most important alliances and building on a decade of operational experience together in Afghanistan. Speaking of that, I welcome and applaud Australia's announcement that later this year it will assume leadership of Combined Team Uruzgan, and will lead our security efforts there through 2014.

We're also continuing close operational cooperation with our longtime ally, Thailand. The Thais annually host COBRA GOLD, a world-class multilateral military exercise, and this year we will deepen our strategic cooperation to meet shared regional challenges. We are energizing our alliance with the Philippines. Last month in Washington I joined Secretary Clinton in the first-ever "2+2" meeting with our Filipino counterparts. Working together, our forces are successfully countering terrorist groups. We are also pursuing mutually beneficial capability enhancements, and working to improve the Philippine's maritime presence. Chairman Dempsey will be traveling from here to the Philippines to further our military engagement.

Another tangible manifestation of our commitment to rebalancing is our growing defense relationship with Singapore. Our ability to operate with Singaporean forces and others in the region will grow substantially in the coming years when we implement the forward deployment of the Littoral Combat Ships to Singapore.

As we take existing alliances and partnerships in new directions, this rebalancing effort also places a premium on enhancing partnerships with Indonesia, Malaysia, India, and Vietnam, and New Zealand. In the

coming days I will travel to Vietnam to advance bilateral defense cooperation, building off of the comprehensive memorandum of understanding that our two nations signed last year. From Vietnam, I will travel to India to affirm our interest in building a strong security relationship with a country I believe will play a decisive role in shaping the security and prosperity of the 21st century.

As the United States strengthens these regional partnerships, we will also seek to strengthen a very important relationship with China. We believe China is a key to being able to develop a peaceful, prosperous, and secure Asia-Pacific in the 21st century. And I am looking forward to traveling there soon at the invitation of the Chinese government. Both of our nations recognize that the relationship -- this relationship between the United States and China is one of the most important in the world. We in the United States are clear-eyed about the challenges, make no mistake about it, but we also seek to grasp the opportunities that can come from closer cooperation and a closer relationship.

I'm personally committed to building a healthy, stable, reliable, and continuous mil-to-mil relationship with China. I had the opportunity to host Vice President Xi and later Defense Minister General Liang at the Pentagon in the effort to pursue that goal. Our aim is to continue to improve the strategic trust that we must have between our two countries, and to discuss common approaches to dealing with shared security challenges.

We are working with China to execute a robust military-to-military engagement plan for the rest of this year, and we will seek to deepen our partnership in humanitarian assistance, counter-drug, and counter-proliferation efforts. We have also agreed on the need to address responsible behavior in cyberspace and in outer space. We must establish and reinforce agreed principles of responsible behavior in these key domains.

I know that many in the region and across the world are closely watching the United States-China relationship. Some view the increased emphasis by the United States on the Asia-Pacific region as some kind of challenge to China. I reject that view entirely. Our effort to renew and intensify our involvement in Asia is fully compatible -- fully compatible -- with the development and growth of China. Indeed, increased U.S. involvement in this region will benefit China as it advances our shared security and prosperity for the future.

In this context, we strongly support the efforts that both China and Taiwan, both have made in recent years trying to improve cross-strait relations. We have an enduring interest in peace and stability across the Taiwan Strait. The United States remains firm in the adherence to a one-China policy based on the Three Communiqués and the Taiwan Relations Act. China also has a critical role to play in advancing security and prosperity by respecting the rules-based order that has served the region for six decades. The United States welcomes the rise of a strong and prosperous and successful China that plays a greater role in global affairs.

Another positive step towards furthering this rules-based order is Asia's deepening regional security architecture, which the United States strongly supports. Last October, I had the opportunity to be the first U.S. secretary of defense to meet privately with all ASEAN defense ministers in Bali. We applaud the ASEAN Defense Ministers Meeting Plus for producing real action plans for multilateral military cooperation, and I strongly support the ASEAN decision to hold more frequent ADMM-Plus discussions at the ministerial level. We think this is an important step for stability, real coordination, communication, and support between these nations.

The United States believes it is critical for regional institutions to develop mutually agreed rules of the road that protect the rights of all nations to free and open access to the seas. We support the efforts of the ASEAN countries and China to develop a binding code of conduct that would create a rules-based framework for regulating the conduct of parties in the South China Sea, including the prevention and management of disputes.

On that note, we are obviously paying close attention to the situation in Scarborough Shoal in the South China Sea. The U.S. position is clear and consistent: we call for restraint and for diplomatic resolution; we oppose provocation; we oppose coercion; and we oppose the use of force. We do not take sides when it comes to competing territorial claims, but we do want this dispute resolved peacefully and in a manner consistent with international law.

We have made our views known and very clear to our close treaty ally, the Philippines, and we have made those views clear to China and to other countries in the region. As a Pacific power, the United States has a

national interest in freedom of navigation, in unimpeded economic development and commerce, and in a respect for the rule of law. Our alliances, our partnerships, and our enduring presence in this region all serve to support these important goals.

For those who are concerned about the ability of the United States to maintain a strong presence in the Asia-Pacific region in light of the fiscal pressures we face, let me be very clear. The Department of Defense has a five-year budget plan and a detailed blueprint for implementing this strategy I just outlined for realizing our long-term goals in this region, and for still meeting our fiscal responsibilities.

The final principle -- shared principle that we all have is force projection. This budget is the first in what will be a sustained series of investments and strategic decisions to strengthen our military capabilities in the Asia-Pacific region. I would encourage you to look at the increasing technological capabilities of our forces as much as their numbers in judging the full measure of our security presence and our security commitment.

For example, over the next five years we will retire older Navy ships, but we will replace them with more than 40 far more capable and technologically advanced ships. Over the next few years we will increase the number and the size of our exercises in the Pacific. We will also increase and more widely distribute our port visits, including in the important Indian Ocean region. And by 2020 the Navy will reposture its forces from today's roughly 50/50 percent split between the Pacific and the Atlantic to about a 60/40 split between those oceans. That will include six aircraft carriers in this region, a majority of our cruisers, destroyers, Littoral Combat Ships, and submarines.

Our forward-deployed forces are the core of our commitment to this region and we will, as I said, sharpen the technological edge of our forces. These forces are also backed up by our ability to rapidly project military power if needed to meet our security commitments. Therefore, we are investing specifically in those kinds of capabilities -- such as an advanced fifth-generation fighter, an enhanced Virginia-class submarine, new electronic warfare and communications capabilities, and improved precision weapons -- that will provide our forces with freedom of maneuver in areas in which our access and freedom of action may be threatened.

We recognize the challenges of operating over the Pacific's vast distances. That is why we are investing in new aerial-refueling tankers, a new bomber, and advanced maritime patrol and anti-submarine warfare aircraft.

In concert with these investments in military capabilities, we are developing new concepts of operation which will enable us to better leverage the unique strengths of these platforms and meet the unique challenges of operating in Asia-Pacific. In January, the department published a Joint Operational Access Concept which, along with these related efforts like Air-Sea Battle, are helping the Department meet the challenges of new and disruptive technologies and weapons that could deny our forces access to key sea routes and key lines of communication.

It will take years for these concepts and many of the investments that I just detailed, but we are making those investments in order that they be fully realized. Make no mistake -- in a steady, deliberate, and sustainable way the United States military is rebalancing and bringing an enhanced capability development to this vital region.

His replacement, Secretary Chuck Hagel, gave a speech at the May 31, 2013 Shangri-La Forum that provided additional data on US policy towards the Asia-Pacific region:⁵⁷³

... [T]he world is undergoing a time of historic transformation, and Asia is at the epicenter of that change. The 21st century will be defined by the rise of new powers; the rapid spread of information, goods, and technologies; innovation and economic integration; new security coalitions that take on shared challenges; issues of trade, energy and the environment; and greater opportunities for people of all nations to have a voice in shaping their future.

With this incredible promise come complications and challenges. In Asia, we see a range of persistent and emerging threats, including:

- North Korea's nuclear weapons and missile programs, and its continued provocations;
- Ongoing land and maritime disputes and conflicts over natural resources;

- The continued threat of natural disaster, the curse of poverty and the threat of pandemic disease;
- Environmental degradation;
- Illicit trafficking in people, weapons, drugs, and other dangerous materials – including the proliferation of weapons of mass destruction;
- And the growing threat of disruptive activities in space and cyberspace.

These are the challenges of the 21st century. This morning I want to describe, from my perspective as the Secretary of Defense of the United States, what we can do together to meet these critical challenges. In particular, America and other nations of the Asia-Pacific must continue to strengthen existing alliances, forge new partnerships, and build coalitions based on common interests to ensure this region's future is peaceful and prosperous.

1. U.S. Investments in Asia-Pacific

In support of this goal, America is implementing a rebalance – which is primarily a diplomatic, economic and cultural strategy. President Obama is increasing funding for diplomacy and development in Asia, including a seven percent increase in foreign assistance in the Asia-Pacific region. The United States is providing new resources for regional efforts such as the Lower Mekong Initiative, which helps improve water management, disaster resilience, and public health. We have built strong momentum toward implementing a next-generation trade and investment agreement through the Trans-Pacific Partnership negotiations. We are fostering regional trade and investment through our work in APEC and our support to ASEAN.

The Department of Defense plays an important role in securing the President's vision of rebalance. Our approach was outlined in the President's 2012 Defense Strategic Guidance, which is still guiding the U.S. military as we reorient its capabilities and capacities to better prepare for future global security challenges.

As we carry out this strategy, it is true that the Department of Defense will have fewer resources than in the recent past. It would be unwise and short-sighted to conclude, however, that our commitment to the rebalance cannot be sustained – particularly given the truth that even under the most extreme budget scenarios, the United States military will continue to represent nearly 40 percent of global defense expenditures. Like the employment of all resources, it is always a matter of the wise, judicious and strategic use of those resources that matters the most and has the most lasting impact.

The fact of the matter is that new fiscal realities present an opportunity to conduct a thorough and much-needed review to ensure we are matching resources to the most important priorities. With that goal in mind, I recently directed a Department-wide Strategic Choices and Management Review. Although the review's outcome is not final, the direction I provided was to follow the President's defense strategic guidance, to focus new energy and thinking on addressing long-standing challenges, and to make our defense enterprise one that better reflects 21st century security realities – including the rise of Asia.

For the region, this means I can assure you that coming out of this review, the United States will continue to implement the rebalance and prioritize our posture, activities and investments in Asia-Pacific. We are already taking many tangible actions in support of that commitment.

For example, the United States is adding to the capacity of our ground forces in the Pacific after Iraq and as we draw down from Afghanistan. The 1st and 3rd Marine Expeditionary Force and the Army's 25th Infantry Division are all returning to their home stations in the Pacific theater. The United States Army is also designating 1st Corps as "regionally aligned" to the Asia-Pacific region.

In addition to our decision to forward base 60 percent of our naval assets in the Pacific by 2020, the U.S. Air Force has allocated 60 percent of its overseas-based forces to the Asia-Pacific – including tactical aircraft and bomber forces from the continental United States. The Air Force is focusing a similar percentage of its space and cyber capabilities on the region. These assets enable us to capitalize on the Air Force's inherent speed, range, and flexibility.

The United States military is not only shifting more of its assets to the Pacific – we are using these assets in new ways to enhance our posture and partnerships. For example, we are pushing forward with plans for innovative rotational deployments in the region. Last year, we noted at this forum that the U.S. Navy had

committed to rotating up to four Littoral Combat Ships through Singapore. In recent weeks, the first of those ships, the USS Freedom, arrived to begin a busy schedule of regional maritime engagements. I look forward to visiting the ship tomorrow. Meanwhile, the second company-sized rotation of U.S. Marines recently arrived in Darwin to deepen cooperation with our treaty ally Australia and other regional partners. Eventually, 2,500 U.S. Marines will be deployed to Australia each year.

America's enduring commitment to peace and security in the Asia-Pacific region depends on sustaining the ability to deter aggression and operate effectively across all domains, including air, sea, land, space, and cyberspace.

Our five year budget plan submitted to Congress this year put a premium on rapidly deployable, self-sustaining forces – such as submarines, long-range bombers, and carrier strike groups – that can project power over great distance and carry out a variety of missions. In the future, this region will see more of these capabilities as we prioritize deployments of our most advanced platforms to the Pacific, including the F-22 Raptor and F-35 Joint Strike Fighter deployments to Japan, and a fourth Virginia-class fast attack submarine forward deployed to Guam.

Even further over the horizon, we are investing in promising technologies and capabilities that will enhance our decisive military edge well into the future. For example, last month, for the first time ever, the U.S. Navy successfully launched an experimental remotely piloted aircraft from an aircraft carrier, ushering in a new era in naval aviation.

Having achieved a series of technological breakthroughs in directed energy, next year for the first time the U.S. Navy will deploy a solid-state laser aboard a ship, the USS Ponce. This capability provides an affordable answer to the costly problem of defending against asymmetric threats like missiles, swarming small boats, and remotely piloted aircraft.

Combined with new concepts, doctrine, and plans that integrate these new technologies and other game changing capabilities, we will ensure freedom of action throughout the region well into the future.

Our investments in Asia are not just about cutting-edge technology and platforms, they are also about cultivating deeper ties between our people and building a network of professional military personnel and security experts across the region.

We have prioritized investments in people, including:

- Expanding the size and scope of our exercises in PACOM, allocating over \$100 million in funding for joint exercises in the PACOM region;
- Setting aside new funding for defense education that will allow us to significantly increase the number of students who can attend the Asia-Pacific Center for Security Studies in Hawaii.
- These investments in people, technology, and capabilities are critical to our strategy and to the region's peace and security. Even more important, however, is America's continued investment in our alliances and partnerships, and the region's security architecture.

2. U.S. Bilateral Relationships

Relationships, trust, and confidence are what matter most in the region. America's partners must have confidence in their bilateral ties and alliances with us and our commitments to them and the region, including our treaty alliances. These remain essential to our long-term vision of regional peace and stability.

That is why we have initiated processes with each of our treaty allies to define a new, forward-looking agenda based on enhancing security for our allies and partners, increasing the ability of militaries to work together seamlessly, and building their capacity to contribute to the region's security:

With Japan, we have agreed to review the Defense Guidelines that underpin our Alliance cooperation, and are making substantial progress in realigning our force posture and enhancing Alliance missile defense capabilities;

With the Republic of Korea, we are working to implement the Strategic Alliance 2015 and discussing a shared vision for a more globally-oriented Alliance out to 2030;

With Australia, we are expanding cooperation related to cyber security and space situational awareness. The U.S. and Australian Navies recently reached an agreement to deploy an Australian warship in a U.S. carrier strike group in the Western Pacific, giving our naval forces new practical experience operating together cooperatively and seamlessly;

With the Philippines we are discussing an increased rotational presence of U.S. forces and helping the Philippine armed forces to modernize and build greater maritime capacity; and

With Thailand, six months ago we announced our Joint Vision Statement, the first such bilateral document in over 50 years.

Our Allies are also working more closely together. In this vein we are encouraged by growing trilateral security cooperation between the U.S., Japan, and the Republic of Korea, as well as the U.S., Japan, and Australia. The United States is also looking at trilateral training opportunities such as jungle training between the U.S. and Thailand that could expand to incorporate the Republic of Korea. Similarly, the United States is working to build trilateral cooperation with Japan and India.

Complex security threats facing the United States and our allies – which go beyond traditional domains and borders – demand these new approaches to Alliance cooperation, and they also demand new and enhanced partnerships as well.

Here in Singapore I look forward to building on our practical collaboration under the U.S.-Singapore Strategic Framework Agreement, which has guided security cooperation not only in this region, but in the Gulf of Aden and Afghanistan as well.

With New Zealand, the signing of the Washington Declaration and associated policy changes have opened up new avenues for defense cooperation in areas such as maritime security cooperation, humanitarian assistance and disaster relief, and peacekeeping support. This week, in Guam, a New Zealand Navy ship is visiting a U.S. Naval facility – the first such visit in nearly 30 years.

With the Vietnamese, we are expanding our cooperation – as set forth in a new memorandum of understanding – in maritime security, training opportunities, search-and-rescue, peacekeeping, military medical exchanges, and humanitarian assistance and disaster relief.

In Malaysia, we are expanding maritime cooperation, including the first-ever visit of a U.S. aircraft carrier to Sabah.

In Burma, we are beginning targeted, carefully calibrated military-to-military engagement aimed at ensuring the military supports ongoing reforms, respects human rights, and a professional force accountable to the country's leadership.

The United States is also working to enhance our partners' capacity to provide for their own security and the security of the region. Ultimately, the United States' goal in the region is to encourage allies to work together to design the next generation of platforms. With our closest and most capable allies and partners, we are already working to jointly develop and deploy cutting-edge technologies to tackle emerging security challenges.

An important example of this cooperation is with India, one of the leaders in this broader Asia region, where we are moving beyond purely defense trade towards technology sharing and co-production.

The world's largest democracy, India's role as a stabilizing power is of growing importance with the increase of trade and transit between the Indian and Pacific Oceans. The United States considers India's efforts to enhance its military capabilities as a welcome contribution to security in the region.

Our vision for the Asia-Pacific region is an open and inclusive one. Along with India, other rising powers also have a special role to play in a future security order as they assume the responsibilities that come with their growing stake in regional stability. To that end, a critical element of our long-term strategy in Asia is to seek to build strong relationships with rising powers – including India, Indonesia and China.

The United States and Indonesia – the world's largest Muslim-majority nation – are building new habits of cooperation that reflect a shared vision for a peaceful and prosperous region. As a large, diverse, and democratic country, Indonesia has a key role in helping lead this region. The United States and Indonesia

are working together on humanitarian assistance and disaster response preparedness, maritime security, international peacekeeping, and combating transnational threats.

Building a positive and constructive relationship with China is also an essential part of America's rebalance to Asia. The United States welcomes and supports a prosperous and successful China that contributes to regional and global problem solving. To this end, the United States has consistently supported a role for China in regional and global economic and security institutions, such as the G20. We encourage our allies and partners to do the same.

The United States strongly supports the efforts made by the PRC and Taiwan in recent years to improve cross-strait relations. We have an enduring interest in peace and stability in the Taiwan Strait. The United States remains firm in its adherence to a one-China policy based on the three joint U.S.-China communiques and the Taiwan Relations Act.

While the U.S. and China will have our differences – on human rights, Syria, and regional security issues in Asia – the key is for these differences to be addressed on the basis of a continuous and respectful dialogue. It also requires building trust and reducing the risk of miscalculation, particularly between our militaries.

President Obama and President Xi, who will soon meet for a summit in California, have both been clear that they seek a stronger military-to-military relationship. I am pleased that the dialogue between our armed forces is steadily improving. Over the course of the past year, positive developments include:

- We hosted then-Vice President Xi Jinping at the Pentagon, and later hosted China's Minister of Defense;
- Secretary Panetta, General Dempsey and Admiral Locklear led delegations to China;
- The first ever Chinese observation of the US-Philippine Balikatan exercise;
- The first-ever joint counter-piracy exercise in the Gulf of Aden;
- The U.S. invitation for China to participate in RIMPAC, the Pacific's largest multilateral Naval exercise;
- An agreement to co-host a Pacific Army Chiefs Conference with China for the first time;
- Later this year, I look forward to welcoming the Minister of Defense to the Pentagon.

While we are pleased to see this progress, it is important for both the United States and China to provide clarity and predictability about each other's current and future strategic intentions.

Accordingly, China, the United States and all nations of the region have a responsibility to work together to ensure a vibrant regional security architecture that solves problems. America's bilateral relationships and Alliances will continue to underpin the region's security and prosperity, but multilateral institutions provide critical platforms and opportunities for countries to work together.

3. Toward a Regional Security Architecture

The United States strongly supports a future security order where regional institutions move beyond aspiration to achieving real results, and evolve from talking about cooperation to achieving real, tangible solutions to shared problems, and a common framework for resolving differences. We are working toward a future where militaries can respond together rapidly and seamlessly to a range of contingencies, such as providing immediate humanitarian assistance and disaster relief.

ASEAN has set the stage for regional cooperation by developing a network of viable institutions. ASEAN nations play a critical role in this region's security architecture, and will continue to do so. In addition to the East Asian Summit and the ASEAN Regional Forum, the relatively new ASEAN Defense Ministers Meeting Plus (ADMM+) provides an important framework for nations in the region to pursue common security objectives.

.... The United States supports Asian nations taking the lead in pushing their region towards greater cooperation... [o]ur relationships with ASEAN nations are critical, and ASEAN leaders extend great hospitality to members of my government every year.... I believe this first-ever U.S.-hosted meeting of

ASEAN Defense Ministers will provide another opportunity for us to discuss a shared vision for a dynamic, peaceful, and secure future for the region.

This future can only be realized if we work together to create an environment where all can prosper and succeed, and where coercion and conflict are put aside in favor of open dialogue. This requires a continued commitment to certain foundational principles that have enabled this region's success for generations. These include free and open commerce; a just international order that emphasizes rights and responsibilities of nations and fidelity to the rule of law; open access, by all, to the domains of sea, air, space, and now, cyberspace; and the principle of resolving conflict without the use of force.

Threats to these principles are threats to peace and security in the 21st century. Unfortunately, some nations continue to dismiss these values and pursue a disruptive path – most notably, North Korea.

The United States has been committed to ensuring peace and stability on the Korean Peninsula for sixty years. That means deterring North Korean aggression and protecting our allies, and achieving the complete denuclearization of the Korean Peninsula. The United States will not stand by while North Korea seeks to develop a nuclear-armed missile that can target the United States.

The United States has been clear that we will take all necessary steps to protect our homeland and our allies from dangerous provocations, including significantly bolstering our missile defense throughout the Pacific. No country should conduct “business as usual” with a North Korea that threatens its neighbors. We are working closely with our ROK and Japanese allies to strengthen our posture and ability to respond to threats from North Korea. The prospects for a peaceful resolution also will require close U.S. coordination with China.

Beyond the peninsula, the United States also remains concerned over the potential for dangerous miscalculations or crises posed by numerous competing territorial claims in the region.

The United States has been clear that we do not take a position on the question of sovereignty in these cases. That does not mean, however, that we do not have an interest in how these disputes are addressed and settled. The United States stands firmly against any coercive attempts to alter the status quo. We strongly believe that incidents and disputes should be settled in a manner that maintains peace and security, adheres to international law, and protects unimpeded lawful commerce, as well as freedom of navigation and overflight.

In the South China Sea, the United States continues to call on all claimants to exercise restraint as they publicly pledged in 2002, and to seek peaceful means to resolve these incidents. In that regard, we support the recent agreement between China and ASEAN to establish crisis hotlines to help manage maritime incidents. The U.S. also welcomes efforts to start talks on a Code of Conduct for the South China Sea. We encourage claimants to explore all peaceful means of settling their territorial disputes and the use of the dispute adjudication resolution mechanisms provided by the Law of the Sea Convention. Such efforts should not hinder progress towards developing a binding Code of Conduct.

Even as we seek to uphold principles in well-established areas, we must also recognize the need for common rules of the road in new domains.

The U.S. and all nations in the region have many areas of common interest and concern in cyberspace, where the threats to our economic security, businesses and industrial base are increasing. In response, the United States is increasing investment in cyber security and we are deepening cyber cooperation with Allies in the region and across the globe. Next week I will attend a meeting of NATO Defense Ministers devoted to cyber issues.

We are also clear-eyed about the challenges in cyber. The United States has expressed our concerns about the growing threat of cyber intrusions, some of which appear to be tied to the Chinese government and military. As the world's two largest economies, the U.S. and China have many areas of common interest and concern, and the establishment of a cyber working group is a positive step in fostering U.S.-China dialogue on cyber. We are determined to work more vigorously with China and other partners to establish international norms of responsible behavior in cyberspace.

The United States and its Asian-Pacific allies and partners are far more likely to be able to live peacefully and prosperously in a world where we are bound together by strong economic ties, mutual security interests and respect for rules, norms, and the institutions that underpin them.

Defense Secretary Hagel, re-emphasized continued American commitment to the region at the 2014 Shangri-La Dialogue by highlighting and then elaborating on four broad points:

As President Obama said earlier this week, “America must always lead on the world stage. If we don’t, no one else will.” He went on to say that, the “question is not whether America will lead, but how we will lead...to help ensure peace and prosperity around the globe.” Today, I want to highlight four broad security priorities that the United States, as a Pacific power, is advancing in partnership with friends and allies throughout the Asia-Pacific:

- First, encouraging the peaceful resolution of disputes; upholding principles including the freedom of navigation; and standing firm against coercion, intimidation, and aggression;
- Second, building a cooperative regional architecture based on international rules and norms;
- Third, enhancing the capabilities of our allies and partners to provide security for themselves and the region; and,
- Fourth, strengthening our own regional defense capabilities.

One of the most critical tests facing the region is whether nations will choose to resolve disputes through diplomacy and well-established international rules and norms...or through intimidation and coercion. Nowhere is this more evident than in the South China Sea, the beating heart of the Asia-Pacific and a crossroads for the global economy.

China has called the South China Sea “a sea of peace, friendship, and cooperation.” And that’s what it should be.

But in recent months, China has undertaken destabilizing, unilateral actions asserting its claims in the South China Sea. It has restricted access to Scarborough Reef, put pressure on the long-standing Philippine presence at the Second Thomas Shoal, begun land reclamation activities at multiple locations, and moved an oil rig into disputed waters near the Paracel Islands.

The United States has been clear and consistent. We take no position on competing territorial claims. But we firmly oppose any nation’s use of intimidation, coercion, or the threat of force to assert those claims.

We also oppose any effort – by any nation – to restrict overflight or freedom of navigation – whether from military or civilian vessels, from countries big or small. The United States will not look the other way when fundamental principles of the international order are being challenged.

We will uphold those principles. We made clear last November that the U.S. military would not abide by China’s unilateral declaration of an Air Defense Identification Zone in the East China Sea, including over the Japanese-administered Senkaku Islands. And as President Obama clearly stated in Japan last month, the Senkaku Islands are under the mutual defense treaty with Japan.

All nations of the region, including China, have a choice: to unite, and recommit to a stable regional order, or to walk away from that commitment and risk the peace and security that have benefitted millions of people throughout the Asia-Pacific, and billions around the world.

The United States will support efforts by any nation to lower tensions and peacefully resolve disputes in accordance with international law.

We all know that cooperation is possible. Last month, 21 nations signed the Code for Unplanned Encounters at Sea – an important naval safety protocol. ASEAN and China are negotiating a Code of Conduct for the South China Sea – and the United States encourages its early conclusion. Nations of the region have also agreed to joint energy exploration; this month, the Philippines and Indonesia resolved a longstanding maritime boundary dispute; and this week, Taiwan and the Philippines agreed to sign a new fisheries agreement.

China, too, has agreed to third-party dispute resolution in the World Trade Organization; peacefully resolved a maritime boundary dispute with Vietnam in 2000; and signed ASEAN's Treaty of Amity and Cooperation.

For all our nations, the choices are clear, and the stakes are high. These stakes are not just about the sovereignty of rocky shoals and island reefs, or even the natural resources that surround them and lie beneath them. They are about sustaining the Asia-Pacific's rules-based order, which has enabled the people of this region to strengthen their security, allowing for progress and prosperity. That is the order the United States – working with our partners and allies – that is the order that has helped underwrite since the end of World War II. And it is the order we will continue to support – around the world, and here in the Asia-Pacific.

This rules-based order requires a strong, cooperative regional security architecture.

Over the last year, the United States has worked with Asia-Pacific nations to strengthen regional institutions like ASEAN and the ADMM+, which I attended last year in Brunei.

This regional architecture is helping to develop shared solutions to shared challenges, building strong and enduring ASEAN security community, and ensuring that collective, multilateral operations are the norm, rather than the exception.

To make further progress, our militaries must train, plan, and operate side-by-side – as we did after Typhoon Haiyan, and in the search for Malaysian Airlines Flight 370.

Both these tragedies – different as they were – showed that all nations of the region can work together to provide rapid humanitarian assistance and disaster relief. They also demonstrated that the need for facilities and agreements that are ready and in-place when disaster strikes, so that relief can flow as soon as it is needed. For these missions, ASEAN members should consider Singapore's offer to use Changi Naval Base as another regional command and control hub. Some 80% of the world's large-scale natural disasters strike in the Pacific, and with climate change threatening even more severe weather, closer cooperation cannot wait.

This was one of the topics discussed at the recent U.S.-ASEAN Defense Forum I hosted a couple of months ago in Hawaii – an initiative that I suggested on this platform at this Dialogue last year.

Over the course of that three-day forum, my discussions with ASEAN defense ministers highlighted a clear and shared interest in building a common understanding of the regional security environment, including more information-sharing, greater maritime cooperation, and more joint and combined exercises.

A common picture of the region's maritime space could help deter provocative conduct, and reduce the risk of accidents and miscalculation. So I am asking Admiral Sam Locklear, who leads the United States Pacific Command, to host his regional counterparts to discuss concrete ways to establish greater maritime security awareness and coordination.

The United States is also reaching out to China. We're reaching out to China because we seek to expand prosperity and security for all nations of this region.

As I underscored in Beijing last month during my visit to China, the United States will continue to advance President Obama and President Xi's shared commitment to develop a new model of relations – a model that builds cooperation, manages competition, and avoids rivalry. To help develop this model, we are increasing our military-to-military engagement with China through our joint exercises, exchanges, and other confidence-building measures that can help improve communication and build understanding between our forces. Chairman of the Joint Chiefs General Dempsey and I have led this effort, and we will continue to focus on building this new military-to-military model. And I am glad General Dempsey is here to help us today accomplish more progress in this area.

We must also work more closely together to guard against North Korea's destabilizing provocations, and its nuclear and ballistic missile programs, which threaten regional stability and China's own interests. The United States is looking to China to play a more active and constructive role in meeting this challenge and achieving complete, verifiable, and irreversible denuclearization of the Korean Peninsula.

The U.S.-China military-to-military dialogue has a long way to go. But I think we've been encouraged by the progress we've made, and continue to make. Our dialogue is becoming more direct, more constructive...getting at the real issues and delivering more results.

As we expand this dialogue, the United States also supports a sustained and substantive exchange with China on cyber issues. Although China has announced a suspension of the U.S.-China Cyber Working Group, we will continue to raise cyber issues with our Chinese counterparts, because dialogue is essential for reducing the risk of miscalculation and escalation in cyberspace.

As America strengthens its ties across the Asia-Pacific, we also welcome the region's democratic development. We welcome democratic development because democracies are America's closest friends, and because democracies are much more likely to live with their neighbors in peace.

The United States will continue to strongly support our friends who are pursuing democratic development – in Myanmar and elsewhere around the region. We will also respond when nations retreat from democracy, as in Thailand. We urge the Royal Thai Armed Forces to release those who have been detained, end restrictions on free expression, and move immediately to restore power to the people of Thailand, through free and fair elections. Until that happens, as U.S. law requires, the Department of Defense is suspending and reconsidering U.S. military assistance and engagements with Bangkok.

The Asia-Pacific's shifting security landscape makes America's partnerships and alliances indispensable as anchors for regional stability. As we work to build a cooperative regional architecture, we are also modernizing our alliances, helping allies and partners develop new and advanced capabilities, and encouraging them to work more closely together.

In Southeast Asia, that means continuing to help nations build their humanitarian and disaster relief capabilities, and upgrade their militaries. One important example is our first-ever sale of Apache helicopters to Indonesia, which I announced during my visit to Jakarta last year. This sale will help the Indonesian Army defend its borders, conduct counter-piracy operations, and control the free flow of shipping through the Straits of Malacca. We are also providing robust assistance to the Philippines' armed forces, to strengthen their maritime and aviation capabilities.

In Northeast Asia, our capacity-building efforts include strengthening Allies' capabilities with sophisticated aircraft and ballistic missile defense – especially to deter and defend against provocation by Pyongyang.

Two months ago, we signed an agreement with the Republic of Korea. We signed that agreement for its purchase of Global Hawk, which will dramatically enhance its intelligence, surveillance, and reconnaissance capabilities. South Korea also intends to acquire the F-35 Joint Strike Fighter – which means that America and its most capable allies in this region, including Australia and Japan, will soon be operating the world's most advanced, fifth-generation tactical aircraft.

We are also making significant progress in building a robust regional missile defense system. Last month in Tokyo, I announced that the United States will deploy two additional ballistic missile defense ships to Japan – a step that builds on the construction of a second missile defense radar site in Japan, and the expansion of America's ground-based interceptors in the continental United States, which I reviewed this week in Alaska during my trip to Singapore.

Modernizing our alliances also means strengthening the ties between America's allies, enhancing their joint capabilities – such as missile defense – and encouraging them to become security providers themselves. Yesterday, I held a trilateral meeting with my counterparts from Australia and Japan, and today I will host another trilateral meeting with my counterparts from Korea and Japan.

The enhanced cooperation America is pursuing with these close allies comes at a time when each of them is choosing to expand their roles in providing security around the Asia-Pacific region, including in Southeast Asia. Seven decades after World War II, the United States welcomes this development. We support South Korea's more active participation in maritime security, peacekeeping, and stabilization operations. We also support Japan's new efforts – as Prime Minister Abe described very well last night – to reorient its Collective Self Defense posture toward actively helping build a peaceful and resilient regional order.

To complement these efforts, the United States and Japan have begun revising our defense guidelines for our first time in more than two decades. We will ensure that our alliance evolves to reflect the shifting security environment, and the growing capabilities of Japan's Self-Defense Forces.

America's global partnerships also reach across the Asian continent and extend to India, one of the United States' most important, democratic partners – and a country with historic influence across Asia.

The United States looks forward to working with India's new government led by Prime Minister Modi. We welcome India's increasingly active role in Asia's regional institutions, which strengthens regional order. We also welcome India's growing defense capabilities and its commitment to freedom of navigation in the Indian Ocean. To further strengthen U.S.-India defense ties, I am directing the Pentagon's Undersecretary for Acquisition, Technology, and Logistics to lead the U.S.-India Defense Trade and Technology Initiative with India's new government. I plan to play an active and very personal role in expanding this initiative because it is a centerpiece of America's defense cooperation with India, and it should reflect the trust and confidence President Obama and I have in our nation's relationship with India. To reinforce this effort – and to drive even more transformational cooperation – I hope to visit India later this year.

The United States also remains committed to building the capacity of allies and partners in the region through as many as 130 exercises and engagements, and approximately 700 port visits annually. And across the Asia-Pacific region, as part of the rebalance, the United States is planning to increase Foreign Military Financing by 35%, and military education and training by 40% by 2016.

Next month, the United States will host its annual Rim of the Pacific exercise, the world's largest maritime exercise that will feature for the first time a port visit by a New Zealand naval ship to Pearl Harbor in more than 30 years, and it will include Chinese ships for the first time. All told, RIMPAC will include some 23 nations, 49 surface ships, 6 submarines, more than 200 aircraft, 25,000 personnel, and even, I understand, a few highly trained sea lions.

Beyond capacity-building efforts, a stable and peaceful regional order depends on a strong American military presence across the Asia-Pacific region... a presence that enables us to partner with our friends and allies, and help deter aggression. We are no strangers to this part of the world. America has been a Pacific power for many years. Our interests lie in these partnerships and this region.

Today, America has more peacetime military engagement in the Asia-Pacific than ever before. I want to repeat: today, America has more peacetime military engagement in the Asia-Pacific than ever before. And America's strong military presence – and our role in underwriting the region's security – will endure. Our friends and allies can judge us on nearly seven decades of commitment and history of commitment. That history makes clear, America keeps its word.

America's treaty alliances remain the backbone of our presence in the Asia-Pacific, and our friends and allies have seen our significant steps in recent years to enhance our posture in Northeast Asia, to expand our partnerships in Southeast Asia, and to ensure our forces can operate effectively regardless of other nations' capabilities.

Consider that just three years ago, the strength of our alliance with Japan was being overshadowed by disagreements over the future of the U.S. presence in Okinawa.

Today, we have a fully agreed force realignment roadmap, and we achieved a major breakthrough last December with the approval of the permit to build the Futenma Replacement Facility. We have also deployed our most advanced capabilities to Japan – including two Global Hawks at Misawa, F-22 fighter aircraft at Kadena, and MV-22 Ospreys on Okinawa.

Meanwhile, we are enhancing our posture on the Korean Peninsula and sustaining the readiness of our forces. To reflect a dynamic security environment, including the evolving North Korean nuclear and missile threat, the U.S. and South Korea decided we can reconsider the current timeline for the transition of wartime operational control to a Seoul-led defense in 2015. We have enhanced the U.S. Army's force posture and deployed even more advanced intelligence, surveillance, and reconnaissance capabilities. And we recently reached a new Special Measures Agreement that codifies our shared resource commitment to defending the peninsula.

Further south, we have strengthened our partnership and alliance with Australia. Three years ago, we had no forces operating in Australia. Today, we have more than 1,000 Marines rotationally deployed in Darwin. With Australian troops, these Marines will conduct training and exercises throughout the region.

In the coming years, the United States will increase its advanced capabilities that are forward-stationed and forward-deployed in the entire region, particularly as we draw down our forces in Afghanistan. And we will ensure that we sustain our freedom of action in the face of disruptive new military technologies.

Next year, the Navy will introduce the Joint High Speed Vessel in the Pacific and an additional submarine forward-stationed in Guam. As many as four Littoral Combat Ships will be deployed here by 2017. By 2018, the Navy's advanced, multi-mission *Zumwalt*-class destroyer will begin operating out of the Pacific. And by 2020, as we achieve our target of operating 60% of both our Navy and Air Force fleets out of the Pacific, we will also be flying the Hawkeye early warning and unmanned Triton ISR aircraft in the region.

Because U.S. force posture in Asia is a priority for DoD, I am directing our Deputy Secretary of Defense to oversee the implementation of our ongoing enhancements to America's military presence in this region, and with particular emphasis on our posture in Japan, Korea, and Guam. The Deputy Secretary will also continuously review the posture of our forces, to ensure they remain prepared for all necessary contingencies.

Finally, to ensure that the rebalance is fully implemented, both President Obama and I remain committed to ensuring that any reductions in U.S. defense spending do not come – do not come – at the expense of America's commitments in the Asia-Pacific.

Here, and around the world, a peaceful, prosperous, and durable order will not sustain itself. The nations of the Asia-Pacific must come together to accomplish this.

We must support the peaceful resolution of disputes...and oppose intimidation and coercion no matter where they are.

We must build a cooperative regional security architecture that builds trust and confidence.

And we must continue to develop, share, and maintain advanced military capabilities that can adapt to rapidly growing challenges.

From Europe to Asia, America has led this effort for nearly seven decades, and we are committed to maintaining our leadership in the 21st century.

Later this morning, I will meet with Vietnamese General Thanh. General Thanh joined the Vietnamese army in 1967, the same year I joined the United States Army and arrived in Vietnam. Today, General Thanh and I will meet as America's Secretary of Defense and Vietnam's Minister of Defense...working to strengthen our nations' emerging defense ties. History is full of irony, which is why America must lead and will continue to lead with humility.

But America must lead, and our leadership must always reflect an enduring truth: As United States Secretary of State, Secretary of Defense, and General George Marshall once said, "the strength of a nation does not depend alone on its armies, ships, and planes...[but] is also measured by...the strength of its friends and [its] allies." Very wise words from General Marshall. Those words ring more true today than ever before.

Today, perhaps more than ever, one of America's greatest sources of strength is its network of partners and allies. As President Obama put it at his West Point speech, from Europe to Asia, America is "the hub of alliances unrivalled in ... history of nations."

Across this region, and across the globe, the United States has been – and always will be – committed to a peaceful and prosperous international order that rests not merely on America's own might, but on our enduring unity and partnership with other nations.

The Quadrennial Defense Review of 2014 and the FY2015 Department of Defense budget request show that \ the United States is devoting resources to solidify Asian alliances and partnerships. This reflects the past statements of sustained American commitment to security to the region. Responding to the A2/AD capabilities of China has become a focal point for US military goals, while strengthening ties with the Asia-Pacific is shown as an avenue to enhance regional security. From the 2014 QDR:⁵⁷⁴

In the coming years, countries such as China will continue seeking to counter U.S. strengths using anti-access and area-denial (A2/AD) approaches and by employing other new cyber and space control technologies. Additionally, these and other states continue to develop sophisticated integrated air defenses that can restrict access and freedom of maneuver in waters and airspace beyond territorial limits. Growing

numbers of accurate conventional ballistic and cruise missile threats represent an additional, cost-imposing challenge to U.S. and partner naval forces and land installations.” (p. 6-7)

“The centerpiece of the Department of Defense commitment to the U.S. Government’s rebalance to the Asia-Pacific region continues to be our efforts to modernize and enhance our security alliances with Australia, Japan, the ROK, the Philippines, and Thailand. We are taking steps with each of our allies to update our combined capacity and to develop forward-looking roles and missions to address emerging regional challenges most effectively. We are also deepening our defense relationships with key partners in the region, such as Singapore, Malaysia, Vietnam, and many others. Through both our alliances and partnerships, we are focused on enhancing our partners’ capacity to address growing regional challenges in areas such as missile defense, cyber security, space resilience, maritime security, and disaster relief. (p. 16-17)

One of the manifestations of the rebalance to the Asia-Pacific in the FY2015 Department of Defense budget request is the emphasis on base resiliency.⁵⁷⁵

The Air Force took a balanced approach in sustaining critical infrastructure by increasing funding to \$1.05 billion in FY 2015 before adjusting to an average level of \$1.3 billion in total Air Force Military Construction resources in FY 2016 – FY 2017. Furthermore, the budget provides sufficient funding for environmental requirements at Air Force installations to ensure compliance with statutory guidance. As part of the rebalance to the Asia-Pacific, base resiliency is critical to overall readiness and will drive further Military Construction requirements in future years. (p. 3-15)

...Guided by the defense strategy within a resource informed environment, this budget addresses current and future logistics requirements needed to shape Joint Force 2020. The Joint Force will increase the resiliency of key operational bases in the Asia-Pacific region and improve critical infrastructure associated with crisis response and force sustainment (such as Military Ocean Terminal Concord in California). In addition, the Department continues development of critical information technology tools to enhance visibility of logistics commodities while addressing increasing cyber threats and other impediments to global access. (p. 3-21)

Although countering Chinese A2/AD capabilities is highlighted, this does not mean that China is excluded from the regional security dialogue. On the contrary, China is acknowledged to be a crucial partner in maintaining regional security, particularly on the Korean Peninsula. The DoD recognized the competitive aspects of the US-China relationship and hoped to manage them in constructive ways.

With China, the Department of Defense is building a sustained and substantive dialogue with the People’s Liberation Army designed to improve our ability to cooperate in concrete, practical areas such as counter-piracy, peacekeeping, and humanitarian assistance and disaster relief. At the same time, we will manage the competitive aspects of the relationship in ways that improve regional peace and stability consistent with international norms and principles. (p. 16-17)

As the following section shows, the US has significant military capabilities and strategic partnerships in the region and important that currently give it the military tools to implement this mix of strategies. What it does not have are credible force plans, country-specific partnership plans, and tactical concepts. This is partly the result of half a decade of turbulence from a combination of budget crisis and the phase down of two wars, and a reliance on concepts rather than credible efforts at planning, programming, and budgeting.

US Pacific Command (PACOM)

The US permanently deploys major forces in the Pacific region that can also be used in the IOR and make it the dominant air-sea power in the region. US Pacific Command (PACOM) forces included four component commands: US Pacific Fleet, US Pacific Air Forces, US Army Pacific,

and US Marine Forces Pacific. These commands are headquartered in Hawai'i and have forces stationed and deployed throughout the region.⁵⁷⁶

PACOM's strategy covers India and all states and waters to the east of India. PACOM's unclassified strategy documents stress both partnership with Asian and IOR powers and the importance of China:⁵⁷⁷

The 36 nations that comprise the Asia-Pacific include: two of the three largest economies and nine of the ten smallest; the most populous nation; the largest democracy; the largest Muslim-majority nation; and the smallest republic in the world. The region is a vital driver of the global economy and includes the world's busiest international sea-lanes and nine of the ten largest ports. By any meaningful measure, the Asia-Pacific is also the most militarized region in the world, with seven of the world's ten largest standing militaries and five of the world's declared nuclear nations. Under these circumstances, the strategic complexity facing the region is unique.

...This homeland area, coupled with our treaty alliances with Australia, Japan, Republic of Korea, Philippines, and Thailand are the cornerstone of U.S. engagement in the region. We will modernize and strengthen these alliances by enhancing our ability to train and operate together, jointly developing high-tech capabilities, expanding information sharing, and exploring new areas of cooperation.

... In addition to our treaty alliances, we will continue to strengthen existing partnerships and build new relationships, particularly with multilateral constructs such as the Association of Southeast Asian Nations (ASEAN). India is a particularly important partner in shaping the security environment, and we will continue to deepen our cooperation to address challenges in the Asia-Pacific. We will also work to enhance our partnerships with Indonesia, India, Singapore, Vietnam, Malaysia and others to advance common interests and address shared threats.

... The United States believes that a strong U.S.-China partnership is essential for peace, prosperity, and both regional and global security. The U.S. continues to welcome a prosperous and successful China that plays a greater role in global affairs, but China's growing military capabilities coupled with its lack of transparency is concerning. Therefore, the United States and China must continue to pursue a more transparent, enduring, stable, and reliable military-to-military relationship by maintaining a consistent and meaningful dialogue to prevent miscommunication or miscalculation. We see opportunities for cooperation in areas such as humanitarian relief and disaster response, counter-piracy efforts, non-proliferation, counter-terrorism, noncombatant evacuation operations (NEOs), military medicine, and maritime safety. Such opportunities will enhance our bilateral relationship with China as we work toward common goals, candidly address our differences, and demonstrate mutual commitment to the security and stability of the Asia-Pacific region.

In January 2014, PACOM reported that it had some 330,000 personnel, or about one-fifth of total U.S. military strength.⁵⁷⁸

- U.S. Pacific Fleet consisted of approximately 180 ships (to include five aircraft carrier strike groups), nearly 2,000 aircraft, and 140,000 Sailors and civilians.
- Marine Corps Forces, Pacific possessed about two-thirds of U.S. Marine Corps combat strength, including two Marine Expeditionary Forces and about 85,000 personnel assigned.
- U.S. Pacific Air Forces were comprised of approximately 43,000 airmen and more than 435 aircraft.
- U.S. Army Pacific had more than 60,000 personnel assigned, including five Stryker brigades.
- Component command personnel numbers included more than 1,200 Special Operations personnel. Department of Defense Civilians employees in the Pacific Command AOR numbered about 38,000.
- Additionally, the U.S. Coast Guard, which frequently supports U.S. military forces in the region, had approximately 27,000 personnel in its Pacific Area.

These forces conducted frequent exercises with allied and friendly navies. PACOM reported that USPACOM participated in many exercises and other engagement activities with foreign military forces. Major exercises included:⁵⁷⁹

- *Talisman Saber*: A biennial Australia/United bilateral exercise merging Exercises TANDEM THRUST, KINGFISHER and CROCODILE. TALISMAN SABER is the primary training venue for Commander Seventh Fleet as a Combined Task Force (CTF) in a short warning, power projection, forcible entry scenario. The exercise is a key opportunity to train Australian and US combined forces in mid to high-intensity combat operations using training areas in Australia
- *Cobra Gold*: A joint/combined exercise with Thailand designed to improve U.S./Thai combat readiness and joint/combined interoperability.
- *Balikatan*: A joint exercise with the Republic of the Philippines and the U.S. to improve combat readiness and interoperability.
- *Keen Sword/Keen Edge* Joint/bilateral training exercises (field training/simulation, respectively) to increase combat readiness and joint/bilateral interoperability of U.S. Forces and Japan Self-Defense Forces for the defense of Japan.
- *Rim of the Pacific*: A biennial large-scale multinational power projection/sea control exercise. In 2000, participants included the U.S., Canada, Australia, Japan, South Korea, Chile and the United Kingdom.

In addition, USPACOM had participated in more than 20 disaster relief operations in 12 countries and one U.S. territory (Japan, South Korea, the Philippines, Palau, Indonesia, Thailand, Vietnam, Laos, Burma, India, Madagascar, Sri Lanka and Guam) since 1996.

US Central Command

The US does not have a command dedicated to the IOR. The US instead deploys forces assigned to separate commands for the Middle East and forces for the Pacific. The US forces that defend the Gulf and cover the western IOR, focus on the entire for the Middle East and are assigned to USCENTCOM. They include the forces the US deploys in support of the Gulf states, Jordan, Egypt, and the Red Sea states.

The level of these forces varies with the level of tension or conflict in the region, and is drawn from US forces in the US, in Europe and in the Pacific. The forces actually and deployed by USCENTCOM vary according to the contingency commitments the US makes in the CENTCOM region at any given time – a region which goes far beyond the IOR and extends from Egypt to Afghanistan and Pakistan.

These contingency commitments have changed steadily over the last decade and US forces are now phasing out of active combat. The size of troop deployments, for example, has been steadily cut since the last US combat troops left Iraq at the end of 2011, and is dropping further as the US transitions combat forces out of Afghanistan – with all to be removed by the end of 2014.

The US does, however, still maintain a major air-sea force as part of its 5th Fleet, which is headquartered in Bahrain. The US Navy has maintained a presence in the Gulf since 1949, has had facilities in Bahrain since 1971, and created the 5th Fleet in 1995. In January 2014, the 5th Fleet had the following task forces:⁵⁸⁰

- CTF-50 Strike Forces: 1 carrier, 1 cruiser, 1 Arleigh Burke-class destroyer, 1 frigate, 1 replenishment ship.
- CTF-51 Contingency Response: 1 LHD, 1 LHA, 2 LSDs, 1 AV-8B squadron, 2 helicopter units, one AH-1W attack helicopter unit.
- CTF-52 Mine Warfare: 1 MCM, 1 MH-53 helicopter unit.

- CTF-53 Logistics: 1 ammo ship, 1 logistic stores ship, 1 fast combat support ship, 1 dry cargo/ammo ship, 1 fleet replenishment oiler.
- CTF-54: 1 Ohio-class guided missile submarine, 1 Los Angeles-class submarine,
- CTF-55 Surface forces: US Navy and US Coast Guard patrol ships.
- CTF-56 Expeditionary Forces: support for rapid power projection. EOD, marine mammals, inshore boats, riverine warfare,
- CTF-57 Maritime Patrol Aircraft: P-3C Orion and ASW aircraft.

The overall US Army and US Air Force presence in the Gulf/Western IOR region is harder to quantify. The US had approximately 25,000 personnel in the area for all services in 2013, and major air facilities in Kuwait, Bahrain, Qatar, and the UAE. It also has a major air base and command facility at Al Udeid Air Force Base in Qatar called the Combined Air and Space Operations Center (COAC), and prepositioning and contingency facilities in Oman.⁵⁸¹ The USAF had six air wings deployed in or near the IOR and two groups:⁵⁸²

- 376th Air Expeditionary Wing Transit Center at Manas, Kyrgyzstan
- 379th Air Expeditionary Wing, Al Udeid Air Base, Qatar
- 380th Air Expeditionary Wing, Undisclosed Location, Southwest Asia
- 386th Air Expeditionary Wing, Undisclosed Location, Southwest Asia
- 438th Air Expeditionary Wing, Kabul International Airport, Afghanistan.
- 455th Air Expeditionary Wing, Bagram Airfield, Afghanistan
- 609th Air and Space Operations Center, Undisclosed Location, Southwest Asia
- 1st Expeditionary Civil Engineer Group, Undisclosed Location, Southwest Asia

It is not possible to separate out aircraft numbers or activity levels for the Gulf from the entire range of USAF air activity in the Central Region – which included Afghanistan. Total AFCENT activity in 2013 does, however, provide a rough indication of US power projection and surge capabilities.

The US flew over 21,000 close air support sorties, 31,000 IS&R sorties, 32,000 airlift sorties, and 12,000 tanker sorties – levels far lower than in the peak of the Iraq and Afghan Wars. These numbers illustrate the fact that airpower in the Gulf area at any given time is not a measure of US capability for a rapid deployment force.⁵⁸³

Changes in US Strategy and Rebalancing to Asia

As has been discussed in depth in the introduction to this study, it is still far from clear what the future US posture in the Pacific, IOR, and Gulf will actually be. The US initially announced that it would shift its naval presence from 50% to 60% of its total fleet by 2020, but later talked about shifting 5% of its fleet and air forces. Since that time, the US has made major further cuts in planned defense spending, made serious cuts in its military readiness and exercise activities, and come to face growing uncertainty over its future defense plans because of Sequestration and a Budget Control Act passed after it announced the changes to its strategy.

Part of the problem is that US strategy has to deal with uncertain budget cuts and issues like Sequestration which makes stable programming and budgeting difficult to impossible, and makes

it hard for the Department of Defense to plan and predict how large an army, fleet, and air force it will maintain in coming years.

The US Navy does plan to keep major forces in the region, and as described earlier built up its forces in the Gulf during 2012-2013. However, the US has long fallen short of its ship-building goals and has had to cut the size and readiness of combat aircraft. The US may well have to cut back by a carrier task force equivalent and slow its plans to modernize its submarines and equip them with more conventional long-range missiles.

The US Air Force currently plans to allocate 60% of its overseas-based forces to the region. While the US talks about focusing on the air-sea battle, it faces similar challenges in modernizing and maintaining its combat air fleet, in procuring the planned number of F-35 fighters, in actually funding and deploying a new bomber, and in modernizing key “enablers” such as its refueling tankers.

The US faces major challenges in adapting its land forces to its new strategy. A 2012 analysis by the Congressional Research Service notes that similar uncertainties exist in the future posture of the US Army:⁵⁸⁴

General Odierno reportedly envisions the Army playing an important role in the Asia-Pacific region. Noting that the Asia-Pacific region is home to 7 of the 10 largest armies in the world, General Odierno reportedly stated that the Army would “actively seek new opportunities for expanding current international training opportunities.” General Odierno also emphasized how the presence of the U.S. Army in the region—about 25,800 soldiers in South Korea; 23,000 in Hawaii; 2,700 in Japan; and 13,000 in Alaska—serves as a deterrent to potential aggressors and also provides forces that can be deployed elsewhere within the region. In terms of force structure, as previously noted, the Army does not foresee any cuts to Army units in Hawaii, Japan, or South Korea. In addition, three Stryker BCTs are stationed at Joint Base Lewis-McChord in Washington that are assigned to U.S. Pacific Command and under the operational control of U.S. Army Pacific, but it is not known if these units will be reassigned to different missions.

Deterrence and response aside, the Army reportedly plans to step up training exercises in the region in an effort to strengthen its presence and influence. In addition to Pacific-based units, the Army reportedly is considering including the XVIII Airborne Corps at Ft. Bragg, NC; the I Corps at Joint Base Lewis-McChord, WA; and the 101st Airborne Division at Ft. Campbell, KY, in upcoming exercises. The U.S. Army Pacific is reportedly working with the 101st Airborne Division on the possibility of participating in Yudh Abhyas, a bilateral exercise with India. The United States and India would take turns hosting the exercise, with the United States hosting the exercise in 2013. The U.S. Army Pacific is also reportedly working with Australia and New Zealand, perhaps to conduct a battalion-sized event with the New Zealand Army and a brigade-sized exercise with the Australian Army. In addition to working with these armies, the United States also hopes to leverage its relationships with Indonesia, Malaysia, and Thailand in order to increase partnership opportunities with the three nations.

It will probably take several more years to determine what path the US will really pursue in Asia, what its future military spending will be, and what levels of force it will deploy over time. The key point from the perspective of US and Chinese military dialogue is that even if all current plans are implemented, the US would not carry out a major military build-up in Asia, and – as the following analysis of Chinese forces shows – would not posture its forces for a confrontation with China. This highlights the fact – as does the analysis of Chinese forces – that a military dialogue must be founded on hard, detailed analysis of the actual force trends on both sides, not on a worst-case analysis of military rhetoric.

This is the official position of the US, as the May 2013 edition of the DoD *Military and Security Developments Involving the People’s Republic of China* report points out:⁵⁸⁵

During their January 2011 summit, U.S. President Barack Obama and then-PRC President Hu Jintao jointly affirmed that a “healthy, stable, and reliable military-to-military relationship is an essential part of [their] shared vision for a positive, cooperative, and comprehensive U.S.-China relationship.” Within that framework, the U.S. Department of Defense seeks to build a military-to-military relationship with China that is sustained and substantive, while encouraging China to cooperate with the United States, our allies and partners, and the greater international community in the delivery of public goods. As the United States builds a stronger foundation for a military-to-military relationship with China, it also will continue to monitor China’s evolving military strategy, doctrine, and force development and encourage China to be more transparent about its military modernization program. In concert with its allies and partners, the United States will continue adapting its forces, posture, and operational concepts to maintain a stable and secure Asia-Pacific security environment.

Chinese Strategy and Forces Affecting the Pacific and the IOR

China is an emerging power that is fundamentally changing the balance in the Pacific and IOR. This makes it a key focus for both US strategic planning and that of the IOR states, particularly India and the nations in East Asia and Oceania. At the same time, China’s future strategic goals, force plans, and posture in the IOR are hard to predict, China does not publically declare its force modernization and deployment plans in any detail.

China declares its strategic goals in terms of fundamental principles and policies:⁵⁸⁶

- Safeguarding national sovereignty, security and territorial integrity, and supporting the country’s peaceful development.
- Aiming to win local wars under the conditions of informationization and expanding and intensifying military preparedness.
- Formulating the concept of comprehensive security and effectively conducting military operations other than war (MOOTW).
- Deepening security cooperation and fulfilling international obligations.
- Acting in accordance with laws, policies and disciplines.

The 2013 Chinese defense white paper did, however, implicitly criticize the US’s increasing presence in the Asia-Pacific and highlight what it saw as an aggressive shift in the US strategy force posture:⁵⁸⁷

- There are signs of increasing hegemonism, power politics and neo-interventionism. Local turmoils occur frequently. Hot-spot issues keep cropping up. Traditional and non-traditional security challenges interweave and interact. Competition is intensifying in the international military field. International security issues are growing noticeably more abrupt, interrelated and comprehensive. The Asia-Pacific region has become an increasingly significant stage for world economic development and strategic interaction between major powers. The US is adjusting its Asia-Pacific security strategy, and the regional landscape is undergoing profound changes.
- Some country has strengthened its Asia-Pacific military alliances, expanded its military presence in the region, and frequently makes the situation there tenser. On the issues concerning China’s territorial sovereignty and maritime rights and interests, some neighboring countries are taking actions that complicate or exacerbate the situation.... Major powers are vigorously developing new and more sophisticated military technologies so as to ensure that they can maintain strategic superiorities in international competition in such areas as outer space and cyber space.

As has been discussed earlier, China is steadily more dependent on the security of the stable flow of petroleum from the Gulf to China. The Energy Information Agency EIA of the US Department of Energy summarized these trends as follows in February 2013,⁵⁸⁸

China consumed an estimated 10.7 million bbl/d of oil in 2013, up 380 thousand bbl/d, or almost 4%, from 2012. In 2009, China became the second-largest net oil importer in the world behind the United States, and average net total oil imports reached 6.2 million bbl/d in 2013. Notably, for the fourth quarter of 2013, China actually became the largest global net importer of oil. EIA projects that China is likely to surpass the United States in net oil imports on an annual basis by 2014 as U.S. oil production and Chinese oil demand increase simultaneously.

China's oil demand growth hinges on several factors, such as domestic economic growth and trade, power generation, transportation sector shifts, and refining capabilities. EIA forecasts that China's oil consumption will continue growing through 2014 at a moderate pace to approximately 11.1 million bbl/d, and its net oil imports will reach 6.6 million bbl/d compared to 5.5 million bbl/d for the United States.

... As China's oil demand continues to outstrip production at home, oil imports have increased dramatically over the past decade, reaching record highs in 2013. To ensure adequate oil supply and mitigate geopolitical uncertainties, China has diversified its sources of crude oil imports in recent years. China imported 5.4 million bbl/d of crude oil on average in 2012, rising 7% from 5.1 million bbl/d in 2011, according to China's customs data and FGE. In 2013, import growth slowed to about 4.4% from 2012 levels, and crude oil imports averaged 5.6 million bbl/d. Crude imports now outweigh domestic supply, and they made up over half of total oil consumption in 2013. The government's current Five-Year plan targets oil imports reaching no more than 61% of its demand by the end of 2015. EIA expects China to import over 66% of its total oil by 2020 and 72% by 2040 as demand is expected to grow faster than domestic crude supply.

The Middle East remains the largest source of China's crude oil imports, although African countries, particularly Angola, began contributing more to China's imports in recent years. As part of China's energy supply security policy, the country's NOCs are attempting to diversify supply sources in various regions through overseas investments and long-term contracts. In 2013, the Middle East supplied 2.9 million bbl/d (52%). Other regions that export to China include Africa with 1.3 million bbl/d (23%), the Americas with 562,000 bbl/d (10%), the Asia-Pacific region with 129,000 bbl/d (2%), and 736,000 bbl/d (13%) from other countries. Saudi Arabia and Angola are China's two largest sources of oil imports, together accounting for 33% of China's total crude oil imports.

Sudan and South Sudan became significant oil exporters to China until production was shut in at the beginning of 2012, following political conflicts between the two African nations over their oil resources. Exports from Sudan and South Sudan to China dropped from 260,000 bbl/d in 2011 to zero by April 2012. As production in the two African countries returned, China resumed a reduced level of imports. The ensuing shut-in of some of Libya's oil production during the latter half of 2013 from political uprisings has also affected oil exports to China.

China reduced imports from Iran, historically the third largest exporter to China, by 20% in 2012 to 439,000 bbl/d from a high of 555,000 bbl/d in 2011, as a result of a contract dispute between Sinopec, China's key oil importer, and Iran's state oil company. Iran fell to the sixth largest crude oil exporter to China behind Saudi Arabia, Angola, Oman, Russia, and Iraq, and constituted 8% of China's crude oil imports in 2012 and 2013 compared to 11% in 2011. The contract dispute with Iran was settled by mid-2012, but China reduced its average oil import levels from Iran to maintain diplomatic ties with the United States and Europe as a result of global sanctions imposed regarding Iranian crude oil sales over disagreements on Iran's nuclear program.

Iran shipped 429,000 bbl/d to China in 2013, according to China's customs data, or 2.3% below the 2012 level. China originally targeted a 5% annual reduction of oil intake from Iran in 2013, but it imported higher amounts of Iranian condensates during the second half of 2013. Negotiations between Iran and six countries, including the United States and China, at the end of 2013 allowed China and other buyers to maintain current import levels. Even if production resumes to pre-disruption levels from these countries, most analysts expect that China will continue to diversify import sources to reduce geopolitical risks and oil supply uncertainties.

China replaced the share of oil lost from Iran, Sudan and South Sudan, and Libya with imports from other Middle Eastern countries, Angola, Venezuela, and Russia. China and Russia have signed deals for Russia to send China close to 1 million bbl/d of crude oil by 2020 through various routes. China has significantly increased imports from Iraq, although future import growth is likely to be on the pace of infrastructure development and the political situation in Iraq.

Chinese Naval Forces

At present, China has a steadily growing air-sea presence and power projection capability in the Pacific and a limited – but growing -- power projection capability in the IOR. Its fleet and air force are still largely shaped around operating out of Chinese bases and in “blue water” areas in the Pacific and China is still creating the capability to project sea and air power at the distances involved in operations deep in the Indian Ocean. China also does not have an active basing structure to sustain and support power projection.

This situation is steadily changing, however, and the current balance of US and Chinese military capabilities in the IOR says little about the future and the degree to which the US and China will compete or cooperate. Experts report that both Indian and Chinese military forces are developing an extensive amount professional literature on the future China-India naval, air, and missile balance in the IOR.

The current controversies and military rivalries that affect China and the nations in the Pacific – especially the South China Sea -- cannot be separated from operations in the Eastern IOR. China’s former leader, President Hu Jintao once referred to China’s Malacca Dilemma. Its concerns over the security of petroleum exports and maritime traffic in the strait of Malacca have been a major focus of its security plans since at least the mid-2000s, and a cause of the naval build up – and submarine purchases by Singapore, Malaysia, and Indonesia.⁵⁸⁹

Moreover, China has shown its forces can operate effectively in a relatively permissive in a permissive environment in the IOR. It has deployed elements of its Navy as part of the anti-piracy forces patrolling off Somalia, it increases its naval presence and visits in the region, and has expressed an interest in participating in naval exercises in the Gulf. It also has sent ships in the Strait of Malacca and in naval passages near Indonesia.⁵⁹⁰

In February 2014, for example, Chinese Navy conducted exercises in the Indian Ocean in the Lombok Strait --, a narrow strip of water that runs from the Java Sea, near Indonesia, is north of Australia near Indonesia. Press reports indicate that China sent a three-ship flotilla of the South Sea fleet, including a large amphibious ship, the *Changbaishan* and two destroyers. They conducted some ten exercises, including anti-piracy, search and rescue, and damage control drills, over a five-day period that began on January 29th. China’s official Xinhua news agency reported on January 29, 2014, that the exercises also included simulations for warfare to test the response of command systems and soldiers’ “combat skills.”

China’s People’s Liberation Army Navy (PLAN) had previously carried out some 16-21 drills in the Indian Ocean, largely in the western Indian Ocean and near the Gulf of Aden – usually focusing on anti-piracy and search and rescue exercises. The January 2014 exercises were somewhat different, however, in that they were the first exercises on such a scale in the Lombok Strait, and the first time the PLAN had exercised a new route from the South China Sea to the Indian Ocean. In earlier drills, Chinese ships had always sailed through the Strait of Malacca Straits. The exercises also marked the first deployment of the *Changbaishan*, China’s largest landing ship in an exercise of this kind.

An Indian newspaper, *The Hindu*, quotes Srikanth Kondapalli, an expert on the Chinese military at Jawaharlal Nehru University, as saying that the January exercise may have been a signal from China about the dispute over the South China Sea: “The drill took place in Lombok, which is beyond the nine-dotted line. This is something new,” and the PLAN may be showing it can reach the disputed region “from behind.”⁵⁹¹

The paper also states that,⁵⁹²

A second signal was tied to the Malacca Straits, which are a key route for China’s energy imports. The dependence on the narrow strait led former leader Hu Jintao to warn of China’s “Malacca dilemma,” triggering fresh initiatives by Beijing to establish alternate routes for imports, such as through ports in Myanmar and on-going projects in Bangladesh and Pakistan. “A third message,” Professor Kondapalli added, “is that they can come closer to the Andaman & Nicobar joint command through Lombok, and not just through Malacca.”

He said the drill could be seen as “a preliminary attempt” by the PLAN to see how they can fare in operations far away from China’s borders in the Indian Ocean, where they lack bases for logistics and support. China has recently pushed commercial ties with several littoral states, and is also involved in port projects in a number of countries neighboring India.

US experts indicate that it is unclear from Chinese research studies and reports that China as yet has a clear strategy for the IOR, and one that will lead it to major exercise, basing, and air-sea deployments. Much will depend upon the rate and nature of the expansion of Chinese naval and air forces, and whether China can find partner nations in the IOR that will offer major basing facilities.

More broadly, however, the US sees the modernization of Chinese and seapower; the expansion of Chinese air, naval and missile power projection capability, and the PLAN’s slow conversion into a true blue water navy with carriers and extensive missile forces, as a more serious challenge than the modernization of Chinese ground forces.

The DoD report on *Military and Security Developments Involving the People’s Republic of China* for 2014 describe the current structure and trends in the PLAN as follows:⁵⁹³

The PLA Navy has the largest force of major combatants, submarines, and amphibious warfare ships in Asia. China’s naval forces include some 77 principal surface combatants, more than 60 submarines, 55 medium and large amphibious ships, and roughly 85 missile-equipped small combatants.

The PLA Navy continues to expand its operational and deployment areas further into the Pacific and Indian Oceans. The October MANEUVER-5 exercise in the Philippine Sea, which included participation from all three PLAN fleets – the North Sea Fleet, the East Sea Fleet, and the South Sea Fleet – was the largest PLAN open-ocean exercise seen to date.

In 2013, the PLAN’s first aircraft carrier, LIAONING (CV-16) shifted home ports from Dalian, where it was located since 2001, to the PLA Navy’s Yuchi Naval Base, located in the North Sea Fleet. The LIAONING continued flight integration training throughout 2013, but it is not expected to embark an operational air wing until 2015 or later. In November 2013, the LIAONING deployed out of area for the first time to the South China Sea, where it conducted local training near Hainan Island with surface ships. China also continues to pursue an indigenous aircraft carrier program (the LIAONING is a refurbished ship, purchased from Ukraine in 1998) and likely will build multiple aircraft carriers over the next decade. The first Chinese-built carrier will likely be operational sometime at the beginning of the next decade.

The PLA Navy places a high priority on the modernization of its submarine force. China continues the production of JIN-class nuclear-powered ballistic missile submarines (SSBN). Three JIN-class SSBNs (Type 094) are currently operational, and up to five may enter service before China proceeds to its next generation SSBN (Type 096) over the next decade. The JIN-class SSBN will carry the new JL-2 submarine launched ballistic missile with an estimated range of more than 7,400 km. The JIN-class and the JL-2 will

give the PLA Navy its first credible sea-based nuclear deterrent. China is likely to conduct its first nuclear deterrence patrols with the JIN-class SSBN in 2014.

China also has expanded its force of nuclear-powered attack submarines (SSN). Two SHANG-class SSNs (Type 093) are already in service, and China is building four improved variants of the SHANG-class SSN, which will replace the aging HAN-class SSNs (Type 091). In the next decade, China will likely construct the Type 095 guided-missile attack submarine (SSGN), which may enable a submarine-based land-attack capability. In addition to likely incorporating better quieting technologies, the Type 095 will fulfill traditional anti-ship roles with the incorporation of torpedoes and anti-ship cruise missiles (ASCMs).

The current mainstay of the Chinese submarine force is modern diesel powered attack submarines (SS). In addition to 12 KILO-class submarines acquired from Russia in the 1990s and 2000s (eight of which are equipped with the SS-N-27 ASCM), the PLA Navy possesses 13 SONG-class SS (Type 039) and eight YUAN-class SSP (Type 039A). The YUAN-class SSP is armed similarly to the SONG-class SS, but also includes an air-independent power system. China may plan to construct up to 20 YUAN-class SSPs.

Since 2008, the PLA Navy has embarked on a robust surface combatant construction program of various classes of ships, including guided missile destroyers (DDG) and guided missile frigates (FFG). During 2013, China continued series production of several classes, including construction of a new generation of DDG. Construction of the LUYANG II-class DDG (Type 052C) continued, with three ships under various stages of construction and sea trials, which will bring the total number of ships of this class to six by 2015. Additionally, China launched the lead ship in a follow-on class, the LUYANG III-class DDG (Type 052D), which will likely enter service in 2014. The LUYANG III incorporates the PLA Navy's first multipurpose vertical launch system, likely capable of launching ASCM, land attack cruise missiles (LACM), surface-to-air missiles (SAM), and anti-submarine rockets. China is projected to build more than a dozen of these ships to replace its aging LUDA-class destroyers (DD). China has continued the construction of the workhorse JIANGKAI II-class FFG (Type 054A), with 15 ships currently in the fleet and five or more in various stages of construction, and yet more expected. These new DDGs and FFGs provide a significant upgrade to the PLA Navy's area air defense capability, which will be critical as it expands operations into "distant seas" beyond the range of shore-based air defense.

To augment the PLA Navy's littoral warfare capabilities, especially in the South China Sea and East China Sea, China developed the JIANGDAO-class corvette (FFLs) (Type 056). Nine corvettes entered service in 2013. The first of these ships entered service on February 25, 2013; China may build 20 to 30 of this class. These FFLs augment the 60 HOUBEI-class wave-piercing catamaran missile patrol boats (PTG) (Type 022), each capable of carrying eight YJ-83 ASCMs, for operations in littoral waters. No significant amphibious construction was observed in 2013. However, it appears likely that China will build its first amphibious assault ship during this decade.

The PLA Navy also increased its amphibious force in 2012. Two YUZHAO-class amphibious transport docks (LPD) (Type 071) were accepted into service during the year bringing the total of YUZHAO LPDs to three.

.... The PLA Navy remains at the forefront of the military's efforts to extend its operational reach beyond East Asia and into what China calls the "far seas." Missions in these areas include protecting important sea lanes from terrorism, maritime piracy, and foreign interdiction; providing humanitarian assistance and disaster relief; conducting naval diplomacy and regional deterrence; and training to prevent a third party, such as the United States, from interfering with operations off China's coast in a Taiwan or South China Sea conflict. The PLA Navy's ability to perform these missions is modest but growing as it gains more experience operating in distant waters and acquires larger and more advanced platforms. The PLA Navy's goal over the coming decades is to become a stronger regional force that is able to project power across the globe for high-intensity operations over a period of several months, similar to the United Kingdom's deployment to the South Atlantic to retake the Falkland Islands in the early 1980s. However, logistics and intelligence support remain key obstacles, particularly in the Indian Ocean.

In the last several years, the PLA Navy's distant seas experience has primarily derived from its ongoing counter-piracy mission in the Gulf of Aden and long-distance task group deployments beyond the first island chain in the western Pacific. China continues to sustain a three-ship presence in the Gulf of Aden to protect

Chinese merchant shipping from maritime piracy. This operation is China's first enduring naval operation beyond the Asia region.

Additionally, the PLA Navy has begun to conduct military activities within the Exclusive Economic Zones (EEZs) of other nations, without the permission of those coastal states. Of note, the United States has observed over the past year several instances of Chinese naval activities in the EEZ around Guam and Hawaii. One of those instances was during the execution of the annual Rim of the Pacific (RIMPAC) exercise in July/August 2012. While the United States considers the PLA Navy activities in its EEZ to be lawful, the activity undercuts China's decades-old position that similar foreign military activities in China's EEZ are unlawful.

In 2013, it deployed task groups beyond the first island chain nine times with formations as large as eight ships. These deployments included a three-ship surface action group deployment to South America, the first-ever such deployment. Deployments such as these are designed to complete a number of training requirements, including long-distance navigation, C2, and multi-discipline warfare in deep sea environments beyond the range of land-based air defense.

The PLA Navy's force structure continues to evolve, incorporating more platforms with the versatility for both offshore and long-distance operations. In addition to the recently-commissioned KUZNETSOV-class aircraft carrier (CV) *Liaoning*, China is engaged in series production of the LUYANG-class III DDG, the JIANGKAI-class II FFG, and the JIANGDAO-class FFL. China will also begin construction on a new Type 081-class landing helicopter assault ship within the next five years. China will probably build several aircraft carriers over the next 15 years.

Limited logistical support remains a key obstacle preventing the PLA Navy from operating more extensively beyond East Asia, particularly in the Indian Ocean. China desires to expand its access to logistics in the Indian Ocean and will likely establish several access points in this area in the next 10 years (potential sites include the Strait of Malacca, Lombok Strait, and Sunda Strait). These arrangements will likely take the form of agreements for refueling, replenishment, crew rest, and low-level maintenance. The services provided will likely fall short of U.S.-style agreements permitting the full spectrum of support from repair to re-armament.

Experts like Andrew Erickson and Gabe Collins feel the PLAN has been developing two key layers, aside from homeland defense: high-end navy and "anti-Navy" capabilities as well as low-end capabilities. While China is creating a limited out-of-area operational capability in order to protect its citizens abroad, extend political influence, and protect important vital economic interests. However, the majority of the PLAN's focus is on areas closer to China, especially the contested claims in the South China, East China, and Yellow Seas. The PRC is focusing on building a navy able to engage in a high-intensity conflict near its borders, where it has a large fleet of submarines and land-based missiles and aircraft. Conversely, there is not much evidence that China is building a blue-water capability to take on a modern navy beyond their home region. As Erickson and Collins write,⁵⁹⁴

The PLAN is acquiring the hardware it needs to prosecute a major regional naval showdown. Simultaneously, an increasingly-capable, but still limited number, of vessels can fight pirates, rescue Chinese citizens trapped by violence abroad, and make "show-the-flag" visits around the world. But the PLAN is not set up to confront the U.S. at sea more than 1,000 miles from China. Even if the PLAN surged production of key vessels such as replenishment ships, the resources and steps needed to build a globally-operational navy leave Beijing well over a decade away from achieving such capability in hardware terms alone. Building the more complex human software and operational experience needed to become capable of conducting large-scale, high-end out-of-area deployments could require at least another decade. Meanwhile, however, China's challenges at home and on its contested periphery remain so pressing as to preclude such focus for the foreseeable future.

The bottom line is that China's present naval shipbuilding program aims to replace aging vessels and modernize the fleet, not to scale-up a modern fleet to the size and composition necessary to support and

sustain high-end blue water power projection. China is building a two-layered navy with a high-end Near Seas component and a limited, low-end capability beyond, not the monolithic force that some assume.

The 2014 Japanese white paper provided the following summary description of the PLAN:⁵⁹⁵

The naval forces consist of three fleets—the North Sea, East Sea, and South Sea Fleets. The Chinese Navy has approximately 890 ships (including approximately 60 submarines), with a total displacement of approximately 1.42 million tons. The Navy is in charge of maritime national defense and protection of the sovereignty of territorial waters and maritime rights and interests. The Chinese Navy introduced Kilo-class submarines from Russia and is actively constructing new types of domestic submarines in order to enhance its submarine force. Additionally, the Navy is increasing surface combatant ships with improved air defense and anti-ship attack capabilities, large landing ships, and supply ships. Also, it commissioned a large hospital ship in October 2008.

With regard to aircraft carriers, China has renovated the Varyag, an incomplete Kuznetsov-class aircraft carrier purchased from Ukraine. China began trial navigations in August 2011, and named the carrier “Liaoning” and put it into commission in September 2012. Even after the carrier was commissioned, China seems to be continuing training of carrier-based aircraft pilots and research and development of necessary technologies including the development of a domestic carrier based fighter, J-15, such as its takeoff and landing tests on the “Liaoning.” In November 2013, the carrier sailed in the South China Sea for the first time and conducted sea trials in this sea area. Some analysts point out that China may also be constructing its first domestic aircraft carrier.

In view of these developments concerning the strengthening of the naval forces, it is believed that China is trying to build capabilities for conducting operations in more distant waters in addition to the near sea defense. It is necessary to continue to monitor the development of the Chinese naval forces.

China is making efforts to expand its long-range air and missile forces and “blue water” naval capabilities, and to project power deep into the Pacific into the IOR or at sensitive chokepoints like the Strait of Malacca in a number of areas. One is an improved submarine capability. A CRS report by Ronald O’Rourke provides the following overview of Chinese submarine modernization:⁵⁹⁶

Since the mid-1990s China has acquired 12 Russian-made Kilo-class non-nuclear-powered attack submarines (SSs) and put into service at least four new classes of indigenously built submarines, including the following:

- a new nuclear-powered ballistic missile submarine (SSBN) design called the Jin class or Type 094...;
- a new nuclear-powered attack submarine (SSN) design called the Shang class or Type 093;
- a new SS design called the Yuan class or Type 039A...; and
- another (and also fairly new) SS design called the Song class or Type 039/039G.

The Kilos and the four new classes of indigenously built submarines are regarded as much more modern and capable than China’s aging older-generation submarines. At least some of the new indigenously built designs are believed to have benefitted from Russian submarine technology and design know-how.

DOD and other observers believe the Type 093 SSN design will be succeeded by a newer SSN design called the Type 095. The August 2009 ONI report includes a graph... that shows the Type 095 SSN, along with the date 2015, suggesting that ONI projects that the first Type 095 will enter service that year.

China in 2011 commissioned into a service a new type of non-nuclear-powered submarine, called the Qing class according to *Jane’s Fighting Ships 2013-2014*, which it is about one-third larger than the Yuan-class design. Observers believe the boat may be a one-of-kind test platform; *Jane’s Fighting Ships 2013-2014* refers to it as an auxiliary submarines (SSA).

Press reports in December 2012 and March 2013 stated that China had signed an agreement with Russia to purchase two dozen Su-35 fighters and four Amur/Lada class Russian-designed nonnuclear- powered attack

submarines for China's Navy, with two of the submarines being built in Russia and two being built in China. Russia, however, reportedly denied that such an agreement had been signed.

O' Rourke continues his report by quoting a March 25, 2014 press report:

Instead of providing the older Lada-class submarines to the People's Liberation Army Navy as requested by Beijing, Russia's president, Vladimir Putin, will likely authorize China to receive the more advanced Kalina-class submarine, reports the *Voice of Russia*, citing Vassily Kashin, a senior research fellow from the Moscow-based Center for Analysis of Strategies and Technologies.

Viktor Chirkov, the commander-in-chief of the Russian Navy, officially announced that the Kalina-class conventional submarine equipped with an advanced air-independent propulsion system will be developed and produced in the future on Mar. 20. "Russia is currently designing a fifth-generation conventional submarine, dubbed Project Kalina, which will be fitted with an air-independent propulsion (AIP) system," said Chirkov. Authorities also declared that the construction of the older Lada-class submarine will be cancelled. The Lada-class, or Project 677, is a fourth-generation diesel-electric submarine based on the older Kilo-class submarine.

China was negotiating with Russia to purchase four Lada-class submarines from the Rubin Design Bureau based in St Petersburg. China hoped those submarines could be refitted with Chinese engines and an electronic fire-control system, according to the Canada-based *Kanwa Defense Review*. As Russia remains isolated over its intervention in the Ukraine crisis, Moscow values China's position as one of its strategic partners, Kashin said. He added that the PLA Navy will benefit from the cancellation of the Lada-class as it will open a new door for China to gain more advanced technology from Russia to build its own submarine in the future.

Meanwhile, China may be able to design its own fifth-generation conventional submarine with the help of Russia under this new concept, Kashin said.⁵⁹⁷

China's submarines are armed with one or more of the following: ASCMs, wire-guided and wake-homing torpedoes, and mines. The final eight Kilos purchased from Russia are reportedly armed with the highly capable Russian-made SS-N-27 Sizzler ASCM. In addition to other weapons, Shang-class SSNs may carry LACMs. Although ASCMs are often highlighted as sources of concern, wake-homing torpedoes are also a concern because they can be very difficult for surface ships to counter.

Although China's aging Ming-class (Type 035) submarines are based on old technology and are much less capable than China's newer-design submarines, China may decide that these older boats have continued value as minelayers or as bait or decoy submarines that can be used to draw out enemy submarines (such as U.S. SSNs) that can then be attacked by other Chinese naval forces.

In related areas of activity, China reportedly is developing new unmanned underwater vehicles, and has modernized its substantial inventory of mines. DOD stated in 2012 that "China has developed torpedo and mine systems capable of area denial in a Taiwan scenario. Estimates of China's naval mine inventory exceed 50,000 mines, with many more capable systems developed in the past 10 years. O'Rourke sees similar progress in surface vessels."⁵⁹⁸

China since the early 1990s has purchased four Sovremenny-class destroyers from Russia and put into service 10 new classes of indigenously built destroyers and frigates (some of which are variations of one another) that demonstrate a significant modernization of PLA Navy surface combatant technology. DOD states: "Since 2008, the PLA Navy has embarked on a robust surface combatant construction program of various classes of ships, including guided missile destroyers (DDG[s]) and guided missile frigates (FFG[s]). During 2012, China continued series production of several classes, including construction of a new generation of DDG[s]." DOD states that China's new destroyers and frigates "provide a significant upgrade to the PLA Navy's area air defense capability, which will be critical as it expands operations into 'distant seas' beyond the range of shore-based air defense." China reportedly is also building a new class of corvettes (i.e., light frigates) and has put into service a new kind of missile-armed fast attack craft that uses a stealthy catamaran hull design.

.... China in 1996 ordered two Sovremenny-class destroyers from Russia; the ships entered service in 1999 and 2001. China in 2002 ordered two additional Sovremenny-class destroyers from Russia; the ships entered service in 2005 and 2006. Sovremenny-class destroyers are equipped with the Russian-made SS-N-22 Sunburn ASCM, a highly capable ASCM.

.... China since the early 1990s has put into service six new classes of indigenously built destroyers, two of which are variations of another. The classes are called the Luhu (Type 052), Luhai (Type 051B), Luyang I (Type 052B), Luyang II (Type 052C), the Luyang III (Type 052D), and Luzhou (Type 051C) designs. Compared to China's remaining older Luda (Type 051) class destroyers, which entered service between 1971 and 1991, these six new indigenously built destroyer classes are substantially more modern in terms of their hull designs, propulsion systems, sensors, weapons, and electronics. The Luyang II-class ships... and the Luyang III-class ships appear to feature phased-array radars that are outwardly somewhat similar to the SPY-1 radar used in the U.S.-made Aegis combat system. Like the older Luda-class destroyers, these six new destroyer classes are armed with ASCMs.

China between 1994 and 2007 commissioned only one or two ships in its first four new indigenously built destroyers classes, suggesting that these classes were intended as stepping stones in a plan to modernize the PLA Navy's destroyer technology incrementally before committing to larger-scale series production of Luyang II-class destroyers and Luyang III-class destroyers...after commissioning no new destroyers in 2008-2011, commissionings of new Luyang II-class destroyers appears to have resumed. Regarding the 2008-2011 gap in commissionings, one observer states, "The relocation of JiangNan shipyard and indigenization of DA80/DN80 gas turbine (QC-280) delayed the production of follow-on units [of Luyang II-class destroyers] for several years." In March 2014, it was reported that China had commissioned its first Luyang III class destroyer into service, and that a second is on sea trials.

.... China since the early 1990s has put into service four new classes of indigenously built frigates, two of which are variations of two others. The classes are called the Jiangwei I (Type 053 H2G), Jiangwei II (Type 053H3), Jiangkai I (Type 054), and Jiangkai II (Type 054A) designs. Compared to China's remaining older Jianghu (Type 053) class frigates, which entered service between the mid-1970s and 1989, the four new frigate classes feature improved hull designs and systems, including improved AAW capabilities...production of Jiangkai II-class ships... continues, and *Jane's* projects an eventual total of at least 16.

.... China is building a new type of corvette (i.e., a light frigate, or FFL) called the Jiangdao class or Type 056... *Jane's Fighting Ships 2013-2014* states that seven of these ships were commissioned into service in 2013, that five more are expected to be commissioned into service in 2014, and that "a class of at least 30 is expected if the class is to consolidate replacement of older classes such as the Jianghu-class frigates and Houxin-class attack craft." DOD states that "China may build 20 to 30 of this class."

.... As an apparent replacement for at least some of its older fast attack craft, or FACs (including some armed with ASCMs), China in 2004 introduced a new type of ASCM-armed fast attack craft, called the Houbei (Type 022) class... that uses a stealthy, wave-piercing, catamaran hull. Each boat can carry eight C-802 ASCMs. The August 2009 ONI report states that "the Houbei's ability to patrol coastal and littoral waters and react at short notice allows the PLA(N)'s larger combatants to focus on offshore defense and out-of-[home]area missions without leaving a security gap along China's coastline." The Houbei class was built in at least six shipyards; construction of the design appeared to stop in 2009 after a production run of about 60 units.

.... In addition to the PLAN surface combatants discussed above, China operates numerous additional surface ships in several paramilitary maritime law enforcement agencies that are outside the PLAN. These agencies include, China in 2013 consolidated four of its six MLE agencies into a new China Coast Guard (CCG). China usually uses CCG ships, rather than PLAN ships, to assert and defend its maritime territorial claims and fishing interests in the South China Sea and East China Sea, although PLAN ships are available as backup forces. PLAN ships have also conducted exercises in parts of the South China Sea that appear intended, at least in part, at asserting China's claims over those waters. While the ships operated by these agencies are unarmed or lightly armed, they can nevertheless be effective in confrontations with unarmed fishing vessels or other ships. The CMS, FLEC, and MSA fleets reportedly are being modernized rapidly, and some of the newest ships operated by these agencies are relatively large.

China is developing aircraft carriers like the *Liaoning* and has future plans for new Types. A CRS report notes that,⁵⁹⁹

The *Liaoning* is conventionally powered, has an estimated full load displacement of almost 60,000 tons and might accommodate an eventual air wing of 30 or more aircraft, including fixed-wing airplanes and helicopters. The *Liaoning* lacks aircraft catapults and instead launches fixed-wing airplanes off the ship's bow using an inclined "ski ramp." By comparison, a U.S. Navy aircraft carrier is nuclear powered (giving it greater cruising endurance than a conventionally powered ship), has a full load displacement of about 100,000 tons, can accommodate an air wing of 60 or more aircraft, including fixed-wing aircraft and some helicopters, and launches its fixed-wing aircraft over both the ship's bow and its angled deck using catapults, which can give those aircraft a range/payload capability greater than that of aircraft launched with a ski ramp. The *Liaoning*, like a U.S. Navy aircraft carrier, lands fixed wing aircraft using arresting wires on its angled deck.

Some observers have referred to the *Liaoning* as China's "starter" carrier... The PLA Navy is in the early stages of learning to operate aircraft from the ship. DOD states that "The PLA Navy successfully conducted its first launch and recovery [from the *Liaoning*] of the carrier-capable J-15 fighter [see "Carrier-Based Aircraft" below] on November 26, 2012. The *Liaoning* will continue integration testing and training with the aircraft during the next several years, but it is not expected to embark an operational air wing until 2015 or later." DOD further states that the *Liaoning* most likely will conduct extensive local operations focusing on shipboard training, carrier aircraft integration, and carrier formation training before reaching an operational effectiveness in three to four years. The carrier could operate in the East and South China Seas in the nearer term and may be used for other mission sets as needed.

DOD reporting states that "China also continues to pursue an indigenous aircraft carrier program ... and will likely build multiple aircraft carriers over the next decade. The first Chinese-built carrier will likely be operational sometime in the second half of this decade."⁶⁰⁰

Various press reports cited in a CRS report detailed China's progress in building and operating aircraft carriers:⁶⁰¹

May 16, 2013:

It will take less time for China to learn how to effectively operate aircraft carriers than it took the U.S., the commander of the U.S. Navy's Atlantic air arm, Rear Adm. Ted Branch said Wednesday. "They will learn faster than we did and they will leverage our lessons," Branch said during a panel at the [sic] EAST: Joint Warfighting 2013 symposium in Virginia Beach, Va.... But the PLAN [PLA Navy] will unlikely be proficient in carrier operations for several more years. "They have the advantage of starting with more modern technology but it's still a tough nut to crack to learn how to do this business," Branch said. "They still have a lot of learning to do before they have a viable capability."

September 12, 2013:

The Chinese navy is using its first aircraft carrier, the *Liaoning*, for training and testing and will decide on an operational carrier for the fleet after a few years of evaluation, Admiral Wu Shengli said on Thursday [September 12]. The navy chief of the People's Liberation Army, on a military-to-military visit with his U.S. counterpart, told reporters at the Washington Navy Yard that Chinese sailors would carry out "very heavy" training over the next two or three years as they assess the carrier.

"After the training and experimentation we will have a final evaluation on the development of the aircraft carrier for the PLA navy," said Shengli, whose delegation included the commander of the *Liaoning* and the first pilot to land on its flight deck....

January 20, 2014:

A senior Communist Party official in northeastern China said that China was at work on a home-built aircraft carrier and had plans to operate a fleet of at least four of the vessels, a Hong Kong newspaper reported. The comments by Wang Min, the party secretary of Liaoning Province, are an official indication of what outside observers have long predicted: that China's commissioning of a refurbished aircraft carrier in 2012 was only

a first step in its effort to develop its capacity to build and sail its own aircraft carriers. According to the Hong Kong-based *Ta Kung Pao*, Mr. Wang said on Saturday that China's second aircraft carrier was being built at a shipyard in the coastal city of Dalian and should be completed in six years.

May 28, 2014:

The People's Liberation Army Navy will commission between three and four carrier battle groups over the next 15 years, reports the latest issue of *Kanwa Defense Review*, a military magazine run by Andrei Chang also known as Pinkov, a defense expert from Canada... China is also quicker at constructing large surface combat vessels than the United States, according to the magazine, which stated that China already has plans to build two domestic aircraft carriers after the *Liaoning*. Over the next 15 years, the PLA Navy may be able to maintain four carrier battle groups.

March 2, 2014:

The Moscow-based *Military Parade* has revealed more details on China's secretive construction of indigenous aircraft carriers in Dalian and Shanghai. In an [sic] report on Feb. 28, the Russian website said that the first vessel—known as 001A and designed by the China Shipbuilding Industry Corporation—is being built in Dalian in northeast China's Liaoning province and will be equipped with a steam catapult. The new carrier is expected to have a greater tonnage than China's first aircraft carrier, the *Liaoning*, which was originally a Soviet-era Admiral Kuznetsov-class carrier purchased from Ukraine in 1998.

The second vessel—known as 002—under construction at Jiangnan shipyard on Shanghai's Changxing Island, will be China's first nuclear-powered aircraft carrier, the report said. The size of the 002 will be similar to the USS *Kitty Hawk* with a tonnage of 61,351, and will be 5% larger than the 001A. Both vessels have been designed based on blueprints of the unfinished Soviet Ulyanovsk class aircraft carrier, according to *Military Parade*. The 002 will be fitted with four steam catapults, while the 001A will only have two. The 001A is likely to be named after the northeastern province of Shandong, similar to the *Liaoning*, which was also named after a Chinese province.

The Shandong aircraft carrier may enter service with the PLA Navy as soon as 2018, the report said, adding that China plans to build a total four aircraft carriers. Once completed, the PLA Navy would be able to establish four carrier battle groups to expand its maritime influence in the South China Sea and Western Pacific.

Although aircraft carriers might have some value for China in Taiwan-related conflict scenarios, they are not considered critical for Chinese operations in such scenarios, because Taiwan is within range of land-based Chinese aircraft. Consequently, most observers believe that China is acquiring carriers primarily for their value in other kinds of operations, and to symbolize China's status as a major world power. DOD stated in 2011 that "Given the fact that Taiwan can be reached by land-based aviation, China's aircraft carrier program would offer very limited value in a Taiwan scenario and would require additional naval resources for protection. However, it would enable China to extend its naval air capabilities elsewhere."

Chinese aircraft carriers could be used for power-projection operations, particularly in scenarios that do not involve opposing U.S. forces. Chinese aircraft carriers could also be used for humanitarian assistance and disaster relief (HA/DR) operations, maritime security operations (such as anti-piracy operations), and non-combatant evacuation operations (NEOs). Politically, aircraft carriers could be particularly valuable to China for projecting an image of China as a major world power, because aircraft carriers are viewed by many as symbols of major world power status. In a combat situation involving opposing U.S. naval and air forces, Chinese aircraft carriers would be highly vulnerable to attack by U.S. ships and aircraft, but conducting such attacks could divert U.S. ships and aircraft from performing other missions in a conflict situation with China.

The US DoD also has reported that Chinese carrier-based jets – evidently the Shenyang J-15 – were conducting take-off and landing training on the *Liaoning* in late 2012.⁶⁰² Furthermore, the deputy chief designer of the *Liaoning* said in an interview that China was planning for more aircraft carriers: "China's perception of interest demands has a bearing on the number of aircraft carriers. How many aircraft carriers China should have depends on its needs. What I can tell you is that the 'Liaoning Ship' is just a beginning."⁶⁰³

Chinese Activity at Sea

China is becoming the kind of power projection forces and “blue water” navy that will be able to deploy significant air and sea forces in the Pacific and IOR. It has steadily expanded the range and effectiveness of its air-sea forces in the Pacific and has already deployed limited anti-piracy forces in to the Western IOR, and while some reports that it is actively seeking naval bases in Burma and Pakistan – the so-called “string of pearls” – seem exaggerated, it is steadily increasing its naval activity.

Figure 14.1 shows the increasing range of Chinese naval exercises and that they are now approaching the Strait of Malacca. The 2013 Chinese defense white paper highlighted the expanding “blue water” range of Chinese naval forces, improved readiness and training, and joint warfare capabilities – all of which increase Chinese capabilities to project power and execute area denial activities. If all of the various sections in the white paper that deal with the PLAN are assembled together, they provide a considerable amount of detail on both current PLAN capabilities and the trends in these forces.⁶⁰⁴

The PLA Navy (PLAN) is China’s mainstay for operations at sea, and is responsible for safeguarding its maritime security and maintaining its sovereignty over its territorial seas along with its maritime rights and interests. The PLAN is composed of the submarine, surface vessel, naval aviation, marine corps and coastal defense arms. In line with the requirements of its offshore defense strategy, the PLAN endeavors to accelerate the modernization of its forces for comprehensive offshore operations, develop advanced submarines, destroyers and frigates, and improve integrated electronic and information systems. Furthermore, it develops blue-water capabilities of conducting mobile operations, carrying out international cooperation, and countering non-traditional security threats, and enhances its capabilities of strategic deterrence and counterattack. Currently, the PLAN has a total strength of 235,000 officers and men, and commands three fleets, namely, the Beihai Fleet, the Donghai Fleet and the Nanhai Fleet. Each fleet has fleet aviation headquarters, support bases, flotillas and maritime garrison commands, as well as aviation divisions and marine brigades. In September 2012, China’s first aircraft carrier Liaoning was commissioned into the PLAN. China’s development of an aircraft carrier has a profound impact on building a strong PLAN and safeguarding maritime security.

...The PLAN strengthens maritime control and management, systematically establishes patrol mechanisms, effectively enhances situational awareness in surrounding sea areas, tightly guards against various types of harassment, infiltration and sabotage activities, and copes promptly with maritime and air incidents and emergencies. It advances maritime security cooperation, and maintains maritime peace and stability, as well as free and safe navigation. Within the framework of the Military Maritime Consultative Agreement (MMCA), the Chinese and US navies regularly exchange maritime information to avoid accidents at sea. According to the Agreement on Joint Patrols by the Navies of China and Vietnam in the Beibu Gulf, the two navies have organized joint patrols twice a year since 2006.

...Intensifying blue water training...The PLAN is improving the training mode of task force formation in blue water. It organizes the training of different formations of combined task forces composed of new types of destroyers, frigates, ocean-going replenishment ships and shipborne helicopters. It is increasing its research and training on tasks in complex battlefield environments, highlighting the training of remote early warning, comprehensive control, open sea interception, long-range raid, anti-submarine warfare and vessel protection at distant sea. The PLAN organizes relevant coastal forces to carry out live force-on-force training for air defense, anti-submarine, anti-mine, anti-terrorism, anti-piracy, coastal defense, and island and reef sabotage raids. Since 2007, the PLAN has conducted training in the distant sea waters of the Western Pacific involving over 90 ships in nearly 20 batches. During the training, the PLAN took effective measures to respond to foreign close-in reconnaissance and illegal interference activities by military ships and aircraft. From April to September 2012, the training vessel Zhenghe completed global-voyage training, paying port calls to 14 countries and regions.

To fulfill China’s international obligations, the Chinese navy carries out regular escort missions in the Gulf of Aden and waters off Somalia. It conducts exchanges and cooperation with other escort forces to jointly

safeguard the security of the international SLOCs. As of December 2012, Chinese navy task groups have provided protection for four WFP ships and 2,455 foreign ships, accounting for 49% of the total of escorted ships. They helped four foreign ships, recovered four ships released from captivity and saved 20 foreign ships from pursuit by pirates.

Chinese navy escort task forces have maintained smooth communication with other navies in the areas of joint escort, information sharing, coordination and liaison. They have conducted joint escorts with their Russian counterparts, carried out joint anti-piracy drills with naval ships of the ROK, Pakistan and the US, and coordinated with the European Union to protect WFP ships. It has exchanged boarding visits of commanders with task forces from the EU, NATO, the Combined Maritime Forces (CMF), the ROK, Japan and Singapore. It has exchanged officers for onboard observations with the navy of the Netherlands. China takes an active part in the conferences of the Contact Group on Piracy off the Coast of Somalia (CGPCS) and “Shared Awareness and Deconfliction” (SHADE) meetings on international merchant shipping protection.

Since January 2012, independent deployers such as China, India and Japan have strengthened their convoy coordination. They have adjusted their escort schedules on a quarterly basis, optimized available assets, and thereby enhanced escort efficiency. China, as the reference country for the first round of convoy coordination, submitted its escort timetable for the first quarter of 2012 in good time. India and Japan’s escort task forces adjusted their convoy arrangements accordingly, thereby formulating a well-scheduled escort timetable. The ROK joined these efforts in the fourth quarter of 2012.

...The routine combat readiness work of the PLAN serves to safeguard national territorial sovereignty and maritime rights and interests. It carries out diversified patrols and provides whole-area surveillance in a cost-effective way. The PLAN organizes and performs regular combat readiness patrols, and maintains a military presence in relevant sea areas. All fleets maintain the necessary number of ships patrolling in areas under their respective command, beef up naval aviation reconnaissance patrols, and organize mobile forces to conduct patrols and surveillance in relevant sea areas, as required.

Joint maritime exercises and training are being expanded. In recent years, the Chinese navy has taken part in the “Peace-07,” “Peace-09” and “Peace-11” multinational maritime exercises hosted by Pakistan on the Arabian Sea. The PLA and Russian navies held the “Maritime Cooperation-2012” military drill in the Yellow Sea off China’s east coast focusing on joint defense of maritime traffic arteries. Chinese and Thai marine corps held the “Blue Strike-2010” and “Blue Strike-2012” joint training exercises. During mutual port calls and other activities, the Chinese navy also carried out bilateral or multilateral maritime exercises and training in such tasks as communications, formation movement, maritime replenishment, cross-deck helicopter landing, firing at surface, underwater and air targets, joint escort, boarding and inspection, joint search and rescue and diving with its counterparts of India, France, the UK, Australia, Thailand, the US, Russia, Japan, New Zealand and Vietnam.

... In combination with its routine combat readiness activities, the PLAN provides security support for China’s maritime law enforcement, fisheries, and oil and gas exploitation. It has established mechanisms to coordinate and cooperate with law-enforcement organs of marine surveillance and fishery administration, as well as a joint military-police-civilian defense mechanism. Further, the PLAN has worked in coordination with relevant local departments to conduct maritime survey and scientific investigation; build systems of maritime meteorological observation, satellite navigation, radio navigation and navigation aids; release timely weather and sea traffic information; and ensure the safe flow of traffic in sea areas of responsibility.

Together with the marine surveillance and fishery administration departments, the PLAN has conducted joint maritime exercises and drills for protecting rights and enforcing laws, and enhanced its capabilities to coordinate command and respond to emergencies in joint military-civilian operations to safeguard maritime rights. The “Donghai Collaboration-2012” joint exercise was held in the East China Sea in October 2012, involving 11 ships and eight planes.

As an important armed maritime law-enforcement body, the border public security force exercises jurisdiction over both violations of laws, rules and regulations relating to public security administration and suspected crimes committed in China’s internal waters, territorial seas, contiguous zones, exclusive economic zones and continental shelf. In recent years, the border public security force has endeavored to guarantee the security of sea areas, strengthened patrols, surveillance and management along the sea

boundary in the Beibu Gulf and around the Xisha sea areas, and effectively maintained maritime public order and stability.

The US Department of Defense report on Chinese military power summarized the key developments in China's naval forces as follows:⁶⁰⁵

Since the 1990s, the PLA Navy has transformed from a large fleet of single mission platforms to a leaner force equipped with more modern, multi-mission platforms. In contrast to the fleet of just a decade ago, many PLA Navy combatants are equipped with advanced area air-defense systems, modern ASCMs, and torpedoes. These capabilities not only increase the lethality of PLA Navy platforms, particularly in the area of anti-surface warfare, but also enable them to operate beyond the range of land-based air cover. The PLA Navy possesses some 79 principal surface combatants (destroyers and frigates), 50 submarines, 51 amphibious and medium landing ships, and 86 missile-equipped patrol craft.

The PLA Navy has now completed construction of a major naval base at Yalong, on the southernmost tip of Hainan Island. The base is large enough to accommodate a mix of nuclear-powered attack and ballistic-missile submarines and advanced surface combatants, including aircraft carriers. Submarine tunnel facilities at the base could also enable deployments from this facility with reduced risk of detection.

China's aircraft carrier research and development program includes renovation of the KUZNETSOV-class aircraft carrier Hull 2 (formerly the Varyag), which began sea trials in 2011. It will likely serve initially as a training and evaluation platform. Once China deploys aircraft capable of operating from a carrier, it should offer a limited capability for carrier-based air operations.

Some components of China's first indigenously-produced carrier may already be under construction; that carrier could achieve operational capability after 2015. China likely will build multiple aircraft carriers and associated support ships over the next decade. China currently has a land-based training program for carrier pilots; however, it will still take several additional years for China to achieve a minimal level of combat capability for its aircraft carriers.

The PLA Navy is improving its long-range surveillance capability with sky-wave and surface wave over-the-horizon (OTH) radars. In combination with early-warning aircraft, unmanned aerial vehicles (UAVs), and other surveillance and reconnaissance equipment, the radars allow China to carry out surveillance and reconnaissance over the western Pacific. These radars can be used in conjunction with reconnaissance satellites to locate targets at great distances from China, thereby supporting long-range precision strikes, including employment of ASBMs.

China has developed torpedo and mine systems capable of area denial in a Taiwan scenario. Estimates of China's naval mine inventory exceed 50,000 mines, with many more capable systems developed in the past 10 years.

China is producing a new class of nuclear-powered ballistic missile submarine (SSBN). The JIN-class SSBN (Type-094) will eventually carry the JL-2 submarine-launched ballistic missile with an estimated range of some 7,400km. The JIN-class SSBN and the JL-2 will give the PLA Navy its first credible sea-based nuclear capability. The JL-2 program has faced repeated delays, but may reach initial operating capability within the next two years.

China has expanded its force of nuclear-powered attack submarines (SSN). Two second generation SHANG-class (Type-093) SSNs are already in service and as many as five third generation SSNs will be added in the coming years. When complete, the new class of SSNs will incorporate better quieting technology, improving China's capability to conduct a range of missions from surveillance to the interdiction of surface vessels with torpedoes and ASCMs.

The current mainstay of modern diesel powered attack submarines (SS) in the PLA Navy submarine force are the 13 SONG-class (Type-039) units. Each can carry the YJ-82 ASCM. The follow-on to the SONG is the YUAN-class (a Type-039 variant), as many as four of which are already in service. The YUAN-class probably includes an air-independent power system. The SONG, YUAN, SHANG and the still-to-be-deployed new SSN-class all will eventually be capable of launching a new long-range ASCM.

China has deployed approximately 60 of its HOUBEI-class (Type-022) wave-piercing catamaran-hull guided missile patrol craft. Each boat can carry up to eight YJ-83 ASCMs. These boats have increased the

PLA Navy's littoral warfare capabilities. The PLA Navy has acquired modern, domestically-produced surface combatants.

These include at least two LUYANG II-class (Type-052C) guided missile destroyers (DDG) fitted with the indigenous HHQ-9 long-range SAM, with additional hulls under construction; two LUZHOU-class (Type-051C) DDGs equipped with the Russian SA-N-20 long-range SAM; and at least nine JIANGKAI II-class (Type-054A) guided-missile frigates, fitted with the medium range HHQ-16 vertically launched SAM. These ships improve the PLA Navy's area air defense capability significantly, which will be critical as the PLA Navy expands its operations into areas beyond the range of shore-based air defense.

The updated DoD report for 2013 provided more details:⁶⁰⁶

The PLA Navy remains at the forefront of the military's efforts to extend its operational reach beyond East Asia and into what China calls the "far seas." Missions in these areas include protecting important sea lanes from terrorism, maritime piracy, and foreign interdiction; providing humanitarian assistance and disaster relief; conducting naval diplomacy and regional deterrence; and training to prevent a third party, such as the United States, from interfering with operations off China's coast in a Taiwan or South China Sea conflict. The PLA Navy's ability to perform these missions is modest but growing as it gains more experience operating in distant waters and acquires larger and more advanced platforms. The PLA Navy's goal over the coming decades is to become a stronger regional force that is able to project power across the globe for high-intensity operations over a period of several months, similar to the United Kingdom's deployment to the South Atlantic to retake the Falkland Islands in the early 1980s. However, logistics and intelligence support remain key obstacles, particularly in the Indian Ocean. (p. 38)

In the last several years, the PLA Navy's distant seas experience has primarily derived from its ongoing counter-piracy mission in the Gulf of Aden and long-distance task group deployments beyond the first island chain in the western Pacific. China continues to sustain a three-ship presence in the Gulf of Aden to protect Chinese merchant shipping from maritime piracy. This operation is China's first enduring naval operation beyond the Asia region.

Additionally, the PLA Navy has begun to conduct military activities within the Exclusive Economic Zones (EEZs) of other nations, without the permission of those coastal states. Of note, the United States has observed over the past year several instances of Chinese naval activities in the EEZ around Guam and Hawaii. One of those instances was during the execution of the annual Rim of the Pacific (RIMPAC) exercise in July/August 2012. While the United States considers the PLA Navy activities in its EEZ to be lawful, the activity undercuts China's decades-old position that similar foreign military activities in China's EEZ are unlawful. (p. 38)

The PLA Navy has made long-distance deployments a routine part of the annual training cycle. In 2012, it deployed task groups beyond the first island chain seven times with formations as large as seven ships. These deployments are designed to complete a number of training requirements, including long-distance navigation, C2, and multi-discipline warfare in deep sea environments beyond the range of land-based air defense.

The PLA Navy's force structure continues to evolve, incorporating more platforms with the versatility for both offshore and long-distance operations. In addition to the recently-commissioned KUZNETSOV-class aircraft carrier (CV) *Liaoning*, China is engaged in series production of the LUYANG-class III DDG, the JIANGKAI-class II FFG, and the JIANGDAO-class FFL. China will also begin construction on a new Type 081-class landing helicopter assault ship within the next five years. China will probably build several aircraft carriers over the next 15 years.

Limited logistical support remains a key obstacle preventing the PLA Navy from operating more extensively beyond East Asia, particularly in the Indian Ocean. China desires to expand its access to logistics in the Indian Ocean and will likely establish several access points in this area in the next 10 years (potential sites include the Strait of Malacca, Lombok Strait, and Sunda Strait). These arrangements will likely take the form of agreements for refueling, replenishment, crew rest, and low-level maintenance. The services provided will likely fall short of U.S.-style agreements permitting the full spectrum of support from repair to re-armament. (p. 39)

Regular Naval Forces

The PLA Navy has the largest force of major combatants, submarines, and amphibious warfare ships in Asia. China's naval forces include some 79 principal surface combatants, more than 55 submarines, 55 medium and large amphibious ships, and roughly 85 missile-equipped small combatants. (p. 6)

The current mainstay of the Chinese submarine force is modern diesel powered attack submarines (SS). In addition to 12 KILo-class submarines acquired from Russia in the 1990s and 2000s (eight of which are equipped with the SS-N-27 ASCM), the PLA Navy possesses 13 SONG-class SS (Type 039) and eight YUAN-class SSP (Type 039A). The YUAN-class SSP is armed similarly to the SONG-class SS, but also includes an air-independent power system. China may plan to construct up to 20 YUAN-class SSPs. (p. 7)

Since 2008, the PLA Navy has embarked on a robust surface combatant construction program of various classes of ships, including guided missile destroyers (DDG) and guided missile frigates (FFG). During 2012, China continued series production of several classes, including construction of a new generation of DDG. Construction of the LUYANG II-class DDG (Type 052C) continued, with one ship entering service in 2012, and an additional three ships under various stages of construction and sea trials, bringing the total number of ships of this class to six by the end of 2013. Additionally, China launched the lead ship in a follow-on class, the LUYANG III-class DDG (Type 052D), which will likely enter service in 2014. The LUYANG III incorporates the PLA Navy's first multipurpose vertical launch system, likely capable of launching ASCM, land attack cruise missiles (LACM), surface-to-air missiles (SAM), and anti-submarine rockets. China is projected to build more than a dozen of these ships to replace its aging LUDA-class destroyers (DD). China has continued the construction of the workhorse JIANGKAI II-class FFG (Type 054A), with 12 ships currently in the fleet and six or more in various stages of construction, and yet more expected. These new DDGs and FFGs provide a significant upgrade to the PLA Navy's area air defense capability, which will be critical as it expands operations into "distant seas" beyond the range of shore-based air defense. (p. 7)

Augmenting the PLA Navy's littoral warfare capabilities, especially in the South China Sea and East China Sea, is a new class of small combatant. At least six of the JIANGDAO-class corvettes (FFL) (Type 056) were launched in 2012. The first of these ships entered service on February 25, 2013; China may build 20 to 30 of this class. These FFLs augment the 60 HOUBEI-class wave-piercing catamaran missile patrol boats (PTG) (Type 022), each capable of carrying eight YJ-83 ASCMs, for operations in littoral waters. (p. 7)

The PLA Navy also increased its amphibious force in 2012. Two YUZHAO-class amphibious transport docks (LPD) (Type 071) were accepted into service during the year bringing the total of YUZHAO LPDs to three. (p. 7)

The PLA Navy remains at the forefront of the military's efforts to extend its operational reach beyond East Asia and into what China calls the "far seas." Missions in these areas include protecting important sea lanes from terrorism, maritime piracy, and foreign interdiction; providing humanitarian assistance and disaster relief; conducting naval diplomacy and regional deterrence; and training to prevent a third party, such as the United States, from interfering with operations off China's coast in a Taiwan or South China Sea conflict. The PLA Navy's ability to perform these missions is modest but growing as it gains more experience operating in distant waters and acquires larger and more advanced platforms. The PLA Navy's goal over the coming decades is to become a stronger regional force that is able to project power across the globe for high-intensity operations over a period of several months, similar to the United Kingdom's deployment to the South Atlantic to retake the Falkland Islands in the early 1980s. However, logistics and intelligence support remain key obstacles, particularly in the Indian Ocean. (p. 38)

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Limited logistical support remains a key obstacle preventing the PLA Navy from operating more extensively beyond East Asia, particularly in the Indian Ocean. China desires to expand its access to logistics in the Indian Ocean and will likely establish several access points in this area in the next 10 years (potential sites include the Strait of Malacca, Lombok Strait, and Sunda Strait). These arrangements will likely take the form of agreements for refueling, replenishment, crew rest, and low-level maintenance. The services provided will likely fall short of U.S.-style agreements permitting the full spectrum of support from repair to re-armament. (p. 39)

Maritime Paramilitary Forces

During the 2012 Scarborough Reef and Senkaku Island tensions, the China Maritime Surveillance (CMS) and Fisheries Law Enforcement Command (FLEC) ships were responsible for directly managing the disputes on a daily basis, while the PLA Navy maintained a more distant presence away from the immediate vicinity of the contested waters. China prefers to use its civilian maritime agencies in these disputes, and use the PLA Navy further ashore from disputed areas or as an escalatory measure. The five civilian agency entities, commonly referred to as the "Five Dragons" are:

- *Anti-Smuggling Bureau (ASB)*: Subordinate to the General Administration of Customs and Ministry of Public Security. Armed entity responsible for criminal investigations and smuggling cases along China's inland border posts and rivers. (p.40)
- *China Coast Guard (CCG)*: Subordinate to the Ministry of Public Security. Active duty maritime police force responsible for combating maritime crime. (p.40)
- *China Maritime Surveillance (CMS)*: Subordinate to the State Oceanic Administration and Ministry of Land and Resources. Responsible for asserting China's marine rights and sovereignty claims in disputed maritime regions. (p.40)
- *Fisheries Law Enforcement Command (FLEC)*: Subordinate to the Ministry of Agriculture. Enforces PRC fisheries laws and handles fishery disputes with foreign entities across China's exclusive economic zone (EEZ).
- *Maritime Safety Administration (MSA)*: Subordinate to the Ministry of Transport. Responsible for safety of life at sea (SOLAS), maritime pollution control, and cleanup, port inspection, and maritime investigation.

In the next decade, an expanded and modernized force of civilian maritime ships will afford China the capability to more robustly patrol its territorial claims in the ECS and SCS. China is continuing with the second half of a modernization and construction program for its maritime law enforcement agencies. The first half of this program, from 2004-2008, resulted in the addition of almost 20 ocean-going patrol ships for the CMS (9), Bureau of Fisheries (BOF) (3), Maritime Safety Administration (MSA) (3), and China Coast Guard (2). The second half of this program, from 2011-2015, includes at least 30 new ships for the CMS (23), BOF (6), and MSA (1). Several agencies have also acquired ships that were decommissioned from the PLA Navy. Some old patrol ships will be decommissioned during this period. In addition, MLE agencies will likely build more than 100 new patrol craft and smaller units, both to increase capability and

to replace old units. Overall, CMS total force level is expected to increase 50 percent by 2020 and BOF by 25 percent. MSA, China Coast Guard, and Maritime Customs force levels will probably remain constant, but with larger and more capable units replacing older, smaller units. Some of these ships will have the capability to embark helicopters, a capability that only a few MLE ships currently have. The enlargement and modernization of China's MLE forces will improve China's ability to enforce its maritime sovereignty. (p.40)

The 2014 DoD Report described the PLA Navy's activity as follows:

The PLA Navy has the largest force of major combatants, submarines, and amphibious warfare ships in Asia. China's naval forces include some 77 principal surface combatants, more than 60 submarines, 55 medium and large amphibious ships, and roughly 85 missile-equipped small combatants.

The PLA Navy continues to expand its operational and deployment areas further into the Pacific and Indian Oceans. The October MANEUVER-5 exercise in the Philippine Sea, which included participation from all three PLAN fleets – the North Sea Fleet, the East Sea Fleet, and the South Sea Fleet – was the largest PLAN open-ocean exercise seen to date.

In 2013, the PLAN's first aircraft carrier, LIAONING (CV-16) shifted home ports from Dalian, where it was located since 2001, to the PLA Navy's Yuchi Naval Base, located in the North Sea Fleet. The LIAONING continued flight integration training throughout 2013, but it is not expected to embark an operational air wing until 2015 or later. In November 2013, the LIAONING deployed out of area for the first time to the South China Sea, where it conducted local training near Hainan Island with surface ships. China also continues to pursue an indigenous aircraft carrier program (the LIAONING is a refurbished ship, purchased from Ukraine in 1998) and likely will build multiple aircraft carriers over the next decade. The first Chinese-built carrier will likely be operational sometime at the beginning of the next decade.

The PLA Navy places a high priority on the modernization of its submarine force. China continues the production of JIN-class nuclear-powered ballistic missile submarines (SSBN). Three JIN-class SSBNs (Type 094) are currently operational, and up to five may enter service before China proceeds to its next generation SSBN (Type 096) over the next decade. The JIN-class SSBN will carry the new JL-2 submarine launched ballistic missile with an estimated range of more than 7,400 km. The JIN-class and the JL-2 will give the PLA Navy its first credible sea-based nuclear deterrent. China is likely to conduct its first nuclear deterrence patrols with the JIN-class SSBN in 2014.

China also has expanded its force of nuclear-powered attack submarines (SSN). Two SHANG-class SSNs (Type 093) are already in service, and China is building four improved variants of the SHANG-class SSN, which will replace the aging HAN-class SSNs (Type 091). In the next decade, China will likely construct the Type 095 guided-missile attack submarine (SSGN), which may enable a submarine-based land-attack capability. In addition to likely incorporating better quieting technologies, the Type 095 will fulfill traditional anti-ship roles with the incorporation of torpedoes and anti-ship cruise missiles (ASCMs).

The ~~current~~ mainstay of the Chinese submarine force is modern diesel powered attack submarines (SS). In addition to 12 KILO-class submarines acquired from Russia in the 1990s and 2000s (eight of which are equipped with the SS-N-27 ASCM), the PLA Navy possesses 13 SONG-class SS (Type 039) and eight YUAN-class SSP (Type 039A). The YUAN-class SSP is armed similarly to the SONG-class SS, but also includes an air-independent power system. China may plan to construct up to 20 YUAN-class SSPs.

Since 2008, the PLA Navy has embarked on a robust surface combatant construction program of various classes of ships, including guided missile destroyers (DDG) and guided missile frigates (FFG). During 2013, China continued series production of several classes, including construction of a new generation of DDG. Construction of the LUYANG II-class DDG (Type 052C) continued, with three ships under various stages of construction and sea trials, which will bring the total number of ships of this class to six by 2015. Additionally, China launched the lead ship in a follow-on class, the LUYANG III-class DDG (Type 052D), which will likely enter service in 2014. The LUYANG III incorporates the PLA Navy's first multipurpose vertical launch system, likely capable of launching ASCM, land attack cruise missiles (LACM), surface-to-air missiles (SAM), and anti-submarine rockets. China is projected to build more than a dozen of these ships to replace its aging LUDA-class destroyers (DD). China has continued the construction of the workhorse JIANGKAI II-class FFG (Type 054A), with 15 ships currently in the fleet and five or more in various stages

of construction, and yet more expected. These new DDGs and FFGs provide a significant upgrade to the PLA Navy's area air defense capability, which will be critical as it expands operations into "distant seas" beyond the range of shore-based air defense.

To augment the PLA Navy's littoral warfare capabilities, especially in the South China Sea and East China Sea, China developed the JIANGDAO-class corvette (FFLs) (Type 056). Nine corvettes entered service in 2013. The first of these ships entered service on February 25, 2013; China may build 20 to 30 of this class. These FFLs augment the 60 HOUBEI-class wave-piercing catamaran missile patrol boats (PTG) (Type 022), each capable of carrying eight YJ-83 ASCMs, for operations in littoral waters. No significant amphibious construction was observed in 2013. However, it appears likely that China will build its first amphibious assault ship during this decade.⁶⁰⁷

The PLA Navy remains at the forefront of China's military efforts to extend its operational reach beyond the western Pacific and into what China calls the "far seas." Missions in these areas include: protecting important sea lanes from terrorism, maritime piracy, and foreign interdiction; providing humanitarian assistance/disaster relief; conducting naval diplomacy and regional deterrence; and training to prevent a third party, such as the United States, from interfering with operations off China's coast in a Taiwan, East China Sea, or South China Sea conflict. The PLA Navy's ability to perform these missions is modest but growing as it gains more experience operating in distant waters and acquires larger and more advanced platforms. The PLA Navy's goal over the coming decades is to become a stronger regional force that is able to project power across the greater Asia-Pacific region for long-term, high-intensity operations. However, logistics and intelligence support remain key obstacles, particularly in the Indian Ocean.

In the last several years, the PLA Navy's distant seas experience has derived primarily from counterpiracy missions in the Gulf of Aden and long-distance task group deployments beyond the first island chain in the western Pacific. China continues to sustain a three-ship presence in the Gulf of Aden to protect Chinese merchant shipping from maritime piracy. This operation is China's first enduring naval operation beyond the Asia region.

Additionally, the PLA Navy continues to conduct military activities within its nine-dash line and the claimed exclusive economic zones (EEZs) of other nations, without the permission of those coastal states. For example, in March 2013, sailors aboard a group of surface combatants reportedly performed an oath-taking ceremony at James Shoal. The United States considers military activities in foreign EEZs to be lawful and notes that similar PLA Navy activity in foreign EEZs undercuts China's decades-old position that such activities in China's EEZ are unlawful.

The PLA Navy has made long-distance deployments a routine part of the annual training cycle. In 2013, it deployed task groups beyond the first island chain nine times with formations as large as eight ships. These deployments included a three-ship surface action group deployment to South America, the first-ever such deployment. Deployments such as these are designed to complete a number of training requirements, including long-distance navigation, C2, and multi-discipline warfare in deep sea environments beyond the range of land-based air defense.

The PLA Navy's force structure continues to evolve, incorporating more platforms with the versatility for both offshore and long-distance operations. China is engaged in series production of the LUYANG III-class DDG, the JIANGKAI II-class FFG, and the JIANGDAO-class FFL. China might begin construction on a new Type 081-class amphibious assault ship within the next five years. China will probably build multiple aircraft carriers over the next 15 years.

Limited logistical support remains a key obstacle preventing the PLA Navy from operating more extensively beyond East Asia, particularly in the Indian Ocean. China desires to expand its access to logistics in the Indian Ocean and will likely establish several access points in this area in the next 10 years. These arrangements likely will take the form of agreements for refueling, replenishment, crew rest, and low-level maintenance.⁶⁰⁸

The 2014 DoD China Report also included an important organizational change regarding China's maritime law enforcement agencies, referred to in the previous report at "Maritime Paramilitary Forces."

During the 2012 Scarborough Reef and 2013 Senkaku Islands tensions, the China Maritime Surveillance (CMS) and Fisheries Law Enforcement Command (FLEC) ships were responsible for directly asserting Chinese sovereignty on a daily basis, while the PLA Navy maintained a more distant presence from the immediate vicinity of the contested waters. China prefers to use its civilian maritime agencies around these islands, and uses the PLA Navy in a back-up role or as an escalatory measure. China's diplomats also apply pressure on rival claimants. China identifies its territorial sovereignty as a core interest and emphasizes its willingness to protect against actions that China perceives challenge Chinese sovereignty. China almost certainly wants to assert its maritime dominance without triggering too harsh of a regional backlash.

In 2013, China consolidated four of its maritime law enforcement agencies into the China Coast Guard (CCG). Subordinate to the Ministry of Public Security, the CCG is responsible for a wide range of missions, including maritime sovereignty enforcement missions, anti-smuggling, maritime rescue and salvage, protecting fisheries resources, and general law enforcement. Prior to the consolidation, different agencies were responsible for each of these mission sets, creating organizational redundancies and complicating interagency coordination.

In the next decade, a new force of civilian maritime ships will afford China the capability to patrol its territorial claims more robustly in the East China and the South China Seas. China is continuing with the second half of a modernization and construction program for the CCG. The first half of this program, from 2004 to 2008, resulted in the addition of almost 20 ocean-going patrol ships. The second half of this program, from 2011 to 2015, includes at least 30 new ships for the CCG. Several less capable patrol ships will be decommissioned during this period. In addition, the CCG will likely build more than 100 new patrol craft and smaller units, both to increase capability and to replace old units. Overall, The CCG's total force level is expected to increase by 25 percent. Some of these ships will have the capability to embark helicopters, a capability that only a few MLE ships currently have. The enlargement and modernization of China's MLE forces will improve China's ability to enforce its maritime sovereignty.⁶⁰⁹

The 2014 Japanese defense white paper provides another useful perspective on these developments:⁶¹⁰

China has also been intensifying its activities in the South China Sea, including waters around the Spratly Islands and the Parcel Islands, over which territorial disputes exist with neighbors, including some ASEAN (Association of Southeast Asian Nations) member states. In March 2009, Chinese ships, including a naval vessel, a maritime research ship of the SOA, a Bureau of Maritime Fisheries' patrol ship, and trawlers, approached a U.S. Navy acoustic research ship operating in the South China Sea to obstruct its operations. In addition, in December 2013, a Chinese naval vessel cut across the bow of a U.S. Navy cruiser operating in the South China Sea at point blank range. It is also reported that Chinese naval vessels fired warning shots at fishing boats of neighboring countries. Furthermore, in recent years, there has been growing friction between China and its neighboring countries over the South China Sea, as illustrated by protests by Vietnam and the Philippines against China's activities in these waters.

Additionally, Chinese naval vessels have advanced into the Indian Ocean. Since December 2008, Chinese naval vessels have been navigating in the Indian Ocean and advanced into the coast of Somalia and in the Gulf of Aden to take part in international anti-piracy efforts. In 2010 and 2013, a Chinese Navy's hospital ship carried out "Mission Harmony," a medical service mission, to assist countries, including countries off the coast of the Indian Ocean. Furthermore, from the end of 2013 to the beginning of 2014, a Chinese naval nuclear submarine reportedly advanced into the Indian Ocean and conducted operations off the coast of Somalia and in the Gulf of Aden. In the same year, a Chinese naval vessel is said to have advanced into the Indian Ocean from the Sunda Strait and conducted trainings. As such examples demonstrate, the Chinese Navy has improved its capacity to execute operations in more distant waters, including the Indian Ocean.

...Taking into consideration such factors as the situation of the development of Chinese naval and air forces, situation of activities in sea areas and airspace, statements in defense white papers, China's geographical location and economic globalization, the maritime activities of the Chinese Navy, Air Force and other organizations are considered to have the following objectives.

The first one is to intercept operations by enemies in waters and airspace as far as possible from China in order to defend its territory, territorial waters and territorial airspace. Behind this objective is an increase in effectiveness of long-range attacks due to recent progress in science and technology.

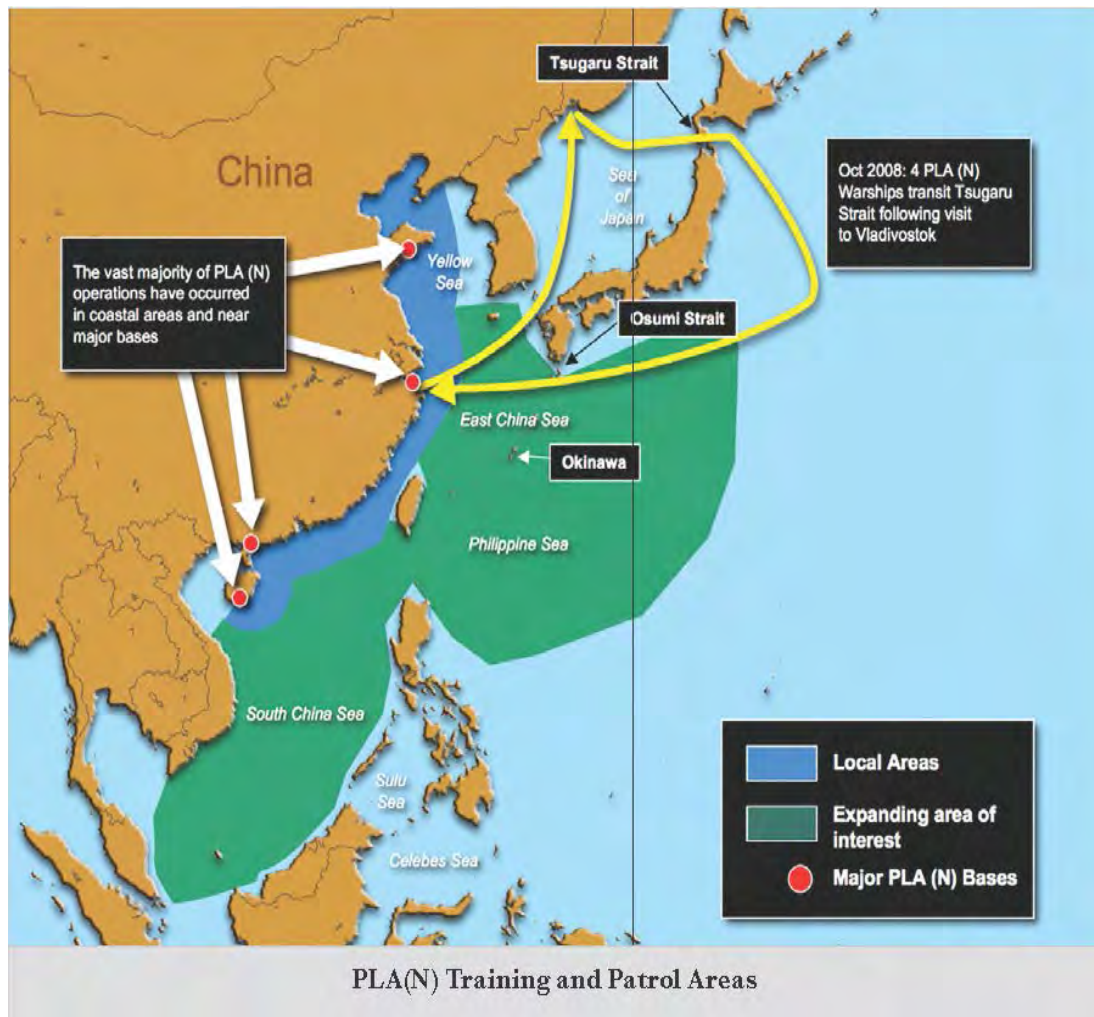
The second one is to develop military capabilities to deter and prevent Taiwan's independence. For example, China maintains that it will not allow any foreign intervention in solving the Taiwan issue and realizing the unification of China. In order for China to try to prevent foreign intervention into Taiwan surrounded by the sea in all directions through China's use of force, it needs to enhance its military operational capabilities at sea and airspace.

The third one is to weaken the control of other countries over the islands to which China claims territorial sovereignty, while strengthening the claim of its territorial sovereignty, through various surveillance activities and use of force in the seas and air space surrounding the islands. The fourth one is to acquire, maintain, and protect its maritime rights and interests. China is engaged in oil and gas drilling as well as building facilities and surveying for the drilling in the East China Sea and South China Sea.

The fifth one is to defend its sea lanes of communications. In the background is the fact that its sea lanes of communications, including its crude oil transportation routes from the Middle East, are extremely important for the globalizing Chinese economy. The question of which parts of its sea lanes of communication the Chinese Navy deems it should defend depends on such factors as the international situation at the time. However, given the recent strengthening of the Chinese Navy and Air Force, it is believed that the Chinese Navy and Air Force will develop a capacity to defend areas going beyond the waters near China.

Given these objectives and recent trends in China's activities in sea areas and airspace, it is believed that China plans to further expand the sphere of its maritime activities, and further intensify its operations in waters surrounding Japan, including the East China Sea and the Pacific Ocean, as well as the South China Sea and the airspaces over these seas areas. Therefore, more attention needs to be paid to activities such as operations of naval vessels as well as Navy and Air Force aircraft, various surveillance operations near Japan, developments of facilities that serve as bases for these activities, and evolution of China's interpretation regarding the legal status of coastal areas in China's exclusive economic zones.

Figure 14.1: Geographic Expansion in PLAN Military Exercises Locations



Source: Office of Naval Intelligence, *People's Liberation Army Navy: A Modern Navy with Chinese Characteristics*, p. 38.

The Chinese Air Force

The Chinese Air Force or PLAAF is an air force in transition. For much of the Cold War, it was designed to act as a mass air defense force flying second and third generation aircraft. During the 1990s, the PLAAF began to shift to a more diversified force structure; since 2000, the PLAAF has fully embraced a shift from a singular focus on air defense and interceptor fighter aircraft to a multi-mission force, capable of carrying out AD, strike, transport, ISR, and, since

The 2014 DoD report on *Military and Security Developments Involving the People's Republic of China* described the current structure and trends in the PLAAF as follows:⁶¹¹

The PLAAF is the largest air force in Asia and the third-largest air force in the world, with approximately 330,000 personnel and more than 2,800 total aircraft, not including unmanned aerial vehicles (UAV). Of these PLAAF aircraft, approximately 1,900 are combat aircraft (includes fighters, bombers, fighter-attack and attack aircraft), 600 of which are modern. The PLAAF is pursuing modernization on a scale unprecedented in its history and is rapidly closing the gap with Western air forces across a broad spectrum of capabilities including aircraft, command and control (C2), jammers, electronic warfare (EW), and data links. Although it still operates a large number of older second- and third-generation fighters, it will likely become a majority fourth-generation force within the next several years.

China is also vigorously pursuing fifth-generation capabilities. Within two years of the J-20 stealth fighter's first flight in January 2011, China tested a second next-generation fighter prototype. The prototype, referred to as the J-31, is similar in size to a U.S. F-35 fighter and appears to incorporate design characteristics similar to the J-20. It conducted its first flight on October 31, 2012. At present, it is unclear if the J-31 is being developed for the PLAAF or the PLA Navy Air Force, or as an export platform to compete with the U.S. F-35.

China continues upgrading its H-6 bomber fleet, which was originally adapted from the late-1950s Soviet Tu-16 design, to increase operational effectiveness and lethality by integrating new stand-off weapons. China also uses a modified version of the H-6 aircraft for aerial refueling. The H-6G variant, in service with the PLA Navy Air Force, has four weapons pylons that are probably for ASCMs. China has developed the H-6K variant with new turbofan engines for extended range. It is believed to be capable of carrying six LACMs. Modernizing the H-6 into a cruise missile carrier has given the PLA Air Force a long-range stand-off offensive capability with precision-guided munitions.

The PLA Air Force possesses one of the largest forces of advanced SAM systems in the world, consisting of a combination of Russian-sourced SA-20 (S-300PMU1/2) battalions and domestically produced CSA-9 (HQ-9) battalions. China may become the first country to import Russia's S-400/Triumph SAM system as a follow-on to the SA-20, while simultaneously developing its indigenous HQ-19 which appears to be very similar to the S-400.

China's aviation industry is testing a large transport aircraft (referred to as the Y-20) to supplement China's fleet of strategic airlift assets, which currently consists of a limited number of Russian-made IL-76 aircraft. The Y-20 made its maiden flight during January 2013 and is reported to be using the same Russian engines as the IL-76. These heavy-lift transports are intended to support airborne C2, logistics, paratroop, aerial refueling, and reconnaissance operations, as well as humanitarian assistance/disaster relief missions. (p. 9-10)

In regards to China's aviation industry, the 2013 DoD report on *Military and Security Developments Involving the People's Republic of China* highlighted increasing technical proficiency and modernization.⁶¹²

Developments in China's commercial and military aviation industry indicate improved aircraft manufacturing, associated technology, and systems development capabilities. Some of these advances have been made possible by business partnerships with Western aviation and aerospace firms (including cleared U.S. defense contractors), which provide overall benefit to China's military aerospace industry. China will continue to seek advancement in aerospace technology, capability, and proficiency to rival Western capabilities.

The 2014 iteration of the report added:

China's commercial and military aviation industries have advanced to produce indigenously improved versions of older aircraft and modern fourth- and fifth-generation fighters, which incorporate low-observable technologies, as well as attack helicopters. China's commercial aircraft industry has invested in high-precision and technologically advanced machine tools, avionics, and other components that can also be used in the production of military aircraft. However, production in the aircraft industry will be limited by its reliance on foreign sourcing for dependable, proven aircraft engines. Infrastructure and experience for the production of large-body commercial and military aircraft are believed to be limited, but growing with continued investments.

Key areas where China continues to supplement indigenous military modernization efforts through targeted foreign technologies include engines for aircraft and tanks, solid state electronics and microprocessors, guidance and control systems, and enabling technologies such as cutting-edge precision machine tools, advanced diagnostic and forensic equipment, and computer-assisted design, manufacturing, and engineering. China often pursues these foreign technologies for the purpose of reverse engineering or to supplement indigenous military modernization efforts. (p. 46-47)

Both the 2013 and 2014 DoD reports on Chinese military and security developments highlighted China's large and advanced air defenses. The 2013 report stated:⁶¹³

.... China has developed a national integrated air defense system (IADS) to defend key strategic cities and borders, territorial claims, and forces against threats from the air. Overall, China's IADS represents a multilayered defense consisting of weapons systems, radars and C4ISR platforms working together to counter multiple types of air threats at various ranges and altitudes. One of China's primary goals is to defend against precision strike munitions such as cruise and ballistic missiles, especially those launched from long distances. In order to counter precision strike munitions, China has developed advanced long-range SAM systems, airborne early warning platforms, and C2 networks. Defense against stealth aircraft and unmanned aerial vehicles is also a growing priority. Another aspect of China's IADS development is the deployment of land-based air defense brigades beyond the eastern coast of China and improving the air defense of China's naval fleets in the ECS and SCS. This is part of China's longstanding effort to expand its capabilities from focusing on territorial defense to supporting both defensive and offensive operations.

The report of the following year added to the previous assessment.⁶¹⁴

China has developed a national integrated air defense system (IADS) to defend key strategic cities and borders, territorial claims. Overall, China's IADS represents a multilayered defense consisting of weapon systems, radars, and C4ISR platforms working together to counter air threats at various ranges and altitudes. One of China's primary goals is to defend against precision strike munitions such as cruise and ballistic missiles, especially those launched from long distances. Defense against stealth aircraft and unmanned aerial vehicles is also a growing priority.

China's IADS also includes a C4ISR network to connect early warning platforms, SAM and ADA, and command posts to improve communication and response time during operations. The network is intended to include battle damage assessment capability. China continues to make progress on command, communication, and control systems. China's air defense brigades are training to use this information network and mobile command and control platforms to connect the operations of different types of weapon systems by sending automated targeting information to them simultaneously. China is also using simulation systems to attempt to train for command of air defense operations in realistic operational conditions, including network warfare. China has deployed air defense brigades employing its newest SAM system to the western part of China to train for long-distance mobility and operations in high-altitude conditions, including operations under the conditions of network warfare. (p. 69-70)

The PLAAF has fundamentally changed its force structure, composition, and Personnel policies since 1985. Originally meant as a large air defense force, the PLAAF's force structure was made up primarily of obsolete interceptor aircraft. Its objective was largely to destroy aircraft attacking China and to maintain a small, air-based nuclear deterrent.

The promulgation of the Local Wars concept altered this situation. The CMC had concluded that air power, especially when utilizing precision-guided munitions, would be decisive in future conflicts. Thus, the PLAAF was expected to obtain a long-range precision strike capability.⁶¹⁵ However, given the PLAAF's large inventory of second- and third-generation interceptor aircraft which lacked Beyond-Visual-Range (BVR) capability, advanced radar, and specialized electronic warfare (EW) support aircraft, the PLAAF would have to fundamentally change in order to successfully fight and win Local Wars.

Since that time, China has concluded that the PLAAF must be restructured to comprise more heavily of strike, rather than interceptor, aircraft. Furthermore, it would have to procure more advanced aircraft that were capable of carrying out these missions despite adversary defenses. Most importantly, the PLAAF would have to develop the human capital needed to utilize advanced systems and operate according to the Local Wars doctrine.

Between 1995 and 2013, roughly 3,000 fighter-interceptors were removed from the PLAAF's inventory: fighter-interceptor aircraft dropped from ~80% of the PLAAF to ~50%. Fighter-ground attack aircraft faced a different trend; overall numbers did not markedly increase but their relative share of the PLAAF's inventory increased by more than 2.5 times. Training and transport aircraft both increased in absolute numbers significantly, but their impact is best shown by their relative share of the PLAAF's aircraft holding.

The 2014 Japanese defense white paper summarized the modernization of Chinese air forces as follows:⁶¹⁶

The Chinese Air Force and Navy have approximately 2,580 combat aircraft in total. The number of fourth generation modern fighters is rising steadily. China imported from Russia and produced under license the Su-27 fighters, and imported from Russia the Su-30 fighters equipped with anti-surface and anti-ship attack capabilities. China is also mass-producing the J-11B fighter, which is pointed out to be an imitation of the Su-27 fighter, as well as the domestic J-10 fighter. Additionally, China is developing the J-20 and J-31, which are pointed out to become next-generation fighters.

It is also making continuous efforts to improve capabilities which are essential for operations of modern air forces by introducing the H-6 tanker and KJ-2000 Airborne Early Warning and Control system. Furthermore, it is reported that China is developing a new Y-20 large cargo aircraft in order to improve its transportation capability.

In addition to domestically developing, producing and deploying a variety of aircraft and introducing them from Russia, China seems to be domestically developing a variety of unmanned aircraft, including those capable of long-hour flights at high altitude for reconnaissance and other purposes and those capable of carrying missiles and other weapons for attack purposes. China also appears to be producing and deploying some of these unmanned aircraft.

Judging from the modernization of air forces, it is believed that China is not only improving its air defense capabilities for its national territory, but also aiming to build up capabilities for air superiority and anti-surface and anti-ship attacks in areas which are further distant from China, and improving long-range transportation capabilities. Further attention needs to be paid to these activities conducted by the Chinese air forces.

As the figures below show, the dominance of the fighter-interceptor in the PLAAF has eroded and other categories of aircraft are making up larger and larger portions of the PLAAF. This trend indicates a significant change in doctrine and military objectives: more specifically, the changing force structure indicates greater doctrinal emphasis on ground attack, transport, and training missions. All of these are in line with the Local Wars concept.

In addition to the previously-described changes in the numbers of fighter-interceptor, fighter-ground attack, transport, and training aircraft, changes in the other categories also have significance.

The decline and the steady plateau of PLAAF bombers, combined with small numbers of tanker aircraft, indicate that the PLAAF is limiting the majority of its strike missions to targets within the first island chain. The H-6 variants forming the entirety of the PLAAF's bomber force appear to be cruise-missile buses suitable for use against distant targets.⁶¹⁷ However, even if one considers the number of cruise missiles they could potentially carry, the number of bombers is so limited relative to fighter-ground attack aircraft that it appears that the PLAAF has either decided to concentrate its scarce resources within the first island chain, has not identified many targets worth striking outside of the first island chain, or potentially has abdicated medium-range strike to the Second Artillery Force. Another possibility to consider is the use of H-6's to carry anti-ship cruise missiles in particular. The H-6G, in service with the PLA Navy Air Force, has four weapons pylons that are probably for anti-ship cruise missiles.⁶¹⁸

Some American experts argue that the small number of tankers, EW, ELINT, AEW&C, and C2 aircraft indicates two things: first, that the PLAAF still does not function as effectively as the Western or Russian air forces, and also that the PLAAF has begun to plant the seeds of its own modernization and force development, and plans to develop similar capabilities as have the Western and Russian air forces.

The 2013 DoD report on Chinese military power noted that China was focusing on both A2/AD capabilities and stealth, as well as on precision strike capabilities and improved air defenses:⁶¹⁹

The PLA Air Force has observed foreign military employment of stealth aircraft and views this technology as a core capability in its transformation from a predominantly territorial air force to one capable of conducting offensive and defensive operations. The PLA Air Force also perceives there is an imbalance between offensive and defensive operations due to advances in stealth aircraft and related technologies with stealth aircraft providing an offensive operational advantage that denies an adversary the time to mobilize and conduct defensive operations. The PLA Air Force also sees the offensive advantage to combining an aircraft's stealthy features with information systems that enhance situational awareness and improve coordination of forces during combat. (p. 64)

The development of stealth aircraft incorporated with advanced fifth generation capabilities, including super-cruise engines and advanced avionics, would make the aircraft capable of supporting a variety of tactical and regional missions. Furthermore, stealth aircraft the size of China's J-20 could be used as a multi-role fighter to strike ground targets within the region in addition to supporting air superiority missions beyond China's borders. Although China's second developmental fifth generation fighter is smaller in size than the J-20, this aircraft (tentatively identified as the J-31) may be designed for multi-role missions, providing China with a second stealth platform for regional operations. In addition to manned fighter aircraft, the PLA Air Force also views stealth technology as integral to unmanned aircraft, specifically those with an air-to-ground role, as this technology will improve the system's ability to penetrate heavily protected targets. (p. 64)

China's ground-based air defense A2/AD capabilities will likely be focused on countering long-range airborne strike platforms with increasing numbers of advanced, long-range SAMs. China's current air and air defense A2/AD components include a combination of advanced long-range SAMs – its indigenous HQ-9 and Russian SA-10 and SA-20 PMU1/PMU2, which have the advertised capability to protect against both aircraft and low-flying cruise missiles. China continues to pursue the acquisition of the Russian extremely long-range S-400 SAM system (400 km), and is also expected to continue research and development to extend the range of the domestic HQ-9 SAM to beyond 200km. (p. 35)

The 2014 update to this report added:⁶²⁰

China's A2/AD capabilities will be bolstered by the development of fifth-generation fighter aircraft, which is not likely to be fielded before 2018. Key characteristics of fifth-generation fighters include high maneuverability, low observability, and an internal weapons bay. Other key features include modern avionics and sensors that offer more timely situational awareness for operations in network-centric combat environments, radars with advanced targeting capabilities and protection against enemy electronic countermeasures, and integrated electronic warfare systems with advanced communication and GPS navigation functions. These next-generation aircraft will improve China's existing fleet of fourth-generation aircraft (Russian-built Su-27/Su-30 and indigenous J-10 and J-11B fighters) to support regional air superiority and strike operations. Additionally, China's continuing upgrades to its bomber fleet gives the bombers the capability to carry long-range cruise missiles. Similarly, the acquisition and development of longer-range UAVs will increase China's ability to conduct long-range reconnaissance and strike operations.

China is incrementally advancing its development and employment of UAVs. According to a 2013 report by the Defense Science Board, China's move into unmanned systems is "alarming" and combines unlimited resources with technological awareness that might allow China to match or even outpace U.S. spending on unmanned systems in the future. During September 2013, a probable Chinese UAV was noted for the first time conducting reconnaissance over the East China Sea. This past year, China unveiled details of four UAVs under development, three of which are designed to carry weapons: the Xianglong (Soaring Dragon); Yilong (Pterodactyl); Sky Saber; and Lijian, China's first stealthy flying wing UAV, for which China announced its first maiden flight on November 21, 2013. (p. 33)

... The PLA seeks to develop aircraft with low observable features, advanced avionics, super-cruise engines, and stealth applications as demonstrated by the January 2011 flight test of the J-20 prototype and recent observations of a second indigenously produced aircraft with stealth features, referred to as the J-31. China seeks to develop these advanced aircraft to improve its regional power projection capabilities and strengthen its ability to strike regional airbases and facilities. China's first fifth-generation fighter, the multi-role J-20, is not expected to enter service prior to 2018, and China faces numerous challenges to achieving full operational capability, including developing high-performance jet engines. China's second fifth-generation fighter, the smaller but likely also multi-role, J-31, conducted its first flight in October 2012. The PLA Air Force has observed how foreign militaries employ stealth aircraft and views this technology as critical to its transformation from a predominantly territorial air force to one capable of conducting both offensive and defensive operations. The PLA Air Force believes that stealth provides an offensive operational advantage that denies an adversary the time to mobilize and conduct defensive operations. (p. 67)

The Chinese development of stealth capabilities has been particularly striking. It became clear in early 2011 that China was developing its own "stealth" strike fighter, the J-20, although its capabilities and deployment schedule remain unknown.⁶²¹ DNI James R. Clapper described the US assessment of this development as follows in his testimony to the US Intelligence Community for the House Permanent Select Committee on Intelligence on February 10, 2011:⁶²²

China's ongoing military modernization program began in earnest in the late 1990s, after Beijing observed the threat posed by long-range precision guided warfare in DESERT STORM and the Balkans. China's defense policies—initially aimed at creating credible options to forcibly bring Taiwan under Beijing's authority and developing the corresponding capabilities to prevent US intervention in a cross-Strait conflict—led Beijing to invest heavily in short- and medium-range ballistic missiles, modern naval platforms, improved air and air defense systems, counterspace capabilities, and an Intelligence, Surveillance, and Reconnaissance (ISR) system. For example, the Chinese have recently conducted the first flight test of what we refer to as a fifth-generation fighter, the J-20. We have known about this program for a long time and the flight test was not a surprise. We judge that this event is another indication of China's aspiration to develop a world-class military, and it is a capability we take seriously. But this program, like others in China, will have to overcome a number of hurdles before reaching its full potential.

The J-20 underwent its first test flight in January 2011, while more recently China test flew a second prototype stealth fighter model, the J-31 Falcon Eagle, on October 31, 2012. The J-31 appears to be a smaller version of the J-20. The J-31 looks similar in size and shape to Lockheed

Martin's F-35 and F-22 fighters. It has been reported that Chinese hackers stole data on the design, performance, and other characteristics of the F-35 from the British defense firm BAE Systems. Though both Chinese planes display stealth design features, their true capabilities in terms of radar-absorbing coatings, sensors, and other stealth attributes remain unknown. It is also unknown when or if either plan will enter production.⁶²³

It was also reported in March 2013 that China's second stealth fighter, the J-31, could be developed into an aircraft carrier-borne fighter. It is the smaller of the two, resembles the F-25, and has two wheels on its nose landing gear. Meanwhile, the larger J-20 is likely to be a multi-role fighter designed to attack both ground and air targets, a stealthy interceptor like the USSR's MiG-25 Foxbat able to shoot down incoming fleets of attack plans, or a stealth bomb truck designed to speedily evade enemy radars and attack ships and bases with bombs and cruise missiles.⁶²⁴

Chinese manufacturers have unveiled the two next-generation fighter aircraft prototypes, the J-20 and J-31, as well as the J-15 carrier-based fighter and the accelerated modernization of Shenyang J-11 and Chengdu J-10 fleets. The Chinese defense industry has clearly been developing a diverse portfolio of new aircraft designs, including modernizing its traditional fighters and developing indigenous fourth generation – and potentially fifth generation – fighters.⁶²⁵

These important advances owe to the implementation of a multi-pronged strategy across the sector's largest defence-industrial group, Aviation Industry Corporation of China (AVIC) and its five core prime contractors: Chengdu Aircraft Industry Corporation, Shenyang Aircraft Corporation, Hongdu Aviation Industry Group, Xi'an Aircraft Company and Changhe/Hafei Aviation. This strategy has included corporate reforms and organizational restructuring, coupled with sustained investment and expansion. China's aeronautic development strategy has also focused on key projects, such as indigenous platform and critical sub-system programs, and on building research, development and innovation capacity. Finally, this strategy has aimed to integrate civil and military aircraft manufacturing and leverage international commercial partnerships and acquisitions.

As AVIC upgrades its existing third- and fourth-generation fighters, it is also focusing on next-generation stealth fighters (J-31) and strategic transport aircraft (Y-20), designed to complement the PLA's long-term military transformation. These programs are currently in their development stages and have yet to overcome technical hurdles — AVIC is finding it particularly difficult to integrate reliable high-performance power plants. Nevertheless, these programs represent the Chinese defence industry's growing potential for innovation.

China still lacks the sophisticated technology required for highly advanced innovation in military equipment – in particular, advanced capabilities in material selection, process standardization, quality control, and ensuring structural strength. When combined with integration, systems design, and management problems, the result has been cost overruns, extensive testing and delays, and many modifications of the design. Furthermore, the fragmented corporate structure of AVIC makes it difficult for the group to gain compliance from its sub-units.⁶²⁶

China is, however, making major progress. Analyst Andrew S. Erickson has assessed China's stealth prototype developments in further depth. In particular, Chengdu Aircraft Corporation's (CAC's) production and design abilities are growing, and the company's Project 718 J-20 could become the PRC's first fifth generation (or, in Chinese terminology, fourth generation) aircraft – meaning it would include high maneuverability, supercruise, helmet-mounted sights, thrust vectoring, low observability, and sensor fusion characteristics. The J-20 prototype – which resembles the F-22 – is also large and has a significant weapons bay; when combined with China's

strategic goals (as discussed in Chapter 1), it is likely that the plane could have several different applications, especially important to attack aircraft and strike fighter missions.⁶²⁷

China is also working on the development of unmanned aerial vehicles. One Chinese newspaper reported that the *Lijian* weaponized stealth drone, designed jointly by the Hongdu Aviation Industry Group and Shenyang Aviation Corporation, completed taxi tests in December of 2012 and is ready for its maiden flight. The drone is similar to the US X-47B and the European nEUROn. The first picture of the drone in flight was posted on the Internet in early May 2013.⁶²⁸ The *Lijian* is meant to replace the current slow, low-flying, propeller-driven UAVs that the PLA currently has.⁶²⁹

US Reaction and the Air Sea Battle

As noted in earlier discussions of the modernization of the PLAA, these increases in Chinese long-range naval capacity have already affected US power projection planning – although no clear decisions have yet been taken as to how US forces will change as a result. They have led the DoD to put a new emphasis on the role of the air sea battle in the Pacific and Asia.⁶³⁰

Recognizing that antiaccess/area-denial capabilities present a growing challenge to how joint forces operate, the Secretary of Defense directed the Department of the Navy and the Department of the Air Force to develop the Air-Sea Battle Concept.

The intent of Air-Sea Battle is to improve integration of air, land, naval, space, and cyberspace forces to provide combatant commanders the capabilities needed to deter and, if necessary, defeat an adversary employing sophisticated antiaccess/area-denial capabilities.

It focuses on ensuring that joint forces will possess the ability to project force as required to preserve and defend U.S. interests well into the future.

The Air-Sea Battle Concept is both an evolution of traditional U.S. power projection and a key supporting component of U.S. national security strategy for the 21st Century. However, it is important to note that Air-Sea Battle is a limited operational concept that focuses on the development of integrated air and naval forces in the context of antiaccess/area-denial threats. The concept identifies the actions needed to defeat those threats and the materiel and nonmateriel investments required to execute those actions.

There are three key components of Air-Sea Battle designed to enhance cooperation within the Department of the Air Force and the Department of the Navy.

The first component is an *institutional* commitment to developing an enduring organizational model that ensures formal collaboration to address the antiaccess/area-denial challenge over time.

The second component is *conceptual* alignment to ensure that capabilities are integrated properly between Services.

The final component is doctrinal, organizational, training, materiel, leadership and education, personnel, and facilities *initiatives* developed jointly to ensure they are complementary where appropriate, redundant when mandated by capacity requirements, fully interoperable, and fielded with integrated acquisition strategies that seek efficiencies where they can be achieved.

In 2013, a US military report on Air-Sea Battle discussed the concept at more length:⁶³¹

ASB is a limited objective concept that describes what is necessary for the joint force to sufficiently shape A2/AD environments to enable concurrent or follow-on power projection operations. The ASB Concept seeks to ensure freedom of action in the global commons and is intended to assure allies and deter potential adversaries. ASB is a supporting concept to the Joint Operational Access Concept (JOAC), and provides a detailed view of specific technological and operational aspects of the overall A2/AD challenge in the global commons. The Concept is not an operational plan or strategy for a specific region or adversary. Instead, it is an analysis of the threat and a set of classified concepts of operations (CONOPS) describing how to

counter and shape A2/AD environments, both symmetrically and asymmetrically, and develop an integrated force with the necessary characteristics and capabilities to succeed in those environments. ASB is about building conceptual alignment, programmatic collaboration and institutional commitment in an integrated way, across the military Services in order to develop forces and capabilities that can jointly address A2/AD challenges. The purpose of ASB is not to simply conduct operations more jointly. It is to increase operational advantage across all domains, enhance Service capabilities and mitigate vulnerabilities. In addition to other joint and service concepts, ASB will help ensure the U.S.'s ability to gain and maintain freedom of action in the global commons, and to the conduct of concurrent or follow-on operations against a sophisticated adversary.

Central Idea. The ASB Concept's solution to the A2/AD challenge in the global commons is to develop networked, integrated forces capable of attack-in-depth to disrupt, destroy and defeat adversary forces (NIA/D3). ASB's vision of networked, integrated, and attack-in-depth (NIA) operations requires the application of cross-domain operations across all the interdependent warfighting domains (air, maritime, land, space, and cyberspace, to disrupt, destroy, and defeat (D3) A2/AD capabilities and provide maximum operational advantage to friendly joint and coalition forces.

Cross-domain operations are conducted by integrating capabilities from multiple interdependent warfighting domains to support, shape, or achieve objectives in other domains. Cross-domain operations are those that can exploit asymmetric advantages in specific domains to create positive and potentially cascading effects in other domains. For cross-domain operations to be fully effective, commanders, whether defending or attacking, must have ready access to capabilities, no matter what domain they reside in or which commander owns them, to support or achieve operational objectives and create the effects required for advantage over an adversary. This interoperability may require multi-pathing, or the ability to use multiple, alternative paths from among all domain capabilities to achieve a desired end. While cross-domain operations are more complex than single domain or single Service options, their multi-pathing possibilities can provide distinct operational advantages over single domain or single Service solutions to operational problems.

The ability to integrate capabilities, equipment, platforms, and units across multiple domains and to communicate, interact, and operate together presents a joint force commander with more numerous and powerful options, which in turn, offer greater probability of operational success. For example, cyber or undersea operations can be used to defeat air defense systems, air forces can be used to eliminate submarine or mine maritime threats, or space assets can be used to disrupt adversary command and control. Put simply, traditional understandings of Service missions, functional responsibilities, or employment of capabilities from particular domains should not be barriers that hamper imaginative joint operations in an A2/AD environment. Each of the elements of ASB's construct offer joint force commanders increased flexibility and capability.

Networked. In the ASB Concept, networked actions are tightly coordinated in real time by mission-organized forces to conduct integrated operations across all domains without being locked into Service-specific procedures, tactics, or weapons systems. A networked force is people and equipment linked in time and purpose with interoperable procedures; command control (C2) structures; and appropriate authorities capable of translating information into actions. These joint forces are able to attack the adversary A2/AD system-of-systems in depth and across all domains to create and exploit vulnerabilities.

Networked capabilities are both the physical means by which forces communicate and exchange information and the relationships, protocols, and procedures used by warfighters to complete their assigned missions. To be effective, networked forces need interoperable procedures, (C2) structures, and equipment. Authorities must also be provided at the appropriate C2 level in order for joint and coalition forces to gain and maintain decision advantage. In the ASB Concept, networked does not only mean having assured communications and access to data; it also means having a force trained to conduct operations using mission-type orders and being able to operate even in the absence of continuous connectivity. The joint force can achieve that ability in part by establishing habitual relationships across Service, component, and domain lines so that forces can be effectively trained to operate together in a contested and degraded environment.

Integrated. Integration is the arrangement of military forces and their actions to create a force that operates networked across domains as a whole. An integrated joint force is better able to combine capabilities across

multiple domains to conduct specific missions. The basic concept of integration has further evolved into seeking the development of pre-integrated joint forces. In order to maintain an advantage over potential adversaries, air, naval, and land forces must fully integrate their operations. Integration, traditionally viewed as strictly the combatant commander's job, needs to begin across Service lines as part of force development.

Forces should be integrated prior to entering a theater. Effective integration requires enhanced joint and combined training against A2/AD capabilities, including training and exercise for cross-domain operations before deployment. In some cases, pre-integration will also require Services' collaboration in materiel programming to ensure interoperability to avoid overly redundant or incompatible systems.

Attack-in-depth to Disrupt, Destroy and Defeat. The attack-in-depth methodology is based on adversary effects chains, or an adversary's process of finding, fixing, tracking, targeting, engaging and assessing an attack on U.S. forces. Attack-in-depth is offensive and defensive fires, maneuver, and command and control with the objective of disrupting, destroying, or defeating an adversary's A2/AD capabilities, conducted across domains in time, space, purpose, and resources. Attack-in-depth seeks to apply both kinetic and non-kinetic means to address adversary critical vulnerabilities without requiring systematic destruction of the enemy's defenses (e.g., a rollback of an adversary's integrated air defense system).

D3 represents the 3 lines of effort of the ASB Concept:

- **Disrupt** Adversary Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR or C4I);
- **Destroy** adversary A2/AD platforms and weapons systems; and,
- **Defeat** adversary employed weapons and formations.

Disrupting these effects chains includes impacting an adversary's C4ISR or C4I capabilities, ideally precluding attack on friendly forces. **Destroying** or neutralizing adversary weapons platforms enhances friendly survivability and provides freedom of action. **Defeating** employed weapons post-launch defends friendly forces from an adversary's attacks and allows sustained operations.

Due to the nature of A2/AD threats and potentially short indications and warning timelines posed by adversaries, joint forces must be capable of effective offensive operations as soon as conflict begins, while simultaneously defending or re-positioning deployed forces, protecting land and sea bases, and bringing forces forward from garrison with acceptable levels of risk. The ability to attack and defend through the entire depth of the desired battlespace, in all the interdependent warfighting domains, is critical to establishing joint freedom of action.

These concepts are not targeted against China or the Pacific. They are equally important in US contingency planning for dealing with Iran and power projection missions throughout the world. At the same time, their development will be critical to US security partnerships throughout Asia and the Pacific, and in cases that do involve land forces, they mean that the US must pay far more attention to securing its lines of access and resupply, and that air and missile power are likely to play a far greater role compared to US land power.

Chinese Interests in the Pacific

It seems likely in the near to mid-term, that China will focus more on its claims and interests in the Pacific than those directly affecting the IOR. These claims affect key maritime and air space areas from Northeast Asia to the South China sea, and have already led to growing tensions between China and many of its neighbors -- as well as with the US.

The Nine-Dash Line

These developments are affected as much by regional issues as any competition with the US. The nine-dash line, originally an eleven-dotted line, was officially drawn on the Chinese map in 1947 by the Chinese Nationalist Government. When the Chinese Communist Party formed the

Republic of China in 1949, the line was adopted and Zhou Enlai endorsed a revised nine-dash line in 1953. The line, called by China a “traditional maritime boundary line,” encloses many key features of the South China Sea – the Paracel Islands, the Pratas Islands, the Spratly Islands, the Macclesfield Bank, and the Scarborough Shoal. Features in the South China Sea claimed by China appear in historical documents dating back centuries.⁶³²

In 1992, Taiwan gave the status of historic water to the maritime areas within the nine-dash line, and most Chinese scholars today support the nine-dash line by arguing for historic rights within this line, sovereignty over all features within the line, and sovereign right and jurisdiction as defined by the UN Convention on the Law of the Sea. However, UNCLOS does not mention “historic rights,” but refers to “historic title.” UNCLOS does not explicitly define what “historic title” is, nor does it give details as to what “historic title” entails.⁶³³ According to China foreign policy expert Sun Yun, the ambiguity about the exact details of China’s claims allow it to satisfy domestic public opinion and safeguard the government’s legitimacy.⁶³⁴

China also uses paramilitary and law enforcement forces – in particular, the Coast Guard – to patrol the waters within the nine-dash line. The PLAN uses maritime tensions to justify modernization, while growing numbers of paramilitary and law enforcement vessels are playing an increased role in disputed territories and have been involved in many of the recent incidents.

Until March 2013, the major maritime law enforcement actors were collectively known as the “Five Dragons.” These were the State and General Administration of Customs, Fisheries Law Enforcement Command (FLEC), the Maritime Maritime Safety Administration (MSA), the China Maritime Surveillance (CMS), and the Chinese Coast Guard (CCG). These actors were domestically oriented and did not have experience in foreign affairs. The Ministry of Foreign Affairs (MFA), which is the only agency that has extensive experience in dealing with diplomatic affairs, could not check these organizations. Although the MFA was authorized to negotiate with neighboring countries over the South China Sea disputes, it had been largely side-stepped by domestic actors, severely limiting the amount of influence the MFA could have on Chinese action in the South China Sea. As the International Crisis Group noted in 2010,⁶³⁵

...the extensive use of paramilitary and law enforcement forces in sovereignty disputes also lowers the threshold of entry into confrontation. Naval vessels are likely to behave with more restraint than domestic actors with a limited understanding of foreign policy implications, while paramilitary agencies often tend to take more assertive actions precisely due to the lesser political ramifications of incidents in which they are involved. Moreover, civilian vessels, such as fishing boats, are more willing to retaliate against paramilitary than military vessels, thus increasing the risk of violence. On the other hand, a study conducted by Chinese scholars at the Ningbo Coast Guard Academy proposed that creating an enlarged, unified maritime security apparatus would strengthen flexibility in maritime conflicts. They concluded that relying on the navy to resolve disputes runs the risk of dangerous escalation, while the current model of fragmented law enforcement agencies lacks coherence and thus can lead to unpredictable risks of conflict.

Furthermore, when China sends law enforcement vessels to patrol all of the waters within the nine-dashed line, sometimes even entering into the economic zones of Vietnam and the Philippines, it appears to be exerting authority over areas claimed by other countries and to which it may not have a claim under UNCLOS. At the 2012 National People’s Congress session, Liu Cigui, director of the State Oceanic Administration, indicated that China was serious about carrying out law enforcement activities in the South China Sea. He said that regular patrol activities would cover all the maritime zones under its jurisdiction. This could potentially include the entire nine-dashed line region, thus causing further confusion and anxiety among the other claimants.

In March 2013, all of the “dragons” were consolidated under the Chinese Coast Guard, except the Maritime Safety Administration. The Coast Guard, in turn, would be commanded by the State

Oceanic Administration (SOA). This was done ostensibly in order to more efficiently conduct maritime enforcement. This may also “strengthen China’s ability at controlling escalation, should deliberate incidents occur at sea, by consolidating bureaucratic control.” However, it is still unclear what the bounds of the SOA’s authority are and what involvement the military will have in the new organization.⁶³⁶

It should also be noted that a 10th line near the northeastern part of Taiwan was added in an official Chinese map published in 2013. This has raised questions as to how this affects China’s claims in the South China Sea, if at all. One view is that it is an attempt to “highlight the mirror-image symmetry of its own maritime territorial claims with those of Taiwan, as a means of further narrowing the cross-strait gap.”⁶³⁷ However, the addition of this line has not raised much attention and many news outlets continue to refer to the line as the “Nine-Dash Line.”

Chinese Actions to Establish Control within the First Island Chain

In addition to achieving its security objectives in the first island chain – stretching from the Aleutians to the Philippines and containing Taiwan and Okinawa – China also wants control over the second island chain. This is a series of island groups running from the Japanese archipelago to the Bonin and Marshall islands. The US’ control of La Perouse Strait, Tsugaru Strait, and Tsushima Strait allows the US military the capacity to react quickly to a North Korean provocation as well as defend the key naval and air base of Guam. **Figure 4.2** depicts these island chains on a map.

In 1982, Chinese Admiral Liu Huaqing, the mastermind of China’s modern naval strategy and the former PLAN commander, said it would be necessary for China to control the first island chain by 2010 and the second island chain by 2020. Further, the PLAN should be ready to challenge US dominance over the Indian Ocean and Western Pacific in 2040.⁶³⁸ As one US military analyst noted in 2011,⁶³⁹

China’s active defense strategy has a maritime component that aligns with the PRC’s 1982 naval maritime plan outlined by then-Vice Chairman of the Military Commission, Liu Huaqing. This naval strategy delineated three stages. In the first stage, from 2000 to 2010, China was to establish control of waters within the first island chain that links Okinawa Prefecture, Taiwan and the Philippines. In the second stage, from 2010 to 2020, China would seek to establish control of waters within the second island chain that links the Ogasawara island chain, Guam and Indonesia. The final stage, from 2020 until 2040, China would put an end to U.S. military dominance in the Pacific and Indian Oceans, using aircraft carriers as a key component of their military force. Recent Chinese military developments, rhetoric, and actions reflect implementation of this maritime strategy, on pace with the projections to seek control of the first island chain.

In order to achieve these goals, China is increasing its territorial sovereignty claims over islands in the Pacific that are also claimed by its neighboring countries. Examples include the Senkaku/Diaoyu Islands and the Philippines’ Scarborough Shoal. China has also built facilities on Mischief Reef, which is internationally recognized as part of the Philippines. These are actions many feel violate international law; however, the Philippines lacks the naval and air force capabilities to effectively confront China and negotiations have gone nowhere.⁶⁴⁰

The 2014 Japanese defense white paper addresses these Chinese sovereignty disputes in some depth:⁶⁴¹

China is strongly expected to recognize its responsibility in the international community, accept and comply with international norms, and play an active role in a more cooperative manner on regional and global issues. On the other hand, there have been disputes between China and other countries on issues relating to trade imbalances, currency rates, and human rights. Especially in regard to conflicts over maritime interests,

China has adopted so-called assertive measures, including attempts to alter the status quo by coercive measures based on China's own assertion which is incompatible with the existing international law and order. These measures include dangerous acts that could cause unintended consequences and raise concerns over China's future direction.

In recent years, China is believed to be aiming to build up capabilities to conduct operations in more distant waters and airspace. Accordingly, China has been rapidly expanding its maritime activities based on sea power and air power, both qualitatively and quantitatively. With regard to its activity in the sea areas and airspace surrounding Japan, Chinese naval vessels and navy and air force aircraft have been observed conducting training exercises of some kind, such as carrier-based helicopter flights and fleet formation and maneuver exercises, as well as information gathering activities.

A large number of Chinese government ships and aircraft belonging to maritime law-enforcement agencies have also been observed, which were engaged in monitoring activities for the protection of its maritime rights and interests. Such activities by China include those that involve incursion into Japan's territorial waters, violation of Japan's airspace, and dangerous acts that could cause unintended consequences, including a Chinese vessel's direction of a fire control radar at a JMSDF destroyer, the flight of fighters abnormally close to JSDF aircraft, and activities that could infringe upon the freedom of overflight over the high seas, such as the establishment of the "East China Sea Air Defense Identification Zone," and are extremely regrettable. China is urged to accept and comply with international norms.

Regarding the activities of naval forces, the number of Chinese naval surface vessels advancing to the Pacific Ocean has increased in recent years, and such advancements are currently conducted routinely. Every year since 2008, Chinese naval fleets have been passing the sea area between the main island of Okinawa and Miyako Island. However, in April 2012, a naval fleet passed the Osumi Strait eastward for the first time, and in October of the same year, they navigated the sea area between Yonakuni Island and Nakanokami Island near Iriomote Island northward for the first time. In July 2013, Chinese naval fleets passed the Soya Strait eastward for the first time. As such, the Chinese naval fleets' advancement and homing routes between the East China Sea and the Pacific Ocean continue to become diverse by incorporating the areas north of Japan, and it is understood that China seeks to improve its deployment capabilities to the open ocean. Furthermore, in October 2013, China reportedly conducted "Maneuver 5," the first joint exercise by its three naval fleets in the western Pacific Ocean.

In addition, Chinese naval vessels appear to routinely conduct operations in the East China Sea. After referring to its own position regarding the Senkaku Islands, China alleges that patrols by Chinese naval vessels in the sea areas under its jurisdiction are completely justifiable and lawful. In January 2013, a Chinese naval vessel directed fire-control radar at a JMSDF destroyer and is suspected to have directed fire-control radar at a helicopter based on the JMSDF destroyer.

With regard to the activities of air forces in the airspace above the East China Sea, Chinese aircraft have been diversifying their flight patterns. In September 2007, multiple H-6 bombers flew into Japan's Air Defense Identification Zone above the East China Sea and advanced near the Japan-China median line. Similarly, in March 2010, a Y-8 early warning aircraft advanced near the Japan-China median line. In March 2011, a Y-8 patrol aircraft and Y-8 intelligence gathering aircraft crossed the Japan-China median line and approached within approximately 50km of Japan's airspace near the Senkaku Islands.

In 2012, China intensified the activities of its aircraft, including fighters. In January 2013, the Chinese Ministry of National Defense made public the fact that Chinese military aircraft regularly conducted warning and surveillance activities and that Chinese fighters conducted activities believed to be Combat Air Patrols (CAP) in the East China Sea. In addition, in the most recent Chinese defense white paper, the phrase "air vigilance and patrols at sea" was added for the first time ever.

On November 16 and 17, 2013, a Tu-154 intelligence gathering aircraft flew over the East China Sea on two consecutive days. On November 23, the Chinese government announced that it established "the East China Sea Air Defense Identification Zone (ADIZ)" including the Senkaku Islands which China described as if they were a part of China's "territory," that it obligated aircraft flying in the said zone to abide by the rules set forth by the Chinese Ministry of National Defense, and that the Chinese Armed Forces would take "defensive emergency measures" in the case where such aircraft does not follow the instructed procedures.

Japan is deeply concerned about such measures, which are profoundly dangerous acts that unilaterally change the status quo in the East China Sea, escalating the situation, and that may cause unintended consequences in the East China Sea. Furthermore, the measures unduly infringe the freedom of overflight over the high seas, which is the general principle of international law. Japan is demanding China to revoke any measures that could infringe upon the freedom of overflight over the high seas. The United States, the Republic of Korea, Australia, and the European Union (EU) have expressed concern about China's establishment of such zone.

On the very day that China announced the establishment of the East China Sea ADIZ, a Tu-154 intelligence gathering aircraft and a Y-8 intelligence gathering aircraft flew over the East China Sea, respectively. On the same day, the Chinese Air Force announced that it conducted its first patrol flight since the establishment of the ADIZ. Subsequently, the Chinese Armed Forces announced on November 28 that its KJ-2000 Airborne Early Warning and Control system and Su-30 and J-11 fighters conducted patrol flights in the ADIZ, and announced on the following day that its Su-30 and J-11 fighters scrambled. On December 26, 2013, the Chinese Armed Forces announced that in the one month that passed since the establishment of the ADIZ, a total of 87 reconnaissance aircraft, early warning aircraft and fighters were mobilized to the relevant airspace.

In March and April 2011 and in April 2012, Chinese helicopters, etc. that appeared to belong to the SOA flew close to JMSDF destroyers which were engaged in monitoring and surveillance in the East China Sea. Further still, in May and June 2014, two Su-27 fighters of China flew abnormally close to the aircraft of JMSDF and JASDF that were conducting routine monitoring and surveillance activities in the East China Sea. The Chinese Ministry of National Defense announced that JSDF aircraft conducted dangerous acts against Chinese aircraft. However, the operations of JSDF aircraft were legitimate activities in compliance with the international law. There is no truth to the Chinese assertion that JSDF aircraft carried out dangerous acts.

With respect to air forces' advancement into the Pacific Ocean, it was confirmed for the first time by the JASDF's scrambling fighters that a Y-8 early warning aircraft and a H-6 bomber flew through the airspace between the main island of Okinawa and Miyako Island and advanced to the Pacific Ocean in July and September 2013, respectively. Similar flights were conducted by two Y-8 early warning aircraft and two H-6 bombers (total: four aircrafts) on three consecutive days in October of the same year and by one Y-8 intelligence gathering aircraft and two H-6 bombers (total: three aircrafts) in March 2014. As such activities demonstrate, China has been further intensifying the activities of its aircraft, including fighters.

China has also been intensifying its activities in the South China Sea, including waters around the Spratly Islands and the Parcel Islands, over which territorial disputes exist with neighbors, including some ASEAN (Association of Southeast Asian Nations) member states. In March 2009, Chinese ships, including a naval vessel, a maritime research ship of the SOA, a Bureau of Maritime Fisheries' patrol ship, and trawlers, approached a U.S. Navy acoustic research ship operating in the South China Sea to obstruct its operations. In addition, in December 2013, a Chinese naval vessel cut across the bow of a U.S. Navy cruiser operating in the South China Sea at point blank range. It is also reported that Chinese naval vessels fired warning shots at fishing boats of neighboring countries. Furthermore, in recent years, there has been growing friction between China and its neighboring countries over the South China Sea, as illustrated by protests by Vietnam and the Philippines against China's activities in these waters.

A Chinese Defense Ministry spokesman stated in response to the Japanese white paper's claims of repeated Chinese intrusion into Japanese territorial waters and airspace and Chinese use of aggressive tactics to expand its maritime power, that the Chinese military was "strongly discontented and resolutely against" the Japanese accusations. Further, the Chinese Defense Ministry said that Japan was undermining regional stability with its claims to the disputed Diaoyu/Senkaku Islands – an unusually strong rebuttal for the PRC, which rarely mentions other countries by name.⁶⁴²

The dispute in the East China Sea reached a new level in November 2013 when China established an Air Defense Identification Zone (ADIZ) in the East China Sea. Within the ADIZ are the disputed Senkaku/Diaoyu Islands (claimed by Japan and China), the Socotra Rock (claimed by

South Korea as Jeodo and China as Suyan Jiao), and sections of the Japanese and South Korean ADIZ's. The Chinese claim that this ADIZ will enhance regional security and good order in the air. They also view the establishment of the ADIZ as an equalizing move, as China did not have an ADIZ in the East China Sea like Japan, South Korea, or Taiwan. Furthermore, the ADIZ was established partly to respond to "changes in foreign and Chinese aircraft capabilities and early warning technologies."⁶⁴³

Despite Chinese claims that the ADIZ is benign, the timing and lack of consultation with neighbors regarding the establishment of the ADIZ has raised serious concerns about the true purpose of the ADIZ. Highlighting these concerns is a peculiar characteristic of this ADIZ, which is that aircraft that are not planning to enter Chinese airspace still must file a flight plan with Chinese authorities. The American ADIZ's, which China referred to when establishing their own, only places a requirement to file a flight plan on aircraft intending to enter American airspace.⁶⁴⁴ Although there may have been coordination issues between the military and the diplomatic/foreign affairs systems regarding the development and presentation of the ADIZ, there was broad agreement within the Chinese government that the ADIZ should be established.⁶⁴⁵

Observers who do not share the same benign view as the Chinese believe that the ADIZ is a way to enhance Chinese claims in the region, demonstrate effective control,⁶⁴⁶ and help build a fait accompli in China's favor. The building of this fait accompli is effectively the bit-by-bit strengthening, also called "salami slicing," of de facto claims of sovereignty.⁶⁴⁷ The establishment of the ADIZ, although claimed to target no one, appears to be a strong response to Japanese claims in the East China Sea. Indeed, although the ADIZ overlaps with Japanese, South Korean, and Taiwanese ADIZ's, Chinese responses to Japanese protest are particularly strong and harsh. On the contrary, Chinese responses to South Korean and Taiwanese protests are more accommodating and friendly.⁶⁴⁸

Whether or not this ADIZ is targeted at any state does not reduce the likelihood of accidents and miscalculated escalation. China will commit ships and aircraft to enforce the ADIZ and current crisis management mechanisms, such as actively used hotlines between disputing states, are lacking.⁶⁴⁹ China's enforcement of its controversial ADIZ has led to close encounters in the air between Chinese and Japanese military aircraft, where military aircraft from both countries were flying in close proximity to each other.⁶⁵⁰ While incidents at sea are relatively easy to avoid because of the slower operating speeds of vessels, the high speed and small size of aircraft can make avoiding accidental collisions much more difficult.

One commentator puts forward an interesting view on the Chinese perspective regarding the ADIZ. China is less willing to leave regional security up to the United States, wants to "consolidate" its national interests, and believes that there is nothing China can do to become a "responsible stakeholder" without giving up on its national interests. With this more pessimistic view of the US, China believed that the establishment of an ADIZ would be a rather low-risk move that could still serve to solidify Chinese claims, galvanize public sentiment, and examine American intentions through the response to its ADIZ.⁶⁵¹

The potential for conflict in the South China Sea is significant. As Bonnie S. Glaser of CSIS noted in 2012,⁶⁵²

The risk of conflict in the South China Sea is significant. China, Taiwan, Vietnam, Malaysia, Brunei, and the Philippines have competing territorial and jurisdictional claims, particularly over rights to exploit the region's possibly extensive reserves of oil and gas. Freedom of navigation in the region is also a contentious issue, especially between the United States and China over the right of U.S. military vessels to operate in

China's two-hundred-mile exclusive economic zone (EEZ). These tensions are shaping—and being shaped by—rising apprehensions about the growth of China's military power and its regional intentions. China has embarked on a substantial modernization of its maritime paramilitary forces as well as naval capabilities to enforce its sovereignty and jurisdiction claims by force if necessary. At the same time, it is developing capabilities that would put U.S. forces in the region at risk in a conflict, thus potentially denying access to the U.S. Navy in the western Pacific.

Furthermore, as one CSIS briefing pointed out, it appears that China has recently been increasing its sovereignty claims over territory and waters within and beyond the nine-dash lines:⁶⁵³

China's policy of strategic ambiguity, as it has been euphemistically called, serves its purposes well. It allows China the flexibility to interpret its position to serve the audience at hand. This is why the Ministry of Foreign Affairs was able to issue its well-publicized statement in February 2012 stating that no nation claims sovereignty over the entire South China Sea and that the dispute is only about the "islands and adjacent waters." This raised hopes in the United States and among the other Asian claimants that China was backing away from the 9-dash lines claim and moving to bring its claims in line with international law.

That, however, has clearly not been the case. This year's tensions in the sea started with a two-month standoff between Chinese and Philippine ships at Scarborough Shoal. That confrontation, despite pronouncements to the contrary from Beijing, served as an example of a creeping evolution in Beijing's claims. For years the Chinese territorial claims in the South China Sea extended only to the Spratlys (Nansha, or "South Banks") and Paracels (Xisha, or "West Banks"). Any claim to other features, like Scarborough Shoal, was only implied in so far as they fell within the ambiguous 9-dash lines. Then China extended its claim to the entirely submerged Macclesfield Bank via the imaginary Zhongsha, or "Middle Banks," despite there being no way under international law to claim title over a submerged feature as if it were an island. Further, in recent years, as Beijing has tried to move beyond an overreliance on the indefensible 9-dash lines, Scarborough Shoal has been incorporated as part of Zhongsha. The fact that it lies hundreds of miles from Macclesfield Bank or that it appears on none of the historical documents China puts forth to prove its title to the Spratlys and Paracels seemingly does not matter.

Beijing showed similar disregard for the policy put forth in its February Ministry of Foreign Affairs statement when in early May it reinstated its annual unilateral fishing ban for all of the South China Sea above the 12th parallel. Such a ban would be possible only if China were claiming all the waters within the 9-dash lines, not only its "islands and adjacent waters." Then in late June, the China National Offshore Oil Corporation (CNOOC) fired a shot across Vietnam's bow by announcing the company would open nine oil and gas blocks in the South China Sea to foreign bids. The catch was that all nine blocks lie within the 200-nautical-mile exclusive economic zone (EEZ) of Vietnam, and many in fact overlap with existing blocks already leased by Vietnam, including those committed to Exxon-Mobil. More importantly, CNOOC's blocks are not defensible under a claim to the "islands and adjacent waters" of the South China Sea because there is no island within 200 nautical miles (the maximum allowable EEZ) of all the blocks.

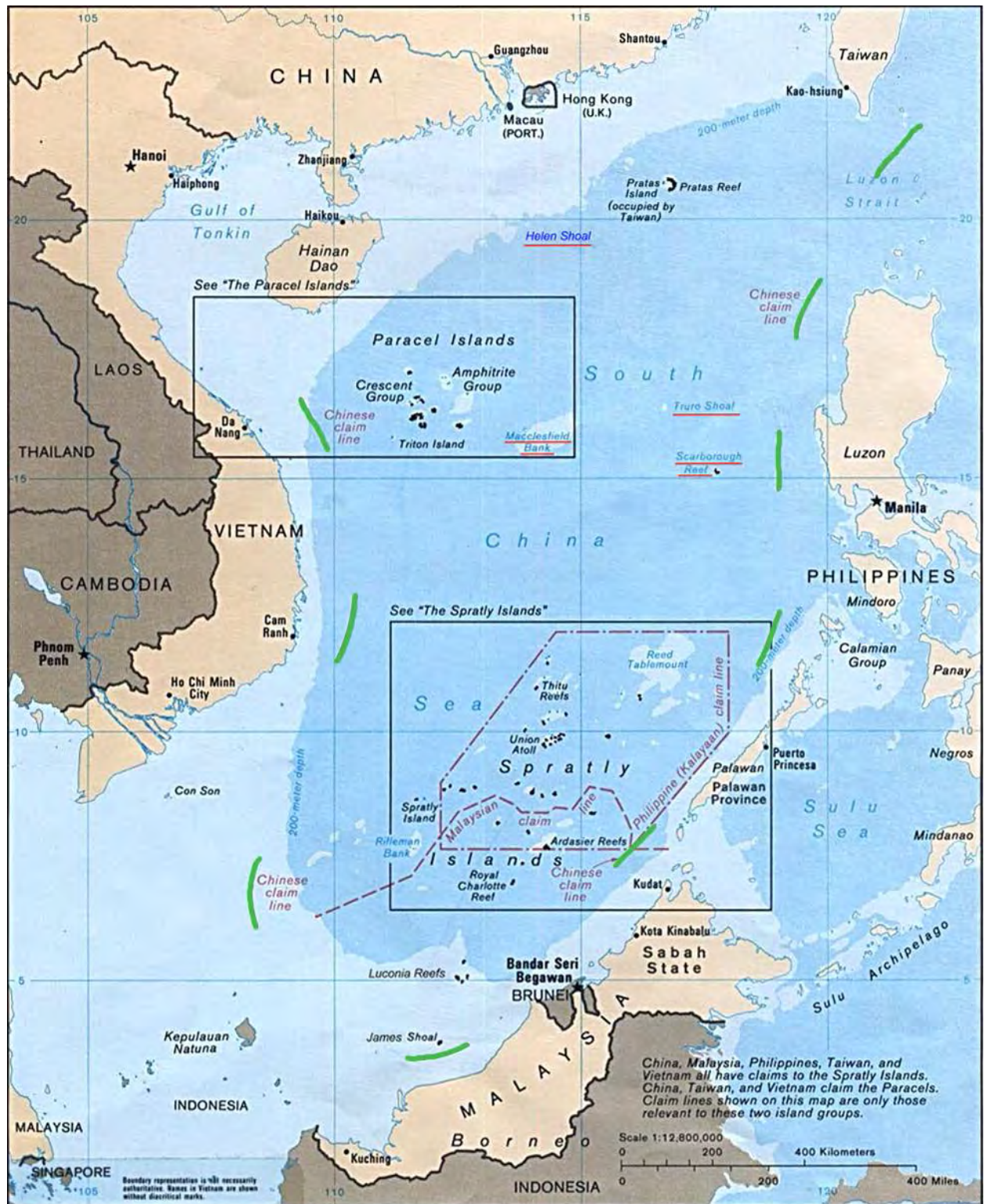
Vietnam-China relations became more tense when the China National Offshore Oil Corporation (CNOOC) placed an oil rig south of the disputed Paracel Islands in early May 2014. Over 80 ships were dispatched by China to support and protect the rig; warships were allegedly part of this group of vessels. Vietnam responded by sending 29 ships of its own, which then led to boat ramming and water cannon firing. One Vietnamese fishing boat was sunk and several Vietnamese were injured.⁶⁵⁴

The controversial actions also led to anti-Chinese riots in Vietnam that injured many Chinese factory workers and even led to a number of deaths. Following difficult talks between China and Vietnam that did not make any progress towards resolving the situation, China sent four more rigs the South China Sea, three rigs closer to the Chinese coast and one just outside the Vietnamese EEZ.⁶⁵⁵ In addition to the tensions surrounding the oil rig, China was also undertaking land reclamation projects in the disputed Spratly Islands that could form islands large enough to construct buildings.⁶⁵⁶ Although international concern and regional protest regarding China's

actions has been sharp, the Chinese view such actions as normal activity, underscoring their territorial claims.^{657, 658}

These tensions have reinforced China's generally negative view of the US 'pivot' to Asia. For example, one Chinese newspaper called for the US "to rein in its unruly allies in the region including Japan and the Philippines," in direct reference to the recent island disputes. Further, because the US has a "responsibility for sowing the seeds of conflict," it "shoulders certain responsibilities for the chronic disputes."⁶⁵⁹

Figure 14.2 Chinese Claims and the Nine Dash Line – Part I



Source: Adapted from Wikipedia, http://upload.wikimedia.org/wikipedia/commons/c/ce/9_dotted_line.png, May 11, 2013.

Figure 14.2 Chinese Claims and the Nine Dash Line – Part II

Island groups involved in principal disputes



Source: Map prepared by CRS using base maps provided by Esri.

Notes: Disputed islands have been enlarged to make them more visible.

Source: Ronald O' Rourke, Maritime Territorial and Exclusive Economic Zone (EEZ) Disputes Involving China: Issues for Congress, Congressional Research Service, R42784, July 5, 2013, p. 9.

Figure 14.2 Chinese Claims and the Nine Dashed Line – Part III
(EEZs Overlapping Zone Enclosed by Map of Nine Dashed Line)



Source: Source: Eurasia Review, September 10, 2012.

Notes: (1) The red line shows the area that would be enclosed by connecting the line segments in the map of the nine-dash line. Although the label on this map states that the waters inside the red line are "China's claimed territorial waters," China has maintained ambiguity over whether it is claiming full sovereignty over the entire area enclosed by the nine line segments. (2) The EEZs shown on the map do not represent the totality of maritime territorial claims by countries in the region. Vietnam, to cite one example, claims all of the Spratly Islands, even though most or all of the islands are outside the EEZ that Vietnam derives from its mainland coast.

Source: Ronald O' Rourke, Maritime Territorial and Exclusive Economic Zone (EEZ) Disputes Involving China: Issues for Congress, Congressional Research Service, R42784, July 5, 2013, p. 10.

Figure 14.2 Chinese Claims and the Nine Dashed Line – Part IV
(EEZs in South China Sea and East China Sea)



Source: Map prepared by CRS using basemaps provided by Esri. EEZs are from the Flanders Marine Institute (VLIZ) (2011). Maritime Boundaries Geodatabase, version 6. Available at <http://www.vliz.be/vmcddata/marbound>.

Note: Disputed islands have been enlarged to make them more visible.

Source: Ronald O' Rourke, Maritime Territorial and Exclusive Economic Zone (EEZ) Disputes Involving China: Issues for Congress, Congressional Research Service, R42784, July 5, 2013, p. 25

Figure 14.3 Chinese Claims and the Nine Dashed – Part V

Locations of 2001, 2002, and 2009 U.S.-Chinese Incidents at Sea and In Air)



Source: Mark E. Redden and Phillip C. Saunders, *Managing Sino-U.S. Air and Naval Interactions: Cold War Lessons and New Avenues of Approach*, Washington, Center for the Study of Chinese Military Affairs, Institute for National Strategic Studies, National Defense University, September 2012. Detail of map shown on page 6.

Source: Ronald O' Rourke, Maritime Territorial and Exclusive Economic Zone (EEZ) Disputes Involving China: Issues for Congress, Congressional Research Service, R42784, July 5, 2013, p. 6.

As has been discussed earlier, these developments are affected as much by regional issues as any competition with the US. In June 2014, China issued the new map of China shown in **Figure 14.4**, and which showed China's territorial claims in far more definitive terms than in the past, and without any sections indicating that Chinese claims might be uncertain or options. As People's Daily put it, the Chinese people will "fully, directly know the full map of. China... won't ever think again that China's territory has primary and secondary claims"

The map included Taiwan as part of China. It gave China suzerainty over the Spratlys and Paracels, the two main archipelagos of the South China Sea, including areas claimed by Vietnam, the Philippines and several other Southeast Asian nations. It also showed a 10-dash line (as opposed to China's earlier nine-dash line) that include most of the South China Sea. The map did, however, leave some Chinese claims affecting India and in Northeast Asia less clear – as much as a matter of its scale as anything else.⁶⁶⁰

Figure 14.4 China's New Map of Greater China: June 2014



Source: "New vertical atlas of China issued by Hunan map publishing house," Xinhua, June 24, 2014, http://news.xinhuanet.com/english/photo/2014-06/24/c_133434221.htm.

The Potential for Conflict in the Pacific and IOR

The potential for conflict in the South China Sea is significant and ranges from low level clashes between China and its neighbors and conflicts involving China and the US. As Bonnie S. Glaser of CSIS noted in 2012,⁶⁶¹

The risk of conflict in the South China Sea is significant. China, Taiwan, Vietnam, Malaysia, Brunei, and the Philippines have competing territorial and jurisdictional claims, particularly over rights to exploit the region's possibly extensive reserves of oil and gas. Freedom of navigation in the region is also a contentious issue, especially between the United States and China over the right of U.S. military vessels to operate in China's two-hundred-mile exclusive economic zone (EEZ). These tensions are shaping—and being shaped by—rising apprehensions about the growth of China's military power and its regional intentions. China has embarked on a substantial modernization of its maritime paramilitary forces as well as naval capabilities to enforce its sovereignty and jurisdiction claims by force if necessary. At the same time, it is developing capabilities that would put U.S. forces in the region at risk in a conflict, thus potentially denying access to the U.S. Navy in the western Pacific.

Tensions between China and Asia States

As a CSIS briefing in 2012 pointed out, China's recently been increasing its sovereignty claims over territory and waters within and beyond the nine dash lines:⁶⁶²

China's policy of strategic ambiguity, as it has been euphemistically called, serves its purposes well. It allows China the flexibility to interpret its position to serve the audience at hand. This is why the Ministry of Foreign Affairs was able to issue its well-publicized statement in February 2012 stating that no nation claims sovereignty over the entire South China Sea and that the dispute is only about the "islands and adjacent waters." This raised hopes in the United States and among the other Asian claimants that China was backing away from the 9-dash lines claim and moving to bring its claims in line with international law.

That, however, has clearly not been the case. This year's tensions in the sea started with a two-month standoff between Chinese and Philippine ships at Scarborough Shoal. That confrontation, despite pronouncements to the contrary from Beijing, served as an example of a creeping evolution in Beijing's claims. For years the Chinese territorial claims in the South China Sea extended only to the Spratlys (Nansha, or "South Banks") and Paracels (Xisha, or "West Banks"). Any claim to other features, like Scarborough Shoal, was only implied in so far as they fell within the ambiguous 9-dash lines. Then China extended its claim to the entirely submerged Macclesfield Bank via the imaginary Zhongsha, or "Middle Banks," despite there being no way under international law to claim title over a submerged feature as if it were an island. Further, in recent years, as Beijing has tried to move beyond an overreliance on the indefensible 9-dash lines, Scarborough Shoal has been incorporated as part of Zhongsha. The fact that it lies hundreds of miles from Macclesfield Bank or that it appears on none of the historical documents China puts forth to prove its title to the Spratlys and Paracels seemingly does not matter.

Beijing showed similar disregard for the policy put forth in its February Ministry of Foreign Affairs statement when in early May it reinstated its annual unilateral fishing ban for all of the South China Sea above the 12th parallel. Such a ban would be possible only if China were claiming all the waters within the 9-dash lines, not only its "islands and adjacent waters." Then in late June, the China National Offshore Oil Corporation (CNOOC) fired a shot across Vietnam's bow by announcing the company would open nine oil and gas blocks in the South China Sea to foreign bids. The catch was that all nine blocks lie within the 200-nautical-mile exclusive economic zone (EEZ) of Vietnam, and many in fact overlap with existing blocks already leased by Vietnam, including those committed to Exxon-Mobil. More importantly, CNOOC's blocks are not defensible under a claim to the "islands and adjacent waters" of the South China Sea because there is no island within 200 nautical miles (the maximum allowable EEZ) of all the blocks.

Ronald O'Rourke of the Congressional Research Activity noted that the maritime and EEZ disputes focuses on four key areas:⁶⁶³

- The **Senkaku Islands** in the ECS, which are claimed by China, Taiwan, and Japan, and

administered by Japan.

- The **Spratly Islands** in the SCS, which are claimed entirely by China, Taiwan, and Vietnam, and in part by the Philippines, Malaysia, and Brunei, and which are occupied in part by all these countries except Brunei;
- a dispute over **Scarborough Shoal** in the SCS, which is claimed by China, Taiwan, and the Philippines; and the **Paracel Islands** in the SCS, which are claimed by China and Vietnam, and occupied by China;

These Chinese actions have included a wide range of recent incidents and tensions, and were expanded in 2013 to include Air Defense Zones. The following sequence of events up to the entry dated February 5, 2013 are taken from a Center for a New American Security project to create a timeline of incidents between Asian powers in the South and East China Seas.⁶⁶⁴

- “Between May and July 2010, Chinese and Indonesian naval ships seize control of fishing vessels suspected of illegal fishing. During several instances Indonesian naval ships confront armed Chinese vessels, including a heavily armed Chinese fishing management vessel.”
- September 7, 2010: “A Chinese fishing boat rams a Japanese Coast Guard patrol vessel after it attempts to interdict the fishing vessel. The trawler and crew members are detained.”
- December 18, 2010: “The crew of a Chinese fishing trawler and a South Korean Coast Guard ship clash, leaving two fishermen dead. The clash reportedly happens as the Korean Coast Guard tries to prevent Chinese boats from illegally fishing off South Korea’s west coast.”
- February 25, 2011: “A Chinese frigate allegedly fires warning shots at a Philippine vessel after warning it to leave the area near Jackson Atoll in the Spratly Islands, 140 nautical miles from Palawan Island.”
- May 21-24, 2011: “Chinese marine surveillance vessels and People’s Liberation Army Navy ships are suspected of unloading building materials near Likas and Patag islands on the contested Iroquois Reef-Amy Douglas Bank claimed by the Philippines.”
- May 26, 2011: “Vietnamese officials accuse a Chinese marine surveillance ship of severing the exploration cables of the Binh Minh 02 seismic vessel chartered by the Vietnam Oil and Gas Corporation while it is conducting a seismic survey along the continental shelf off Vietnam.”
- June 9, 2011: “A Chinese fishing vessel is ensnared on the lines of a Vietnamese survey ship, disabling the ship near Block 136-03, approximately 1,000 kilometers off China’s Hainan Island.”
- July 5, 2011: “Chinese soldiers reportedly assault a Vietnamese fisherman and threaten crew members before expelling them from waters near the disputed Paracel Islands.”
- August 21, 2011: Chinese fisheries patrol boats violate the 12 nautical-mile area around the Senkaku islands, which Japan considers its territorial waters.”
- October 18, 2011: “Chinese marine surveillance vessels and People’s Liberation Army Navy ships are suspected of unloading building materials near Likas and Patag islands on the contested Iroquois Reef-Amy Douglas Bank claimed by the Philippines.”
- November 6, 2011: “The Japanese Coast Guard arrests a Chinese fishing boat captain after a chase near the Goto Islands off Nagasaki.”
- February 22, 2012: “According to Vietnamese state media, Chinese authorities use force to prevent 11 Vietnamese fishermen trying to seek refuge from a storm from reaching the Paracel Islands. Vietnam lodges a protest with the Chinese Embassy in Hanoi – China denies the allegations.
- March 23, 2012: “According to reports citing Vietnamese officials, China detains 21 fishermen near the Paracel Islands and demands \$11,000 for their release.”
- April 10, 2012: “Filipino surveillance aircraft identify Chinese fishing vessels at Scarborough Shoal causing

the Philippines Navy to deploy its largest warship - newly acquired from the United States – to the area. According to Filipino authorities, the fishing boats contained illegal catches. In response, China sends surveillance ships to warn the Philippine Navy to leave the area, claimed by both countries, prompting the standoff. On June 18, the Chinese fishing boats departed the area after Filipino vessels left the shoal in anticipation of typhoon season.”

- April 17, 2012: “The Government of Japan purchased three of the eight islands known as the Senkaku/Diaoyu/Tiaoyutai from a private Japanese owner on September 11, 2012. The islands are in the East China Sea and are claimed by Japan, China and Taiwan. The purchase sparked outrage in China and Taiwan, spurring protests and flotillas of boats seeking to dispute Japanese ownership of the islands.
- July 2012: China creates Sansha City on what it calls Yongxing Island in the Spratlys.
- September 11, 2012: “The Government of Japan purchased three of the eight islands known as the Senkaku/Diaoyu/Tiaoyutai from a private Japanese owner on September 11, 2012. The islands are in the East China Sea and are claimed by Japan, China and Taiwan. The purchase sparked outrage in China and Taiwan, spurring protests and flotillas of boats seeking to dispute Japanese ownership of the islands.”
- September 25, 2012: “On September 25, dozens of Taiwanese fishing vessels - flanked by Taiwanese coast guard ships - approached the disputed islands, known to Taiwan as the Tiaoyutai and the Japanese as the Senkaku. Though some of the boats came within three miles of the islands - within the 12-mile territorial waters of Japan, who administers the islands - none reached their destination. Japanese coast guard ships fired water cannons at the vessels to prevent them from reaching the islands and some Taiwanese vessels shot water back at the Japanese ships. Ultimately, the Taiwanese vessels were turned away.
- November 28, 2012: “State-run media announced that police in Hainan Province, China will have the authority to board and search vessels deemed to be violating Chinese territorial waters beginning January 1, 2013. Neighboring countries reacted negatively to the announcement in light of ongoing territorial disputes in the surrounding waters of the South China Sea. According to the new regulations, Hainan police can “take over” foreign ships and/or their communication assets.
- November 30, 2012: “According to reports, Chinese fishing boats severed the seismic survey cables of a Vietnamese ship near Con Co Island between the Vietnamese coast and China’s Hainan Island. The same state-owned ship, the Binh Minh 02, had its cables cut by Chinese ships on May 26, 2011. The CEO of PetroVietnam later explained that the cables in the November 30 incident were cut by accident, not intentionally as they were in 2011.
- December 2012-January 2013: “On December 13, a Chinese maritime surveillance airplane flew over the Senkaku/Diaoyu Islands - which are administered by Japan - causing the Japanese Air Self Defense Forces to scramble eight F-15 fighter jets. Japanese officials said that the flight by the twin-turboprop Y-12 aircraft of the State Oceanic Administration represents the first airspace intrusion by a Chinese state-owned aircraft since monitoring began in 1958. Three further incursions in December prompted Japan to dispatch F-15s and suggest that it might authorize the firing of “warning shots” on any Chinese planes that violate the airspace over the Senkaku/Diaoyu Islands. On January 11, Japan again scrambled two F-15s after spotting Chinese military aircraft, including J-7 and J-10 fighter jets, near the islands – an exercise China’s Foreign Ministry described as a “routine flight.”“
- February 5, 2013: “On February 5th, 2013, Japan’s Defense Minister Itsunori Onodera announced that Japan had lodged a protest with China, alleging that on January 30th a People’s Liberation Army Navy (PLAN) frigate directed fire control radar, used for weapons targeting, at a Japan Maritime Self-Defense Forces (JMSDF) destroyer. No shots were ultimately fired. Japan launched an investigation into the possibility that a similar incident may have occurred on January 19th, with a PLAN frigate training fire control radar on a JMSDF SH-60K helicopter. China’s defense ministry denied the allegations on February 8th, and Japan responded by refuting China’s denial.
- ongoing Chinese pressure against the Philippine presence at Second Thomas Shoal, a shoal in the Spratly Islands;
- frequent patrols by Chinese Coast Guard ships—some observers refer to them as harassment operations—at the Senkaku Islands;

- China's announcement on November 23, 2013 of an air defense identification zone (ADIZ) for the ECS that includes airspace over the Senkaku Islands;
- the previously mentioned December 5, 2013, incident in which a Chinese navy ship put itself in the path of the U.S. Navy cruiser *Cowpens*, forcing the *Cowpens* to change course to avoid a collision;
- the implementation on January 1, 2014, of fishing regulations administered by China's Hainan province applicable to waters constituting more than half of the SCS, and the reported enforcement of those regulations with actions that have included the apprehension of non-Chinese fishing boats.³⁰
- May 1, 2014: CNOOC moves oil rig Haiyang Shiyu 981 into disputed waters off the Paracel Islands. Many vessels escort and protect the oil rig. On May 26, a Vietnamese vessel is rammed by a Chinese vessel and sinks.
- June 2014: Chinese and Japanese military aircraft fly in very close proximity to each other, sparking an exchange of insults.
- June 14, 2014: China begins construction of a school on the largest island in the Paracels.

A report by Ronald O'Rourke of the Congressional Research Service addressed some of these issues in a July 2013 report:⁶⁶⁵

China's view that it has the legal right to regulate foreign military activities in its EEZ appears to be at the heart of multiple incidents between Chinese and U.S. ships and aircraft in international waters and airspace, including incidents in March 2001, September 2002, March 2009, and May 2009 in which Chinese ships and aircraft confronted and harassed the U.S. naval ships *Bowditch*, *Impeccable*, and *Victorious* as they were conducting survey and ocean surveillance operations in China's EEZ, and an incident on April 1, 2001, in which a Chinese fighter collided with a U.S. Navy EP-3 electronic surveillance aircraft flying in international airspace about 65 miles southeast of China's Hainan Island in the South China Sea, forcing the EP-3 to make an emergency landing on Hainan island.

The issue of whether China has the right under UNCLOS to regulate foreign military activities in its EEZ is related to, but ultimately separate from, the issue of maritime territorial disputes in the SCS and ECS. The two issues are related because China can claim EEZs from inhabitable islands over which it has sovereignty, so accepting China's claims to islands in the SCS or ECS could permit China to expand the EEZ zone within which China claims a right to regulate foreign military activities.

The EEZ issue is ultimately separate from the territorial disputes issue because even if all the territorial disputes in the SCS and ECS were resolved, and none of China's claims in the SCS and ECS were accepted, China could continue to apply its concept of its EEZ rights to the EEZ that it unequivocally derives from its mainland coast—and it is in this unequivocal Chinese EEZ that most of the past U.S.-Chinese incidents at sea have occurred.

If China's position on whether coastal states have a right under UNCLOS to regulate the activities of foreign military forces in their EEZs were to gain greater international acceptance under international law, it could substantially affect U.S. naval operations not only in the SCS and ECS, but around the world, which in turn could substantially affect the ability of the United States to use its military forces to defend U.S. interests overseas. Significant portions of the world's oceans are claimable as EEZs, including high-priority U.S. Navy operating areas in the Western Pacific, the Persian Gulf, and the Mediterranean Sea. The legal right of U.S. naval forces to operate freely in EEZ waters is important to their ability to perform many of their missions around the world, because many of those missions are aimed at influencing events ashore, and having to conduct operations from more than 200 miles offshore would reduce the inland reach and responsiveness of ship-based sensors, aircraft, and missiles, and make it more difficult to transport Marines and their equipment from ship to shore. Restrictions on the ability of U.S. naval forces to operate in EEZ waters could potentially require a change in U.S. military strategy or U.S. foreign policy goals.

The maritime and territorial disputes with Japan regarding the East China Sea and Senkaku/Diaoyu islands are emotionally charged issues for the Chinese. South Korea also has an EEZ dispute with China in the East China Sea over the Ieodo/Suyan Rock. However, this dispute

has a markedly calm tone that does not have any of the emotion and stigma that is attached to the disputes with Japan. The Chinese Foreign Ministry published a white paper detailing their view and argument for claiming rightful ownership of the Senkaku/Diaoyu Islands.⁶⁶⁶ The following quotes from Chinese government officials and Chinese state media characterize the Senkaku/Diaoyu dispute:

- Foreign Minister Wang Yi:
 - September 21, 2013 – “We can sort out a way to deal with the situation if Tokyo first admits there is an ownership dispute over the islands.”⁶⁶⁷
 - March 2014 - Regarding our disputes with some countries over territorial and ocean rights and interests, we are willing to peacefully and properly handle them through equal consultations and talks on the basis of respecting historical facts and of international laws. In this regard we will also absolutely not change in the future. We will absolutely not bully small countries just because we are a big country, nor will we accept small countries to kick up a row. China’s position is resolute and clear on issues involving territory and sovereignty. We do not want an inch of territory that does not belong to us. But we will protect each inch of the territory that belongs to us.⁶⁶⁸
- Ministry of National Defense spokesperson Geng Yansheng:
 - May 23, 2014 - Our determination and will to defend national territorial sovereignty and maritime rights and interests are unswerving; on this issue there is absolutely no room for bargaining, and any provocative actions will not be tolerated. . . . At present, we have with certain periphery countries some disputed issues regarding territorial sovereignty and maritime rights and interests; these problems are all provoked by other countries, and the responsibility is not on China.
- Former Vice Foreign Minister Zhang Zhijun⁶⁶⁹
 - March 4, 2013 - Right-wing forces in Japan instigated the farce of the “island purchase.” The Japanese government did not act to stop this. Instead, it deliberately pandered to it and used it. . . . In the past, this kind of dangerous trend [in a rightward direction] had created enormous catastrophe for the rest of Asia. So if the current trend is not stopped—or worse, if it is used, pandered to and condoned out of domestic political needs—then the arrogance of these people will be further inflated and Japan will move further down the dangerous path. One day, it is not unlikely that the tragedies of history will be repeated.
 - March 4, 2013 - The broader context of this [i.e., the purchase of the islands—author] is the increasing tilt to the right in Japanese politics. You may take a look at what has been said and done in Japan in recent years: denial of the Nanjing Massacre, denial of the so-called “comfort women,” disavowal of the Murayama statement and the Kono statement [i.e., statements by a former Japanese prime minister and a former chief cabinet secretary, respectively, apologizing for Japan’s overall misdeeds and for the use of “comfort women” by the Japanese army during the Second World War— author], the visits by Japanese leaders to the Yasukuni war shrine, advocacy of military buildup and preparation for war and abandonment of Japan’s pacifist constitution.
- Foreign Ministry spokesperson, Qin Gang⁶⁷⁰
 - January 20, 2013 - “[United States] has unshirkable historical responsibility on the Diaoyu Islands issue.”
 - January 20, 2013 – (US policy of opposition to any efforts to unilaterally undermine Japan’s administrative authority over the S/D islands, “disregard[s] the facts and confuse[s] right and wrong. China expresses strong dissatisfaction and resolute opposition to that. We urge the US side to be responsible on the Diaoyu Islands issue, be discreet in word and deed and take concrete actions to safeguard regional peace and stability as well as overall interests of China-US relations so as to win trust from the Chinese people. (1/20/2013)
- President Xi Jinping

- January 26, 2013 - The Japanese side should face up to history as well as reality and make joint efforts with China through real action to seek effective methods for appropriately controlling and resolving the issue through dialogue and consultation. . . . Under the new circumstances, we should shoulder national and historical responsibilities as well as display political wisdom, just like the elder generations of leaders of the two countries, to overcome difficulties and advance China-Japan relations.⁶⁷¹
- Taiwan Affairs Office spokesperson, Ma Xiaoguang
 - January 15, 2014 - “People across the Taiwan Strait should bear responsibility for China’s sovereignty and territorial integrity.”⁶⁷²
- Foreign Ministry spokesperson, Liu Weimin
 - March 12 2012 – “China’s position on the Suyan Rock is clear. The Suyan Rock is situation in the waters where the exclusive economic zone of China and the ROK overlap. The ownership of the rock should be determined through bilateral negotiation, pending which, neither of the two should take unilateral moves in these waters. China and the ROK have a consensus on the Suyan Rock, that is, the rock does not have territorial status, and the two sides have no territorial disputes.”⁶⁷³
 - March 13, 2012 - “The area is located in an area over which China and South Korea have overlapping Exclusive Economic Zone (EEZ) claims. The two sides need to work out sovereignty through bilateral consultations. Both countries have no territorial dispute over the area.”⁶⁷⁴
- Defense Minister, Chang Wanquan
 - May 6, 2014 - “We will not compromise on, concede or trade on territory and sovereignty, nor will we tolerate them being infringed on even a little bit.”⁶⁷⁵
- Vice Foreign Minister Fu Ying
 - October 22, 2012 – The Vice Foreign Minister took question from Japanese journalists at a press conference in Japan⁶⁷⁶
 - Q: The Japanese government’s explanation for its “purchase” of the islands was to prevent an earlier “purchase” proposal by Tokyo Governor Shintaro Ishihara, which would involve development and construction on the islands. The Japanese government feared that Ishihara’s “purchase” would make it difficult for it to manage the islands and would lead to damaged relations with China. Why has such a course of action still caused a strong backlash from the Chinese side?
 - A: Why the Chinese side has responded so strongly to the Japanese government’s “purchase” of the islands? The simple reason is that according to international, Japan has no right to buy or sell the Diaoyu Islands when it does not even have sovereignty over them in the first place. China on its part has exercised self-restraint on the bases of the common understanding reached between the leaders of the two countries years ago on the Diaoyu Islands dispute. And this has largely contributed to the maintenance of peace and stability around these islands over the past decades. Should such common understanding be denied or reneged on, what basis would there be for China to continue exercising restraint?
 - Like people in other countries, the Chinese are capable of strong emotions over things they truly care about. What the Japanese government has done over the Diaoyu Islands was like rubbing salt into a deep open wound on the heart of the Chinese people. The Diaoyu Islands issue is highly sensitive as it not just concerns territory and sovereignty, but also brings back memories of the Sino-Japanese sea war of 1895 and Japan’s invasion of China during World War II. It’s hardly surprising that it should have stirred strong emotions among the Chinese people, who expect and trust that today’s china is better able to protect its national interests.

- What the two sides should do is to put this issue in a bigger international context, and seek to address the profound perception gap between the two sides. The world around us is changing fast. The most important and pressing task for China and Japan as two major countries in the world is to address the lingering effect of the international financial crisis. China and Japan working together to address common challenges is what the region expects of us...The historical facts are clear. We have full confidence in the solid historical and legal basis for our claim of sovereignty over the Diaoyu Islands. The Japanese claim does not hold water in international law. The way out from our point of view is for getting discussions started through bilateral channels to work toward a reasonable solution.
- I have also noticed media reports about Okinawa. This is mainly because Japan's claims to sovereignty over the Diaoyu Islands are seen to be related to Okinawa. That is how many Chinese not just in the mainland, but also in Hong Kong and Taiwan because interested in the history of Okinawa, and started to probe into questions such as what happened to Ryukyu Islands, and what is the relationship between Ryukyu and the Diaoyu Islands. Much historical evidence has been presented that serves to show that the Diaoyu Islands have never been part of Ryukyu in history. As far as I understand, the academics are trying to prove in another way that the Diaoyu Islands are part of China and became so many centuries ago.

The following quotes illustrate the Chinese perspective of the East China Sea ADIZ:

- Defense Ministry spokesperson, Yang Yujun
 - November 28, 2013 – (Japan) ...established an ADIZ as early as 1969 and later expanded its scope many times to only 130 km toward our coastline from its west end, which covers most of the airspace of the East China Sea, so they are not qualified at all to make irresponsible remarks on China's lawful and rational act. Since September 2012, Japan has been making trouble over territorial disputes, staging a farce by announcing that it would "purchase" the Diaoyu Islands, frequently sending vessels and planes to disturb Chinese ships and planes in normal exercises or training, openly making provocative remarks such as shooting down Chinese drones, playing up the so-called China threat, escalating regional tension, creating excuses for revising its current constitution and expanding its military, trying to deny the result of the World War II, and refusing to implement the Cairo Declaration and the Potsdam Proclamation. Japan's actions have seriously harmed China's legitimate rights and security interests, and undermined the peace and stability in East Asia. China has to take necessary reactions.⁶⁷⁷
 - November 28, 2013 - So, who is it that is unilaterally altering the status quo? Also, who is it that is exacerbating regional tensions? Who is it that is continually intensifying contradictions? And who is it that is undermining regional security? I think the international community can reach its own conclusions....as long ago as 1969 Japan had established and announced that it had implemented an air defense identification zone...if they want us to withdraw [our ADIZ], then we will ask Japan to withdraw its own air defense identification zone first, then China can reconsider things 44 years later.⁶⁷⁸
- Foreign Ministry spokesperson, Qin Gang⁶⁷⁹
 - November 25, 2013 – (cautioning the US to) "keep its words of not taking sides on the issue...and stop making improper comments."
 - November 25, 2013 – (hope that) relevant countries could stop unreasonable pestering or hyping, respect international law and facts and stop all the actions that undermine China's national sovereignty, interests and rights so as to create conditions for the proper settlement of the relevant issues through dialogue and negotiation.
 - November 25, 2013 - Japan should tell other countries whether it has its own ADIZ or not, whether it consulted with other countries before establishing and enlarging time and again its ADIZ or not

and how large its ADIZ is. It is totally unjustifiable and with ulterior motives when one, while not allowing others to exercise their legitimate rights, acts on its own will and carries out inflammatory activities hither and thither.... I want to point out that China, which has suffered greatly from external aggression since modern times, has made enormous sacrifice and remarkable contributions to the victory of the world anti-Fascist war.

- Foreign Ministry spokesperson, Hong Lei
 - December 9, 2013 - South Korea's expansion of its ADIZ should comply with international laws. China is ready to stay in communication with them based on the principle of equality and mutual respect."⁶⁸⁰
- Defense Ministry spokesperson, Geng Yansheng
 - December 3, 2013 - "We have noticed that a very few countries have said that China's setting up of the East China Sea ADIZ has unilaterally altered the East China Sea's status quo, and escalated regional tension. The fact is that they established an ADIZ as early as 1969 and later expanded its scope many times to only 130km toward our coastline from its west end, which covers most of the airspace of the East China Sea, so they are not qualified at all to make irresponsible remarks on China's lawful and rational act. Since September 2012, Japan has been making trouble over territorial disputes, staging a farce by announcing that it would "purchase" the Diaoyu Islands, frequently sending vessels and planes to disturb Chinese ships and planes in normal exercises or training, openly making provocative remark such as shooting down Chinese drones, playing up the so called China threat, escalating regional tension, creating excuses for revising its current constitution and expanding its military ,trying to deny the result of the World War II, and refusing to implement the Cairo Declaration and the Potsdam Proclamation. Japan's actions have seriously harmed China's legitimate rights and security interests, and undermined the peace and stability in East Asia. China has to take necessary reactions. A very few countries must earnestly reflect on their actions and correct their wrong remarks and wrongdoings. Other parties concerned should also mind their words and actions, and should not do things to undermine regional stability and bilateral relations. Other parties should not be incited, or send wrong signals to make a very few countries go further on the wrong track, which will follow the same old disastrous road and undermine regional and world peace...A very few countries must earnestly reflect on their actions and correct their wrong remarks and wrongdoings."⁶⁸¹
- PLA Daily
 - November 25, 2013 - "As everyone knows, when Japan established its air defense identification zone back in 1969, it even included three quarters of the aerial space over the East China Sea into its identification zone, making its air defense identification zone only 130km in the closest distance to the Chinese mainland. That is a genuine "dangerous" unilateral action. Moreover, it is hard to understand why some countries were not "concerned" about Japan's extending of its identification zone to the doorway of China decades ago while they become so "concerned" about China's mapping of its own air defense identification zone. This kind of double standard and dictatorial logic will definitely not be accepted by China."⁶⁸²

Reinterpretation of the Japanese Constitution and Collective Self Defense

In July of 2014, Japan made a controversial move to reinterpret the Constitution in order to allow the JSDF to engage in collective self-defense. While the US welcomed the move, China, South Korea, and large parts of the Japanese public strongly protested the reinterpretation. Collective self-defense would allow Japanese forces to come to the aid of an ally if that ally is under attack. However, Japanese forces are still highly constrained as strict conditions remain regarding when Japanese forces can engage opposing forces.

Figure 14.5 is a chart from the 2014 Japanese Defense White Paper that outlines Japan's policies regarding collective self-defense, as well as UN collective security measures, UN peacekeeping operations, and other instances where the SDF may need to be deployed.

Figure 14.5 Japanese Constitutional Interpretation and Legal Policies

Fig. II-1-3-1 Outline of the report

	Right of Collective Self-Defense	Collective Security Measures of the U.N. Entailing Military Measures	U.N. PKOs/ Protection and Rescue of Japanese Nationals Abroad/ International Security Cooperation	Response to an Infringement that does not Amount to an Armed Attack
Constitutional Interpretation	<ul style="list-style-type: none"> ○ The provisions of Article 9 of the Constitution should be interpreted as prohibiting the threat or the use of force as means of settling international disputes to which Japan is a party and not prohibiting the use of force for the purpose of self-defense. ○ Even from the view of the Government to date that "these measures necessary for self-defense should be limited to the minimum extent necessary," it should be interpreted that the exercise of the right of collective self-defense is also included in "the minimum extent necessary." ○ When a foreign country that is in a close relationship with Japan comes under an armed attack and ○ If such a situation has the potential to significantly affect the security of Japan <p>⇒ Japan should be able to participate in operations to repel such an attack by using forces to the minimum extent necessary, having obtained an explicit request or consent from the country under attack.</p>	<ul style="list-style-type: none"> ○ Participation in collective security measures of the U.N. will not constitute the use of force as means of settling international disputes to which Japan is a party and therefore they should be interpreted as not being subject to constitutional restrictions. 	<ul style="list-style-type: none"> ○ These activities should be interpreted as not constituting the "use of force" prohibited under Article 9 of the Constitution. The use of weapons in the course of the following activities should be interpreted as not being restricted constitutionally. 1. To come to the aid of geographically distant unit or personnel that are engaged in the same U.N. PKO etc., and to use weapons, if necessary, to defend them, in the event that such a unit or personnel are attacked ("kaketsuke-keigo") 2. To remove obstructive attempts against its missions 	<ul style="list-style-type: none"> ○ Even in the case of an infringement which cannot be judged whether it constitutes "an armed attack (an organized and planned use of force)," action to the minimum extent necessary by the SDF to repel such an infringement should be permitted under the Constitution.
Legislative Policies etc.	<ul style="list-style-type: none"> ○ The Diet: Legal source is needed. The approval, either prior or ex post facto, of the Diet should be required. ○ The Government: Discussion and approval by the National Security Council under the leadership of the Prime Minister and a Cabinet Decision should be required. (After a comprehensive assessment, a policy decision not to exercise the right of collective self-defense could be made.) ○ In the case that Japan would pass through the territory of a third country, the consent of that third country should be obtained. ○ Logistics support: The theory of so-called "ittai-ka" with the use of force should be discontinued. Instead it should be dealt with as a matter of policy appropriateness. Decisions on under what circumstances logistics support is to be provided should be carefully considered by the Cabinet. 	<ul style="list-style-type: none"> ○ The Diet: Legal source is needed. The approval, either prior or ex post facto, of the Diet should be required. ○ The Government: Proactive contribution should be made. Decisions should be made carefully, based on comprehensive examination on the political significance etc. 	<ul style="list-style-type: none"> ○ Requirements in the Rules of Engagements etc. should be amended in line with U.N. standards. ○ The so-called Five Principles on Japan's Participation in U.N. PKOs also need to be examined in view of its revision. 	<ul style="list-style-type: none"> ○ It is necessary to enhance the legal system within a scope permitted under international law to enable a seamless response.
The Panel strongly expects that the Government will consider this report earnestly and proceed to take necessary legislative measures.				

Source: Japanese Ministry of Defense, *Defense of Japan 2014*, August 2014.

Impact on US and Chinese Relations

These tensions have reinforced China's generally negative view of the US 'pivot' to Asia. For example, one Chinese newspaper called for the US "to rein in its unruly allies in the region including Japan and the Philippines," in direct reference to the recent island disputes. Further, because the US has a "responsibility for sowing the seeds of conflict," it "shoulders certain responsibilities for the chronic disputes."⁶⁸³

While neither the US nor China want such tensions to lead to clashes or conflicts, it is important to note the “accidents” and unintended escalation do present a risk. O’Rourke notes that,⁶⁸⁴

“The dispute over whether China has a right under UNCLOS to regulate the activities of foreign military forces operating within its EEZ appears to be at the heart of incidents between Chinese and U.S. ships and aircraft in international waters and airspace, including:

- incidents in March 2001, September 2002, March 2009, and May 2009, in which Chinese ships and aircraft confronted and harassed the U.S. naval ships *Bowditch*, *Impeccable*, *Victorious* as they as they were conducting survey and ocean surveillance operations in China’s EEZ;
- an incident on April 1, 2001, in which a Chinese fighter collided with a U.S. Navy EP-3 electronic surveillance aircraft flying in international airspace about 65 miles southeast of China’s Hainan Island in the South China Sea, forcing the EP-3 to make an emergency landing on Hainan Island;⁹ and
- an incident on December 5, 2013, in which a Chinese navy ship put itself in the path of the U.S. Navy cruiser *Cowpens* as it was operating 30 or more miles from China’s aircraft carrier *Liaoning*, forcing the *Cowpens* to change course to avoid a collision.

Figure (14.3) shows the locations of the 2001, 2002, and 2009 incidents listed in the first two bullets above. The incidents shown in **Figure (14.3)** are the ones most commonly cited prior to the December 2013 involving the *Cowpens*, but some observers list additional incidents as well. For example, one set of observers, in an August 2013 briefing, provided the following list of incidents in which China has challenged or interfered with operations by U.S. ships and aircraft and ships from India’s navy:

- USNS Bowditch (March 2001);
- EP-3 Incident (April 2001);
- USNS Impeccable (March 2009);
- USNS Victorious (May 2009);
- SS George Washington (July-November 2010);
- U-2 Intercept (June 2011);
- INS [Indian Naval Ship] Airavat (July 2011);
- INS [Indian Naval Ship] Shivalik (June 2012); and
- USNS Impeccable (July 2013)

The following quotes illustrate Chinese views regarding the US and its involvement in Asia:

- Shandong Provincial Party Committee member, Li Qun
 - September 2012 - The Americans’ “real purpose is not to protect so-called human rights but to use this pretext to influence and limit China’s healthy economic growth and to prevent China’s wealth and power from threatening [their] world hegemony.”⁶⁸⁵
- PLA Daily
 - November 25, 2013 - “We especially hope that some individual countries will give up their pride and prejudice. They shouldn’t be blinded by their own selfishness so as to underestimate the Chinese people and the Chinese military’s resolute determination to safeguard china’s national sovereignty and security as well as the regional peace and stability.”⁶⁸⁶

- Xinhua and Chinese Ambassador to the United States, Cui Tiankai

- April 25, 2014 - U.S. President Barack Obama assured Japan during a visit to the country on Thursday that Washington was committed to its defense, applying the U.S.-Japan security treaty to the disputed Diaoyu Islands. China has expressed grave concerns over the statement.

Pointing out that the U.S.-Japan alliance originated in the Cold-War years, Cui said, “Is it really up-to-date? Or is it appropriate for the challenges of the 21st century? I don’t think such alliance will help us.”

Cui said while Washington tells Beijing that it is taking no position on the issue of Diaoyu Islands, “it seems to me that it does take some sides, and probably take the wrong side.”

The convergence of interests, Cui said, helps build the bonds between China and other Asia-Pacific countries, which “are stronger, longer-lasting and more resilient than those of old-fashioned alliances.”

“In this sense, there is no need for us to pivot or rebalance in Asia-Pacific, because this is our homeland. Our roots are here, and our priority never shifts,” he said.

Cui added that the new model of China-U.S. relationship is seeking to build aims at win-win cooperation on the basis of mutual respect and requires “positive energy” from both sides.

“It is not about playing with words. Serious commitments have to be made and honored by both sides,” the ambassador said.

Cui said China recognizes U.S. presence and interests in the Asia-Pacific region and welcomes the constructive role by the United States in regional affairs.

“We hope that the United States will join the regional quest for 21st century solutions for the challenges before us, so that Asia-Pacific will enjoy lasting peace and widespread prosperity,” he said.⁶⁸⁷

- May 20, 2014 - “I’m not questioning the intention of the US government. I’m looking at the effect, the results of the US policies towards Asia, toward China and what they have done and said recently. And honestly, I think the key to this rebalancing is to maintain a good relationship with everybody in Asia Pacific, including particularly China. And in this sense, I think this policy of rebalancing might need some rebalancing itself.”⁶⁸⁸

- Defense Ministry Spokesman Yang Yujun

- June 26, 2014 – “Some individuals of the US openly hyped up the ‘China military threat.’ It goes counter against the consensus reached by the leaders of both countries and is harmful to the healthy and stable development of the bilateral mil-to-mil relationship China has stated its solemn stance with regard to this.”⁶⁸⁹

- Consul General to the United States, Sun Guoxiang

- January 15, 2014 - Clearly, the China-U.S. relationship should be based on mutual respect, seeking common ground while narrowing differences. It is only natural that two nations in different regions of the world and at different stages of economic development will have disagreements. But as long as we treat each other on an equal footing, accommodate each other’s core interests and major concerns, and manage our differences, we can enjoy a sound relationship and mutual development. This is a strategic imperative for our two countries. It is also necessary to maintain stability in the global economy and the welfare of the international community. At the diplomatic level, we should always make full use of dialogue and consultations, and honor our agreements with real actions.

Today, China-U.S. relations are at a new historical starting point. During their summit in California last June, President Xi Jinping and President Obama agreed to develop a new model of major-country relations between China and the U.S. At that meeting, they found common ground on the need to maintain coordination and cooperation within the multilateral and regional economic framework of the G-20 as well as the Asia-Pacific Economic Cooperation, further

pursue trade and investment liberalization, oppose protectionism, reduce greenhouse gases, and decrease the number of cross-border cyberattacks.⁶⁹⁰

- Chinese Defense Minister, Chang Wanquan
 - April 8, 2014 – “The China-US relationship is neither comparable to US-Russia ties in the Cold War, nor a relationship between container and contained. China’s development can’t be contained by anyone.”⁶⁹¹
- Deputy Chief of the General Staff of the PLA, Wang Guanzhong via Xinhua
 - May 31, 2014 – “Deputy Chief of the General Staff of the Chinese People’s Liberation Army, Lieutenant General Wang Guanzhong said Hagel’s speech demonstrated US’ hegemony. He says the speech is filled with instigation, threat and intimidation.

It wanted to incite the destabilizing factors of Asia-Pacific region to stir up disputes. It was a totally non-constructive speech. Hagel’s repeatedly denouncement over China was entirely groundless.

He also said as the great powers of the world, both China and the US should expand shared interests, narrow differences and clear up misunderstanding. But Hagel’s speech made no contribution to develop new relationship between the two countries.”⁶⁹²
- Foreign Ministry spokesperson, Hong Lei
 - May 21, 2014 – “This morning, Director-General of the Department of North American and Oceanian Affairs of the Foreign Ministry Cong Peiwu met with American Deputy Assistant Secretary for East Asian and Pacific Affairs Kin Moy who came to China for consultation. China once again lodged solemn representations with the US side on the US Justice Department’s indictment of five Chinese military officers the other day. The Chinese side pointed out that the “indictment” by the US is purely ungrounded with ulterior motives, which further exposes the hypocrisy and hegemony of the US on cyber security issues. The Chinese side emphasized its firm commitment to upholding cyber security. The Chinese government, Chinese military and relevant personnel have never engaged or participated in cyber theft for trade secrets. The “indictment” by the US grossly violates the basic norms governing international relations and disrupts and jeopardizes China-US relations. China once again urges the US side to correct its mistakes and revoke the “indictment”.”⁶⁹³

The Impact of Shifts in US and Chinese Strategy and Forces in the Pacific and IOR

While China may be focusing on the Pacific, the previous analysis of the Southeast Asia Sub-region has shown that many of China’s neighbors – including several key states in the Eastern IOR -- have become increasingly concerned about China’s ambitions. As the previous chapter has shown, this aided the US by making such states more willing to be it strategic partners.

The Asian States

According to the July 2013 Pew Global Attitudes poll, of the Asia-Pacific nations surveyed (Japan, Philippines, South Korea, Australia, China, Indonesia, Malaysia, and Pakistan), 64% view the US favorably and 58% view China favorably. Japan is the outlier. While 69% of Japanese citizens see the US favorably, only 5% see China favorably.⁶⁹⁴

At the same time, the reaction of Asian states has not been uniform, and even formal treaty allies of the US such as the Philippines and Thailand have had mixed reactions. There is significant domestic political opposition in the Philippines to expanded basing rights for the US. It was reported in mid-July 2013 that the US and the Philippines were in the midst of negotiations for

increased positioning of US military equipment and personnel rotation into the country, though the issue of re-establishing US bases was being side-stepped.⁶⁹⁵ Thailand has recently increased relations with China – including in defense-related areas. Singapore has increased its quasi-basing facilities available to the US Navy but refuses to give up its neutrality and be drawn into any sort of alliance.⁶⁹⁶

Other Asian states have been even more cautious; Vietnam, despite territorial disputes with China, has continued strict rationing of US Navy port calls in order to not undermine its relations with China. Indonesia and Malaysia must both be careful not to alienate domestic constituencies by increasing relations with the US, while Malaysia has kept a positive attitude towards China – its most important trading partner – and has recently increased defense and security ties. As a 2012 IISS report noted,⁶⁹⁷

Polymakers throughout Southeast Asia and the wider Asia-Pacific are acutely conscious of and concerned about the implications for their countries' foreign and security policy orientations of the changing regional distribution of power, particularly in terms of China's growing power and assertiveness. At the same time, though, remaining on good terms with Beijing is important for their economic health, and most Southeast Asian states (the Philippines being the exception) have been unwilling to jeopardize their trade and investment links with China.

But Southeast Asian governments also harbor substantial doubts over the durability of America's role, and have not been easily convinced by the rhetoric of the US rebalance. They understand well that there is a significant public-relations element in pronouncements about the long-term viability of the US security role. Southeast Asians have seen a series of outside powers come and go. They recognize that, as the US reduces its forces in Europe and withdraws from Afghanistan, the Asia-Pacific will naturally be the main defence focus for America. But they also know that Washington's longer-term regional commitment could become hostage to fiscal realities and to changes of administration. In these circumstances, most Southeast Asian states are keeping their strategic options open.

Meanwhile, India appears to welcome America's strengthened regional presence as a counterbalance to China and as a chance for India to assert its strategic role in the region. Japan, especially in the context of territorial disputes over islands, has also welcomed increased US presence.

The Changing Limits to the Chinese role in the IOR

One needs to be careful not to underestimate the gaps between China's future strategic goals and its current military capabilities. In spite of the growing Chinese rate of military modernization, it may well be a decade before China can seriously compete with the combination of USPACOM and USCENTCOM forces that the US can deploy in the IOR. In the near to mid-term, China is likely to focus on the Pacific. It is only likely to try to play a major role in the IOR if it feels it faces a major threat to its energy exports or that it faces a major threat to its maritime commerce in the Strait of Malacca.

In the near term, China's role in the Western IOR seems most likely to remain limited to roles like being part of the antipiracy force off the coast of Somalia and the Gulf of Aden, growing numbers of port visits, and a focus on expanding its ties to Pakistan and Myanmar. China may, however, see the IOR as another area where will be ready to play a major naval role in the Strait of Malacca and challenge India much earlier – although nothing about the course of Indian and Chinese clashes in their border area to date indicates that China has great reason to be concerned about Indian performance in land-air warfare.

At the same time, China is playing an active commercial role in the IOR that reduces its strategic vulnerability to an interruption of traffic through the Strait. As the EIA reports, this is part of a Chinese strategy that goes well beyond the IOR.⁶⁹⁸

China has actively sought to improve the integration of the country's domestic oil pipeline network, as well as to establish international oil pipeline connections with neighboring countries to diversify oil import routes. According to CNPC, China had about 14,658 miles of total crude oil pipelines (67% managed by CNPC and the remaining 33% by other NOCs) and 11,795 miles of oil products pipelines in its domestic network at the end of 2012.

The bulk of China's oil pipeline infrastructure serves the more industrialized coastal markets and the northeastern region. However, several long-distance pipeline links have been built or are under construction to deliver oil supplies from the northwestern region or from downstream refining centers to more remote markets in the central and southwestern regions. China inaugurated its first transnational oil pipeline in May 2006, when it began receiving Kazakh and Russian oil from a pipeline originating in Kazakhstan. The 240,000-bbl/d pipeline spans 1,384 miles, connecting Atyrau in western Kazakhstan with Alashankou on the Chinese border in Xinjiang.

The pipeline was developed by the Sino-Kazakh Pipeline Company, a joint venture between CNPC and Kazakhstan's KazMunaiGaz (KMG) and brings oil from the oilfields in central Kazakhstan to China. Expansions are underway on the Atasuto-Alashankou section to nearly double capacity to 400,000 bbl/d in 2014.

The two countries are considering a parallel second pipeline to supply crude oil from Kazakhstan's oilfields in the Caspian Sea region including the new Kashagan field. Russia's new East Siberian oil fields have become another source for Chinese crude oil imports. Russian state-owned oil giant Transneft constructed the Eastern Siberia-Pacific Ocean Pipeline (ESPO), extending 3,000 miles from the Russian city of Taishet to the Pacific Coast in two stages. The first stage of the project included the construction of a 600,000-bbl/d pipeline from Taishet to Skovorodino in Russia. CNPC also built a 597-mile pipeline linking the spur with the Daqing oil field in the Northeast.

The pipeline spur to China became operational in January 2011, and delivers up to 300,000 bbl/d of Russian oil to the Chinese border under an original 20-year supply contract between the two countries. The second stage of ESPO came online at the end of 2012 and delivers oil to the Russian Pacific port of Kozmino. This port provides Russia the option to send more crude oil to China via a sea route. Russia anticipates expanding the ESPO transmission capacity to Skovorodino to 1.6 million bbl/d by 2018 and augmenting contracted supply to China through this route.

In the meantime, Rosneft agreed to send 140,000 bbl/d of western Siberian oil to China through the expanded pipeline from Kazakhstan to western China starting in 2014 until the ESPO spur to China is brought to full capacity. This agreement allows Russia a western outlet for sending its contracted oil to China.

China also revived its plans to construct an oil import pipeline from Myanmar through an agreement signed in March 2009. Myanmar is not a significant oil producer, so the pipeline is envisioned as an alternative transport route for crude oil from the Middle East that would bypass the potential choke point of the Strait of Malacca, which approximately 80% of China's oil imports traverse based on crude oil import sources and routes. CNPC plans to direct crude oil from the pipeline to serve the proposed 200,000 bbl/d-Yunnan/Anning refinery. Maximum capacity for the pipeline is slated to be 440,000 bbl/d when it comes online in 2014.

As is noted in the last paragraph of the EIA analysis. China is now completing two Sino-Burma pipelines in 2013 that bypass the Strait of Malacca. An oil and natural gas pipelines run in parallel. Wikipedia reports that they start near Kyaukphyu, run through Mandalay, Lashio, and Muse in Myanmar before entering China at the border city of Ruili in Yunnan province. The oil pipeline, which will eventually terminates in Kunming, capital of Yunnan province, will be 771 kilometers (479 mi) long.

The natural gas pipeline will extend further from Kunming to Guizhou and Guangxi in China, running a total of 2,806 kilometers (1,700 mi). The oil pipeline will have a capacity of 12 million tons of crude oil per year. It would diversify China's crude oil imports routes from the Middle East and Africa, and avoid traffic through the Strait of Malacca. Oil storage tanks will be built on an island near the port of Kyaukphyu. For oil processing China will build refineries in Chongqing, Sichuan, and in Yunnan. The gas pipeline would allow delivery of natural gas from Burma's offshore fields to China with an expected annual capacity of up to 12 Bcm of natural gas.⁶⁹⁹

China may find other ways to reduce its vulnerabilities in the IOR. In the longer-term, China may find ways to bypass the IOR in obtaining energy exports from the Gulf, and increase its access to energy exports from Central Asia. There are reports that Pakistan met with Chinese officials to discuss the possibility of extending an Iranian gas pipeline to China rather than India in August of 2013.⁷⁰⁰ China has also at least examined options for a pipeline from the Pakistani port at Gwadar to Gligit-Balistan and the Chinese border – an area that Pakistan disputes with India. These are now concepts not plans, and there are many problems in cost, terrain, and security.

According to some reports, China and Pakistan has discussed possible Chinese operation of the Pakistani port at Gwadar – a major facility near Iran and relatively near to the Strait of Hormuz that China has helped modernize.⁷⁰¹ A Pakistani analyst – Ghulam Ali, has noted that other analysts argue the port could become China's naval base in the Indian Ocean and enable Beijing to monitor Indian and US naval activities, and the port has also been called the western-most link in China's 'string of pearls' strategy.⁷⁰² He also notes, however, that the port is underdeveloped, and that,

Unlike Islamabad's tall claims about the port's geo-economic significance, Beijing has taken a more cautious and realistic approach. China remains skeptical of the port's profitability. Both in 2001, when it agreed to finance the first phase of the port, and in 2013, when it took over administrative control of the port, Pakistan had to drag Beijing into the project.

Gwadar is not the only option for the Chinese in the Indian Ocean. It is not even the most viable option. Beijing has developed Hambantota port in Sri Lanka and built a container port facility in Chittagong in Bangladesh. In Myanmar, Beijing has built roads, dams and pipelines, and is looking to the ports of Kyaukpyu and Sittwe, regardless of the fact that the latter is being built by India. Beijing intends to lay a pipeline from Kyaukpyu to Yunnan province. Chinese oil ships from the Middle East and Africa will cross the Bay of Bengal and unload at these ports, allowing oil to be piped to Yunnan. China appears more optimistic about the future of an Arakana–Yunnan pipeline than the Gwadar–Xinjiang pipeline because it considers Myanmar capable of protecting its assets.

Due to its strategic location, and because the strong military ties between China and Pakistan, Gwadar port has received excessive attention from the very beginning. Despite its being over a decade since China started construction of the first phase, no military-related activity has ever been observed there. If China intended to use a Pakistani port for naval purposes, Karachi, with its established military infrastructure, is an alternative that is available although Karachi has the strategic disadvantage of proximity to India.

It is likely that China will develop the port quickly by making a bigger investment than the PSA, but its current interests appear commercial, aimed at securing its energy supplies. Moreover, Gwadar is just one of several options for Beijing, and due to the volatile security situation in the surrounding region it may not be China's best bet. Gwadar is far from becoming a Chinese economic hub, let alone a security asset.

Three key uncertainties will help shape this future. The first is the US willingness to support and fully implement the new strategy the US announced in early 2012, and keep strong forces in the Gulf and Pacific, and create stronger partnerships with regional powers. Anything approaching major cuts in US forces or a US decision not to keep securing the Gulf and Pacific would create

a power vacuum China would probably try to fill – and could fill much earlier if the US were absent.

The second is that Gulf and other IOR powers might welcome and support a Chinese presence in the Gulf and key ports in countries Pakistan and Burma as a counterbalance to the US or a way of serving their own interests. The Gulf states cannot ignore the extent to which Asian demand is rising as US demand for energy imports is dropping, and their tensions with the US over other issues may lead them to seek some kind of Chinese military role.

The third and opposite trend is that Chinese faces serious economic challenges from an aging population, its slow shift to creating effective domestic demand, and competition from other states with lower labor costs. China faces increasing challenges of its own and it may not be able to sustain either its present economic growth or its military ambitions.

It will take time to see how these uncertainties affect the relative role of the US and China. It is also at least possible that both will find a way to cooperate in securing their interests in the IOR. Such cooperation would mean less cost and less risk for both powers, but their other goals and tensions seem more likely to keep pushing them towards competition.

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Note: Nuclear weapons programs are generally shrouded in secrecy and all of the totals listed above should be considered estimates. The numbers in the chart above are based on the most recent available estimates from the Bulletin of the Atomic Scientists Nuclear Notebook series by Robert S. Norris and Hans M. Kristensen. The specific sources include 2013 data on “Non-P5 Nuclear-Armed States” and “US Nuclear Forces,” 2012 data on “Indian Nuclear Forces,” and 2011 data on “British Nuclear Forces.”

According to State Department figures from the latest New START data exchange, as of September 1, 2012 the United States had 1,722 deployed strategic warheads and Russia had 1,499 deployed strategic warheads. This is a respective drop of 15 and increase of 9 warheads since the data exchange six months previously. U.S. totals are lower than the estimates in the chart primarily because New START counts bombers as having one warhead each, even though up to 20 warheads can be assigned to each bomber. In Russia’s case, the number of warheads assigned to delivery systems in the chart also includes warheads assigned to submarines in overhaul, which are also not counted as deployed by the treaty. Under New START, both the United States and Russia must reduce their stockpiles of deployed strategic warheads to less than 1,550 warheads by 2018. According to the December 2012 State Department report, operations to reduce U.S. missile launchers will begin in 2015.

The US government disclosed in April 2010 that as of September 30, 2009, the total US stockpile had 5,113 warheads. On March 1, 2013, Drs. Hans Kristensen and Robert S. Norris revised that total to an estimated 4,650 warheads. This number excludes approximately 3,000 thousand warheads awaiting dismantlement, whereas the totals in the chart above include weapons awaiting dismantlement.

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