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# ***China and the U.S.: Cooperation, Competition and/or Conflict***

**An Experimental Assessment**

## **Full Report**

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Photo: GOH CHAI HIN/AFP/ Getty Images

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# Introduction

This report is an experimental net assessment that addresses China's emergence as a global superpower, and its competition with the United States. The report is entitled *China and the U.S.: Cooperation, Competition and/or Conflict*. The entire report, and the report is available on the CSIS web site in several forms:

- Key sections are available on the CSIS web site in PDF form by clicking on each section title. The size of some of these PowerPoints may present problems for some IT systems, but quick comparisons of different Chinese and U.S. policy statements and assessments, and of the graphics and data that summarize the trends and issues involved are only possible if PowerPoint is used. The PDF versions are smaller but make it far more difficult to quickly compare a broad range of different trends.
- A PDF version of the full report is available on the CSIS web site as well. This document allows the user to skim through comparisons of all the net assessment's different sections, but the assessment's length and the PDF format make it difficult to explore given issues in detail.

## Organization and Contents of the Report

The net assessment is divided into eight major sections:

- **PART ONE: CHINA'S NATIONAL STRATEGY** provides summaries of China's evolving strategy using direct quotes from its key white papers, particularly its 2019 Defense White Paper. It then provides similar excerpts from the new U.S. national security and national defense strategy that the United States issued in 2017 and 2018, and from assessments of Chinese strategy by the U.S. Director of National Intelligence, the Department of Defense, DIA, and INDOPACOM.
- It should be noted that the Chinese 2019 White Paper came after the changes in U.S. national strategy and the U.S. assessments of China's military developments and that much of its contents clearly respond to the shifts in America's declared strategy and assessments. Accordingly, these quotes provide a clear picture of the very different Chinese and U.S. views of Chinese and U.S. competition and of which power is increasing the level of tension and prospects for potential conflict. They set the stage for the detailed assessments of economic and military trends and issues that follow.
- **PART TWO: CHINA'S EMERGING ECONOMIC POWER** provides official assessments of the important of economic developments and competition in Chinese strategy and U.S. assessments of the trends in Chinese forces, and the provides a wide range of graphics, maps, and data that show rate of Chinese growth. It assesses trends in trade and technology as well as total economies, and the potential causes of limits to China's growth and emergence as an economic superpower.

- **PART THREE: SHAPING ECONOMIC COMPETITION TO SERVE STRATEGIC INTERESTS** notes reporting by the U.S. Office of the Secretary of Defense that stresses the leading impact of China’s economic growth on its competition with the U.S. It examines the importance of China road and belt initiatives, and its growing share of the global economy and trade.
- **PART FOUR: THE SUPERPOWER BALANCE AND CHINESE GRAND STRATEGY** addresses Chinese official views of the shift in the global military balance in its 2019 Defense White Paper and the contrasting official views of OSD and DIA, and then provides a range of different quantitative assessments of the global military balance between China, the U.S. and Russia that shows the extent to which each nation can compete as a “superpower.” It compares the very different Chinese, OSD, DIA, IISS, and SIPRI estimates of defense spending by China, the U.S., Russia, and other powers, It provides summaries of Chinese and OSD views of China’s expanding technology base, and analyzes the importance of arms transfer to both improving China’s military technology and its level of influence over other states.
- **PART FIVE: KEY AREAS OF U.S. MILITARY FOCUS** describes the developments on U.S. strategy and forces in Asia that are shaping the U.S. side of its military competition with China, and lays the foundation for comparisons with the analyses of China’s strategic positions and forces that follow. It shows the size and deployments of U.S. forces. and the he U.S. Chinese, and other key power military balance in Asia. It also shows DIA and OSD maps and assessments of total Chinese military deployments by military service, the Chinese claims that are the focus of U.S. concern, and the expansion of Chinese naval, air, and missile power in the Western Pacific that is a key source of U.S. concern.
- **PART SIX: PART SIX: CHINA, THE U.S., AND OTHER ASIAN POWERS — COMPETING CLAIMS IN ASIA AND THE PACIFIC** focuses on the competing Chinese and other country claims in the Western Pacific and the Chinese build-up of forces in the South China Sea that is a key U.S. strategic concern. It analyzes the economic, trade, energy, and strategic influence impact of these issues as well as their military importance.
- **PART SEVEN: CHINESE STRATEGIC DEVELOPMENTS AFFECTING OTHER ASIAN POWERS** covers China’s official position on its strategic relations with every major power on its borders, the official U.S. view of China’s strategic relations with each state, and the sources of Chinese tension or cooperation. It should be noted that China does not address Mongolia or North Korea in its White Papers, and minimizes its discussion of Japan and South Korea. It has steadily identified Taiwan as key strategic concern, however, and potential source of conflict. Supporting policy summaries, maps, and charts highlight key areas of potential U.S. and other nation competition with China.
- **PART EIGHT: CHINESE FORCE DEVELOPMENT AND MODERNIZATION** examines the key force trend is each major aspect of Chinese force development. Once again, quotes are provided from both Chinese White Papers and U.S. strategy documents and official assessments of China’s forces. The subsections that follow cover China’s nuclear forces and other weapons of mass destruction, its rocket and missile forces, its shift to advanced forms of military technology and warfare, each of its military services, and the change role of its paramilitary forces and counterterrorism capabilities.

## Methodology

Aside from a brief one-page introductions to each major section and some subsections, the report does not make independent comments about the Chinese and U.S. official statements that it presents, or the analytic material that follows. It lets each country speak for itself, and the provides a range of graphics, charts, and tables to address key trends and issues without making judgments or interpretations of their content. Its purpose is to provide a range of official views, and of expert data on the course of Chinese progress and competition with the U.S. and other states with only a minimum of comments and value judgement by the authors.

The key policy statements do speak for themselves, bit they are political, unclassified, and designed to make each nation’s case – rather than be objective. The surveys in each section and subsection that then draw on graphic material and analysis taken from official sources, as well as from research by a variety of thinks and media sources. survey of official and graphic views of the China’s evolving ability to achieve parity with – and compete with – the U.S. and other powers in civil and military terms. Accordingly, virtually all of the graphics, tables, and summary assessments displayed in the various sections of this report are drawn from the sources cited on each page.

These sources include primary sources like Chinese White Papers, the assessments of Chinese military power by Office of the Secretary of Defense (OSD) and Defense Intelligence Agency (DIA) in the United States; and other official Chinese, U.S., Japanese, South Korea, Taiwanese, IMF, UN, and World Bank documents. These sources have the advantage of exceptional access to the material they cover, but they too can be highly political in character and the Chinese and U.S. views of any given Chinese activity are generally very different.

This is why other graphics, maps, and charts are provided that draw on work developed by a wide range of think tanks and research centers — including the IISS, SIPRI, and the CSIS. They provide a more neutral picture of the forces driving U.S. and Chinese competition and the forces shaping the economic and military developments in the region. And, major differences they reveal in some aspects of the work by outside sources help illustrate the key uncertainties that often affect a given issue.

## **The Broad Trends Count, Not Specific Numbers**

The material provided in each section of this net assessment shows that no one source of data or set of figures is authoritative. At the same time, many of the sources that do differ in detail also broadly agree in revealing how quickly China's economy, technological base, and military forces are developing — as well as the growing importance of its regional and global economic and military ties and outreach.

Seen from this perspective, such trends clearly show that China already is a true economic superpower with growing resources and a steadily improving technology base. Its military structure is evolving to the point where China can compare or compete with the U.S. — at least in Asia.

They show that China already has a far more powerful economy than Russia and is spending far more on military forces. It is also clear that China's economic outreach already exceeds that of the United States in some of its aspects. If these current trends continue — China has the future capacity to equal or surpass the U.S. economy and U.S. military forces at some point during the next two decades.

The comparison of the civil and military trends in China's progress also reinforces a key point made in the 2019 edition of the Office of the Secretary of Defense's report on *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China*. "China's economic progress, and regional economic outreach, will often be more of the central focus of its grand strategy than the modernization and expansion of its military forces." Such a comparison also makes it clear that no analysis that focuses on only one side of China's development — either civil or military — can begin to explain the real-world changes taking place in its grand strategy, and global and regional capabilities.

Finally, the user should be reminded that summary trends and graphics can only tell part of the story in any given area. Moreover, many graphics, maps, and charts cover subjects that are so complex that the user must refer to the original source to fully understand the definitions, sources, and quality of the data used, the reasoning behind the choices made in presenting the data, and consult other analyses to how to put such data in a full narrative context.

These issues are particularly important when a given graphic or statement attempts to estimate the future. China's full emergence as a superpower is still at least a decade away, and is often hard or impossible to reliably predict. In addition, many trends of the more established powers like the U.S. and Russia are also highly volatile and can only provide uncertain insights as to the future.



# Table of Contents

<b>INTRODUCTION</b>	<b>2</b>
<b>PART ONE: CHINA'S NATIONAL STRATEGY</b>	<b>8</b>
<i>The 70<sup>th</sup> Anniversary White Paper</i>	<i>12</i>
<i>The 2015 Chinese Defense White Paper</i>	<i>18</i>
<i>The 2019 Chinese Defense White Paper</i>	<i>25</i>
<i>The Shifting Chinese Strategic View of the U.S.: 2015-2019</i>	<i>33</i>
<i>The Changing U.S. Strategic View of China</i>	<i>41</i>
<i>The U.S. Department of Defense, Intelligence and INDOPACOM Command View of China's National Security Strategy</i>	<i>46</i>
<b>PART TWO: CHINA'S EMERGING ECONOMIC POWER</b>	<b>62</b>
<i>Positive and Negative Trends in China's Economy Shifts in Chinese Demographics</i>	<i>69</i>
<i>China's Changing Manufacturing Base and Trade Patterns</i>	<i>90</i>
<i>China's Changing Technology Base and Search for Parity and Leadership</i>	<i>111</i>
<i>Trees Don't Grow to the Sky? Possible Limits to China's Success</i>	<i>136</i>
<b>PART THREE: SHAPING ECONOMIC COMPETITION TO SERVE STRATEGIC INTERESTS</b>	<b>165</b>
<i>Roads, Belts, and Straight Jackets: China's Growing Global Engagements</i>	<i>169</i>
<i>China's Growing Share of the Global Economy and Trade</i>	<i>178</i>

<b>PART FOUR: THE SUPERPOWER BALANCE AND CHINESE GRAND STRATEGY</b>	<b>191</b>
<i>China's Emergence as a Military Superpower: China vs. U.S. and Russia</i>	<i>193</i>
<i>The Chinese versus Western Views of China's Rising – and Steadily More Competitive – Military Budgets</i>	<i>205</i>
<i>China's Rising Military Technology and Industrial Base</i>	<i>227</i>
<i>China's Shifting Balance of Arms Imports and Exports</i>	<i>235</i>
<b>PART FIVE: KEY AREAS OF U.S. MILITARY FOCUS</b>	<b>254</b>
<i>U.S. Military Forces Affecting (and Affected By) China, the Pacific, South China Sea, and Indian Ocean</i>	<i>256</i>
<i>The U.S. Side of the Shifting Asia-Pacific Regional Balance</i>	<i>268</i>
<i>U.S. Views of China's Strategic Posture in the Pacific</i>	<i>274</i>
<b>PART SIX: CHINA, THE U.S., AND OTHER ASIAN POWERS: COMPETING CLAIMS IN ASIA AND THE PACIFIC</b>	<b>291</b>
<i>Military Build Up in South China Sea as Part of Overall Change in China's Strategic Posture</i>	<i>309</i>
<i>The Critical Role of Chinese Trade in the South China Sea</i>	<i>336</i>
<i>Chinese Energy Transit and Resource Potential in the South China Sea</i>	<i>344</i>

<b>PART SEVEN: CHINESE STRATEGIC DEVELOPMENTS AFFECTING OTHER ASIAN POWERS</b>	<b>368</b>
<i>Comparative Asian Military Spending</i>	<b>371</b>
<i>China and Southeast Asia</i>	<b>379</b>
<i>China, Russia, and the North</i>	<b>385</b>
<i>China and Central Asia</i>	<b>395</b>
<i>China, India, Pakistan, and Afghanistan</i>	<b>406</b>
<i>China and Japan</i>	<b>417</b>
<i>China, the Koreas, Russia, and the U.S.</i>	<b>432</b>
<i>China and Taiwan</i>	<b>448</b>
<b>PART EIGHT: CHINESE FORCE DEVELOPMENT AND MODERNIZATION</b>	<b>474</b>
<i>Chinese Military Modernization: Key Goals and Trends</i>	<b>476</b>
<i>Changing Nuclear, Chemical, and Biological Forces and Delivery Systems</i>	<b>493</b>
<i>Changing Bomber, SLBM, and Missile Strike Capability and Countervailing Power</i>	<b>534</b>
<i>Advanced Modernization and Preparation for War: Informatized Warfare, New Force Elements, Cyber, Space, and Logistics</i>	<b>561</b>
<i>China's Changing Land Power</i>	<b>583</b>
<i>China's Changing Naval Power</i>	<b>595</b>
<i>China's Changing Air Power</i>	<b>619</b>
<i>China's Paramilitary Forces and Counterterrorism</i>	<b>636</b>



# PART ONE: CHINA'S NATIONAL STRATEGY

*Declared Strategy vs. Actions*

# Chinese Strategy: Actions versus Words

Nations publish broad statements about their national strategy more as forms of strategic communication than as actual statements about their true strategy, goals and the ways they intend to achieve them. They also use them to signal major shifts in broad policy objectives, although those objectives are generally stated in diplomatic terms and ways designed more to influence other states than provide an accurate picture of a nations policies..

China is no more an exception than is the United States. What China actually does in shaping its economy, military forces, and interactions with other states often differs sharply from its declared official foreign policy and strategy. China's actions consistently provide a better picture of its goals and intentions than the words in its public White Papers and policy statements. Nevertheless, its China's Defense White Papers are well worth reading, as are its other major policy statements, and its 2019 defense white paper —*China's National Defense in the New Era*—provides a particularly useful introduction to the summary analyses and graphics provided in the various sections of this report.

At the same time, the following sections of this report reveal a mix of trends and actions that highlight eight others aspects of China's strategic position that should also be considered in evaluating China's statements of its strategy and U.S. strategy for dealing with China:

- China has already emerged as a global economic superpower and regional Pacific military superpower.
- Only China can stop China from become a global military super power by 2030.
- In spite of this military progress, China's progress in achieving strategic parity with the U.S. will probably determined more by China's relative political, economic, and military development and influence than by Chinese military numbers or warfighting capability
- Important as comparing China and the U.S. may be, Russia and regional power clusters will be key wild cards. (Central/South Asia, MENA)
- Military competition alone is highly expensive for both states. U.S. and Chinese competition already costs each power several percent of its GDP each year. Peak Cold War competition with the the USSR cost the U.S. some 5-9% of its GDP per year.

- Sun Tzu's doctrine of winning without fighting, and hybrid civil-military operations, offer China the greatest potential advantage – but only in successful political/economic operations and carefully contained lower levels of conflict.
- Escalating to any form of serious Anti-Access-Area Denial (A2D2) or (AAD2) presents a key “land war in Asia” challenge to the U.S. – how do you actually “win” anything relative to the cost of fighting?
- Serious warfighting of any kind between China and the U.S. will probably cost the winner more than victory is worth, and both nations already have the capability to inflict devastating nuclear countervalue damage on the other state. “The only way to win is not to play.”

Americans also need to understand that China approaches its competition with the United States, and its reemergence as a global superpower, from a unique historical background. The following chronology provides a brief outline of some of the major events in the “dark years” that saw China shift from a global superpower in the 1700s to becoming the subject of foreign exploitation and occupation from the 1840s to the end of World War II. It also serves as a reminder of the major convulsions that transformed China from an aging empire to a Maoist form of Communism, and then to its present form of one-party state capitalism.

- Opium Wars: 1839-1842 and 1856-60
- Foreign Concessions/Unequal Treaties: Hong Kong 1842-1997
- Taiping Rebellion: 1850-1864
- Sino-Japanese War: 1884-1895
- Boxer Rebellion 1899 and Siege of Beijing: 1900
- Revolution and Warlords: 1911-1937 (Sun dies in 1925)
- Canton Coup - Chiang Kai Shek - Red Purge/Civil War, Nanjing Decade 1926/8-1937
- Manchurian Incident/Japanese Invasion: 1931



- Full Japanese Invasion (Marco Polo Bridge/Peking/Nanking massacre): 1937-1945
- Chinese Civil War: (1927?) 1945-1949 (Chiang's forces retreat to Taiwan in 1949)
- Korean war: 1950-1953
- Sino-Soviet Split: 1960-1984/1989
- Great Redoubt, Great Leap Forward, Cultural Revolution: 1951-?, 1958-1962, 1965-1976. Mao's Death – September 9, 1976. Gang of Four Ousted — October 1976
- Sino-Vietnam War: 1979
- Deng Xiaoping's period in power: 1977/8-1989
- Tiananman Square: 1989
- Xi Jinping: 2013-??????

Outside exploitation of China ended with World War II, and the impact of China's "dark years" on its development as a world power ended with the rise of China after Deng Xiaoping became its leader. It is still important to note, however, that China's current strategy is shaped by the fact that the later years in this chronology saw major shifts from U.S. support of China during World War II to Russian support of the Maoist regime, then saw a Chinese shift back to cooperation with the U.S. in containing the Soviet Union, and have now seen another reversal as China has emerged as a serious competitor to the U.S. and tilted back to ties with Russia.

China's current strategy and goals look towards its future and not its past. Both foreign and Chinese experts also disagree over the impact of China's "dark years" on its present strategic view of the world and outside states. However, China's 2019 Defense White Paper does make brief mention of this history, and China has unique reasons to distrust outside states and fear foreign pressure. This history cannot be disregarded in considering the motives behind Chinese strategy and its behavior as an emerging superpower. China's concerns with Taiwan, its historic claims, and the U.S. and Japanese role in the Western Pacific, must all be seen from this perspective.

# *The 70<sup>th</sup> Anniversary White Paper*

# China's 70<sup>th</sup> Anniversary White Paper on Strategy, Foreign Policy, Peace, (and U.S.) – I

China contributes solutions to world peace and development. In the early days of the PRC, China established its independent foreign policy of peace, which contributed to global peace after World War II. In the 1950s, China, India and Myanmar jointly proposed the Five Principles of Peaceful Coexistence (mutual respect for sovereignty and territorial integrity, mutual non-aggression, non-interference in each other's internal affairs, equality and mutual benefit, and peaceful coexistence). These have become basic norms for international relations and fundamental principles of international law. China has safeguarded the interests of developing countries, playing an important role in building a fair and equitable international political and economic order. In recent years, China has proposed a raft of significant international concepts and initiatives, including a global community of shared future, a new model of international relations, the Belt and Road Initiative, the principle of upholding the greater good and pursuing shared interests, a vision of common, comprehensive, cooperative, and sustainable security, the principles of extensive consultation, joint contribution and shared benefits in global governance, and the principles of equality, mutual learning, dialogue and inclusiveness between civilizations. These proposals have contributed Chinese wisdom and solutions to protecting world peace and promoting common development.

China safeguards world peace through real actions. Over the past 70 years, China has not provoked a single war or conflict, nor invaded a single square of foreign land. Since reform and opening up in 1978, China has cut its armed forces by over 4 million. China has been an active participant of international arms control, disarmament and nonproliferation, opposing any arms race and safeguarding global strategic balance and stability. China has signed or joined more than 20 treaties on multilateral arms control, disarmament and nonproliferation, including the Treaty on the Non-Proliferation of Nuclear Weapons. China has become the second largest contributor to both the regular and peacekeeping budgets of the UN, and the largest troop contributor among the permanent members of the UN Security Council (see Box 3). In 2015 China announced that it would set up a ten-year, US\$1 billion China-UN Peace and Development Fund, which was officially put into operation in 2016. China has always been dedicated to resolving territorial and maritime delimitation disputes through negotiation and consultation. China has achieved full resolution of land border delimitation problems with 12 of its 14 neighboring countries, and delineated the China-Vietnam maritime boundary in the Beibu Gulf. This has broken new ground for settling inter-country issues carried over from history as well as other international disputes. China has played a constructive role in settling major international and regional issues.

China is a major contributor to the UN peacekeeping budget and the largest troop contributing country among the permanent members of the UN Security Council. By December 2018, China had participated in 24 UN peacekeeping operations and dispatched more than 39,000 troops, of whom 13 laid down their lives while on duty. In September 2015, China announced its decision to join the new UN Peacekeeping Capability Readiness System and build a peacekeeping standby force of 8,000 troops. Since December 2008, implementing a UN Security Council resolution, China has been sending naval fleets to conduct regular escort missions in the Gulf of Aden and waters off Somalia. China has also dispatched troops on international disaster relief and humanitarian aid missions.

...Over the six decades since China began to provide foreign assistance in the early 1950s, it has provided 166 countries and international organizations with nearly RMB400 billion in aid, and dispatched over 600,000 aid workers, of whom more than 700 sacrificed their lives for the development of other countries. On seven occasions, China has canceled debt from interest-free government loans to heavily indebted poor countries and the LDCs. China has provided medical aid to 69 countries in Asia, Africa, Latin America, the Caribbean and Oceania, and provided aid to more than 120 developing countries for implementing the United Nations Millennium Development Goals.



# China's 70<sup>th</sup> Anniversary White Paper on Strategy, Foreign Policy, Peace, (and U.S.) - II

## ...China will never seek hegemony

It is true that in the past, countries that grew strong have sought hegemony, but this is not a historical law. The conclusion is bound to be absurd and distorted if one judges China against the experience of some Western powers and applies their logic to China. China's pursuit of peaceful development is not diplomatic rhetoric, or an act of expediency, or a strategic ambiguity. Rather, it showcases China's confidence in thought and readiness for practice, and represents China's unswerving strategic choice and solemn commitment. China will never pursue hegemony or expansion, nor will it seek to create spheres of influence, no matter how international situation changes, how China develops itself.

...China takes the road of peaceful development, which comes from the profound heritage of Chinese civilization. Chinese civilization originated from inland and farming; it is a moderate and defensive civilization. With a history dating back more than 5,000 years, Chinese culture contains the cosmological view of the unity of man and nature, the international view of harmony between all countries, the social view of harmony in diversity, and the moral view of kindness and benevolence. Since ancient times, China has advocated that "the strong should not oppress the weak, and the rich should not abuse the poor", and "do not do to others what you do not want others to do to you", knowing that "a warlike state, however big it may be, will eventually perish". The Chinese nation does not have the gene to invade others and dominate the world. From the mid-19th century, China was abused by the Western powers and left with indelible memories of the suffering brought about by war and instability. It will never impose the suffering it has endured on other nations.

China's peaceful development comes from its understanding of the conditions for achieving development goals. Development is China's top priority. Over the past 70 years, China has benefited from a peaceful and stable external environment, and in the future it also needs such an external environment. The key to China's success lies in concentrating on running its own affairs well and realizing the mutual promotion of peace and development. Expansion and hegemony go against China's interests and the will of the people. It has always been China's unswerving national will to strive for a peaceful international environment favorable to its own development, and to better safeguard world peace and promote common development through its own.

China's peaceful development comes from a profound understanding of the general trend of world development. Today, countries are becoming a close-knit community of shared interests and future, and peace, development, cooperation, and mutual benefit are the trends of the times. Any country, big or small, strong or weak, can achieve sustainable development only if it participates in international cooperation on the basis of equality and mutual benefit. In contrast, pursuing hegemony and militarism will only consume national strength and lead to decline. In human history, the struggle for hegemony of the major powers has resulted in frequent wars, loss of life, setbacks for humanity, and even the retrogression of human civilization. The lessons have been painful and profound. Peace, development and stability, rather than war, poverty and chaos, are the true aspirations of the people of all countries. China's path of peaceful development is in line with the trend of history and the general trend of the world.

China has the right to development, and its people have the right to pursue a better life. As a country that suffered abuse and humiliation in the past, China aims to win dignity, security and a better life for its people through its own development. China naturally develops and becomes stronger, but does not want to threaten, challenge or replace any other country in the process, nor will it seek hegemony. China's future is in its own hands. It is the Chinese people who decide their own destiny. No one can deprive the Chinese people of their right to pursue a better life. No one can stop China from moving forward.

China is firmly committed to peaceful development and hopes that all countries in the world will do likewise. Only when countries take peaceful development paths can we develop and live peacefully together. China will never develop itself at the expense of others, nor will it give up its legitimate rights and interests. No foreign country should expect China to trade its core interests or to accept anything that is damaging to China's own sovereignty, security and development interests.

# China's 70<sup>th</sup> Anniversary White Paper on Strategy, Foreign Policy, Peace, (and U.S.) - III

...Major countries are an important force for safeguarding world peace and stability, and key actors in building a new model of international relations. Major countries should fulfill their responsibilities commensurate with their status. The international status of a country is measured by its openness of mind, breadth of vision, and sense of responsibility rather than its size, strength or power. Major countries should direct their primary efforts to the future of humanity and assume greater responsibilities for world peace and development, rather than wielding their power to seek hegemony in international and regional affairs. The course of human history shows that for the strategies of major countries to be successful they must follow the trends of the times and win wide recognition from other countries and peoples.

Only through cooperation based on mutual respect and mutual benefit can major countries sustain human progress. Coordination and cooperation should be strengthened to build a stable and balanced framework of relations among major countries, which underpins world peace and stability. Major countries should respect each other's core interests and major concerns, build deeper mutual understanding, and settle differences and disputes through constructive communication and consultation.

Big countries should treat small ones as equals rather than acting as hegemons imposing their will on others. No country should create havoc by launching ill-considered and arbitrary wars or undermining the international rule of law. Disputes and problems should be settled through dialogue and consultation on an equal footing and with the maximum sincerity and patience.

...Some countries have ascribed domestic governance problems to economic globalization or other countries, and resorted to unilateral, protectionist, and hegemonic actions. This approach has damaged the global value, supply and consumption chains, and caused turbulence and conflict in the current international trade order, driving the world economy towards the "recession trap".

We should not be intimidated by the problems encountered by economic globalization. Withdrawing from international organizations and treaties, decoupling foreign trade relations, and building border walls lead us nowhere. Our problems can only be solved through a process of reform and self-improvement. All countries should join forces to draw lessons from history, strengthen coordination, enhance governance, and make economic globalization more open, inclusive, balanced and beneficial to all.

A new model of economic globalization should be developed and shaped by all countries. It should make innovations and improvements based on those rules and institutions that have proven effective in practice, such as trade liberalization and multilateral trade. It should eliminate hegemonism, power politics, the law of the jungle, and zero-sum games, uphold the principles of extensive consultation, joint contribution and shared benefits, and realize democracy, equality, fairness and equity. It should help to build an open world economy, promote world peace and stability, and bring common development and prosperity

...The UN is at the core of the global governance system. The UN Charter is the fundamental cornerstone for maintaining stability of the international system and regulating relations among countries. The world is experiencing confrontation and injustice in many different forms, not because the purposes and principles of the UN Charter are outdated, but because they have not been effectively fulfilled. Upholding the authority and role of the UN is key to protecting the common interests of the international community and the legitimate interests of individual countries, and to shaping a bright future for humanity. Therefore, all countries should uphold the international system centered on the UN, international law and the basic norms of international relations underpinned by the purposes and principles of the UN Charter, and the central role of the UN in international affairs.

# China's 70<sup>th</sup> Anniversary White Paper on Strategy, Foreign Policy, Peace, (and U.S.) - IV

The multilateral trading system with the WTO at its core is the cornerstone of international trade. It has played a crucial role in promoting global trade, building an open world economy, and improving the wellbeing of the peoples of all countries. Unilateral and protectionist trade policies, which run counter to the laws of the market, international rules, and the basic principles of the WTO, will lead to shrinking global trade and may even trigger global economic crises. All countries should join together in support of multilateralism while firmly opposing unilateralism and protectionism. In building an open world economy, we should safeguard the WTO's core role and basic principles and the multilateral trading system characterized by free trade, openness and non-discrimination, and protect the legitimate rights and development space of developing member states.

The Paris Agreement on climate change, the Convention on Nuclear Safety, the Treaty on the Non-Proliferation of Nuclear Weapons, and other international treaties and agreements are based on the consensus of all parties and in accord with the interests of all countries. All signatories have the obligation to fulfill their commitments fully rather than selectively. Willful withdrawal from international organizations and treaties goes against the spirit of contract and international ethics. The rules should be observed in fairness and be mutually binding, and must not be compromised by "pragmatism" and double standards.

## **...Supporting multilateralism and upholding international equity and justice**

Equity and justice are the eternal goals of human society and the ultimate purpose of building a global community of shared future. In today's world, equity and justice remain distant dreams. The future of the world should be decided by the peoples of all countries and international affairs should be managed by all countries through consultation. China will remain committed to multilateralism, uphold international equity and justice, and work with other countries to promote democracy, the rule of law and a proper balance in international relations.

Supporting multilateralism is the common aspiration of the international community. In today's world, all countries have converging interests and share weal and woe, making the global trend towards multipolarity and democratic international relations irresistible. Gone are the days when the strong had the final say. As a founding member of the UN, a permanent member of the UN Security Council, and the largest developing country, China will continue to uphold the international system with the UN at its core and the international order underpinned by the purposes and principles of the UN Charter, and join forces with other countries in supporting multilateralism and opposing unilateralism. China advocates that whenever differences and disputes crop up between countries they should turn to consultation through multilateral frameworks or platforms, seek common ground while reserving differences, increase common interests while dissolving differences, and by doing so, broaden consensus and promote the peaceful settlement of differences and disputes. We oppose the calculated threat or use of force. China will remain committed to the multilateral trading system with the WTO at its core, and oppose unilateral conduct such as erecting walls between nations, undermining others, or withdrawing into isolation. We give active support to the WHO, WIPO, the International Telecommunication Union (ITU), and the International Labor Organization (ILO) in playing a better role in global governance.

Upholding equity and justice is China's basic principle in dealing with international issues. We respect the right of the peoples of all countries to choose their own development paths and social systems, respect the sovereignty and territorial integrity of all countries, and oppose interference in others' domestic affairs. China will never impose its will on other countries, nor will it allow others to impose theirs on the Chinese people. We will never interfere in the domestic affairs of others, nor will we allow any country or force to interfere in ours. China stands for the equality of all countries, big or small, strong or weak, rich or poor, and opposes the law of the jungle that leaves the weak at the mercy of the strong. We resolutely reject hegemonic thinking and power politics, and strive to increase the representation and voice of developing countries in international affairs. China will undertake more international responsibilities, work with other countries to safeguard human conscience and international truth, and uphold equity and justice in regional and international affairs. We will continue to advocate and implement our principles concerning major international and regional issues:

# China's 70<sup>th</sup> Anniversary White Paper on Strategy, Foreign Policy, Peace, (and U.S.) - IV

- No country should interfere in other countries' internal affairs or impose its will on others;
- Countries concerned should act in an impartial and objective manner and refrain from seeking selfish interests;
- Political solutions, not the use of force, should be sought in addressing differences and disputes.

China believes that a fair judgment should be made on each issue on its own merits. We will promote peace talks, maintain stability, prevent disorder, exhibit no partiality, seek no selfish gains, and play a constructive role in ensuring regional and international peace and tranquility.

## **...Taking a lead in reforming and developing the global governance system**

It is the common aspiration of countries around the world to make global governance fairer and more equitable, and fulfill the principles of extensive consultation, joint contribution and shared benefits. As a major and responsible country, China will continue to enjoy its rights in balance with fulfilling its obligations, taking account of both its requirements of the world and the international community's expectations for China. We will take an active part in reforming and developing the global governance system. As a participant in, builder of, and contributor to that system, China hopes to help the system move with the times through innovation and improvement, rather than reinvent the wheel.



# *The 2015 Defense White Paper*

# China's 2015 Defense White Paper

China has issued a long series of Defense White Papers. The official English language translations of the most recent papers from 2010 onwards are available at the web site of the State Council of the People's Republic of China at <http://english.gov.cn/archive/whitepaper/>. The following quotations show that the 2015 Defense White Paper still stressed cooperation and win-win relations with outside powers. It avoided directly addressing competition with the United States – although many of its statements regarding its global security situation – such as its focus on Taiwan and U.S. “rebalancing” to Asia – did refer to the United States. Accordingly, the White Paper does more to hint at competition with the United States than to directly address the degree to which that became a major strategic objective.

The 2015 Defense White Paper did, however, stress levels of military reform that China had now been pursuing for some years, and which is greatly strengthening China's military position as a growing superpower. China used its own phrasing to describe joint warfare, the impact of modern airpower and missile strikes, the need to create advanced sensors and integrated digital battle management, and the importance of force quality relative to force mass. However, China had clearly learned from U.S. performance in these areas during the first Gulf War in 1991, and from the U.S. invasion of Iraq 2003, and the sections of this report that follow show the degree to which China has made progress in these areas before and since the 2015 White Paper was issued.

The following quotes from China's 2019 defense White Paper — and the charts and tables that cover Chinese security developments in the military sections later in this report — make it clear that China has progressively followed up on the 2015 White Paper by creating smaller, but much better integrated and modernized military forces. At the same time, China has shaped its modernization plans to maintain an emphasis on hybrid warfare and the use of military forces to achieve political goals as tools of influence and intimidation and ways of avoiding actual fighting. China also has fully recognized the importance of space and cyber warfare, the extent to which missile forces may be able to replace manned airpower, and the extent to which China must extend its military reach deep into the South China Sea and a “Second Island Chain” to counter U.S. forces in the Western Pacific.

# China's Grand Strategic Goals: 2015 Defense White Paper - I

China's national strategic goal is to complete the building of a moderately prosperous society in all respects by 2021 when the CPC celebrates its centenary; and the building of a modern socialist country that is prosperous, strong, democratic, culturally advanced and harmonious by 2049 when the People's Republic of China (PRC) marks its centenary.

It is a Chinese Dream of achieving the great rejuvenation of the Chinese nation. The Chinese Dream is to make the country strong. China's armed forces take their dream of making the military strong as part of the Chinese Dream. Without a strong military, a country can be neither safe nor strong.

In the new historical period, aiming at the CPC's goal of building a strong military in the new situation, China's armed forces will unswervingly adhere to the principle of the CPC's absolute leadership, uphold combat effectiveness as the sole and fundamental standard, carry on their glorious traditions, and work to build themselves into a people's military that follows the CPC's commands, can fight and win, and boasts a fine style of work.

In the new circumstances, the national security issues facing China encompass far more subjects, extend over a greater range, and cover a longer time span than at any time in the country's history. Internally and externally, the factors at play are more complex than ever before. Therefore, it is necessary to uphold a holistic view of national security, balance internal and external security, homeland and citizen security, traditional and non-traditional security, subsistence and development security, and China's own security and the common security of the world.

...In today's world, the global trends toward multipolarity and economic globalization are intensifying, and an information society is rapidly coming into being. Countries are increasingly bound together in a community of shared destiny. Peace, development, cooperation, and mutual benefit have become an irresistible tide of the times.

Profound changes are taking place in the international situation, as manifested in the historic changes in the balance of power, global governance structure, Asia-Pacific geostrategic landscape, and international competition in the economic, scientific and technological, and military fields. The forces for world peace are on the rise; so are the factors against war. In the foreseeable future, a world war is unlikely, and the international situation is expected to remain generally peaceful. There are, however, new threats from hegemonism, power politics, and neointerventionism. International competition for the redistribution of power, rights, and interests is tending to intensify. Terrorist activities are growing increasingly worrisome. Hotspot issues, such as ethnic, religious, border, and territorial disputes, are complex and volatile. Small-scale wars, conflicts, and crises are recurrent in some regions. Therefore, the world still faces both immediate and potential threats of local wars.

With a generally favorable external environment, China will remain in an important period of strategic opportunities for its development, a period in which much can be achieved. China's comprehensive national strength, core competitiveness and risk-resistance capacity are notably increasing, and China enjoys growing international standing and influence. Domestically, the Chinese people's standard of living has remarkably

# China's Grand Strategic Goals: 2015 Defense White Paper II

improved, and Chinese society remains stable. China, as a large developing country, still faces multiple and complex security threats, as well as increasing external impediments and challenges. Subsistence and development security concerns, as well as traditional and nontraditional security threats, are interwoven. Therefore, China has an arduous task to safeguard its national unification, territorial integrity and development interests.

...As the world economic and strategic center of gravity is shifting ever more rapidly to the Asia-Pacific region, the U.S. carries on in its 'rebalancing' strategy and enhances its military presence and its military alliances in this region. Japan is sparing no effort to dodge the postwar mechanism, overhauling its military and security policies. Such development has caused grave concerns among other countries in the region. On the issues concerning China's territorial sovereignty and maritime rights and interests, some of its offshore neighbors take provocative actions and reinforce their military presence on China's reefs and islands that they have illegally occupied. Some external countries are also busy meddling in South China Sea affairs; a tiny few maintain constant close-in air and sea surveillance and reconnaissance against China. It is thus a longstanding task for China to safeguard its maritime rights and interests. Certain disputes over land territory are still smoldering. The Korean Peninsula and Northeast Asia are shrouded in instability and uncertainty. Regional terrorism, separatism, and extremism are rampant. All these have a negative impact on the security and stability along China's periphery.

The Taiwan issue bears on China's reunification and long-term development, and reunification is an inevitable trend in the course of national rejuvenation. In recent years, cross-Taiwan Strait relations have sustained a sound momentum of peaceful development, but the root cause of instability has not yet been removed, and the 'Taiwan independence' separatist forces and their activities are still the biggest threat to the peaceful development of cross-strait relations. Further, China faces a formidable task to maintain political security and social stability. Separatist forces for 'East Turkistan independence' and 'Tibet independence' have inflicted serious damage, particularly with escalating violent terrorist activities by East Turkistan independence forces. Besides, anti-China forces have never given up their attempt to instigate a 'color revolution' in this country. Consequently, China faces more challenges in terms of national security and social stability. With the growth of China's national interests, its national security is more vulnerable to international and regional turmoil, terrorism, piracy, serious natural disasters and epidemics, and the security of overseas interests concerning energy and resources, strategic sea lines of communication (SLOCs), as well as institutions, personnel, and assets abroad, has become an imminent issue.

...The world revolution in military affairs (RMA) is proceeding to a new stage. Long-range, precise, smart, stealthy, and unmanned weapons and equipment are becoming increasingly sophisticated. Outer space and cyberspace have become new commanding heights in strategic competition among all parties. The form of war is accelerating its evolution to informatization. World major powers are actively adjusting their national security strategies and defense policies and speeding up their military transformation and force restructuring. The aforementioned revolutionary changes in military technologies and the form of war have not only had a significant impact on the international political and military landscapes but also pose new and severe challenges to China's military security.

# China's Grand Strategic Goals: 2015 Defense White Paper III

...In the spirit of neighborhood diplomacy of friendship, sincerity, reciprocity, and inclusiveness, China's armed forces will further develop relations with their counterparts in neighboring countries. Also, they will work to raise the level of military relations with European counterparts [and] continue the traditional friendly military ties with their African, Latin American, and Southern Pacific counterparts. China's armed forces will work to further defense and security cooperation in the Shanghai Cooperation Organization and continue to participate in multilateral dialogues and cooperation mechanisms, such as the Association of Southeast Asian Nations (ASEAN) Defense Ministers' Meeting Plus, ASEAN Regional Forum, Shangri-La Dialogue, Jakarta International defense Dialogue, and Western Pacific Naval Symposium. The Chinese military will continue to host multilateral events like the Xiangshan Forum, striving to establish a new framework for security and cooperation conducive to peace, stability, and prosperity in the Asia-Pacific region.

# China on Preparing for War: 2015 Defense White Paper

Preparation for military struggle (PMS) is a basic military practice and an important guarantee for safeguarding peace, containing crises and winning wars. To expand and intensify PMS, China's armed forces must meet the requirement of being capable of fighting and winning, focus on solving major problems and difficulties, and do solid work and make relentless efforts in practical preparations, in order to enhance their overall capabilities for deterrence and warfighting.

Enhancing capabilities for system-vs-system operations based on information systems. China's armed forces will quicken their steps to transform the generating mode of combat effectiveness, work to use information systems to integrate a wide range of operational forces, modules and elements into overall operational capacity, and gradually establish an integrated joint operational system in which all elements are seamlessly linked and various operational platforms perform independently and in coordination. China's armed forces will endeavor to address the pressing problems constraining the capabilities for system-vs-system operations. They will make further exploration and more efficient utilization of information resources, strengthen the building of the systems of reconnaissance, early-warning and command and control, develop medium- and long-range precision strike capabilities, and improve the comprehensive support systems. In accordance with the requirement of being authoritative, streamlined, agile and efficient, they will strive to establish and improve the CMC command organ and theater-level command systems for joint operations.

Pushing ahead with PMS in all directions and domains. Due to its complex geostrategic environment, China faces various threats and challenges in all its strategic directions and security domains. Therefore, PMS must be carried out in a well-planned, prioritized, comprehensive and coordinated way, so as to maintain the balance and stability of the overall strategic situation. China's armed forces will make overall planning for PMS in both traditional and new security domains, and get ready to safeguard national sovereignty and security, protect the country's maritime rights and interests, and deal with armed conflicts and emergencies. To adapt to the upgrading of weaponry and equipment as well as changes of operational patterns, China's armed forces will further optimize battlefield disposition and strengthen strategic prepositioning.

Maintaining constant combat readiness. China's armed forces will continue to improve its routine combat readiness, maintain a posture of high alertness, and conscientiously organize border, coastal and air defense patrols and guard duties. The PLAA will improve its combat readiness system with inter-connected strategic directions, combined arms and systematized operational support, so as to ensure agile maneuvers and effective response. The PLAN will continue to organize and perform regular combat readiness patrols and maintain a military presence in relevant sea areas. The PLAAF will continue to observe the principles of applicability in peacetime and wartime, all-dimensional response and full territorial reach, and maintain vigilant and efficient combat readiness. The PLASAF will continue to keep an appropriate level of vigilance in peacetime. By observing the principles of combining peacetime and wartime demands, maintaining all time vigilance and being action-ready, it will perfect the integrated, functional, agile and efficient operational duty system.

Enhancing realistic military training. The PLA will continue to attach strategic importance to combat training in realistic conditions, and strictly temper the troops according to the Outline of Military Training and Evaluation (OMTE). It will constantly innovate operational and training methods, improve military training criteria and regulations, and work to build large-scale comprehensive training bases in an effort to provide real-combat environments for training. The PLA will continue to conduct live-setting training, IT-based simulated training, and face-on-face confrontation training in line with real-combat criteria, and strengthen command post training and joint and combined training. It will intensify training in complex electro-magnetic environments, complex and unfamiliar terrains, and complex weather conditions. It will also set up a training supervision and inspection system, so as to incorporate real-combat requirements into training.

# China on Preparing for War: 2015 Defense White Paper

Preparing for military operations other than war (MOOTWs). As a necessary requirement for China's armed forces to fulfill their responsibilities and missions in the new period as well as an important approach to enhancing their operational capabilities, the armed forces will continue to conduct such MOOTWs as emergency rescue and disaster relief, counter-terrorism and stability maintenance, rights and interests protection, guard duty, international peacekeeping, and international humanitarian assistance and disaster relief (HADR). They will work to incorporate MOOTW capacity building into military modernization and PMS, and pay special attention to establishing emergency command mechanisms, building emergency forces, training professionals, supporting task-specific equipment, and formulating relevant policies and regulations. Military emergency-response command systems will be tuned into state emergency management mechanisms. China's armed forces will persist in unified organization and command, scientific employment of forces, rapid and efficient actions, and strict observation of related policies and regulations.

# *The 2019 Defense White Paper*



# China's 2019 Defense White Paper

China's 2019 defense white paper — *China's National Defense in the New Era* — was issued on July 22nd in both Chinese and English. Unlike China's previous defense white papers — the most recent of which came out in 2015 and was often blandly reassuring to the point of being vacuous — the 2019 White Paper picks up the gauntlet that the U.S. threw down in its 2017 *National Security Strategy* and 2018 *National Defense Strategy*. Both of these documents effectively made China the key objective in strengthening U.S. military forces and single it out as America's primary strategic competitor.

While the *China's National Defense in the New Era* does make broad claims that China's strategy is entirely peaceful, many other portions of the paper show that it is clearly a response to the shift in U.S. strategy from a focus on counterterrorism and extremism to one competition and possible conflict with China and Russia. The 2019 White Paper flags the fact that America and China are now competing superpowers, and that China's growing military forces are developing to the point where they will be able to challenge the United States. More than that, the following sections of this report show that many aspects of detailed contents of the White Paper are a direct response to the official U.S. reports on *Chinese Military Power* issued by the Office of the Secretary of Defense and by the Defense Intelligence Agency.

The new Chinese White Paper touches on every key point in the 2019 versions of these two U.S. reports, and portrays the Chinese actions they describe as threats as just and peaceful. It summarizes the overall character of United States defense efforts by declaring that,

International strategic competition is on the rise. The US has adjusted its national security and defense strategies, and adopted unilateral policies. It has provoked and intensified competition among major countries, significantly increased its defense expenditure, pushed for additional capacity in nuclear, outer space, cyber and missile defense, and undermined global strategic stability. NATO has continued its enlargement, stepped up military deployment in Central and Eastern Europe, and conducted frequent military exercises.

It describes China as trying to bring Asia together in peaceful cooperation through organization like the Shanghai Cooperation Council, the China-ASEAN Defense Ministers' Informal Meeting, and the ASEAN Defense Ministers' Meeting Plus (ADMM-Plus). In contrast, the Chinese White Paper states that,

the region has become a focus of major country competition, bringing uncertainties to regional security. The US is strengthening its Asia-Pacific military alliances and reinforcing military deployment and intervention, adding complexity to regional security. The deployment of the Terminal High Altitude Area Defense (THAAD) system in the Republic of Korea (ROK) by the US has severely undermined the regional strategic balance and the strategic security interests of regional countries.

It describes Taiwan, Tibetan, and Turkistan separatists as China's main threats, the dangers of disputes over territory, and again highlights the U.S. by noting that, "Countries from outside the region conduct frequent close-in reconnaissance on China by air and sea, and illegally enter China's territorial waters and the waters and airspace near China's islands and reefs, undermining China's national security."

The Chinese White Paper also describes the modernization and expansion of Chinese military forces as being almost totally defensive: “China’s military security is confronted by risks from technology surprise and growing technological generation gap. Greater efforts have to be invested in military modernization to meet national security demands. The PLA still lags far behind the world’s leading militaries.” It also declares that,

Though a country may become strong, bellicosity will lead to its ruin. The Chinese nation has always loved peace. Since the beginning of modern times, the Chinese people have suffered from aggressions and wars, and have learned the value of peace and the pressing need for development. Therefore, China will never inflict such sufferings on any other country. Since its founding 70 years ago, the People’s Republic of China (PRC) has never started any war or conflict. Since the introduction of reform and opening-up, China has been committed to promoting world peace, and has voluntarily downsized the PLA by over 4 million troops. China has grown from a poor and weak country to be the world’s second largest economy neither by receiving handouts from others nor by engaging in military expansion or colonial plunder. Instead, it has developed through its people’s hard work and its efforts to maintain peace. China has made every effort to create favorable conditions for its development through maintaining world peace, and has equally endeavored to promote world peace through its own development. China sincerely hopes that all countries will choose the path of peaceful development and jointly prevent conflicts and wars.

The White Paper portrays the U.S. as the power that is making sweeping increase in military spending and is the more aggressive power. It totally ignores the comparative rises in actual U.S. and Chinese military expenditures, and the fact that the fact that China only reports a limited part of its true military expenditures. It instead claims that the U.S. is spending 2.7 times more of its economy (3.5% of GDP vs. 1.3% for China) on military forces, and nearly twice the percentage of its total government expenditures (9.8% vs. 5.3%).

At the same time, the defense White Paper goes on to address virtually every major aspect of Chinese military activity and development as peaceful. For example, it deals with the South China Sea issue by stating that,

China’s armed forces defend important waters, islands and reefs in the East China Sea, the South China Sea and the Yellow Sea, acquire full situation awareness of adjacent waters, conduct joint rights protection and law enforcement operations, properly handle maritime and air situations, and resolutely respond to security threats, infringements and provocations on the sea. Since 2012, China’s armed forces have deployed vessels on over 4,600 maritime security patrols and 72,000 rights protection and law enforcement operations, and safeguarded maritime peace, stability and order...China’s armed forces conduct air defense, reconnaissance and early warning, monitor China’s territorial air and peripheral air space, carry out alert patrols and combat takeoff, and effectively respond to emergencies and threats to maintain order and security in the air...Aiming at safeguarding national unity, China’s armed forces strengthen military preparedness with emphasis on the sea. By sailing ships and flying aircraft around Taiwan, the armed forces send a stern warning to the “Taiwan independence” separatist forces.

Yet, it is also important to note that in some ways, the Chinese White Paper is more moderate in its treatment of the U.S. than the U.S. strategy papers issue in 2017 and 2018 were in discussing military developments in China,

China actively and properly handles its military relationship with the US in accordance with the principles of non-conflict, non-confrontation, mutual respect and win-win cooperation. It strives to make the military-to-military relationship a stabilizer for the relations between the two countries and hence contribute to the China-US relationship based on coordination, cooperation and stability. In 2014, China’s Ministry of National Defense (MND) and the US Department of Defense

signed the *Memorandum of Understanding on Notification of Major Military Activities and Confidence-Building Measures Mechanism* and the *Memorandum of Understanding Regarding the Rules of Behavior for Safety of Air and Maritime Encounters*. In 2015, the two countries agreed on the annexes on the military crisis notification mechanism and the rules of behavior for safety in air-to-air encounters. In 2017, the two countries established a diplomatic and security dialogue and joint staff dialogue mechanism with a view to actively strengthening strategic communication and managing risks and differences. The two militaries carry out institutionalized exchanges between the defense authorities, armies, navies and air forces, as well as practical cooperation in HADR, counter-piracy, and exchanges between academic institutions. China resolutely opposes the wrong practices and provocative activities of the US side regarding arms sales to Taiwan, sanctions on the CMC Equipment Development Department and its leadership, illegal entry into China's territorial waters and maritime and air spaces near relevant islands and reefs, and wide-range and frequent close-in reconnaissance. However, in China-US relations, the military-to-military relationship remains the generally stable one.

One does not have to read between the lines of the White Paper to see that *China's National Defense in a New Era* does identify China as a major strategic competitor to the United States. The text is very careful, however, to limit the level of this competition, and its wording makes it clear that China understands the risks involved. While no major policy document issued by any country has ever been able to fully separate rhetoric from reality, the Chinese White Paper does spend the last five pages of its text describing Chinese efforts to improve regional cooperation, and some are clearly real. The White Paper does not even hint at the level of ideological competition that drove the Cold War between the Soviet Union and the West. And, as important as many security issues are between the U.S. and China, no issue other than Taiwan is discussed in ways that approach the point of being so critical in terms of Chinese strategic interests that it indicates a willingness to escalate to any form of serious conflict.

Seen from this perspective, the Chinese White Paper — like the two recent U.S. national strategy documents cited at the start of this commentary — is a clear warning of growing strategic rivalry between an existing and emerging super power that already is stronger than Russia in virtually every respect other than its number of nuclear weapons. It is a warning that will shape the future of both the China and the U.S. for decades to come.

The White Paper is not, however, an indication that some mix of U.S. and Chinese cooperation and competition has to evolve into major conflict. As such, the U.S. should respond by strengthening its level of deterrence and its strategic partnerships in Asia, but it should also find every possible opportunity for cooperation with China and to limit the military and civil competition between the two countries to peaceful forms where the end result can benefit both powers to at least some extent. If nothing else, *China's National Defense in a New Era* is a clear warning that a failure to do so will increase the level of risk to both powers indefinitely into the future.

# ***China's National Defense in the New Era, 2019 White Paper on Strategy - I***

The socialist system of China, the strategic decision to follow the path of peaceful development, the independent foreign policy of peace, and the best of cultural traditions – considering peace and harmony as fundamentals – determine that China will pursue a national defense policy that is defensive in nature.

## **Resolutely Safeguarding China's Sovereignty, Security and Development Interests**

This is the fundamental goal of China's national defense in the new era.

China's national defense aims:

- to deter and resist aggression;
- to safeguard national political security, the people's security and social stability;
- to oppose and contain "Taiwan independence";
- to crack down on proponents of separatist movements such as "Tibet independence" and the creation of "East Turkistan";
- to safeguard national sovereignty, unity, territorial integrity and security;
- to safeguard China's maritime rights and interests;
- to safeguard China's security interests in outer space, electromagnetic space and cyberspace;
- to safeguard China's overseas interests; and
- to support the sustainable development of the country.

China resolutely safeguards its national sovereignty and territorial integrity. The South China Sea islands and Diaoyu Islands are inalienable parts of the Chinese territory. China exercises its national sovereignty to build infrastructure and deploy necessary defensive capabilities on the islands and reefs in the South China Sea, and to conduct patrols in the waters of Diaoyu Islands in the East China Sea. China is committed to resolving related disputes through negotiations with those states directly involved on the basis of respecting historical facts and international law. China continues to work with regional countries to jointly maintain peace and stability. It firmly upholds freedom of navigation and overflight by all countries in accordance with international law and safeguards the security of sea lines of communication (SLOCs).

To solve the Taiwan question and achieve complete reunification of the country is in the fundamental interests of the Chinese nation and essential to realizing national rejuvenation. China adheres to the principles of "peaceful reunification", and "one country, two systems",

\* Source: *China's National Defense in a New Era*, July 2019, <http://www.xinhuanet.com/english/download/whitepaperonnationaldefenseinnewera.doc>

## ***China's National Defense in the New Era, 2019 White Paper on Strategy - II***

promotes peaceful development of cross-Straits relations, and advances peaceful reunification of the country. Meanwhile, China resolutely opposes any attempts or actions to split the country and any foreign interference to this end. China must be and will be reunited. China has the firm resolve and the ability to safeguard national sovereignty and territorial integrity, and will never allow the secession of any part of its territory by anyone, any organization or any political party by any means at any time. We make no promise to renounce the use of force, and reserve the option of taking all necessary measures. This is by no means targeted at our compatriots in Taiwan, but at the interference of external forces and the very small number of "Taiwan independence" separatists and their activities. The PLA will resolutely defeat anyone attempting to separate Taiwan from China and safeguard national unity at all costs.

### **Never Seeking Hegemony, Expansion or Spheres of Influence**

This is the distinctive feature of China's national defense in the new era...Though a country may become strong, bellicosity will lead to its ruin. The Chinese nation has always loved peace. Since the beginning of modern times, the Chinese people have suffered from aggressions and wars, and have learned the value of peace and the pressing need for development. Therefore, China will never inflict such sufferings on any other country. Since its founding 70 years ago, the People's Republic of China (PRC) has never started any war or conflict. Since the introduction of reform and opening-up, China has been committed to promoting world peace, and has voluntarily downsized the PLA by over 4 million troops. China has grown from a poor and weak country to be the world's second largest economy neither by receiving handouts from others nor by engaging in military expansion or colonial plunder. Instead, it has developed through its people's hard work and its efforts to maintain peace. China has made every effort to create favorable conditions for its development through maintaining world peace, and has equally endeavored to promote world peace through its own development. China sincerely hopes that all countries will choose the path of peaceful development and jointly prevent conflicts and wars.

China is committed to developing friendly cooperation with all countries on the basis of the Five Principles of Peaceful Coexistence. It respects the rights of all peoples to independently choose their own development path, and stands for the settlement of international disputes through equal dialogue, negotiation and consultation. China is opposed to interference in the internal affairs of others, abuse of the weak by the strong, and any attempt to impose one's will on others. China advocates partnerships rather than alliances and does not join any military bloc. It stands against aggression and expansion, and opposes arbitrary use or threat of arms. The development of China's national defense aims to meet its rightful security needs and contribute to the growth of the world's peaceful forces. History proves and will continue to prove that China will never follow the beaten track of big powers in seeking hegemony. No matter how it might develop, China will never threaten any other country or seek any sphere of influence.

### **Implementing the Military Strategic Guideline for a New Era**

This is the strategic guidance for China's national defense in the new era. The military strategic guideline for a new era adheres to the principles of defense, self-defense and post-strike response, and adopts active defense. It keeps to the stance

## ***China's National Defense in the New Era, 2019 White Paper on Strategy - III***

that “we will not attack unless we are attacked, but we will surely counterattack if attacked”, places emphasis on both containing and winning wars, and underscores the unity of strategic defense and offense at operational and tactical levels.

Implementing the military strategic guideline for a new era, China's armed forces strive to keep in alignment with and contribute to the general strategies of the Communist Party of China (CPC) and the country, adopt a holistic approach to national security, strengthen the awareness of potential dangers, crises and wars, and actively adapt to the new landscape of strategic competition, the new demands of national security, and new developments in modern warfare, so as to effectively fulfill their tasks and missions in the new era.

To respond to the security threats facing the country, China's armed forces take solid steps to strengthen military preparedness and comprehensively enhance combat capabilities for the new era. Efforts have been made to build the military strategy into a balanced and stable one for the new era, which focuses on defense and coordinates multiple domains. Based on the idea that China's national defense is the responsibility of all Chinese people, China's armed forces give full play to the overall power of the people's war by innovating in its strategies, tactics and measures.

China is always committed to a nuclear policy of no first use of nuclear weapons at any time and under any circumstances, and not using or threatening to use nuclear weapons against non-nuclear-weapon states or nuclear-weapon-free zones unconditionally. China advocates the ultimate complete prohibition and thorough destruction of nuclear weapons. China does not engage in any nuclear arms race with any other country and keeps its nuclear capabilities at the minimum level required for national security. China pursues a nuclear strategy of self-defense, the goal of which is to maintain national strategic security by deterring other countries from using or threatening to use nuclear weapons against China.

### **Continuing to Strengthen the Military in the Chinese Way**

This is the path forward for China's national defense in the new era.

Building a fortified national defense and a strong military commensurate with the country's international standing and its security and development interests is a strategic task for China's socialist modernization. Drawing lessons from history, China strengthens its national defense and military to provide security guarantee for its peaceful development.

To strengthen China's national defense and military in the new era, it is imperative to comprehensively implement Xi Jinping's thinking on strengthening the military, thoroughly deliver on Xi Jinping's thinking on military strategy, continue to enhance the political loyalty of the armed forces, strengthen them through reform and technology, run them in accordance with the law, and focus on the capabilities to fight and win. Efforts will be made to advance the integrated development of mechanization and informationization, speed up the development of intelligent military, create a modernized military force structure with Chinese characteristics, improve and develop socialist military institutions with Chinese features, and constantly enhance the capabilities to fulfill the missions and tasks in the new era.

# ***China's National Defense in the New Era, 2019 White Paper on Strategy - IV***

The strategic goals for the development of China's national defense and military in the new era are:

- to generally achieve mechanization by the year 2020 with significantly enhanced informationization and greatly improved strategic capabilities;
- to comprehensively advance the modernization of military theory, organizational structure, military personnel, and weaponry and equipment in step with the modernization of the country and basically complete the modernization of national defense and the military by 2035; and
- to fully transform the people's armed forces into world-class forces by the mid-21st century.

## **In the Service of Building of a Community with a Shared Future for Mankind**

This is the global significance of China's national defense in the new era.

The dream of the Chinese people is closely connected with the dreams of peoples around the world. Peace, stability and prosperity in China present opportunities and benefits to the rest of the world. A strong military of China is a staunch force for world peace, stability and the building of a community with a shared future for mankind.

China's armed forces advocate common, comprehensive, cooperative and sustainable security, uphold justice while pursuing shared interests, and actively participate in the reform of global security governance system. Efforts are made to deepen bilateral and multilateral security cooperation, promote a coordinated, inclusive and complementary cooperation among security mechanisms, and contribute to a security architecture featuring equality, mutual trust, fairness, justice, joint contribution and shared benefits.

Committed to the principle of win-win cooperation, China's armed forces will fulfill their international responsibilities and obligations, and provide more public security goods to the international community to the best of their capacity. They actively participate in the UN peacekeeping operations (UNPKOs), vessel protection operations, and international efforts in humanitarian assistance and disaster relief (HADR), strengthen international cooperation in arms control and non-proliferation, play a constructive role in the political settlement of hotspot issues, jointly maintain the security of international passages, and make concerted efforts to respond to global challenges such as terrorism, cyber security and major natural disasters, thus making a positive contribution to building a community with a shared future for mankind.

# **The Shifting Chinese Strategic View of the U.S.: 2015-2019**



# How Chinese White Papers View the U.S.: 2015-2019

There are four Chinese White Papers where quotes provide insights into its evolving view of the United States and the prospect for future competition. These are quotes that every American should consider in evaluating the quotes from official U.S. strategy documents in the sections that follow. China's emergence does pose a real potential threat to the U.S., but if both sides pursue a strategy of even indirect confrontation the results can be all too dangerous. It is also critical for each side to pay close attention to what the other is actually saying.

Two of these documents include the 2015 Defense White Paper and the 2019 Defense White Paper that have been mentioned earlier. However, China has issued two other White Papers that reflect views of its competition with the U.S. – one from its Foreign Ministry in 2017 that still stresses cooperation, another from China's State Council on trade that takes a far harder line on competition with the U.S. as a result of the growing trade war between the U.S. and China in 2019, and the 2019 Defense White Paper discussed earlier.

As is the case with the changes in U.S. strategy towards China that are described in the following section, it is far from clear that the changes in either Chinese or U.S. grand strategy and force postures are intended to go beyond strategic competition and deterrence. Both nations seem to recognize that it is one thing to use military and economic power to struggle for comparative advantage, and quite another to go to a level of war that would be immensely costly to both powers.

Here it's worth pointing out that both Sun Tzu and Clausewitz had key values in common in spite of their very different times and cultures. Both clearly recognized that the purpose of war was to achieve lasting advantages in peace, and that wars that could not produce this result could only be justified as part of a necessary defensive action. Wars that cannot win the peace cannot not be "won" in grand strategic terms.

# China's View of the U.S.: The Chinese 2015 Defense White Paper

China, as a large developing country, still faces multiple and complex security threats, as well as increasing external impediments and challenges. Subsistence and development security concerns, as well as traditional and non-traditional security threats are interwoven. Therefore, China has an arduous task to safeguard its national unification, territorial integrity and development interests.

As the world economic and strategic center of gravity is shifting ever more rapidly to the Asia-Pacific region, the US carries on its “rebalancing” strategy and enhances its military presence and its military alliances in this region. Japan is sparing no effort to dodge the post-war mechanism, overhauling its military and security policies. Such development has caused grave concerns among other countries in the region.

On the issues concerning China's territorial sovereignty and maritime rights and interests, some of its offshore neighbors take provocative actions and reinforce their military presence on China's reefs and islands that they have illegally occupied. Some external countries are also busy meddling in South China Sea affairs; a tiny few maintain constant close-in air and sea surveillance and reconnaissance against China. It is thus a long-standing task for China to safeguard its maritime rights and interests. Certain disputes over land territory are still smoldering. The Korean Peninsula and Northeast Asia are shrouded in instability and uncertainty. Regional terrorism, separatism and extremism are rampant. All these have a negative impact on the security and stability along China's periphery.

The Taiwan issue bears on China's reunification and long-term development, and reunification is an inevitable trend in the course of national rejuvenation. In recent years, cross-Taiwan Straits relations have sustained a sound momentum of peaceful development, but the root cause of instability has not yet been removed, and the “Taiwan independence” separatist forces and their activities are still the biggest threat to the peaceful development of cross-Straits relations.

Further, China faces a formidable task to maintain political security and social stability. Separatist forces for “East Turkistan independence” and “Tibet independence” have inflicted serious damage, particularly with escalating violent terrorist activities by “East Turkistan independence” forces.

Besides, anti-China forces have never given up their attempt to instigate a “color revolution” in this country. Consequently, China faces more challenges in terms of national security and social stability. With the growth of China's national interests, its national security is more vulnerable to international and regional turmoil, terrorism, piracy, serious natural disasters and epidemics, and the security of overseas interests concerning energy and resources, strategic sea lines of communication (SLOCs), as well as institutions, personnel and assets abroad, has become an imminent issue.

The world revolution in military affairs (RMA) is proceeding to a new stage. Long-range, precise, smart, stealthy and unmanned weapons and equipment are becoming increasingly sophisticated. Outer space and cyber space have become new commanding heights in strategic competition among all parties. The form of war is accelerating its evolution to informationization. World major powers are actively adjusting their national security strategies and defense policies, and speeding up their military transformation and force restructuring. The aforementioned revolutionary changes in military technologies and the form of war have not only had a significant impact on the international political and military landscapes, but also posed new and severe challenges to China's military security.

# China's View of the U.S.: Chinese Foreign Ministry 2017 White Paper

Since 2015 the overall relationship between China and the United States has remained stable and even made new progress. The two countries have maintained close contacts at the leadership and other levels. President Xi Jinping paid a state visit to the US at the invitation of President Barack Obama in September 2015, and met him again during the UN Climate Change Conference in Paris in November of the same year. In late March 2016 the two presidents had a successful meeting during the Nuclear Security Summit in Washington. In September they met again during the G20 Hangzhou Summit, and committed themselves to building a new model of a major-country relationship. Premier Li Keqiang met President Obama when attending high-level meetings of the 71st Session of the UN General Assembly. In June the same year the Eighth Round of the China-US Strategic and Economic Dialogue, the Seventh China-US High-Level Consultation on People-to-People Exchanges, and the Second China-US High-Level Joint Dialogue on Cybercrime and Related Issues were held in Beijing, and achieved fruitful results. In addition, the two countries have made steady progress in practical cooperation in various fields, and maintained close communication and coordination on major regional and global issues like climate change, the Korean and Iranian nuclear issues, Syria, and Afghanistan.

The two countries have maintained communication and coordination in the field of Asia-Pacific affairs through bilateral exchanges and relevant mechanisms at all levels, and agreed to build a bilateral relationship of positive interaction and inclusive cooperation in the region. The two countries have stayed in a state of communication and cooperation on regional and global affairs, including climate change, counter-terrorism, marine environmental protection, combating wild life smuggling, and disaster prevention and reduction within multilateral frameworks such as APEC, East Asia Summit (EAS), and ASEAN Regional Forum (ARF). Moreover, the two sides have smoothly carried out trilateral personnel and agriculture training cooperation projects in Afghanistan and Timor-Leste.

China-US military relations have generally maintained a momentum of steady progress. Since 2015 the two militaries have continued to improve their two mutual-confidence-building mechanisms: the Mutual Notification of Major Military Activities and the Rules of Behavior for the Safety of Air and Maritime Encounters. In 2015 they held their Joint Humanitarian Assistance and Disaster-Relief Field Exercise and Disaster Management Exchanges in China and the US, respectively, and participated in Khaan Quest 2015 multinational peacekeeping military exercise and Exercise Kowari, a China-US-Australia trilateral military exercise.

In January 2016 a working meeting of officials from the two ministries of defense was held in Beijing, and in May a video conference was held between the Chinese Chief of the Department of the Joint Chiefs of Staff of the Central Military Commission and the US Chairman of the Joint Chiefs of Staff. From late June to early August 2016, Chinese Navy Fleet 153 participated in RIMPAC 2016, a joint military exercise in Hawaii. In July and August the same year, the US Chief of Naval Operations and Chief of Staff of the Army each made a visit to China.

China is willing to promote the sustainable, sound and stable advance of bilateral relations, and work with the new US administration to follow the principles of no conflict, no confrontation, mutual respect and mutually beneficial cooperation, increase cooperation in bilateral, regional and global affairs, manage and control divergences in a constructive way, and further bilateral relations from a new starting point, so as to bring benefits to the two peoples and other peoples around the world.

# China's 2019 White Paper on Trade and Competition with the U.S. - I

The China-US commercial relationship serves as both the ballast and the propeller of the overall bilateral relationship. At stake are the fundamental interests of the two peoples, and the prosperity and stability of the world. Since the establishment of diplomatic relations between China and the US, bilateral trade and economic relations have come a long way, with expanding fields of cooperation at higher levels. A mutually beneficial and win win relationship with strong complementary and interlinked interests has been forged, benefiting not only the two countries but also the entire world.

Given the differences in stage of development and economic system, it is inevitable that the two countries will experience differences and friction in their commercial cooperation. The history of China-US trade and economic relations has seen twists and turns and difficult situations. By adopting a rational and cooperative attitude, the two countries have managed to resolve previous conflicts, bridge differences, and render the bilateral commercial relationship more mature through dialogue and consultation.

Since it took office in 2017, the new US administration has threatened additional tariffs and other measures and provoked frequent economic and trade friction with its major trading partners. In response to the economic and trade friction unilaterally initiated by the US since March 2018, China has had to take forceful measures to defend the interests of the nation and its people. At the same time, committed to resolving disputes through dialogue and consultation, China has engaged in multiple rounds of economic and trade consultations with the US in an effort to stabilize the bilateral commercial relationship. China's position has been consistent and clear – that cooperation serves the interests of the two countries, that conflict can only hurt both, and that cooperation is the only correct choice for both sides. Concerning their differences and frictions on the economic and trade front, China is willing to work together with the US to find solutions, and to reach a mutually beneficial and win-win agreement. However, cooperation has to be based on principles. There are bottom lines in consultations. China will not compromise on major issues of principle. China does not want a trade war, but it is not afraid of one and it will fight one if necessary. China's position on this has never changed.

...Respecting the laws of the market economy, China has been actively improving the policy system for innovation, continuously increasing investment in research and development, accelerating the development of innovators, and strengthening international cooperation on technological innovation in an all-around way. In terms of some key innovation indices, China is already among the world's leading players. As China continues to witness a series of major scientific and technological achievements, its industries are gravitating toward the middle and high end, and the country's international influence is markedly increasing. In 2017, total R&D investment in China reached RMB 1.76 trillion, ranking second in the world. The number of patent applications reached 1.382 million, ranking No. 1 in the world for the seventh consecutive year. The number of invention patents granted reached 327,000, up by 8.2 percent year on year. China ranks third in the world in terms of valid invention patents held.

China has always pursued international technical cooperation with mutual benefit and win win as the basic value orientation. China's economic development has benefited from international technology transfer and dissemination. International holders of technology have also reaped enormous benefits from this process. China encourages and respects voluntary technical cooperation between Chinese and foreign firms based on market principles. It strongly opposes forced technology transfer and takes resolute action against intellectual property infringement. Accusations against China of forced technology transfer are baseless and untenable.

State Council, [http://english.gov.cn/archive/white\\_paper/2019/06/02/content\\_281476694892692.htm](http://english.gov.cn/archive/white_paper/2019/06/02/content_281476694892692.htm), Xinhua, May 27, 2015 10:55 AM

# China's 2019 White Paper on Trade and Competition with the U.S. - II

Turning a blind eye to the nature of the economic structure and the stage of development in China and the US, as well as the reality of the international industrial division of labor, the US insists that China's "unfair" and "non reciprocal" trade policies have created a trade deficit in bilateral commercial exchanges that constitutes "being taken advantage of," leading to unilateral imposition of additional tariffs on China. In fact, in today's globalized world, the Chinese and American economies are highly integrated and together constitute an entire industrial chain. The two economies are bound in a union that is mutually beneficial and win win in nature. Equating a trade deficit to being taken advantage of is an error. The restrictive measures the US has imposed on China are not good for China or the US, and still worse for the rest of the world.

... The trade war has not "made America great again"...The tariff measures have not boosted American economic growth. Instead, they have done serious harm to the US economy... The US has backtracked on its commitments in the China-US economic and trade consultations

...The US government should bear the sole and entire responsibility for this severe setback to the China US economic and trade consultations...A civilized country turns to forceful measures only when gentler approaches have failed. After the US issued the new tariff threat, the international community was widely concerned that China might cancel the consultation visit to the US. It kept a close watch on the future direction of the China-US trade negotiations. Bearing in mind the broader interests of trade and economic relations between the two countries, China remained cool headed, exercised restraint, and sent a senior delegation to the US, as agreed, for the 11th round of economic and trade consultation from May 9 to 10. In doing so, China demonstrated the greatest sincerity and a strong sense of responsibility for resolving trade disputes through dialogue. In the following candid and constructive discussions, the two sides agreed to manage differences and continue consultations.

... No challenge will hold back China's development...China's development may not be all smooth sailing. Difficulties or even perils are inevitable. Whatever the future might bring, China is confident of meeting challenges head on, turning risks into opportunities, and opening new chapters.

China remains committed to its own cause no matter how the external environment changes. The fundamental solution to economic and trade tensions is to grow stronger through reform and opening up. With the enormous demand from the domestic market, deeper supply side structural reform will comprehensively enhance the competitiveness of Chinese products and companies. We still have sufficient room for fiscal and monetary policy maneuvers. China can maintain sound momentum for sustainable and healthy economic development, and its economic prospects are bright.

China will continue to deepen reform and open up. China's door will not be closed; it will only open even wider. President Xi Jinping announced in his keynote speech at the opening ceremony of the Second Belt and Road Forum for International Cooperation that China would adopt a number of major reform and opening up measures, strengthen institutional and structural arrangements, and promote opening up at a higher level. Measures to be taken include expanding market access for foreign investment in broader areas, strengthening international cooperation on intellectual property protection, increasing imports of goods and services, implementing more effective international coordination on macro economic policies, and putting more focus on the implementation of opening up policies. A more open China will have more positive interactions with the world, which in turn will advance the development and prosperity of both China and the world.

...Cooperation is the only correct choice for China and the US and win-win is the only path to a better future. As to where the China US economic and trade consultations are heading, China is looking forward, not backward. Disputes and conflicts on the trade and economic front, at the end of the day, need to be solved through dialogue and consultation. Striking a mutually beneficial and win win agreement serves the interests of China and the US and meets the expectations of the world. It is hoped that the US can pull in the same direction with China and, in a spirit of mutual respect, equality and mutual benefit, manage economic and trade differences, strengthen trade and economic cooperation, and jointly advance China-US relations based on coordination, cooperation and stability for the well being of both nations and the world.

# China's 2019 Defense White Paper on Competition with the U.S. - I

International strategic competition is on the rise. The US has adjusted its national security and defense strategies, and adopted unilateral policies. It has provoked and intensified competition among major countries, significantly increased its defense expenditure, pushed for additional capacity in nuclear, outer space, cyber and missile defense, and undermined global strategic stability. NATO has continued its enlargement, stepped up military deployment in Central and Eastern Europe, and conducted frequent military exercises. Russia is strengthening its nuclear and non-nuclear capabilities for strategic containment, and striving to safeguard its strategic security space and interests. The European Union (EU) is accelerating its security and defense integration to be more independent in its own security.

Global and regional security issues are on the increase. International arms control and disarmament efforts have suffered setbacks, with growing signs of arms races. The non-proliferation of weapons of mass destruction remains problematic. The international non-proliferation regime is compromised by pragmatism and double standards, and hence faces new challenges. Extremism and terrorism keep spreading. Non-traditional security threats involving cyber security, bio-security and piracy are becoming more pronounced. The Iranian nuclear issue has taken an unexpected turn, and there is no easy political solution to the Syrian issue. The security of individual countries is becoming increasingly intertwined, interlinked and interactive. No country can respond alone or stand aloof

..the region has become a focus of major country competition, bringing uncertainties to regional security. The US is strengthening its Asia-Pacific military alliances and reinforcing military deployment and intervention, adding complexity to regional security. The deployment of the Terminal High Altitude Area Defense (THAAD) system in the Republic of Korea (ROK) by the US has severely undermined the regional strategic balance and the strategic security interests of regional countries.

As the world economic and strategic center continues to shift towards the Asia-Pacific, the region has become a focus of major country competition, bringing uncertainties to regional security. The US is strengthening its Asia-Pacific military alliances and reinforcing military deployment and intervention, adding complexity to regional security. The deployment of the Terminal High Altitude Area Defense (THAAD) system in the Republic of Korea (ROK) by the US has severely undermined the regional strategic balance and the strategic security interests of regional countries. In an attempt to circumvent the post-war mechanism, Japan has adjusted its military and security policies and increased input accordingly, thus becoming more outward-looking in its military endeavors. Australia continues to strengthen its military alliance with the US and its military engagement in the Asia-Pacific, seeking a bigger role in security affairs.

Regional hotspots and disputes are yet to be resolved. Despite positive progress, the Korean Peninsula still faces uncertainty. South Asia is generally stable while conflicts between India and Pakistan flare up from time to time. Political reconciliation and reconstruction in Afghanistan is making progress in the face of difficulties. Problems still exist among regional countries, including disputes over territorial and maritime rights and interests, as well as discord for ethnic and religious reasons. Security hotspots rise from time to time in the region.

Major countries around the world are readjusting their security and military strategies and military organizational structures. They are developing new types of combat forces to seize the strategic commanding heights in military competition. The US is engaging in technological and institutional innovation in pursuit of absolute military superiority. Russia is advancing its New Look military reform. Meanwhile, the UK, France, Germany, Japan and India are rebalancing and optimizing the structure of their military forces.

# China's 2019 Defense White Paper on Competition with the U.S. - I

Driven by the new round of technological and industrial revolution, the application of cutting-edge technologies such as artificial intelligence (AI), quantum information, big data, cloud computing and the Internet of Things is gathering pace in the military field. International military competition is undergoing historic changes. New and high-tech military technologies based on IT are developing rapidly. There is a prevailing trend to develop long-range precision, intelligent, stealthy or unmanned weaponry and equipment. War is evolving in form towards informationized warfare, and intelligent warfare is on the horizon

...China's military security is confronted by risks from technology surprise and growing technological generation gap. Greater efforts have to be invested in military modernization to meet national security demands. The PLA still lags far behind the world's leading militaries.

...Though a country may become strong, bellicosity will lead to its ruin. The Chinese nation has always loved peace. Since the beginning of modern times, the Chinese people have suffered from aggressions and wars, and have learned the value of peace and the pressing need for development. Therefore, China will never inflict such sufferings on any other country. Since its founding 70 years ago, the People's Republic of China (PRC) has never started any war or conflict. Since the introduction of reform and opening-up, China has been committed to promoting world peace, and has voluntarily downsized the PLA by over 4 million troops. China has grown from a poor and weak country to be the world's second largest economy neither by receiving handouts from others nor by engaging in military expansion or colonial plunder. Instead, it has developed through its people's hard work and its efforts to maintain peace. China has made every effort to create favorable conditions for its development through maintaining world peace, and has equally endeavored to promote world peace through its own development. China sincerely hopes that all countries will choose the path of peaceful development and jointly prevent conflicts and wars.

...China actively and properly handles its military relationship with the US in accordance with the principles of non-conflict, non-confrontation, mutual respect and win-win cooperation. It strives to make the military-to-military relationship a stabilizer for the relations between the two countries and hence contribute to the China-US relationship based on coordination, cooperation and stability.

In 2014, China's Ministry of National Defense (MND) and the US Department of Defense China actively and properly handles its military relationship with the US in accordance with the principles of non-conflict, non-confrontation, mutual respect and win-win cooperation. It strives to make the military-to-military relationship a stabilizer for the relations between the two countries and hence contribute to the China-US relationship based on coordination, cooperation and stability. In 2014, China's Ministry of National Defense (MND) and the US Department of Defense signed the *Memorandum of Understanding on Notification of Major Military Activities and Confidence-Building Measures Mechanism* and the *Memorandum of Understanding Regarding the Rules of Behavior for Safety of Air and Maritime Encounters*. In 2015, the two countries agreed on the annexes on the military crisis notification mechanism and the rules of behavior for safety in air-to-air encounters.

In 2017, the two countries established a diplomatic and security dialogue and joint staff dialogue mechanism with a view to actively strengthening strategic communication and managing risks and differences. The two militaries carry out institutionalized exchanges between the defense authorities, armies, navies and air forces, as well as practical cooperation in HADR, counter-piracy, and exchanges between academic institutions. China resolutely opposes the wrong practices and provocative activities of the US side regarding arms sales to Taiwan, sanctions on the CMC Equipment Development Department and its leadership, illegal entry into China's territorial waters and maritime and air spaces near relevant islands and reefs, and wide-range and frequent close-in reconnaissance. However, in China-US relations, the military-to-military relationship remains the generally stable one.

# **The Changing U.S Strategic View of China**

**The National Security Strategy (NSS)  
and National Defense Strategy (NDS)**



# The Changing, but Uncertain, Nature of U.S. Strategy and Force Plans

The Trump Administration has announced new national security and national defense strategies that focus on the need to compete with China on a grand strategic level in terms of political influence, economics, trade, and military forces. The key portions of the new National Security Strategy and National Defense Strategy are quoted in the sections that follow, along with portions of a speech by then Secretary of Defense Mattis – a key figure in shaping these strategies – at the Shangri-La Dialogue in 2018.

Both strategy documents focus in broad terms on China's growing strength in the political, economic, and military dimension, and give particular attention to its rapid military build-up and actions in the South China Sea. They see China as largely responsible for a growing emphasis on competition and stress the U.S. desire for cooperation. It is clear that they stress the need for the U.S. to react by competing more directly in response and acting with strategic partners throughout the Indo-Pacific region.

There are several points that need to be made about both documents:

- The National Security Strategy placed its emphasis on China's competition in trade, economics, and technology. The U.S. has since carried out mix of tariffs and calls for new U.S. efforts in research and development that contrast with the U.S. withdrawal from the Trans-Pacific Partnership and reductions in some key areas of federal research and development funding.
- U.S. officials have continued to stressed China's espionage efforts to acquire U.S. technology, the potential threat of depending on imports of Chinese technology that China could use for spying or cyberwarfare, China's ties to North Korea, and the impact of China's belt and road activities.
- The U.S. has talked about "rebalancing" its forces to the Pacific for nearly a decade, but still did not present clear plans for such efforts in the President's proposed FY2020 defense budget.
- It is clear, however, that the U.S. is focusing on the growing Chinese threat to U.S. naval and air forces, and in the two "island chains" in the Western Pacific described later in this report. The National Defense Strategy also focused on China's actions in the South China Sea, its growing emphasis on competition, and the growth of its military forces.
- The U.S. stressed the importance of regional strategic partners in both documents, but did not define their role or how their capabilities affect U.S. strategy. It has since focused on burden sharing and eliminating North Korea's nuclear program, and its withdrawal from the Trans-Pacific Partnership (TPP) developed by the Obama Administration effectively shifted the U.S. role in leading this effort to China,
- The U.S. strategy documents do not address Chinese nuclear forces or nuclear strategy in specific terms, but DIA indicates that China is expanding its nuclear delivery capabilities, and MIRVing one of its new ICBMs. This is a key issue because U.S. nuclear and arms control strategy has focused largely on the FSU and then Russia in the past, but some media reports indicate that the U.S. is already reexamining its nuclear and arms control strategy in light of China's growing capabilities.

# China and U.S. Strategy: The New National Security Strategy (NSS): December 2017

China and Russia challenge American power, influence, and interests, attempting to erode American security and prosperity. They are determined to make economies less free and less fair, to grow their militaries, and to control information and data to repress their societies and expand their influence.

...Competition does not always mean hostility, nor does it inevitably lead to conflict although none should doubt our commitment to defend our interests. An America that successfully competes is the best way to prevent conflict. Just as American weakness, invites challenge, American strength and confidence deters war and promotes peace.

...Although the United States seeks to continue to cooperate with China, China is using economic inducements and penalties, influence operations, and implied military threats to persuade other states to heed its political and security agenda. China's infrastructure investments and trade strategies reinforce its geopolitical aspirations. Its efforts to build and militarize outposts in the South China Sea endanger the free flow of trade, threaten the sovereignty of other nations, and undermine regional stability.

China has mounted a rapid military modernization campaign designed to limit U.S. access to the region and provide China a freer hand there. China presents its ambitions as mutually beneficial, but Chinese dominance risks diminishing the sovereignty of many states in the Indo-Pacific. States throughout the region are calling for sustained U.S. leadership in a collective response that upholds a regional order respectful of sovereignty and independence.

Source: *National Strategy of the United States*, December 18, 2017, can be found at <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905-2.pdf> .

# China and U.S. Strategy: U.S. National Defense Strategy: February 2018

China is a strategic competitor using predatory economics to intimidate its neighbors while militarizing features in the South China Sea... China is leveraging military modernization, influence operations, and predatory economics to coerce neighboring countries to reorder the Indo-Pacific region to their advantage. As China continues its economic and military ascendance, asserting power through an all-of-nation long-term strategy, it will continue to pursue a military modernization program that seeks Indo-Pacific regional hegemony in the near-term and displacement of the United States to achieve global preeminence in the future. The most far-reaching objective of this defense strategy is to set the military relationship between our two countries on a path of transparency and non-aggression.

... Long-term strategic competitions with China and Russia are the principal priorities for the Department, and require both increased and sustained investment, because of the magnitude of the threats they pose to U.S. security and prosperity today, and the potential for those threats to increase in the future. Concurrently, the Department will sustain its efforts to deter and counter rogue regimes such as North Korea and Iran, defeat terrorist threats to the United States, and consolidate our gains in Iraq and Afghanistan while moving to a more resource-sustainable approach.

... *Expand Indo-Pacific alliances and partnerships.* A free and open Indo-Pacific region provides prosperity and security for all. We will strengthen our alliances and partnerships in the Indo-Pacific to a networked security architecture capable of deterring aggression, maintaining stability, and ensuring free access to common domains. With key countries in the region, we will bring together bilateral and multilateral security relationships to preserve the free and open international system.

# US Foreign Aid to China – State & USAID: FY2013-FY2018

(Constant \$US thousands)						
Account (Program)	2013	2014	2015	2016	2017	2018 est.
Economic Support Fund and Democracy Fund (administered by State-DRL)	10,000	10,000	13,000	12,000	11,000	10,000
Economic Support Fund (Tibetan Areas—administered by USAID)	7,032	7,000	7,900	8,000	8,000	8,000
Economic Support Fund (rule of law, environment—administered by USAID)	3,092	3,000	3,500	5,000	5,000	5,000
Global Health Programs (USAID)	2,977	1,500	0	1,500	1,500	0
International Narcotics Control and Law Enforcement (criminal justice—administered by State-INL) <sup>a</sup>	823	800	825	800	800	2,000
<b>Totals</b>	<b>23,924</b>	<b>22,300</b>	<b>25,225</b>	<b>27,300</b>	<b>26,300</b>	<b>25,000</b>
Peace Corps	3,200	2,500	4,100	4,200	4,200	4,100

<sup>77</sup> For further information, see CRS Report RS22663, *U.S. Assistance Programs in China*, by Thomas Lum.

<sup>78</sup> Criminal Justice programs are administered by the Department of State's Bureau of International Narcotics and Law Enforcement Affairs (INL).

<sup>79</sup> Peace Corps, "Peace Corps in China," <https://www.peacecorps.gov/china/>.

# **The U.S. Department of Defense, Defense Intelligence Agency, and INDOPACOM Command View of China's National Security Strategy**

## Actions Speak Louder than Words?

As has been noted earlier, strategy consists of what a country does, not what it says. The U.S. intelligence community issues two annual assessments that give its interpretation of China's actions and how they shape its strategy. One such assessment is provided by the Director of National Intelligence (DNI) in testimony to the U.S. Senate and its House of Representatives. Another takes the form of a detailed annual report on Chinese Military Power by the Defense Intelligence Agency (DIA). The most recent version of this report is *China Military Power, Modernizing a Force to Win – 2019*, and excerpts and graphics from this report are used in many parts of this analysis.

These two reports are quoted at length in this section, and each focuses on the Chinese actions that the DNI and DIA find to be critical aspects of Chinese Strategy. Both are far blunter and more explicit than the U.S. national strategy documents quoted earlier, and take a relative hardline regarding Chinese intentions. At the same time, they focus on China more as a competitor than a direct threat of war, and highlight key areas that are shaping China's action and grand strategy. As such, they provide a much better picture of U.S. strategy in dealing with China than the National Security Strategy, National Defense Strategy and FY2020 U.S. defense budget request.

This year, the U.S. Indo-Pacific Command (INDOPACOM) has also issued a strategy document — [Department of Defense Indo-Pacific Strategy Report 2019](#) — that provides a notably clearer picture of how the U.S. military views China's military progress and actions than the national strategy documents, and of U.S. military goals than the FY2020 budget request. The strategy document not only provides the analysis of Chinese military developments quoted in this section, it sets out clear force improvement priorities for U.S. forces, priorities for improving strategic partnerships and partner forces, and priorities for improving strategic ties to other Asian states – as well as for creating the equivalent of a networked region of U.S. and allied forces.

# OSD Summary of Chinese Strategy in 2019

China's leaders have benefited from what they view as a "period of strategic opportunity" during the initial two decades of the 21st century to develop domestically and expand China's "comprehensive national power." Over the coming decades, they are focused on realizing a powerful and prosperous China that is equipped with a "world-class" military, securing China's status as a great power with the aim of emerging as the preeminent power in the Indo-Pacific region.

In 2018, China continued harnessing an array of economic, foreign policy, and security tools to realize this vision. Ongoing state-led efforts, which China implements both at home and abroad and which often feature economic and diplomatic initiatives, also support China's security and military objectives:

- China continues to implement long-term state-directed planning, such as "Made in China 2025" and other industrial development plans, which stress the need to replace imported technology with domestically produced technology. These plans present an economic challenge to nations that export high-tech products. These plans also directly support military modernization goals by stressing proprietary mastery of advanced dual-use technologies.
- China's leaders seek to align civil and defense technology development to achieve greater efficiency, innovation, and growth. In recent years, China's leaders elevated this initiative, known as Civil- Military Integration (CMI), to a national strategy that incentivizes the civilian sector to enter the defense market. The national CMI strategy focuses on hardware modernization, education, personnel, investment, infrastructure, and logistics.
- China's leaders are leveraging China's growing economic, diplomatic, and military clout to establish regional preeminence and expand the country's international influence. China's advancement of projects such as the "One Belt, One Road" Initiative (OBOR) will probably drive military overseas basing through a perceived need to provide security for OBOR projects.
- China conducts influence operations against media, cultural, business, academic, and policy communities of the United States, other countries, and international institutions to achieve outcomes favorable to its security and military strategy objectives. The Chinese Communist Party (CCP) seeks to condition foreign and multilateral political establishments and public opinion to accept China's narrative surrounding its priorities like OBOR and South China Sea territorial and maritime claims.

Recognizing that programs such as "Made in China 2025" and OBOR have sparked concerns about China's intentions, China's leaders have softened their rhetoric when promoting these programs without altering the programs' fundamental strategic goals.

...China seeks to secure its objectives without jeopardizing the regional stability that remains critical to the economic development that has helped the CCP maintain its monopoly on power. However, China's leaders employ tactics short of armed conflict to pursue China's strategic objectives through activities calculated to fall below the threshold of provoking armed conflict with the United States, its allies and partners, or others in the Indo-Pacific region. These tactics are particularly evident in China's pursuit of its territorial and maritime claims in the South and East China Seas as well as along its borders with India and Bhutan. In 2018, China continued militarization in the South China Sea by placing anti-ship cruise missiles and long- range surface-to-air missiles on outposts in the Spratly Islands, violating a 2015 pledge by Chinese President Xi Jinping that "China does not intend to pursue militarization" of the Spratly Islands. China is also willing to employ coercive measures – both military and non-military – to advance its interests and mitigate opposition from other countries.

# OSD on President Xi and Chinese Strategy - 2019

China's overall strategy in 2018 advanced initiatives presented during President Xi Jinping's address to the 19th Party Congress, which detailed the progress China has made toward realizing its national objective of achieving the "great rejuvenation of the Chinese nation." Senior Chinese leaders have described the October 2017 Party Congress report as "not only the program of action of the Communist Party of China, but also the most authoritative textbook for understanding China." Issued every five years to assess China's development, the report contains lines of effort for addressing politics, economics, culture, social affairs, the environment, national defense, national unification, foreign affairs, and Party building, all of which have broader security, domestic, and external components. The 2018 government work report presented at the National People's Congress (NPC), which aligns Chinese Communist Party (CCP) and Chinese government lines of effort, reemphasized many of the Party Congress report's key themes. In 2018, the CCP Central Committee and the NPC also approved major reforms of Party and government institutions in support of these lines of effort.

Xi's speech characterizes China's views of international trends, including the shift towards a multi-polar international order and deepening economic inter-connectivity through globalization, and touts the benefits China has gained from reform and opening up to the world. The Party Congress report highlights China's rise as accelerating the need to reform global governance systems and shift the balance of international power towards multipolarity. The report also discusses two stages of development, the first occurring from 2020 to 2035. During this period, China sees itself as growing its economic and technological strength "by leaps and bounds," strengthening rule of law, growing the middle class, and improving living standards while addressing income disparity. The next stage, 2035 to 2050, is identified as the period during which China will become a prosperous, modern, and strong socialist country with a "world-class" military. Finally, the report lauds China's development as a potential model for other countries to follow, claiming the international community should view China's methods as unthreatening and constructive.

China's leadership sees the U.S. policy approach toward China as a critical factor affecting China's national and strategic objectives. China's leaders increasingly view the United States as adopting a more confrontational approach, reflecting China's long-held perception that the United States seeks to contain China's rise. Furthermore, China sees recent U.S. actions on trade and the public releases of U.S. defense and national security strategies as indicative of this containment strategy.

China seems to recognize that some of its programs, such as "Made in China 2025" and its "One Belt, One Road" Initiative (OBOR), have sparked concerns about China's intentions. In keeping with past responses to external pushback, China's leaders have softened their rhetoric when promoting these programs without altering the programs' fundamental strategic goals. Separately, official Chinese media outlets have described "unprecedented strategic distrust" growing between the United States and China. Some commentators in the Hong Kong press have also criticized the government of the People's Republic of China (PRC) for moving out on large-scale initiatives before being ready to take its place as a global leader.

China uses diplomacy and public messaging at key regional forums and bilateral meetings to assuage concerns about China's intentions and to present itself as a global leader. For example, during a speech at the East Asia Summit in November 2018, Premier Li Keqiang reiterated that the region needed to uphold multilateralism, strengthen free trade, and safeguard the rules-based international order. These calls reflect China's preference for a stable domestic and international environment that will accommodate China's rise to regional preeminence and facilitate its national goals and strategic objectives outlined in subsequent sections of this chapter.



# Acting Secretary Shanahan on China at Shangri-La Dialogue: 6-2019 - I

The United States does not want any country in this region to have to choose or forgo positive economic relations with any partner. Expanding prosperity is vital for us all. This region has experienced an unprecedented 70 years of relative peace and rising prosperity, supported by steady American engagement in all spheres. However, some in our region are choosing to act contrary to the principles and norms that have benefitted us all.

I want to use some of our time together this morning to take stock of pressures on the regional order and their implications. Acknowledging those actions is not enough; we also need to extrapolate the trend line and recognize the likely future we arrive at if we do not act to call out disruptive actors and take a stand against the challenges to regional order.

The challenges are significant. We are focused on negotiations to achieve “final, fully verified denuclearization of the Korean peninsula,” we acknowledge that North Korea has neared a point where it could credibly strike regional allies, U.S. territory, and our forward-deployed forces. North Korea remains an extraordinary threat and requires continued vigilance.

A full range of transnational challenges persists: attacks by militants affiliated with or inspired by ISIS – as seen in Sri Lanka’s deadly Easter Sunday bombings – and other international terrorist groups, proliferation, narcotics, natural disasters, and disease.

Perhaps the greatest long-term threat to the vital interests of states across this region comes from actors who seek to undermine, rather than uphold, the rules-based international order. These actors undermine the system by using indirect, incremental actions and rhetorical devices to exploit others economically and diplomatically, and coerce them militarily. They destabilize the region, seeking to reorder its vibrant and diverse communities toward their exclusive advantage.

We see this manifested in a range of behaviors and activities throughout the Indo-Pacific, “a toolkit of coercion,” to include:

- Deploying advanced weapons systems to militarize disputed areas, destabilizing the peaceful status quo by threatening the use of force to compel rivals into conceding claims;
- Using influence operations to interfere in the domestic politics of other nations, undermining the integrity of elections and threatening internal stability;
- Engaging in predatory economics and debt for sovereignty deals, lubricated by corruption, which take advantage of pressing economic needs to structure unequal bargains that disproportionately benefit one party; and,
- Promoting state-sponsored theft of other nations’ military and civilian technology.

In contrast to the free and open vision broadly shared by the region, some seem to want a future where power determines place and debt determines destiny:

- Where nations are unable to make use of natural resources within their exclusive economic zones;
- Where coral reefs are dredged and destroyed with disastrous ecological and economic consequences;
- Where fishermen’s livelihoods are in peril as they are denied access to waters they and their ancestors have fished for generations;
- Where freedom of navigation and international overflight are restricted; and,
- Where the fundamental respect for the dignity of all peoples is ignored and religious freedoms are suppressed.

If the trends in these behaviors continue, artificial features in the global commons could become tollbooths. Sovereignty could become the purview of the powerful.

When a country makes a pledge and does not follow it, you should worry. When that same country makes no pledge ... You should really worry. We can’t wish away reality or continue to look the other way as countries use friendly rhetoric to distract from unfriendly acts. Now is the time to call out the mismatch between words and deeds by some in the region and encourage them to work constructively and transparently toward a positive future.

The United States rejects those actions that run counter to the order that many of the countries represented in this room have built together. We want a different future – a more promising future, one where small nations need not fear larger neighbors. And the U.S. Department of Defense is working systematically to deliver it.

# Acting Secretary Shanahan on China at Shangri-La Dialogue: 6-2019 - II

What is the United States' view of the future? In our Indo-Pacific vision, respected partners find security and prosperity in a mesh of interconnected peoples, economies, and security relationships. This is not new nor exclusively an American vision; this is an inclusive and enduring approach, embraced by almost all of us who call the Indo-Pacific home. What is the value we create from this interconnected, networked future? Nations are empowered through their relationship with the United States and others in this common bond. They remain free to choose their destiny, as strategic partners, exercising strategic independence. Regional institutions, like ASEAN, retain their centrality. They remain able to unify diverse interests, pool resources, and contribute to a shared future.

In short, the region's shared principles are upheld by countries coming together of their own accord to support regional security and stability.

This approach is in keeping with America's long history of working together with allies and partners in this region to defend a rules-based order in the Indo-Pacific. Many of us stood together against imperialism, fascism, and Soviet domination in decades past.

In many of these instances, China stood with us as a cooperative partner in pursuit of shared goals. I say now that China could still have a cooperative relationship with the United States. It is in China's interests to do so: no country has benefitted more from the regional and global order than China, which has seen hundreds of millions lifted from poverty to increasing prosperity. We cooperate with China where we have an alignment of interests, from military-to-military dialogue to develop risk reduction measures, to tackling transnational threats such as counter-piracy, to enforcing UN sanctions on North Korea. And we compete with China where we must. But competition does not mean conflict. Competition is not to be feared. We should welcome it, provided that everyone plays by internationally established rules.

China can and should have a cooperative relationship with the rest of the region, too. But behavior that erodes other nations' sovereignty and sows distrust of China's intentions must end. Until it does, we stand against a myopic, narrow, and parochial vision of the future, and we stand for the free and open order that has benefitted us all—including China.

At the Department of Defense, we are making this vision a reality by focusing our investments on preparedness, strengthening our alliances and partnerships, and empowering a regional security network. For that network to thrive, we need all who seek to derive benefit from it to contribute their part. When we talk about preparedness, we mean having the right capabilities in the right places to respond to crises, and to compete with and deter high-end adversaries.

The United States does not seek conflict, but we know that having the capability to win wars is the best way to deter them. We want to ensure no adversary believes it can successfully achieve political objectives through military force. To that end, as part of our broader, Department-wide modernization, the U.S. Department of Defense is investing significantly over the next five years in programs critical to ensuring a stable and secure Indo-Pacific. This is major step to technologically scale capability and capacity on behalf of our security – and yours.

For example, we are increasing investments in contested domains like space and cyber, while preserving our advantages in undersea warfare, tactical aircraft, C4ISR, and missile defense to ensure the commons remain open to all in the Indo-Pacific. We are focused on the future in our request of \$104 billion – the most ever – in research and development in the next fiscal year, with significant investment in emerging technologies like AI, hypersonics, and directed energy, much of which is aimed at unique operational challenges in this theater. We have also spent the last two years focused on restoring the readiness of our forces.

We continue to build on these gains with \$125 billion in operational readiness and sustainment requested for the next fiscal year. This funding will boost the depth and capacity of our armed forces, and also help expand our training—including with allies and partners—to improve mission readiness critical to meeting this region's challenges.

These funds will enhance our already sizeable and reliable capabilities distributed across the region:

- More than 370,000 American Soldiers, Sailors, Airmen, Marines, and civilians live, train, and work alongside our allied and partner forces across the region.
- U.S. Indo-Pacific Command has four times the assigned forces as any other geographical combatant command.
- Across the Indo-Pacific, the United States has more than 2,000 aircraft, providing us the ability to rapidly project power across the vast distance of this region.

# Acting Secretary Shanahan on China at Shangri-La Dialogue: 6-2019 - III

More than 200 ships and submarines ensure freedom of navigation, search and rescue, and rapid assistance in the event of natural disasters.

- We are investing in advanced missile defense systems, interoperable with allied systems in Japan, Australia, and South Korea.
- Our security guarantees are reinforced thanks to strategic enhancements like our Columbia-class ballistic missile submarines; and our purchases of 110 fourth- and fifth-generation aircraft and advanced munitions.
- Our acquisition of 10 new destroyers will increase anti-surface and anti-submarine warfare capabilities, and ballistic missile defense, ensuring our forces – and those of our allies and partners – remain safe in a turbulent world.
- We are also accelerating forward presence of U.S. land forces to deepen real, operational relationships with those of allies and partners.
- We are expanding into space alongside allies Australia and Japan. This has been an opportunity to station some of our highest-end, most capable assets in the Indo-Pacific – right where they belong.

To reiterate, the Indo-Pacific is our priority theater. We are where we belong. We are investing in the region. We are investing in you, and with you. And we need you to invest further in yourselves. We need you to invest in ways that take more control over your sovereignty and your own ability to exercise sovereign choices. Every nation has a responsibility in the free and open Indo-Pacific. The United States will uphold our commitments, and we need our allies and partners to contribute their fair share.

We need you to:

- Invest sufficiently in your own defense; it strengthens deterrence.
- Build third-partner capacity; it helps the network scale.
- Uphold a rules-based international order; it keeps the playing field level.
- Provide access to address contingencies; it makes us more responsive.
- Strengthen interoperability and think carefully about the implications of defense sales; you are buying a long-term relationship, not just a platform.
- Expand information sharing with like-minded countries and ensure your own networks are secure and trusted by others; it keeps us connected.
- Pool resources for common objectives; it distributes the weight

# ODNI 2019 Assessment of Competition with China - I

## The Chinese Communist Party's Concentration of Power

***China is deepening its authoritarian turn under President Xi Jinping, and the resulting hardening of Chinese politics and governance probably will make it more difficult for the leadership to recognize and correct policy errors, including in relations with the United States and our allies and partners.***

- President Xi removed one of the few remaining checks on his authority when he eliminated presidential term limits in March 2018, and the Chinese Communist Party has reasserted control over the economy and society, tightened legal and media controls, marginalized independent voices, and intensified repression of Chinese Muslims, Christians, and other religious minorities.
- The Chinese Government also is harnessing technology, including facial recognition, biometrics, and vehicle GPS tracking, to bolster its apparatus of domestic monitoring and control.
- Beijing's increasing restrictions on scholars' and researchers' freedom of movement and communication with US counterparts may increase the prospects for misunderstanding and misinterpretation of US policies.

## Expanding Global Reach

***We assess that China's leaders will try to extend the country's global economic, political, and military reach while using China's military capabilities and overseas infrastructure and energy investments under the Belt and Road Initiative to diminish US influence. However, Beijing is likely to face political pushback from host governments in many locations, and the overall threat to US and partner interests will depend on the size, locations, and offensive military capabilities of the eventual Chinese presence.***

- China has built its first overseas military facility in Djibouti and probably is exploring bases, support facilities, or access agreements in Africa, Europe, Oceania, Southeast Asia, and South Asia.
- In most instances, China has not secured explicit permanent basing rights but is using commercial development and military ties to lay the groundwork for gaining future military access.
- Successful implementation of the Belt and Road Initiative could facilitate PLA access to dozens of additional ports and airports and significantly expand China's penetration of the economies and political systems of participating countries.

## The Coming Ideological Battle

***Chinese leaders will increasingly seek to assert China's model of authoritarian capitalism as an alternative—and implicitly superior—development path abroad, exacerbating great-power competition that could threaten international support for democracy, human rights, and the rule of law.***

# ODNI 2019 Assessment of Competition with China - II

- The actions of Xi and his advisers—doubling down on authoritarianism at home and showing they are comfortable with authoritarian regimes abroad—along with China’s opaque commercial and development practices, reward compliant foreign leaders and can be corrosive to civil society and the rule of law.
- At the 2018 Central Foreign Affairs Work Conference, Xi stated his desire to lead the reform of the global governance system, driving a period of increased Chinese foreign policy activism and a Chinese worldview that links China’s domestic vision to its international vision.
- Beijing has stepped up efforts to reshape the international discourse around human rights, especially within the UN system. Beijing has sought not only to block criticism of its own system but also to erode norms, such as the notion that the international community has a legitimate role in scrutinizing other countries’ behavior on human rights (e.g., initiatives to proscribe country-specific resolutions), and to advance narrow definitions of human rights based on economic standards.

## South China Sea and Taiwan

***We assess that China will continue increasing its maritime presence in the South China Sea and building military and dual-use infrastructure in the Spratly Islands to improve its ability to control access, project power, and undermine US influence in the area.*** A body of open-source reporting shows that China seeks to achieve effective control over its claimed waters with a whole-of-government strategy, compel Southeast Asian claimants to acquiesce in China’s claims—at least tacitly—and bolster Beijing’s narrative in the region that the United States is in decline and China’s preeminence is inevitable.

- Meanwhile, Beijing almost certainly will continue using pressure and incentives to try to force Taipei to accept the One China framework and ultimately Chinese control, and it will monitor the US reaction as an indicator of US resolve in the region.
- Since 2016, Beijing has persuaded six of Taiwan’s 23 diplomatic partners, most recently Burkina Faso and El Salvador, to recognize China instead of Taiwan.

## Military Capabilities

***The People’s Liberation Army (PLA) continues to develop and field advanced weapons and hardware while honing its ability to fight in all military domains. The force is undergoing its most comprehensive restructuring ever to realize China’s long-held goal of being able to conduct modern, rapid military operations based on high technology to assert and defend China’s regional and growing global interests.***

- PLA reforms seek to reinforce the Chinese Communist Party’s control of the military, improve the PLA’s ability to perform joint operations, increase combat effectiveness, and curb corruption.

# ODNI 2019 Assessment of Competition with China - III

As China's global footprint and international interests have grown, its military modernization program has become more focused on investments and infrastructure to support a range of missions beyond China's periphery, including a growing emphasis on the maritime domains, offensive air operations, and long-distance mobility operations.

## Southeast Asia and the Pacific

***We expect democracy and civil liberties in many Southeast Asian countries to remain fragile and China to increase its engagement in the region to build its influence while diminishing the influence of the United States and US allies.*** Russia may also continue its diplomatic and military cultivation of Southeast Asian partners, and some countries will be receptive to Moscow as a balance against China's push for hegemony.

- In the wake of Washington's withdrawal from the Trans-Pacific Partnership, China is promoting a unified stance with the Association of Southeast Asian Nations (ASEAN) in defense of multilateralism and the WTO reform process, while also fostering a shared perception of US freedom of navigation operations through Chinese-claimed waters in the South China Sea as threats to regional stability.
- China is currying favor with numerous Pacific Island nations through bribery, infrastructure investments, and diplomatic engagement with local leaders while intervening in Burma—including by shielding Burma from UNSC sanctions in response to the humanitarian crisis and alleged ethnic cleansing in Rakhine State.
- Russia, too, has been increasing its diplomatic and military cultivation of Southeast Asian partners, some of which have been receptive to Moscow as a power capable of diluting China's nascent hegemony and helping them diversify their hedging options.
- Cambodia's slide toward autocracy, which culminated in the Cambodian People's Party's retention of power and complete dominance of the national legislature, opens the way for a constitutional amendment that could lead to a Chinese military presence in the country. Thailand's coup-installed regime has promised elections in 2019 but appears set to help ensure that its proxy party retains power by tightly controlling the political space ahead of the vote. Burma's civilian authorities continue to make scant progress toward resolving the crisis in Rakhine State, advancing economic reforms, or ending longstanding insurgencies by ethnic minority groups.

## India-China Tensions

***We expect relations between India and China to remain tense, despite efforts on both sides to manage tensions since the border standoff in 2017, elevating the risk of unintentional escalation.*** Chinese President Xi Jinping and Indian Prime Minister Narendra Modi held an informal summit in April 2018 to defuse tension and normalize relations, but they did not address border issues. Misperceptions of military movements or construction might result in tensions escalating into armed conflict.

# DIA Summary of China's National Security Strategy: 2019 - I

China's leaders see China as a country that is "moving closer to center stage" to achieve the "great rejuvenation of the Chinese nation." This ambition permeates China's national security strategy and the PLA's role in supporting the party. Since the early 1980s, when China initiated its Reform and Opening policy, China's economy has grown rapidly. The CCP remained focused primarily on economic growth throughout the 1980s and 1990s, and in the early 2000s it identified the initial decades of the 21st century as a "period of strategic opportunity" in the international environment that would allow China to focus on building "comprehensive national power." The CCP's contemporary strategic objectives are to:

- Perpetuate CCP rule.
- Maintain domestic stability.
- Sustain economic growth and development.
- Defend national sovereignty and territorial integrity.
- Secure China's status as a great power.

China has taken deliberate steps to modernize the CCP, its military, the government, and other institutions in an attempt to improve coherence. Before 2015, departments across the government formulated separate security strategies, but in early 2015, China's leaders adopted China's first publicly released national security strategy outline, a framework to guide China's approach to addressing both domestic and international security threats, and called for international engagement to address shared security problems.

The strategy outlines Beijing's aim to ensure security, promote modernization, as well as preserve China's socialist system. In addition to the strategic objectives above, the document emphasized the necessity of contributing to world peace and development and called for attention to promoting "rule of law" in support of national security. This led the National People's Congress to pass a package of laws in 2015 and 2016 intended to address national security concerns, including harsher punishments for crimes involving terrorism and extremism, cybersecurity measures, and increased restrictions for foreign nongovernmental organizations.

Although China's national security strategy outline contained both inward- and outward-looking elements, Beijing's view of China's role in the international community was further elaborated in an article on Xi Jinping's thoughts on diplomacy published in mid-2017 by one of China's top diplomats, Yang Jiechi. Yang paints a picture of Chinese diplomacy that focuses on China's ambition for national rejuvenation and becoming a world power. Yang describes a confident China that is ready to "shoulder its responsibility as a major country" and build a global network of partnerships, but one that is resolved and uncompromising as it upholds its sovereignty and security interests.

## **The PLA's Role in National Security**

*China's Military Strategy* built on a series of biennial defense reviews that Beijing published beginning in 1998 to mitigate international concern about the lack of transparency of its military modernization. What differentiated the document from its predecessors was that it, for the first time, publicly clarified the PLA's role in protecting China's evolving national security interests and shed light on policies, such as the PLA's commitment to nuclear deterrence. The report affirmed many of China's longstanding defense policies but also signaled a shift toward emerging security domains, such as cyber and space, and also emphasized the need to focus on global maritime operations.

The report outlined eight "strategic tasks," or types of missions the PLA must be ready to execute:

- Safeguard the sovereignty of China's territory.
- Safeguard national unification.

# DIA Summary of China's National Security Strategy: 2019 - II

- Safeguard China's interests in new domains, such as space and cyberspace.
- Safeguard China's overseas interests.
- Maintain strategic deterrence.
- Participate in international security cooperation.
- Maintain China's political security and social stability.
- Conduct emergency rescue, disaster relief, and "rights and interest protection" missions.

Beijing almost certainly views these missions as necessary national security tasks for China to claim great-power status. In 2017, Beijing emphasized several of these tasks in its "White Paper on China's Policies on Asia Pacific Security Cooperation," stressing the need for a PLA that is able to conduct expeditionary operations and other activities to defend and secure growing Chinese national interests overseas from "destabilizing and uncertain factors" ...The PLA coordinates with China's law enforcement, Foreign Ministry, and other security entities as needed on military-related activities, particularly operations beyond China's borders.

## Military Leadership

China's military leaders are influential in defense and foreign policy. As the CCP's armed wing, the PLA is organizationally part of the party apparatus. Career military officers for the most part are party members, and units at the company level and above have political officers responsible for personnel decisions, propaganda, and counterintelligence. These political officers also are responsible for ensuring that party orders are carried out throughout the PLA. CCP committees, led by the political officers and military commanders, make major decisions in units at all levels.

The CMC, the PLA's highest decision-making body, is technically both a party organ subordinate to the CCP Central Committee and a governmental office appointed by the National People's Congress, but it is staffed almost exclusively by military officers. The CMC chairman is a civilian who usually serves concurrently as the CCP general secretary and China's president. During the past decade, the CMC's membership has included two military vice chairmen who serve concurrently on the politburo; the minister of national defense, who serves as the face of the military for foreign engagement; the service commanders; and the directors of the four general headquarters departments. This framework occasionally shifts; it was revised during the 19th Party Congress in October 2017, at which point the service chiefs were removed from the body, leaving the chairman, vice chairmen, minister of national defense, Joint Staff Department chief, Political Work Department director, and Discipline Inspection Commission secretary. These changes align the military's top body to its post-reform structure and underscore key themes of jointness, party loyalty, and anticorruption.



Ministry of National Defense and general offices are not depicted in this chart.



# DIA Summary of China's National Security Strategy: 2019 - III

## Threat Perceptions

The party's perception that China is facing unprecedented security risks is a driving factor in China's approach to national security. In May 2015, China's State Council Information Office published a white paper titled *China's Military Strategy*, which outlined how Beijing views the global security environment, China's role in that environment, and how the PLA supports that role. The document presented a vision for the PLA's services and emerging security domains that would transform the PLA from its legacy posture to one focused more on long-range mobility. Within the context of Beijing's "period of strategic opportunity," Beijing calculates in *China's Military Strategy* that world war is unlikely in the immediate future, but China should be prepared for the possibility of local war.

Authoritative Chinese publications typically avoid explicitly listing direct threats, but these threats can be gleaned from several documents that point to Beijing's security concerns...Beijing's primary threat perceptions include sovereignty and domestic security issues that it believes could undermine the overriding strategic objective to perpetuate communist rule. These include longstanding concerns regarding Taiwan independence, Uighur and Tibetan separatism, and perceived challenges to China's control of disputed areas in the East and South China Seas. Authoritative documents also highlight the Korean Peninsula as an area of instability and uncertainty, and express concern regarding unsettled territorial disputes along China's border with India, which periodically result in tense standoffs like the one that occurred in the summer of 2017 in the disputed Doklam region...Finally, while it calls for a peer-to-peer cooperative relationship with the United States, China also believes that U.S. military presence and U.S.-led security architecture in Asia seeks to constrain China's rise and interfere with China's sovereignty, particularly in a Taiwan conflict scenario and in the East and South China Seas. Since at least the 1990's, Beijing has repeatedly communicated its preference to move away from the U.S.-led regional security system and has pursued its own regional security initiatives in support of what it views as a natural transition to regional predominance.

*China's Military Strategy* reflects Beijing's drive to establish a coherent, unified approach to managing national security in a world where Beijing perceives that China's expanding interests have made it more vulnerable at home and abroad.

## External Defense Relations

The PLA engages with foreign militaries to demonstrate its growing capabilities; improve its tactics, techniques, and procedures; enhance China's image and influence abroad, and further China's diplomatic objectives. Bilateral and multilateral exercises provide political benefits to China and opportunities for the PLA to improve capabilities in areas such as counterterrorism, mobility operations, and logistics. Senior-level visits and exchanges provide China with opportunities to increase military officers' international exposure, communicate China's positions to foreign audiences, understand alternative worldviews, and advance foreign relations through interpersonal contacts and military assistance programs.

China advances its day-to-day overseas military diplomacy using PLA officers assigned as military attachés in at least 110 countries. China's military attaches serve as military advisers to the ambassador, support Ministry of Foreign Affairs and PLA foreign policy objectives, and perform a variety of duties tied to PLA military and security cooperation, including counterpart exchanges with host nation and third-country personnel. Expanded PLA travel abroad enables PLA officers to observe and study foreign military command structures, unit formations, and operational training.

As China's regional and international interests have grown, the PLA has substantially expanded its international engagement, especially in the areas of peacekeeping operations (PKOs), counterpiracy, humanitarian assistance and disaster relief (HADR), counterterrorism, and multinational combined exercises. For example, many Latin American and Caribbean countries send officers to the strategic-level College of Defense Studies at China's National Defense University; some of these countries also send officers to other PLA schools. In addition to furthering PLA modernization, these engagements probably will remain focused on building China's political ties, explaining China's rise, and building China's international influence, particularly in Asia, Africa, and Latin America.

# U.S. Indo-Pacific Command Strategy: Assessment of China as a Revisionist Power: June 2019 - I

China's economic, political, and military rise is one of the defining elements of the 21st century. Today, the Indo-Pacific increasingly is confronted with a more confident and assertive China that is willing to accept friction in the pursuit of a more expansive set of political, economic, and security interests.

Perhaps no country has benefited more from the free and open regional and international system than China, which has witnessed the rise of hundreds of millions from poverty to growing prosperity and security. Yet while the Chinese people aspire to free markets, justice, and the rule of law, the People's Republic of China (PRC), under the leadership of the Chinese Communist Party (CCP), undermines the international system from within by exploiting its benefits while simultaneously eroding the values and principles of the rules-based order. With more than half of the world's Muslim population living in the Indo-Pacific, the region views the PRC's systematic mistreatment of Uighurs, Kazakhs, and other Muslims in Xinjiang – including pervasive discrimination, mass detention, and disappearances – with deep concern. China's violation of international norms also extends abroad. Chinese nationals acting in association with the Chinese Ministry of State Security were recently indicted for conducting global campaigns of cyber theft that targeted intellectual property and confidential business and technological information at managed service providers. China has continued to militarize the South China Sea by placing anti-ship cruise missiles and long-range surface-to-air missiles on the disputed Spratly Islands and employing paramilitary forces in maritime disputes vis-à-vis other claimants. In the air, the People's Liberation Army (PLA) has increased patrols around and near Taiwan using bomber, fighter, and surveillance aircraft to signal Taiwan. China additionally employs non-military tools coercively, including economic tools, during periods of political tensions with countries that China accuses of harming its national interests.

## **The People's Republic of China's Military Modernization and Coercive Actions**

As China continues its economic and military ascendance, it seeks Indo-Pacific regional hegemony in the near-term and, ultimately global preeminence in the long-term. China is investing in a broad range of military programs and weapons, including those designed to improve power projection; modernize its nuclear forces; and conduct increasingly complex operations in domains such as cyberspace, space, and electronic warfare operations. China is also developing a wide array of anti-access/area denial (A2/AD) capabilities, which could be used to prevent countries from operating in areas near China's periphery, including the maritime and air domains that are open to use by all countries.

In 2018, China's placement of anti-ship cruise missiles and long-range surface-to-air missiles on the disputed Spratly Islands violated a 2015 public pledge by the Chairman of the CCP Xi Jinping that "China does not intend to pursue militarization" of the Spratly Islands. China's use of military presence in an attempt to exert de facto control over disputed areas is not limited to the South China Sea. In the East China Sea, China patrols near the Japan-administered Senkaku Islands with maritime law enforcement ships and aircraft. These actions endanger the free flow of trade, threaten the sovereignty of other nations, and undermine regional stability. Such activities are inconsistent with the principles of a free and open Indo-Pacific.

Simultaneously, China is engaged in a campaign of low-level coercion to assert control of disputed spaces in the region, particularly in the maritime domain. China is using a steady progression of small, incremental steps in the "gray zone" between peaceful relations and overt hostilities to secure

# U.S. Indo-Pacific Command Strategy: Assessment of China as a Revisionist Power: June 2019 - II

its aims, while remaining below the threshold of armed conflict. Such activities can involve the coordination of multiple tools, including political warfare, disinformation, use of A2/AD (anti-access/area denial) networks, subversion, and economic leverage.

During the last decade, China continued to emphasize capabilities for Taiwan contingencies. China has never renounced the use of military force against Taiwan, and continues to develop and deploy advanced military capabilities needed for a potential military campaign. PLA modernization is also strengthening its ability to operate farther from China's borders. For example, the PLA is reorganizing to improve its capability to conduct complex joint operations, and is also improving its command and control, training, personnel, and logistics systems. Key weapon systems deployed or in development include cruise and ballistic missile systems, modern fighter and bomber aircraft, aircraft carriers, modern ships and submarines, amphibious assault ships, surface-to-air missile systems, electronic warfare systems, direct-ascent, hit-to-kill anti-satellite missiles, and autonomous systems.

## **China's Use of Economic Means to Advance Its Strategic Interests**

China is using economic inducements and penalties, influence operations, and implied military threats to persuade other states to comply with its agenda. Although trade has benefitted both China and its trade partners, Chinese use of espionage and theft for economic advantage, as well as diversion of acquired technology to the military, remains a significant source of economic and national security risk to all of China's trading partners.

While investment often brings benefits for recipient countries, including the United States, some of China's investments result in negative economic effects or costs to host country sovereignty. Chinese investment and project financing that bypasses regular market mechanisms results in lower standards and reduced opportunities for local companies and workers, and can result in significant debt accumulation. One-sided and opaque deals are inconsistent with the principles of a free and open Indo-Pacific, and are causing concern in the region. For example, in 2018, Bangladesh was forced to ban one of China's major state firms for attempted bribery, and in the same year, Maldives' finance minister stated that China was building infrastructure projects in the country at significantly inflated prices compared to what was previously agreed. Furthermore, a Chinese state-owned enterprise purchased operational control of Hambantota Port for 99 years, taking advantage of Sri Lanka's need for cash when its government faced daunting external debt repayment obligations.

The United States does not oppose China's investment activities as long as they respect sovereignty and the rule of law, use responsible financing practices, and operate in a transparent and economically sustainable manner. The United States, however, has serious concerns with China's potential to convert unsustainable debt burdens of recipient countries or sub-national groups into strategic and military access, including by taking possession of sovereign assets as collateral. China's coercive behavior is playing out globally, from the Middle East and Africa to Latin America and Europe.

# U.S. Indo-Pacific Command Strategy: Assessment of China as a Revisionist Power: June 2019 - III

A lack of transparency also clouds China's activities in the polar regions. In 2018, China announced the inclusion of the region in One Belt One Road as the "Polar Silk Road" and emphasized its self-declared status as a "Near-Arctic State." China is also expanding its engagement and capabilities in the Antarctic, in particular by working to finalize a fifth research station, which will diversify its presence across the continent.

## **Risk Reduction: Engaging China**

One of the most far-reaching objectives of the *National Defense Strategy* is to set the military relationship between the United States and China on a long-term path of transparency and non-aggression. Pursuit of a constructive, results-oriented relationship between our two countries is an important part of U.S. strategy in the Indo-Pacific.

As the scope of China's military modernization and the reach of China's military activities expands, the need for strategic dialogue and safe and professional behavior consistent with international law is crucial. When China and the PLA operate in a manner consistent with international norms and standards, the risk of miscalculation and misunderstanding is reduced. Recognizing this, our bilateral military engagements with China, which include high-level visits, policy dialogues, and functional exchanges, are centered on building and reinforcing the procedures necessary to reduce risk and prevent and manage crises.

Through our military-to-military engagements, the Department of Defense will continue to encourage China to engage in behaviors that maintain peace and stability in the region and that support – rather than undermine – the rules-based international order. We will not accept policies or actions that threaten to undermine this order, which has benefited all countries in the region, including China. The United States is prepared to support China's choices to the extent that China promotes long-term peace and prosperity for all in the Indo-Pacific, and we remain open to cooperate where our interests align.

## PART TWO: CHINA'S EMERGING ECONOMIC POWER

*Economics Have the Lead, But Military  
Power is Catching Up*

# China's Steadily Emerging Role as a Global and Pacific Economic Superpower - I

There is no practical way that China's emergence as a major military power can be separated from its emergence as an economic superpower. In fact, one of the key problems in analyzing China's strategy is estimating the extent to which China's leadership decouples any given aspect of its military strategy and actions from an integrated effort to use both economic and military power simultaneously to achieve its objectives. Chinese strategy cannot be analyzed in purely military terms. China focuses on hybrid goals and operations that seek to use both economic and military forms of leverage to "win," and to do so without any form of meaningful conflict.

It is also clear that China's economic progress has led China's emergence as a superpower, not the growth of its military capabilities. This point is made quite clearly by China's military leaders in China's 2019 Defense White Paper,

Since the introduction of reform and opening-up, China has been committed to promoting world peace, and has voluntarily downsized the PLA by over 4 million troops. China has grown from a poor and weak country to be the world's second largest economy neither by receiving handouts from others nor by engaging in military expansion or colonial plunder. Instead, it has developed through its people's hard work and its efforts to maintain peace. China has made every effort to create favorable conditions for its development through maintaining world peace, and has equally endeavored to promote world peace through its own development. China sincerely hopes that all countries will choose the path of peaceful development and jointly prevent conflicts and wars.

China is committed to developing friendly cooperation with all countries on the basis of the Five Principles of Peaceful Coexistence. It respects the rights of all peoples to independently choose their own development path, and stands for the settlement of international disputes through equal dialogue, negotiation and consultation. China is opposed to interference in the internal affairs of others, abuse of the weak by the strong, and any attempt to impose one's will on others. China advocates partnerships rather than alliances and does not join any military bloc. It stands against aggression and expansion, and opposes arbitrary use or threat of arms. The development of China's national defense aims to meet its rightful security needs and contribute to the growth of the world's peaceful forces. History proves and will continue to prove that China will never follow the beaten track of big powers in seeking hegemony. No matter how it might develop, China will never threaten any other country or seek any sphere of influence.

Ever since the economic reforms of Deng Xiaoping began in the late 1970s, it has been China's economic growth, modernization, and diversification that has allowed China to modernize and change the structure and role of its military forces. Accordingly, any analysis of China's strategy must begin with a focus on its economic successes and the extent that they are likely to continue in the future.

If China's economic success does continue, China's military forces are now modernizing at a rate where they will probably catch up with China's economic progress within the next decade. China will then become a military superpower as well as an economic one. It is not clear how China will then rank with the U.S. in both economic and military terms, and there does not seem to be any clear way to predict the relative level of U.S. and Chinese power – either in Asia or the world as a whole. What does seem clear, however, is that there are no present indications that any other single nation or power bloc will then be able to compete directly with the U.S. and China in both economic and military terms.

# China's Steadily Emerging Role as a Global and Pacific Economic Superpower - II

This section provides a range of metrics that show the scale of China's emergence as a major economic power, and how it now compares to other states. It addresses the positive trends in Chinese development, China's progress in technology and manufacturing, and then the major challenges that China still has to meet.

There are eight key points that need to be considered in evaluating these trends:

- Economic and political power will be at least as important as military power, and cooperation will often offer more than competition.
- This not a "zero sum game." Competition is often hard to separate from cooperation. A given lead does not mean that both nations and the global economy do not benefit from the overall increase in development, technology, and growth.
- Short of a major war — where virtually all scenarios would do critical damage to both sides — relative economic progress and success will determine the degree to which any side is a "winner."
- There are no guarantees of future progress. Both the U.S. and China face major internal structural economic and demographic civil challenges.

# China's 70<sup>th</sup> Anniversary White Paper on Economic Growth - I

China's economic strength has greatly increased. From 1952 to 2018, China's industrial added value increased from RMB12 billion to RMB30.5 trillion, up 970 times at constant prices, with an average annual growth rate of 11 percent. GDP increased from RMB67.9 billion to RMB90 trillion, up 174 times at constant prices, with an average annual growth rate of 8.1 percent, and per capita GDP increased from RMB119 to RMB64,644, up 70 times at constant prices. According to World Bank statistics, at market exchange rates China's economy in 2018 was worth US\$13.6 trillion, second only to the US economy which was worth US\$20.5 trillion. Currently, China is the only country that possesses all the sections in the United Nations' International Standard Industrial Classification of All Economic Activities (ISIC), with the output of many industrial products ranking first in the world.

China has made remarkable progress in technology. Significant achievements such as nuclear bombs, ballistic missiles, manmade satellites, manned spaceflight, super hybrid rice, supercomputers, synthetic bovine insulin, artemisinin, and high-speed rail, have provided strong support for social and economic development.

China's foreign trade has been increasing constantly. In 2009, China became the world's largest exporter of goods and second largest importer of goods; in 2013, China became the world's largest trader in goods. Since reform and opening up in 1978, foreign investment in China has seen a substantial increase, and China has become very attractive to global investment. China has become the world's second largest economy, largest manufacturer, largest trader in goods, second largest consumer of commodities, second largest recipient of foreign direct investment (FDI), and largest holder of foreign exchange reserves (see Table 1).

**Table 1 Growth of China's Economic Strength**

Category	1952	2018	Growth
GDP	RMB67.9 billion	RMB90 trillion	174 times
Fiscal revenue	RMB6.2 billion (in 1950)	RMB18.33 trillion	12.5% annually on average
Industrial added value	RMB12 billion	RMB30.5 trillion	970 times
Per capita GDP	RMB119	RMB64,644	70 times
Final consumption rate	78.9%	54.3%	--
Non-financial FDI	US\$920 million (in 1983)	US\$135 billion	146 times

## **China is the main stabilizing force and power source of the world economy**

From 1979 to 2018 China's economy grew rapidly at an average annual rate of 9.4 percent, and became an important engine of global economic growth. In 2008, the world suffered a serious financial crisis and the world economy was hit hard. Through a series of effective measures to deal with the crisis, China's economy recovered rapidly and continued to maintain a medium- and high-speed growth. As a result, China became the main stabilizing force and power source of the world economy.

China is the biggest contributor to world economic growth. Since the 18th CPC National Congress in 2012, China has implemented the concepts of innovative,



# China's 70<sup>th</sup> Anniversary White Paper on Economic Growth - II

coordinated, green, open and inclusive development. It has adapted to, steered, and led the new normal of economic development, strengthened supply-side structural reform, and maintained a sustainable and healthy economic development with increasing quality and efficiency. In the past three years, China's economic aggregate has exceeded RMB70, 80, and 90 trillion successively, accounting for nearly 16 percent of the world economy. From 2013 to 2018, China contributed more than 28 percent of world economic growth on average. Estimates show that without China, the average annual growth rate of the world economy from 2013 to 2016 would have slowed by 0.6 percentage point and the intensity of fluctuation would have increased by 5.2 percent. According to a report released by the McKinsey Global Institute (MGI), the aggregate index of the world's exposure to China's economy gradually rose from 0.4 to 1.2 between 2000 and 2017, with China accounting for 35 percent of global manufacturing output. (MGI, "China and the world: Inside the dynamics of a changing relationship", July 2019.)

# OSD on Chinese Economic Policies and Goals: 2019 -I

## Key Takeaways

- China is non-compliant with some of its World Trade Organization (WTO) obligations.
- Recognizing that “Made in China 2025” and OBOR have sparked concerns about China’s intentions, China’s leaders have softened their rhetoric when promoting these programs without altering the programs’ fundamental strategic goals.
- China continues to operate as a centrally controlled, planned economy. China restricts inbound investment, limits other countries’ exports, and pursues state-guided investment overseas, including in strategic sectors.

Sustaining China’s economic growth is one of the CCP’s strategic objectives. China’s incomplete transition to a market economy has resulted in laws, regulations, and policies governing the tradable goods and services sectors, market access, and foreign direct investment that disadvantage foreign firms vis-à-vis their Chinese counterparts. China’s senior leaders recently reaffirmed their commitment to CCP control over the state-led economic apparatus, including through state-directed investment and innovation. In March 2018, the Office of the U.S. Trade Representative released findings of an investigation under Section 301 of the Trade Act of 1974 that determined the acts, policies, and practices of the Chinese government related to technology transfer, intellectual property, and innovation are unreasonable or discriminatory and burden or restrict U.S. commerce, resulting in harm to the U.S. economy of at least \$50 billion per year.

China is non-compliant with some of its World Trade Organization (WTO) obligations, and China does not adhere to some of the agreed-upon rules and fundamental principles that undergird WTO agreements. In addition, because of its status as a “developing country” under the WTO framework, China is allowed to continue certain protectionist measures. Concerns include industrial policies that support domestic industries at the expense of foreign counterparts, commercial joint venture requirements, technology transfer requirements, subsidies to lower the cost of inputs, continued excess capacity in multiple industries, sector-specific limits on foreign direct investment, discriminatory cybersecurity and data transfer rules, insufficient intellectual property rights enforcement, inadequate transparency, and lack of market access particularly in the agriculture and service sectors. Market access remains challenging for foreign firms, as China’s restriction of inbound investment results in persistent underperformance in other countries’ services exports, particularly in the banking, insurance, Internet-related, professional, and retail services sectors.

Some recent Chinese laws seek further restrictions on foreign firms:

- *National Security Law*: Adopted in July 2015, the law limits foreign access to the information and communications technology (ICT) market in China on national security grounds.
- *Counterterrorism Law*: Adopted in December 2015, the law requires telecommunications operators and Internet service providers to provide information on technical support assistance to public and state security organizations “conducting prevention and investigation of terrorist activities.”
- *Cyber Security Law*: The law, which went into effect in June 2017, promotes development of indigenous technologies and restricts sales of foreign ICT. The law also mandates that foreign companies submit ICT for government-administered national security reviews, store data in China, and seek government approval before transferring data outside of China.

# OSD on Chinese Economic Policies and Goals: 2019 - II

As China restricts inbound investment and limits other countries' exports to China, it also pursues state-directed investment overseas. Along with heavy investments in infrastructure and commodities to support its economic growth, China is investing in technologies that will be foundational for future innovations with both commercial and military applications.

China obtains foreign technology through imports, foreign direct investment, the establishment of foreign research and development (R&D) centers, joint ventures, research and academic partnerships, talent recruitment, and industrial and cyberespionage. In December 2018, two Chinese nationals were indicted for conspiracy to commit computer intrusions, conspiracy to commit wire fraud, and aggravated identity theft. The Chinese nationals worked for a company in China called Huaying Haitai Science and Technology Development Company and acted in association with the Chinese Ministry of State Security's Tianjin State Security Bureau. Through their involvement with a hacking group operating in China known as Advanced Persistent Threat 10 (APT10), the Chinese nationals conducted global campaigns of computer intrusions targeting intellectual property and confidential business and technological information at managed service providers. The APT10 group stole hundreds of gigabytes of sensitive data and targeted the computers of victim companies involved in aviation, space and satellite technology, manufacturing technology, pharmaceutical technology, oil and gas exploration and production technology, communications technology, computer processor technology, and maritime technology.

Recent government policies have promoted innovation focused on strengthening domestic industry, while placing additional restrictions on foreign firms. Recognizing that some of its programs such as "Made in China 2025" and OBOR have sparked concerns about China's intentions, China's leaders have softened their rhetoric when promoting these programs without altering their fundamental strategic goals.

- *"Made in China 2025"*: China has become aware of acute concerns that advanced industrial countries have regarding "Made in China 2025," and in June 2018, Chinese media outlets were ordered to downplay use of the term. Announced in May 2015, the "Made in China 2025" plan sets targets for higher levels of domestic manufacturing in strategic industries by 2020 and 2025 with the goal of increasing indigenous innovation. China plans to award subsidies and strengthened protection of domestic industries, while increasing pressure on foreign firms to transfer technology in order to do business in China. The plan also seeks to favor domestic enterprises at the expense of foreign participants in China's markets.
- *OBOR*: OBOR is intended to develop strong economic ties with other countries, shape their interests to align with China's, and deter confrontation or criticism of China's approach to sensitive issues. Countries participating in OBOR could develop economic dependence on Chinese capital, which China could leverage to achieve its interests. The growth of China's global economic footprint also makes its interests increasingly vulnerable to international and regional turmoil, terrorism, piracy, and serious natural disasters and epidemics, which places new requirements on the PLA to address these threats. Some OBOR investments could create potential military advantages for China, should China require access to selected foreign ports to pre-position the necessary logistics support to sustain naval deployments in waters as distant as the Indian Ocean, Mediterranean Sea, and Atlantic Ocean to protect its growing interests.

China has employed economic tools coercively during periods of political tensions with its neighbors. Following the collision of a PRC- flagged fishing boat with a Japanese Coast Guard vessel near the Senkaku Islands, China halted exports to Japan in 2010 of rare earth elements used in high-tech industries. In 2016, after the visit of the Dalai Lama to Mongolia, China suspended talks on a major assistance loan, worsening Mongolia's fiscal challenges and eventually driving it to seek a bailout from the International Monetary Fund. China also increased fees on imports of mining products from Mongolia and temporarily closed an important border crossing. China used economic and diplomatic pressure unsuccessfully in 2017 in an attempt to urge South Korea to reconsider the deployment of the Terminal High-Altitude Area Defense (THAAD) system.

# **Positive and Negative Trends in China's Economy and Shifts in Chinese Demographics**

## **China's Major Economic Successes**

There are many different estimates of the exact levels of China's economic progress, but the range of estimates in this section make it clear that China has made major progress, can now compete with the size of the U.S. economy in at least PPP terms, has a major lead in global trade, and has sharply increased its per capita income – although China's per capita remains far below the levels of the wealthiest industrialized states.

The UN estimates that the rising population pressure that has been a critical problem for China since the 1950s will now decline sharply, along with its challenge in creating new jobs for its youth and dealing with a high child dependency on state aid and wage earners. The decline in extreme poverty has been particularly impressive, although a major challenge still remains – particularly in rural areas in central and western China.

As the following sections show, this progress has been reinforced by major progress in increasing the size of China's manufacturing base, and its level of technical sophistication. China has also made major progress in its technology base, research and development activities, and level of technical education.

# China's 70<sup>th</sup> Anniversary White Paper on Trade and Investment

From 1978 to 2018, China attracted a total of more than US\$2 trillion in non-financial FDI, and nearly 1 million foreign-invested enterprises were set up in the country. In 2018, almost half a million foreign students came to study in China. Since its accession to the WTO in 2001, China's participation in economic globalization has delivered more substantial and speedy outcomes (see Box 2). From 2001 to 2018, China's imports of goods increased from US\$244 billion to US\$2.1 trillion. The rise was 13.6 percent per annum on average, 6.8 percentage points higher than the global average. China's imports of services increased from US\$39.3 billion to US\$525 billion, up by a yearly average of 16.5 percent and accounting for 9.4 percent of the global total.

From 1978 to 2018, China's total imports and exports of goods increased by a factor of 223, and its total imports and exports of services increased by a factor of 147. By November 2018, China had trade relations with more than 230 countries and regions. It had signed 17 free trade agreements with 25 countries and regions, and joined almost all major international economic and financial organizations and multilateral economic mechanisms. According to WTO statistics, in 2017 China's shares of the world's total imports and exports of goods were 10.2 percent and 12.8 percent; in 2018, the two figures were 10.8 percent and 12.8 percent. From 2001 to 2018, the two figures grew by a yearly average of 13.8 percent. The above figures confirm that China's position as the world's largest trader in goods has been further consolidated.

...In 2018, China's overseas investment reached US\$143 billion, up by a factor of 53 since 2002, a yearly average growth of 28.2 percent. China's foreign trade has been growing year by year. From 1978 to 2018, China's foreign trade amounted to US\$52.2 trillion; in 2018, China's exports of goods were US\$2.5 trillion and its exports of services US\$267 billion. In recent years, China has maintained its position as the world's largest source of overseas tourists; in 2018, Chinese outbound tourists numbered nearly 150 million.

# China vs. US — GDP and Trade: CIA 2019

## China

### GDP (purchasing power parity):

\$29.21 trillion (2017 est.)

\$21.72 trillion (2016 est.)

\$20.55 trillion (2015 est.)

note: data are in 2017 dollars

country comparison to the world: 1

### GDP (official exchange rate):

\$12.01 trillion (2017 est.)

note: because China's exchange rate is determined by fiat rather than by market forces, the official exchange rate measure of GDP is not an accurate measure of China's output. GDP at the official exchange rate substantially understates the actual level of China's output vis-a-vis the rest of the world; in China's situation, GDP at purchasing power parity provides the best measure for comparing output across countries

### GDP - real growth rates:

5.9% (2017 est.)

7% (2016 est.)

8% (2015 est.)

country comparison to the world: 21

### GDP - per capita (PPP):

\$16,700 (2017 est.)

\$15,700 (2016 est.)

\$14,600 (2015 est.)

### Exports:

\$2.21E trillion (2017 est.)

\$1.59 trillion (2016 est.)

country comparison to the world: 1

### Exports - partners:

US 19%, Hong Kong 12.4%, Japan 6%, South Korea 4.8% (2017)

### Exports - commodities:

electrical and other machinery, including computers and telecommunications equipment; apparel, furniture, textiles

### Imports:

\$1.74 trillion (2017 est.)

\$1.501 trillion (2016 est.)

country comparison to the world: 2

### Imports - commodities:

electrical and other machinery, including integrated circuits and other computer components, oil and mineral fuels; optical and medical equipment, metal ores, motor vehicles; keyboards

### Imports - partners:

South Korea 9.7%, Japan 9.1%, US 5.5%, Germany 5.3%, Australia 5.1% (2017)

## United States

### GDP (purchasing power parity):

\$19.49 trillion (2017 est.)

\$19.06 trillion (2016 est.)

\$18.77 trillion (2015 est.)

note: data are in 2017 dollars

country comparison to the world: 2

### GDP (official exchange rate):

\$19.49 trillion (2017 est.)

### GDP - real growth rates:

2.2% (2017 est.)

1.6% (2016 est.)

2.9% (2015 est.)

country comparison to the world: 145

### GDP - per capita (PPP):

\$59,800 (2017 est.)

\$58,900 (2016 est.)

\$58,400 (2015 est.)

note: data are in 2017 dollars

country comparison to the world: 10

### Exports:

\$1.553 trillion (2017 est.)

\$1.466 trillion (2016 est.)

country comparison to the world: 2

### Exports - partners:

Canada 18.3%, Mexico 16.7%, China 8.4%, Japan 4.4% (2017)

### Exports - commodities:

agricultural products (soybeans, fruit, corn) 8.2%, industrial supplies (organic chemicals) 26.8%, capital goods (transmitters, aircraft, motor vehicle parts, computers, telecommunications equipment) 48.0%, consumer goods (automobiles, medicines) 16.0% (2008 est.)

### Imports:

\$2.381 trillion (2017 est.)

\$2.208 trillion (2016 est.)

country comparison to the world: 1

### Imports - commodities:

agricultural products 4.9%, industrial supplies 32.9% (crude oil 8.2%), capital goods 30.4% (computers, telecommunications equipment, motor vehicle parts, office machines, electric power machinery), consumer goods 31.8% (automobiles, clothing, medicines, furniture, toys) (2008 est.)

### Imports - partners:

China 21.6%, Mexico 13.4%, Canada 12.8%, Japan 8.8%, Germany 6% (2017)

# The PPP versus Nominal GDP Debate

The rapid growth of the Chinese economy has led many analysts to speculate if and when China will overtake the United States as the “world’s largest economic power.” The “actual” size of China’s economy has been a subject of extensive debate among economists. Measured in U.S. dollars using nominal exchange rates, China’s GDP in 2017 in nominal U.S. dollars was \$11.9 trillion, about 62% of the size of the U.S. economy, according to estimates made by the IMF. China’s 2017 per capita GDP in nominal dollars was \$8,583, which was 14.4% of the U.S. level.

Many economists contend that using nominal exchange rates to convert Chinese data (or those of other countries) into U.S. dollars fails to reflect the true size of China’s economy and living standards relative to the United States. Nominal exchange rates simply reflect the prices of foreign currencies vis-à-vis the U.S. dollar, and such measurements exclude differences in the prices for goods and services across countries. To illustrate, one U.S. dollar exchanged for local currency in China would buy more goods and services there than it would in the United States. This is because prices for goods and services in China are generally lower than they are in the United States. Conversely, prices for goods and services in Japan are generally higher than they are in the United States (and China). Thus, one dollar exchanged for local Japanese currency would buy fewer goods and services there than it would in the United States. Economists attempt to develop estimates of exchange rates based on their actual purchasing power relative to the dollar in order to make more accurate comparisons of economic data across countries, usually referred to as purchasing power parity (PPP).

The PPP exchange rate increases the (estimated) measurement of China’s economy and its per capita GDP. According to the IMF (which uses price surveys conducted by the World Bank), prices for goods and services in China are about half the level they are in the United States. Adjusting for this price differential raises the value of China’s 2017 GDP from \$11.9 trillion (nominal dollars) to \$23.1 trillion (on a PPP basis) (see **Table 1**).<sup>17</sup> IMF data indicate that China overtook the United States as the world’s largest economy in 2014 on a PPP basis...

China’s share of global GDP on a PPP basis rose from 2.3% in 1980 to an estimated 18.3% in 2017, while the U.S. share of global GDP on a PPP basis fell from 24.3% to an estimated 15.3%...This would not be the first time in history that China was the world’s largest economy (see **text box**). China’s economic ascendancy has been impressive, especially considering that in 1980, China’s GDP on a PPP basis was only one-tenth that of the United States (see **Figure 6**). The IMF predicts that by 2022, China’s economy will be 46.6% larger than the U.S. economy on a PPP basis.

**Table 1. Comparisons of Chinese, Japanese, and U.S. GDP and Per Capita GDP in Nominal U.S. Dollars and a Purchasing Power Parity Basis: 2017**

	China	United States
Nominal GDP (\$ billions)	11,938	19,362
GDP in PPP (\$ billions)	23,122	19,362
Nominal Per Capita GDP (\$)	8,583	59,495
Per Capita GDP in PPP (\$)	16,624	59,495



# Who Will Lead in the Future? China vs. US GDP: 2005-2040: 2% vs. 6%

## CIA World Factbook

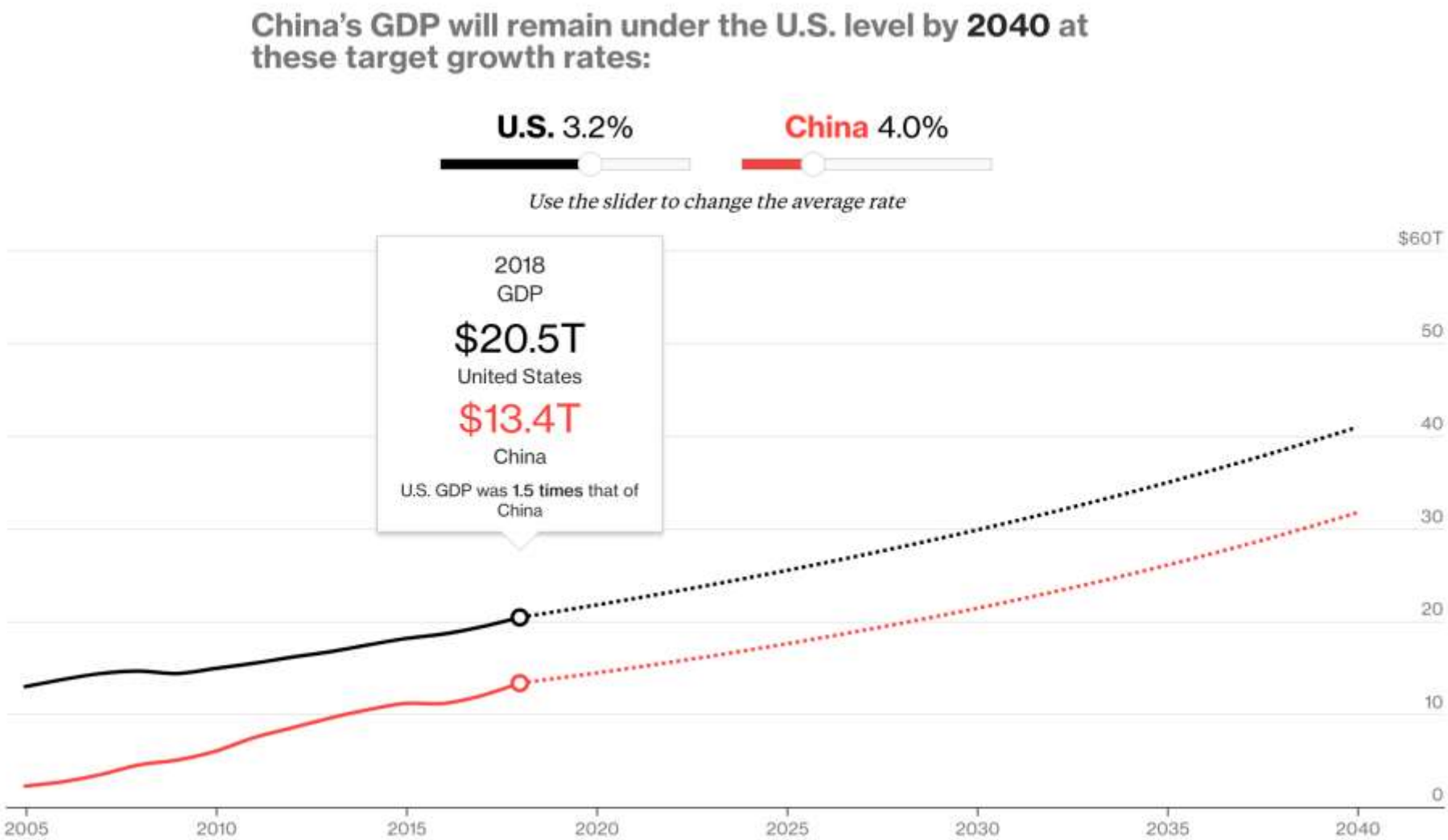
Category	China	U.S.
Population (M)	1,385.0 (2019)	329.0 (2019)
GDP (PPP) \$US Trillions	<b>\$23.21</b> (2017)	\$19.49 (2017)
GDP (PPP) Per Capita (\$US).	\$16,700 (2017)	\$59,800 (2017)
GDP Growth. Rate in %	6.9% (2017)	2.2% (2017)
Gross National. Saving % of GDP	45.8% (2017)	18.9% (2017)

China's GDP will overtake the U.S. level in 2030 at these projected average growth rates:



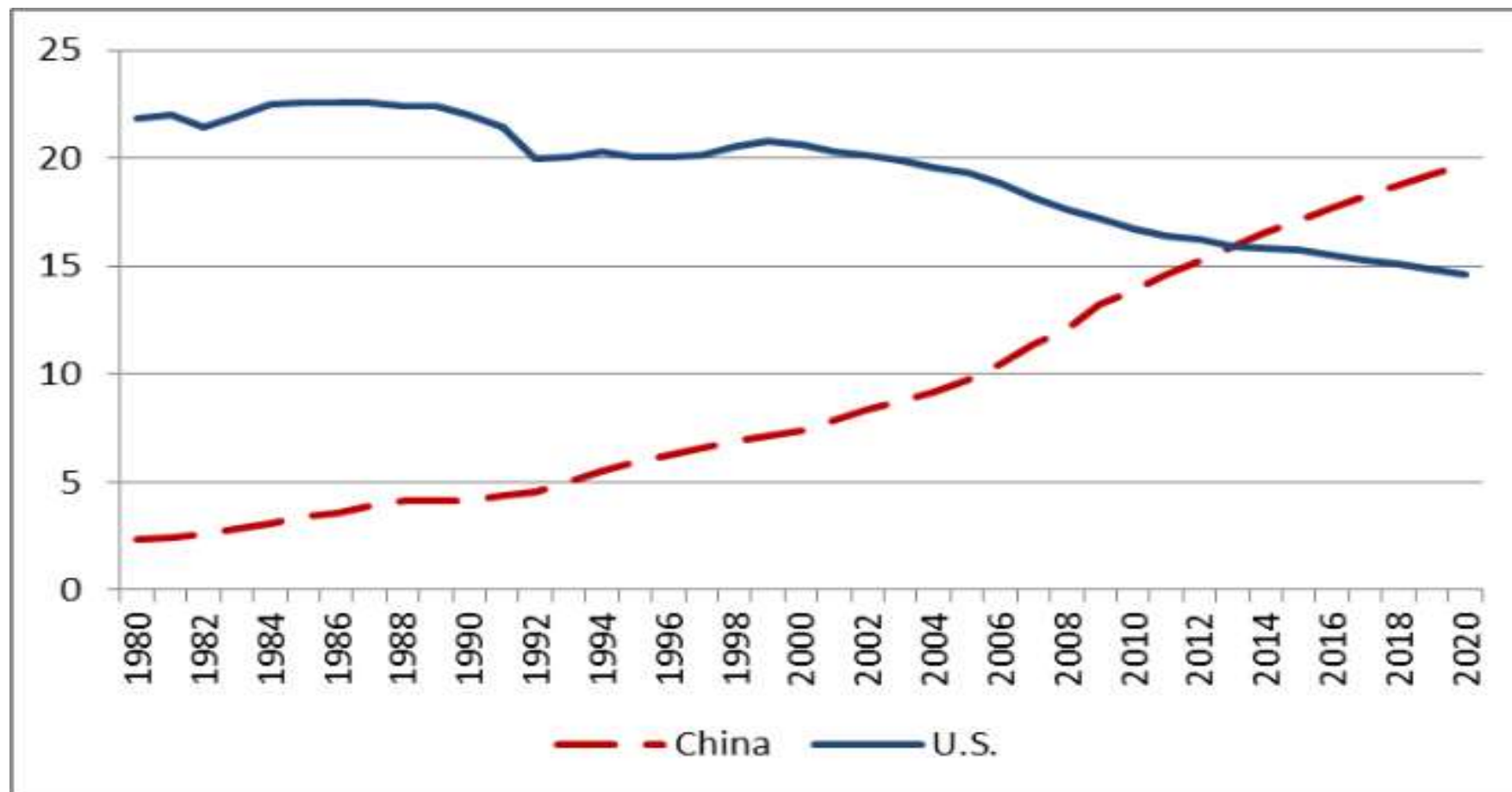
[Malcolm Scott, Cedric Sam](#): Here's How Fast China's Economy Is Catching Up to the U.S., Bloomberg May 21, 2019, <https://www.bloomberg.com/graphics/2016-us-vs-china-economy/>; CIOA World Factbook, accessed September 11, 2019

# Who Will Lead in the Future? China vs. US GDP: 2005-2040: 3.2% vs. 4%



## Who Will Lead in the Future? IMF Projection of China vs. U.S. GDP as Percent of Global Total

(in PPP Terms): 1980-2020



“The PPP measurement raises China’s 2016 nominal per capita GDP (from \$8,583) to \$16,624, which was 27.9% of the U.S. level. Even with continued rapid economic growth, it would likely take many years for Chinese living standards to approach U.S. levels. For example, the EIU projects that, even by the year 2050, Chinese living standards would be half of U.S. levels.”

# Chinese vs. US Per Capita Income: 1986-2017

## Most Chinese people are still much poorer than the average American

Even on a purchasing-power parity basis that adjusts for price differences, the average person in China still has only about a third the spending power of an American. So even if China buys additional U.S. grains and natural gas—as had been expected before talks blew up this month—it will be tough to cut the trade deficit if American shoppers accelerate their own spending.

2017  
GDP per capita (PPP)

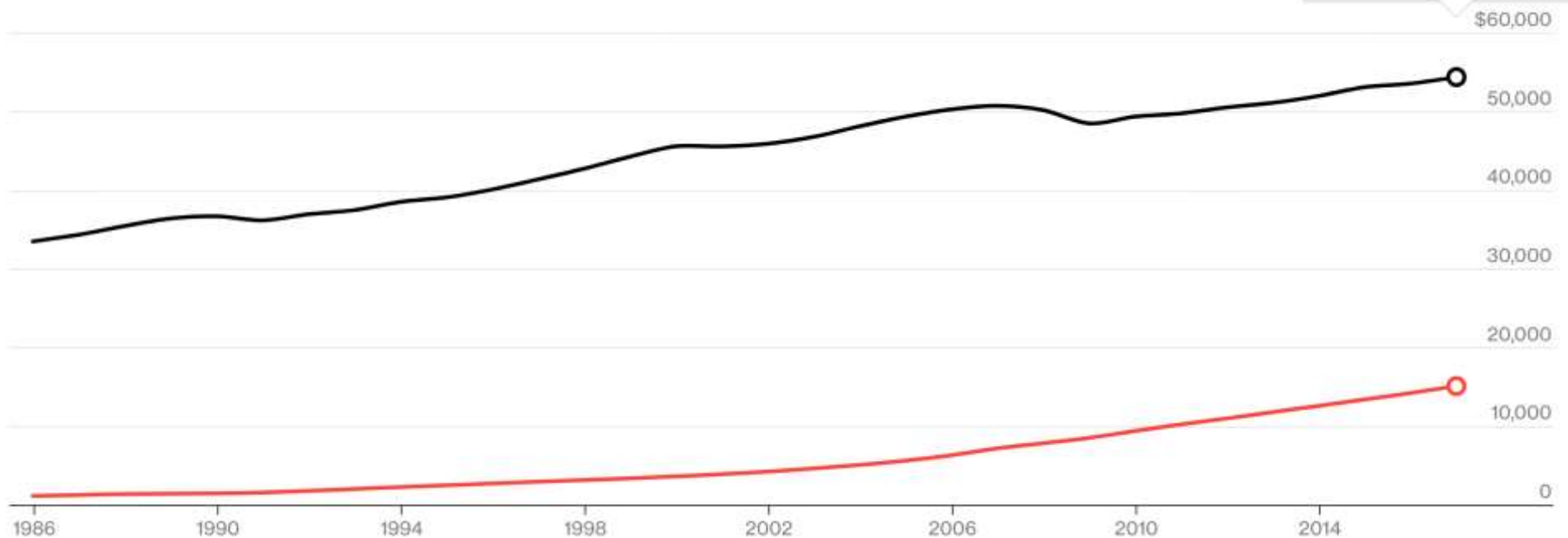
**\$54,441**

United States

**\$15,163**

China

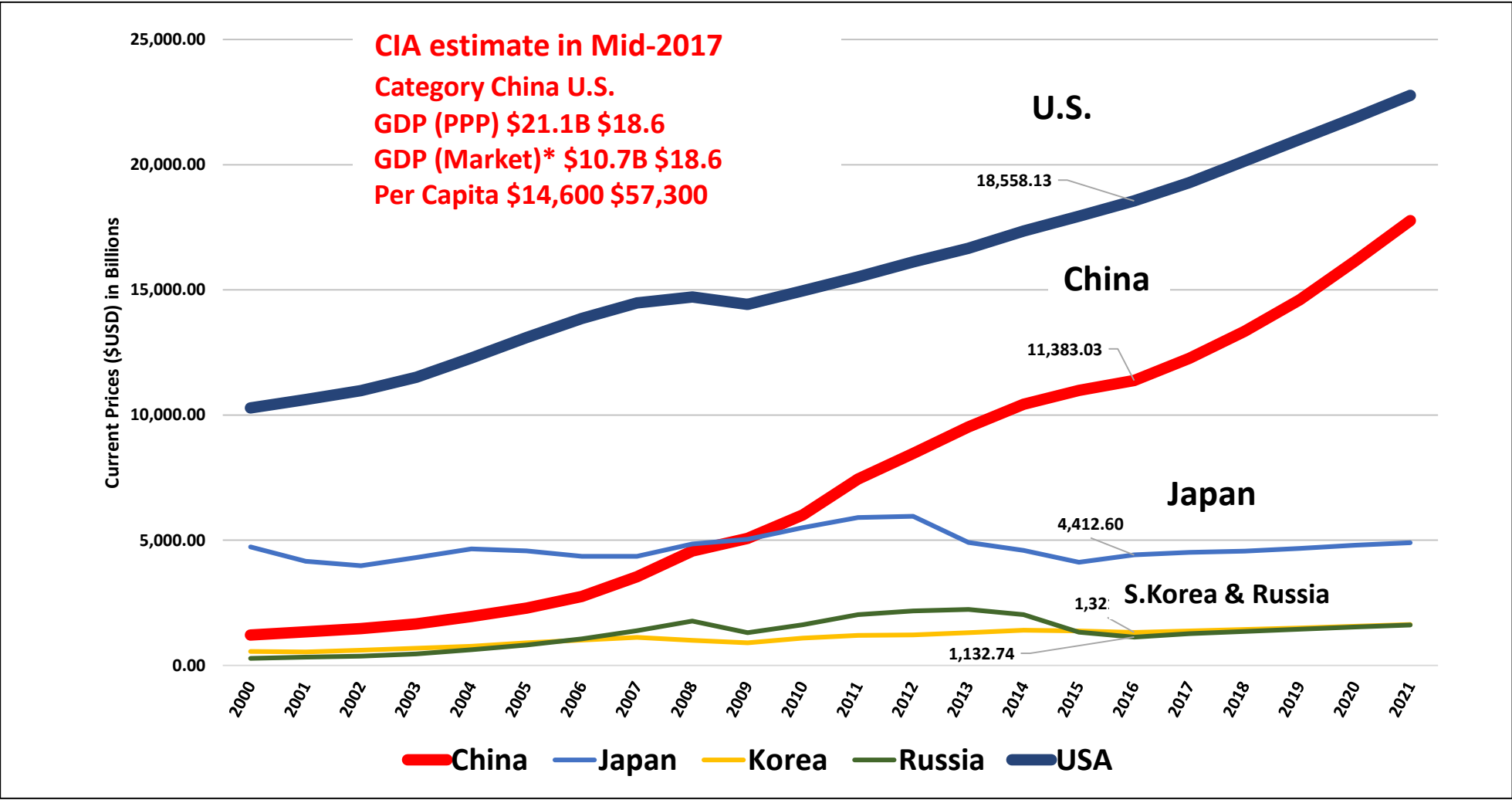
U.S. GDP per capita was  
3.6 times that of China



Figures are in purchasing power parity, 2011 international dollars.

[Malcolm Scott](#), [Cedric Sam](#): *Here's How Fast China's Economy Is Catching Up to the U.S.* Bloomberg May 12, 2016 | Updated: May 21, 2019, Sources: IMF (via Bloomberg). Additional work by: Christopher Cannon, Michael Keller and Ailing Tan

# IMF Estimate of China's Comparative Rise in GDP: 2000-2021



Source: CIA World Factbook and IMF, *World Economic Outlook Database*, April 2016, accessed June, 29 2016, <https://www.imf.org/external/pubs/ft/weo/2016/01/weodata/index.aspx>, adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies. (\* Official exchange rate)

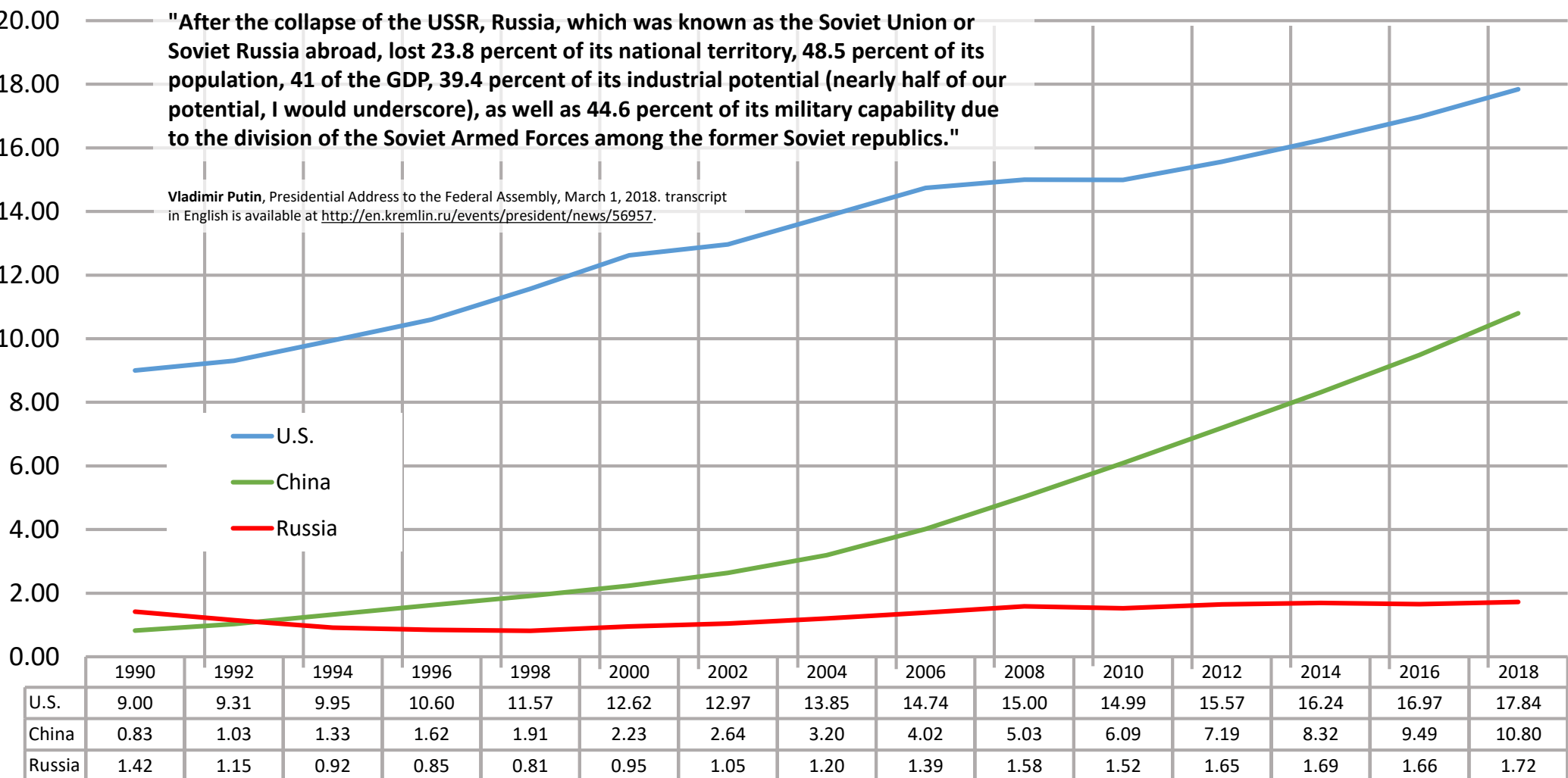
# Russia's Fading Economic Power: GDPs of the U.S., China, and Russia since 1990

(in trillions of 2010 constant \$USD)

"After the collapse of the USSR, Russia, which was known as the Soviet Union or Soviet Russia abroad, lost 23.8 percent of its national territory, 48.5 percent of its population, 41 of the GDP, 39.4 percent of its industrial potential (nearly half of our potential, I would underscore), as well as 44.6 percent of its military capability due to the division of the Soviet Armed Forces among the former Soviet republics."

Vladimir Putin, Presidential Address to the Federal Assembly, March 1, 2018. transcript in English is available at <http://en.kremlin.ru/events/president/news/56957>.

U.S.  
China  
Russia

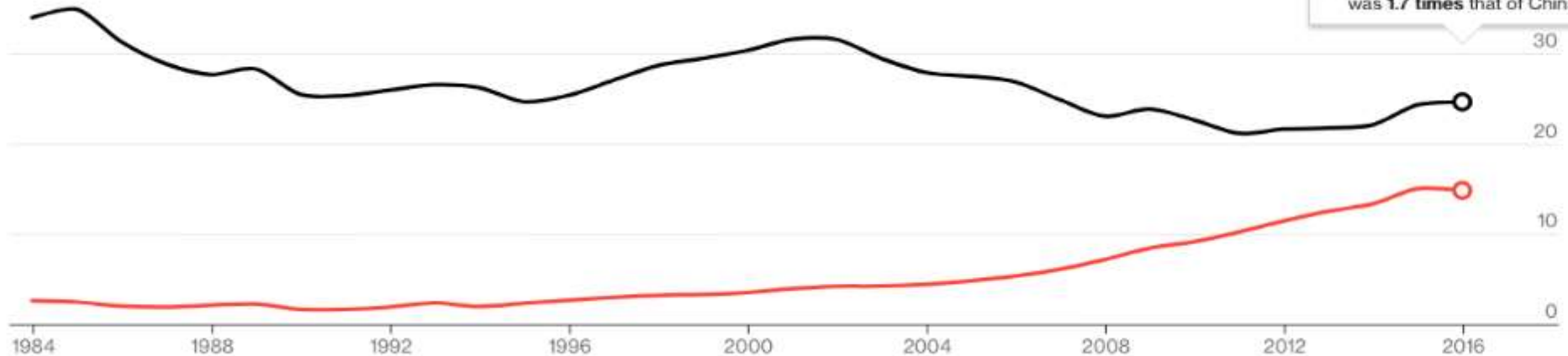


# Who Will Lead in the Future? Chinese vs. US as Percent of Global Economy: 1984-2040

## China and the U.S. make up almost 40 percent of the world economy

As China grows, it's making up a larger share of the global economy. But it's not all at America's expense—China is muscling out Europe and Japan, too. China's growing heft means it'll contribute more than a third to global growth this year, according to IMF estimates.

2016  
Share of world economy  
**24.7%**  
United States  
**14.9%**  
China  
U.S. share of the world economy  
was **1.7 times** that of China

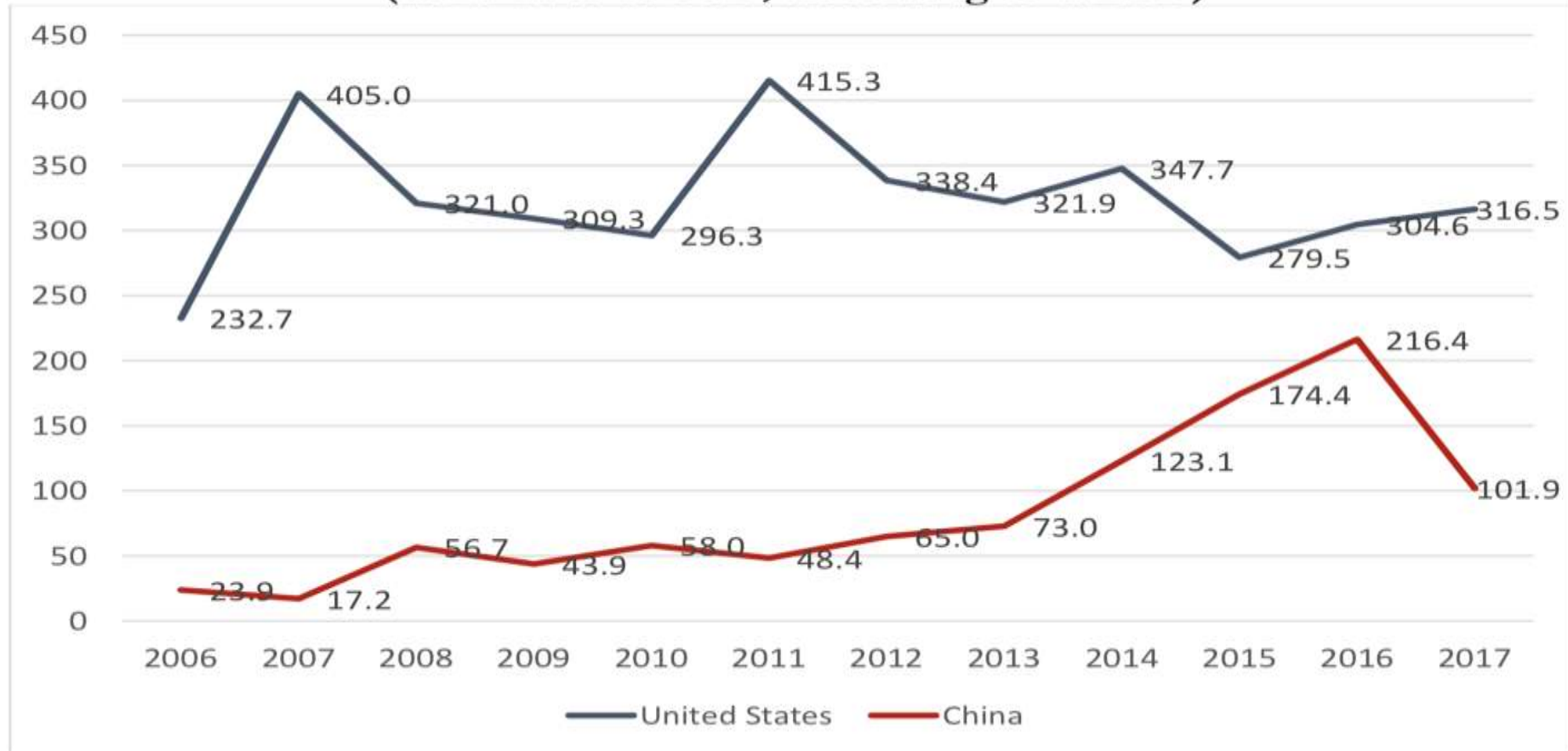


[Malcolm Scott](#), [Cedric Sam](#): *Here's How Fast China's Economy Is Catching Up to the U.S.* Bloomberg May 12, 2016 | Updated: November 06, 2017, Sources:, IMF (via Bloomberg). Additional work by: Christopher Cannon, Michael Keller and Ailing Tan

# Trends in Foreign Direct Investment: 2006-2017

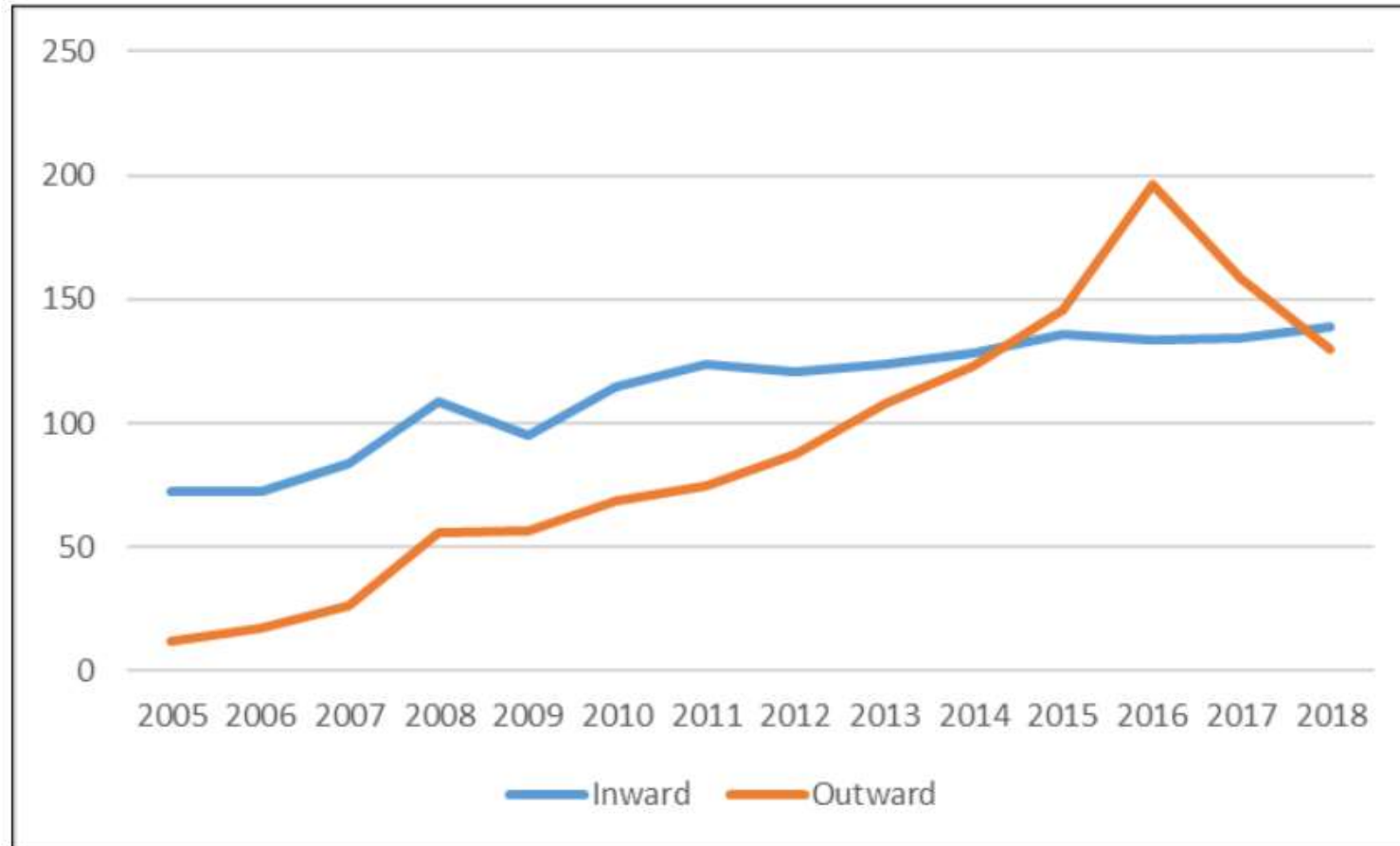
(In \$US Billions)

**Outbound Foreign Direct Investment Flows from China and the United States**  
(in Billions of USD, According to OECD)





## Estimates of China's Annual FDI Inflows and Outflows: 2005-2018 (\$ billions)



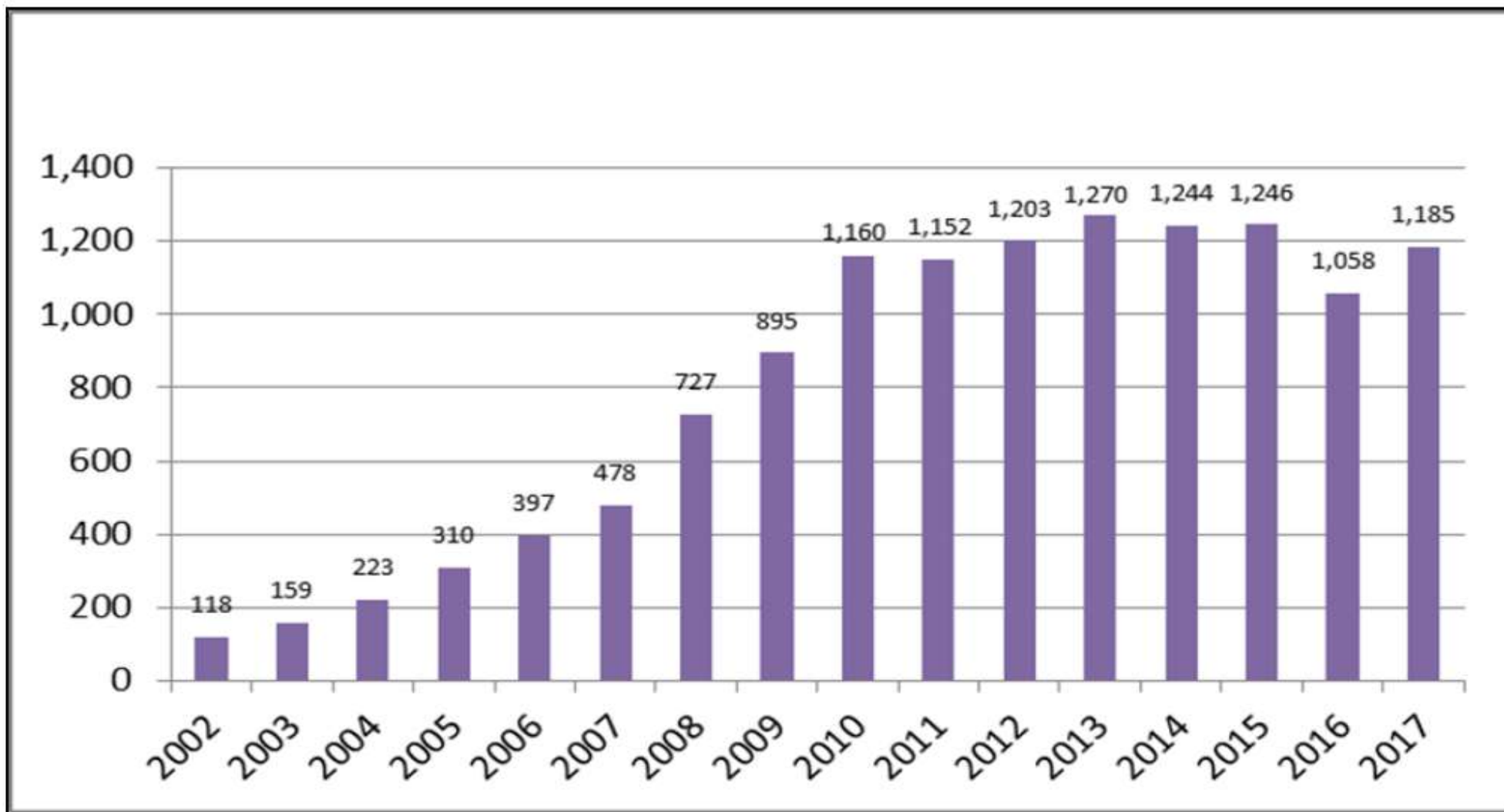
**Source:** UNCTAD

**Notes:** UNCTAD FDI data differ from that reported by China.

Source: Wayne M. Morrison, *China's Economic Rise: History, Trends, Challenges, and Implications for the United States*, Congressional Research Service, Updated June 25, 2019, <https://crsreports.congress.gov>, RL33534, pp. 16.

# China's Holdings of U.S. Securities: 2002-2017

(In \$US Billions)

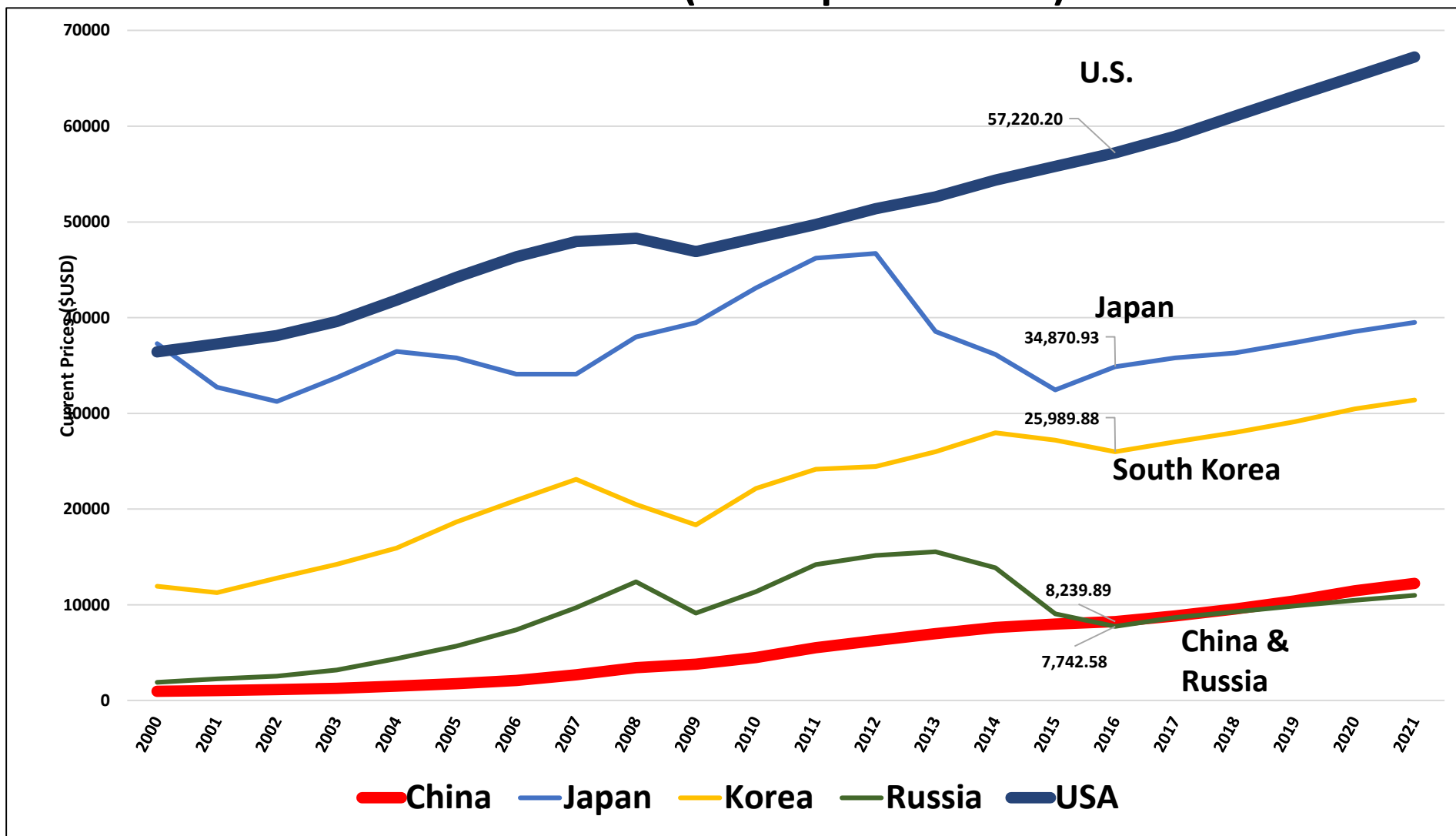


**Source:** U.S. Department of the Treasury.

**Notes:** Data are year-end and exclude Hong Kong and Macau, which are treated separately.

Source: Wayne Morrison, *China-U.S. Trade Issues*, CRS, April 16, 2018, RL 33536, p. 22.

# Shifts in Wealth (Per Capita Income)



Source: IMF, *World Economic Outlook Database*, April 2016, accessed June 29, 2016, <https://www.imf.org/external/pubs/ft/weo/2016/01/weodata/index.aspx> adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies.

# China's 70<sup>th</sup> Anniversary White Paper on Poverty and Peoples Well-Being -II

China has established a preliminary social security system covering elderly care, medical care, minimum subsistence, housing, and education – the largest in scale and covering the largest population in the world. By the end of 2018:

- Participants in urban workers' basic elderly care insurance numbered 419 million;
- Participants in unemployment insurance numbered 196 million;
- Participants in work injury compensation insurance numbered 239 million;
- Basic elderly care insurance covered more than 900 million people;
- Basic medical insurance covered more than 1.3 billion people, almost everyone in the country.

Over the past 70 years, China's life expectancy has increased from 35 in 1949 to 77 in 2018, higher than the world's average of 72. Over the past 70 years, the Chinese people have witnessed profound changes in their mindset. They have carried forward fine traditional Chinese culture, spread modern Chinese values, and enriched and invigorated their cultural life. According to a global wellbeing report released by the Boston Consulting Group (BCG) in 2018, in the past decade, China's ranking rose by 25 places, the fastest rate among the 152 countries covered.(BCG, "Striking a Balance Between Well-Being and Growth: The 2018 Sustainable Economic Development Assessment", September 2018.)

...Before reform and opening up started in 1978, urban and rural residents in China focused their spending on food and clothing. In 1978, the urban and rural Engel coefficients were as high as 57.5 percent and 67.7 percent. Since 1978, the level of consumption in China has greatly improved, and the cultural life of its people has become richer. In 2010, the urban and rural Engel coefficients fell to 31.9 percent and 37.9 percent. Since the 18th CPC National Congress in 2012, living standards have further improved and great strides have been made towards a moderately prosperous society in all respects. In 2018, the urban and rural Engel coefficients dropped to 27.7 percent and 30.1 percent. The following is a list of number of objects owned per 100 households:

- 33 cars, 95.3 percent up from 2013,
- 59.2 motorcycles, 49.9 percent up,
- 249.1 mobile phones, 22.6 percent up,
- 109.3 air conditioners, 55.3 percent up,
- 56.4 range hoods, 32.7 percent up; and
- 85 water heaters, 32.4 percent up.

# China's 70<sup>th</sup> Anniversary White Paper on Poverty and Peoples Well-Being -I

The Chinese people's lives have been greatly improved. A persevering effort has provided the Chinese people with adequate food and clothing, and made it possible for them to live decent lives and move towards a moderately prosperous society in all respects (see Table 2). China's rural population living under the current poverty line decreased from 770 million in 1978 to 16.6 million in 2018, and China's rural poverty incidence dropped from 97.5 percent to 1.7 percent, down by 95.8 percentage points (see Figure 1). This is an outstanding achievement in the history of poverty reduction (see Box 1).

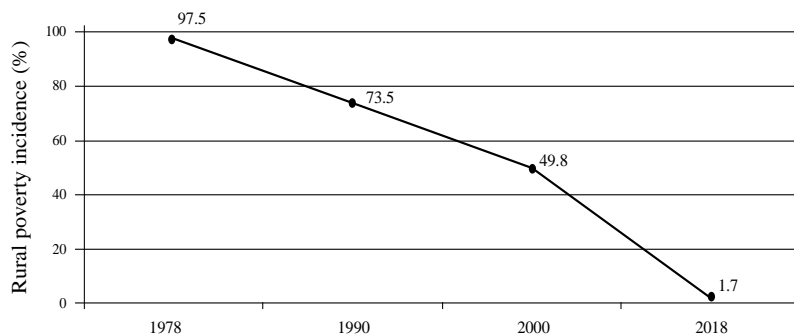
**Table 2 Improvement of the Chinese People's Living Standards**

Index \ Year	Early years after the founding of PRC	1980	2018
Proportion of rural population living under the current poverty line	Extreme poverty	96.2%	1.7%
Per capita disposable income	RMB98 (in 1956)	RMB171 (in 1978)	RMB28,228
Life expectancy	35	65	77
Infant mortality rate	200‰	48‰	6.1‰
Preschool enrollment rate	20%	95.5% (in 1978)	Completion rate of nine-year compulsory education: 94.2%
Average years of schooling for people aged 15 and above	80% illiterate	5.3	9.6
Gross enrollment rate for higher education	0.22%	2.22%	48.1%

## Box 1 China's Achievements in Poverty Elimination

Since the 18th CPC National Congress in 2012, China has launched targeted poverty alleviation and made notable progress. China's rural impoverished population was reduced from 99 million in 2012 to 16.6 million in 2018, a total reduction of 82.4 million, down by 13 million every year on average. China's poverty incidence dropped from 10.2 percent to 1.7 percent, down by nearly 9 percentage points. In 2019, China planned to help at least another 10 million poor and about 330 poor counties out of poverty.

Over more than 40 years of reform and opening up since 1978, according to the World Bank's international poverty line of US\$1.9 per person per day, more than 800 million Chinese population have shaken off poverty, accounting for more than 70 percent of the global figure over the same period. China has become the first developing country to realize the poverty reduction objective in the United Nations Millennium Development Goals. UN Secretary-General António Guterres praised China as the largest contributor to global poverty reduction. In 2018, the UN General Assembly adopted a resolution on eliminating rural poverty, which included the concept and practice of targeted poverty alleviation initiated by China. China has provided a wealth of experience for the global fight against poverty.



**Figure 1 China's Rural Poverty Incidence, 1978-2018**

## Declines in Chinese Poverty II

(at Consumption Rates of \$1.90 A Day Per Capita)

Evaluation of Poverty Population around the World:  
Poverty Line Using US\$1.90 Per Day in 2011 PPP (millions)

Regions	1981	1990	2002	2011	2012
East Asia and Pacific	1,142.5	995.5	552.7	173.1	137.2
China	877.8	755.8	409.1	106.2	87.4
Europe and Central Asia	—	8.8	29.2	11.4	10.1
Latin America and the Caribbean	87.7	78.2	70.5	35.3	33.7
Middle East and North Africa	—	13.5	—	—	—
South Asia	537.7	574.6	583.0	361.7	309.2
Sub-Saharan Africa	—	287.6	399.0	393.6	388.8
Total	1,997.3	1,958.6	1,645.1	983.3	896.7
Total less China	1,119.5	1,202.8	1,236	877.1	809.3

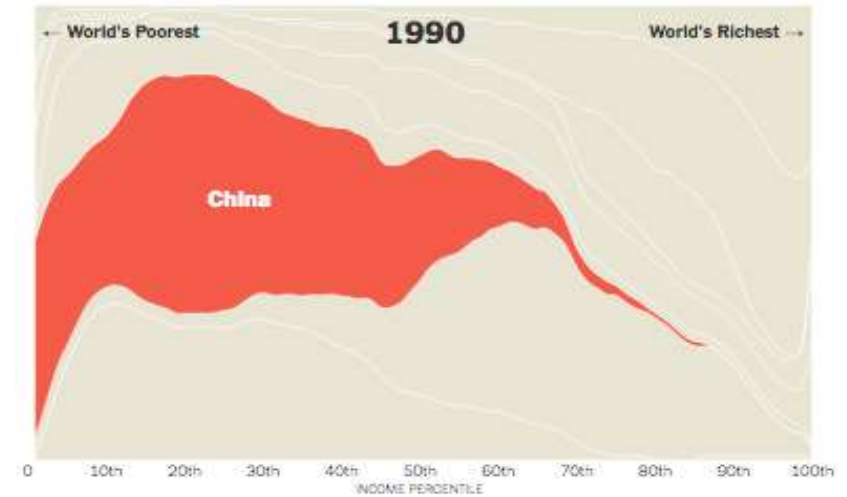
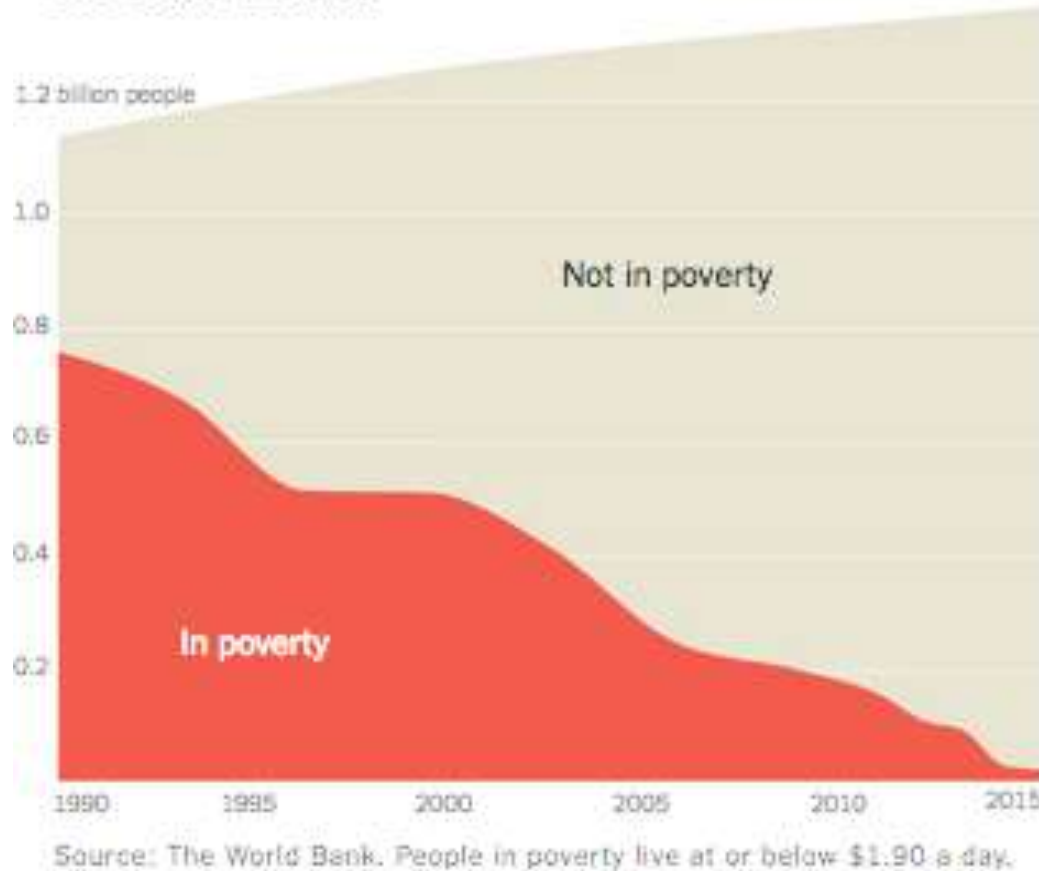
Evaluation of Poverty in China, 1981–2012:  
Poverty Line Using US\$1.90 Per Day in 2011 PPP

Year	Head Count (%)	Number of Poor	Poverty Gap (%)
1981	88.32	877.8	43.19
1984	75.75	785.4	29.4
1987	60.84	659.5	21.73
1990	66.58	755.8	24.37
1993	57	671.7	20.57
1996	42.05	512.0	13.04
1999	40.54	507.9	13.23
2002	31.95	409.1	10.23
2005	18.75	244.4	4.94
2008	14.65	194.1	3.87
2010	11.18	149.6	2.66
2011	7.9	106.2	1.76
2012	6.47	87.4	1.37
2013	1.85	25.2	

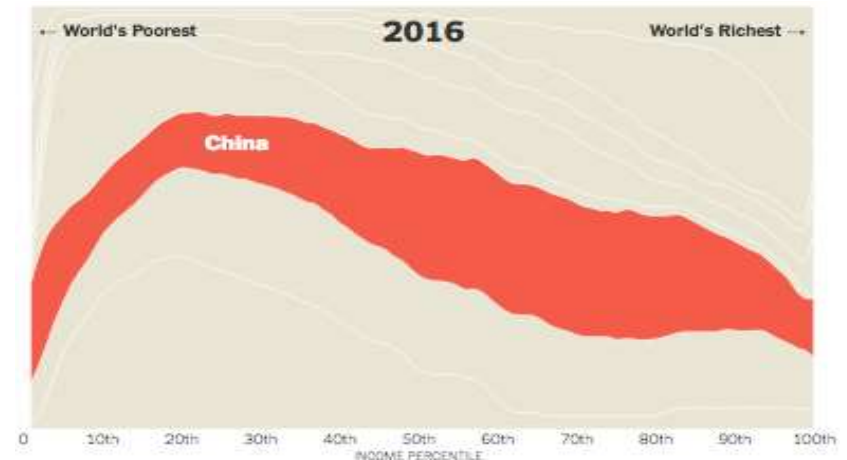
Source: World Bank, , China-Systemic Country Diagnostic, Report No. 113092-CN, 2017, pp. 43,47.

## Decline in Chinese Poverty - II

Eight hundred million people have risen out of poverty. That's two and a half times the population of the United States.



Source: World Inequality Database

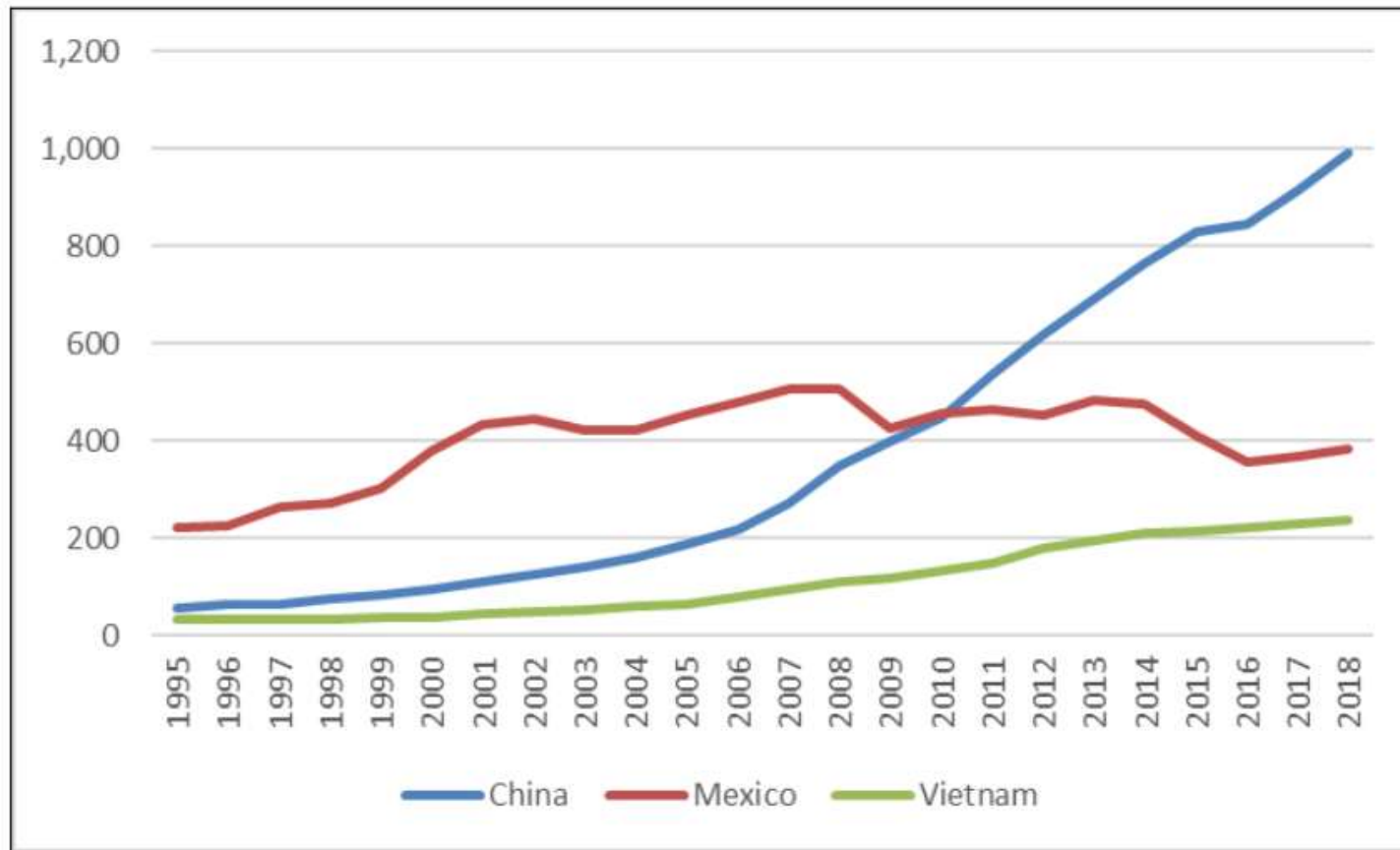


Source: World Inequality Database

Source: JAVIER C. HERNÁNDEZ and QUOCTRUNG BUI, "The American Dream Is Alive. In China," *New York Times*, November 18, 2018, <https://www.nytimes.com/interactive/2018/11/18/world/asia/china-social-mobility.html>



## Average Monthly Wages for China, Mexico, and Vietnam: 1990-2018 (nominal U.S. dollars)



**Source:** Economist Intelligence Unit.

**Notes:** Because data are listed in U.S. dollars rather than local currency, changes to wages may also partially reflect changes to exchange rates with the U.S. dollar. However, such data may reflect average labor costs in dollars that U.S.-invested firms might face in their overseas operations.



# **China's Changing Manufacturing Base and Trade Patterns**

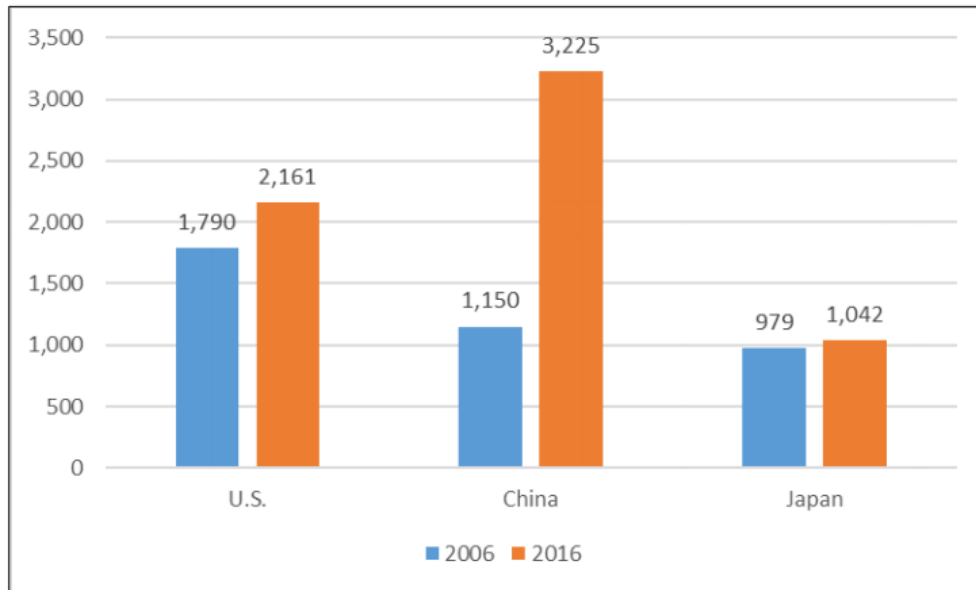
## **China's Progress in Manufacturing**

Once again, there are many ways to calculate the progress in China's manufacturing sector, and its implications for China's industrial base. There is little doubt, however, that China's manufacturing sector is now much larger than that of the U.S. and other Asian economic powers like Japan. It has become a key reason that China is now a leading importer of commodities and other goods, but also of the reason for a major shift from labor-intensive to high technology manufacturing.

As DIA notes, China has used this progress to make steady improvements in its defense industrial base. It not only is doing so in key areas of conventional arms manufactures, but increasingly in cutting edge areas of military technology. There are still many areas where China lags behind the U.S., but it is catching up in many areas and has already made great improvements in deploying key weapons like precision strike systems.

# China versus U.S. Manufacturing

Gross Value Added Manufacturing in China, the United States, and Japan: 2006 and 2016  
(\$ billions)



China has emerged as the world's largest manufacturer according to the United Nations. The Graph shows estimates of the gross value added of manufacturing in China, the United States, and Japan expressed in U.S. dollars from 2005 to 2014.

Gross value added data reflect the actual value of manufacturing that occurred in the country (i.e., they subtract the value of intermediate inputs and raw materials used in production). These data indicate that China overtook Japan as the world's second-largest manufacturer on a gross value added basis in 2006 and the United States in 2010.

In 2014, the value of China's manufacturing on a gross value added basis was 39.6% higher than the U.S. level.

Manufacturing plays a considerably more important role in the Chinese economy than it does for the United States. In 2014, China's gross valued added manufacturing was equal to 27.7% of its GDP, compared to 12.1% for the United States.

# China's 70<sup>th</sup> Anniversary White Paper on Industrialization and Urbanization

The economic structure is undergoing a profound adjustment, industrial upgrading is continuing, and new economic growth areas are constantly emerging. The urbanization rate of permanent residents reached 59.6 percent in 2018 and will increase steadily. The number of permanent urban residents will continue to increase. This will bring a wide range of needs in various areas, such as infrastructure, real estate, new retail, medical treatment and public health, education, culture and entertainment, and provide an important engine for economic development. New industries and business forms are emerging.

In 2018, the added value of high-tech manufacturing increased by 11.7 percent over the previous year. Corresponding figures for strategic emerging industries and equipment manufacturing were 8.9 percent and 8.1 percent. New energy vehicles, intelligent televisions, lithium-ion batteries and integrated circuits increased by 66.2, 17.7, 12.9 and 11.2 percent, respectively.

The growth rate of the information service industry is as high as 30.7 percent, and the growth rate of mobile games, online shopping, ride-sharing platforms, travel platforms, big data cloud computing and other sub-industries is 30 to 50 percent. Each sub-industry has given birth to a number of “unicorn” enterprises.

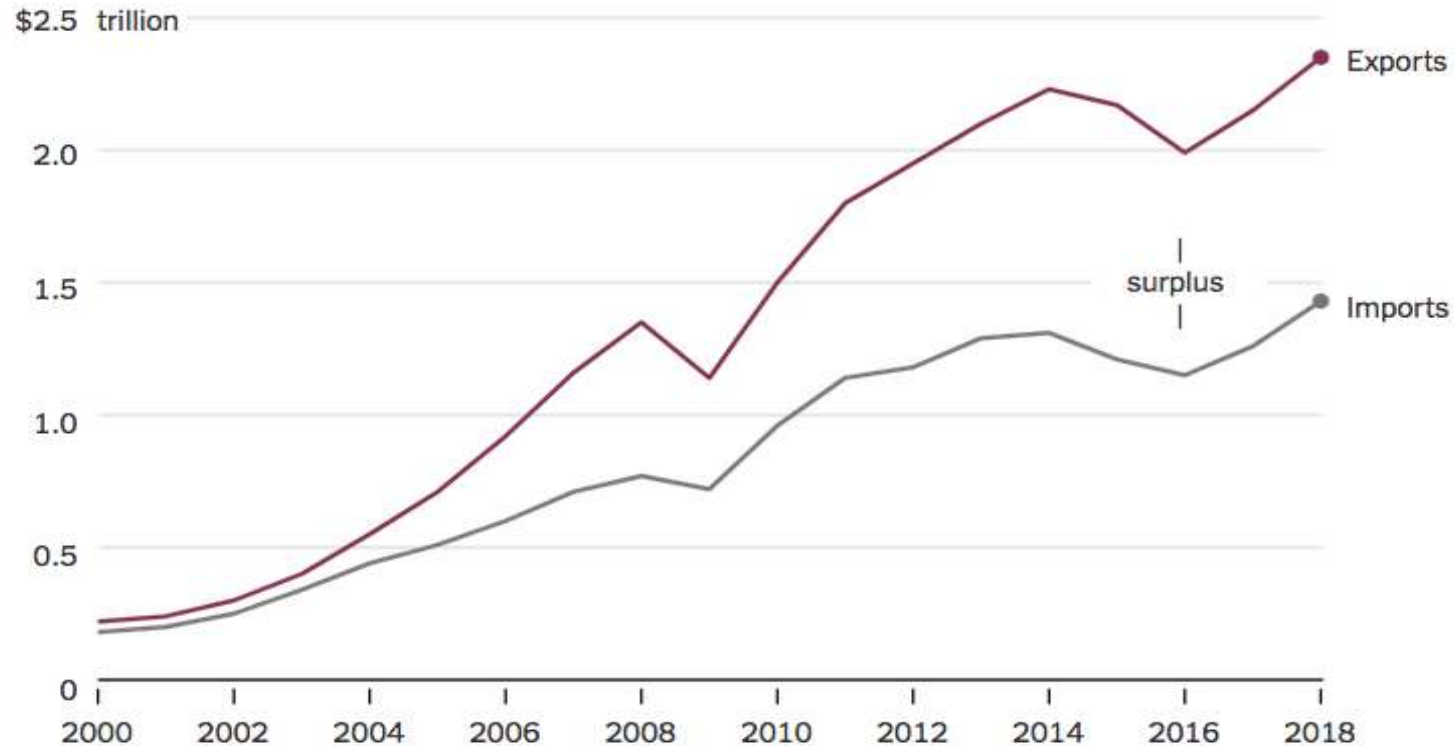
According to an MGI report, by 2040, the integration between China and the rest of the world is expected to drive economic value of US\$22 trillion to US\$37 trillion, equivalent to 15 to 26 percent of global GDP. Strengthened cooperation between China and other countries will create enormous economic value.

MGI, “China and the world: Inside the dynamics of a changing relationship”, July 2019.

# Chinese Surplus in Manufactured Goods: 1991-2017

(\$US Trillions)

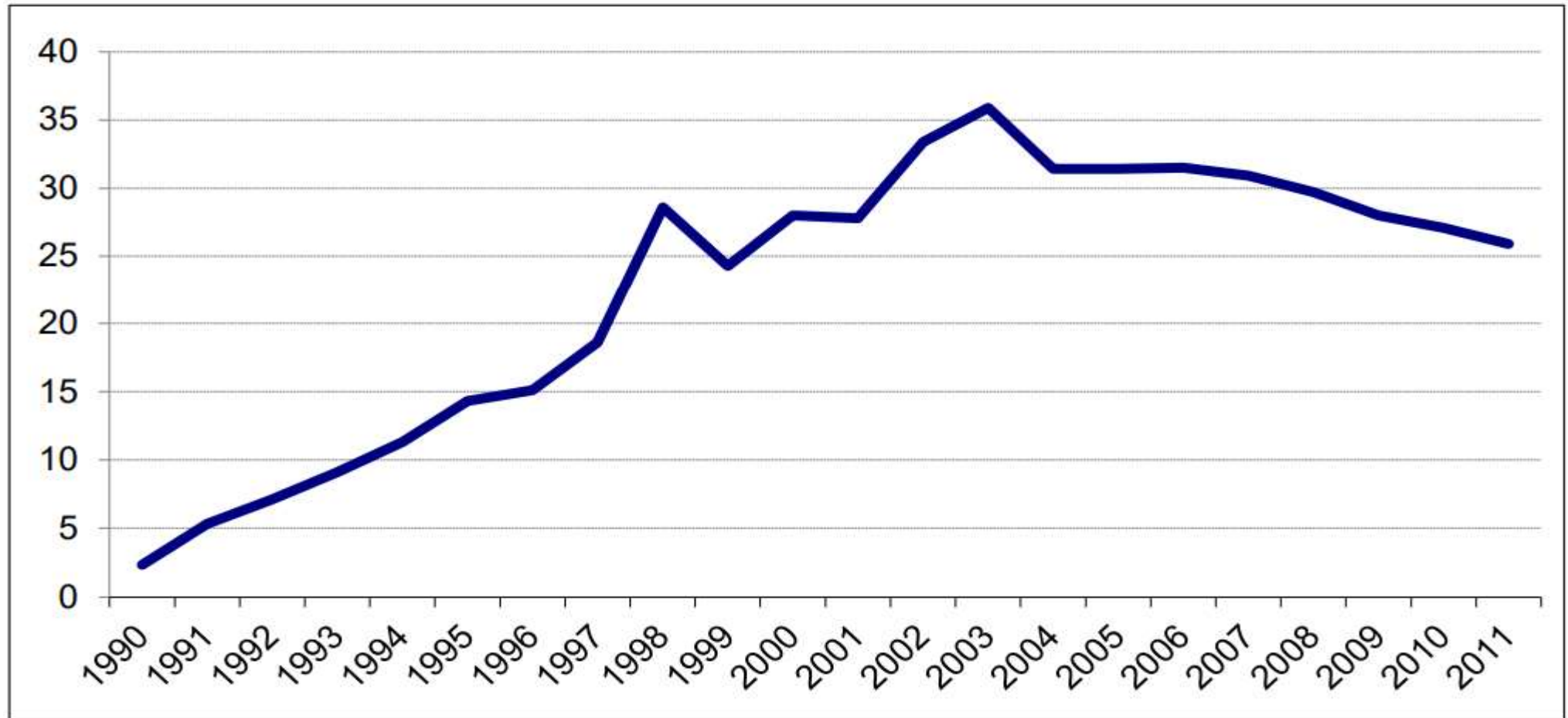
China's manufactured goods trade



Note: Annual figures for China's exports and imports of all manufactured goods. China runs a trade deficit in many raw materials, notably oil and iron ore.

By The New York Times | Source: China's General Administration of Customs, via CEIC Data

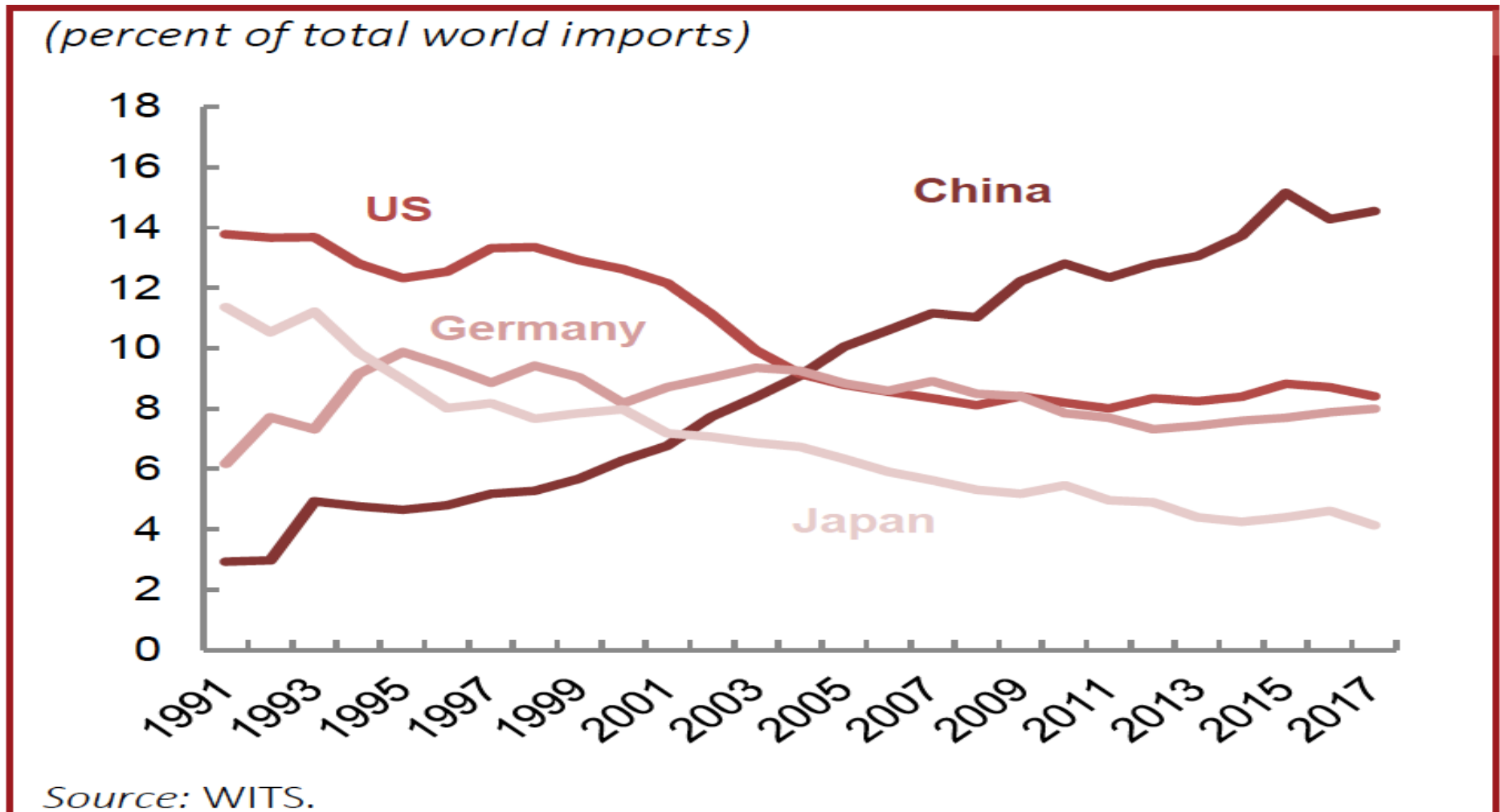
## Industrial Output by Foreign-Invested Firms in China as a Share of National Output Total: 1990-2011 (percentage)



**Source:** Invest in China (<http://www.fdi.gov.cn>) and China's 2012 Statistical Yearbook.

# Share of Global Trade in Goods by Country: 1991-2017

(Percent of World Imports)



# US-China Trade in 2018

U.S. goods exports to China totaled \$120.8 billion in 2018, a 7.3% (\$9.4 billion) decrease from the 2017 level (see **Table 3**). The value of U.S. goods imports from China was \$540.4 billion over the same period, up 6.8% (\$34.4 billion) from 2017. The decrease in U.S. exports and increase in U.S. imports resulted in a \$43.8 billion (11.7%) increase in the bilateral trade deficit, to \$419.6 billion. Exports to China accounted for 7.2% of all U.S. goods exports, while imports from China accounted for 21.1% of all U.S. goods imports.

**Table 3. U.S.-China Trade in 2018**

	U.S.\$ (billions)	% Change from 2017*
<b>Total U.S. Exports to China</b>	178.0	-4.5
Exports of Goods	120.8	-7.3
Exports of Services	57.1	2.0
<b>Total U.S. Imports from China</b>	558.8	6.7
Imports of Goods	540.4	6.8
Imports of Services	18.3	5.1
<b>Total Balance (Deficit)</b>	-380.8	12.9
Balance on Goods (Deficit)	-419.6	11.7
Balance on Services (Surplus)	38.8	0.6

*Timeline*, coordinated by Brock R. Williams; CRS Insight IN10971, *Escalating U.S. Tariffs: Affected Trade*, coordinated by Brock R. Williams; and CRS Insight IN11135, *U.S. Trade Friction with China Intensifies*, by Wayne M. Morrison.

<sup>57</sup> President Donald J. Trump on Twitter, August 1, 2019, <https://twitter.com/realdonaldtrump/status/1156979446877962243>.

<sup>58</sup> Donald J. Trump on Twitter, August 23, 2019, <https://twitter.com/realdonaldtrump/status/1165005929831702529>.

<sup>59</sup> The White House, "Remarks by President Trump Before Marine One Departure," August 1, 2019, <https://www.whitehouse.gov/briefings-statements/remarks-president-trump-marine-one-departure-56/>.

Source: U.S. Bureau of Economic Analysis, Department of Commerce, June 20, 2019.

Note: \*not adjusted for inflation.

Top U.S. goods exports to China in 2018 were capital goods, not including automotive products (\$52.9 billion or 43.8% of U.S. goods exports to China), industrial supplies (\$40 billion or 33.1%), and automotive vehicles and parts (\$10.4 billion or 8.6%). Leading U.S. goods imports from China were consumer goods, not including food and automotive (\$248.2 billion or 45.9% of U.S. goods imports from China), industrial supplies (\$55.6 billion or 10.3%), and automotive vehicles and parts (\$23.1 billion or 4.28%).

China has levied retaliatory tariffs on most U.S. agricultural and food products. The tariffs reportedly contributed to the sharp overall decline of these exports to China (particularly of U.S. soybeans) in 2018.<sup>60</sup> Total U.S. agricultural exports to China amounted to \$9.1 billion, a decline of 53.0% from 2017, while the value of U.S. agricultural imports from China was \$4.9 billion, up 8.9% from 2017.<sup>61</sup> China's share of total U.S. agricultural exports declined from 14.1% in 2017 to 6.6% in 2018.

## Trade in Services

In 2018, U.S. services exports to China totaled \$57.1 billion (up 2.0% or \$1.1 billion), while U.S. imports of services from China grew 5.1% (\$887 million) to \$18.3 billion. The bilateral trade surplus in services stood at \$38.8 billion (up 0.6% from 2017). Exports to China accounted for 6.9% of all U.S. services exports, while imports from China accounted for 3.2% of all U.S. services imports.

Travel represented the largest category of U.S. services exports to China, accounting for 56.1% (\$32.1 billion). Other significant categories were charges for the use of IP rights (14.8% of all services exports to China or \$8.5 billion) and transport (9.3% or \$5.3 billion). Leading U.S. services imports from China were transport (27.4% of all services imports from China or \$5.0 billion) and travel (24.7% or \$4.5 billion).



# China versus U.S. Merchandise Trade Balance: 2001-2018

(billions of dollars)

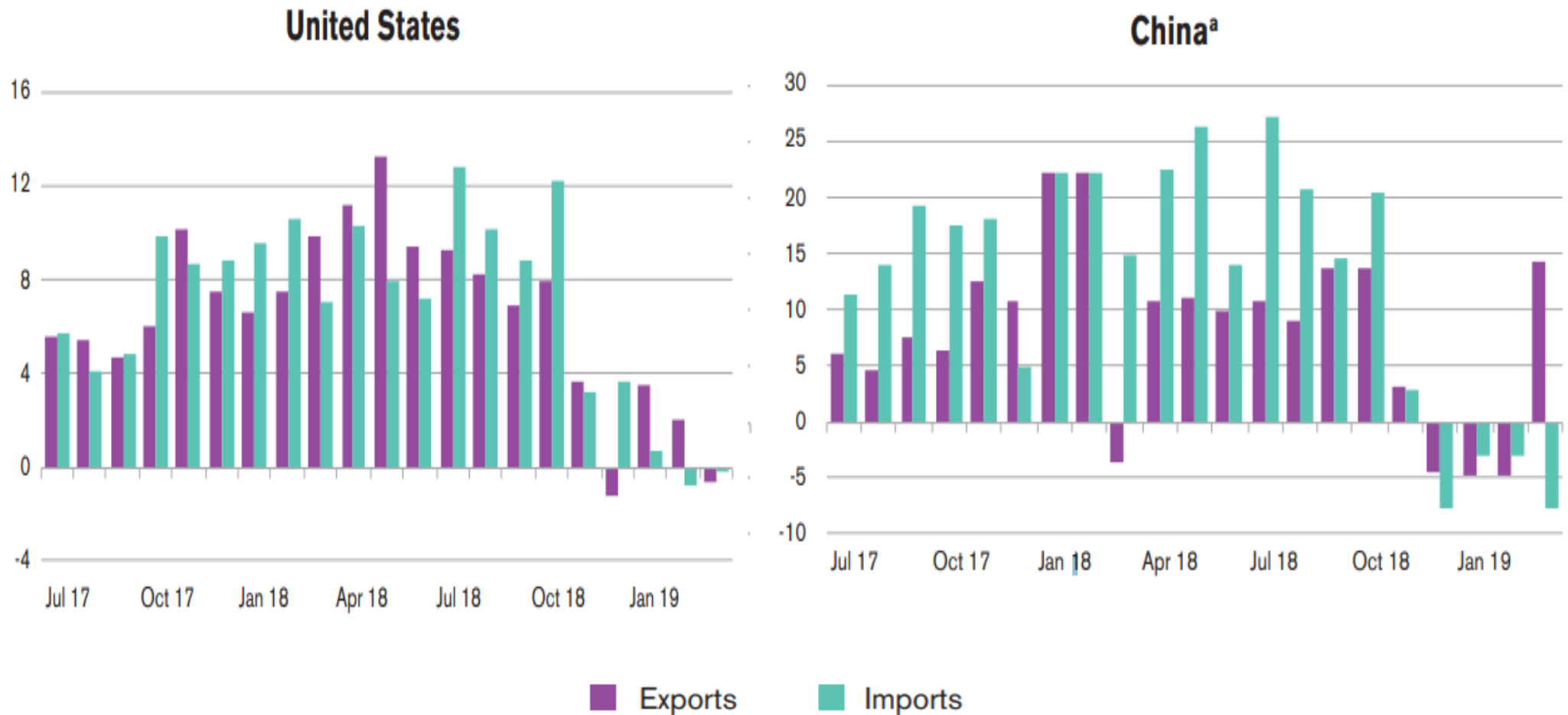
Year	U.S. Trade Figures			Chinese Trade Figures		
	Exports to China (F.A.S.)	Imports from China (C.V.)	Trade Balance	Exports to United States (F.O.B.)	Imports from United States (C.I.F.)	Trade Balance
2001	19.396	102.570	-83.174	54.277	26.204	28.073
2002	22.317	125.498	-103.181	69.959	27.228	42.731
2003	28.646	152.974	-124.328	92.510	33.883	58.627
2004	34.833	197.456	-162.623	124.973	44.653	80.320
2005	41.874	244.699	-202.825	162.939	48.735	114.204
2006	54.813	289.246	-234.433	203.516	59.222	144.294
2007	64.313	322.975	-258.662	232.761	69.861	162.900
2008	71.346	339.581	-268.235	252.327	81.486	170.841
2009	70.636	297.872	-227.236	220.706	77.433	143.273
2010	93.059	366.126	-273.067	283.184	101.310	181.873
2011	105.445	400.632	-295.187	324.300	118.121	206.180
2012	111.855	426.792	-314.937	351.884	127.755	224.129
2013	122.827	441.621	-318.794	368.349	145.926	222.423
2014	124.747	467.940	-343.193	396.082	159.036	237.046
2015	116.817	484.371	-367.554	409.648	148.736	260.912
2016	115.775	462.813	-347.038	388.617	132.394	256.223
2017	130.370	505.597	-375.227	429.758	153.943	275.815
2018	120.341	539.503	-419.162	478.423	155.096	323.327

Source: China's General Administration of Customs, U.S. Bureau of Economic Analysis (BEA).

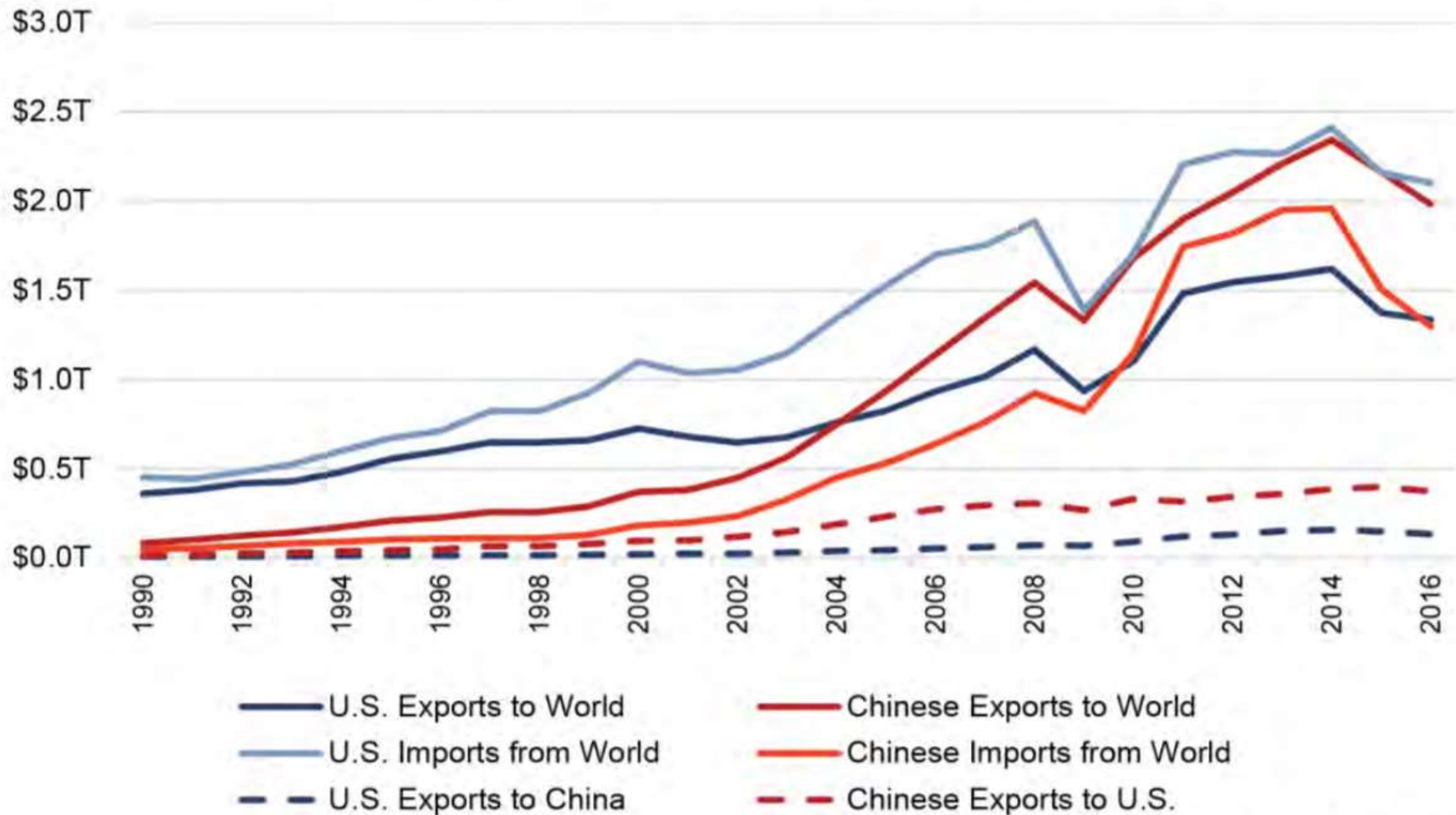
Note: China values its exports using the "free on board," or F.O.B. method and its imports using the "cost, insurance, and freight," or C.I.F. method. The United States values its exports using the "free alongside," or F.A.S. method and its imports using the "Customs value" (C.V.) method.

# Merchandise exports and imports of the U.S. and Chinese economies: July 2017-March 2019

(Year-on-year percentage change in US\$ values)

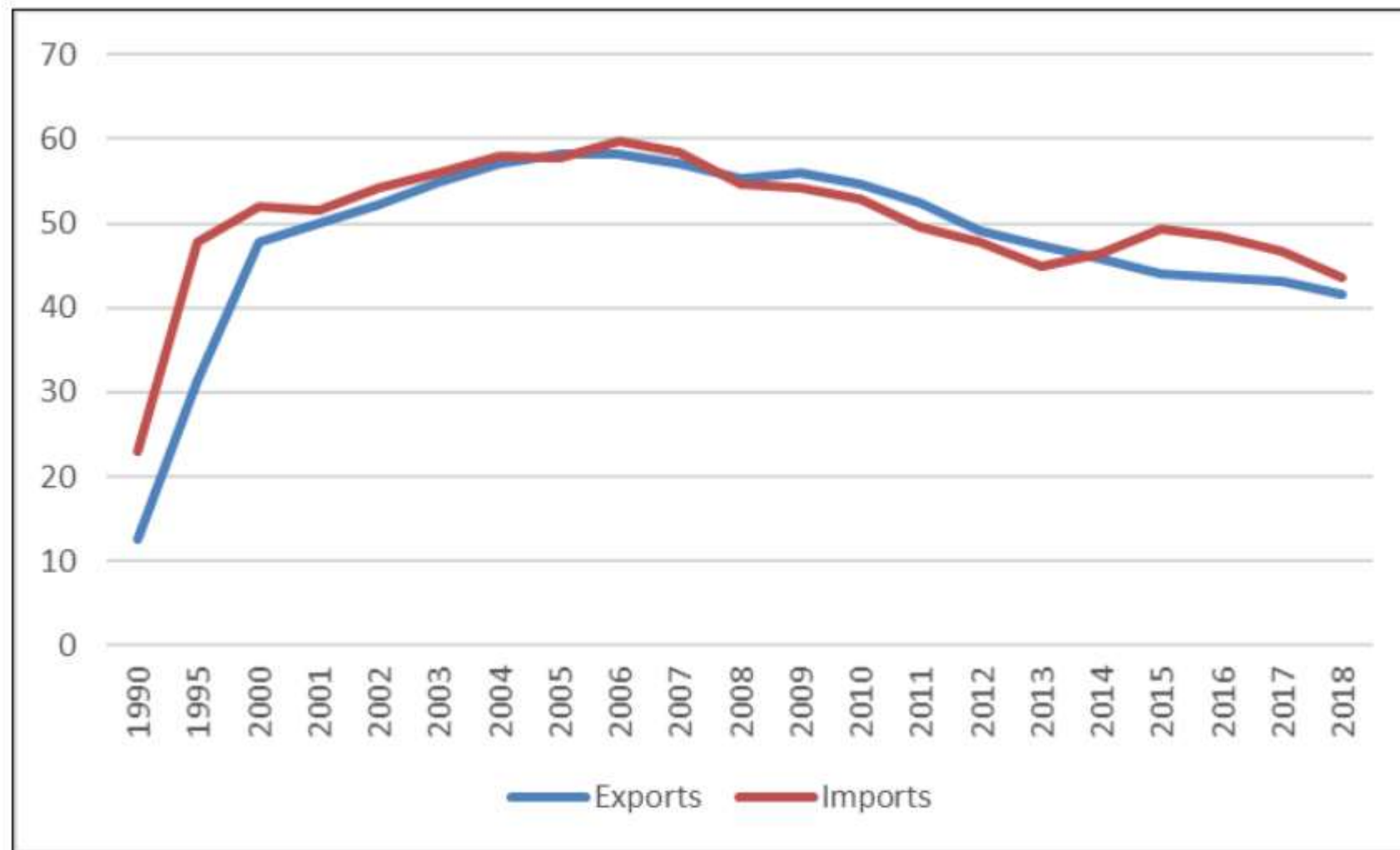


## Chinese Export Surpluses vs. U.S. Export Deficits



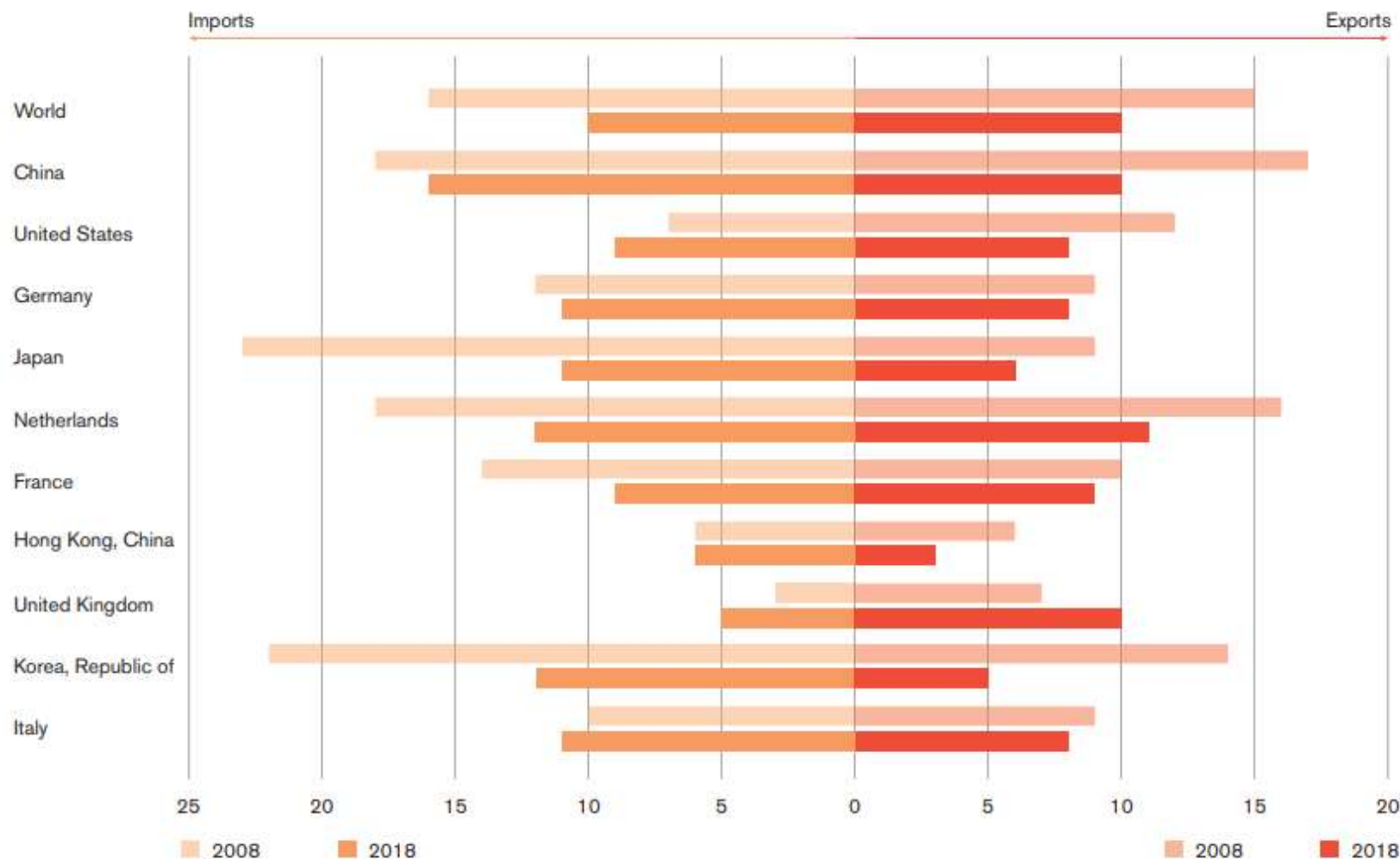
Source: World Bank

## Share of Chinese Merchandise Exports and Imports by Foreign-Invested Enterprises in China: 1990-2018



**Source:** Invest in China (<http://www.fdi.gov.cn>).

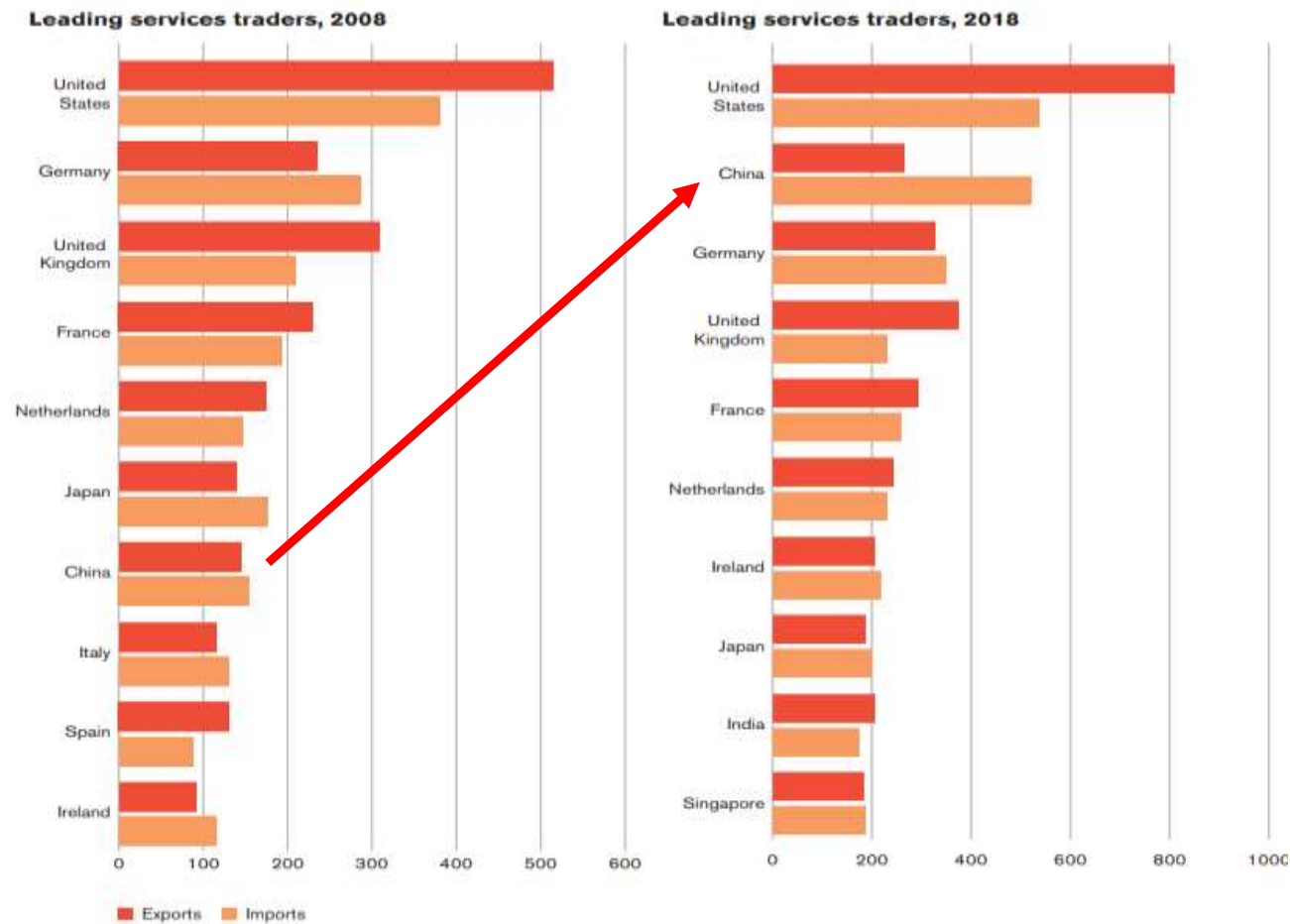
## Leading Merchandise Traders: 2008 and 2018 (Annual Percentage in Trade Growth)



Source: WTO-UNCTAD estimates.

Note: The traders are shown in the order of their world ranking in 2018. Ranking is based on total trade, calculated as the sum of exports and imports.

# Growth in Chinese Commercial Services Trade: 2008-2018 (US\$ billion)



Source: WTO-UNCTAD-ITC estimates.

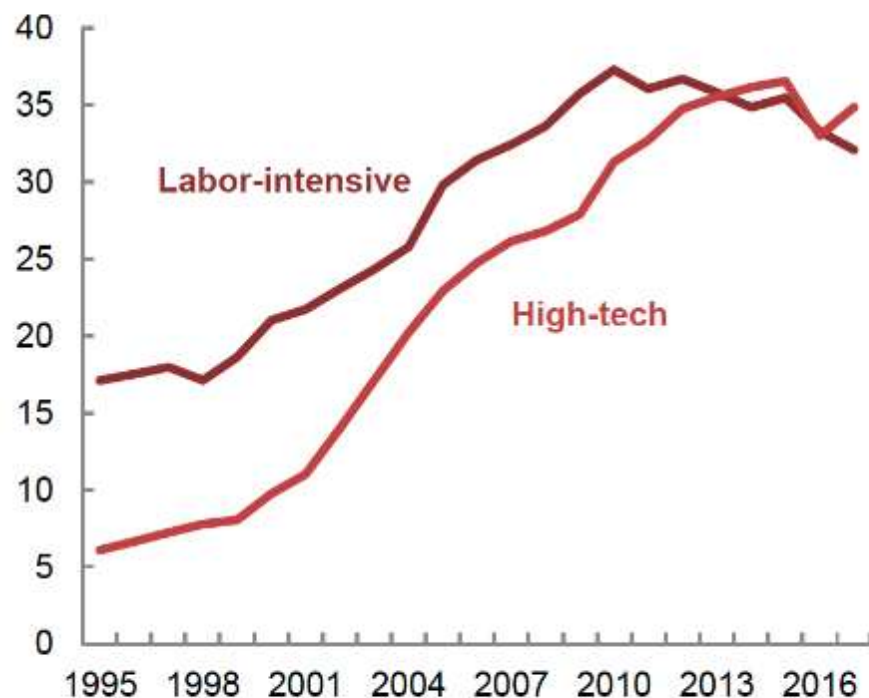
Note: The order in the chart reflects the economies' ranking in total trade in commercial services (exports plus imports) in the respective year.



# Shift to Trade in Higher Technology Exports: 2005-2015

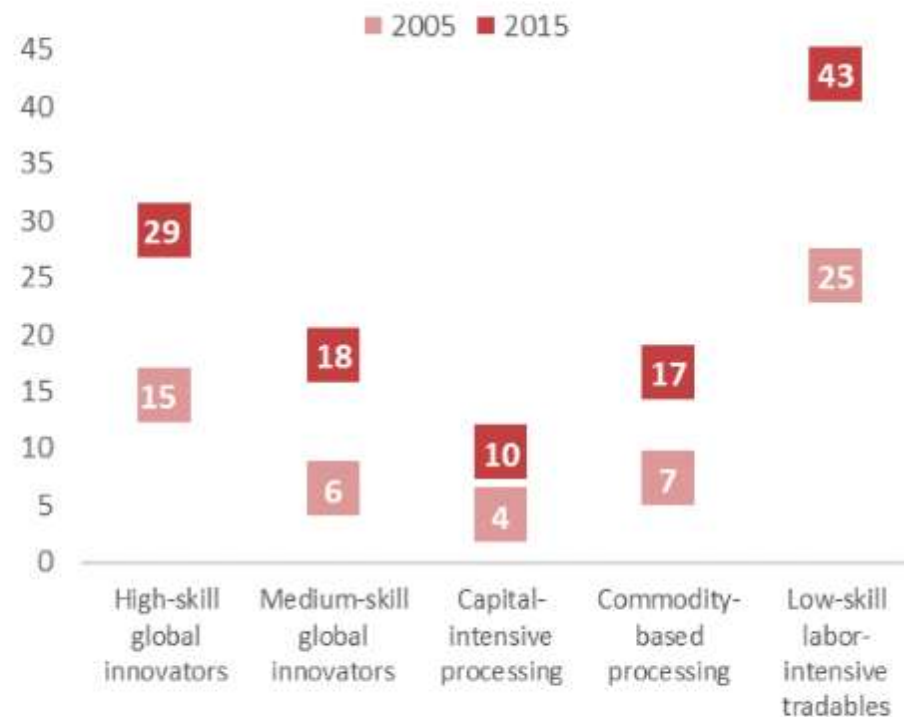
## China's share in labor-intensive and high-tech in gross exports

(percent of global market)



## China's share of manufacturing exports by domestic value added

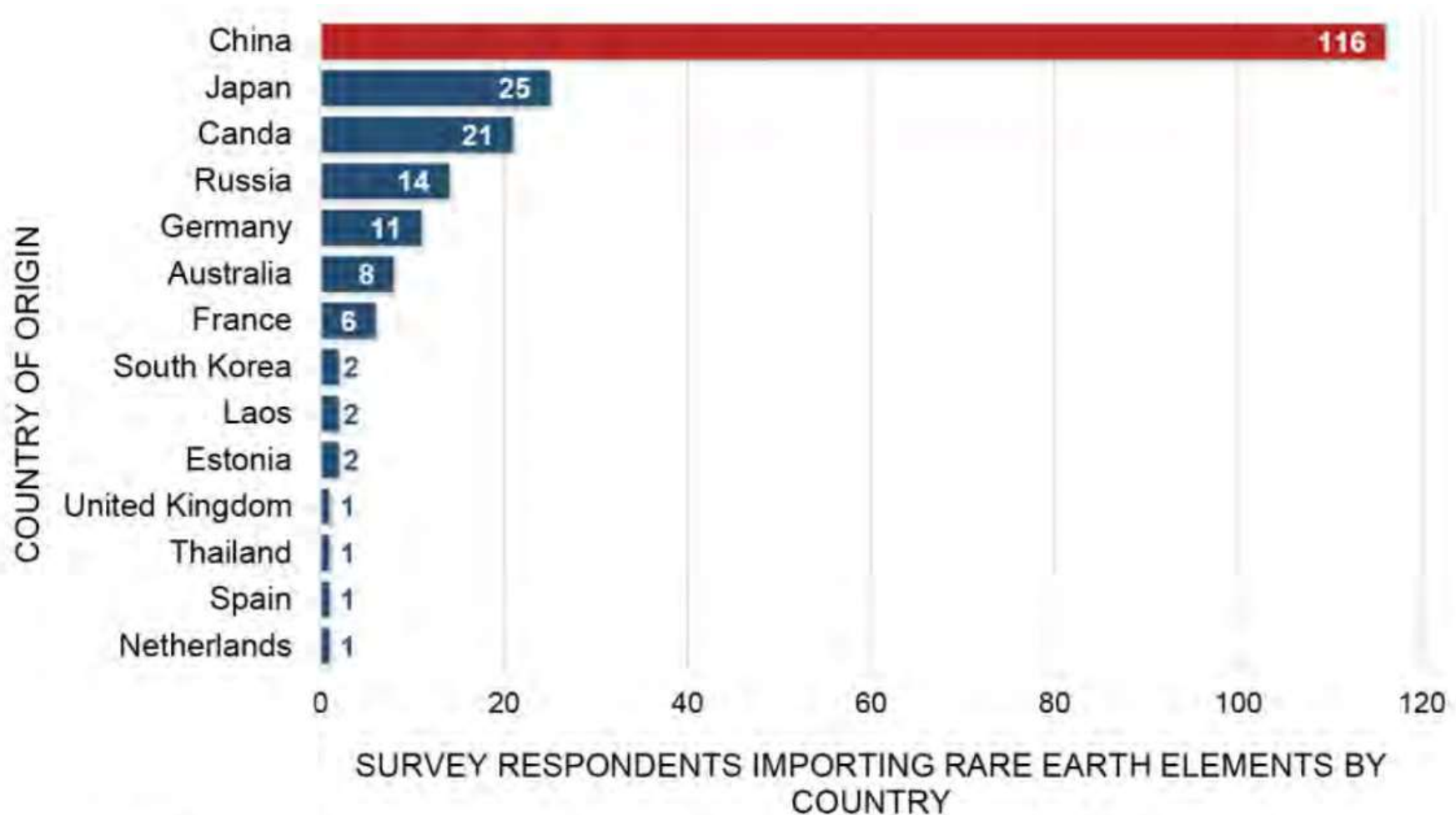
(percent of global market)



Note: Labor-intensive and high-tech are defined in the text.  
Source: UN Comtrade and World Bank staff calculations.

Source: OECD-WTO TiVA and World Bank staff calculations.

# Rare Earth Supply by Import Source



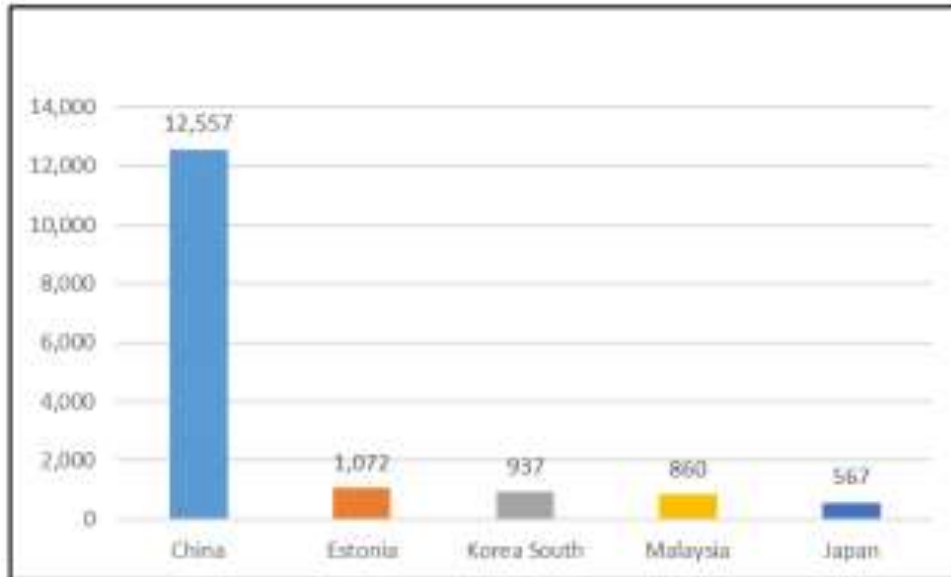
Source: U.S Dept of Commerce., Bureau of Industry and Security Strategic Materials Assessment, Rare Earth Elements - 2016



# U.S. Rare Earth Elements Dependence on China in 2018

**Figure 1. Top Suppliers of U.S. REE: 2018**

Metric Tons



**Source:** USITC Dataweb.

According to the U.S. Geological Survey (USGS), in 2018, China accounted for 71% (and possibly higher due to illegal mining, production, and smuggling in China) of global REE production in terms of quantity. Chinese data indicate that its REE exports totaled 53,518 metric tons, with a value of \$517 million. China's top three REE exports markets by value were Japan (54% of total), the United States (14%), and the Netherlands (8%). China also exported \$1.7 billion worth of magnets containing REEs (including \$201 million to the United States), an indicator of the significance of Chinese downstream industries that utilize REEs.

As indicated in **Figure 1**, China was the largest source of U.S. REE imports in terms of quantity at 12,557 metric tons (or 74% of total). China was also the largest U.S. REE supplier in terms of dollar value, at \$82 million (or 56%) of the total. (Some U.S. REE imports from non-Chinese sources may have originated in China.) The consulting firm Adamas Intelligence estimates that in 2018 China became the world's largest REE importer (in terms of quantity), including \$79 million worth of REE imports (largely REE ores and fluorides).

According to the USGS, the largest U.S. industrial uses of REEs in 2018 were for catalysts (at 60% of total); ceramics and glass (15%); metals and alloys (10%); and polishing (10%) (see Figure 2). Examples of industries that utilize REEs in production include advanced electronics (which involve magnets, batteries, phosphors, polishing, and metal alloys); medical equipment (magnets, batteries, phosphors, and polishing); hybrid and conventional vehicles (magnets, catalysts, and batteries); energy efficient lighting (phosphors); steel (metal alloys); wind turbines (magnets); and chemicals (catalysts). REEs have numerous military applications as well. According to a June 11, 2019, article in Foreign Policy, "Every advanced weapon in the U.S. arsenal—from Tomahawk missiles to the F-35 fighter jet to Aegis-equipped destroyers and cruisers and everything in between—is absolutely reliant on components made using rare earth elements, including critical items such as permanent magnets and specialized alloys that are almost exclusively made in China."

# Growth in Chinese Information and Communication Technology (ICT) Exports

## Leading ICT exporters, 2018

(US\$ billion and annual percentage change)



Source: WTO-UNCTAD-ITC estimates.

# Chinese Defense Industrial Base in 2019 - I

## *Defense Industry Reform*

China's defense-industrial complex continues to adapt and reorganize in an effort to improve weapon system research, development, and production to compensate for an estimated lag of one to two generations behind its main competitors in the global arms industry. Over the past 2 years, China has undertaken organizational and policy measures to reenergize the military's work on defense research and innovation through cooperation with the market sector.

In 2016, the CMC established the Science and Technology Commission, a high-level defense research body, as an independent organization under the high command. It also emphasized the importance of "civil-military integration," a phrase used in part to refer to the leveraging of dual-use technologies, policies, and organizations for military benefit.

In March 2016, President Xi underscored this message by emphasizing defense innovation during a visit with the PLA's delegation to the National People's Congress. He urged "great attention to the development of strategic, cutting-edge technologies" for the military, among other subjects.

China's 13th Five-Year Plan (2016-2020) includes the establishment of focus areas for research, development, and innovation. Several of these have defense implications: aerospace engines—including turbofan technology—and gas turbines; quantum communications and computing; innovative electronics and software; automation and robotics; special materials and applications; nanotechnology; neuroscience, neural research, and artificial intelligence; and deep-space exploration and on-orbit servicing and maintenance systems. Other areas where China is concentrating significant R&D resources include nuclear fusion, hypersonic technology, and the deployment and "hardening" of an expanding constellation of multipurpose satellites. China's drive to expand civil-military integration and international economic activity supports these goals.

The National Natural Science Foundation of China (NSFC), the China Academy of Sciences, and the Ministry of Science and Technology fund and promote basic and applied research, scientific innovation, and high-technology integration throughout China's scientific, engineering, and civil-military industrial complex. The China Academy of Sciences, working closely with the NSFC, is the highest academic institution for comprehensive R&D in the natural and applied sciences in China and reports directly to the State Council in an advisory capacity, with much of its work ultimately funding disciplines and contributing to products for military use.

# Chinese Defense Industrial Base in 2019 - II

## *Major Production-Sector Snapshots*

**Missile and Space.** China's missile programs, including its ballistic and cruise missile systems, are comparable to those of other international top-tier producers. China's production of a wide range of ballistic, cruise, air-to-air, and surface-to-air missiles for the PLA and for export has probably been enhanced by upgrades to primary assembly and solid rocket motor production facilities. China has also purchased Russia's S-400 air defense system and received its first delivery in April 2018. China's space launch vehicle industry is expanding to support commercial and rapid satellite launch services and the manned space program.

**Naval/Shipbuilding.** China is the top ship-producing nation in the world and has increased its shipbuilding capacity and capability for all types of naval projects, including submarines, surface combatants, naval aviation, sealift, and amphibious assets. China's two largest state-owned shipbuilders—the China State Shipbuilding Corporation and China Shipbuilding Industry Corporation—collaborate in shared ship designs and construction information to increase shipbuilding efficiency. China continues to invest in foreign suppliers for some propulsion units but is becoming increasingly self-sufficient.

**Armaments.** China's production capacity continues to advance in almost every area of PLAA systems, including new versions of main battle tanks and new light tanks, armored personnel carriers, assault vehicles, air defense artillery systems, and artillery pieces. China is capable of producing ground weapon systems at or near world-class standards; however, quality deficiencies persist with some export equipment.

**Aviation.** China's aviation industry has advanced to produce a developmental large transport aircraft, modern fourth- to fifth-generation fighters incorporating low-observable technologies, modern reconnaissance and attack UAVs, and attack helicopters. China's commercial aircraft industry has invested in high-precision and technologically advanced machine tooling and production processes, avionics, and other components applicable to the production of military aircraft; however, China's aircraft industry remains reliant on foreign-sourced components for dependable, proven, high-performance aircraft engines. China's infrastructure and experience related to the production of commercial and military aircraft are improving because of the country's ongoing C919 commercial airliner and Y-20 large transport programs.

# China's Evolving Precision Strike Capability

**Short-Range Ballistic Missiles (300-1,000 km).** The PLA Rocket Force has approximately 1,200 SRBMs. The force fields advanced variants with improved ranges and accuracy in addition to 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 approximately 200-300 conventional MRBMs to increase the range at which it can conduct precision strikes against land targets and naval ships operating far from China's shores out to the first island chain.

**Intermediate-Range Ballistic Missiles (3,000-5,500 km).** The PLA is developing a nuclear and conventional road-mobile IRBM, which increases its capability for near-precision strike as far as the "second island chain." The PLAN also is 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 approximately 200-300 air- and ground-launched LACMs for standoff precision strikes. Air-launched cruise missiles include the YJ-63, KD-88, and the CJ-20 (the air-launched version of the CJ-10 GLCM). China recently adapted the KD-88 LACM, which has an advertised range of more than 100 km, and may be testing a longer-range version. China also is developing the CM-802AKG LACM, an export system that can strike both land and ship targets from fighters or bombers.

**Ground-Attack Munitions.** The PLAAF has a small number of tactical air-to-surface missiles (ASM) 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 missiles in conjunction with its increasing development of UAVs. China is also adapting to UAV Global Positioning System-guided munitions such as the FT-5 and LS-6 that are similar to the U.S. Joint Direct Attack Munitions (JDAM).

**Anti-Ship Cruise Missiles.** China deploys a wide range of advanced ASCMs with the YJ-83 series as the most numerous, which are deployed on the majority of China's ships as well as multiple aircraft. China has also outfitted several ships with YJ-62 ASCMs and claims that the new LUYANG III class DDG and future Type 055 CG will be outfitted with a vertically launched variant of the YJ-18 ASCM. The YJ-18 is a long-range torpedo-tube-launched ASCM capable of supersonic terminal sprint which has likely replaced the older YJ-82 on SONG, YUAN, and SHANG class submarines. China has also developed the long range supersonic YJ-12 ASCM for the H-6 bomber. At China's military parade in September 2015, China displayed a ship-to-ship variant of the YJ-12 called the YJ-12A. China also carries the Russian SS-N-22 SUNBURN on four Russian built SOVREMENNY-class DDGs and the Russian SS-N-27b SIZZLER on eight Russian built KILO-class submarines.

**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 and 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) (greater than 100 km range) and the longer-range AR-3 dual-caliber MRL (out to 220 km range).

# **China's Changing Technology Base and Search for Parity and Leadership**

# China's Changing Technology Base

China has set extremely ambitious goals for expanding and modernizing its overall technology base and reaching parity with the United States in virtually all of the critical areas affecting military technology. The slides in this section illustrate the scale of China's declared ambitions, and they set a goal of near parity in 2030 and taking the lead by 2050.

Once again, experts differ sharply about the levels of progress China has already made and can achieve over time, and these differences often involve areas where there are no precise metrics that clearly distinguish between the level of effort and the resulting quality of the result.

The World Bank analysis quoted in this section seems to provide an objective overview of both the progress made and the challenges still to come, but much will depend on what is actually deployed as distinguished from the potential of the technology base, and relative cost may well be as important a consideration as sheer performance.

The spending trends do seem to favor China, and so does the massive Chinese investment in technical education. What is less clear is the quality of the resulting education and investments in given areas of technology. Some data seem to favor China, while other data raise questions about the quality of the effort to date.

# China's 70<sup>th</sup> Anniversary White Paper on Technology - I

In 2018, China's R&D spending accounted for 2.19 percent of GDP. According to the Global Innovation Index (GII) released by the World Intellectual Property Organization (WIPO) and other organizations, China continued its rise in 2019, moving from 17th in 2018 to 14th (see Box 5); it is the only middle-income economy in the top 20. In the field of high technology, China is catching up and getting ahead. Quantum communications, supercomputing, aerospace, artificial intelligence, fifth-generation mobile network technology (5G), mobile payment, new energy vehicles, high-speed rail, and financial technology are sectors in which China leads the world. (WIPO, Cornell University and INSEAD, "The Global Innovation Index 2019", July 2019.)

...According to the 2019 GI report issued by WIPO and others, the Bloomberg New Economy Forum Survey, and the KPMG Technology Industry Innovation Survey, China continues to improve its global ranking in innovation.

First, China's capability in innovation has continuously improved. China's GI has risen for four years in a row, moving to 14th this year and being the only middle-income economy in the top 20, according to the GI report.

Second, China's science and technology clusters are rising collectively. Eighteen science and technology clusters in China are among the top 100 in the world, an increase of two over last year. This is second only to the United States, which has 26 clusters in the top 100. Among them, the Shenzhen-Hong Kong cluster ranks second and the Beijing cluster ranks fourth. The rankings of almost all Chinese clusters are on the rise compared with last year. According to a Bloomberg survey of global business professionals, 39 percent of respondents believe that Beijing will become the world's top tech city by 2035, and 26 percent believe that Shanghai will become the world's center of technological innovation in the future.<sup>1</sup>

Third, the quality of innovation in China has further improved. The GI report points out that the focus of current global competition for innovation has shifted from quantity to quality. China ranks 15th in terms of innovation quality, and has ranked first among middle-income economies for the past seven years. It is also the only middle-income economy that has narrowed the gap with high-income economies in terms of the quality of universities, internationalization of local inventions, and the quality of scientific publications, measured by the number of citations that locally produced research documents receive abroad. The quality of Chinese universities ranks third only to the United States and the United Kingdom. China ranks first among the middle-income economies in international patents and the quality of scientific publications. Its innovation input-output performance is close to or higher than that of some high-income economies, and it is on a par with Germany, the UK, Finland, Israel and the US in terms of innovation output. China's industrial designs, trademark applications, and exports of high-tech and creative products are surging ahead. The number of patent applications for inventions in China has soared from 10,000 in 1990 to 1.38 million in 2017.

Fourth, China is more optimistic about technological innovation. The United States and China have the greatest potential to develop disruptive technology breakthroughs that will have a global impact, according to surveys by Bloomberg and KPMG. China is more optimistic about technological innovation, arguing that technology promotes the shaping of a better world, which is why China has been able to catch up with and surpass Western countries in some areas of technology.

China's communications technology bridges the global "digital gap". Chinese telecommunications enterprises actively "go global" and strive to promote global digitization, so as to benefit more people around the world. By 2018, Huawei was supporting more than 1,500 networks in more than 170 countries and regions, providing smooth communication to more than 3 billion people around the world.<sup>1</sup> It had provided communication solutions to remote mountain areas in dozens of countries, including Ghana, Nigeria, Kenya and Algeria, serving a rural population of 40 million. As of June 2019, Huawei had secured 50 5G commercial contracts worldwide and delivered more than 150,000 base stations.



## China's 70<sup>th</sup> Anniversary White Paper on Technology - II

...The ongoing fourth technological revolution will have immeasurable impact on a new wave of economic globalization and on the development of human society, bringing unprecedented opportunities for development as well as serious challenges. All countries should join together and take prompt action in building a new framework for global governance with the vision of a global community of shared future. We need to establish relevant rules and standards that facilitate technological innovation and development while ensuring the bottom line of human security. We should accommodate the interests of all countries and in particular those of the developing countries. It is unfair to apply the standards and security rules of developed countries or individual countries to all the other countries. It is essential to respect the sovereignty of every country. No country should seek technological hegemony, interfere in the domestic affairs of other countries, or engage in, connive in, or shield technological activities that undermine other countries' security. Based on multilateralism, mutual respect and mutual trust, all countries should conduct extensive dialogue and cooperation, and build a system of technological rules and a framework for international cooperation that ensure peace, security, democracy, transparency, inclusiveness and benefits for all. It is necessary for all countries to uphold social equity and justice, place technological innovation under the rule of law and internationally recognized norms, and ensure that innovation is by the people, for the people, and consistent with human values.

# Xi-Jinping's Innovation-Driven Strategy

In May 2016, nearly a decade after China's strategic push towards indigenous innovation, Xi Jinping re-emphasized the importance of S&T innovation at a National S&T Innovation Conference, stating, "if science and technology flourish, the nation will flourish, and if science and technology are strong, the country will be strong." Xi's speech extolled indigenous S&T innovation as key to modernizing China's military, ensuring its national security, and ushering in sustainable socioeconomic development. S&T advances in the commercial sector are increasingly influencing China's future military modernization, as Xi pushes greater military-civilian collaboration.

- > In early 2017, the Ministry of Science and Technology (MOST) and the Central Military Commission Science and Technology Commission jointly announced the "13th Five-Year Plan–Military-Civilian Fusion S&T Developmental Guide," a roadmap for military-civilian fusion efforts in the next five years.
- > In October 2017, Xi Jinping highlighted at the 19th Party Congress the importance of the strategy to revitalize the country through science, education and innovation-driven breakthroughs and the strategy of military-civilian integrated development – both key to complete building a well-off society with a great Chinese military and a modernized economic system.

The ultimate goal of S&T modernization is to rejuvenate China by 2050 as an S&T powerhouse. For the next 30 years, China's leaders have arranged its innovation-driven development strategy into the following four major milestones:

*2020: Advance domestic competence for global innovation competition.* The ability to rank side-by-side with other innovation-driven countries remains a top priority under Xi Jinping. These development goals center on upgrading the industrial economy (including modern agriculture, clean and efficient energy, and 5th generation mobile telecommunications networks), building science innovation parks, and attracting top-tier researchers. China intends these projects to further advance China's global ranking and to strengthen defense technology development between the military and civilian sectors.

*2025: Reduce reliance on foreign technology.* In October 2015, China's State Council published the *Made in China 2025* plan, outlining development trajectories to establish and promote China-made components, create well-known Chinese brands, and increase the domestic and international market share in 10 strategic industries. The plan aims to develop internationally competitive leading enterprises; improve technical, equipment, and quality standards to international levels; and create a long-term industrial supply chain and perfect mass production. To achieve core technology breakthroughs, the plan incentivizes accumulating patents, increasing Chinese intellectual property, and establishing engineering platforms and collaborative innovation centers for S&T. The 10 strategic industries are:

- 1) New generation information technology;

- 2) High-grade machine tooling and robotics;
- 3) Aerospace equipment;
- 4) Marine engineering equipment;
- 5) Advanced rail transportation equipment;
- 6) New-energy automobiles;
- 7) Electric power equipment;
- 8) Agricultural equipment;
- 9) New materials, and;
- 10) Biomedicine.

*2030: Make milestone contributions to the global scientific community.* Striving to take the lead on breakthroughs in important S&T areas, China's 13th Five-Year Program outlines major S&T Innovation Projects for 2030 to benefit both the Chinese economy and its military. Projects include AI 2.0, national cyberspace security, aircraft engines and combustion turbines, quantum computing and quantum communication, advanced manufacturing, clean and efficient energy production, green technologies and environmental solutions, agriculture advances, biology and health, resource management in both space and ocean, and deep-earth exploration.

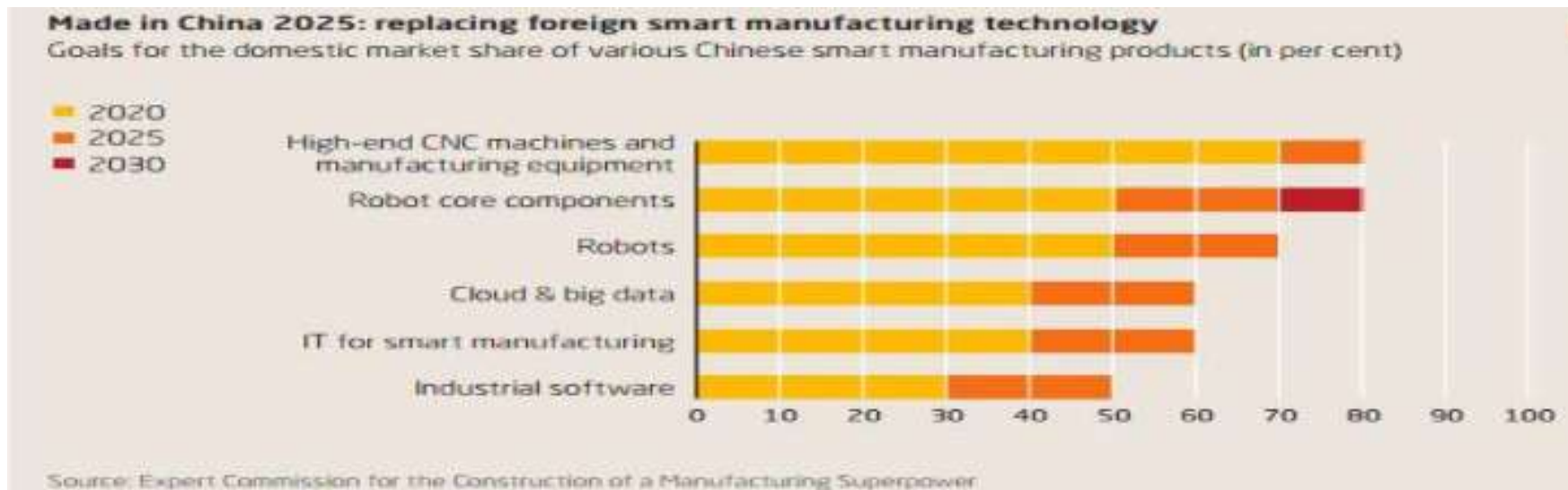
- > China's AI 2.0 project moves beyond its focus with AI 1.0, which centered solely on discovering AI, to focus on the networking and intelligentization of the entire industry chain. In July 2017, China published a national AI blueprint that lays out its R&D trajectory to achieve major breakthroughs in the AI field and become the world's primary AI innovation center by 2030.

*2050: Lead and dominate as the S&T powerhouse.* China's long-term objective remains to become the global leader in innovative scientific development. Major milestones focus on S&T popularization by training S&T personnel, fostering a favorably education environment for cultivating S&T talent, and strengthening intellectual property protection. As Xi stated, "without generally raising the scientific quality of all the people, it will be difficult to establish a huge high-quality innovation army."

China's push for leadership in global S&T development comes at a time in which dual-use technology advances, applicable for both commercial and military purposes, increasingly occur in the commercial sector. This means that efforts by China to cultivate a broad base of S&T talent, particularly given its stated focus on dual-use sectors, will be relevant to China's military power in coming decades. Specific examples include advanced computing, essential for weapons design and testing, industrial robotics, potentially useful for improving weapons manufacturing; new materials and electric power equipment, which could contribute to improved weapon systems; next generation information technology, which could enable improved C4ISR and cyber capabilities; commercial directed energy equipment, which could contribute to the development of directed energy weapons; and artificial intelligence, which could contribute to next-generation autonomous systems such as missiles, swarming technology, or cyber capabilities.

# Chinese Technology Goals: 2020? 2025? 2030?

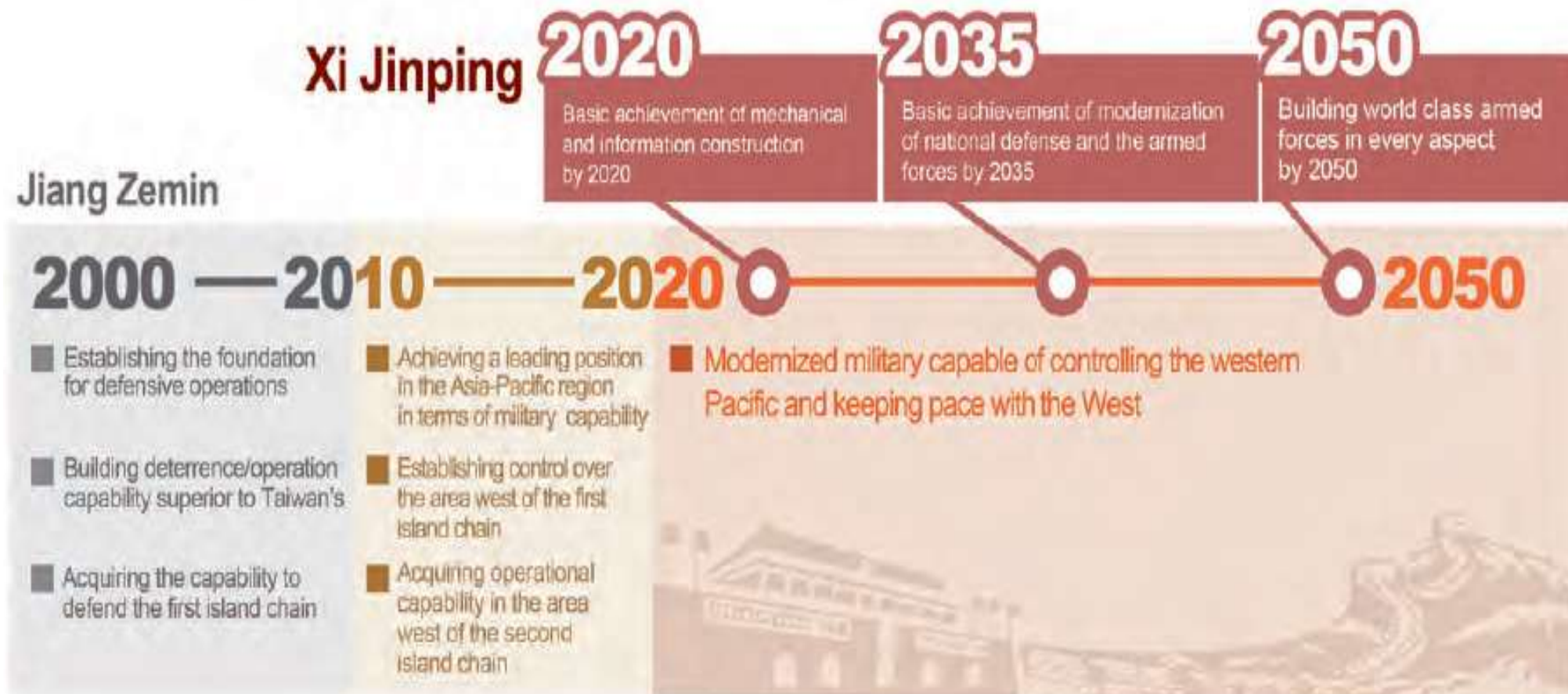
- 2018 - April 26: China's president urges China to speed up its semiconductor strategy in the face of foreign pressure and growing tech demands.
- 2017 – July, December: Ministry of Industry and Information Technology issues document on goals for development of artificial intelligence from 2018 to 2020, and the top leadership's vision for a new Chinese economy in the age of AI. China will be able to mass-produce neural-network processing chips.
- 2016 – March: Draft outline of the 13th Five-Year Plan (2016-2020) on national economy and social development presented on Saturday to the Fourth Session of the 12th National People's Congress with more than 21 goals for civilian and military development of technology along with the "Made in China technology plan."
- 1978 - March 18 to March 31, 6,000 scientific and technical workers from all over China took part in a National Science Conference in Peking.



*Made in China 2025: Global Ambitions Built on Local Protections*, U.S. Chamber of Commerce, Beijing,  
[https://www.uschamber.com/sites/default/files/final\\_made\\_in\\_china\\_2025\\_report\\_full.pdf](https://www.uschamber.com/sites/default/files/final_made_in_china_2025_report_full.pdf)



# Taiwan Diagram of Chinese Military Modernization Goals



# Chinese Technology Goals: 2020? 2025? 2030?

China now has the ability to develop [advanced fighters](#), [aircraft carriers](#), new-generation [intercontinental ballistic missiles](#), drones and other advanced platforms. Another [indicator](#) of this progress is China's booming [arms exports](#), which rose 74 percent from a global share of 3.8 percent in 2007–11 to 6.2 percent in 2012–16. While China is still far behind the world's leading arms exporters (the United States and Russia), it is catching up fast.

*13th defense Science and Technology and Industry Five-Year Plan (2016–2020).* It calls for streamlining and targeting investment across core areas, accelerating weapons development, raising arms exports and promoting collaboration between military and civilian organizations.

Another key initiative is the *2025 defense Science and Technology Industry Plan*, which calls for the upgrade of China's defense science and technology base. This is in line with the [Made in China 2025](#) strategy — a sweeping initiative to [overhaul China's manufacturing industry](#).

Moreover, China outlined a list of [sixteen megaprojects](#) in the *Medium- and Long-term Science and Technology Development Plan (2006-2020)*. These include advanced numeric-controlled machinery, high-end generic chips, integrated circuit manufacturing and techniques, high-definition earth observation systems, advanced nuclear reactors, manned aerospace and moon exploration, and large aircraft. These projects involve numerous companies and research institutions from China's sprawling defense industry. Technologies developed for every one of these megaprojects would have important military applications in addition to civilian uses.

But despite maturing rapidly over the last two decades, China's defense industry continues to be plagued by notable weaknesses such as outdated management models, weak governance, corruption, inflexibility and monopoly power. These weaknesses will need to be addressed if the industry is to better support PLA modernization in the years ahead.

# ODNI on China's Development Strategy In 2019

*We assess that China's intelligence services will exploit the openness of American society, especially academia and the scientific community, using a variety of means.*

## China's Technology Development Strategy

China takes a multifaceted, long-term, whole-of-government approach to foreign technology acquisition and indigenous technology development.



1810-00427-B



# World Bank Assessment of China's Technology Progress - I

China is still in the technology catching-up phase, and its innovation capabilities and the underlying learning and creative culture may take some time to mature. This assessment is based on various assessments of China's innovation capacity by the INSEAD/World Intellectual Property Organization (WIPO)/Cornell University, the World Economic Forum (WEF), and the Information Technology and Innovation Foundation (ITIF). The Global Innovation Index by INSEAD/WIPO/Cornell University has shown steady improvements for China since 2011: China was ranked 29th in 2011 and improved to 25th in 2016 and 22nd in 2017. According to the WEF, since 2010–11 China's ranking has held steady at around 27th to 28th in overall competitiveness (28th in 2015–16) and 74th in terms of technological readiness, out of 144 countries. China is also the highest ranking developing country according to the WEF assessment. In earlier ITIF reports, China was in 33rd place in a group of 40 countries; in 2016, it was 44th in a sample of 56 countries.<sup>28</sup>

Over the past decade China significantly increased research & development (R&D) spending and patent applications. China spends 2.07 percent of its GDP on R&D (2015). Its total spending on R&D is the second highest in the world after the United States and accounts for over 14.4 percent of the total global spending on R&D.<sup>29</sup> R&D expenditures as a share of GDP is multiples above what is common for a country at China's level of development (Figure 1.9). Industry expenditures on R&D have been increasing and make up the majority of R&D. In line with increased spending on R&D, China's patenting activities have increased rapidly over the last decade. In 2016, the number of applications for patents for invention accepted by the State Intellectual Property Office totaled more than 1.3 million, and according to WIPO, since 2011 China has had the world's largest number of patent applications. Concerns have been expressed regarding the quality of the patents, but there are also indications, such as number of citations, that quality is improving. Increased patenting activities could have been due to multiple factors, including greater investments in R&D and possibly improved intellectual property rights (IPRs) protection, but they may also reflect government incentives to encourage patent registration.

Increased R&D spending has to be complemented by institutional reforms in order for it to improve innovation and productivity. Goni and Maloney<sup>30</sup> showed that returns to R&D is higher in countries that are further away from the global technology frontier, as one would expect given that those countries have more potential to catch-up growth. However, their research also indicated that returns to R&D peak at around higher middle-income countries, and the returns decline for countries that are further away from this peak. This arises because countries that are distant from the frontier lack critical complementary policy and institutional factors, such as research institutes and a private sector of sufficient quality and capacity. Without those factors, simply increasing R&D spending may not result in the desired impact on innovation and productivity.

Source: World Bank Group,  
*China Systematic  
Diagnostic, Report 113092-  
CN, 2017, pp. 12-14*

# World Bank Assessment of China's Technology Progress - II

**The government recognizes the importance of strengthening IPRs for promoting indigenous innovation.** Enforcement of IPRs will be critical to creating the incentives to invest in innovation activities. The Action Plan for Carrying Out National Strategy on Intellectual Property Rights (2014–20) specifies that China will “endeavor to build an intellectual property right power to provide powerful support for building an innovation-oriented country and a moderately prosperous society in all respects.” It sets a target of 14 patent applications per 10,000 persons by 2020. Chinese government has announced that China will step up enforcement of IPRs and increase the scale of punishment. In August 2014, the Chinese legislature approved a resolution to establish specialized intellectual property (IP) courts in Beijing, Shanghai, and Guangzhou. The establishment of the specialized IP courts is a step in the right direction, but more needs to be done to fundamentally address the issues surrounding IPRs, including strengthening of IPR enforcement. Complementary reforms could include developing more effective platforms for IP valuation and transactions and building the capacity of intermediaries such as technology transfer offices.

**The innovation system in China focuses heavily on R&D to generate new innovation and technology, but the vast majority of firms have yet to absorb and adopt existing technology.** Most of the firms are far from the technology frontier, and therefore they may benefit the most by focusing on absorbing available technologies rather than creating new and innovative technologies. Hence, in China, large scope may exist for upgrading and strengthening existing low- and medium-technology industries, including through organizational and process innovations. A core underpinning capability of this upgrading is management quality. As industries move up the value chain, they will need to learn to compete on the basis of their intangible assets, such as information and communication technologies (ICTs), organizational structures, design, brand equity, education and training, and sophisticated management. Chinese firms may be exceptionally good with short-run targets, but appear to be relatively weak in the areas of long-run planning and human resource management that are necessary for innovation.<sup>31</sup> Some have argued that, for East Asia's New Industrialized Economies, the firms' organizational capacity for acquiring and learning technology was more important than the conventional R&D.<sup>32</sup> Indications suggest that a good 30 percent of the differences in TFP among countries can be explained by variations in the quality of management.<sup>33</sup>

**The government can continue to play a critical role in promoting innovation.** Public research institutes and grant financing can play a complementary role to private sector R&D, in particular by carrying out and supporting basic research. Because the focus is on quick returns, too much of the funding for R&D is devoted to development and too little to basic and upstream applied research. Whereas the United States allocates 18 percent of its R&D to basic research and the OECD average is 20 percent, until recently only 5 percent of China's research funding was being used to build a base of scientific knowledge.<sup>34</sup> Project financing could be made more effective by strengthening the project selection process. Improving access to finance for innovation and increasing government procurement for innovative products could also promote investments in innovation. Public research institutes can be strengthened, including with respect to the commercialization of research and collaboration with industry. Fiscal policies (tax credits and subsidies) as well as other financial instruments such as vouchers and grants, technology extension and business advisory services, incubators/accelerators, public procurement, and relaxing of regulatory requirements can encourage greater private sector investments in innovation.

Source: World Bank Group,  
*China Systematic  
Diagnostic, Report 113092-  
CN, 2017, pp. 12-14*



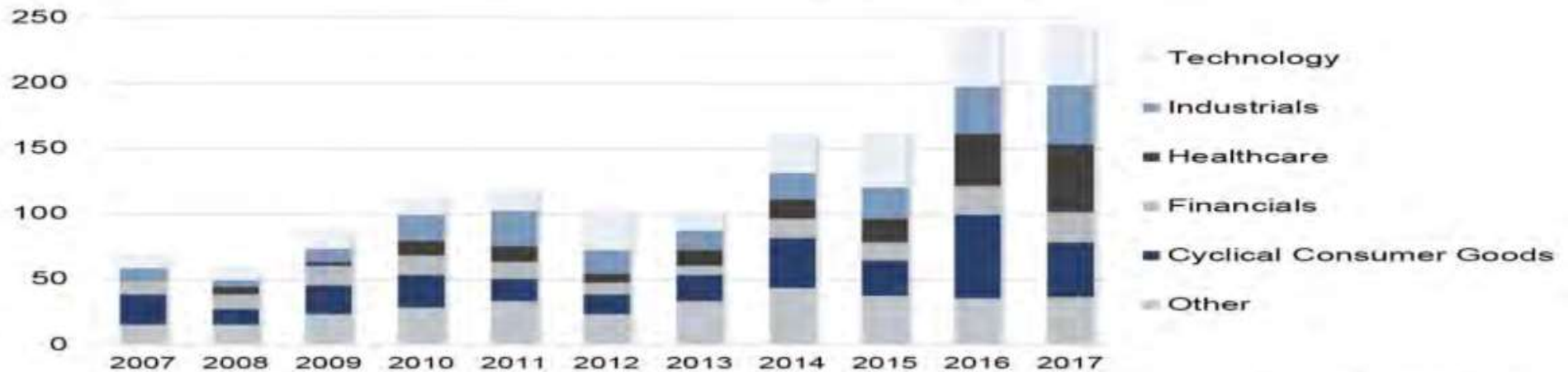
# World Bank Assessment of China's Technology Progress - III

**Improving and enlarging the innovation talent pool is pivotal to appropriating gains from innovation.** China has many science and engineering (S&E) graduates and Ph.D.'s. The total number of S&E researchers exceeded 3.53 million in 2014, which is greater than in the United States and the European Union (EU) combined. China recognizes the importance of human resources for innovation and is devising various policies to nurture and attract talent. In addition to the previously launched 100 Talents, 1,000 Talents, and 10,000 Talents programs, the government aims to reform parts of the education system to nurture more innovative minds and support innovative research. Mass entrepreneurship is also seen as part of the solution to reduce the unemployment rate of new graduates. This could be complemented with reforms in the technical and vocational educational system.

**The success of China's indigenous innovation agenda will ultimately depend on broader market-oriented reforms.** The "Decisions on Important Issues Concerning Comprehensive and Far Reaching Reform" issued at the Third Plenum of the 18th Central Committee of the Communist Party of China (November 2013) emphasized that markets will play a decisive role in allocating resources, which represents a significant departure from the previous model of government-led innovation. Private sector development and increased competition, reforms in factor markets, human capital deepening, and the effective harnessing of urban agglomeration economies to advance ideas and technologies are ways to stimulate markets that reward innovation. More targeted interventions could support commercialization of intellectual property by local high-technology industries as well as low- and medium-technology industries increasingly using indigenous innovation.

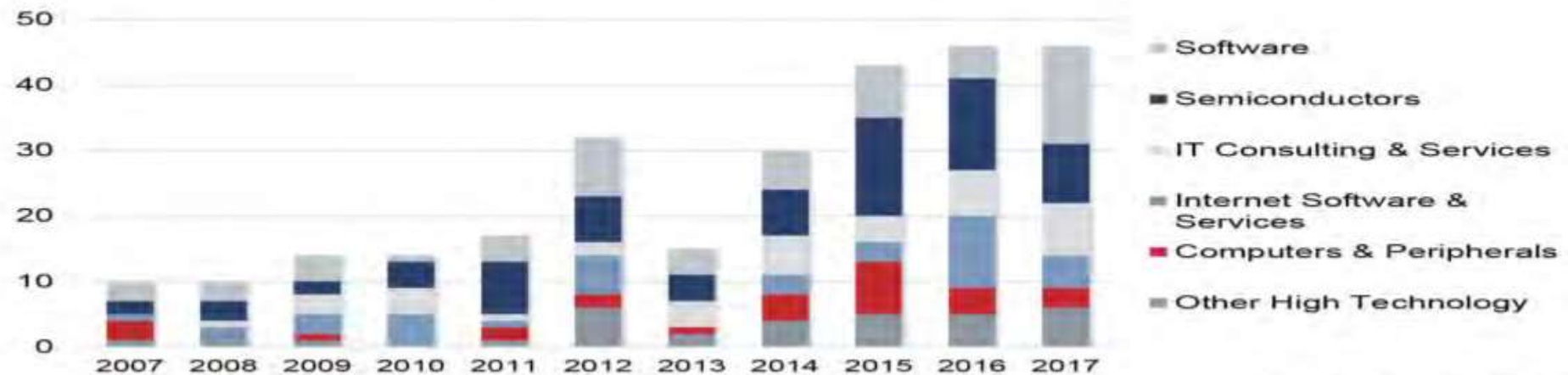
# China Targets U.S. Technology with Its Outbound Foreign Direct Investment

Chinese Deals by Target Sector



Source: Thomson Reuters

Chinese Technology Deals



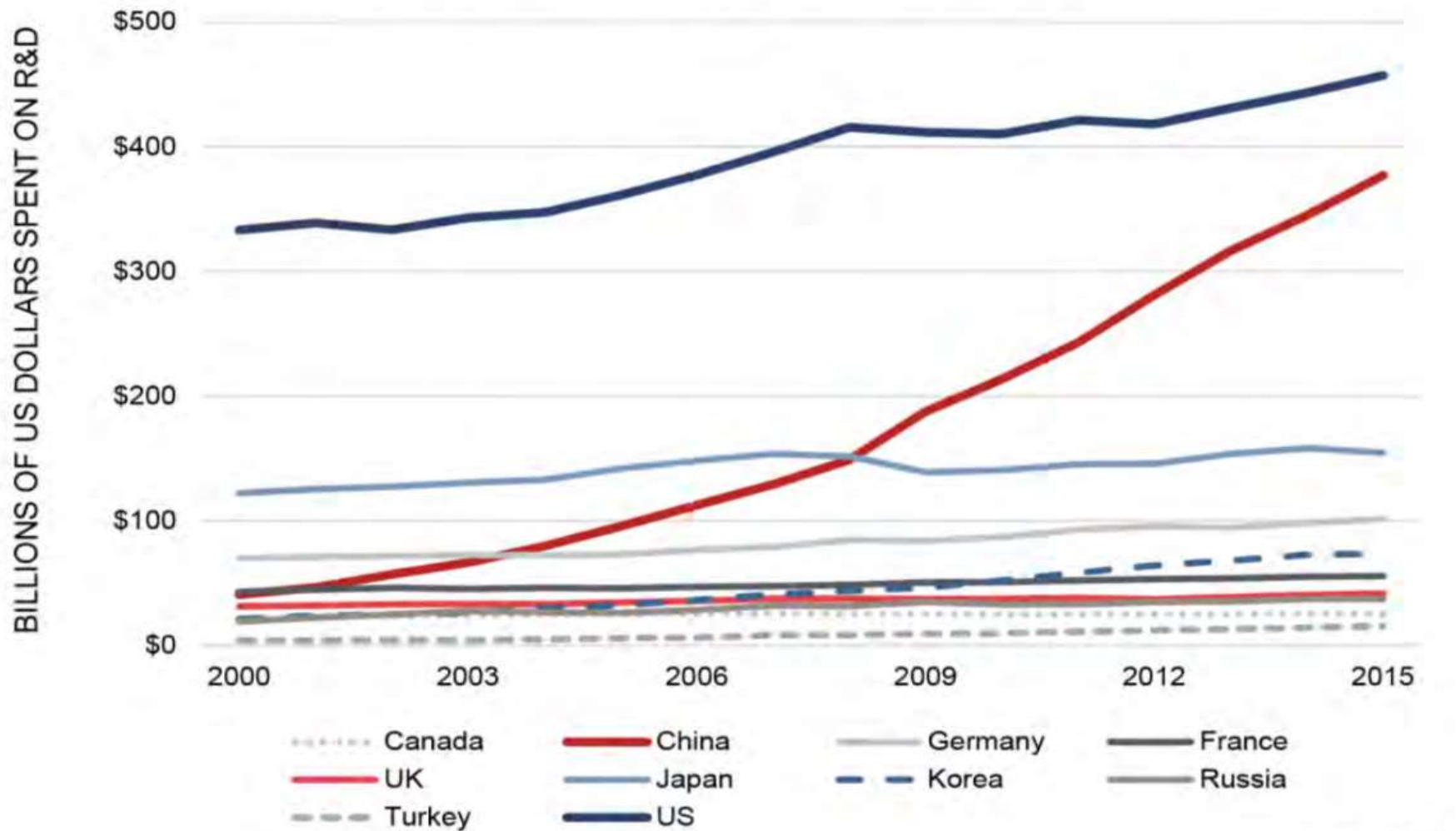
Source: Thomson Reuters

# U.S. Responds to Foreign Direct Investment U.S. in “Critical Technologies”

Foreign Direct Investment (FDI). U.S.-China FDI flows are relatively small given the high level of bilateral trade, although estimates of such flows differ. The U.S. Bureau of Economic Analysis (BEA) is the official U.S. agency that collects and reports FDI data. BEA estimates the stock of Chinese FDI in the United States through 2017 at \$40 billion and the stock of U.S. FDI in China at \$108 billion. Some analysts contend BEA’s methodology for measuring FDI significantly undercounts the level of actual U.S.- China FDI, in large part because it does not capture all FDI that is made through other countries, territories, or tax havens, as well as acquisitions made by U.S. affiliates of foreign firms. The Rhodium Group (RG), a private advisory firm, attempts to identify FDI by Chinese firms in the United States, regardless of where they are based or where the money for investment comes from. RG’s data on U.S.- China FDI are much higher than BEA’s data. For example, RG estimates the stock of China’s FDI in the United States through 2017 at \$140 billion and the stock of U.S. FDI in China at \$256 billion. RG estimates that China’s FDI flows to the United States rose from \$14.9 billion in 2015 to \$45.6 billion in 2016, but fell to \$29.4 billion in 2017 and to \$4.8 billion in 2018. The decline in Chinese FDI flows to the United States may reflect Beijing’s efforts to rein in “irrational” capital outflows, as well as enhanced scrutiny by the Trump Administration, which contends that the Chinese government seeks to obtain U.S. cutting-edge technologies and IP in order to further its industrial policy goals. For example, in September 2017, President Trump prohibited a group of investors with alleged links to the Chinese government from acquiring U.S. firm Lattice Semiconductor Corporation.

Congressional concerns over the ability of the Committee on Foreign Investment in the United States (CFIUS) to adequately screen foreign investment in terms of U.S. national security led to the enactment of the Foreign Investment Risk Review Modernization Act of 2018 (FIRRMA) (P.L. 115-232) in August 2018. The act seeks to modernize CFIUS and expand the types of investment subject to review, including certain non-controlling investments in “critical technology.” In November 2018, the U.S. Commerce Department issued a notice requesting public comment on criteria for identifying emerging and foundational technologies deemed essential to U.S. national security that could be subject to new export controls.

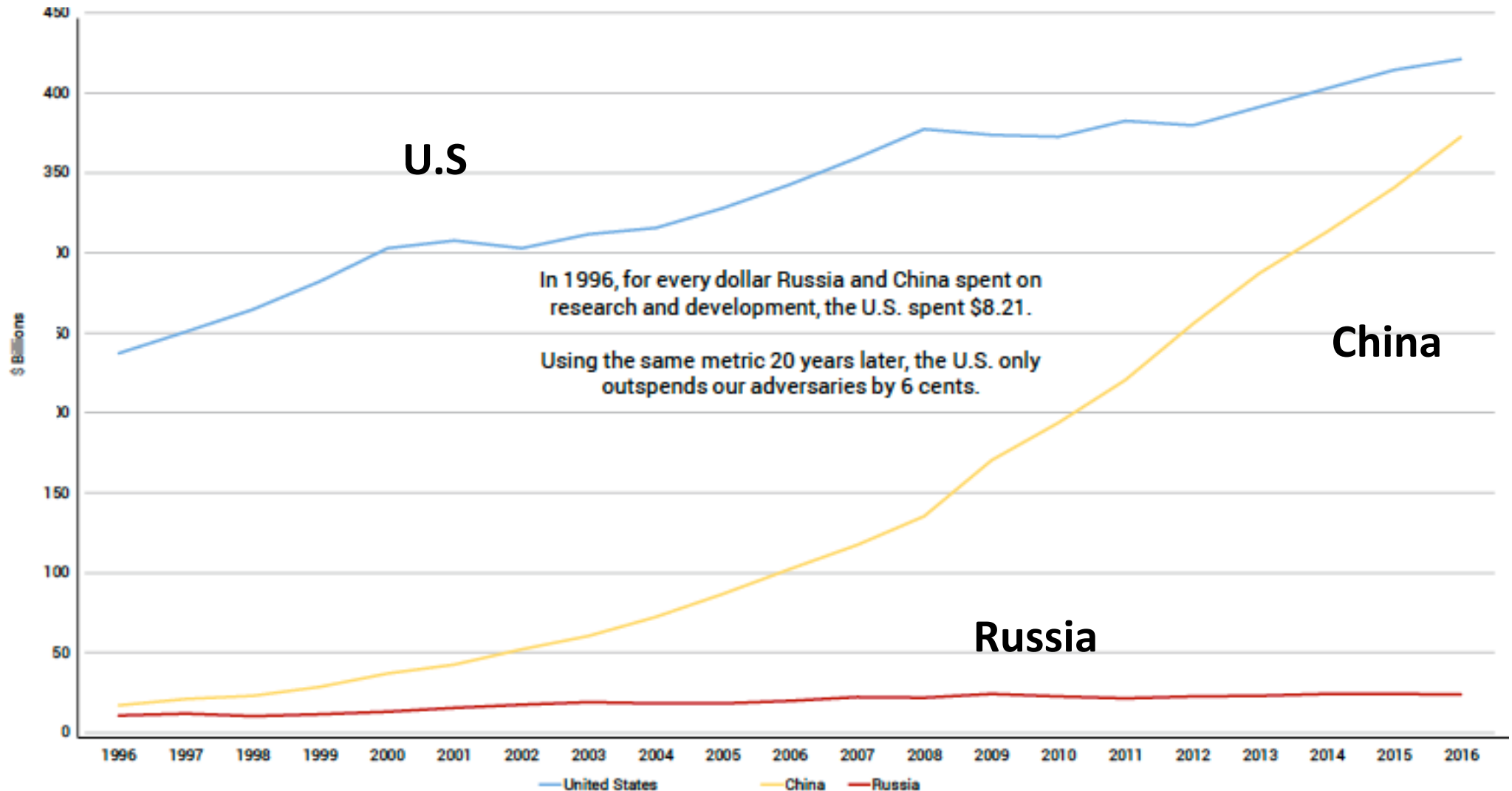
## Ten Top Countries in R&D Spending: 2000-2015



Source: OECD

# Chinese vs. U.S. vs. Russian Spending on Research and Development: 1996-2016

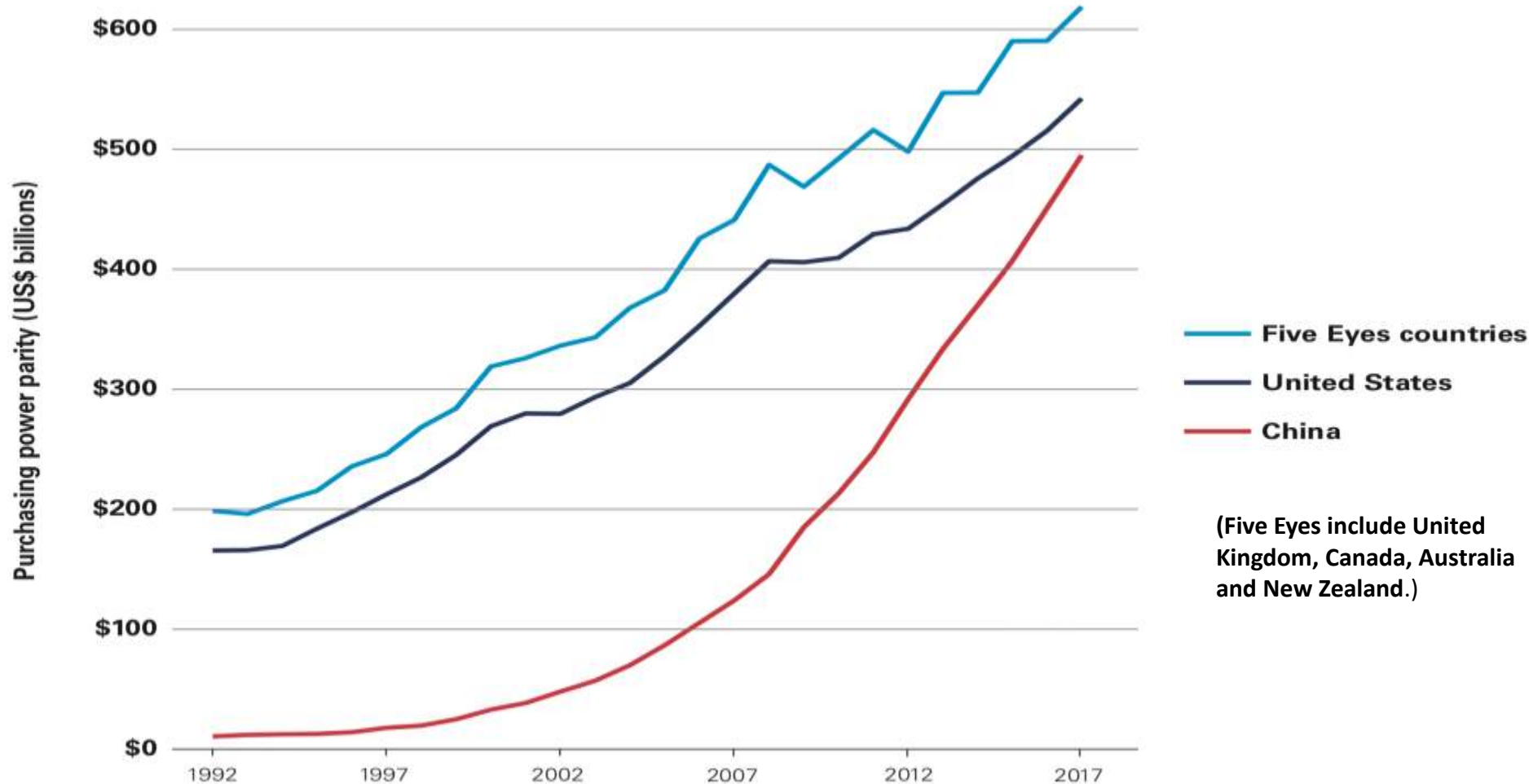
(Annual Expenditure on Research and Development (Adjusted For Purchasing Power Parity))



Source: United Nations Educational, Scientific and Cultural Organization R&D Database, IISS Military Balance and World Bank (for gross domestic product, Providing for the Common Defense, 2018, p.29).

# Chinese vs. U.S. vs. Five Eyes National Spending on Research and Development: 1992-2017

(\$US Billions, Purchasing Power Parity)



Source: Organisation for Economic Co-operation and Development.<sup>9</sup>

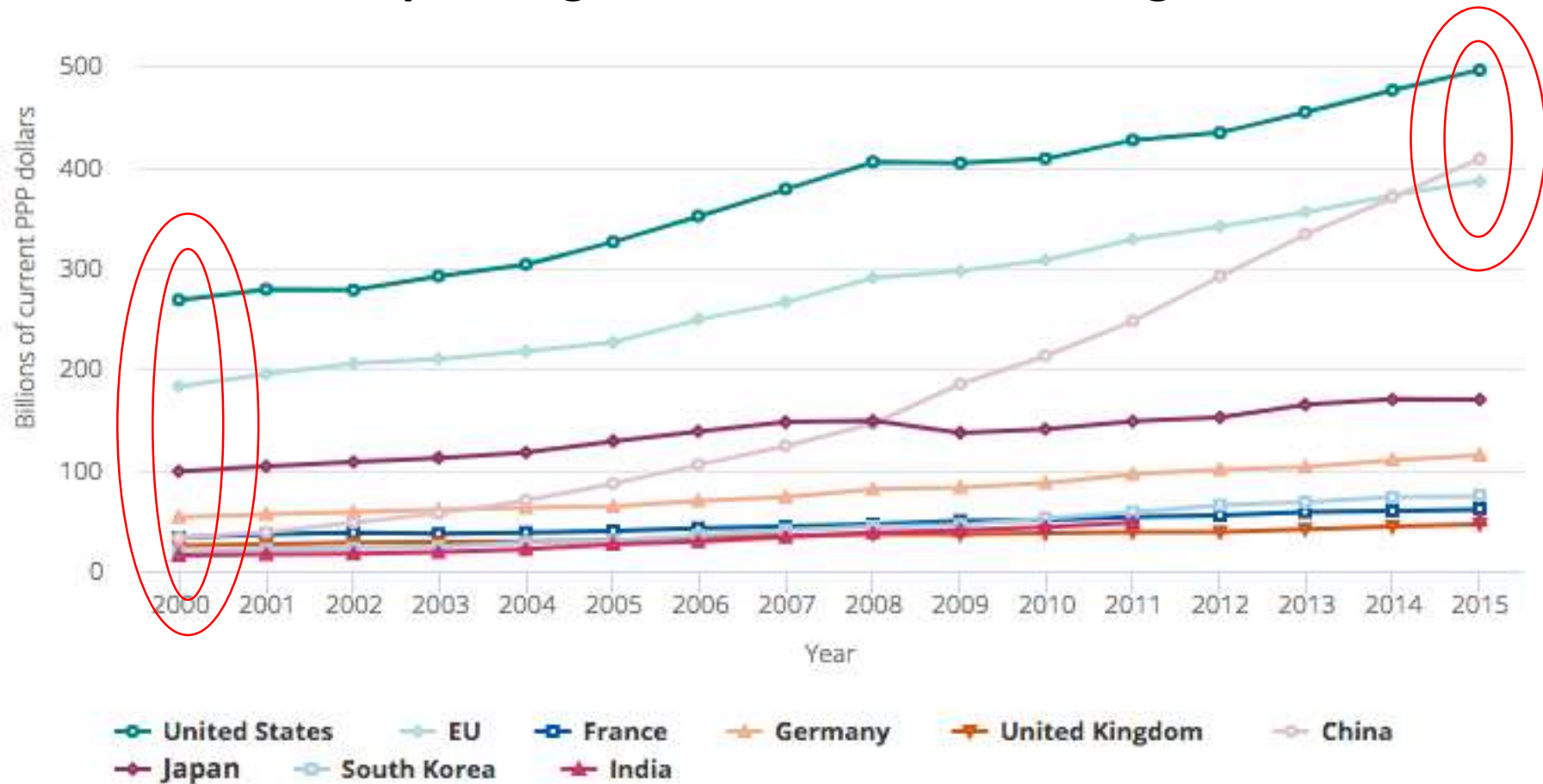


## Gross Regional Shifts in R&D Spending



National Science Foundation, National Center for Science and Engineering Statistics estimates, August 2017. Based on data from the Organization for Economic Co-operation and Development, Main Science and Technology Indicators (2017/1), and the United Nations Educational, Scientific and Cultural Organization (UNESCO), Institute for Statistics database, data.uis.unesco.org. National science Board, Science & Engineering Indicators, 2018, <https://nsf.gov/statistics/2018/nsb20181/report/sections/overview/research-publications>.

# Chinese R&D Spending Rises Above EU, Challenges U.S.



United States and Europe experienced substantial declines in their shares of global R&D (from 37% to 26% in the United States and from 27% to 22% in Europe between 2000 and 2015). During the same period, the economies of East and Southeast Asia—including China, Japan, Malaysia, Singapore, South Korea, Taiwan, and India—saw an increase in their combined global share from 25% to 40%, thus exceeding the respective U.S. and the European R&D shares in 2015.

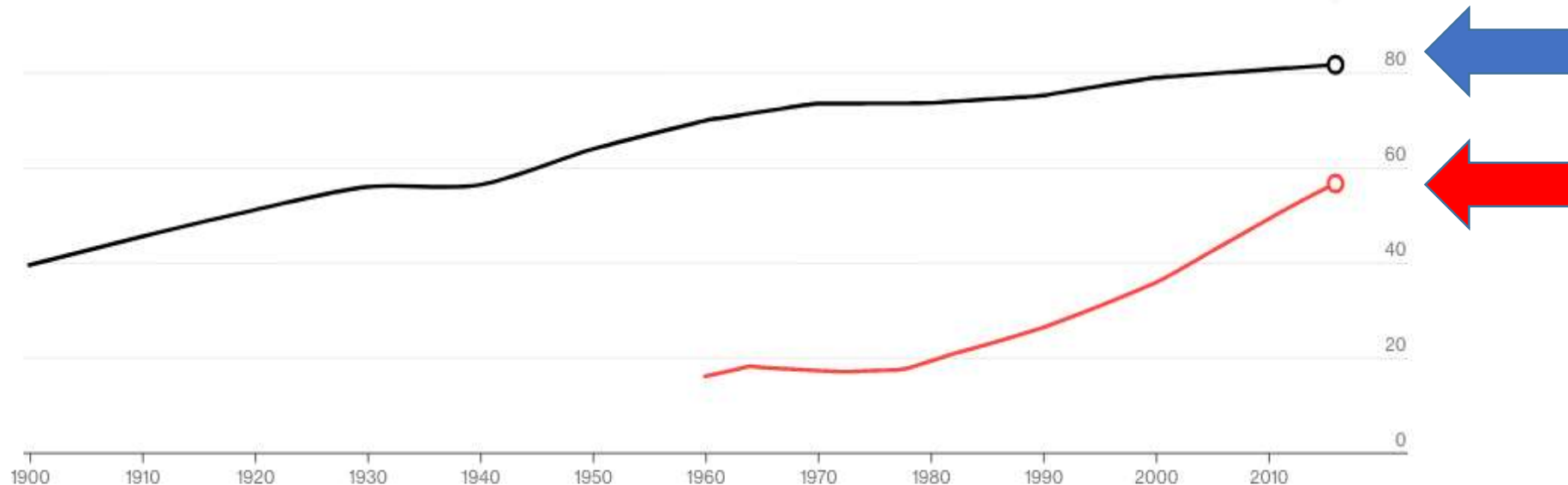
National Science Foundation, National Center for Science and Engineering Statistics estimates, August 2017. Based on data from the Organization for Economic Co-operation and Development, Main Science and Technology Indicators (2017/1), and the United Nations Educational, Scientific and Cultural Organization (UNESCO), Institute for Statistics database, data.uis.unesco.org. National science Board, Science & Engineering Indicators, 2018, <https://nsf.gov/statistics/2018/nsb20181/report/sections/overview/research-publications>.



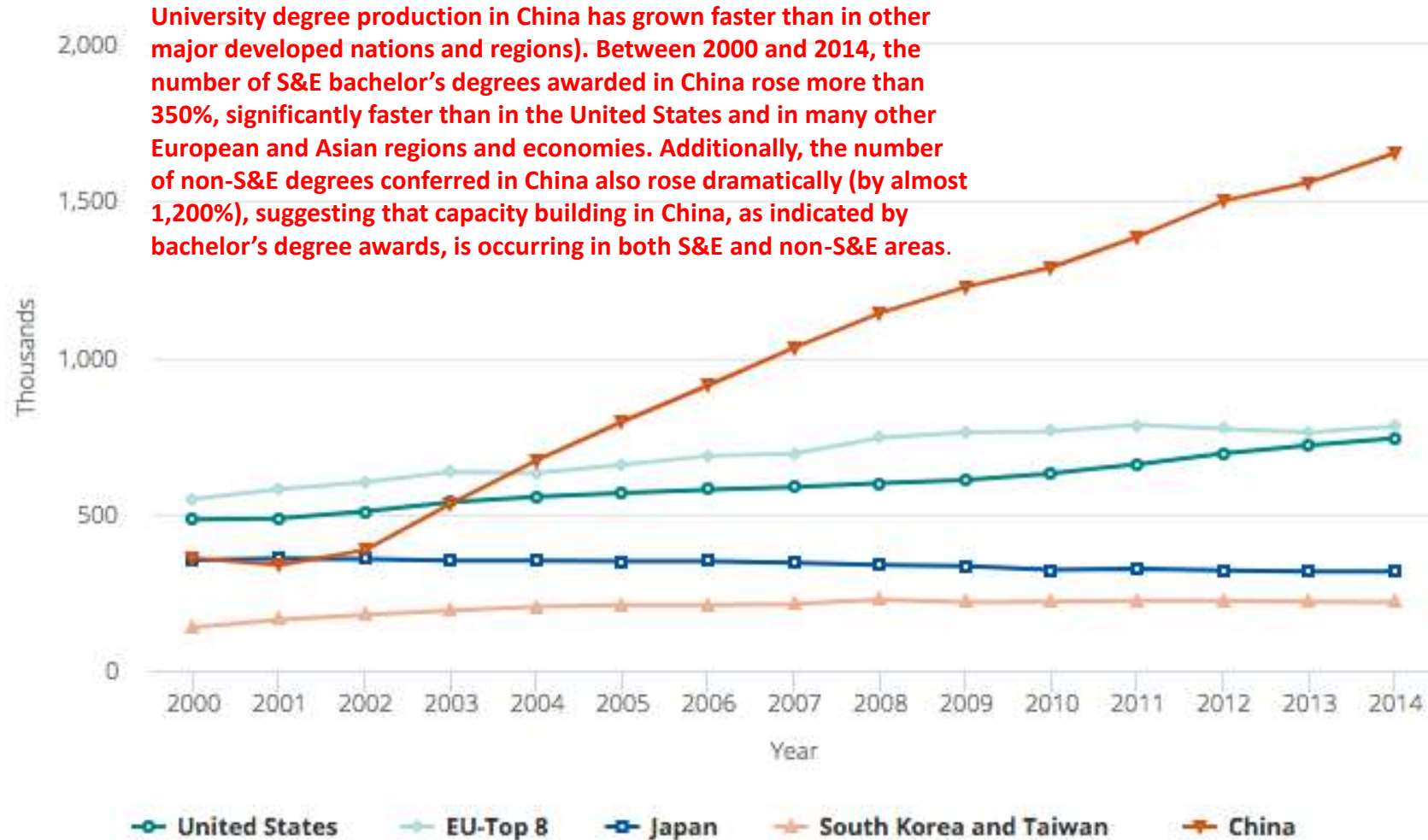
# Shifts Towards Higher Technology Demographics: Chinese vs. US Urbanization: 1900-2005

**China has about the same proportion of city dwellers as the U.S. did in 1940**

Farming in China is changing, paving the way for decades of further urbanization. That'll fuel demand for jobs, apartments and services, beefing up the purchasing power of 300 million to 400 million people—that's the size of the European Union.



# Underlying Educational Base: Bachelor's degree awards in S&E fields, by selected region, country, or economy: 2000–14

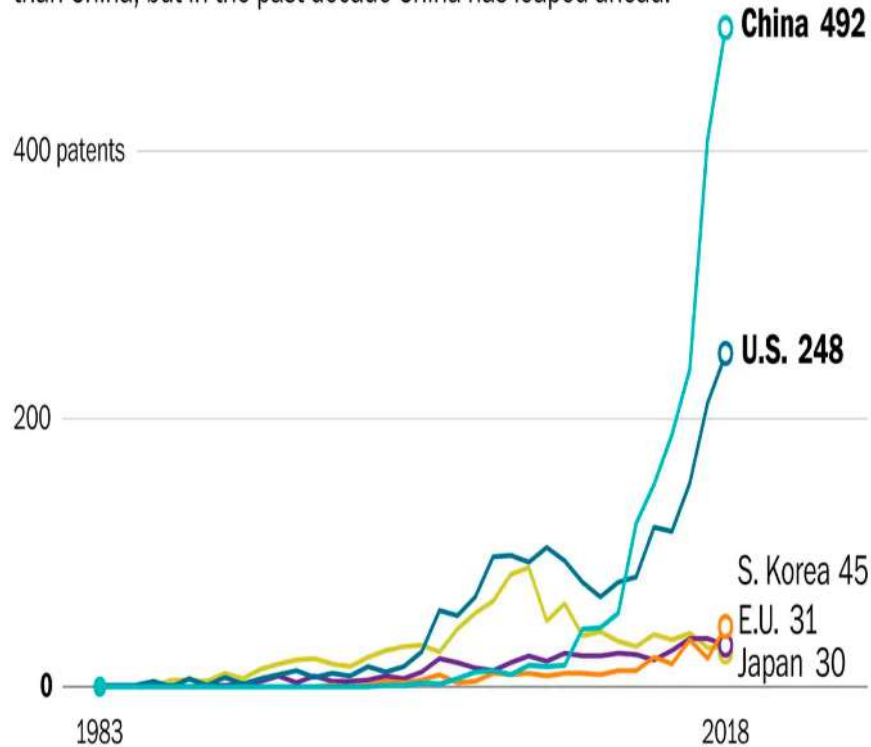


National Science Foundation, National Center for Science and Engineering Statistics estimates, August 2017. Based on data from the Organization for Economic Co-operation and Development, Main Science and Technology Indicators (2017/1), and the United Nations Educational, Scientific and Cultural Organization (UNESCO), Institute for Statistics database, data.uis.unesco.org. National science Board, Science & Engineering Indicators, 2018, <https://nsf.gov/statistics/2018/nsb20181/report/sections/overview/research-publications>.

# Trends in Quantum Computing Research

## Patent filings for quantum technology by country

The United States used to produce more patents for quantum technology than China, but in the past decade China has leaped ahead.

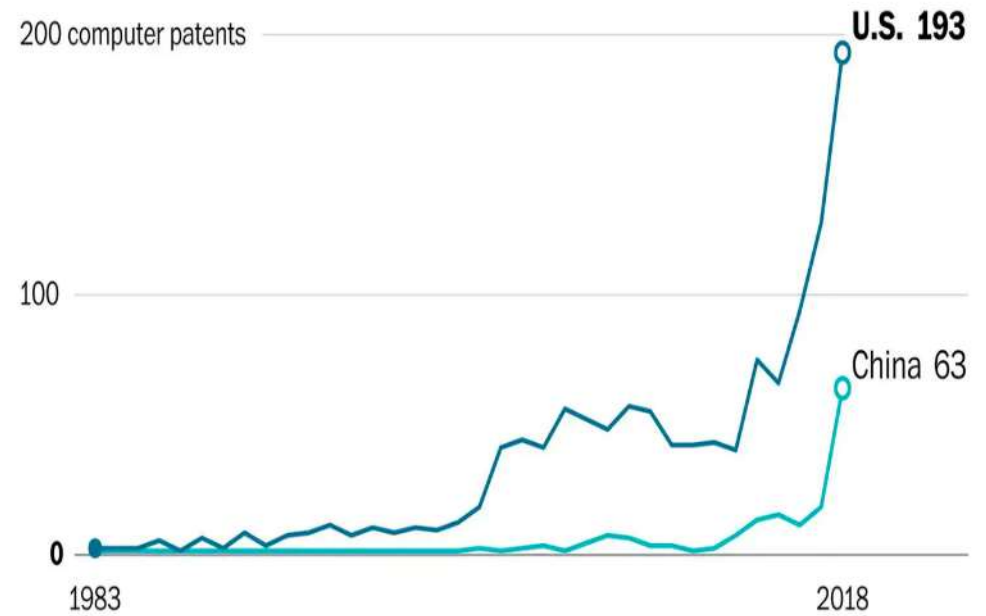


Source: Patinformatics LLC

THE WASHINGTON POST

## Patent filings for quantum computers by country

China has overtaken the United States in quantum technology patents overall, but the United States still has a large lead in patents for quantum computers.



Source: Patinformatics LLC

THE WASHINGTON POST

# ODNI Estimate in 2019 of Chinese Rise in Relative S&T Citations: 1996-2016

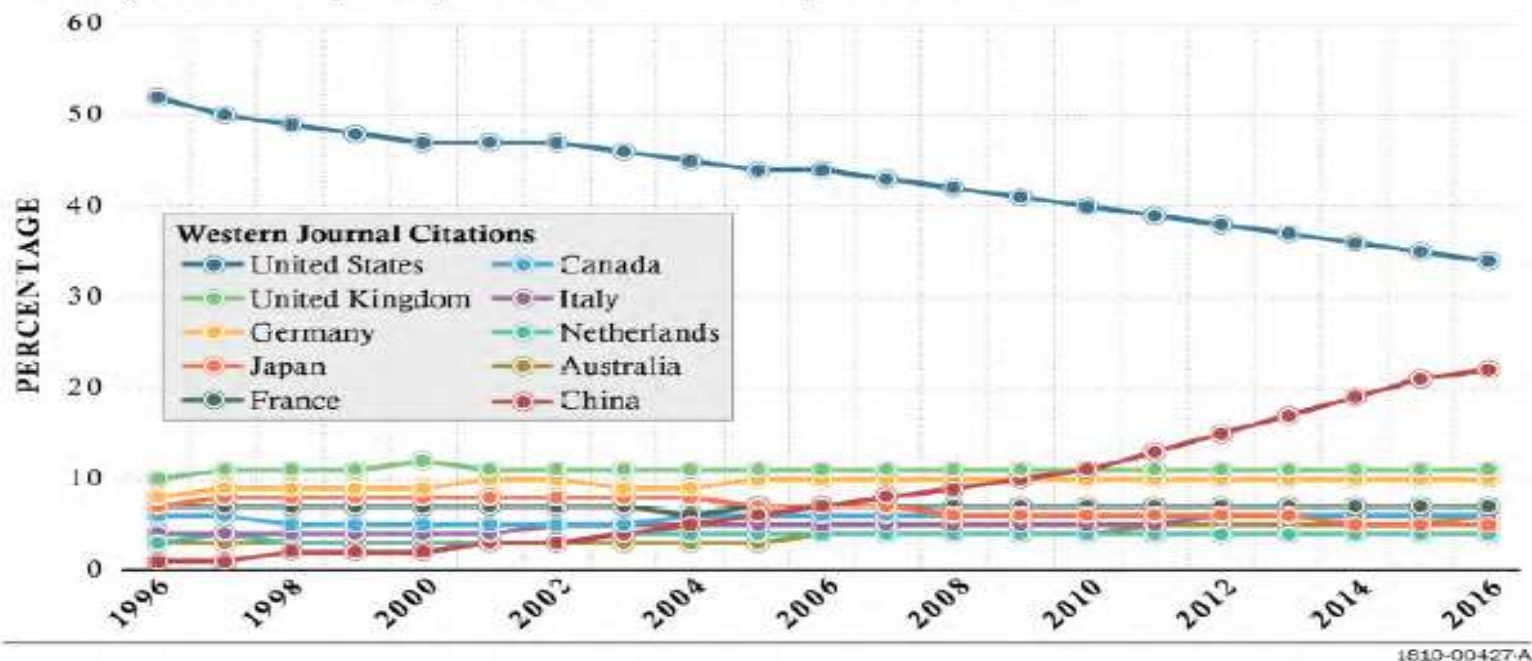
## Strategic Outlook

*For 2019 and beyond, the innovations that drive military and economic competitiveness will increasingly originate outside the United States, as the overall US lead in science and technology (S&T) shrinks; the capability gap between commercial and military technologies evaporates; and foreign actors increase their efforts to acquire top talent, companies, data, and intellectual property via licit and illicit means. Many foreign leaders, including Chinese President Xi Jinping and Russian President Vladimir Putin, view strong indigenous science and technology capabilities as key to their country's sovereignty, economic outlook, and national power.*

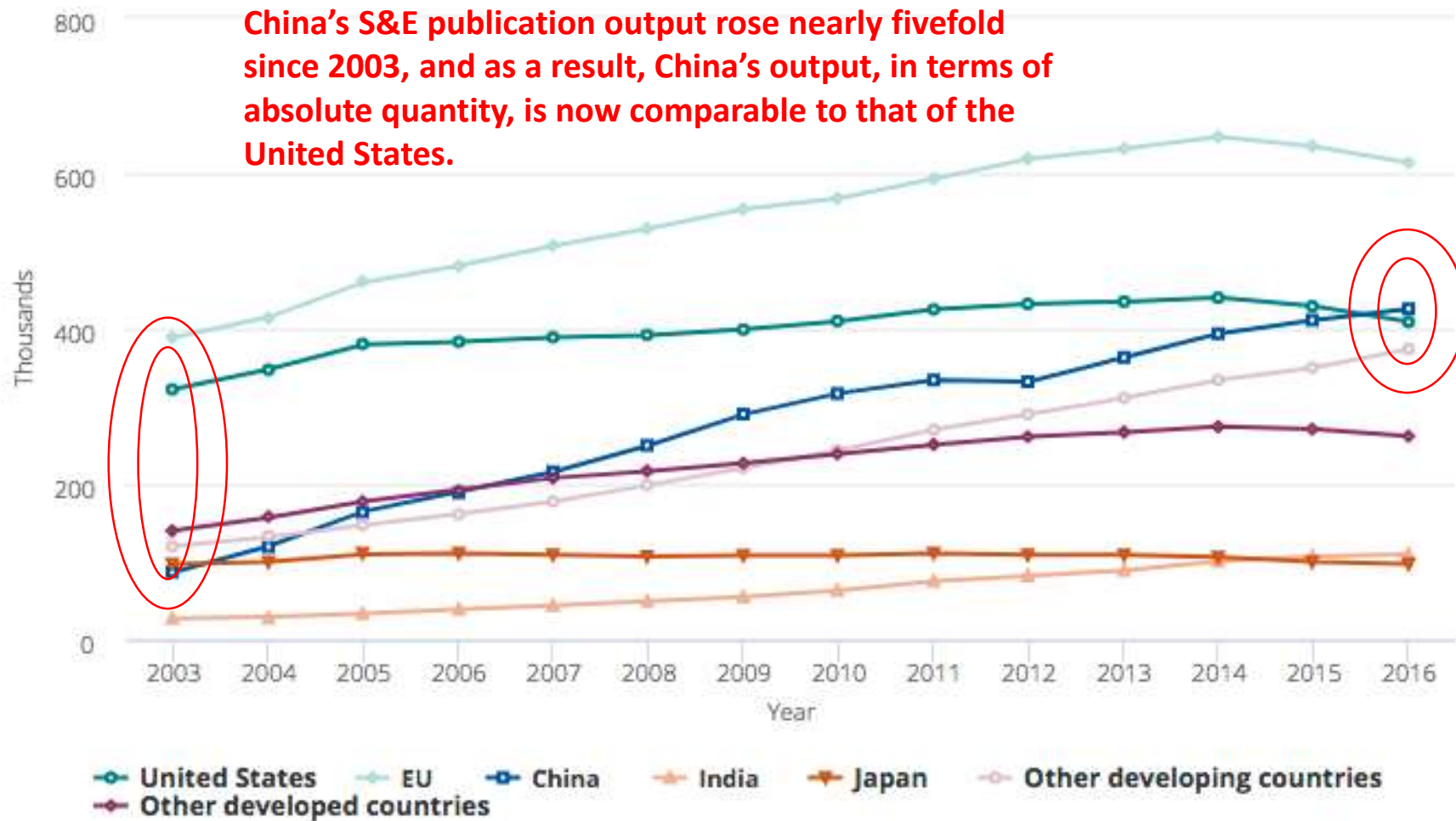
## Researchers Worldwide Citing More Foreign and Less US Research

During the past two decades, the US lead in S&T fields has been significantly eroded, most predominantly by China, which is well ahead in several areas, according to an analysis of Western journal publications.

However, the United States maintains an overall lead largely because we are at the forefront of the medical sciences, which account for almost a third of S&T publications worldwide.

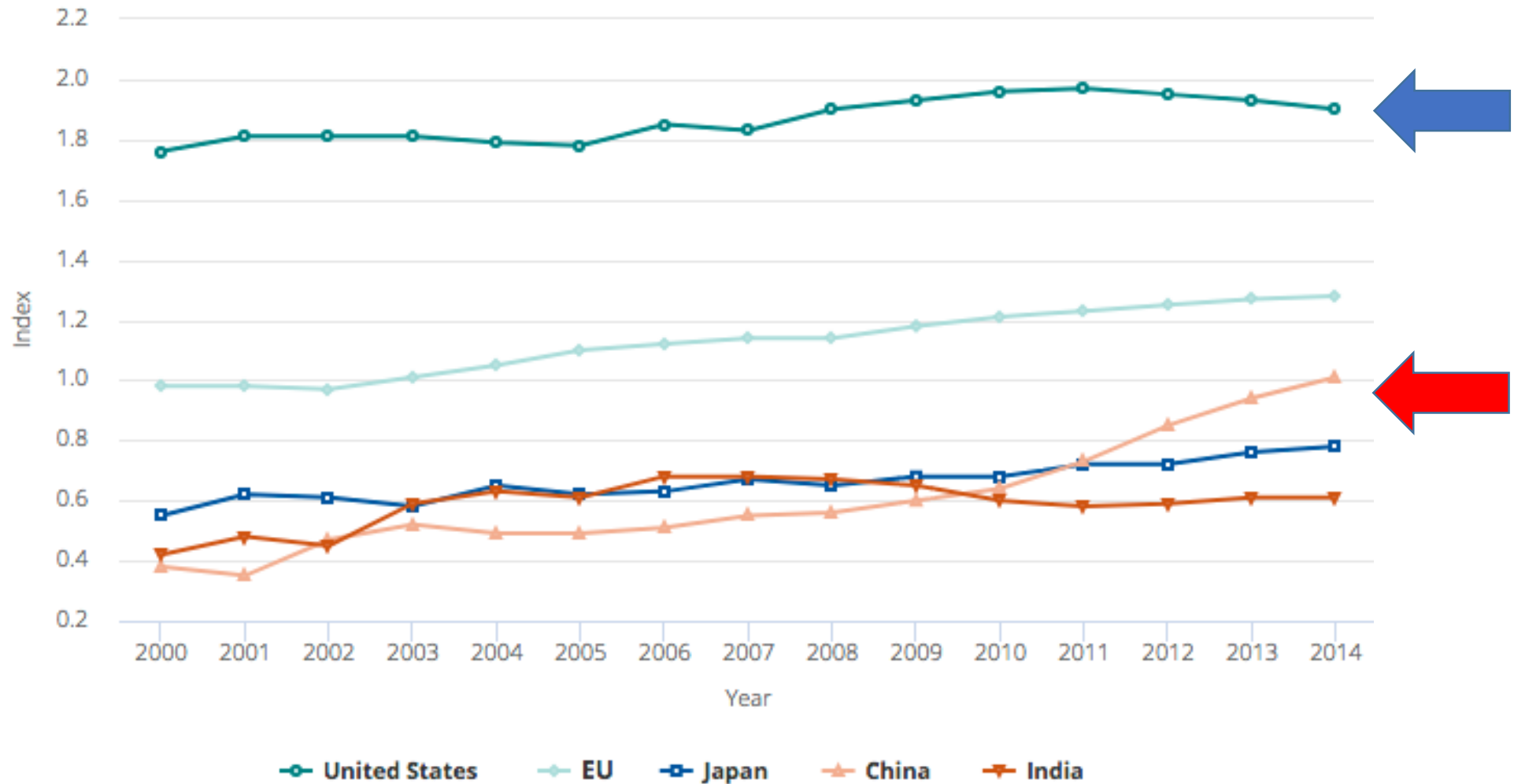


# Chinese Science & Engineering Publications Overtake Those in the U.S. for First Time in 2016





## But Quality Matters: S&E publication output in the top 1% of cited publications, by selected region, country, or economy: 2000–14



# **Trees Don't Grow to the Sky? Possible Limits to China's Success**

# Possible Limits to China's Success

Serious questions do arise as to how much of its past success China can sustain in the future, and its ability to meet a new range of challenges as its economy matures. The World Bank governance indicators, for example, show relatively low ratings for corruption and rule of law — issues China's leadership has also flagged. The ability to grant a public voice and provide accountability is rated as extremely low, and performance in maintaining political stability and limiting violence is only rated as moderate — along with government effectiveness.

It is clear that China has made far more progress in its coastal areas than in the rest of the country, and questions emerge as to the extent China's state planning systems will pose a limit to future growth. China's growth rates have already declined in recent years and may remain lower in the future. Questions also arise over China's domestic consumption rates, ability to lower the barriers to private sector business efforts, trends in labor costs, and improvements in human development.

While the UN and most other sources estimate that China will end its population growth, serious questions still arise about the imbalance between its number of males and females, its ability to counter poverty in rural areas and in central and western China, and its ability to deal with an aging population that is increasing its dependency ratio.

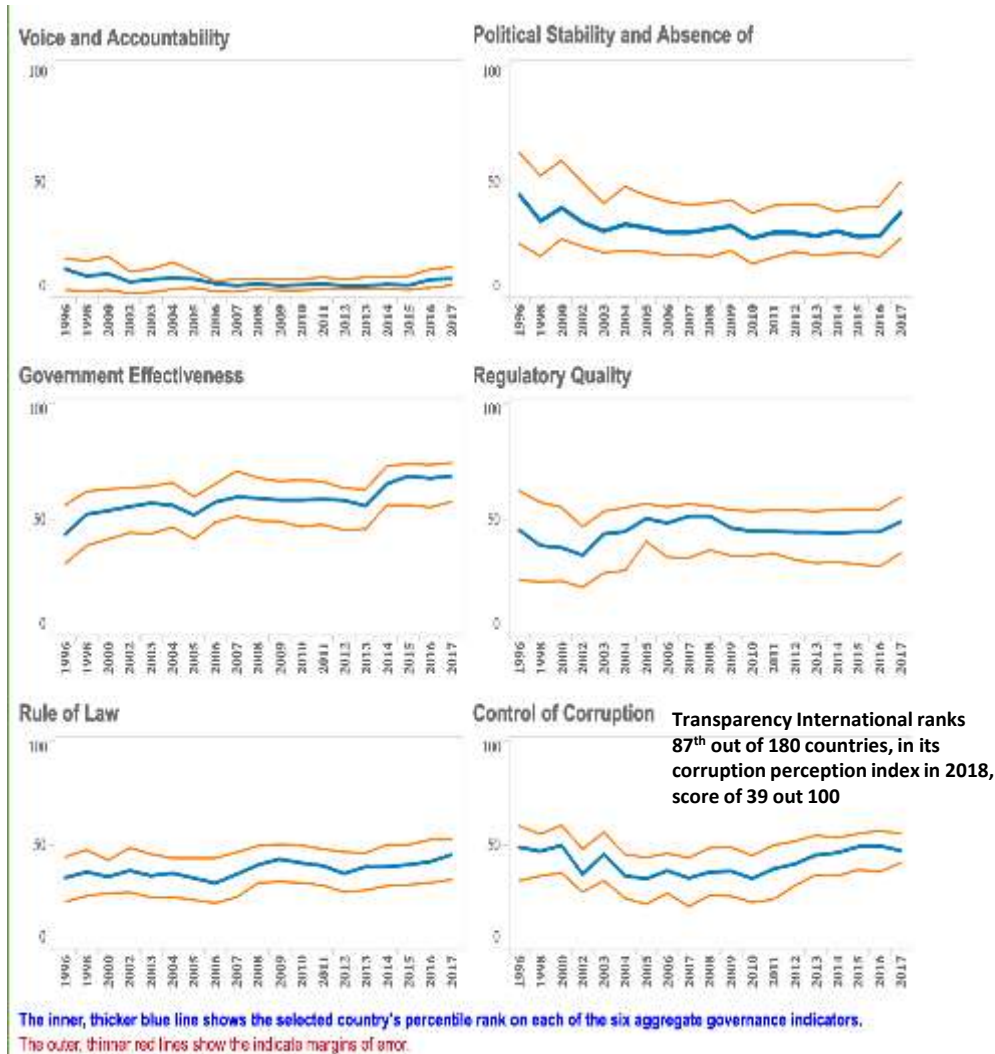
More generally, history is filled with examples of cases where the comparative trends in political and military power, and in economics, were altered by variables that were not predictable even at the time, and seem almost random in character. Some decades ago, serious think tanks like the Hudson Institute examined the possibility that Japan would emerge as the world dominant manufacturing and exporting state — only to see Japan's economic boom collapse in less than a year. Only a handful of analysts predicted the eventual collapse of the former Soviet Union, and it is unclear that any major analyst came close to the timing and actual causes of the event.

Even at a purely mathematical level, “chaos” or “complexity” theory raises serious questions about the ability to understand the number of critical variables that can shape China a decade or more in the future, and no clear method of suboptimization analysis offers a convincing substitute. The trends in this study do as much to warn about the risks of turning “futurism” into false prophecy as to provide a picture of where China may be in 2030 or 2050, and its ability to cooperate, compete, or engage in conflict with the United States — a warning that applies just as much to efforts in predicting the future and status of the United States or any other major power.

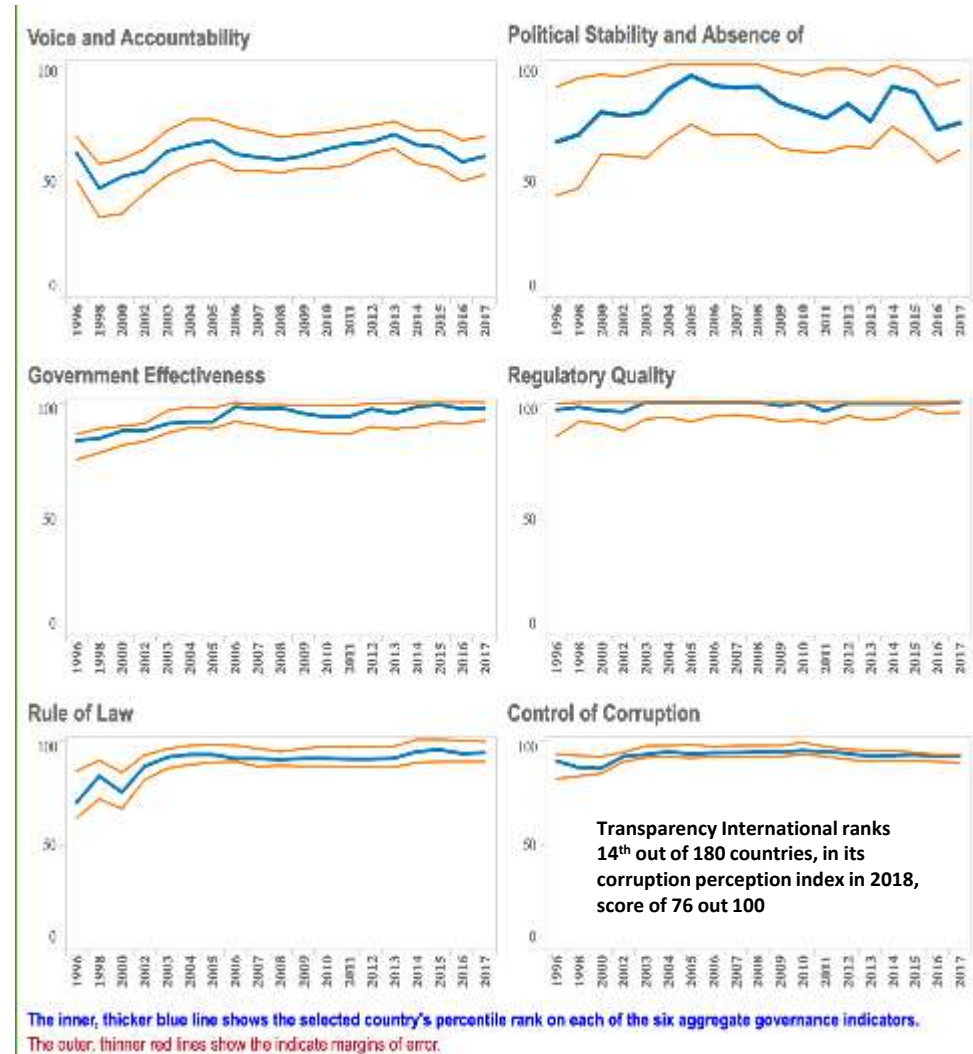


# The Chinese Governance Challenge: Mainland vs. Hong Kong

## China



## Hong Kong SAR



# World Bank Economic Overview: April 2019

Since initiating market reforms in 1978, China has shifted from a centrally-planned to a more market-based economy and has experienced rapid economic and social development. GDP growth has averaged nearly 10% a year—the fastest sustained expansion by a major economy in history—and more than 850 million people have lifted themselves out of poverty. China reached all the Millennium Development Goals (MDGs) by 2015 and made a major contribution to the achievement of the MDGs globally. Although China's GDP growth has gradually slowed since 2012, as needed for a transition to more balanced and sustainable growth, it is still relatively high by current global standards.

With a population of 1.3 billion, China is the world's second largest economy and the largest if measured in purchasing price parity terms. China has been the largest single contributor to world growth since the global financial crisis of 2008.

Although China has made impressive economic and social development gains, its market reforms are incomplete, and its per capita income remains that of a developing country and less than one quarter of the average of OECD countries. The country is on track to eliminate absolute poverty by 2020 according to China's current poverty standard (per capita rural net income of RMB 2,300 per year in 2010 constant prices). However, there are still an estimated 373.1 million people below the “upper middle income” international poverty line of \$5.50 a day.

Rapid economic ascendance has brought on many challenges as well, including high inequality (especially between rural and urban areas), challenges to environmental sustainability, and external imbalances. China also faces demographic pressures related to an aging population and the internal labor migration.

China's rapid economic growth exceeded the pace of institutional development, and there are important institutional and reform gaps that it needs to address to ensure a sustainable growth path. Significant policy adjustments are required for China's growth to be sustainable. Managing structural reforms and related risks will not be straightforward given the complexity, size, and global importance of China's economy.

China's 13<sup>th</sup> Five-Year Plan (2016-2020) addresses these issues. It highlights the development of services and measures to address environmental and social imbalances, setting targets to reduce pollution, to increase energy efficiency, to improve access to education and healthcare, and to expand social protection. The 13<sup>th</sup> Five-Year Plan's annual growth target is 6.5%, reflecting the rebalancing of the economy and the focus on the quality of growth while maintaining the objective of achieving a “moderately prosperous society” by 2020 (doubling GDP for 2010-2020).

# CIA Economic Overview: April 2019

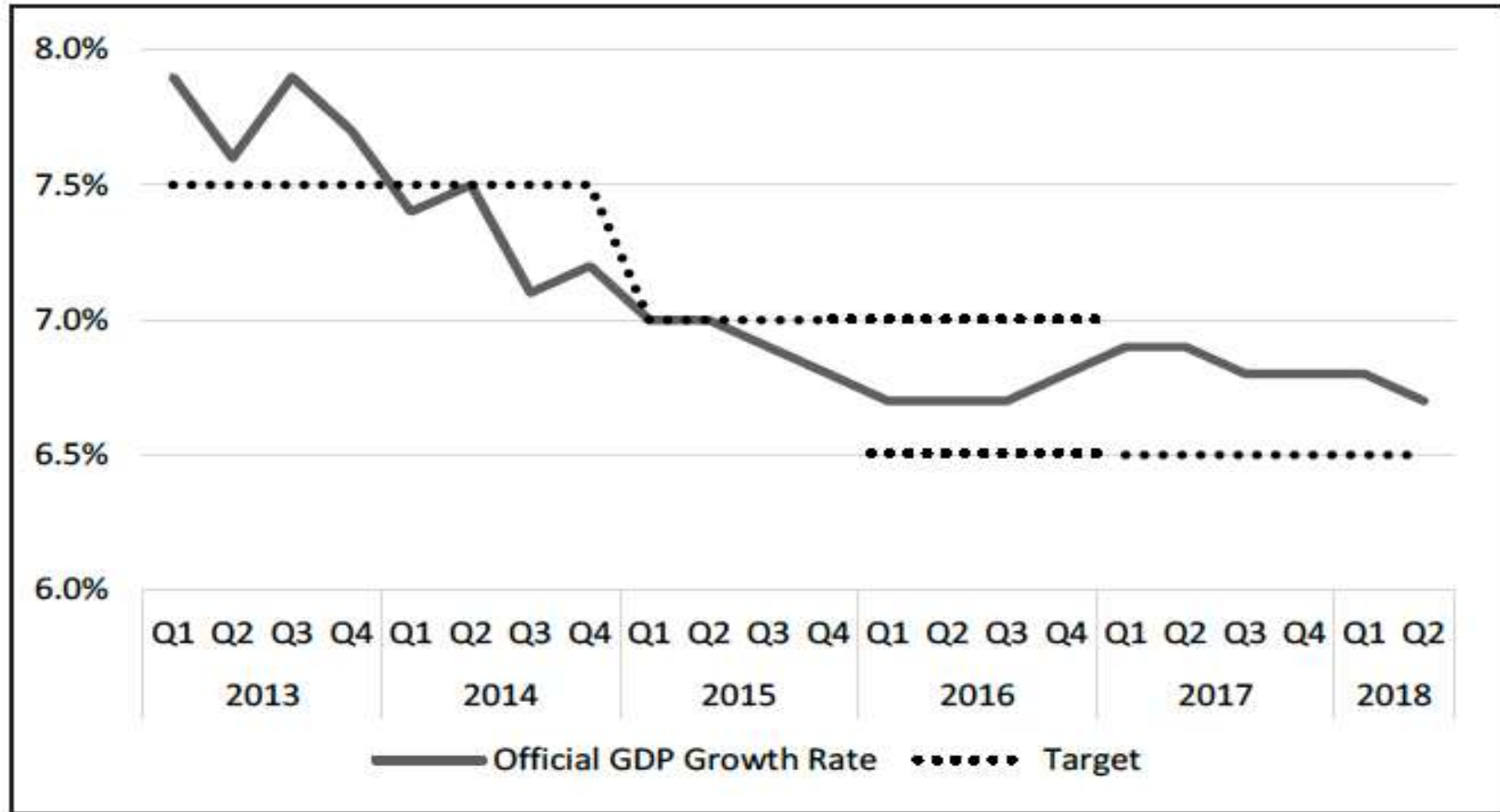
Since the late 1970s, China has moved from a closed, centrally planned system to a more market-oriented one that plays a major global role. China has implemented reforms in a gradualist fashion, resulting in efficiency gains that have contributed to a more than tenfold increase in GDP since 1978. Reforms began with the phaseout of collectivized agriculture, and expanded to include the gradual liberalization of prices, fiscal decentralization, increased autonomy for state enterprises, growth of the private sector, development of stock markets and a modern banking system, and opening to foreign trade and investment. China continues to pursue an industrial policy, state support of key sectors, and a restrictive investment regime. From 2013 to 2017, China had one of the fastest growing economies in the world, averaging slightly more than 7% real growth per year. Measured on a purchasing power parity (PPP) basis that adjusts for price differences, China in 2017 stood as the largest economy in the world, surpassing the US in 2014 for the first time in modern history. China became the world's largest exporter in 2010, and the largest trading nation in 2013. Still, China's per capita income is below the world average.

In July 2005 moved to an exchange rate system that references a basket of currencies. From mid-2005 to late 2008, the renminbi (RMB) appreciated more than 20% against the US dollar, but the exchange rate remained virtually pegged to the dollar from the onset of the global financial crisis until June 2010, when Beijing announced it would resume a gradual appreciation. From 2013 until early 2015, the renminbi held steady against the dollar, but it depreciated 13% from mid-2015 until end-2016 amid strong capital outflows; in 2017 the RMB resumed appreciating against the dollar – roughly 7% from end-of-2016 to end-of-2017. In 2015, the People's Bank of China announced it would continue to carefully push for full convertibility of the renminbi, after the currency was accepted as part of the IMF's special drawing rights basket. However, since late 2015 the Chinese Government has strengthened capital controls and oversight of overseas investments to better manage the exchange rate and maintain financial stability.

The Chinese Government faces numerous economic challenges including: (a) reducing its high domestic savings rate and correspondingly low domestic household consumption; (b) managing its high corporate debt burden to maintain financial stability; (c) controlling off-balance sheet local government debt used to finance infrastructure stimulus; (d) facilitating higher-wage job opportunities for the aspiring middle class, including rural migrants and college graduates, while maintaining competitiveness; (e) dampening speculative investment in the real estate sector without sharply slowing the economy; (f) reducing industrial overcapacity; and (g) raising productivity growth rates through the more efficient allocation of capital and state-support for innovation. Economic development has progressed further in coastal provinces than in the interior, and by 2016 more than 169.3 million migrant workers and their dependents had relocated to urban areas to find work. One consequence of China's population control policy known as the "one-child policy" - which was relaxed in 2016 to permit all families to have two children - is that China is now one of the most rapidly aging countries in the world. Deterioration in the environment - notably air pollution, soil erosion, and the steady fall of the water table, especially in the North - is another long-term problem. China continues to lose arable land because of erosion and urbanization. The Chinese Government is seeking to add energy production capacity from sources other than coal and oil, focusing on natural gas, nuclear, and clean energy development. In 2016, China ratified the Paris Agreement, a multilateral agreement to combat climate change, and committed to peak its carbon dioxide emissions between 2025 and 2030.

The government's 13th Five-Year Plan, unveiled in March 2016, emphasizes the need to increase innovation and boost domestic consumption to make the economy less dependent on government investment, exports, and heavy industry. However, China has made more progress on subsidizing innovation than rebalancing the economy. Beijing has committed to giving the market a more decisive role in allocating resources, but the Chinese Government's policies continue to favor state-owned enterprises and emphasize stability. Chinese leaders in 2010 pledged to double China's GDP by 2020, and the 13th Five Year Plan includes annual economic growth targets of at least 6.5% through 2020 to achieve that goal. In recent years, China has renewed its support for state-owned enterprises in sectors considered important to "economic security," explicitly looking to foster globally competitive industries. Chinese leaders also have undermined some market-oriented reforms by reaffirming the "dominant" role of the state in the economy, a stance that threatens to discourage private initiative and make the economy less efficient over time. The slight acceleration in economic growth in 2017—the first such uptick since 2010—gives Beijing more latitude to pursue its economic reforms, focusing on financial sector deleveraging and its Supply-Side Structural Reform agenda, first announced in late 2015.

## Declining Chinese GDP Growth: 2013-2018

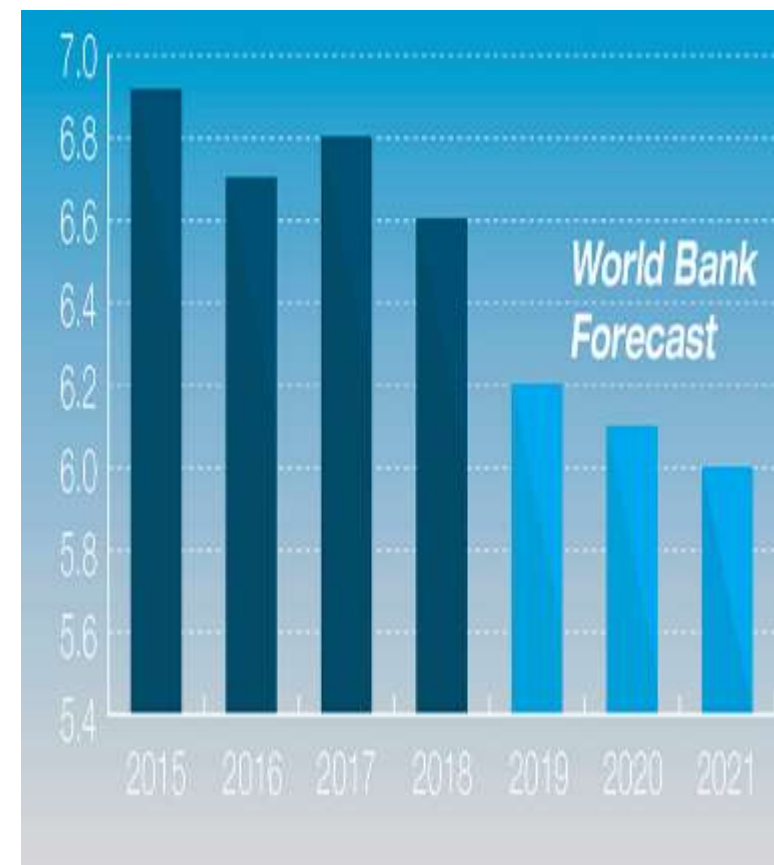


*Note:* In 2016, the GDP growth target was set at a range of 6.5–7.0 percent.

*Source:* China's National Bureau of Statistics via CEIC database; Li Keqiang, *Report on the Work of the Government*, First Session of the 13th National People's Congress, Beijing, China, March 5, 2018, 20.

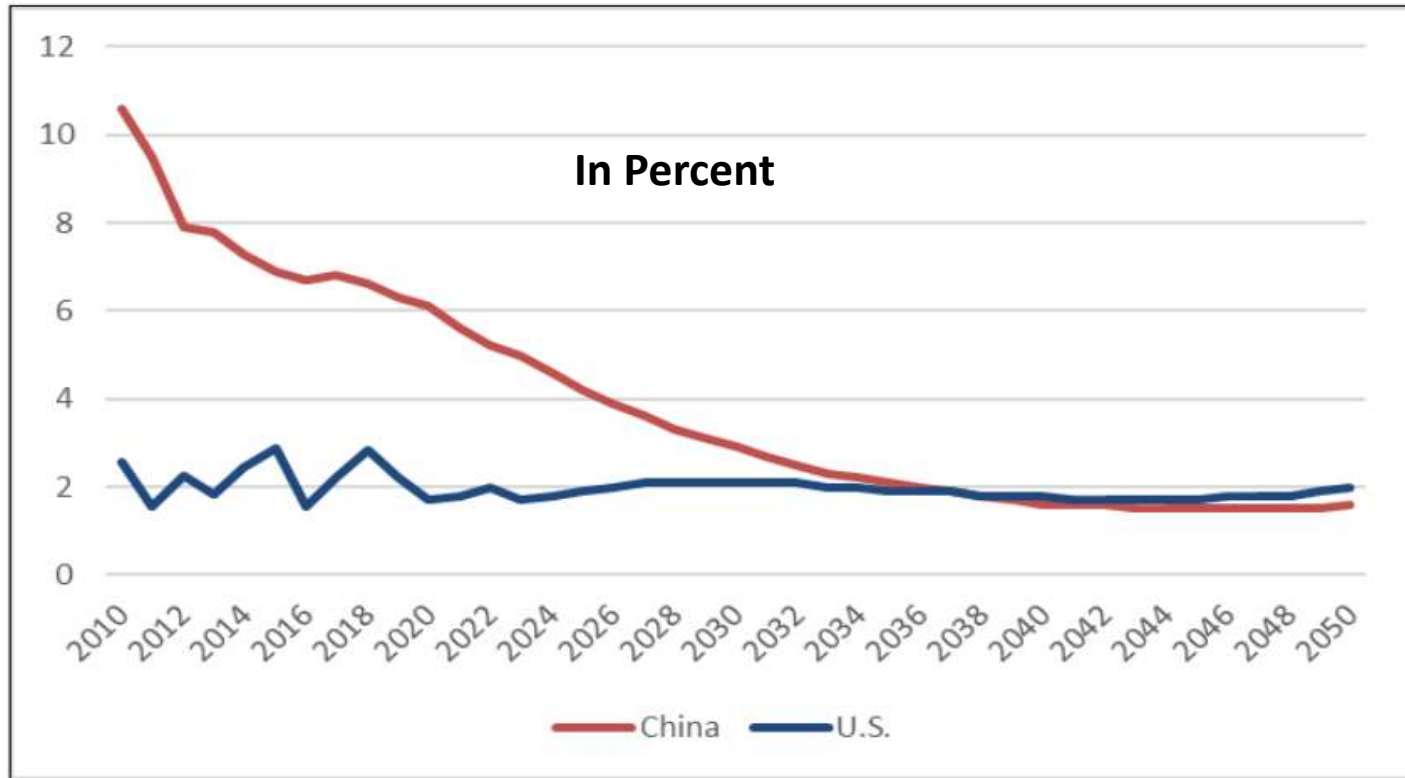
# World Bank, Limited Drop in GDP Growth: 2016-2021?

Table 2: Macroeconomic indicators and outlook						
	2016	2017	2018	2019f	2020f	2021f
Real GDP growth, at constant market prices (percent)	6.7	6.8	6.6	6.2	6.1	6.0
<i>Contributions to growth (pp):</i>						
Final consumption	4.5	3.9	5.0	4.4	4.3	4.3
Gross fixed capital investment	2.9	2.3	2.1	2.1	2.1	2.0
Net exports	-0.6	0.6	-0.6	-0.3	-0.3	-0.3
Real GDP growth, at constant factor prices (percent)	6.7	6.8	6.6	6.2	6.1	6.0
<i>Contributions to growth (pp):</i>						
Agriculture	0.3	0.3	0.3	0.3	0.3	0.3
Industry	2.6	2.4	2.4	2.2	2.1	2.0
Services	3.9	4.0	3.9	3.7	3.7	3.7
Inflation (average percent change in Consumer Price Index)	2.0	1.6	2.1	2.2	2.0	2.0
Current account balance (% of GDP)	1.8	1.6	0.4	-0.1	0.3	0.5
Financial and capital account (excl. reserves) (% of GDP)	-3.7	0.9	1.0	0.2	0.6	0.7
Net foreign direct investment (% of GDP)	0.4	0.2	0.8	0.5	0.5	0.5
Consolidated fiscal balance (% of GDP) *	-3.0	-2.5	-3.9	-5.9	-4.0	-3.7
<i>Note:</i> f-Forecast. * The consolidated fiscal balance = Public Finance Budget balance + Government Fund Budget balance + Social security and SOE Fund net revenues - Net withdrawal from Stabilization Fund. Numbers may not add up due to rounding.						
<i>Source:</i> Ministry of Finance, NBS, SAFE, World Bank staff calculations and projections.						





# Declining Chinese GDP Growth Relative to U.S.: 2010-2050 - I



**Source:** EIU Database (accessed on June 24, 2019).

....as China's technological development begins to converge with major developed countries (i.e., through its adoption of foreign technology), its level of productivity gains, and thus, real GDP growth, could slow significantly from its historic levels unless China becomes a major center for new technology and innovation and/or implements new comprehensive economic reforms. Several developing economies (notably several in Asia and Latin America) experienced rapid economic development and growth during the 1960s and 1970s by implementing some of the same policies that China has utilized to date to develop its economy, such as measures to boost exports and to promote and protect certain industries. However, at some point in their development, some of these countries began to experience economic stagnation (or much slower growth compared to previous levels) over a sustained period of time, a phenomenon described by economists as the "middle-income trap."

# Declining Chinese GDP Growth Relative to U.S.: 2010-2050 -II

This means that several developing (low-income) economies were able to transition to a middle-income economy, but because they were unable to sustain high levels of productivity gains (in part because they could not address structural inefficiencies in the economy), they were unable to transition to a high-income economy. China may be at a similar crossroads now.

The Economist Intelligence Unit (EIU) projects that China's real GDP growth will slow considerably in the years ahead, eventually converging on U.S. growth rates by the year 2036 (U.S. and Chinese real GDP growth are both projected at 1.6%); for some years thereafter, U.S. GDP growth is projected to be greater than China's.

The Chinese government has indicated its desire to move away from its current economic model of fast growth at any cost to more "smart" economic growth, which seeks to reduce reliance on energy-intensive and high-polluting industries and rely more on high technology, green energy, and services. China also has indicated it wants to obtain more balanced economic growth. (These issues are discussed in more detail later in the report.)

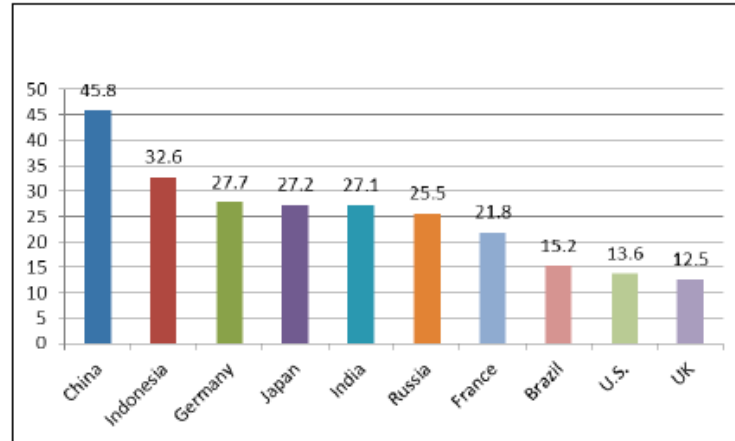
# Medium World Bank Chinese Doing Business Ranking: 2019

Country	Ease of		Global Ranking in										*
	Doing Business	Score	Starting a Business	Construction Permits	Getting Electricity	Registering Property	Getting Credit	Protecting Minority Investors	Paying Taxes	Trading Across Borders	Enforcing Contracts	Resolving Insolvency	
China	46	71.81	72	33	36	61	85	64	76	71	49	51	
Hong Kong SAR	4	84.22	5	1	3	53	32	11	1	27	30	44	
Singapore	2	85.24	3	8	16	21	32	7	8	45	1	27	
United States	8	82.65	19	17	7	42	32	15	23	30	32	14	
Japan	39	75.65	93	44	22	48	85	64	97	56	52	1	
South Korea	5	84.14	11	10	2	40	60	23	24	33	2	11	
Vietnam	69	68.36	104	21	27	60	32	89	131	100	62	133	
India	77	67.23	137	52	74	166	22	7	121	80	163	108	
North Korea	-	-	-	-	-	-	-	-	-	-	-	-	
Malaysia	15	80.60	122	3	4	29	32	2	72	48	33	41	
Pakistan	136	55.31	130	166	167	161	112	26	173	142	156	53	
Afghanistan	167	42.77	49	184	168	186	99	26	177	177	181	174	



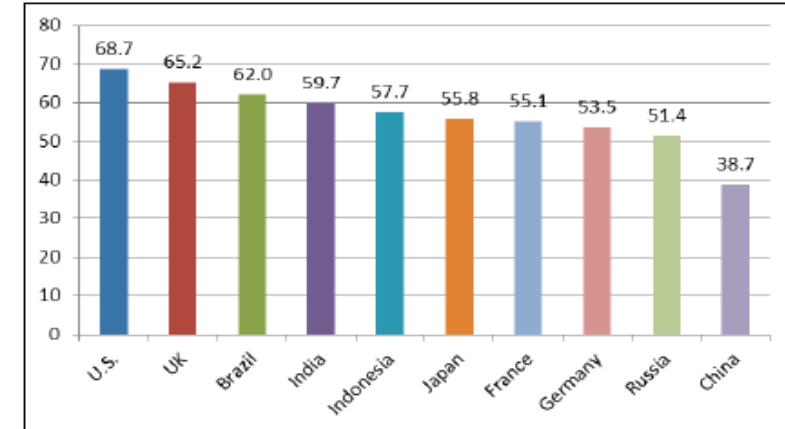
# Comparative Savings, Investment and Spending Rates

**Comparison of Gross Savings Rates for Major Global Economies in 2016**  
(percentage of GDP)



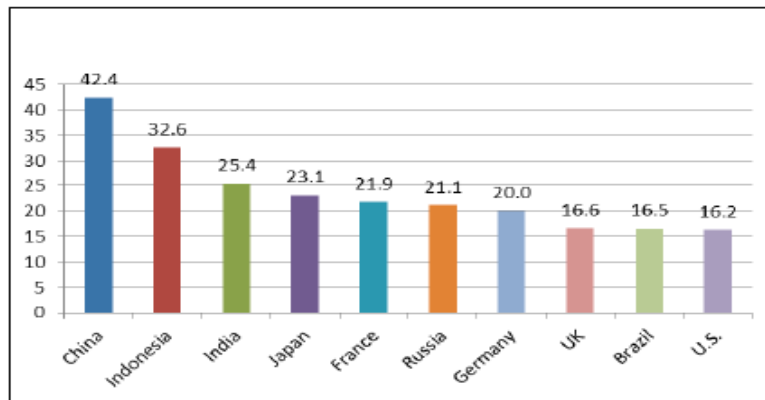
Source: Economist Intelligence Unit.

**Comparison of Private Consumption of Major Global Economies in 2016**  
(percentage of GDP)



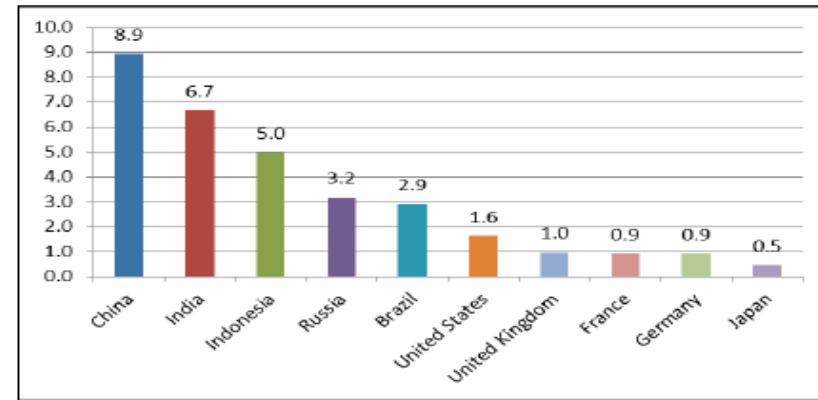
Source: Economist Intelligence Unit.

**Comparison of Gross Fixed Investment for Major Global Economies in 2016**  
(percentage of GDP)



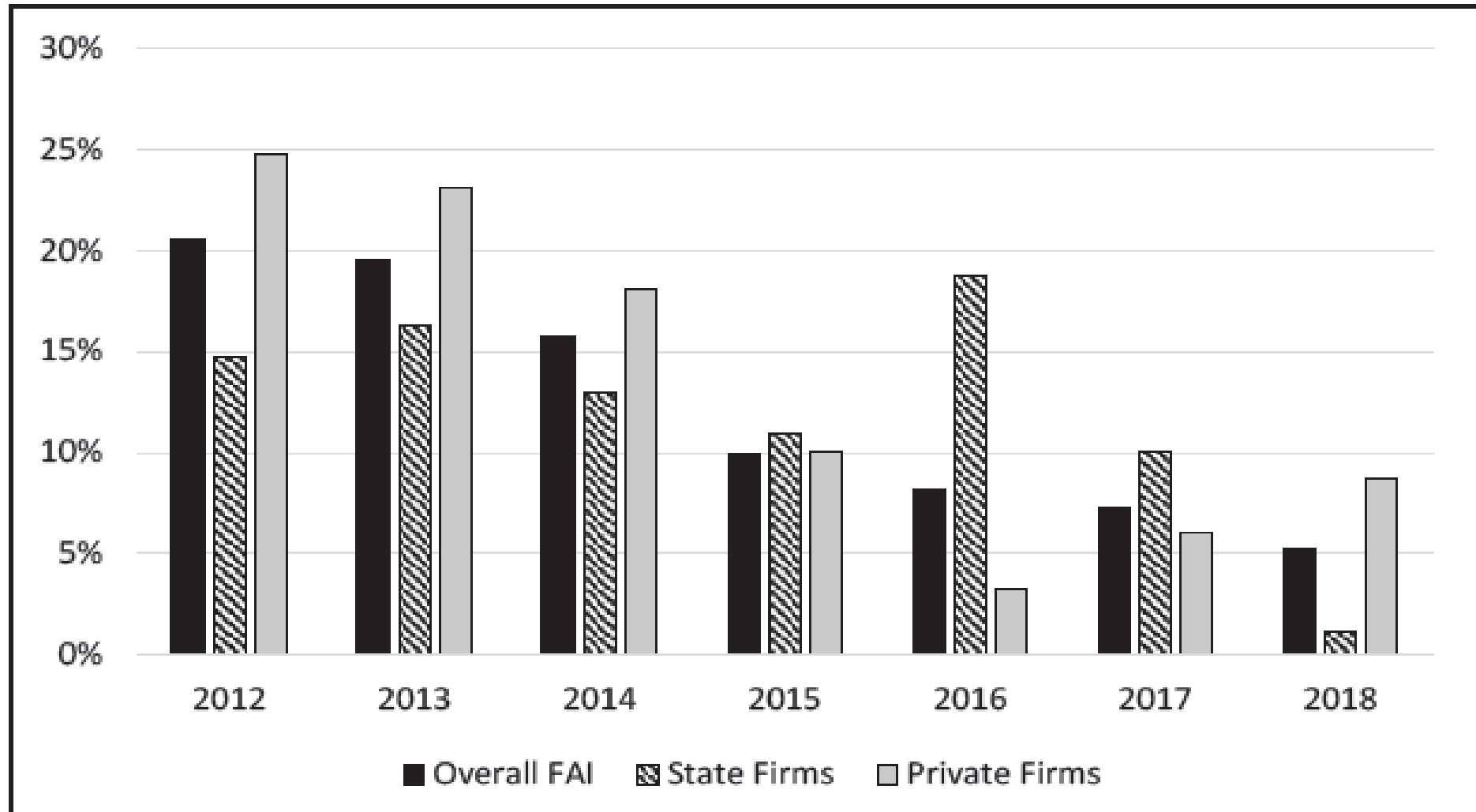
Source: Economist Intelligence Unit.

**Average Annual Growth in Private Consumption: 2007-2016**  
(percent)



Source: Economist Intelligence Unit.

## Decline in Chinese Fixed Asset Investment: 2012-8/2018

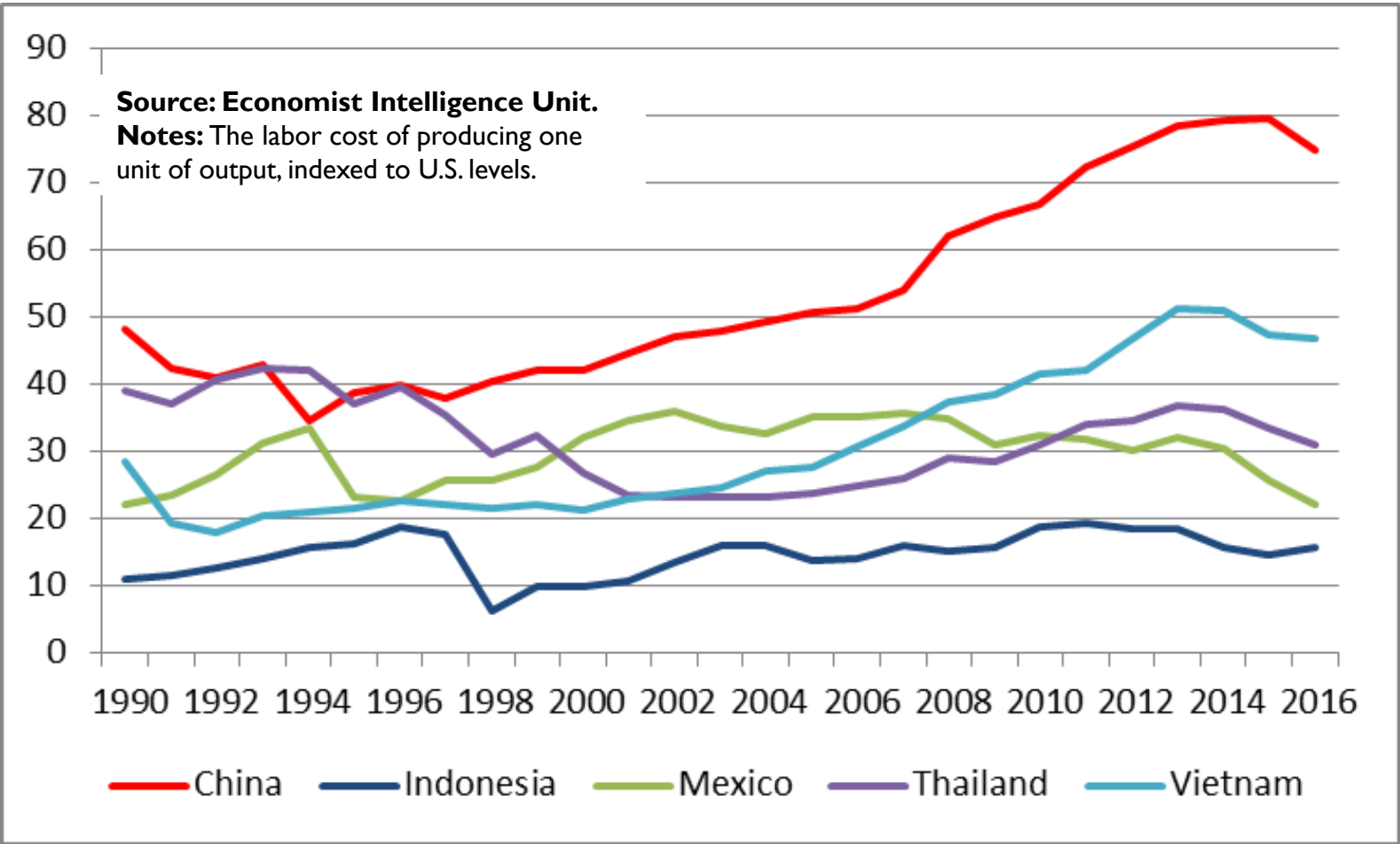


*Note:* Data for 2018 are for the first eight months of the year.

*Source:* China's National Bureau of Statistics via CEIC database.

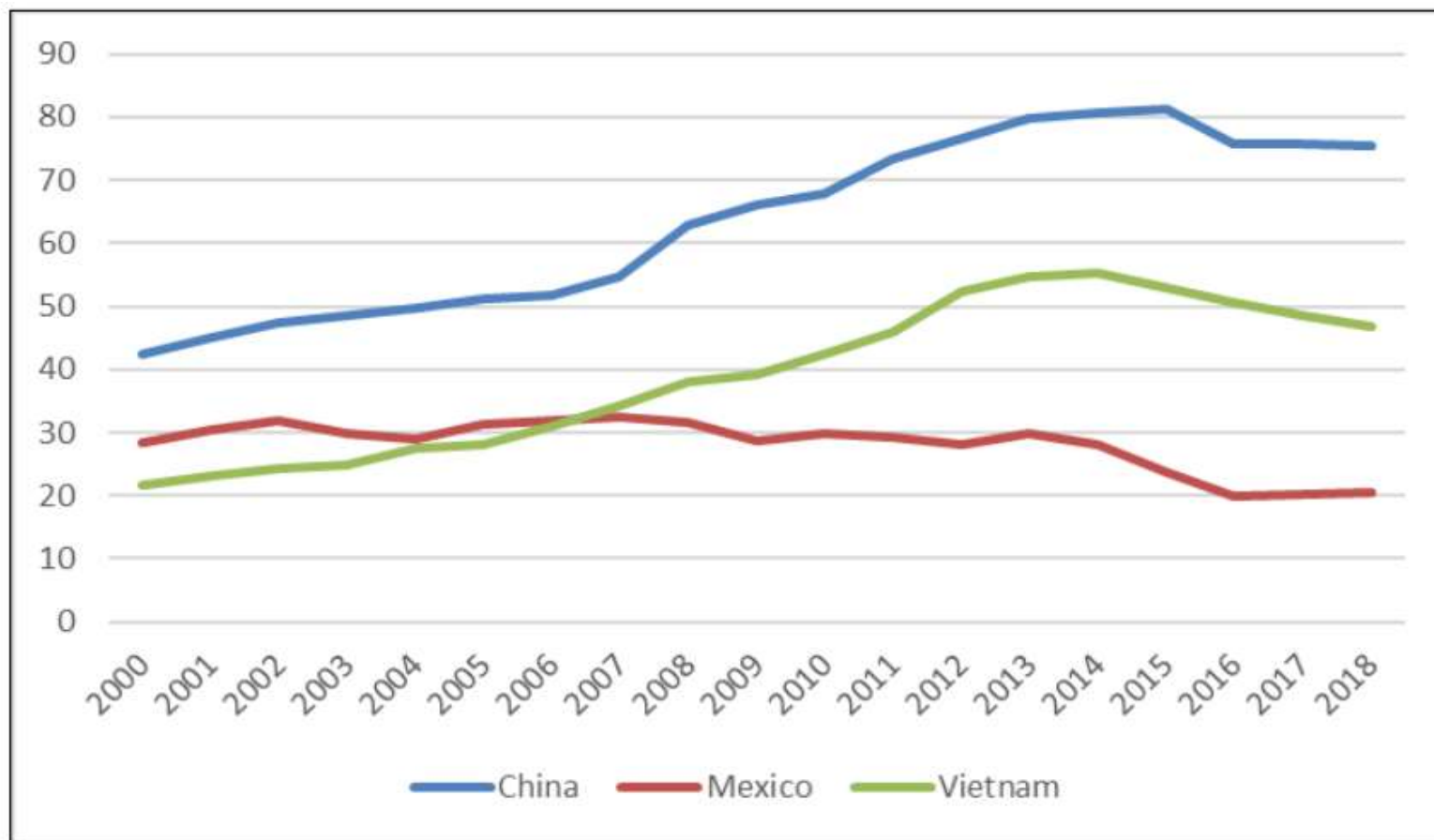
# Chinese Labor Costs are Becoming Less Favorable

Labor Cost Index for China and Selected Countries Relative to the United States:1990-2016  
(U.S. level =100)



# Chinese Labor Costs are Becoming Less Favorable

Labor Cost Index for China and Selected Countries Relative to the United States:2000-2018  
(U.S. level =100)

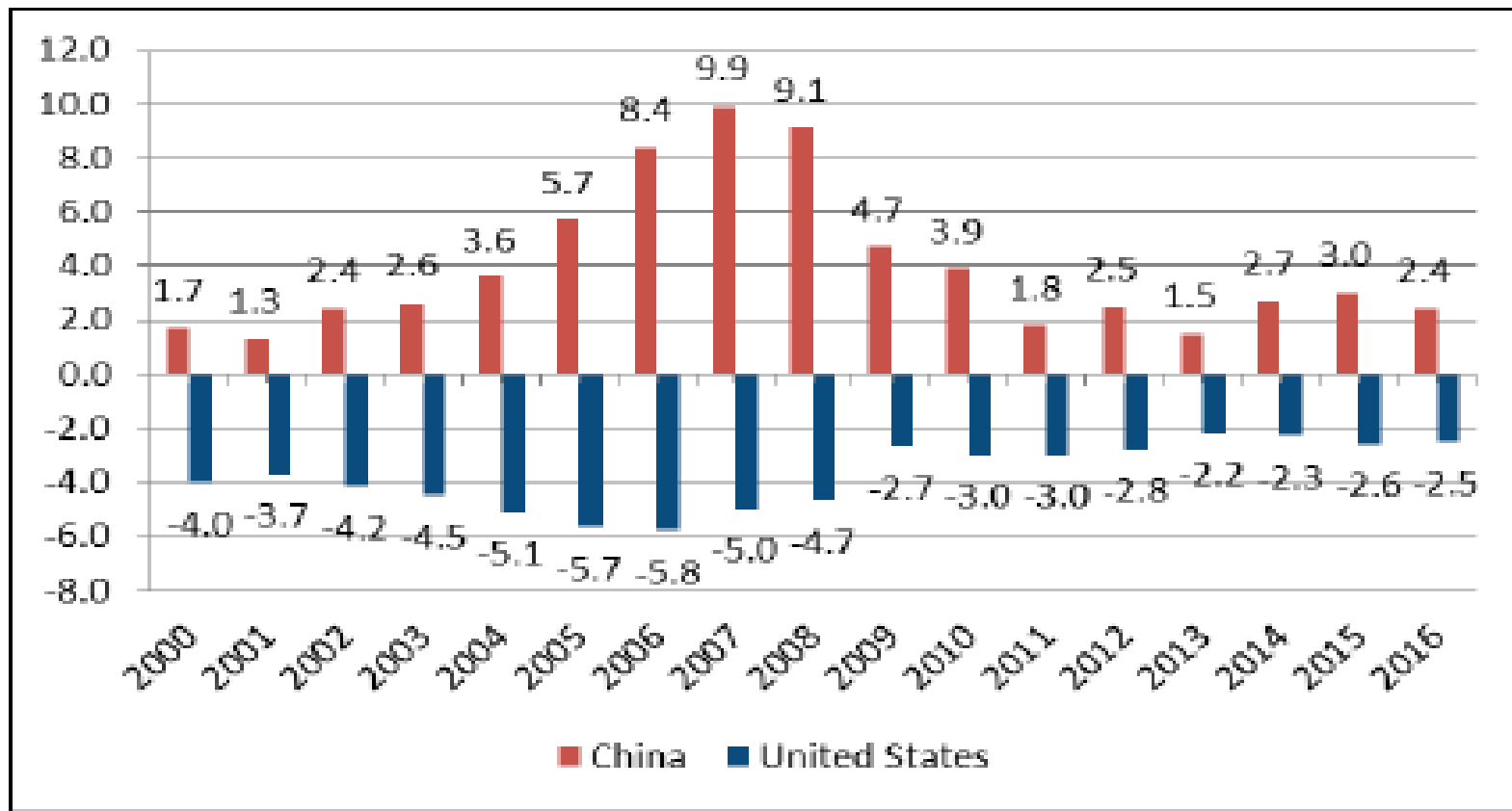


**Source:** Economist Intelligence Unit.

**Notes:** The labor cost of producing one unit of output, indexed to U.S. levels.

Source: Wayne M. Morrison, *China's Economic Rise: History, Trends, Challenges, and Implications for the United States*, Congressional Research Service, Updated June 25, 2019, <https://crsreports.congress.gov>, RL33534, pp. 14.

# Shifts in Current Account Balances as a Percentage of GDP for China and the United States: 2000-2016



**Source:** International Monetary Fund, *World Economic Outlook Database*, October 2016.

**Note:** Data for 2016 are IMF estimates.

## Medium UN Human Development Index Ranking: 2018

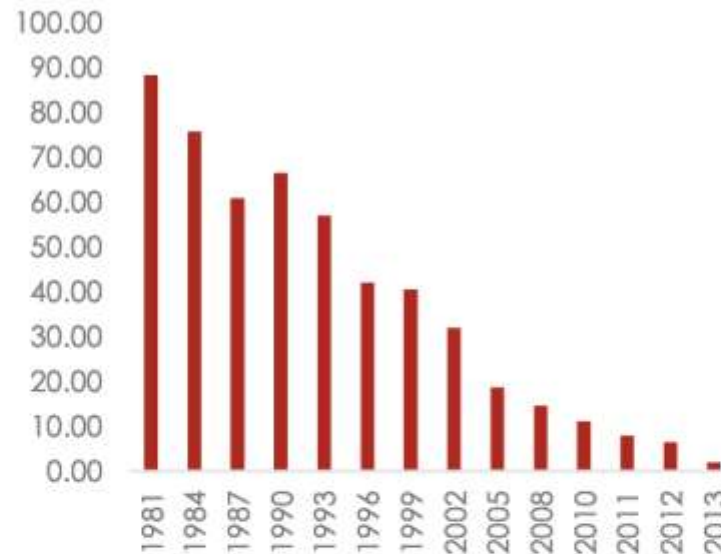
Country	<u>Human Development Index</u> <u>Ranking</u>		<u>Life Expectancy at Birth (yrs)</u>	<u>Expected Years of Schooling</u>	<u>Mean Years of Actual Schooling</u>	<u>Gross National Per Capita Income (2011 PPP)</u>	<u>CIA Per Capita Income (2017 PPP)</u>
China	86	0.752	76.4	13.8	7.8	\$15,270	\$16,700
Hong Kong SAR	7	0.933	84.1	16.3	12.0	\$58,420	\$61,500
Singapore	9	0.932	83.2	16.2	11.5	\$82,503	\$94,100
United States	13	0.924	79.5	16.5	13.4	\$54,941	\$59,800
Japan	19	0.909	83.4	15.2	12.8	\$38,986	\$42,900
South Korea	22	0.903	82.4	16.5	12.1	\$35,945	\$39,500
Vietnam	116	0.694	76.5	12.7	8.2	\$5,859	\$6,900
India	130	0.640	68.8	12.3	6.4	\$6,353	\$7,200
North Korea	NA	NA	71.9	12.0	NA	NA	\$1,700 (2015)
High Development	-	0.757	76.0	14.1	8.2	\$14,999	NA
Medium Development	-	0.645	69.1	12.0	6.7	\$6,849	NA

Source: World Bank, Human Development Report, Statistical Annex, <http://www.doingbusiness.org/en/rankings>, <http://report.hdr.undp.org/>, CIA World Factbook, accessed 18..6.2019.

# Mixed Progress in Dealing with Poverty

The World Bank forecasts that China is on its way to eliminating extreme poverty, but the population vulnerable to poverty in China will remain relatively large. China is expected to continue to make strong progress toward eliminating extreme poverty, despite the slowdown of economic growth. The World Bank projects extreme poverty, based on the international PPP US\$1.90 per day poverty line, to decline to 0.5 percent by 2018.<sup>42</sup> This assumes a deceleration of annual GDP growth from 6.9 to 6.5 percent between 2015 and 2018. Slower growth rates of up to a percentage point do not render significant differences in poverty forecasts. But despite the progress made in eliminating extreme poverty, the population vulnerable to poverty, as defined by the higher international poverty line of PPP US\$3.10, will remain relatively large. The higher poverty line characterizes those in moderate poverty and vulnerable to falling below the poverty line. According to this higher poverty line, China is projected to have a poverty rate of 3.9 percent or 54.6 million people by 2018.

**Figure 2. 1: China's Poverty Head Count Ratio<sup>41</sup>**  
(International PPP US\$1.90 Per Day Poverty Line)



Sources: China NBS household surveys and staff calculations.

# The Remaining Chinese Poverty Challenge in Rural Areas

**Poverty Head Count Ratio in China,  
National and by Urban and Rural Areas: Percentage of  
Population  
That Consume Less than US\$1.90 Per Day in 2011 PPP**

	National	Rural	Urban
1981	88.32	95.59	59.43
1984	75.75	85.21	42.60
1985	—	83.62	#N/A
1987	60.84	72.55	24.27
1990	66.58	78.95	32.16
1992	—	60.64	9.01
1993	57.00	71.83	20.86
1994	—	52.50	9.46
1995	—	46.55	6.84
1996	42.05	55.26	13.85
1997	—	33.35	5.91
1998	—	31.10	12.25
1999	40.54	56.38	10.96
2002	31.95	48.80	4.95
2005	18.75	30.63	2.69
2008	14.76	26.25	1.33
2010	11.18	21.30	0.74
2011	7.9	15.44	0.54
2012	6.47	12.98	0.42
2013	1.85	3.38	0.51

Source: PovelNet, Shanda Chen prepared data for this study.

Note: See note to Table 2A.1. — = not available.

**Impact by Region, and On Migration to East**

		2000	2005	2015
Rural impoverished population (millions)	National	9,422	6,432	5,575
	Eastern	962	545	653
	Middle	2,729	2,081	2,007
	Western	5,731	3,805	2,914
Poor incidence (%)	National	10.2	6.8	5.7
	Eastern	2.9	1.6	1.8
	Middle	8.8	6.6	6.2
	Western	20.6	13.3	10
Share of rural poor (%)	National	100.0	100.0	100
	Eastern	10.2	8.5	11.7
	Middle	29.0	32.3	36.0
	Western	60.8	59.2	52.3

Source: China Rural Poverty Monitoring Report 2015.



# US Census Bureau Estimate of Diminishing Post-2030 Population Pressure

## Demographic Overview - Custom Region - China

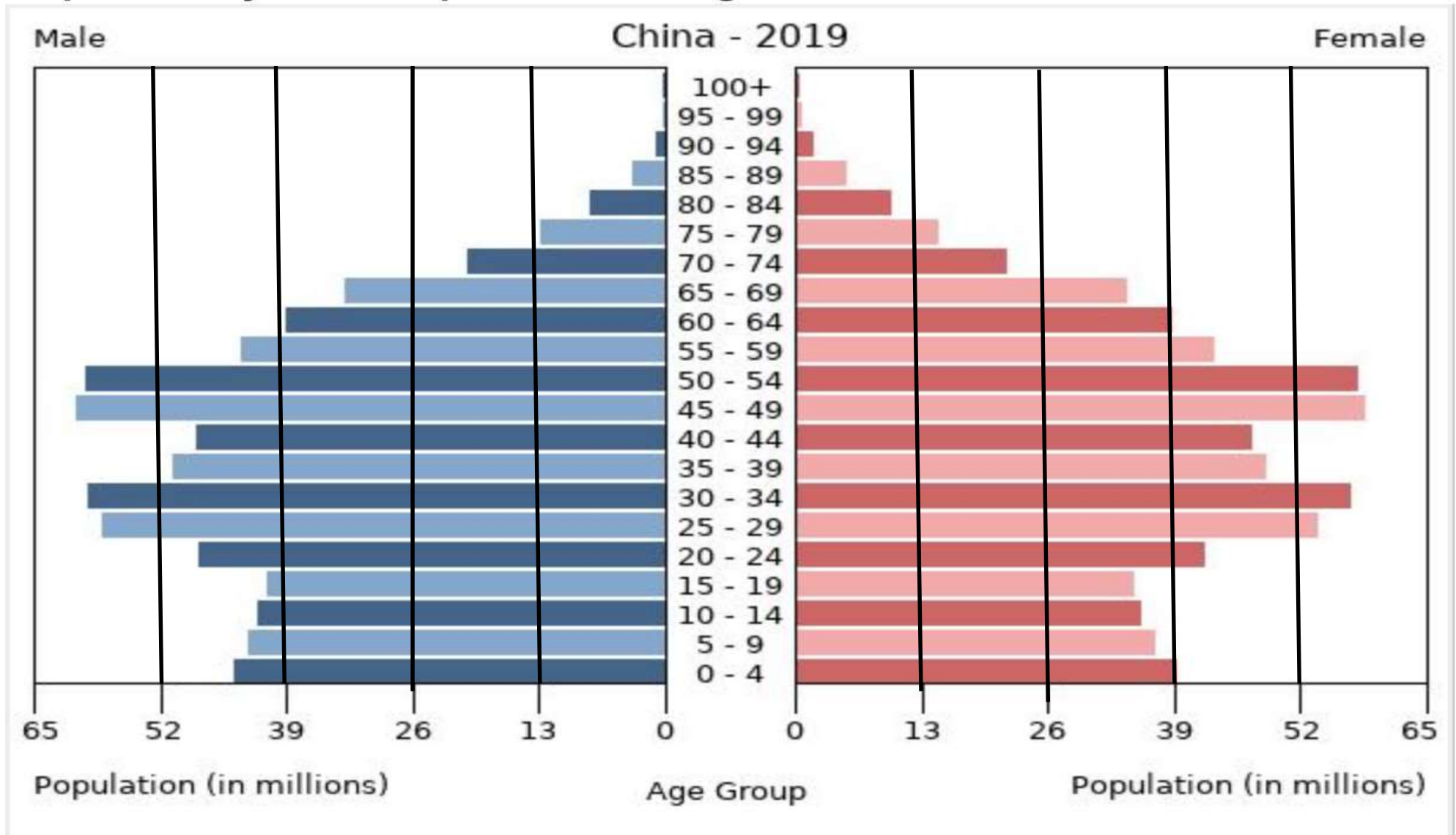
Demographic Indicators	1950	1960	1970	1980	1990	1995	2000	2005	2010	2015	2019	2025	2030	2040	2050
<b>Population</b>															
Midyear population (in thousands)	562,580	651,339	822,116	987,822	1,153,164	1,221,055	1,268,302	1,302,285	1,336,681	1,367,485	1,389,619	1,407,007	1,403,893	1,364,679	1,301,627
Growth rate (percent)	(NA)	(NA)	(NA)	(NA)	1.4	1.0	0.6	0.5	0.5	0.5	0.3	0.1	-0.1	-0.4	-0.6
<b>Fertility</b>															
Total fertility rate (births per woman)	(NA)	(NA)	(NA)	(NA)	2.2	1.8	1.6	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6
Crude birth rate (per 1,000 population)	(NA)	(NA)	(NA)	(NA)	21	17	13	12	12	12	12	10	9	8	9
Births (in thousands)	(NA)	(NA)	(NA)	(NA)	24,216	20,843	16,298	15,523	15,907	17,080	16,523	13,958	12,144	11,532	11,103
<b>Mortality</b>															
Life expectancy at birth (years)	(NA)	(NA)	(NA)	(NA)	68	69	71	74	75	75	76	77	78	79	81
Infant mortality rate (per 1,000 births)	(NA)	(NA)	(NA)	(NA)	43	36	30	19	14	12	12	10	9	7	5
Under 5 mortality rate (per 1,000 births)	(NA)	(NA)	(NA)	(NA)	52	44	37	23	17	15	14	12	10	8	6
Crude death rate (per 1,000 population)	(NA)	(NA)	(NA)	(NA)	7	7	7	6	7	8	8	9	10	12	14
Deaths (in thousands)	(NA)	(NA)	(NA)	(NA)	8,384	8,315	8,701	8,074	9,130	10,297	11,242	12,396	13,604	16,212	18,015
<b>Migration</b>															
Net migration rate (per 1,000 population)	(NA)	(NA)	(NA)	(NA)	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0	-0
Net number of migrants (in thousands)	(NA)	(NA)	(NA)	(NA)	-161	-220	-330	-391	-454	-602	-598	-605	-604	-600	-599

Source Information: China

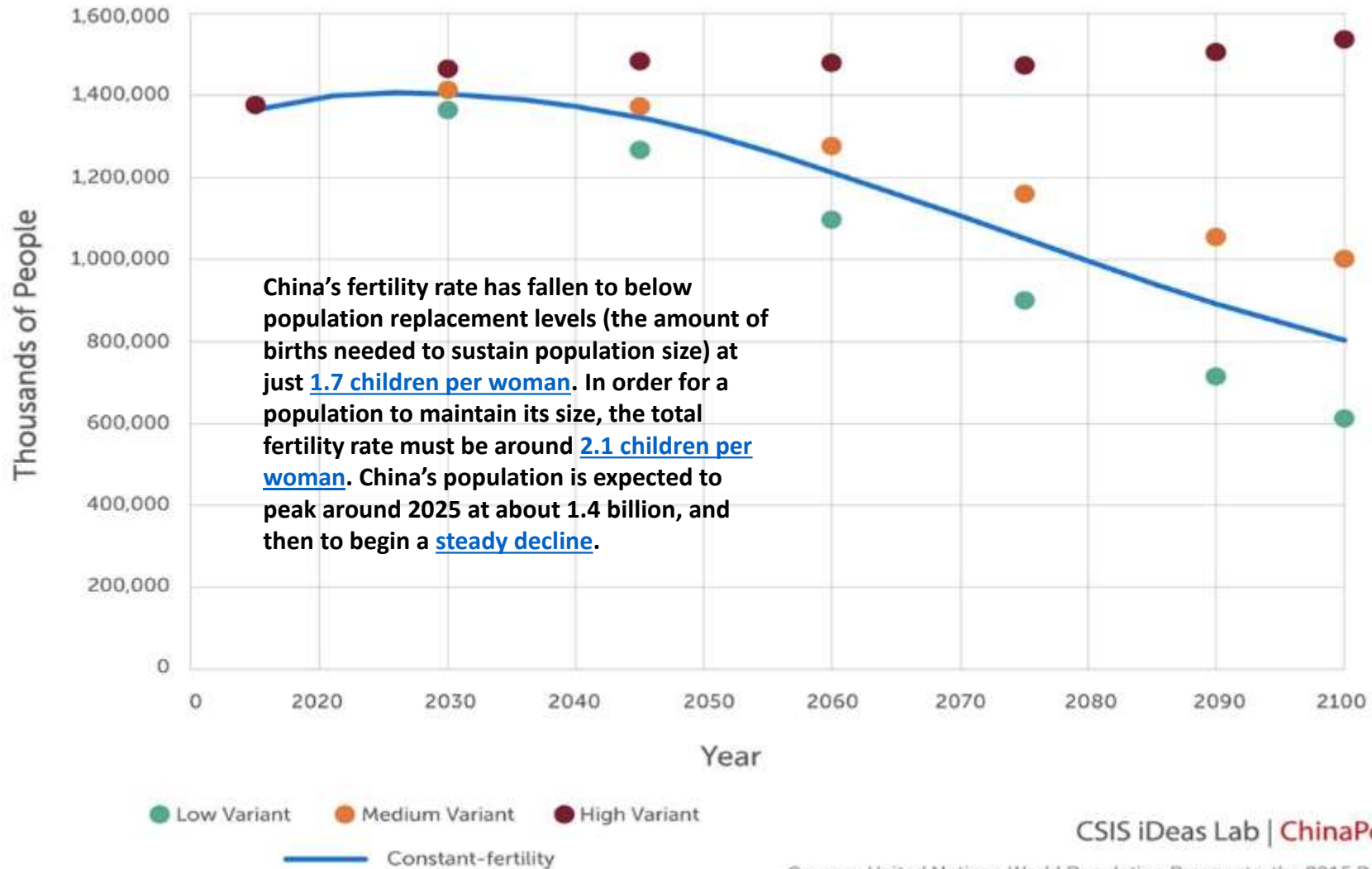
Source: US Census Bureau, International Data Base, <https://www.census.gov/data-tools/demo/idb/region.php?N=%20Results%20&T=13&A=separate&RT=0&Y=1951,1953,1960,1970,1980,1990,2000,2010,2019,2030,2040,2050&R=1&C=CH>, Accessed August 21, 2019.

# US Census Bureau Estimate of Population Pyramid

## Population Pyramid Graph - Custom Region - China



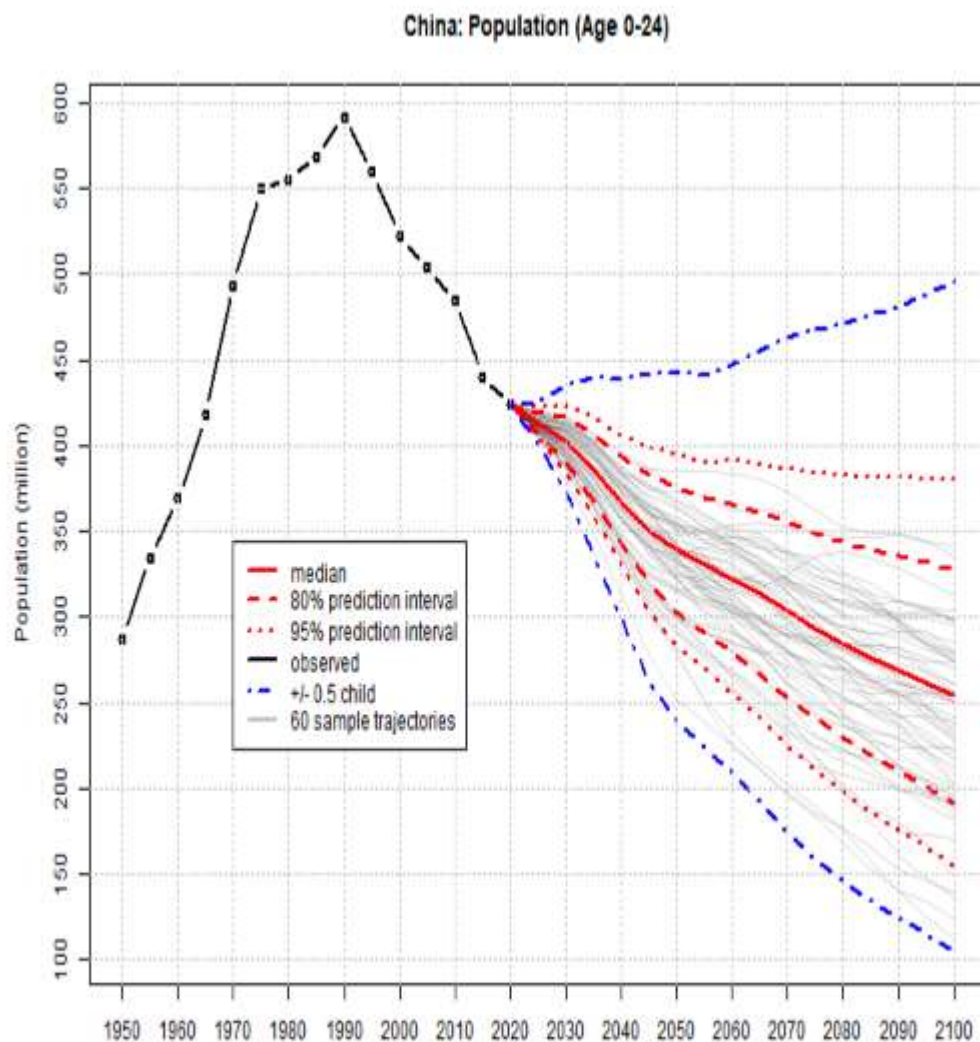
# China's Uncertain Demographics: Population 2000-2100



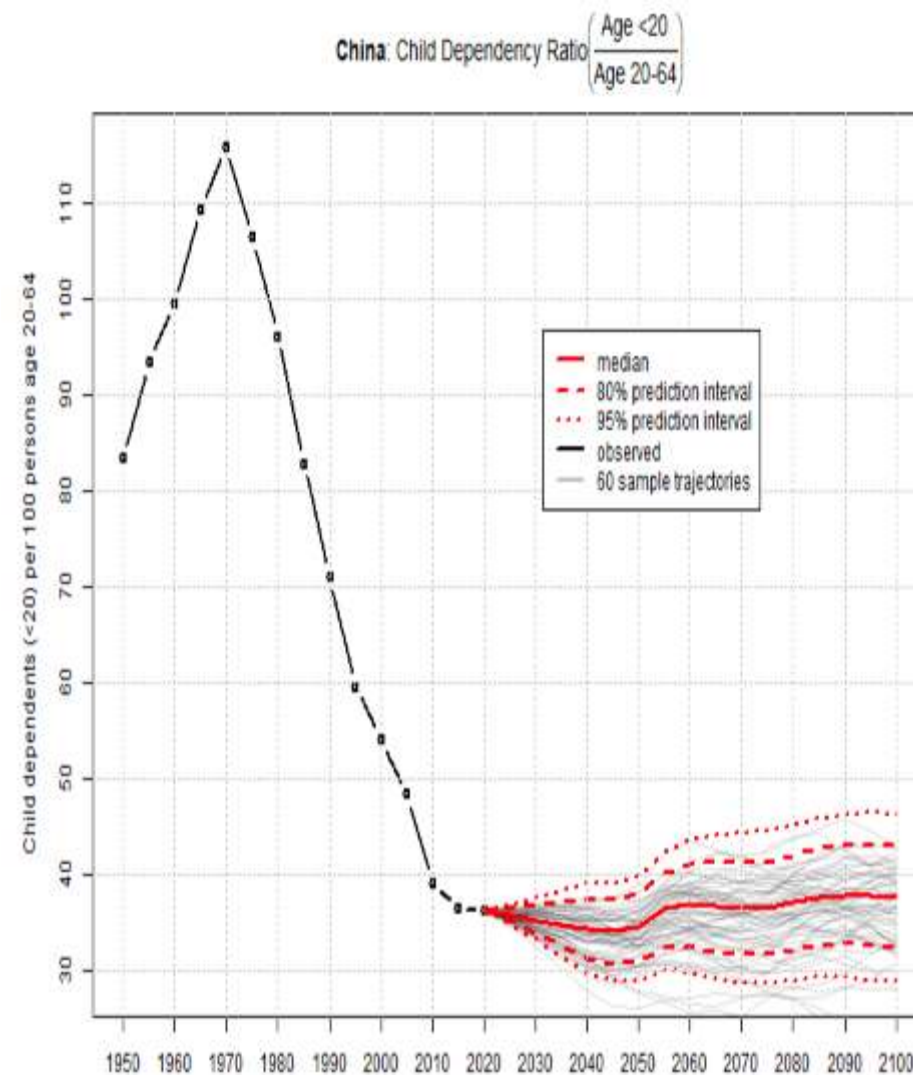
CSIS iDeas Lab | ChinaPower

Source: United Nations World Population Prospects, the 2015 Revision  
<http://esa.un.org/unpd/wpp/Download/Standard/Population/>

# UN Estimate of Ongoing Drop in “Youth Bulge,” Employment, and Child Dependency Needs



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United Nations, DESA, Population Division. World Population Prospects 2019. <http://population.un.org/wpp/>

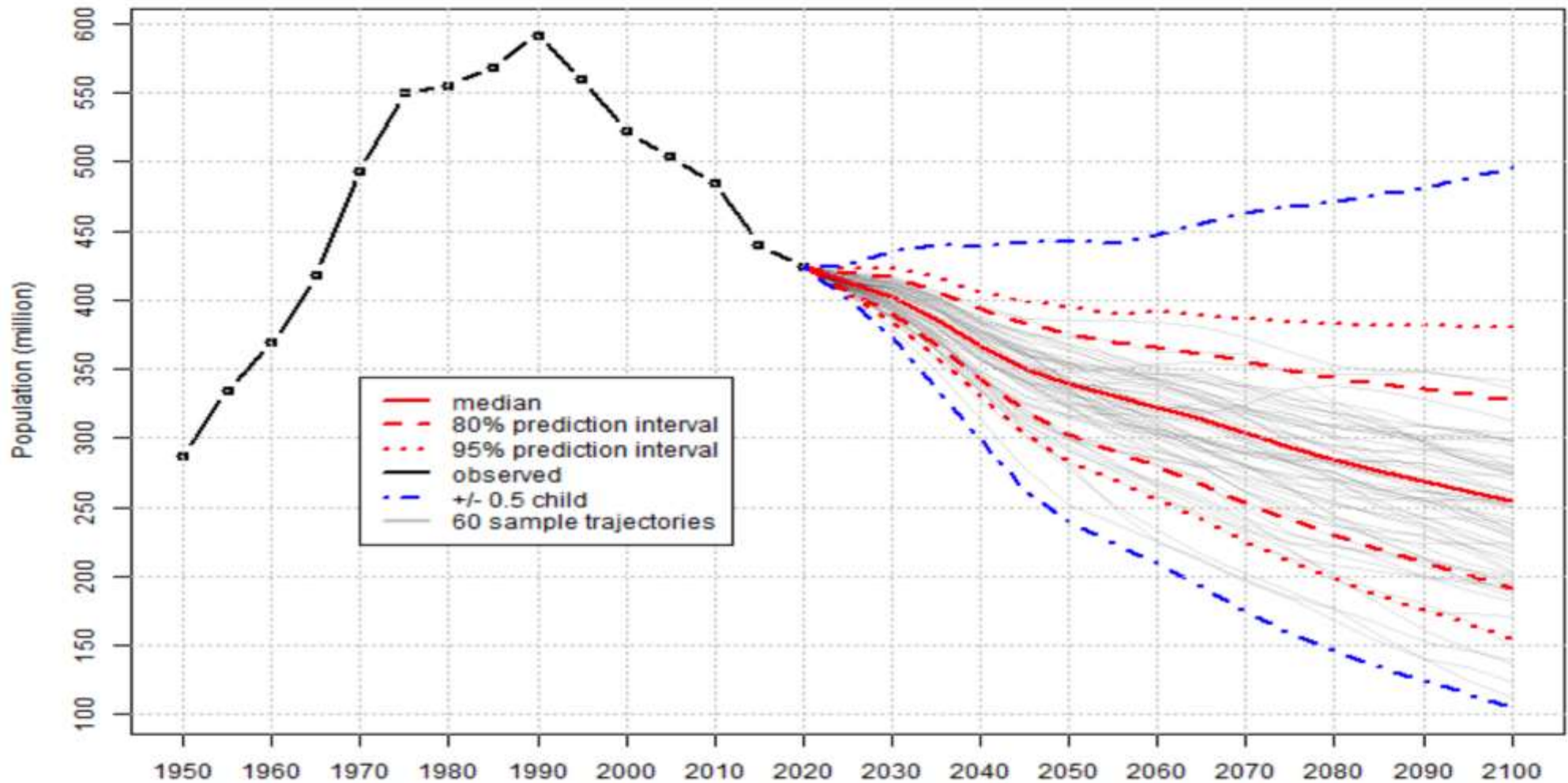


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United Nations, DESA, Population Division. World Population Prospects 2019. <http://population.un.org/wpp/>



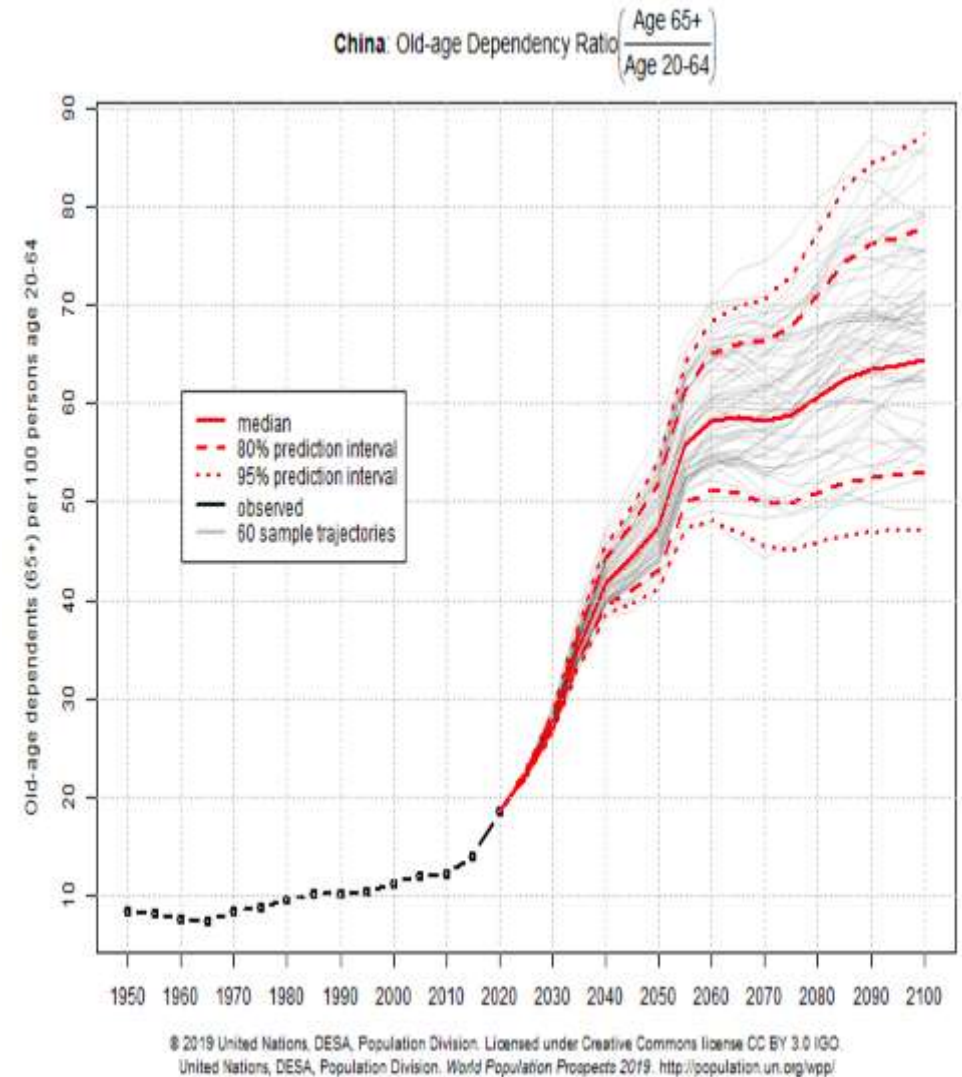
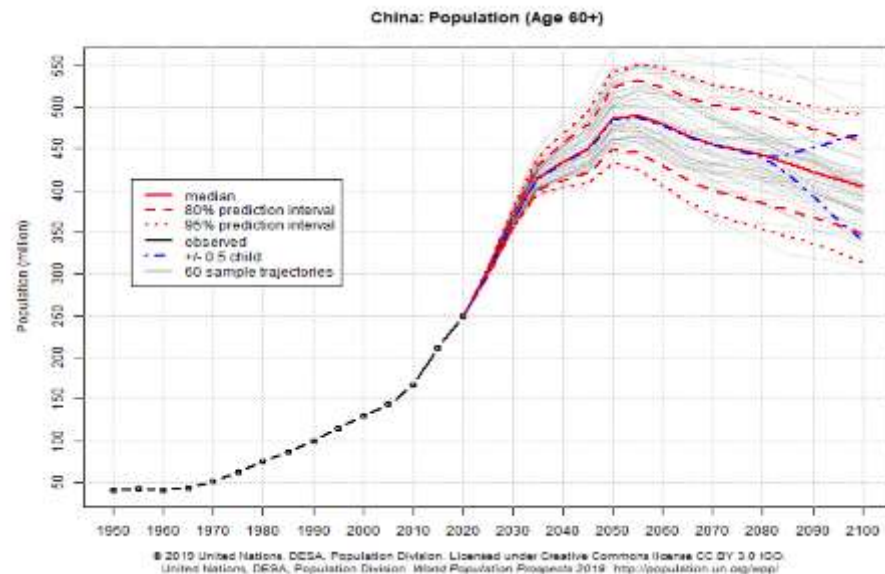
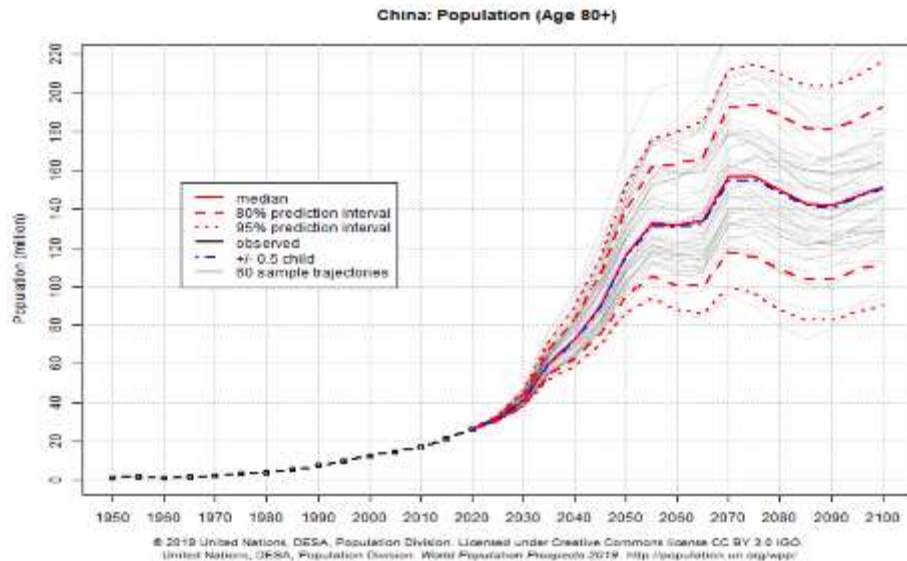
# UN Estimate of Ongoing Drop in “Youth Bulge” and Employment and Dependency Ratio Needs

China: Population (Age 0-24)



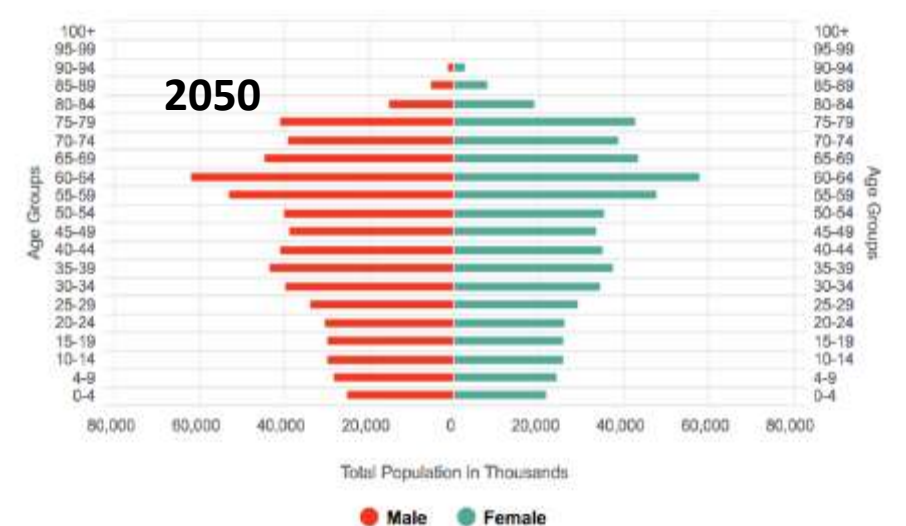
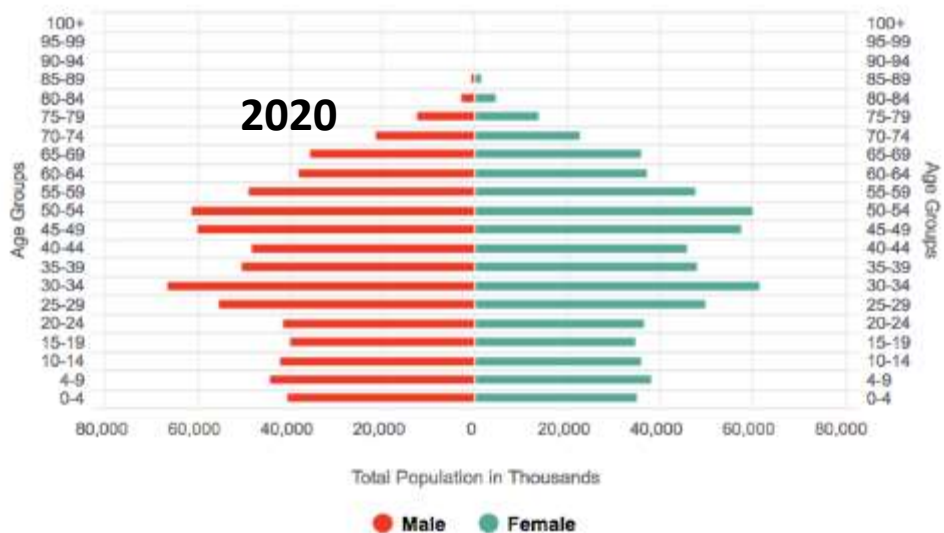
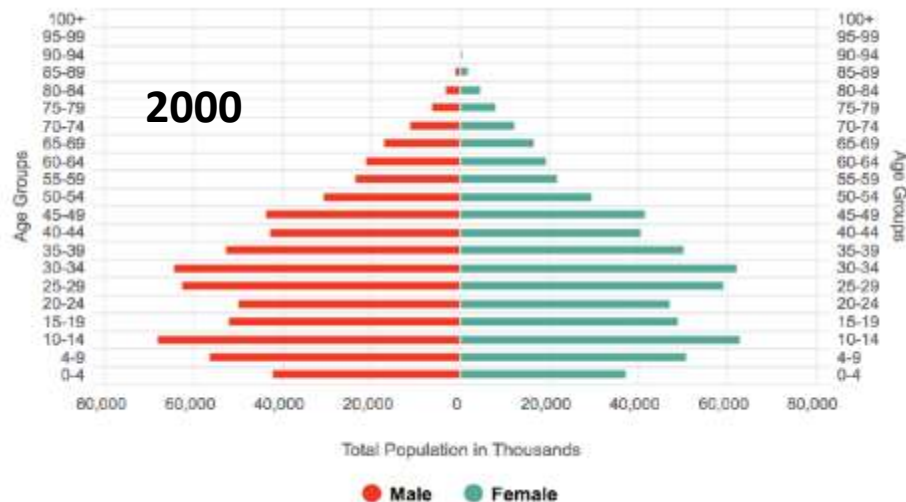
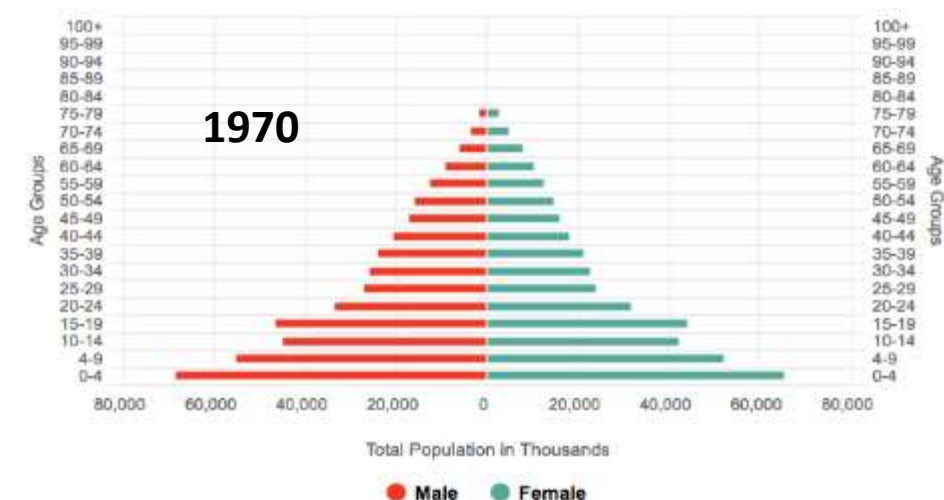
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United Nations, DESA, Population Division. *World Population Prospects 2019*. <http://population.un.org/wpp/>

# UN Estimate of Ongoing Rise in Aging Population and, and Old Age Dependency Needs



Source: UN, World Population Prospect, 2019,  
<https://population.un.org/wpp/Graphs/Probabilistic/POP/TOT/156>.

# UN View of China's Changing Demographics: Aging and Sex 1970-2050



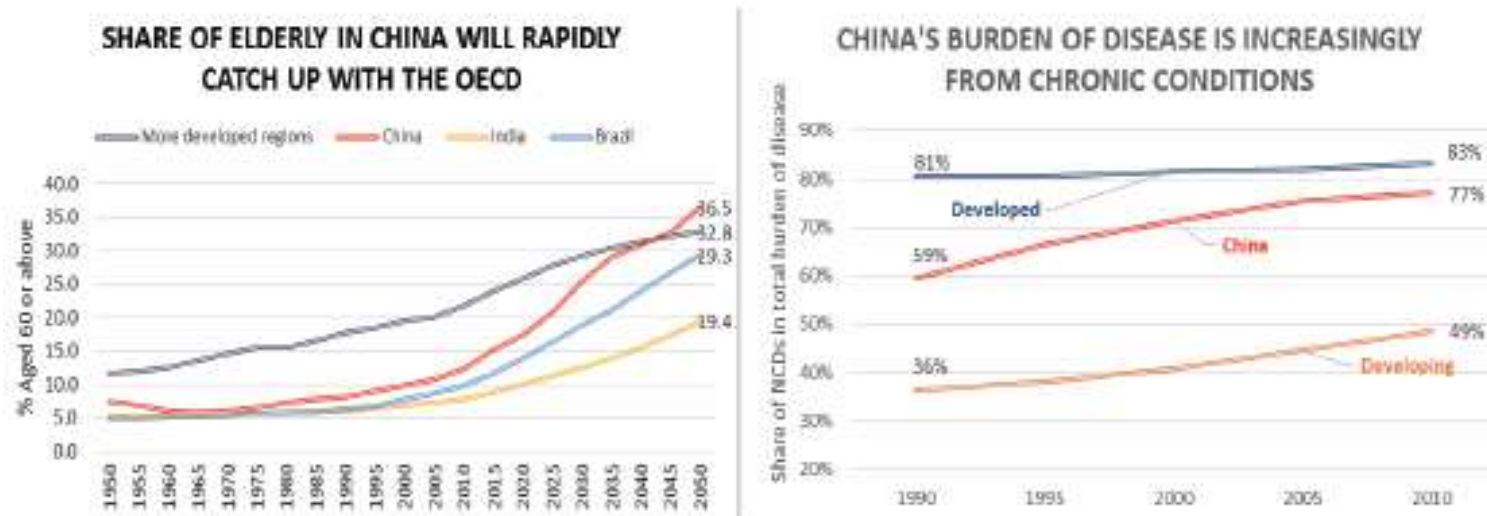
Percentage of Chinese above the retirement age is expected to reach 39 percent of the [population by 2050](#). At that time, China's dependency ratio (the number of people below 15 and above 65 divided by the total working population) is projected to increase to 69.7 percent, up from [36.6 percent in 2015](#). This means that China will have a proportionally smaller working-age population with the responsibility of providing for both the young and old.

# China's Continuing Sexual Imbalance: UN Estimate of Ratio of Males to Females in Percent: 1950-2100

Year	Males/ Females	Year	Males/ Females	Year	Males/ Females
1950	107.9	2005	105.6	2060	104.2
1955	107.1	2010	105.7	2070	105.2
1960	106.4	2015	105.6	2075	105.5
1965	105.4	2020	105.3	2080	105.6
1970	105.4	2025	104.9	2085	105.6
1975	105.4	2030	104.5	2090	105.5
1980	105.4	2035	104.0	2095	105.1
1985	105.4	2040	103.7	2100	104.7
1990	105.4	2045	103.5		
1995	105.4	2050	103.5		
2000	105.4	2055	103.8		



# An Aging Population and Growing Health Issues



Sources: United Nations, Department of Economic and Social Affairs, Population Division (2015). Institute for Health Metrics and Evaluation (2010).

**The aging of the population is increasing the population's vulnerability to poverty.** Low fertility and declining mortality and rising life expectancy are translating into a rapidly aging society (Figure 2.11). In 2016 230.86 million people were above the age of 60, representing 16 percent of the total population, and both numbers are projected to increase. This can have significant implications for poverty because the elderly are less capable of earning income. Demand will continue to rapidly grow for a range of aged care services that traditional family-based arrangements may not be able to meet. The government has set up elderly care subsidy systems in 20 provinces for the elderly with economic difficulties. The government has also provided for the poorest elderly people through the Destitute Support programs, but these programs cover just over 5 million people (in 2011).

**Noncommunicable diseases (NCDs) are responsible for 77 percent of the loss of healthy life and for 85 percent of all deaths, giving China a profile similar to OECD countries.** In comparison, a mere quarter century ago, injuries, communicable diseases, and newborn, nutritional, and maternal conditions accounted for 41 percent of the burden of disease in China, a profile little different from that of the average developing country today (Figure 2.11). Cardiovascular diseases and cancers alone account for more than two-thirds of China's total mortality.<sup>112</sup> The growth of chronic illnesses in China are due to high-risk behaviors such as smoking, poor diets, sedentary lifestyles, and alcohol consumption, as well as environmental factors such as air pollution.<sup>113</sup> An alarming 49 percent of Chinese men are daily smokers, a proportion more than twice the OECD average. The incidence of NCDs is particularly high among the elderly.

Source: World Bank Group, *China Systematic Diagnostic, Report 113092-CN*, 2017, p. 40.

# China's Gender Gap vs. Aging: Population 2015-2050



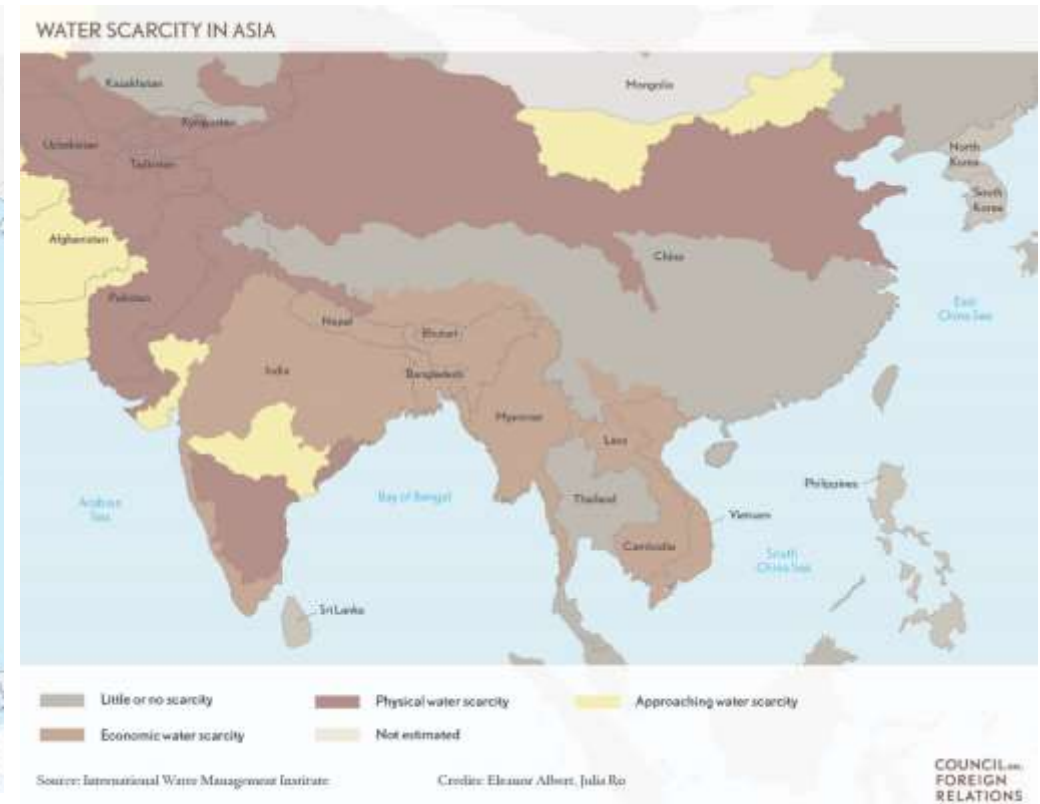
Ratio of males to females was 1.06:1 in 2015. Projected to be 1.08: 1 in 2050. But, gender roles may be more important than number.

Aging may be far more serious. China is aging at a rate that few countries have matched historically.

While it will take China 20 years for the proportion of the elderly population to double from 10 to 20 percent (2017-2037), this process took 23 years in Japan (1984-2007), 61 years in Germany (1951-2012), and 64 years in Sweden ([1947-2011](#)).

Japan is the oldest country in the world, and has aged more quickly than most other nations. In 2015, 9.5 percent of the population of China was aged [65 or older](#). The UN projects this percentage to [27.5 by 2050](#).

# China's Reliance on (Clean) Water from Tibet



The Asian Development Bank (ADB) estimated that more than 75 percent of the broader Asia-Pacific region suffers from water insecurity, and that South Asia's problems are severe. The subregion, much of which relies on water from the Tibetan Plateau, supports more than 20 percent of the world's population but only accesses 8 percent of the world's water resources.

Scores of upstream water projects underway, such as water diversion or dam construction, may alter the quality and quantity of water available to lower riparian states. While the greater Himalayan region as a whole struggles to deal with growing demand for water, individual countries face different challenges. Some depend on external water flows—for example, Bangladesh, Pakistan, and Uzbekistan have 91.4 percent [PDF], 77.7 percent, and 80 percent dependency ratios [PDF] (the amount of total renewable water resources originating beyond a country's borders), respectively.

India and China top the list of countries with the greatest number of people living without access to safe water, 75.7 million and 63.1 million respectively, based on a March 2016 report from global charity WaterAid. Water pollution has also increasingly been linked to elevated levels of cancer in local communities, especially in China and India.

# **PART THREE: SHAPING ECONOMIC COMPETITION TO SERVE STRATEGIC INTERESTS**

# Shaping Economic Competition to Service Strategic Interests

As has been noted earlier, economic competition offers China its best path to achieving its strategic interests and gains. China fully understands this and is rapidly evolving from a nation whose success depended on exports that depended on the efficient use of low-cost labor to becoming a sophisticated exporter of advanced manufactured goods with trading links to a wide range of commodity exporters and importers in advanced industrialized states.

China's "belt and road" system has become a symbol of such economic activity and global integration, along with its steadily rising global trade position. Almost inevitably, this expansion has expanded China's influence in the rest of Asia, as well as in Europe, the Middle East, Africa, and Latin America. It has also led China to expand the role of its naval forces, arms exports, and security ties – as was the case with colonial powers, the U.S. and Russia before it.

Here, China has an inherent geographic advantage over the U.S. in dealing with Southeast Asia, Central Asia, and South Asia, and in creating new land routes between Asia and Europe. China's "belt and road" efforts indicate that it will establish major new ports, create stronger maritime routes, and use roads, rails, and pipelines to strengthen its economic and strategic position.

These efforts will give China potential advantages in power projection and military influence as well. It is important to note, however, that China so far seem more interested in expanding its economic interests and leverage than in establishing direct military ties and strategic partnerships. It has expanded its role in UN peacekeeping, but it has not shown that it intends to follow the U.S. and Russian example in creating major military deployments outside China's immediate sphere of influence.



# OSD - China's Economic Strategy – 2019 - I

## DEVELOPMENTS IN ECONOMIC POLICY

### Key Takeaways

- > China is non-compliant with some of its World Trade Organization (WTO) obligations.
- > Recognizing that “Made in China 2025” and OBOR have sparked concerns about China’s intentions, China’s leaders have softened their rhetoric when promoting these programs without altering the programs’ fundamental strategic goals.
- > China continues to operate as a centrally controlled, planned economy. China restricts inbound investment, limits other countries’ exports, and pursues state-guided investment overseas, including in strategic sectors.

Sustaining China’s economic growth is one of the CCP’s strategic objectives. China’s incomplete transition to a market economy has resulted in laws, regulations, and policies governing the tradable goods and services sectors, market access, and foreign direct investment that disadvantage foreign firms vis-à-vis their Chinese counterparts. China’s senior leaders recently reaffirmed their commitment to CCP control over the state-led economic apparatus, including through state-directed investment and innovation. In March 2018, the Office of the U.S. Trade Representative released findings of an investigation under

Section 301 of the Trade Act of 1974 that determined the acts, policies, and practices of the Chinese government related to technology transfer, intellectual property, and innovation are unreasonable or discriminatory and burden or restrict U.S. commerce, resulting in harm to the U.S. economy of at least \$50 billion per year.

China is non-compliant with some of its World Trade Organization (WTO) obligations, and China does not adhere to some of the agreed-upon rules and fundamental principles that undergird WTO agreements. In addition, because of its status as a “developing country” under the WTO framework, China is allowed to continue certain protectionist measures. Concerns include industrial policies that support domestic industries at the expense of foreign counterparts, commercial joint venture requirements, technology transfer requirements, subsidies to lower the cost of inputs, continued excess capacity in multiple industries, sector-specific limits on foreign direct investment, discriminatory cybersecurity and data transfer rules, insufficient intellectual property rights enforcement, inadequate transparency, and lack of market access particularly in the agriculture and service sectors. Market access remains challenging for foreign firms, as China’s restriction of inbound investment results in persistent underperformance in other countries’ services exports, particularly in the banking, insurance, Internet-related, professional, and retail services sectors.

Some recent Chinese laws seek further restrictions on foreign firms:

- > *National Security Law*: Adopted in July 2015, the law limits foreign access to the information and communications technology (ICT) market in China on national security grounds.
- > *Counterterrorism Law*: Adopted in December 2015, the law requires telecommunications operators and Internet service providers to provide information on technical support assistance to public and state security organizations “conducting prevention and investigation of terrorist activities.”
- > *Cyber Security Law*: The law, which went into effect in June 2017, promotes development of indigenous technologies and restricts sales of foreign ICT. The law also mandates that foreign companies submit ICT for government-administered national security reviews, store data in China, and seek government approval before transferring data outside of China.

As China restricts inbound investment and limits other countries’ exports to China, it also pursues state-directed investment overseas. Along with heavy investments in infrastructure and commodities to support its economic growth, China is investing in technologies that will be foundational for future innovations with both commercial and military applications.

China obtains foreign technology through imports, foreign direct investment, the establishment of foreign research and development (R&D) centers, joint ventures, research and academic partnerships, talent recruitment, and industrial and cyberespionage. In December 2018, two Chinese nationals were indicted for conspiracy to commit computer intrusions, conspiracy to commit wire fraud, and aggravated identity theft. The Chinese nationals worked for a company in China called Huaying Haitai Science and Technology Development Company and acted in association with the Chinese Ministry of State Security’s Tianjin State Security Bureau. Through their involvement with a hacking group operating in China known as Advanced Persistent Threat 10 (APT10), the Chinese nationals conducted global campaigns of computer intrusions targeting intellectual property and confidential business and technological information at managed service providers. The APT10 group stole hundreds of gigabytes of sensitive data and targeted the computers of victim companies involved in aviation, space and satellite technology, manufacturing technology, pharmaceutical technology, oil and gas exploration and production technology, communications technology, computer processor technology, and maritime technology.

Recent government policies have promoted innovation focused on strengthening domestic industry, while placing additional restrictions on foreign firms. Recognizing that some of its

# OSD - China's Economic Strategy – 2019 - II

programs such as “Made in China 2025” and OBOR have sparked concerns about China’s intentions, China’s leaders have softened their rhetoric when promoting these programs without altering their fundamental strategic goals.

- > *“Made in China 2025”*: China has become aware of acute concerns that advanced industrial countries have regarding “Made in China 2025,” and in June 2018, Chinese media outlets were ordered to downplay use of the term. Announced in May 2015, the “Made in China 2025” plan sets targets for higher levels of domestic manufacturing in strategic industries by 2020 and 2025 with the goal of increasing indigenous innovation. China plans to award subsidies and strengthened protection of domestic industries, while increasing pressure on foreign firms to transfer technology in order to do business in China. The plan also seeks to favor domestic enterprises at the expense of foreign participants in China’s markets.
- > *OBOR*: OBOR is intended to develop strong economic ties with other countries, shape their interests to align with China’s, and deter confrontation or criticism of China’s approach to sensitive issues. Countries participating in OBOR could develop economic dependence on Chinese capital, which China could leverage to achieve its interests. The growth of China’s global economic footprint also makes its

interests increasingly vulnerable to international and regional turmoil, terrorism, piracy, and serious natural disasters and epidemics, which places new requirements on the PLA to address these threats. Some OBOR investments could create potential military advantages for China, should China require access to selected foreign ports to pre-position the necessary logistics support to sustain naval deployments in waters as distant as the Indian Ocean, Mediterranean Sea, and Atlantic Ocean to protect its growing interests.

China has employed economic tools coercively during periods of political tensions with its neighbors. Following the collision of a PRC-flagged fishing boat with a Japanese Coast Guard vessel near the Senkaku Islands, China halted exports to Japan in 2010 of rare earth elements used in high-tech industries. In 2016, after the visit of the Dalai Lama to Mongolia, China suspended talks on a major assistance loan, worsening Mongolia’s fiscal challenges and eventually driving it to seek a bailout from the International Monetary Fund. China also increased fees on imports of mining products from Mongolia and temporarily closed an important border crossing. China used economic and diplomatic pressure unsuccessfully in 2017 in an attempt to urge South Korea to reconsider the deployment of the Terminal High-Altitude Area Defense (THAAD) system.



# **Roads, Belts, and Strait Jackets: China's Growing Global Engagements**

## Roads, Belts, and Being an Asian Land Power

While the U.S. strategic focus on China has generally been on Eastern China and its role in the Pacific, China's geography gives it maritime trading routes to the Middle East and Europe, and gives it a continent-sized land bridge to Central Asia and Europe. China has actively exploited these routes in the past, and its economic revival and the collapse of the Former Soviet Union has led to the rebirth of these trading routes and a major expansion of China's influence in Asia and in Russia.

The Shanghai Cooperation Organization is one symbol of this rebirth, although it remains a relatively limited force in uniting Asia and expanding China's influence. China's revival of its trading routes across Asia to Europe, and by sea through the Indian Ocean, however, has become an increasingly important part of China's strategic position.

The maps in this section that show the patterns in China's belt and road initiatives illustrate this fact, and the large number of roads, ports, and infrastructure projects shown in these maps are matched by increasing Chinese investment, arms sales, and military influence. China's plans are extremely ambitious, however, and the extent to which China can actually develop such economic ties and influence is far from clear.

Some countries have already found that China's willingness to invest, and offer aid and loans, serves China's interests at their expense. Some Chinese projects have also proved to be poorly planned and provide far fewer benefits to China than were initially promised. Accordingly, much will depend on how well China can improve its efforts to win the support of other states, and its plans and project execution. Grand strategic ambitions come easily; grand strategic successes are a very different story.

# China's 70<sup>th</sup> Anniversary White Paper on Belt and Road

We will build a high-quality Belt and Road together with our partners. The Belt and Road Initiative is based on the principles of extensive consultation, joint contribution and shared benefits, and is guided by the Silk Road spirit characterized by peace, cooperation, openness, inclusiveness, mutual learning and mutual benefit. With a focus on policy coordination, connectivity of infrastructure, unimpeded trade, financial integration and closer people-to-people ties, it has transformed from ideas into action, from vision into reality, from a conceptual initiative into a globally popular public product (see Box 10). In November 2016, the United Nations adopted a resolution welcoming economic cooperation initiatives such as the Belt and Road Initiative. In March 2017, the United Nations Security Council called on all countries in its resolution to promote the initiative and the building of a global community of shared future. The Belt and Road Initiative originated in China, but the opportunities and achievements belong to the whole world. According to a World Bank research report, the initiative will help 7.6 million people out of extreme poverty and 32 million out of moderate poverty. It will increase trade in participating countries by 2.8 to 9.7 percent, global trade by 1.7 to 6.2 percent and global income by 0.7 to 2.9 percent. The initiative is a veritable road to resource sharing, shared prosperity and common development. (World Bank, “Belt and Road Economics: Opportunities and Risks of Transport Corridors”, June 2019.)

...The first is in policy coordination. Since the initiative was put forward, it has received positive responses from more than 160 countries, regions, and international organizations. By the end of August 2019, the Chinese government had signed 195 Belt and Road cooperation documents with 136 countries and 30 international organizations.

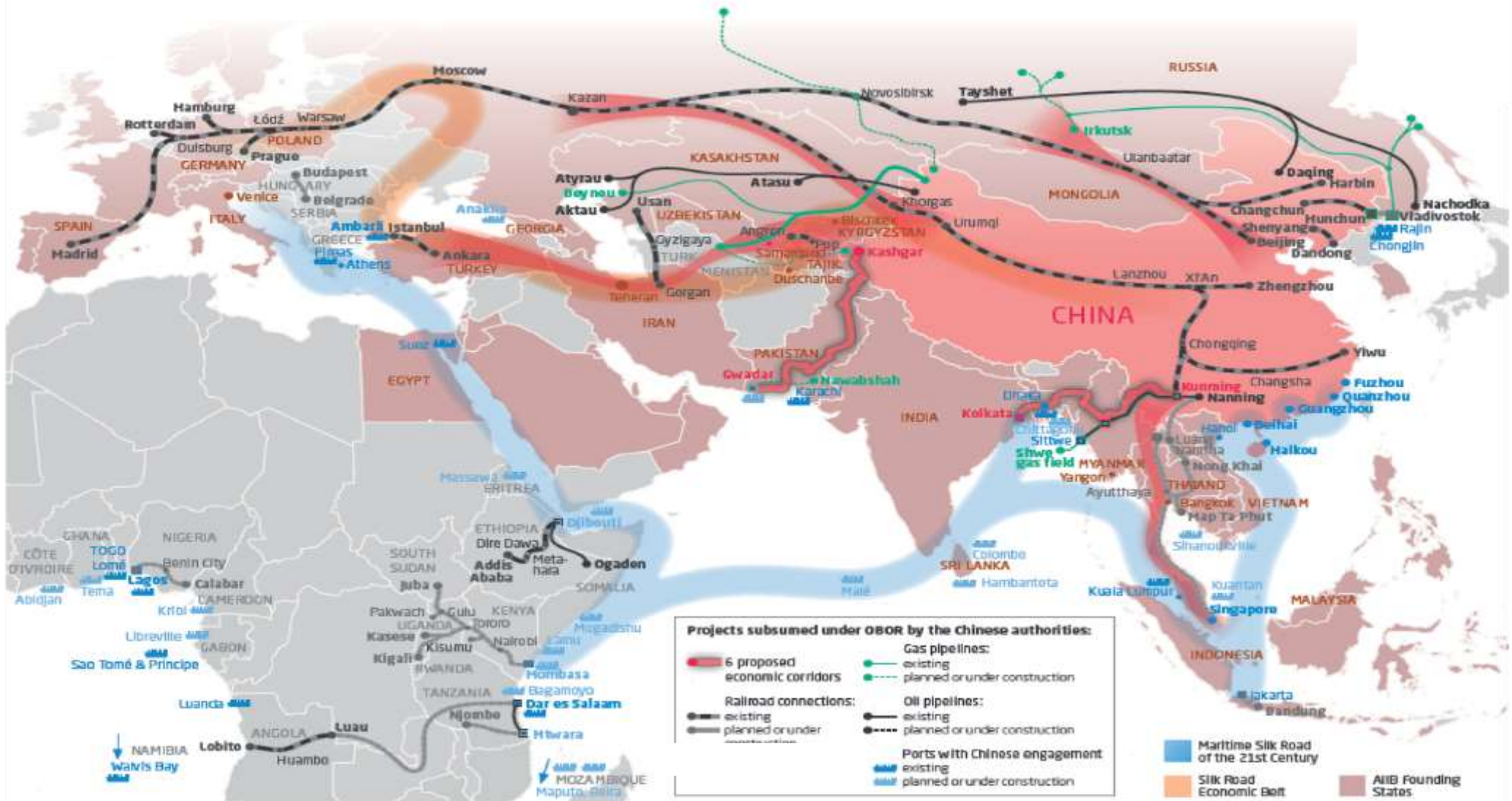
The second is in infrastructure connectivity. Great progress has been made in the construction of key interregional and intercontinental railway networks such as the China-Laos Railway, China-Thailand Railway, Hungary-Serbia Railway and Jakarta-Bandung High-Speed Railway. By the end of June 2019, a total of 16,760 China-Europe freight trains had carried almost 1.5 million TEUs of goods, reaching 16 countries and 53 cities abroad.

The third is in unimpeded trade. China has set up 18 pilot free trade zones. Since the First Belt and Road Forum for International Cooperation in 2017, China and other countries along the routes have signed more than 100 customs inspection and quarantine cooperation documents and established more than 40 customs inspection and quarantine cooperation mechanisms. From 2013 to 2018, the imports and exports of goods between China and other Belt and Road countries totaled nearly US\$6.5 trillion.

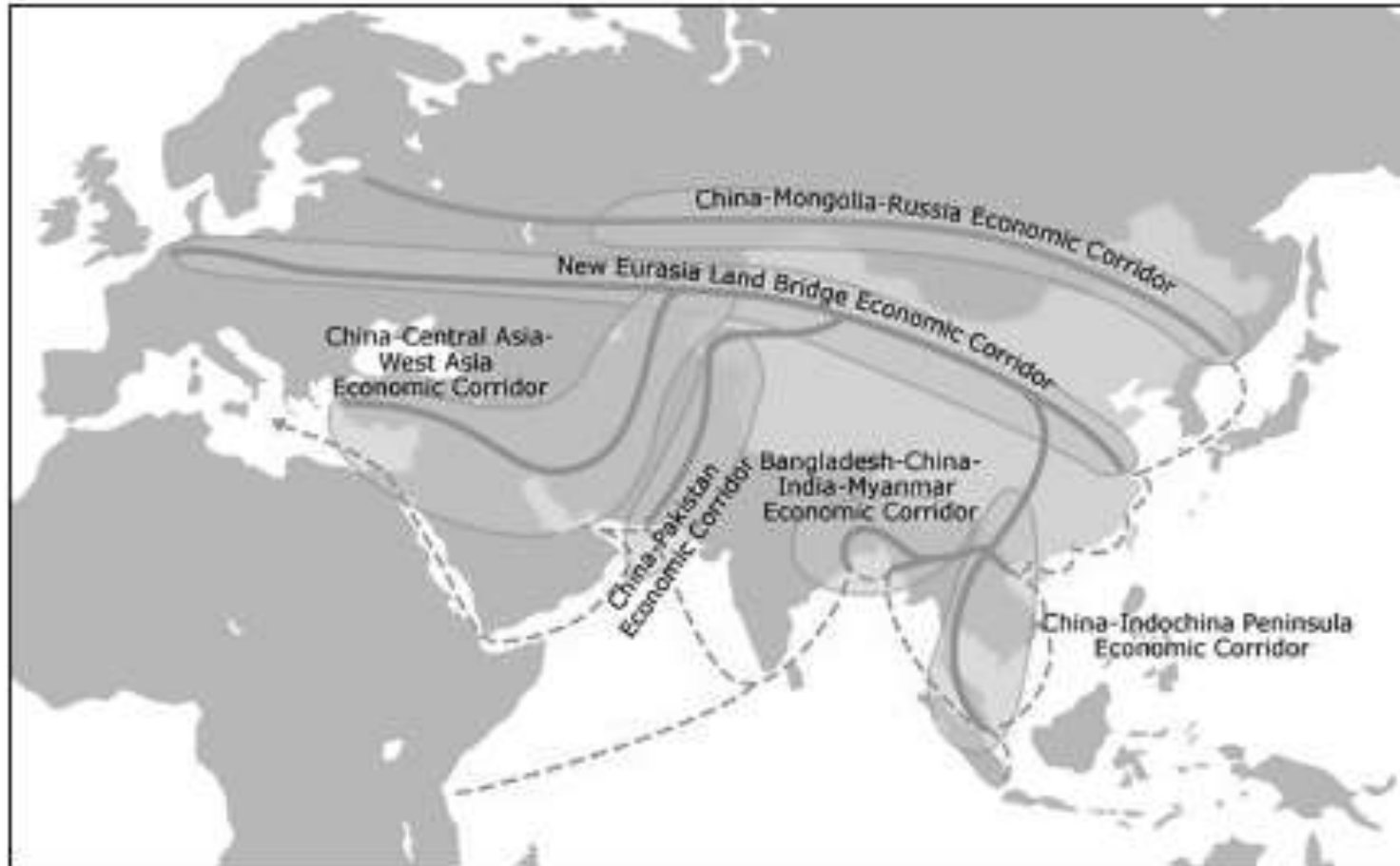
The fourth is in financial integration. The open, pluralistic and market-oriented investment and financing system has continuously improved. By the end of the first quarter of 2019, the People's Bank of China, the International Finance Corporation of the World Bank Group, the European Bank for Reconstruction and Development, and the African Development Bank had jointly financed nearly 200 projects covering more than 70 countries and regions. By the end of 2018, Chinese enterprises had invested more than US\$90 billion in Belt and Road countries, and the turnover of contracted projects had exceeded US\$400 billion.

The fifth is in closer people-to-people ties. As of July 2019, of the 136 countries that had signed Belt and Road Initiative cooperation documents with China, China had concluded mutual visa exemption agreements with 113 countries covering different types of passports, and visa facilitation agreements or arrangements with 25 countries. Since the Belt and Road Initiative was launched in 2013, China has concluded mutual visa exemption agreements with 71 participating countries and visa facilitation agreements or arrangements with 11. Since the First Belt and Road Forum for International Cooperation, China has provided RMB2 billion in emergency food assistance to developing countries along the routes, and has launched 100 “happy home” projects, 100 poverty alleviation projects, and 100 healthcare and rehabilitation projects. In 2017, 38,700 people from countries along the routes studied in China on scholarships from the Chinese government. In 2018, China hosted 500 young scientists from other Belt and Road countries to conduct research exchanges.

## China's Expanding Strategic Interests: One Belt, One Road (OBOR) in 2017



# China's Different Belt and Road Initiatives



The Asian Development Bank estimates that Asian states will need \$26 trillion in infrastructure investment from 2016-2030.

In the five years of the BRI, it has extended to more than 80 participating countries making up 30% of the global GDP.

*Source: Hong Kong Trade Development Council, "The Belt and Road Initiative," May 3, 2018.*

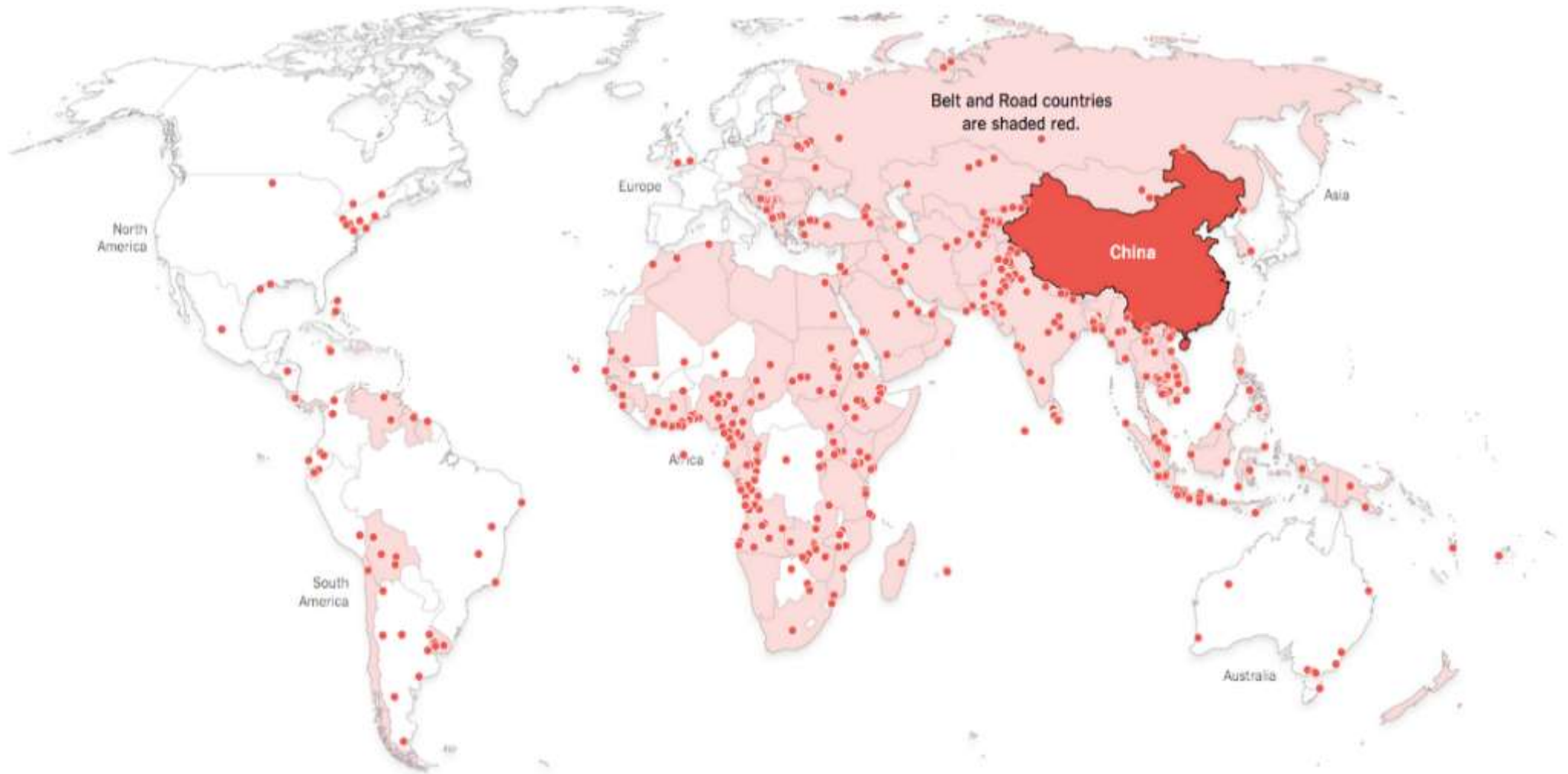


# China's BRI (Belt and Road Initiative)



Source: [https://www.google.com/search?q=map+of+china+belt+and+road&client=firefox-b-1-d&tbm=isch&source=iu&ictx=1&fir=66sfHK71h\\_jcuM%253A%252CmjDrrWaG4Z73hM%252C\\_&vet=1&usg=AI4\\_-kQGt\\_KqtZ7CCHJGE\\_ri4TY-FgRaXw&sa=X&ved=2ahUKEwj45dzTsOTiAhULyFkKHT2WD5sQ9QEwC3oECAIQGg#imgrc=7HfbLY9R651SIM:&vet=1](https://www.google.com/search?q=map+of+china+belt+and+road&client=firefox-b-1-d&tbm=isch&source=iu&ictx=1&fir=66sfHK71h_jcuM%253A%252CmjDrrWaG4Z73hM%252C_&vet=1&usg=AI4_-kQGt_KqtZ7CCHJGE_ri4TY-FgRaXw&sa=X&ved=2ahUKEwj45dzTsOTiAhULyFkKHT2WD5sQ9QEwC3oECAIQGg#imgrc=7HfbLY9R651SIM:&vet=1)

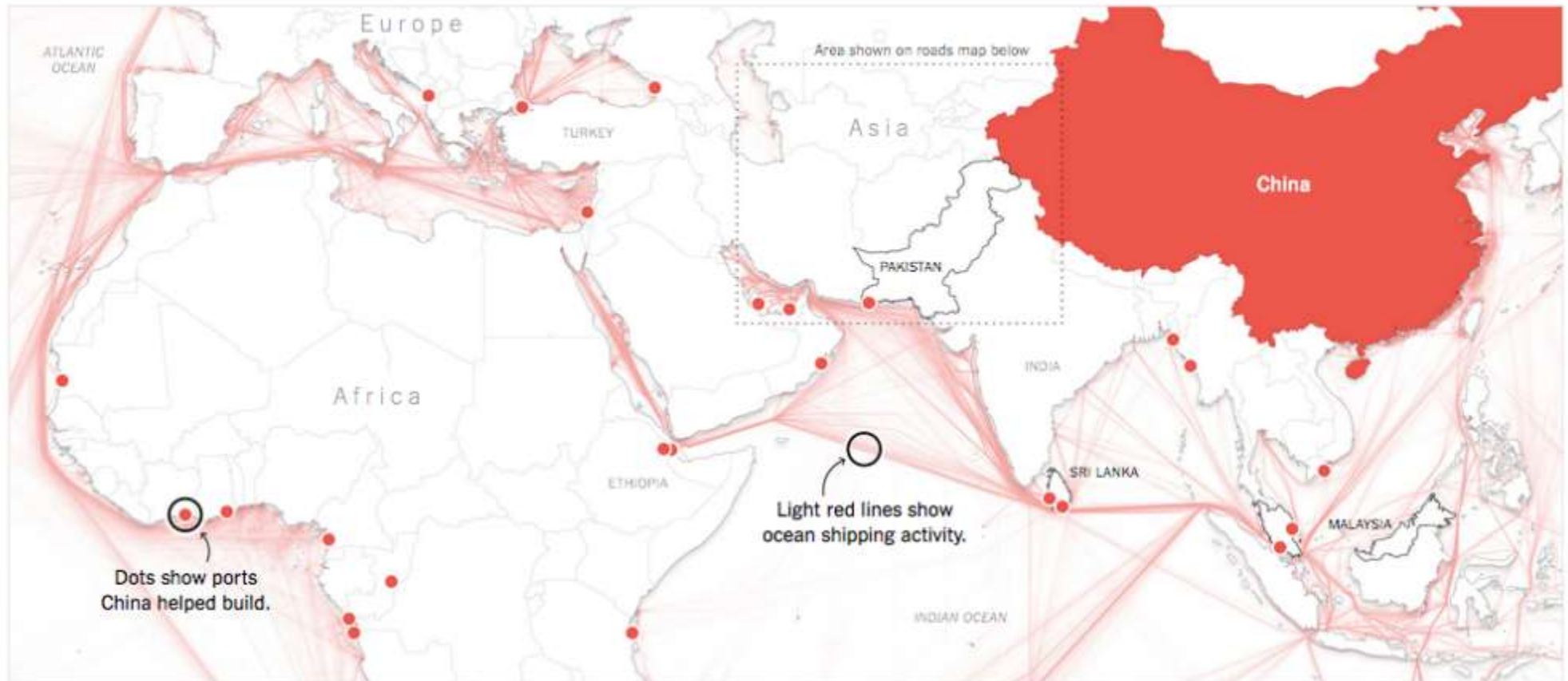
# China's BRI (Belt and Road Initiative) – 112 Countries Worth of Global Projects as of 2018





# China's BRI (Belt and Road Initiative) – Major Ports Projects as of 2018

Large ports in Pakistan, Sri Lanka and Malaysia — three countries along a major oil and commerce route from the Mideast and Africa — could someday double as naval logistics hubs.



Source: Shipping data from University College London Energy Institute.

# China's BRI (Belt and Road Initiative) – Road Projects in Central Asia, South Asia, and Iran



Source: Center for Strategic and International Studies.

# China's Growing Share of the Global Economy and Trade

# China's Rising Global Role in Trade

China's success in becoming the world's leading trading state is far clearer. The exact figures involved may be uncertain, but the broad trends displayed in this section are not. Moreover, China's expanding role in global trade is having a major impact on the West, and other parts of the world, as well as Asia.

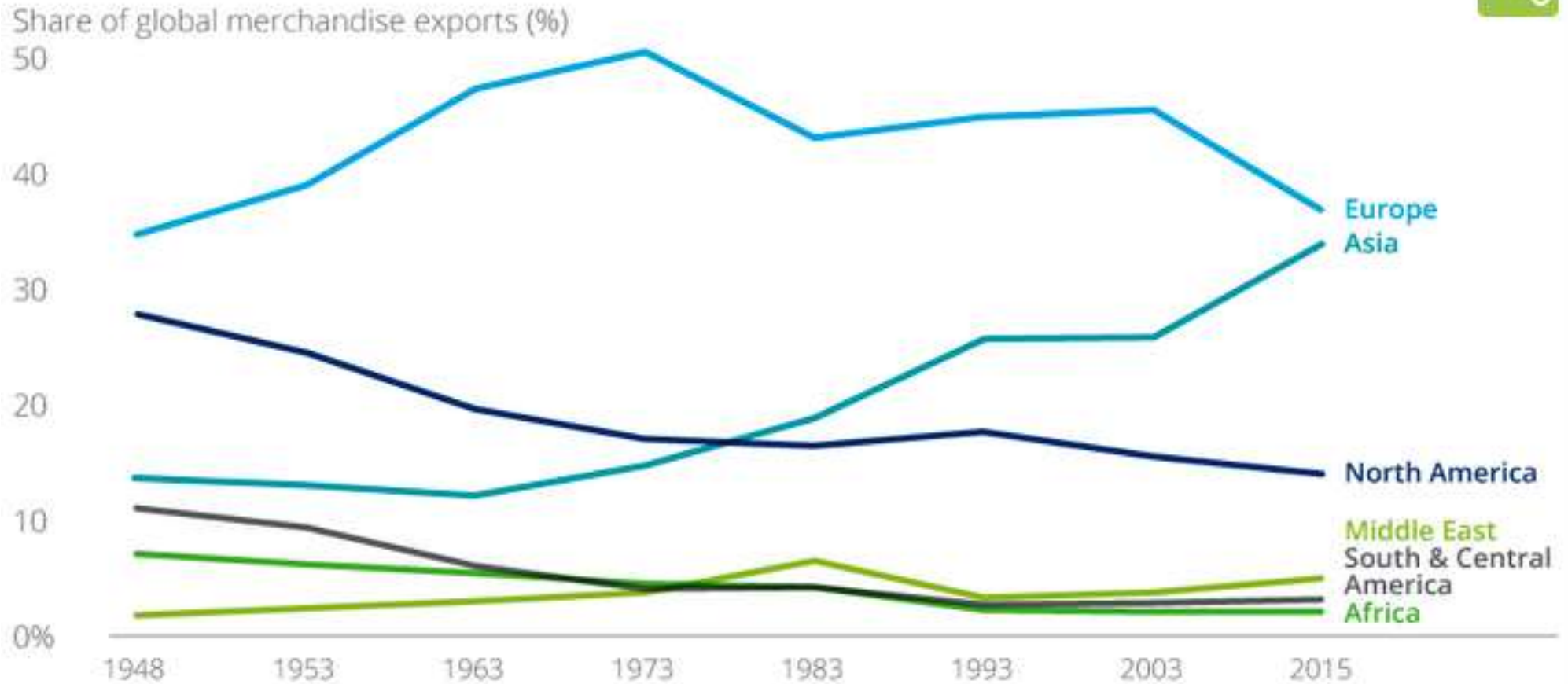
The graphics in this section show how quickly Asia as a whole has expanded its role in global exports. They also show how China's growing exports and investments export on the entire world, and the range of different trade routes involved.

They show that China's volume of trade has risen to the point where it is now larger than that of the United States and Japan, and the U.S. has become increasingly dependent on Chinese imports at the expense of a major trade deficit and exporting services that often help China develop its technology and manufacturing base.

As other charts in this study show, China's increasing volume of global trade has been driven by merchandise trade, increases in manufacturing capacity, and increasing levels of high technology exports – activities which benefit both China's civil and military industrial base.

They have, however, increased China's dependence on energy imports, on maritime traffic, and its own merchant marine. Trade has greatly explained China's global influence, but it has also increased China's global dependence on commodity and energy imports, the stable and secure flow of global trade, and the overall health of the global economy.

## Regional Shares of World Exports: 1948-2015

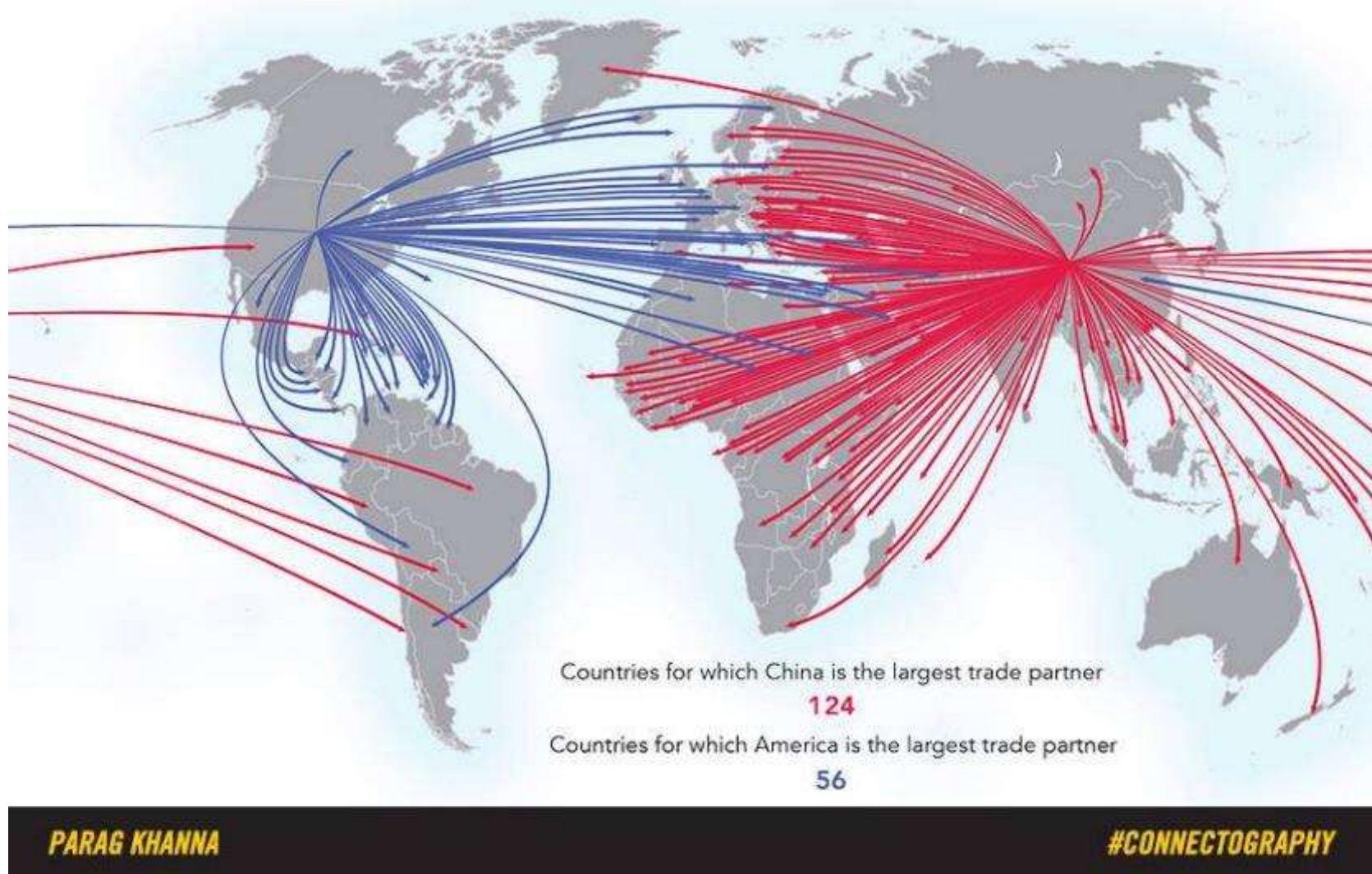


Source: World Trade Organisation.

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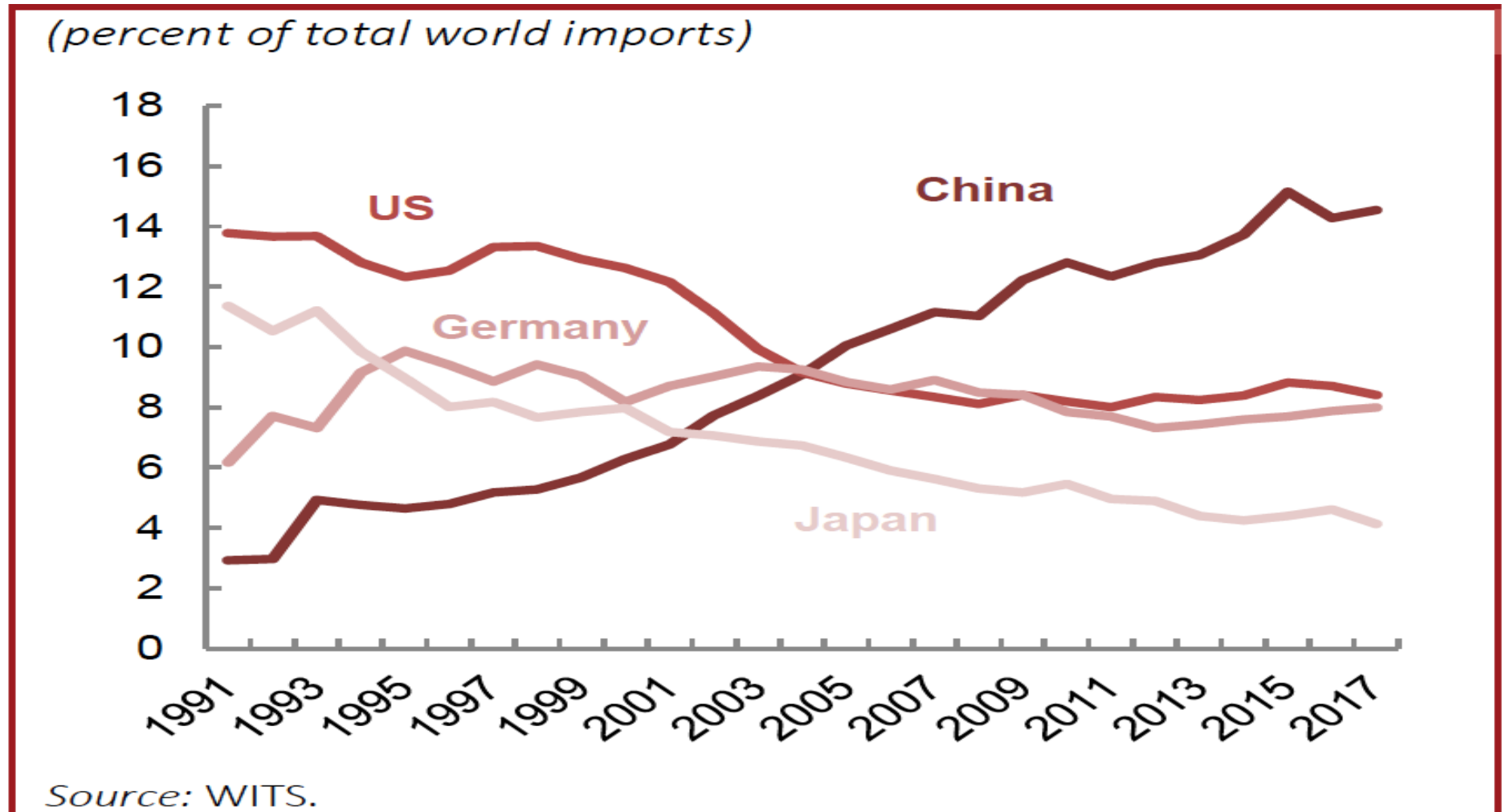
# China vs. U.S. Trade Flows



Source: [https://www.google.com/search?q=Map+of+China%27s+trade&client=firefox-b-1&tbm=isch&tbs=ring:CT3yazFJlNebIjh9xjxu5BRSEAHh7C08FjXLTbKfehX0zxUcqsJjtx-kWGTxPaVfoig-7FW5HMe1N73CuG5eSM6m6ioSCX3GPG7kFFIQEfQK6GOS6bDxKhIAeHsLTwWNcsRZpQw1SAjcXoqEglNsp96fTPFRGe3Lp1h9UgeioSCRYqwmO3H6RYEboRDrAr7AzzKhIJa3E9pV-giD4RymVnNI2Wrb0qEgnsVbkcx7U3vRFLrJgRcRMtYCoSCcK4bl5IzqbqESEYozKSJeh\\_1&tbo=u&sa=X&ved=2ahUKEwjF2Pyo34XbAhXvV98KHdpsD88Q9C96BAgBEBS&biw=721&dpr=1.2#imgsrc=fcY8buQUUhD2rM:](https://www.google.com/search?q=Map+of+China%27s+trade&client=firefox-b-1&tbm=isch&tbs=ring:CT3yazFJlNebIjh9xjxu5BRSEAHh7C08FjXLTbKfehX0zxUcqsJjtx-kWGTxPaVfoig-7FW5HMe1N73CuG5eSM6m6ioSCX3GPG7kFFIQEfQK6GOS6bDxKhIAeHsLTwWNcsRZpQw1SAjcXoqEglNsp96fTPFRGe3Lp1h9UgeioSCRYqwmO3H6RYEboRDrAr7AzzKhIJa3E9pV-giD4RymVnNI2Wrb0qEgnsVbkcx7U3vRFLrJgRcRMtYCoSCcK4bl5IzqbqESEYozKSJeh_1&tbo=u&sa=X&ved=2ahUKEwjF2Pyo34XbAhXvV98KHdpsD88Q9C96BAgBEBS&biw=721&dpr=1.2#imgsrc=fcY8buQUUhD2rM:)

# Share of Global Trade in Goods by Country: 1991-2017

(Percent of World Imports)



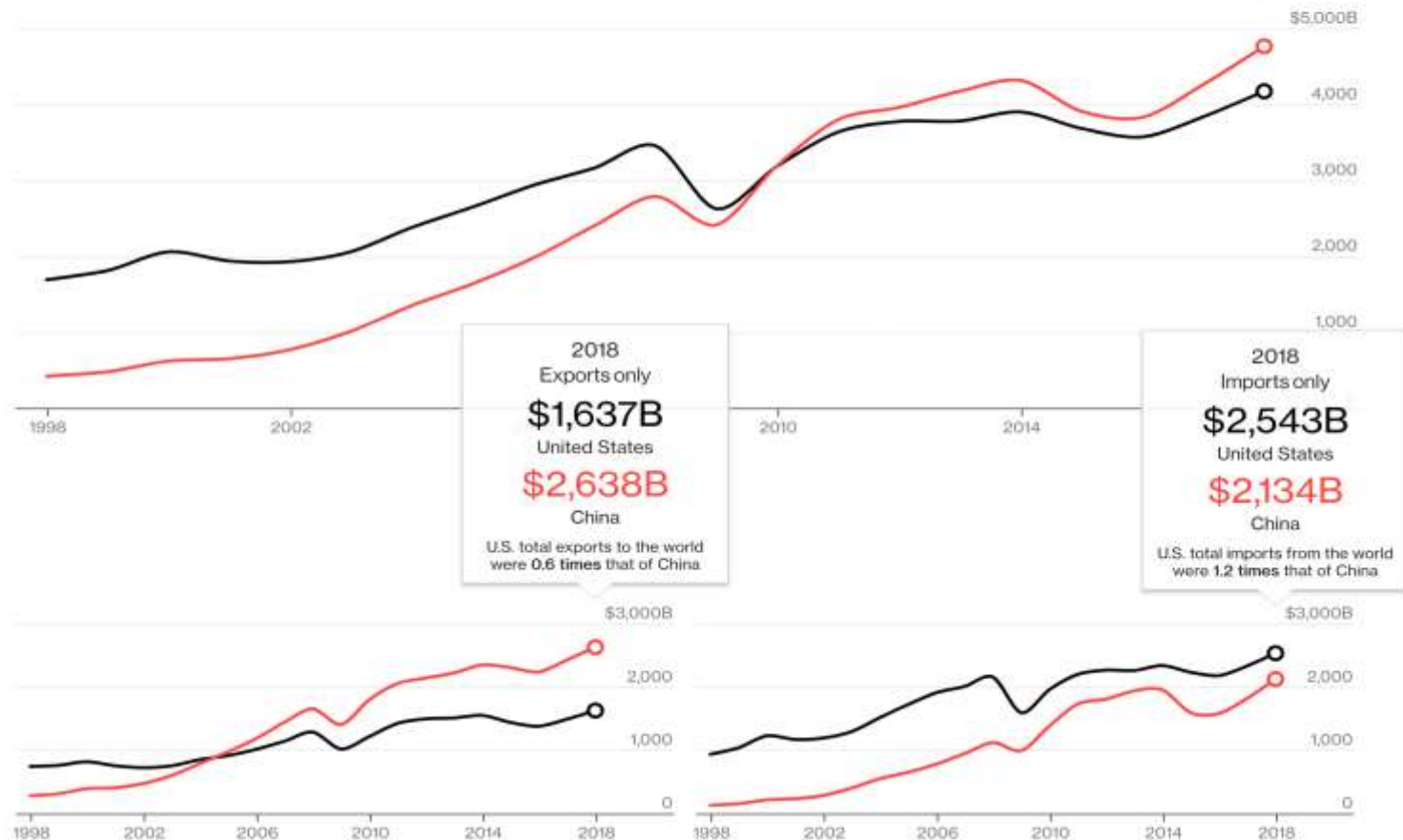


# Chinese vs. US Volume of World Trade: 1996- 2018

## China is already the world's largest trading nation

China's exporting prowess has fueled massive trade surpluses and tensions with the U.S. Its competitive advantage in many products is now so entrenched for both local and foreign firms that even the trade war has failed to dent it. A recent survey from the European Chamber of Commerce in China found just 6% of companies polled have moved or are considering moving relevant production out of the country. Meantime, its swelling ranks of middle class consumers mean many companies can switch to targeting sales toward them as tariffs increase.

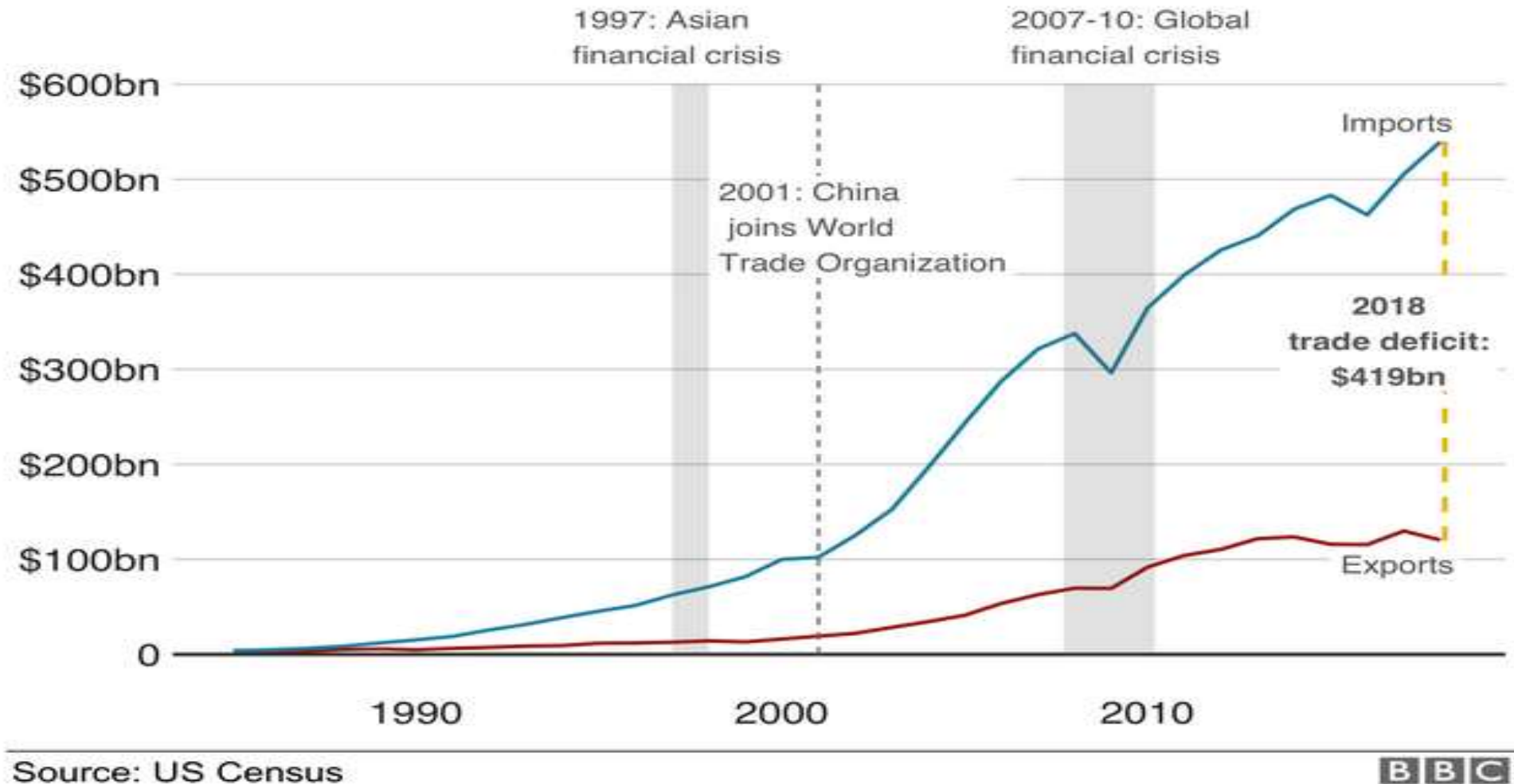
2018  
World trade  
**\$4,180B**  
United States  
**\$4,772B**  
China  
U.S. trade with the world was  
0.9 times that of China



[Malcolm Scott, Cedric Sam](#): *Here's How Fast China's Economy Is Catching Up to the U.S.* Bloomberg May 12, 2016 | Updated: May 21, 2019, Sources: IMF (via Bloomberg). Additional work by: Christopher Cannon, Michael Keller and Ailing Tan

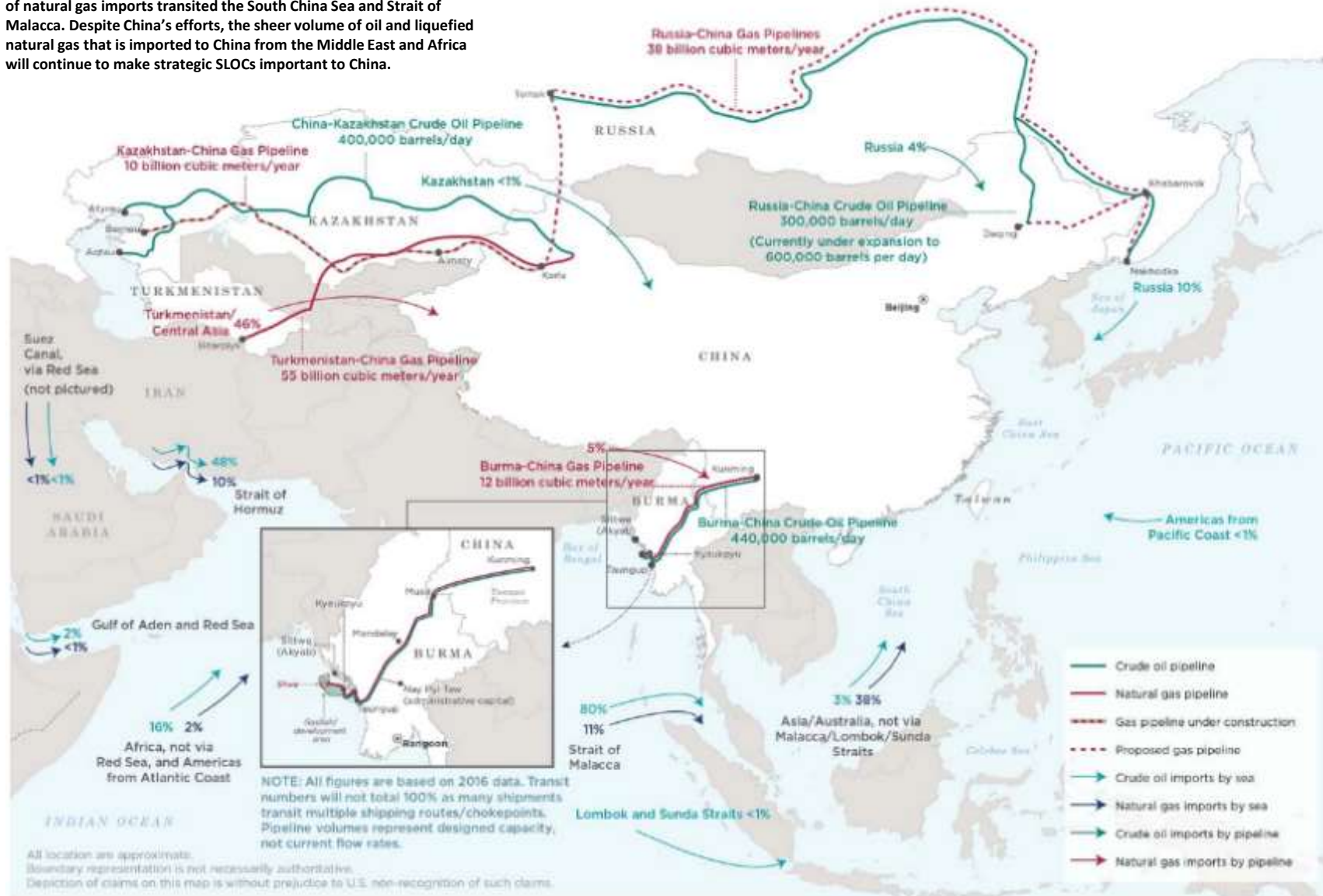
# US Trade Balance with China : 1980-2018

US trade deficit with China has soared since 1985

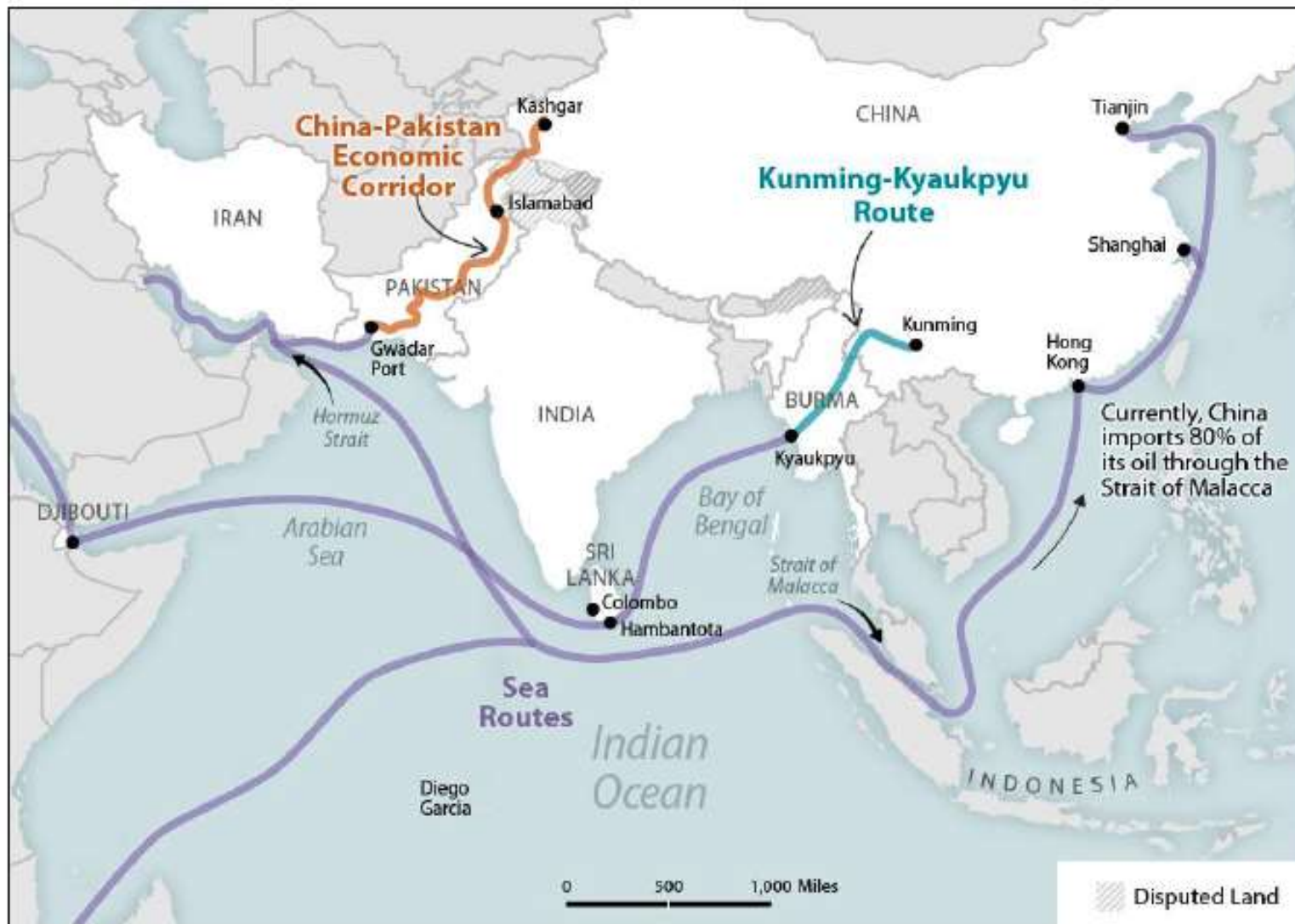


# China's Energy Import Transit Routes

In 2016, approximately 80 percent of China's oil imports and 11 percent of natural gas imports transited the South China Sea and Strait of Malacca. Despite China's efforts, the sheer volume of oil and liquefied natural gas that is imported to China from the Middle East and Africa will continue to make strategic SLOCs important to China.



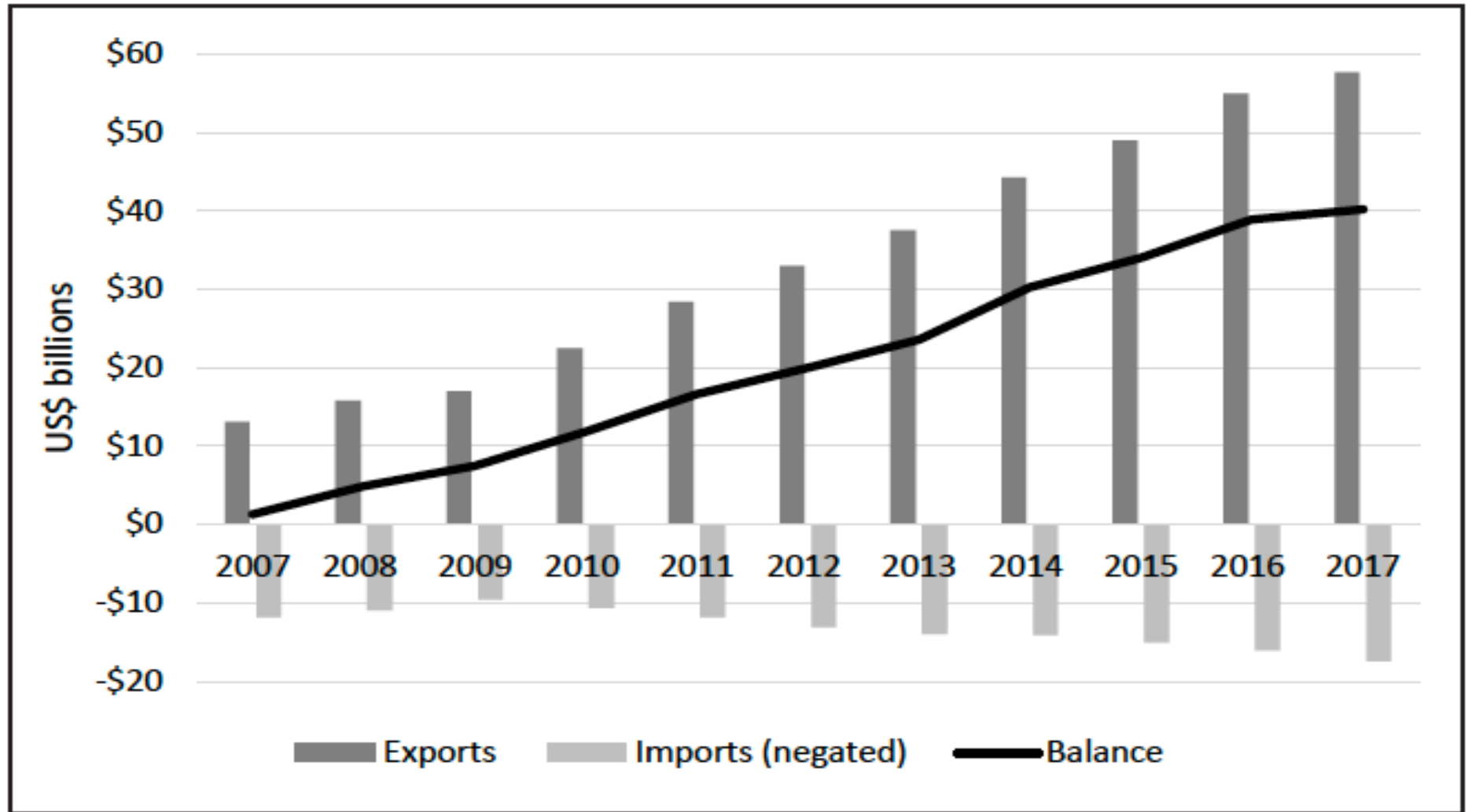
# China's Indian Ocean Trade Routes



**Source:** Graphic created by CRS. Map and information generated by (name redacted) using data from the *South China Morning Post* (2017); the Department of State (2015); Esri (2016); and DeLorme (2016).

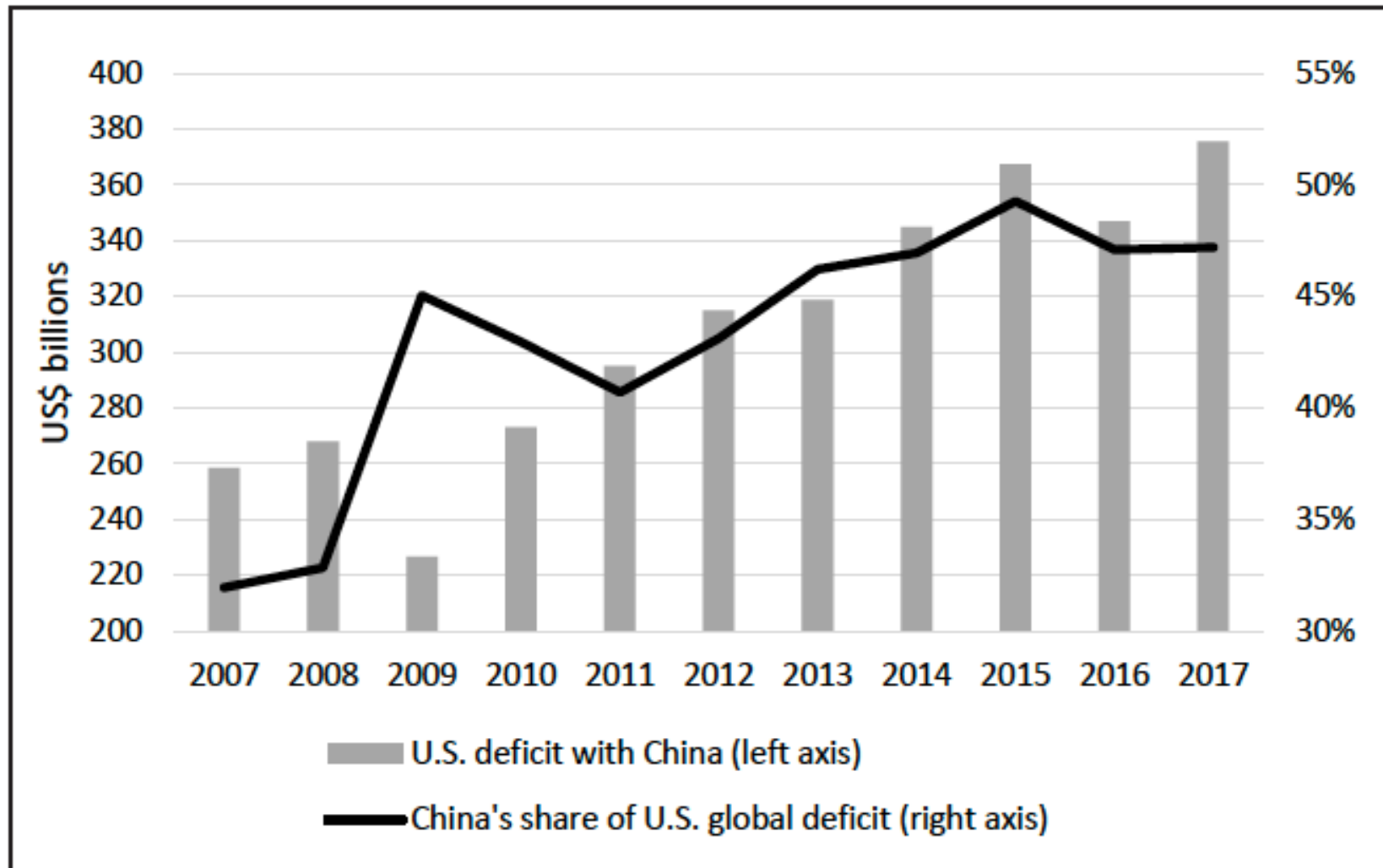


## Positive US-China Services Trade: 2007-2017



*Source: U.S. Department of Commerce, Bureau of Economic Analysis, Table 1.3 U.S. International Transactions, Expanded Detail by Area and Country, June 6, 2018.*

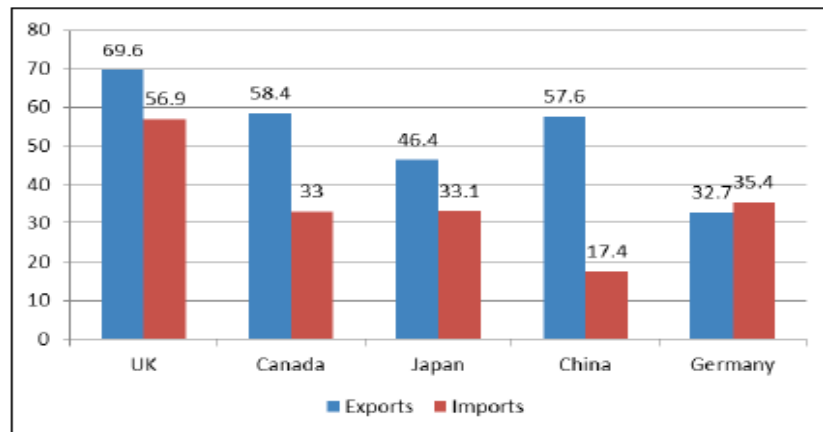
## US Trade Deficit with China: 2007-2017



*Source: U.S. Census Bureau, Trade in Goods with China.*

# U.S. Merchandise Trade Dependence on China: 2000-2017

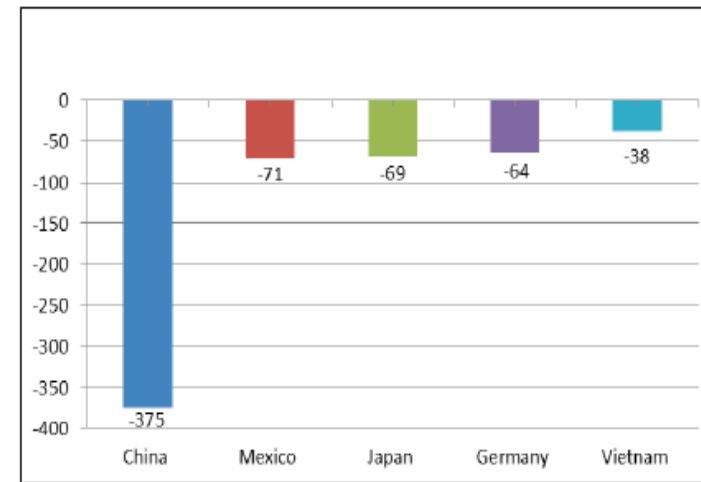
**Figure 3. Major U.S. Services Trading Partners in 2017**  
(\$ in billions)



Source: BEA.

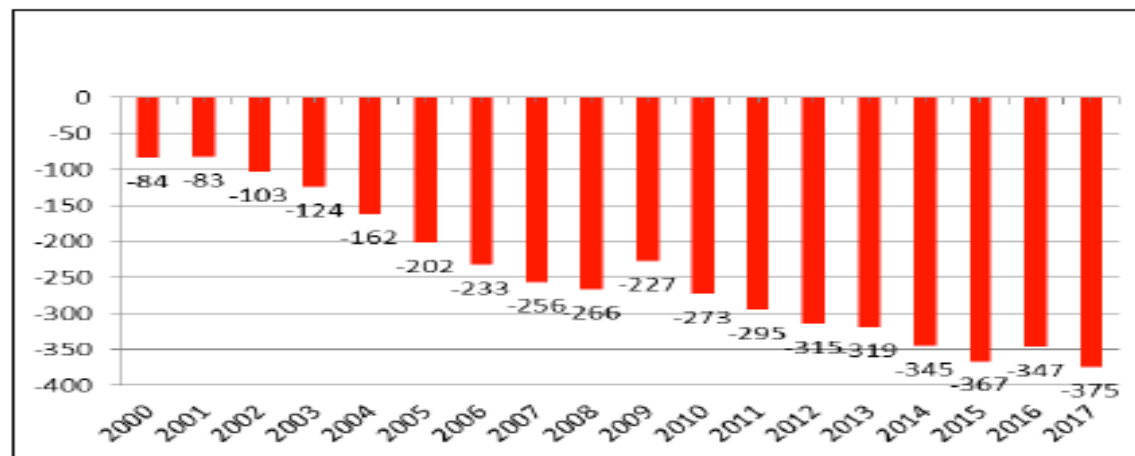
Note: Top five U.S. trading partners in total services trade (exports plus imports) in 2017.

**Figure 5. Five Largest U.S. Merchandise Trade Imbalances in 2017**  
(\$ in billions)



Source: USITC DataWeb.

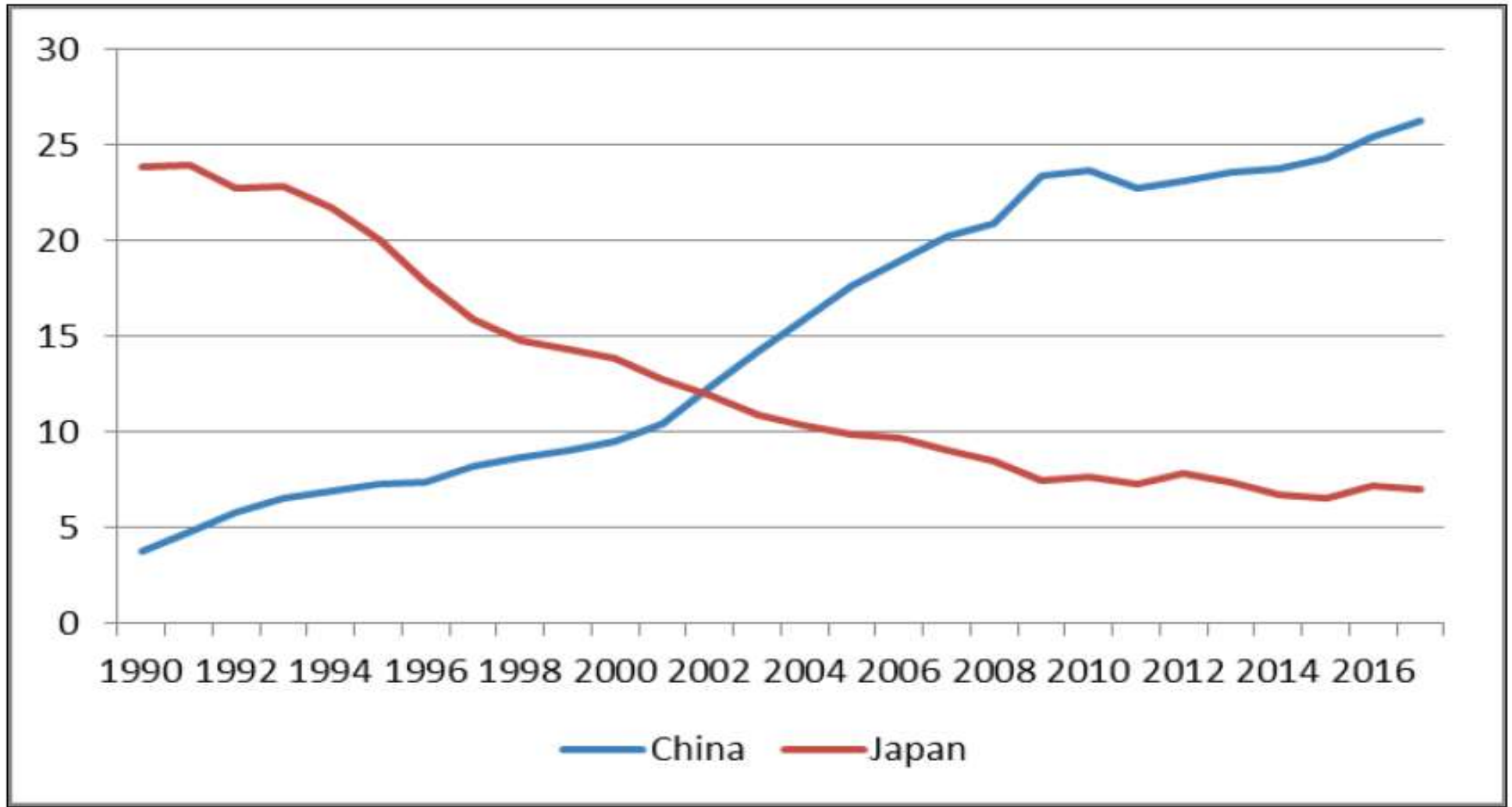
**Figure 4. U.S. Merchandise Trade Balance with China: 2000-2017**  
(\$ in billions)



Source: USITC DataWeb.



## U.S. Shift from Japan to China as % of Total U.S. Manufactured Imports: 1990-2017



**Source:** USITC DataWeb.

# **PART FOUR: THE SUPERPOWER BALANCE AND CHINESE GRAND STRATEGY**

# The Military Dimension of China's Grand Strategy

The fact that China's military capabilities are developing more slowly than its economic power does not make its emergence as the world's second-largest military power and less significant. China's military and security expenditures have vastly exceeded those of Russia for at least the last decade. While China still lags the U.S. and Russia in nuclear weapons, and many areas of deployed military technology, it is making rapid progress in virtually every area and already is by far the most dominant Asian military power.

It already has shown it has highly sophisticated capabilities for hybrid politico-military operations, has made major improvements in its conventional forces, greatly improved its military basing and infrastructure, developed a far more sophisticated military industrial base, and begun to deploy MIRV'd ICBMs and more competitive SSBNs.

All of these military activities complement its rise as a global economic power, and it again should be stressed that China's state system allows it to combine its economic and military grand strategy in ways that that nation's that depend on private industry and capital investment – like the United States – cannot. What is far less clear, however, is how well the Chinese state can continue past patterns of growth in both China's economy and military forces, and the overall efficiency that the Chinese state can bring to these efforts over time.

As the following sections of this report also show, there are many areas where the direction of China's further military development are unclear. China has set broad goals for its military progress for 2030, 2035, 2040, and 2050, but these are not defined largely in terms of technology, force goals or even broad strategic capabilities. Equally important, they are not coupled to similar goals for the development of China's economy and civil sector.

# **China's Emergence as a Military Superpower**

## **China vs. US and Russia**

# China's Emergence as a Military "Superpower"

There is no easy way to define a military "superpower." The size of a given nation's inventory of nuclear weapons and delivery systems became a major indicator during the Cold War, and the graphics in this section of the report – and those that follow – show China has not yet begun to compete with the U.S. and Russia by this standard. At the same time, it is far from clear that China would gain strategically from going from its current posture of "minimum assured destruction" to the levels of "maximum assured destruction" now reached by the U.S. and Russia.

If one considers the ability to develop and deploy military forces, the summary graphics in this report indicate that Russia has a far smaller economy and ability to fund military forces than China and DIA and IISS estimates indicate that China is spending some three times more than Russia and might be able to equal U.S. spending in directly comparable cost terms by some point between 2030 and 2040. As has been noted earlier, China might also be a peer competitor in even the most advanced aspects of military technology and tactics by this time.

The graphics that follow also show that China already is competitive in many areas of conventional forces and weapons numbers, although it lags in technology and systems capability. This lag, however, is at least partly offset by China's geographic position, the problems that the U.S. and Russia have in projecting power in Asia, and China's ability to combine political and economic pressure and influence with its military power in the Western Pacific, Asia, and increasingly in the Indian Ocean Area.

"A2 D2" alone is a major challenge for the U.S., as are sophisticated hybrid politico-economic-military operations, and warnings about the risks to the U.S. of "land wars in Asia" have considerable validity. As for Russia, such warning may be even more valid. Russia's current strategic capabilities in Asia seem much closer to those of Czarist Russia in 1905 than the capabilities of the USSR in the 1990s.

# China's 2019 Defense White Paper on the Shifting Balance

...As the realignment of international powers accelerates and the strength of emerging markets and developing countries keeps growing, the configuration of strategic power is becoming more balanced. The pursuit of peace, stability and development has become a universal aspiration of the international community with forces for peace predominating over elements of war. However, international security system and order are undermined by growing hegemonism, power politics, unilateralism and constant regional conflicts and wars.

...The US has adjusted its national security and defense strategies, and adopted unilateral policies. It has provoked and intensified competition among major countries, significantly increased its defense expenditure, pushed for additional capacity in nuclear, outer space, cyber and missile defense, and undermined global strategic stability. NATO has continued its enlargement, stepped up military deployment in Central and Eastern Europe, and conducted frequent military exercises. Russia is strengthening its nuclear and non-nuclear capabilities for strategic containment, and striving to safeguard its strategic security space and interests. The European Union (EU) is accelerating its security and defense integration to be more independent in its own security.

...Major countries around the world are readjusting their security and military strategies and military organizational structures. They are developing new types of combat forces to seize the strategic commanding heights in military competition. The US is engaging in technological and institutional innovation in pursuit of absolute military superiority. Russia is advancing its New Look military reform. Meanwhile, the UK, France, Germany, Japan and India are rebalancing and optimizing the structure of their military forces.

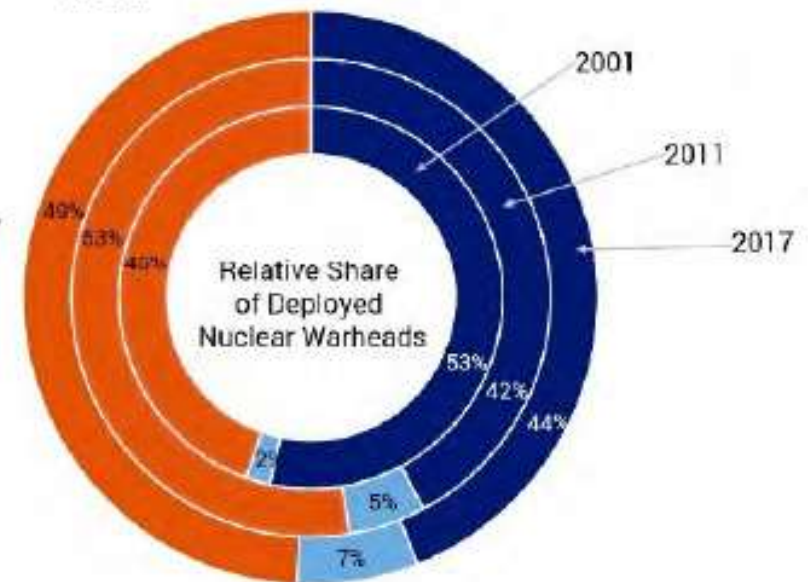
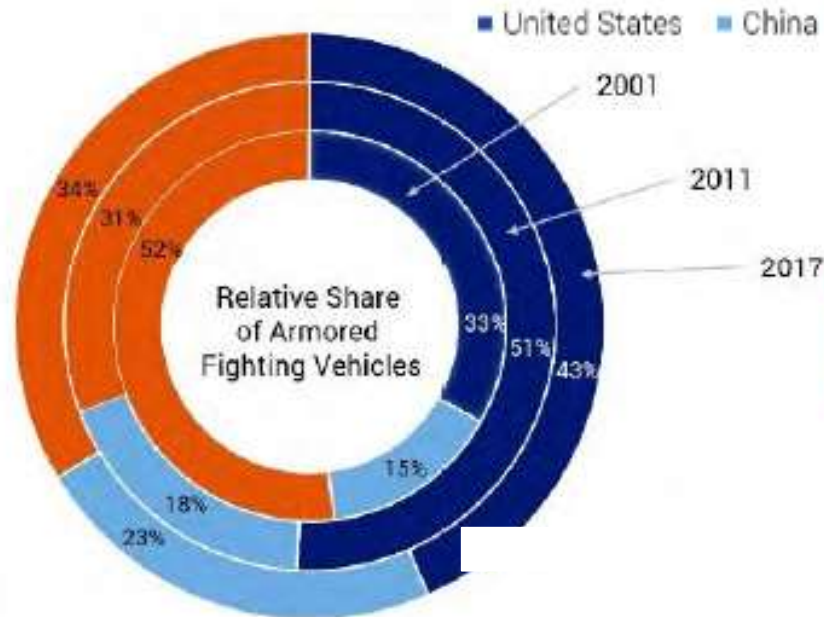
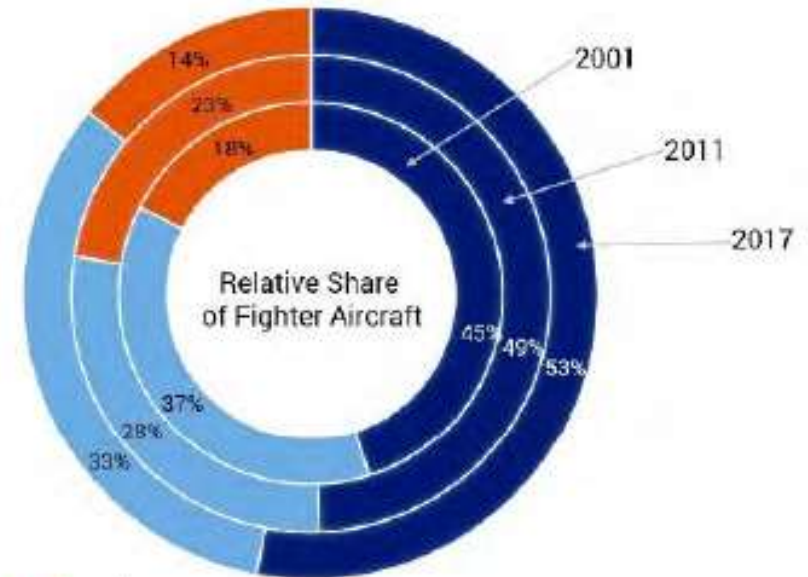
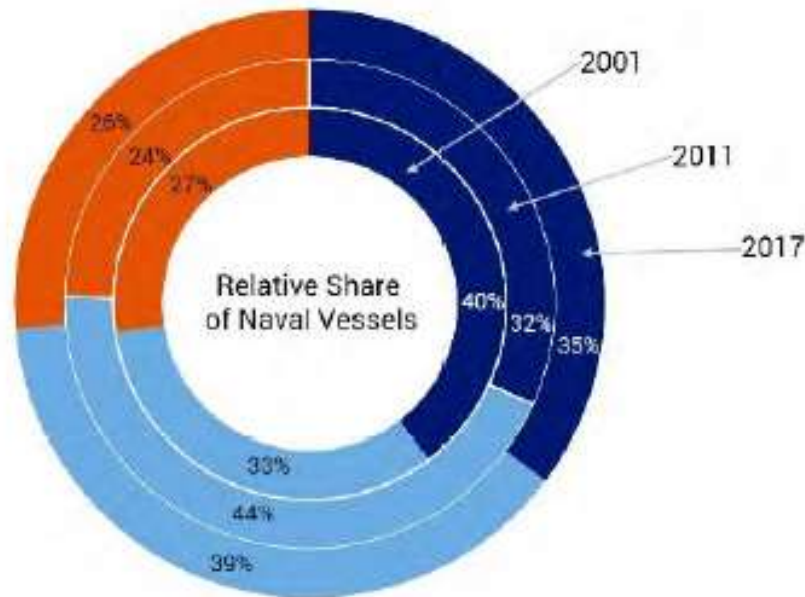
...Great progress has been made in the Revolution in Military Affairs (RMA) with Chinese characteristics. However, the People's Liberation Army (PLA) has yet to complete the task of mechanization, and is in urgent need of improving its informationization. China's military security is confronted by risks from technology surprise and growing technological generation gap. Greater efforts have to be invested in military modernization to meet national security demands. The PLA still lags far behind the world's leading militaries.

The socialist system of China, the strategic decision to follow the path of peaceful development, the independent foreign policy of peace, and the best of cultural traditions – considering peace and harmony as fundamentals – determine that China will pursue a national defense policy that is defensive in nature.

...The development of China's national defense aims to meet its rightful security needs and contribute to the growth of the world's peaceful forces. History proves and will continue to prove that China will never follow the beaten track of big powers in seeking hegemony. No matter how it might develop, China will never threaten any other country or seek any sphere of influence.

...Nuclear capability is the strategic cornerstone to safeguarding national sovereignty and security. China's armed forces strengthen the safety management of nuclear weapons and facilities, maintain the appropriate level of readiness and enhance strategic deterrence capability to protect national strategic security and maintain international strategic stability.

# Total Global Chinese vs. U.S. vs. Russian Military Forces; 2001-2017

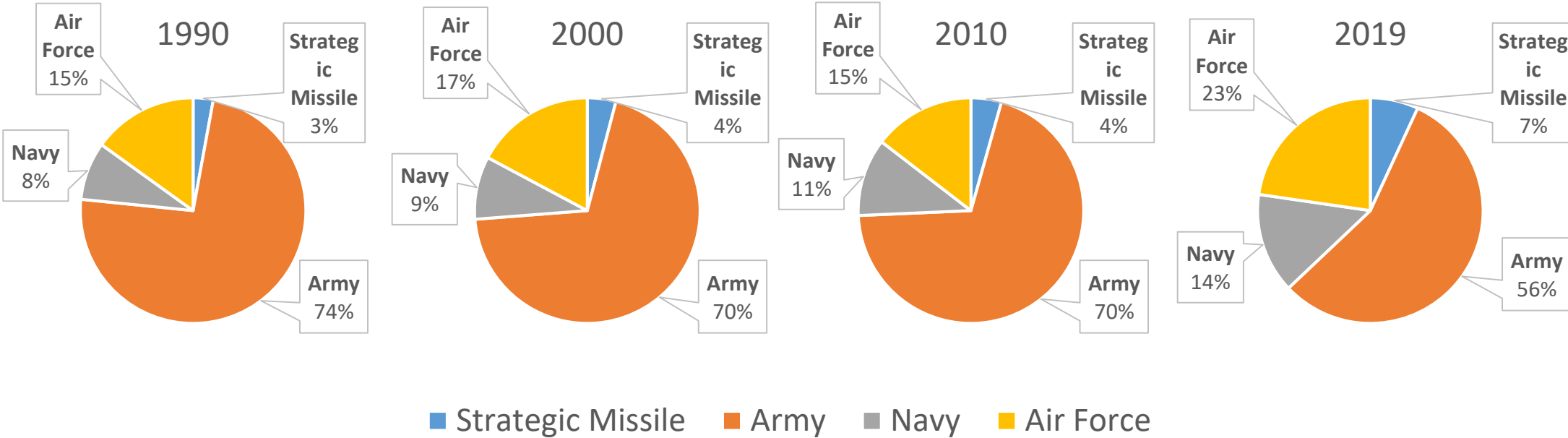


Source; International Institute for Strategic Studies (IISS) Military Balance, 2002, 2012, 2018. Bulletin of Atomic Scientists, Nuclear Notebook, Providing for the Common Defense, 2018, p.13.

Notes: Naval vessels include submarines and combat logistics force ships, but exclude small patrol and landing craft. Fighter aircraft exclude "attack aircraft," but include "fighter, ground attack" aircraft, as classified by IISS.



# China's Changing Military Personnel: 1990-2019



Category	Total	Strategic Missile	% of Total	Army	% of Total	Navy	% of Total	Air Force	% of Total	Paramilitary
1980	4,450,000	ND	ND	3,600,000	(80.9%)	360,000	(8.1%)	490,000	(11.0%)	ND
1990	3,030,000	90,000	(3.0%)	2,300,000	(75.9%)	260,000	(8.6%)	470,000	(15.5%)	12,000,000
2000	2,470,000	100,000	(4.0%)	1,700,000	(68.8%)	220,000	(8.9%)	420,000	(17.0%)	1,000,000
2010	2,285,000	100,000	(4.4%)	1,600,000	(70.0%)	255,000	(11.2%)	333,000	(14.6%)	660,000
2019	2,035,000	120,000	(5.9%)	975,000	(47.9%)	250,000	(12.3%)	395,000	(19.4%)	660,000

Source: World Bank, <https://data.worldbank.org/indicator/MS.MIL.TOTL.P1?end=2017&locations=CN&start=1985&view=chart>, and IISS, Military Balance.

# Total Global Chinese vs. U.S. vs. Russian Conventional Combat Forces in 2018 - I

	U.S.	Russia	China
<b>Total Military Personnel</b>			
Active	1,348,400	900,000	2,035,000
Reserve	857,950	2,000,000	510,000
<b>Army*</b>			
Active Personnel	476,250	283,000?	1,300,000?
Reserve Personnel	537,000	?	?
Main Battle Tanks	2,384	2,840	6,740
Armored Fighting Vehicles	4,713	6,860	4,450
Armored Personnel Carriers	10,746	6,876+	5,020+
Total Artillery	5,395	4,928+	13,218+
Self-Propelled	947	1,770	2,320
Towed	1,339	400	6,440
Multiple Rocket Launcher	600	862	1,872+
Mortar	2,507	1,790+	2,586
SRBM-Short Range Ballistic Missiles	168	144	?
Cruise Missiles	?	?	?
Attack/Assault Helicopters	603	376+ (AF)	240
<b>Marines</b>			
Active	184,400	35,000?	15,000
Reserve	38,700	?	?
Main Battle Tanks	447	250	-
Armored Fighting Vehicles	502-1,702	1,000	163
Armored Personnel Carriers	N/A	400	-
Total Artillery	1,501	365	40+
Self-Propelled	N/A	163	40+
Towed	812	166	-
Multiple Rocket Launcher	40	36	?
Mortar	649	?	?
SRBM- Short Range Ballistic Missiles	-	11	-

\* Army includes Russian Special Forces, and Chinese Airborne Corps, Strategic Support Force, and "Other"

Source is IISS, Military Balance 2018.

## Total Global Chinese vs. U.S. vs. Russian Conventional Combat Forces in 2018 - II

	U.S.	Russia	China
<b>Navy (Reserve Combat Aircraft in Parenthesis)</b>			
Active Personnel	323,950	150,000	240,000
Reserve Personnel	100,550	?	?
Submarines	68	62	62
Strategic SSBN	14	13	4-5
Tactical SSGN	47	9	-
Tactical SSN	7	17	9
Tactical SSK	-	23	48
Carrier	11	1	1
Cruiser			
Missile	23	5	-
Destroyer			
Missile	64	15	2
Frigates			
Missile	9	13	59
Corvettes - Missile	-	48	37
Patrol, Coastal Combatants	57	52	206e
Missile	10	21	91
Other	47	31	78
Mine Warfare	11	43	42
Amphibious			
Major (LHA, LHD)	9	-	-
Major (LPD, LSD)	22	-	4
Landing Ship Medium (LSM), Tank (LST)	-	19	53
Landing Craft	245	28	87
Logistic-Support	14	265	186

Source is IISS, Military Balance 2018.

# Total Global Chinese vs. U.S. vs. Russian Conventional Combat Forces in 2018 - III

	U.S.	Russia	China
<b>Air Force*</b>			
Active Personnel	322,800	215,000	395,000
Reserve Personnel	174,450	?	?
Bombers	139 (18)	139	162
Fighters	265 (157)	222	819
Fighter-Ground Attack	903 (407)	378	566
Attack	-	265	240
Anti-Tank	141 (141)	-	-
Electronic Warfare	14	3	13
Intelligence, Surveillance & Reconnaissance (IS&R)	41 (26)	87	-
ELINT-Electronic Intelligence	22 (11)	32	4
AEW&C-Airborne Early Warning and Command/Control	31	28	10
Electronic Warfare Helicopters	-	3	-
<b>Anti-Ballistic Missiles/Surface to Air Missile Launchers (All services)</b>			
ABMs	44	68	-
SAMs			
Long Range	480	724e	192
Medium Range	-	440e	414
Short Range	-	132+	338
<b>Naval Aviation</b>			
Bomber	-	-	27
Fighter	(31)	67	24
Fighter-Ground Attack/Attack	736 (29)	89	259
ASW-Anti Submarine Warfare	120 (12)	44	7
Maritime Patrol	-	5	-
EW-Electronic Warfare	131 (5)	-	-
AEW & Control	80	-	17
Intelligence, Surveillance & Reconnaissance (IS&R)	41 (26)	12	-
ELINT-Electronic Intelligence	-	4	7
ASW-Anti Submarine Warfare Helicopters	225 (7)	83	28
MCM Mine Countermeasure Helicopters	28 (7)	-	-
AEW/EW Helicopters	-	10	10
<b>Marine Aviation</b>			
Fixed Wing Fighter-Ground Attack	437	-	-
Attack/Assault Helicopters	153	-	-

\* U.S. Air Force reserve aircraft in parenthesis. Includes Aerospace for Russia, and People's Liberation Rocket Force for China

Source: International Institute of Strategic Studies, *Military Balance 2018*

# China's Evolving Precision Strike Capability

**Short-Range Ballistic Missiles (300-1,000 km).** The PLA Rocket Force has approximately 1,200 SRBMs. The force fields advanced variants with improved ranges and accuracy in addition to 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 approximately 200-300 conventional MRBMs to increase the range at which it can conduct precision strikes against land targets and naval ships operating far from China's shores out to the first island chain.

**Intermediate-Range Ballistic Missiles (3,000-5,500 km).** The PLA is developing a nuclear and conventional road-mobile IRBM, which increases its capability for near-precision strike as far as the "second island chain." The PLAN also is 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 approximately 200-300 air- and ground-launched LACMs for standoff precision strikes. Air-launched cruise missiles include the YJ-63, KD-88, and the CJ-20 (the air-launched version of the CJ-10 GLCM). China recently adapted the KD-88 LACM, which has an advertised range of more than 100 km, and may be testing a longer-range version. China also is developing the CM-802AKG LACM, an export system that can strike both land and ship targets from fighters or bombers.

**Ground-Attack Munitions.** The PLAAF has a small number of tactical air-to-surface missiles (ASM) 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 missiles in conjunction with its increasing development of UAVs. China is also adapting to UAV Global Positioning System-guided munitions such as the FT-5 and LS-6 that are similar to the U.S. Joint Direct Attack Munitions (JDAM).

**Anti-Ship Cruise Missiles.** China deploys a wide range of advanced ASCMs with the YJ-83 series as the most numerous, which are deployed on the majority of China's ships as well as multiple aircraft. China has also outfitted several ships with YJ-62 ASCMs and claims that the new LUYANG III class DDG and future Type 055 CG will be outfitted with a vertically launched variant of the YJ-18 ASCM. The YJ-18 is a long-range torpedo-tube-launched ASCM capable of supersonic terminal sprint which has likely replaced the older YJ-82 on SONG, YUAN, and SHANG class submarines. China has also developed the long range supersonic YJ-12 ASCM for the H-6 bomber. At China's military parade in September 2015, China displayed a ship-to-ship variant of the YJ-12 called the YJ-12A. China also carries the Russian SS-N-22 SUNBURN on four Russian built SOVREMENNY-class DDGs and the Russian SS-N-27b SIZZLER on eight Russian built KILO-class submarines.

**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 and 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) (greater than 100 km range) and the longer-range AR-3 dual-caliber MRL (out to 220 km range).



# Chinese vs. U.S. vs. Russian Nuclear Delivery Systems in 2018

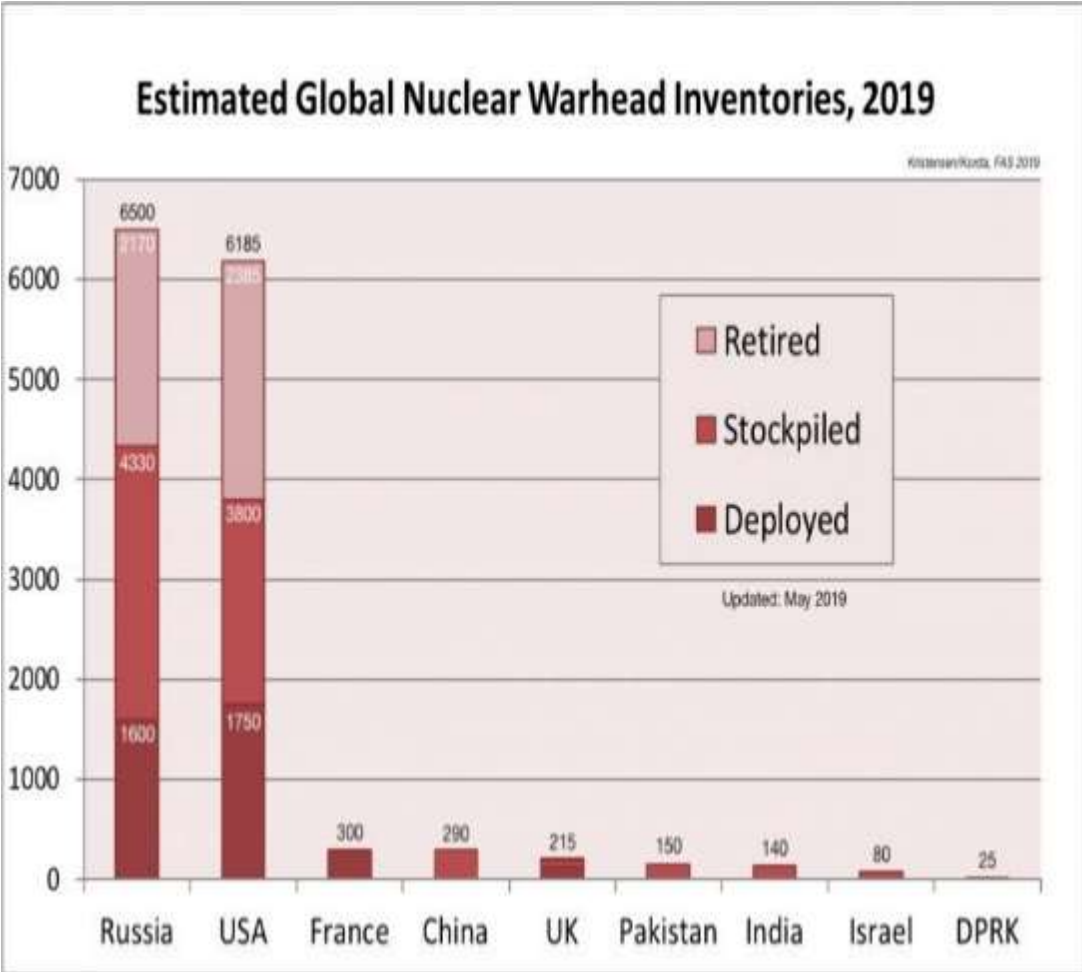
	U.S.	Russia	China
<b>IISS Estimate of Strategic Delivery Systems</b>			
ICBMs	400	313	70
SSBNs (Ships/Maximum Missiles)	14/336	13/192-212	4/48
Bombers	157	129	162

## U.S. State Department Estimate of START forces (September 1, 2018) versus Chinese Forces

Deployed ICBMs, Deployed SLBMs, and Deployed Heavy Bombers	659	577	N/A
Warheads on Deployed ICBMs, on Deployed SLBMs, and Nuclear Warheads Counted for Deployed Heavy Bombers	1,358	1,420	N/A
Deployed and Non-deployed Launchers of ICBMs, Deployed and Non-deployed Launchers of SLBMs, and Deployed and Non-deployed Heavy Bombers	800	775	N/A

U.S. State Department, Bureau of Arms Control, Verification, and Compliance, *New START Treaty Aggregate Numbers of Strategic Offensive Arms*, Fact Sheet, September 1, 2018; IISS, *Military Balance 2018*, p. 22

# Chinese vs. U.S. vs. Russian Nuclear Weapons in 2019



**Status of World Nuclear Forces 2019\***

Country	Deployed Strategic	Deployed Nonstrategic	Reserve/ Nondeployed	Military Stockpile <sup>a</sup>	Total Inventory <sup>b</sup>
Russia	1,600 <sup>c</sup>	0 <sup>d</sup>	2,730 <sup>e</sup>	4,330	6,500 <sup>f</sup>
United States	1,600 <sup>g</sup>	150 <sup>h</sup>	2,050 <sup>i</sup>	3,800 <sup>j</sup>	6,185 <sup>k</sup>
France	280 <sup>l</sup>	n.a.	20 <sup>l</sup>	300	300
China	0 <sup>m</sup>	?	290	290	290 <sup>m</sup>
United Kingdom	120 <sup>n</sup>	n.a.	95	215	215 <sup>n</sup>
Israel	0	n.a.	80	80	80 <sup>o</sup>
Pakistan	0	n.a.	140-150	140-150	140-150 <sup>p</sup>
India	0	n.a.	130-140	130-140	130-140 <sup>q</sup>
North Korea	0	n.a.	?	20-30	20-30 <sup>r</sup>
<b>Total:<sup>s</sup></b>	<b>~3,600</b>	<b>~150</b>	<b>~5,555</b>	<b>~9,330</b>	<b>~13,890</b>

Source: Has M. Kristensen and Mat Korda, *Status of World Nuclear Forces*, Federation of American Scientists, 2019



# China vs. U.S. vs. Russia Nuclear Modernization Since 2010



Figure 1. Nuclear Delivery Systems Since 2010  
Data provided by the DoD

# **The Chinese versus Western Views of China's Rising – and Steadily More Competitive – Military Budgets**

# China's Rising – and Steadily More Competitive – Military Budgets

The Chinese estimates of China's spending at the start of this section are taken from China's 2019 Defense White Paper. They are little more than a propaganda exercise. They are carefully manipulated to use official Chinese data that omit large portions of China's actual military budgets, and then compare the resulting low percentages of defense spending relative to GDP and total government spending in ways which make the actual level of effort impossible to compare and that grossly understate the Chinese effort. They are interesting, however, as an example of the way a state can manipulate any public understanding of its military development.

The U.S., IISS, SIPRI and other Western graphics on Chinese military spending compare it with the spending of the US, Russia, and other states – are far more transparent and more accurate, but they still have many of the serious uncertainties that affect the previous comparisons of the Chinese economy with that of other countries. The same problems apply to comparing military spending that apply to comparing GDPs, and to accurately estimate PPP economics versus market prices. Countries may again manipulate public reporting for their own political ends. There also is no way to make precise comparisons that adjust for differences in costs between countries with radically different economic structures, for the different ways that capitalist and state command economies can allocate resources and cost, differences in technology base, reliance on conscription versus professional forces, and a host of other factors.

The graphics that follow reflect all of its differences, but they also agree in enough ways to reflect broad trends that almost certainly are valid. China has made massive increases in its military spending. It has long outpaced Russia and it is become more competitive with the U.S. – particularly if China is manipulating its state-controlled economy and military personnel systems to charge much lower comparative costs.

As the following charts show, however, various think tanks and intelligence estimates of Chinese spending are radically different, and the last chart shows there is no credible current way to estimate how soon – if ever – China would come to equal or surpass the U.S. in military and national security spending. The IISS, for example, reports China's military budget for 2018 as \$168.2 billion in current dollars – quoting its official budget. SIPRI attempts to estimate its budget in terms of comparable buying power relative to a market economy and comes up with an estimate of \$250 billion – an estimate 49% higher. Yet, both estimates may be correct within the definition each think tank uses.

It is also striking that these differences interact in terms of relative military effort with an IISS estimate for Russia in 2018 of \$63.1 billion and a SIPRI estimate of \$61.4 billion, and an IISS estimate of \$643.3 billion for the U.S. with a SIPRI estimate of \$649.0 billion. The U.S. government, however, estimates that the total cost of the U.S. defense budget – less major expenses on Veteran's retirement and services – is \$730.1 billion. This total is 13% higher than the IISS estimate and 12% higher than the SIPRI estimate.

These differences illustrate the major uncertainties in the final chart in this section — *China versus U.S.: Convergence in Military Spending — IISS vs. OSD Guesstimate* — which provides a sample of an effort to project the timelines at which China's military spending might overtake that of the U.S. These projections raise interesting possibilities, but the "facts" behind the estimates are so uncertain in simple monetary terms – and some much more uncertain in terms of truly comparable buy power – that any such estimate is so nominal as to be largely useless as a prediction of the future.

# China's 2019 Defense White Paper on Chinese Military Spending - I

China attends to both development and security. It is making an integrated effort to build a prosperous country and a strong military, and striving for the coordinated development of national defense and the economy. Following the principle of building the armed forces through diligence and thrift, China takes into consideration the development of the economy and the demands of national defense, decides on the appropriate scale and composition of defense expenditure, and manages and applies these funds in accordance with law.

Since reform and opening-up, China has increased its defense expenditure from a level of sustainability to moderate growth. On the whole, defense expenditure has grown in tandem with the growth of the national economy and government expenditure. Defense expenditure as a percentage of GDP has fallen from a peak of 5.43% in 1979 to 1.26% in 2017. It has remained below 2% for the past three decades. Defense expenditure as a percentage of government expenditure was 17.37% in 1979 and 5.14% in 2017, a drop of more than 12 percentage points. The figures are on a clear downward trend.

Figure 3 China's Defense Expenditure as a Percentage of Its GDP (1979-2017) (%)

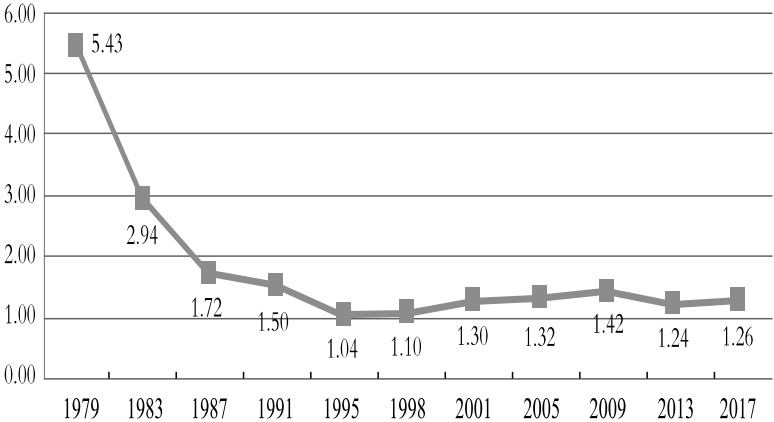
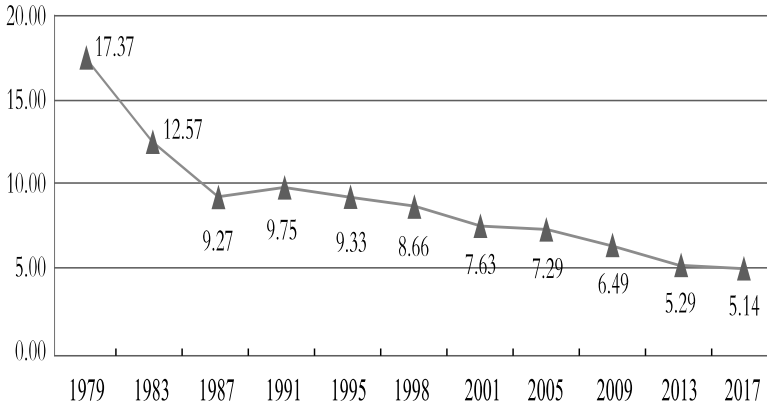


Figure 4 China's Defense Expenditure as a Percentage of Its Government Expenditure (1979-2017) (%)



## China's Defense Expenditure Since 2012

In the new era, to keep pace with the country's modernization, China is focusing on building a fortified national defense and a strong military commensurate with the country's international standing, and its national security and development interests. China is striving to narrow the gap between its military and the world's leading militaries, and make up the deficiencies in the military's capabilities in modern warfare. Defense expenditure is growing steadily and the breakdown of spending is being continuously optimized.

# China's 2019 Defense White Paper on Chinese Military Spending - II

In terms of usage, China's defense expenditure is assigned to three sectors – personnel, training and sustainment, and equipment. Personnel expenses mainly cover the salaries, allowances, food, bedding, clothing, insurance, subsidies and pensions for officers, non-ranking officers, soldiers and contracted civilians, as well as retirees supported from the defense budget. Training and sustainment expenses mainly cover training of the troops, institutional education, construction and maintenance of installations and facilities, and other expenditure on routine consumables. Equipment expenses mainly cover R&D, testing, procurement, repairs, maintenance, transport and the storage of weaponry and equipment. In terms of scope, defense expenditure covers all active forces, reserve forces and militia.

Since 2012, the increase in defense expenditure has been primarily spent for the following purposes:

1. Adapting to national economic and social development, improving the wellbeing of service personnel, ensuring regular increases in military salaries, and bettering the working, training and living conditions of the troops;
2. Increasing input in weaponry and equipment development, phasing out the outdated, upgrading the old, and developing and procuring the new, such as aircraft carriers, fighters, missiles and main battle tanks, to steadily modernize weaponry and equipment;
3. Deepening national defense and military reform, supporting major reforms in military leadership and command systems, force structure and composition, and policies and institutions;
4. Supporting training in real combat conditions, enhancing strategic-level training, joint training at TCs' level and training of services and arms, and improving the conditions for simulated, networked and force-on-force training; and
5. Supporting diverse military tasks including the UNPKOs, vessel protection operations, humanitarian assistance operations and disaster relief efforts.

From 2012 to 2017, China's defense expenditure increased from RMB669.192 billion to RMB1,043.237 billion. China's GDP and government expenditure grew at average rates of 9.04% and 10.43% respectively, calculated on the price of the indicated years, while its defense expenditure increased by an average of 9.42%. Defense expenditure accounted for 1.28% of GDP and 5.26% of government expenditure on average. The percentage of China's defense expenditure in GDP remained stable and grew in coordination with the increase of government expenditure.

China applies strict mechanisms of fiscal allocation and budget management on its defense expenditure. It pursues a level of defense spending that is demand-oriented, planning-led and consistent with its capacity. It endeavors to strengthen unified management, coordinate existing and incremental expenditure, gradually practice cost-effectiveness management, and steadily press ahead with reform that is centered on efficacy and efficiency. To improve and strengthen budget management, China's armed forces are extending reform of the centralized collection and payment of military funds, accelerating standardization in relation to defense expenditure, and improving the management of assets and funds.

# China's 2019 Defense White Paper on Chinese Military Spending - III

## Comparison of Defense Expenditure in the International Context

Among countries ranking high in defense expenditure in 2017, China's share of defense expenditure in GDP and government expenditure, as well as per capita and per-serviceperson defense spending, are all at a relatively low level.

China has become the world's second largest economy. The fact that China's defense expenditure ranks second in the world is determined by the demands of its national defense, the size of its economy, and the defensive nature of its national defense policy. In terms of total spending, China's defense expenditure in 2017 was less than a quarter of that of the US.

As a percentage of GDP, from 2012 to 2017, China's average defense expenditure was about 1.3%. Comparative figures were: the US about 3.5%, Russia 4.4%, India 2.5%, the UK 2.0%, France 2.3%, Japan 1.0%, and Germany 1.2%. China ranks 6th among these countries in terms of defense expenditure as a percentage of GDP on average and is the lowest among the permanent members of the UN Security Council (UNSC).

Figure 5 Average Ratio of Defense Expenditure to GDP by Country (2012-2017) (%)

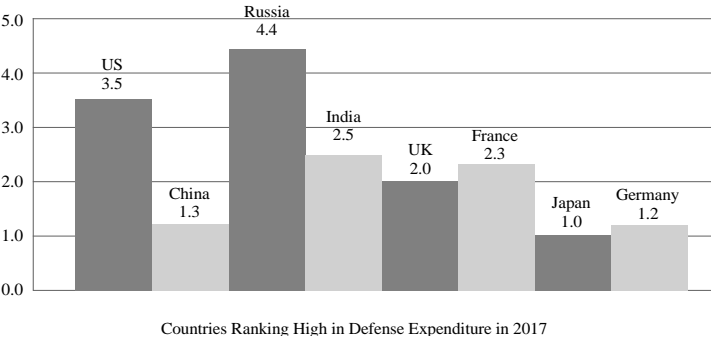
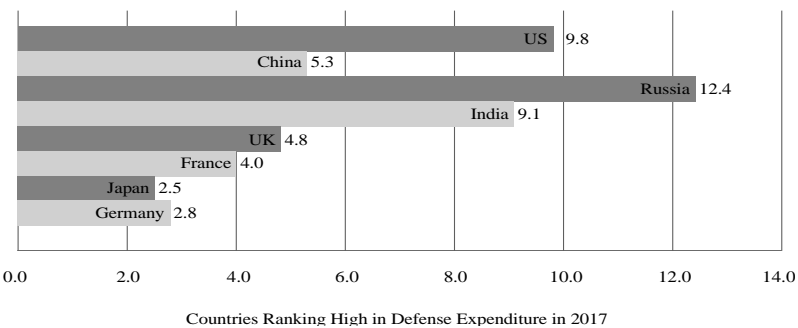


Figure 6 Average Ratio of Defense Expenditure to Government Expenditure by Country (2012-2017) (%)



As a ratio of spending to government expenditure, from 2012 to 2017, China's average defense expenditure was 5.3%. Comparative figures were: the US about 9.8%, Russia 12.4%, India 9.1%, the UK 4.8%, France 4.0%, Japan 2.5%, and Germany 2.8%. China ranks 4th among these countries in terms of defense expenditure as a percentage of government expenditure on average.

China's per capita defense expenditure in 2017 was RMB750 – 5% of the US, 25% of Russia, 231% of India, 13% of the UK, 16% of France, 29% of Japan, and 20% of Germany. China's per-serviceperson defense expenditure was RMB521,600 – 15% of the US, 119% of Russia, 166% of India, 27% of the UK, 38% of France, 35% of Japan, and 30% of Germany. China's defense expenditure ranks 7th and 6th in per capita and per-serviceperson terms respectively among these countries.

# China's 2019 Defense White Paper on Chinese Military Spending - III

China reports and releases its defense expenditure through various mechanisms. Since 1978, the Chinese government has submitted annual budget reports to the National People's Congress and released the total amount of defense budget. In 1995, the Chinese government issued a white paper, *China: Arms Control and Disarmament*, releasing data concerning its defense expenditure to the world. Since 2007, China has joined the *UN Standardized Instrument for Reporting Military Expenditures* and has submitted annually to the UN the basic data on its defense expenditure for the latest fiscal year, reporting total spending as well as personnel expenses, training and sustainment expenses, and equipment expenses for the active force, reserve force and the militia respectively, along with an explanation of the application of China's defense expenditure and its ratio to GDP.

All in all, China's defense expenditure is open and transparent, and its spending is reasonable and appropriate. Compared to other major countries, the ratios of China's defense expenditure to GDP and to government expenditure, as well as the per capita defense expenditure of the country, remain at a relatively low level.

As the only major country yet to be completely reunified, and one of the countries with the most complex peripheral security environment, China faces serious challenges in safeguarding national sovereignty, territorial integrity, and maritime rights and interests. China is moving closer to the center of the world stage, and the international community expects more international public security goods from the Chinese military. In addition, China's armed forces are moving towards informationization and shouldering arduous tasks in following the trends of worldwide RMA and speeding up RMA with Chinese characteristics. There is still a wide gap between China's defense expenditure and the requirements for safeguarding national sovereignty, security and development interests, for fulfilling China's international responsibilities and obligations as a major country, and for China's development. In step with national economic development, defense expenditure of China will maintain a moderate and steady growth.

**Table 2 Breakdown of China's Defense Expenditure (2010-2017)**  
(in RMB billion yuan)

Year	Personnel Expense		Training and Sustainment Expense		Equipment Expense		Total
	Amount	Percentage (%)	Amount	Percentage (%)	Amount	Percentage (%)	
2010	185.931	34.9	170.047	31.9	177.359	33.2	533.337
2011	206.506	34.3	189.943	31.5	206.342	34.2	602.791
2012	195.572	29.2	232.994	34.8	240.626	36.0	669.192
2013	200.231	27.0	269.971	36.4	270.860	36.6	741.062
2014	237.234	28.6	267.982	32.3	323.738	39.1	828.954
2015	281.863	31.0	261.538	28.8	365.383	40.2	908.784
2016	306.001	31.3	266.994	27.4	403.589	41.3	976.584
2017	321.052	30.8	293.350	28.1	428.835	41.1	1043.237

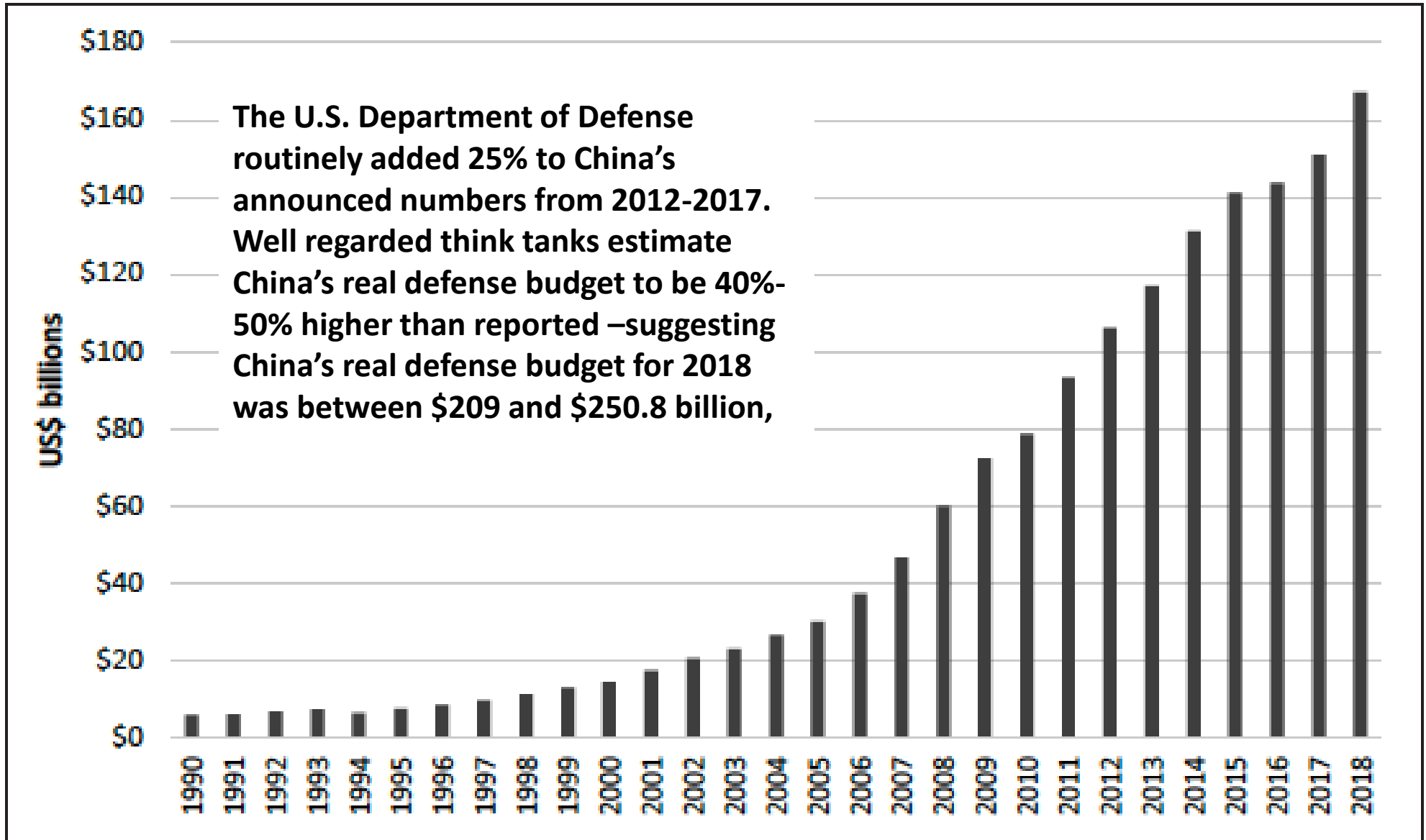
Sources: Data on China's defense expenditure submitted to the UN by the Chinese government

**Table 3 China's Defense Expenditure Since 2012**

Year	GDP (RMB billion)	Total Defense Expenditure (RMB billion)	CPI (Previous Year = 100)	Growth Rate of Government Expenditure (%)	Growth Rate of Defense Expenditure (%)	Defense Expenditure to GDP (%)	Defense Expenditure to Government Expenditure (%)	Real Defense Expenditure Growth Rate (Inflation-adjusted) (%)
2012	54036.74	669.192	102.6	15.29	11.02	1.24	5.31	8.42
2013	59524.44	741.062	102.6	11.32	10.74	1.24	5.29	8.14
2014	64397.4	828.954	102.0	8.25	11.86	1.29	5.46	9.86
2015	68905.21	908.784	101.4	15.87	9.63	1.32	5.17	8.23
2016	74358.55	976.584	102.0	6.75	7.46	1.31	5.20	5.46
2017	82712.17	1043.237	101.6	8.17	6.83	1.26	5.14	5.23

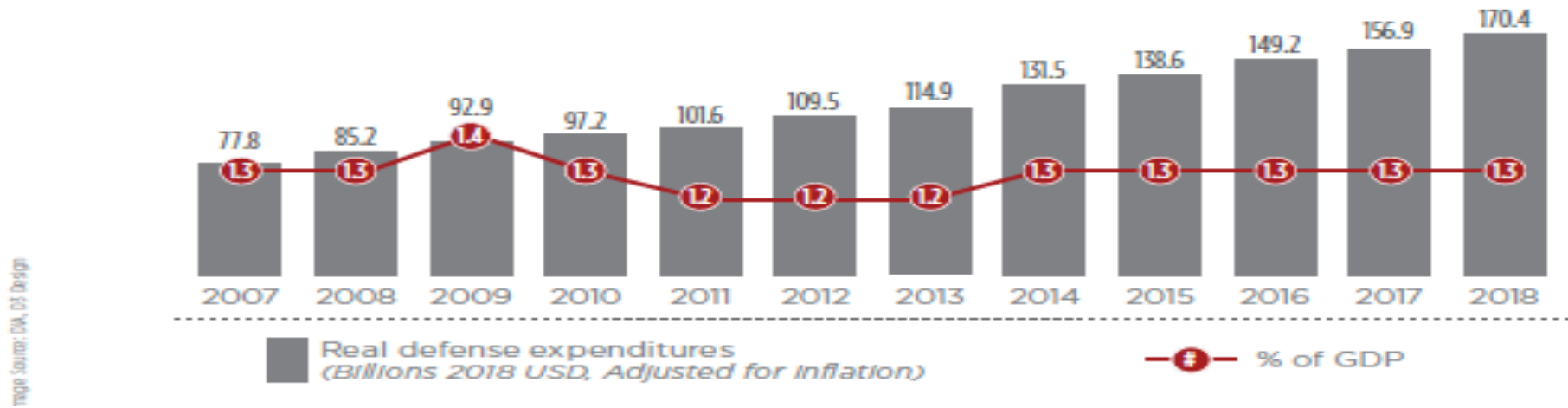


## U.S. Estimate of China's Announced Defense Spending: 1990-2018



# DIA on Chinese Military Spending- 2007-2018

*China's Official Defense Spending 2007-2018 (billions of 2018 dollars)*



China's approach to funding security requirements has been deliberate and substantial. China's military spending increased by an average of 10 percent (inflation adjusted) per year from 2000 to 2016 and has gradually slowed to 5- to 7-percent growth during the past 2 years. The official defense budget has remained at 1.2 to 1.4 percent of gross domestic product for the past decade, allowing for steady, sustainable expenditure growth and qualitative improvements throughout the PLA.

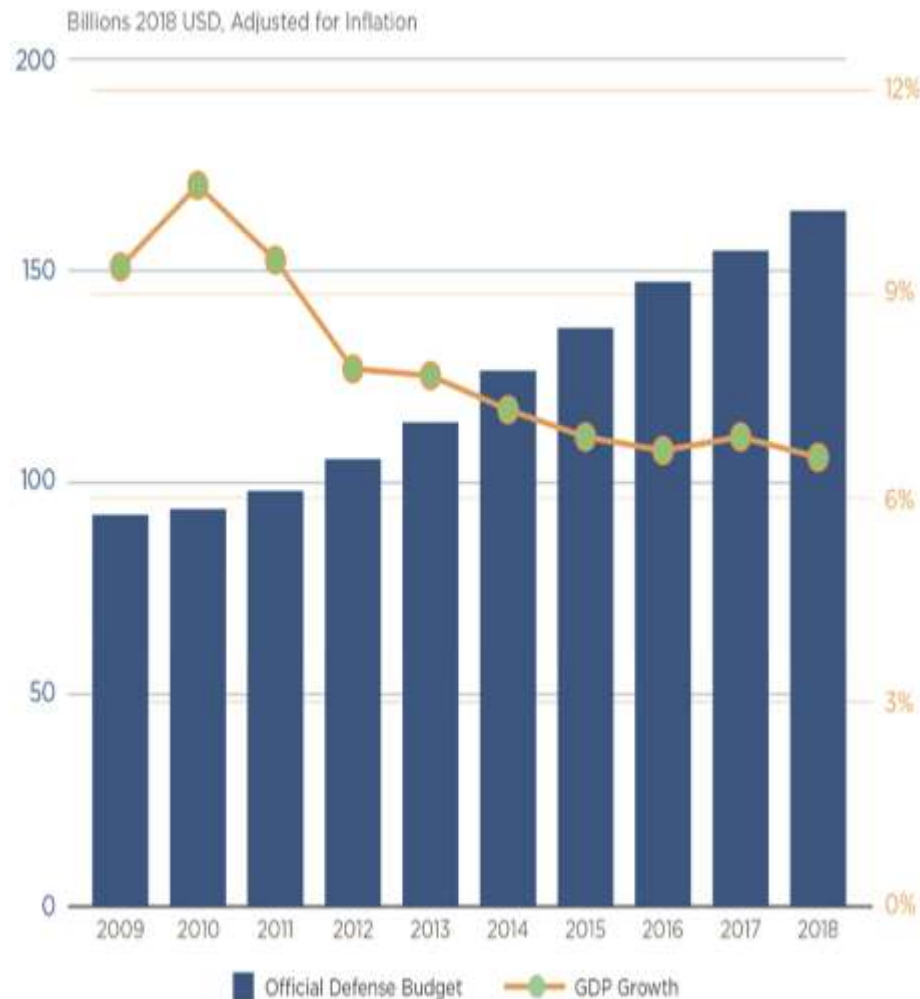
Estimating actual military expenses is difficult because of China's poor accounting transparency and incomplete transition to a market economy. The formal defense budget process does not include funding for foreign weapons procurement, some research and development (R&D), and certain personnel benefits. Other government ministries distribute defense funds in addition to extra budgetary funds that supplement personnel living subsidies, equipment maintenance, and other budgetary items.

However, using 2018 prices and exchange rates as an example, China's total military-related spending for 2018 probably exceeded \$200 billion, a threefold increase since 2002. Such spending has been on the rise since the 1990s, when China formally began to emphasize defense-related programs throughout the course of several "Five-Year Plans."

Although the total dollar value of China's defense budget remains significantly below that of the United States, China has benefited from "latecomer advantage." In other words, China has not had to invest in costly R&D of new technologies to the same degree as the United States. Rather, China has routinely adopted the best and most effective platforms found in foreign militaries through direct purchase, retrofits, or theft of intellectual property. By doing so, China has been able to focus on expediting its military modernization at a small fraction of the original cost.

# OSD on Chinese Military Spending- 2009-2018

## China's Official Defense Budget, 2009-2018



**China's Estimated Military Expenditures.** China's published military budget omits several major categories of expenditures, including R&D and foreign weapons procurement. Actual military-related spending is higher than stated in the official budget, estimated at more than \$200 billion in 2018. It is difficult to calculate actual military expenses, largely because of China's poor accounting transparency.

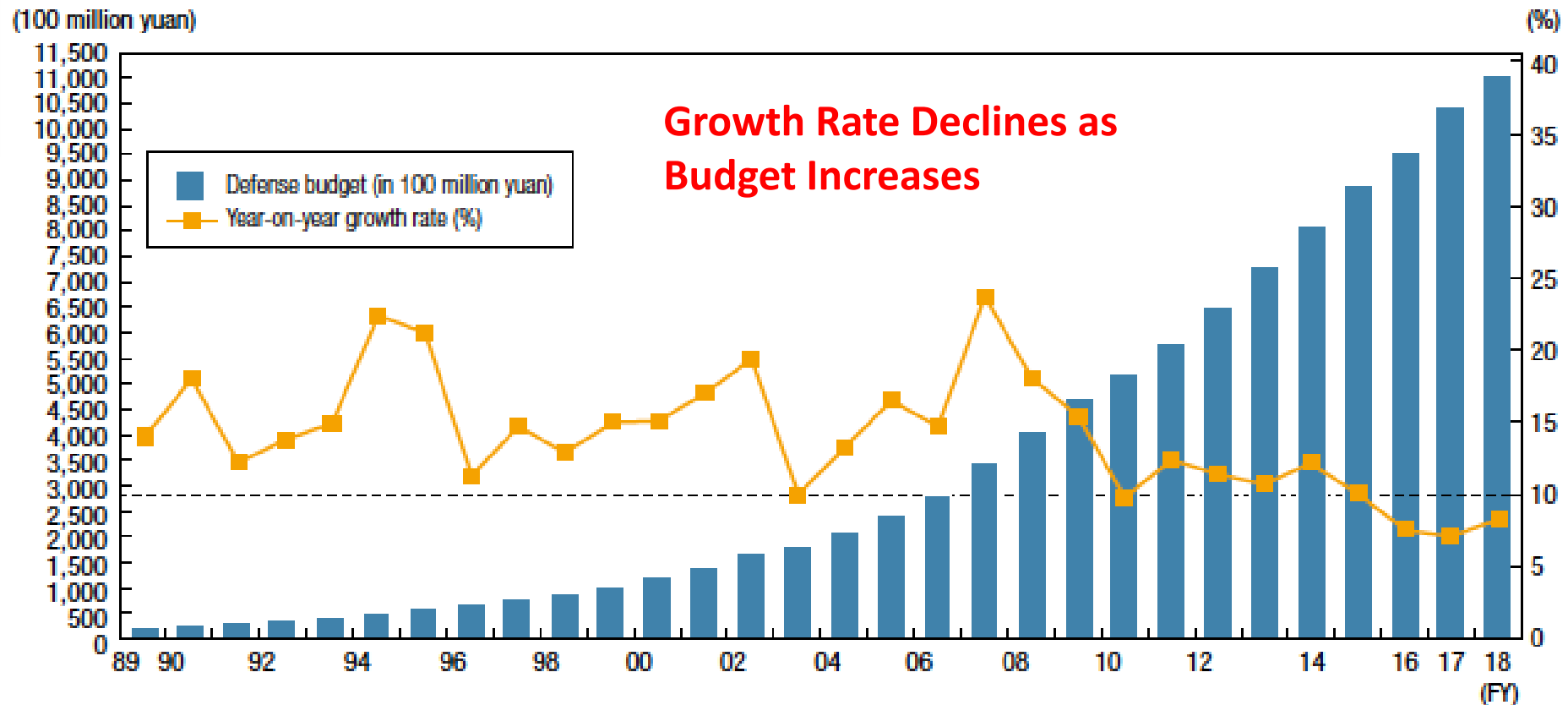
**China's Estimated Defense Budget Growth.** Over the next few years, China's official defense budget will likely increase by an

annual average of 6 percent, growing to \$260 billion by 2022. This will allow the PLA to dedicate more money for training, operations, and modernization following China's 2015 reforms, which reduced the PLA's size by 300,000 personnel. Economic forecasters project that China's economic growth will slow during the next 10 years, falling from 6.6 percent in 2018 to 3 percent in 2030, which could slow future defense spending growth. Assuming accurate economic projections and a steady defense burden, China will remain the largest spender in the Indo-Pacific region besides the United States.

## 2018 Official Defense Budget Comparison (adjusted for inflation to 2018 USD)

	Billion (USD)
China (official budget)	\$170.4
India	\$60.8
Japan	\$47.4
Russia (national defense budget)	\$43.8
South Korea	\$36.6
Taiwan	\$10.6

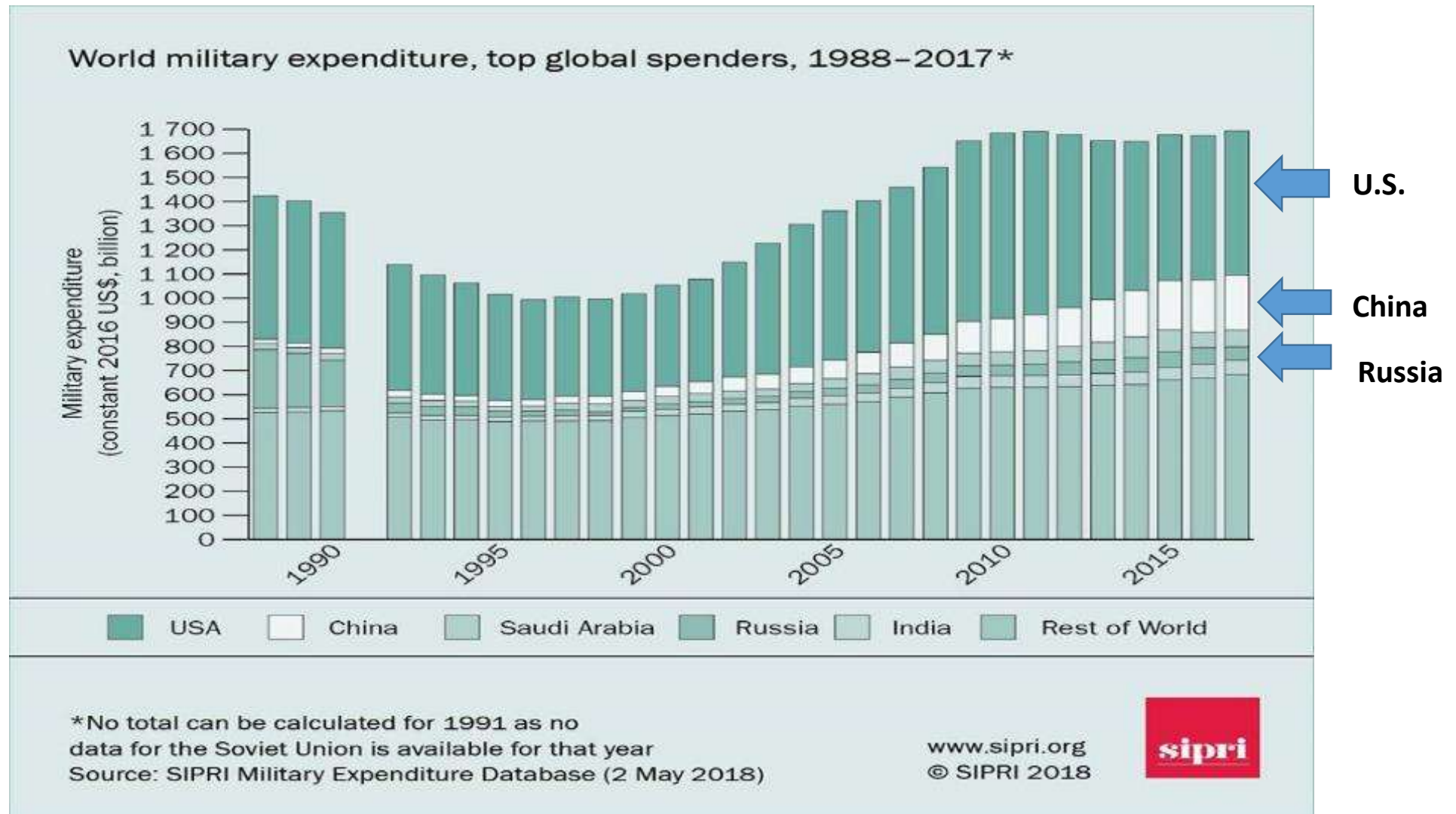
# Japanese Estimate of China's Announced Defense Budget 1989-2018



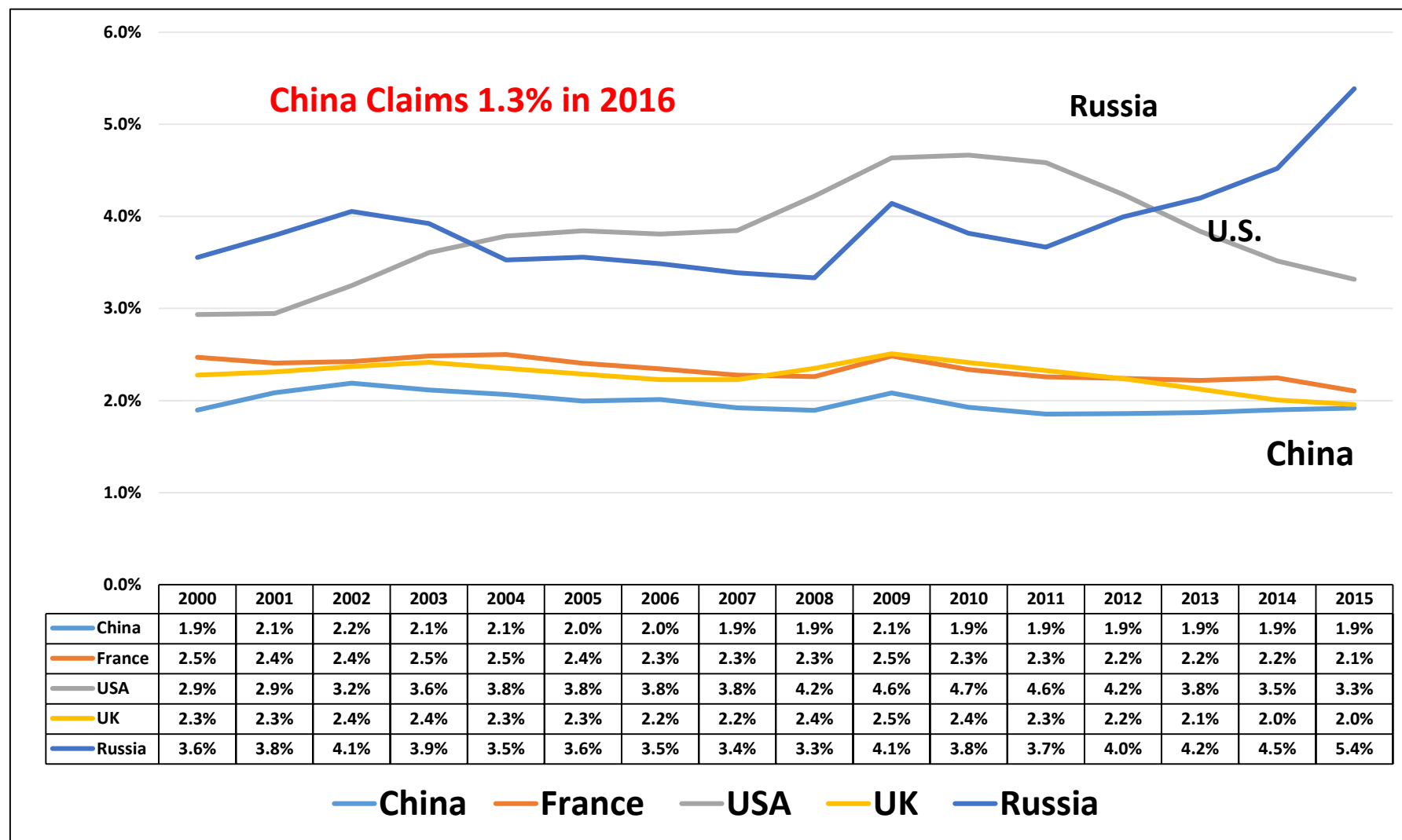
Note: This basically shows the defense budget within "the central government's general public budget," which had been named as "the central fiscal expenditures" prior to FY 2014. Year-on-year growth rate compares the budget of a given year against the budget of the previous year. Note that FY2002 defense budget was calculated based on the increased amount from the defense budget in the previous FY because only the amount and rate of growth were released. For FY 2016 and FY2018, the amount of "the central government expenditures," which are part of the central government's general public budget, are used because only the central government expenditures were announced.

# Military Expenditures by Country: SIPRI 1988-2017

(Current \$US Billions)

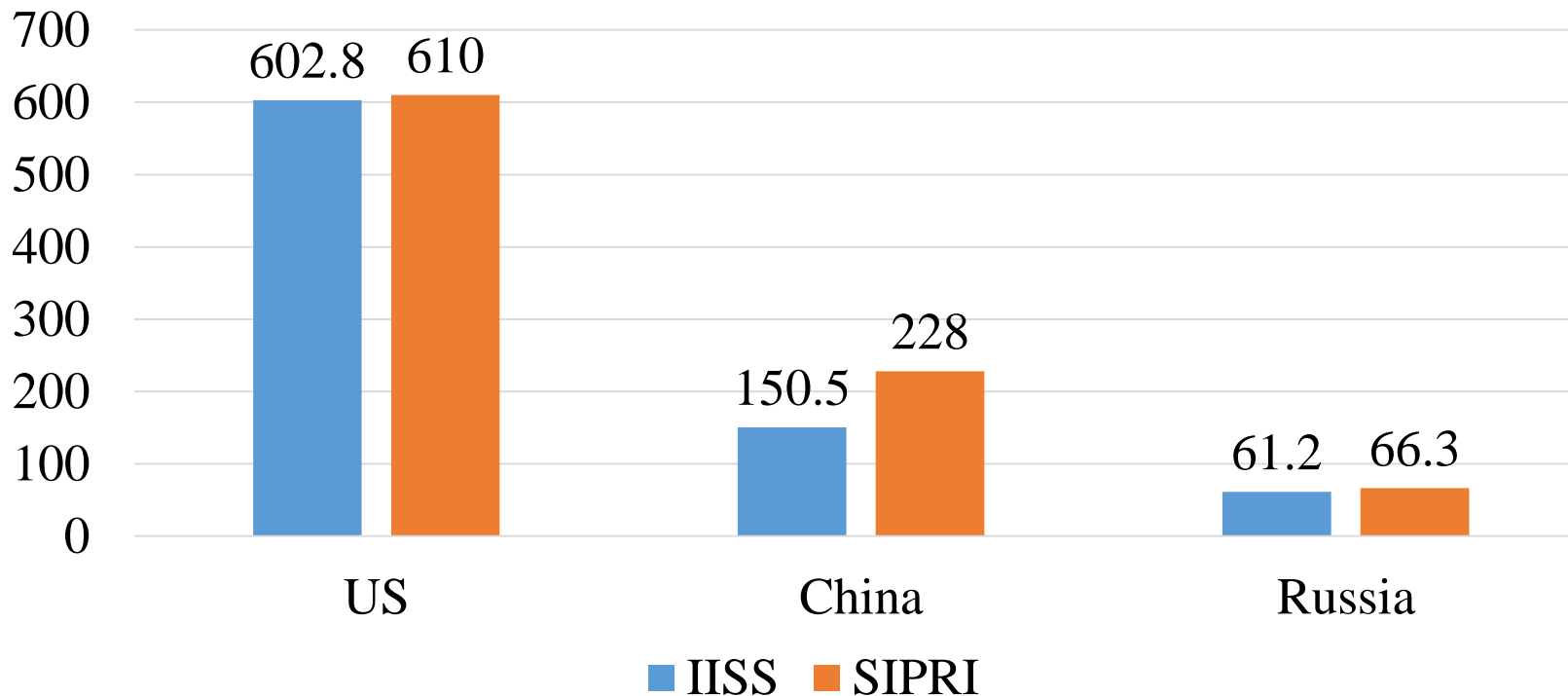


# Military Expenditures as Percent of GDP by UNSC Country: SIPRI 1990-2015



# IISS versus SIPRI Estimates of Military Spending in 2017

(\$USD Current Billions)

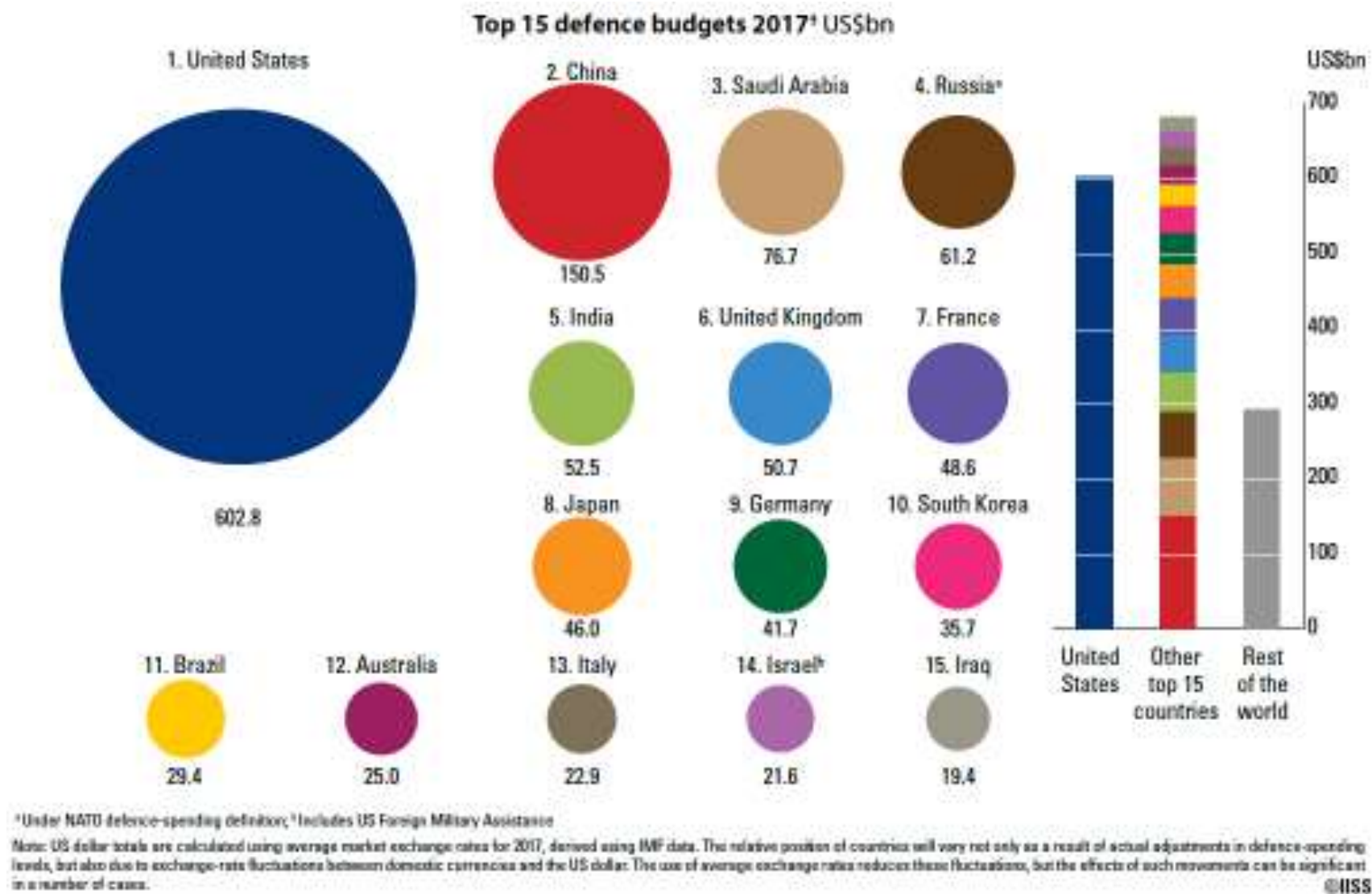


**IISS:** China officially earmarked RMB1.02 trillion(US\$150 billion) in 2017 for defense, although this number is considered to exclude key expenses such as research and development (R&D) and arms imports. This represents a nominal increase of 7.1%compared to 2016, when China allocated RMB955bn (US\$144bn) to defense. The next-largest defense spenders in Asia were India (R3.6trn, or US \$52.5bn) and Japan (¥5.13trn, or US\$46bn).

**SIPRI:** China, the second largest spender globally, increased its military spending by 5.6 percent to \$228 billion in 2017. China's spending as a share of world military expenditure has risen from 5.8 percent in 2008 to 13 percent in 2017. India spent \$63.9 billion on its military in 2017, an increase of 5.5 percent compared with 2016, while South Korea's spending, at \$39.2 billion, rose by 1.7 percent between 2016 and 2017.



# IISS Top Fifteen Military Budgets: 2017



# SIPRI Top Fifteen Global Military Budgets: 2017

Countries with highest military expenditure  
In current 2017 US\$ billion



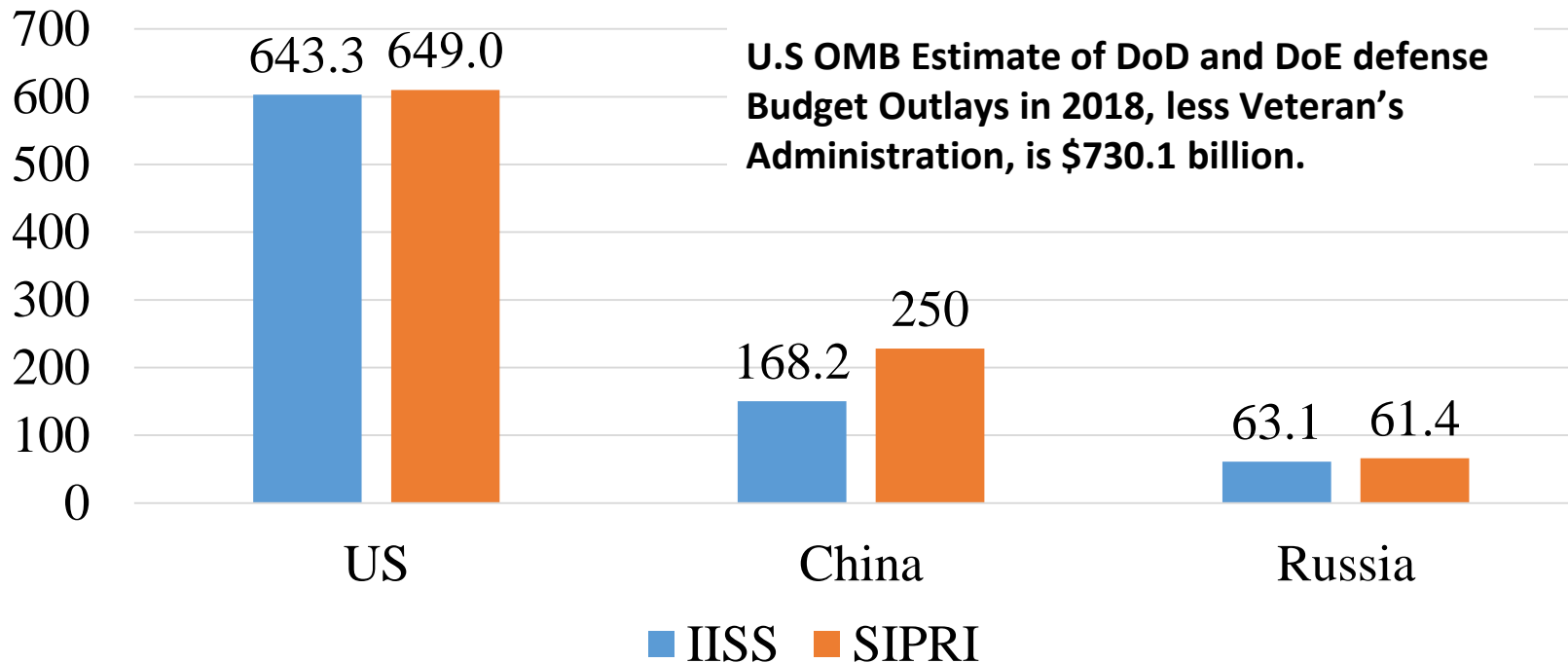
Source: SIPRI Military Expenditure Database

[www.sipri.org](http://www.sipri.org)  
© SIPRI 2018



# IISS versus SIPRI Estimates of Military Spending in 2018

(\$USD Current Billions)

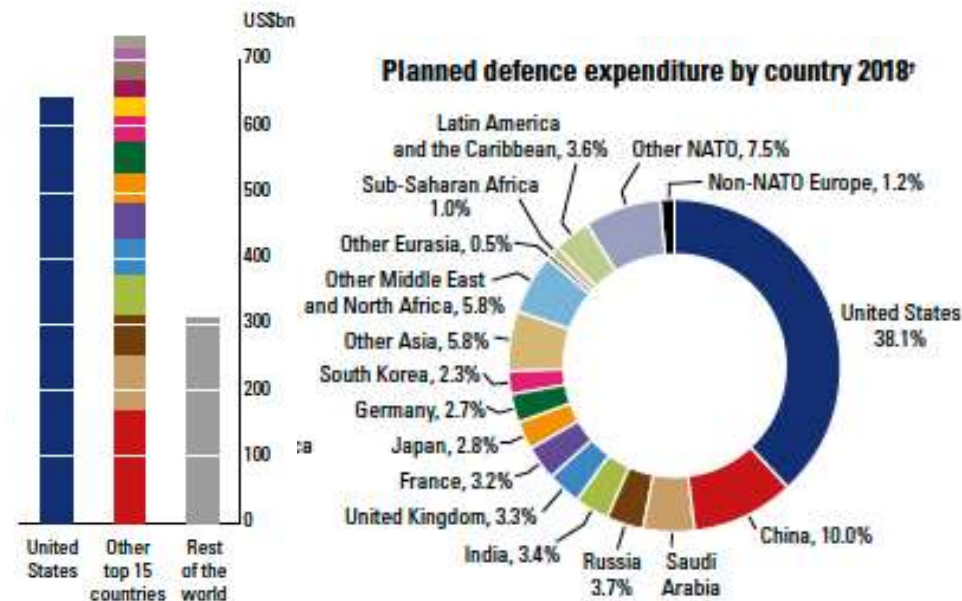
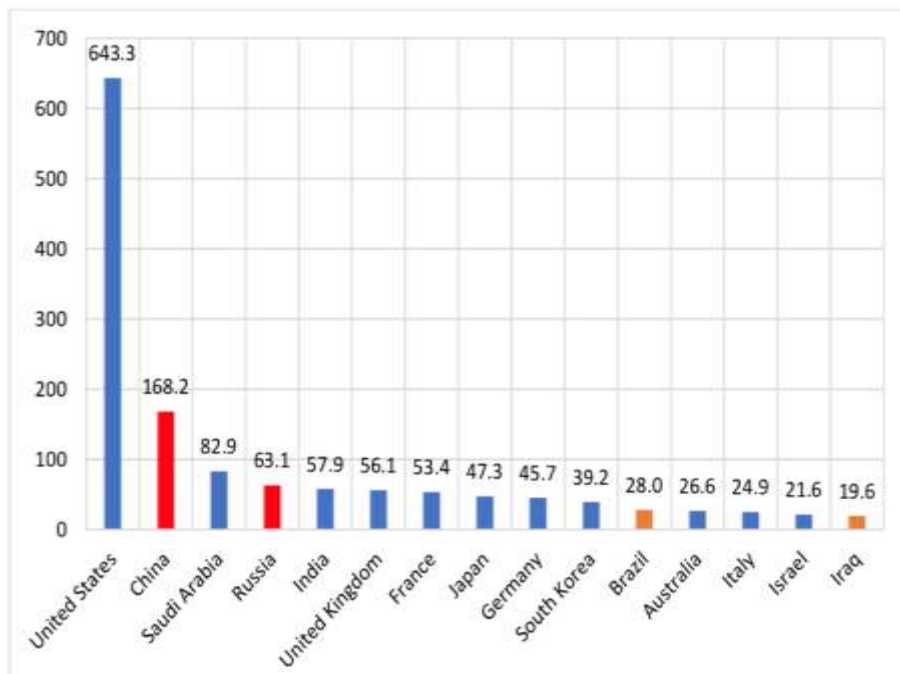


**IISS:** Asian defense spending continues to increase. It grew by 4.0% in real terms between 2017 and 2018, picking up speed after a year of slower growth; the rate had been 2.8% between 2016 and 2017. Some of the region's top spenders drove the increase. In real terms, Australia's defense budget grew by 8.4%, China's by 5.7% and South Korea's by 4.5%.

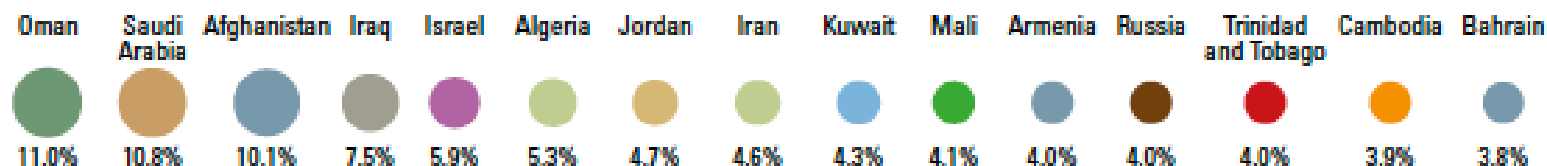
**SIPRI:** China, the second-largest spender in the world, increased its military expenditure by 5.0 percent to \$250 billion in 2018. This was the 24th consecutive year of increase in Chinese military expenditure. Its spending in 2018 was almost 10 times higher than in 1994, and accounted for 14 percent of world military spending. 'Growth in Chinese military spending tracks the country's overall economic growth,' says Tian. 'China has allocated 1.9 percent of its GDP to the military every year since 2013.'

# IISS Estimate of U.S., Chinese, and Top Military Budgets: 2018

Top 15 defence budgets 2018\* US\$bn

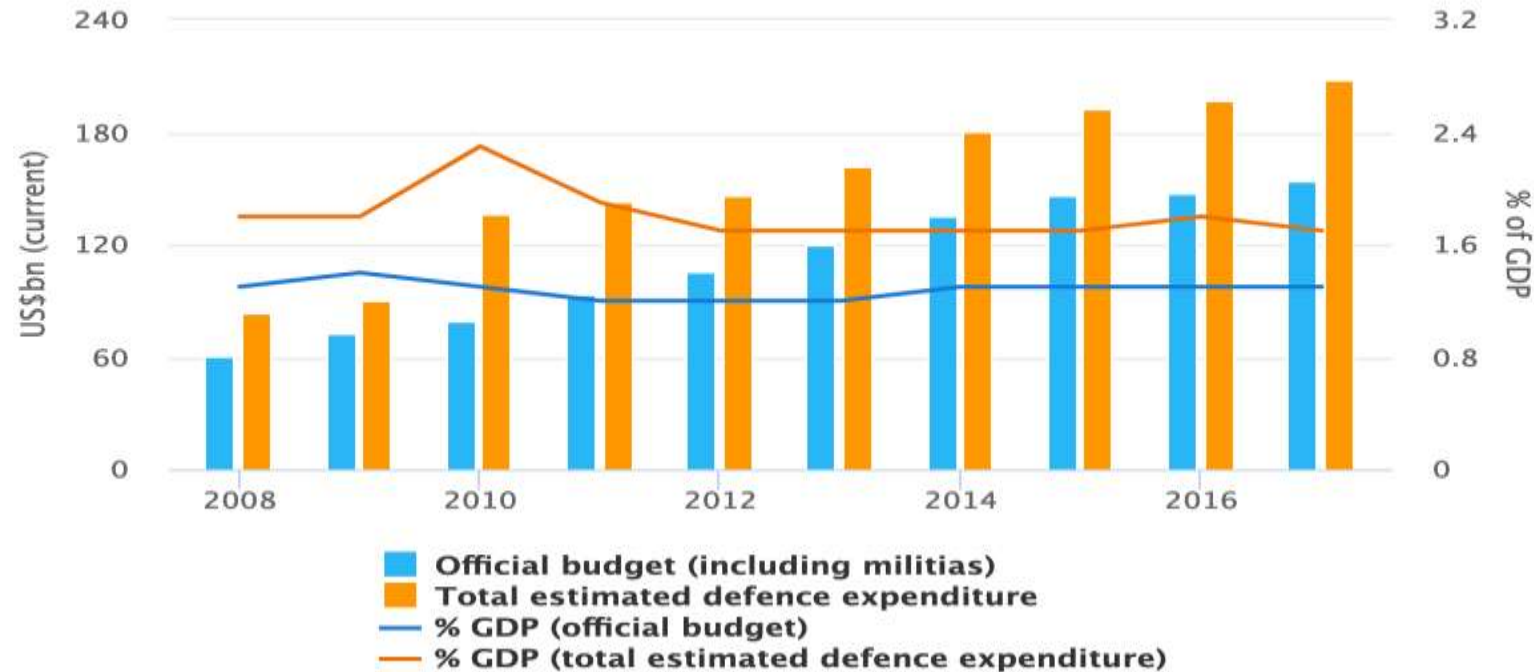


2018 top 15 defence and security budgets as a % of GDP\*



# IISS Estimate of Possible Real Total Cost of Chinese Budget - I

**Figure 1. China: official defence budget versus total estimated defence expenditure, 2010–17 (US\$bn, current)**



Sources: IISS Military Balance+

The IISS estimates China's total military outlays to have amounted to RMB1.41 trillion (US\$209 billion) in 2017. This includes the central and local defence budget, foreign weapon purchases, estimates of defence research and development (R&D), and the central People's Armed Police budget. Taking these additional budget items into account, Chinese defence spending over the past decade appears to be around 1.7–1.8% of GDP rather than the official 1.2–1.3%. This represents an additional 35% of military outlays on top of the official number.



# IISS Estimate of Possible Real Total Cost of Chinese Budget - II

As in previous white papers, the categories of spending include 'personnel', 'training and sustainment' (formerly called 'operations') and equipment. The latter category includes R&D, testing, procurement, repairs, maintenance, transport and the storage of weaponry and equipment. Appendices attached to the white paper include a detailed table and show the growth of the equipment category in particular, from 31.9% of the budget in 2010 to 41.1% in 2017. This is consistent with the observed pace of the People's Liberation Army's (PLA's) equipment-modernisation programme over the past decade. The proportion allocated to equipment and R&D is now similar to Russia's spending levels for similar categories of expenses.

Table 1. China's defence expenditure, 2010–17 (US\$bn)

Year	Personnel Expense		Training and Sustainment Expense		Equipment Expense		Total
	Amount (US\$bn)	Percentage	Amount (US\$bn)	Percentage	Amount (US\$bn)	Percentage	
2010	27.5	34.9	25.1	31.9	26.2	33.2	78.8
2011	32.0	34.3	29.4	31.5	31.9	34.2	93.3
2012	31.0	29.2	36.9	34.8	38.1	36	106.0
2013	32.3	27	43.6	36.4	43.7	36.6	119.6
2014	38.6	28.6	43.6	32.3	52.7	39.1	134.9
2015	45.3	31	42.0	28.8	58.7	40.2	145.9
2016	46.1	31.3	40.2	27.4	60.7	41.3	147.0
2017	47.5	30.8	43.4	28.1	63.4	41.1	154.4

Source: China's 2019 Defence White Paper

These category totals differ slightly from the Ministry of Finance's budget reports, which account for central government expenditure, but do match the government's statistical yearbook figures (Section 7.3) for the total of central and local government funding. This discrepancy is explained by taking into account China's latest submission to the United Nations military-expenditure reporting tool, for the year 2017. This reveals that the difference between the total of RMB1043trn (US\$154bn) reported in the white paper and statistical yearbook, and the RMB1023trn (US\$151bn) figure from the Ministry of Finance budget reports is due to the inclusion of the 'militia and others' category.

Table 2. People's Republic of China military expenditure: submission to the United Nations, 2017 (US\$bn)

Category	Active forces	Reserve forces	Militia and others	Total	
				Amount (US\$bn)	Percentage
Personnel	47.0	0.5	0.0	47.5	30.8
Training and maintenance	39.7	0.7	3.0	43.4	28.1
Equipment	62.8	0.6	0.0	63.4	41.1
Total	149.5	1.8	3.0	154.4	100

Source: China's 2017 submission to the United Nations military expenditure reporting tool

In addition, other observers have reported that the official budget also excludes the costs of building indigenous aircraft carriers and the PLA's 70th anniversary military parade. If true, this information would push total defence expenditure even further up.

# SIPRI Estimate of U.S., Chinese, and Top Military Budgets: 2018

Note: IISS estimate  
for China is \$168.2B,  
SIPRI Estimate is  
\$250B – 49% higher)

Source: nan tian, aude fleurant,  
alexandra kuimova, pieter d.  
wezeman and siemon t.  
wezeman,  
TRENDS IN WORLD MILITARY  
EXPENDITURE, 2018, SIPRI Fact  
Sheet, April 2019  
<https://www.sipri.org/publications/2019/sipri-fact-sheets/trends-world-military-expenditure-2018>.

Rank		Country	Spending (\$ b.), 2018	Change (%), 2009–18	Spending as a share of GDP (%) <sup>b</sup>		World share (%), 2018
2018	2017 <sup>a</sup>				2018	2009	
1	1	United States	649	–17	3.2	4.6	36
2	2	China	[250]	83	[1.9]	[2.1]	[14]
3	3	Saudi Arabia	[67.6]	28	[8.8]	9.6	[3.7]
4	5	India	66.5	29	2.4	2.9	3.7
5	6	France	63.8	1.6	2.3	2.5	3.5
<b>Subtotal top 5</b>			<b>1 097</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>60</b>
6	4	Russia	61.4	27	3.9	3.9	3.4
7	7	United Kingdom	50.0	–17	1.8	2.4	2.7
8	9	Germany	49.5	9.0	1.2	1.4	2.7
9	8	Japan	46.6	2.3	0.9	1.0	2.6
10	10	South Korea	43.1	28	2.6	2.7	2.4
<b>Subtotal top 10</b>			<b>1 347</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>74</b>
11	13	Italy	27.8	–14	1.3	1.6	1.5
12	11	Brazil	27.8	17	1.5	1.5	1.5
13	12	Australia	26.7	21	1.9	1.9	1.5
14	14	Canada	21.6	12	1.3	1.4	1.2
15	15	Turkey	19.0	65	2.5	2.5	1.0
<b>Subtotal top 15</b>			<b>1 470</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>81</b>
16	16	Spain	18.2	–5.2	1.3	1.3	1.0
17	17	Israel	15.9	–5.8	4.3	6.8	0.9
18	18	Iran	13.2	–10	2.7	3.2	0.7
19	24	Poland	11.6	48	2.0	1.8	0.6
20	19	Pakistan	11.4	73	4.0	3.3	0.6
21	25	Netherlands	11.2	–4.4	1.2	1.4	0.6
22	21	Singapore	10.8	13	3.1	3.9	0.6
23	20	Taiwan	10.7	–2.9	1.8	2.3	0.6
24	23	Colombia	10.6	15	3.2	3.9	0.6
25	22	Algeria	9.6	85	5.3	3.8	0.5
26	26	Indonesia	7.4	99	0.7	0.6	0.4
27	29	Kuwait	7.3	39	5.1	4.0	0.4
28	30	Norway	7.1	23	1.6	1.6	0.4
29	31	Thailand	6.8	16	1.3	1.8	0.4
30	28	Oman	[6.7]	69	[8.2]	[7.0]	[0.4]
31	32	Mexico	6.6	36	0.5	0.5	0.4
32	27	Iraq	6.3	58	2.7	2.9	0.3
33	33	Sweden	5.8	18	1.0	1.2	0.3
34	35	Chile	5.6	25	1.9	2.3	0.3
35	37	Viet Nam	5.5	76	2.3	2.3	0.3
36	36	Greece	5.2	–46	2.4	3.2	0.3
37	39	Belgium	5.0	–12	0.9	1.2	0.3
38	38	Switzerland	4.8	6.3	0.7	0.7	0.3
39	43	Ukraine	4.8	69	3.8	[2.8]	0.3
40	46	Romania	4.6	112	1.9	1.3	0.3
<b>Subtotal top 40</b>			<b>1 683</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>93</b>
<b>World</b>			<b>1 822</b>	<b>5.4</b>	<b>2.1</b>	<b>2.6</b>	<b>100</b>



# OSD on Chinese Comparable Military Spending in 2019

## China's Estimated Military Expenditures.

China's published military budget omits several major categories of expenditures, including R&D and foreign weapons procurement. **Actual military-related spending is higher than stated in the official budget, estimated at more than \$200 billion in 2018.** It is difficult to calculate actual military expenses, largely because of China's poor accounting transparency.

**China's Estimated Defense Budget Growth.** Over the next few years, **China's official defense budget will likely increase by an annual average of 6 percent, growing to \$260 billion by 2022.** This will allow the PLA to dedicate more money for training, operations, and modernization following China's 2015 reforms, which reduced the PLA's size by 300,000 personnel.

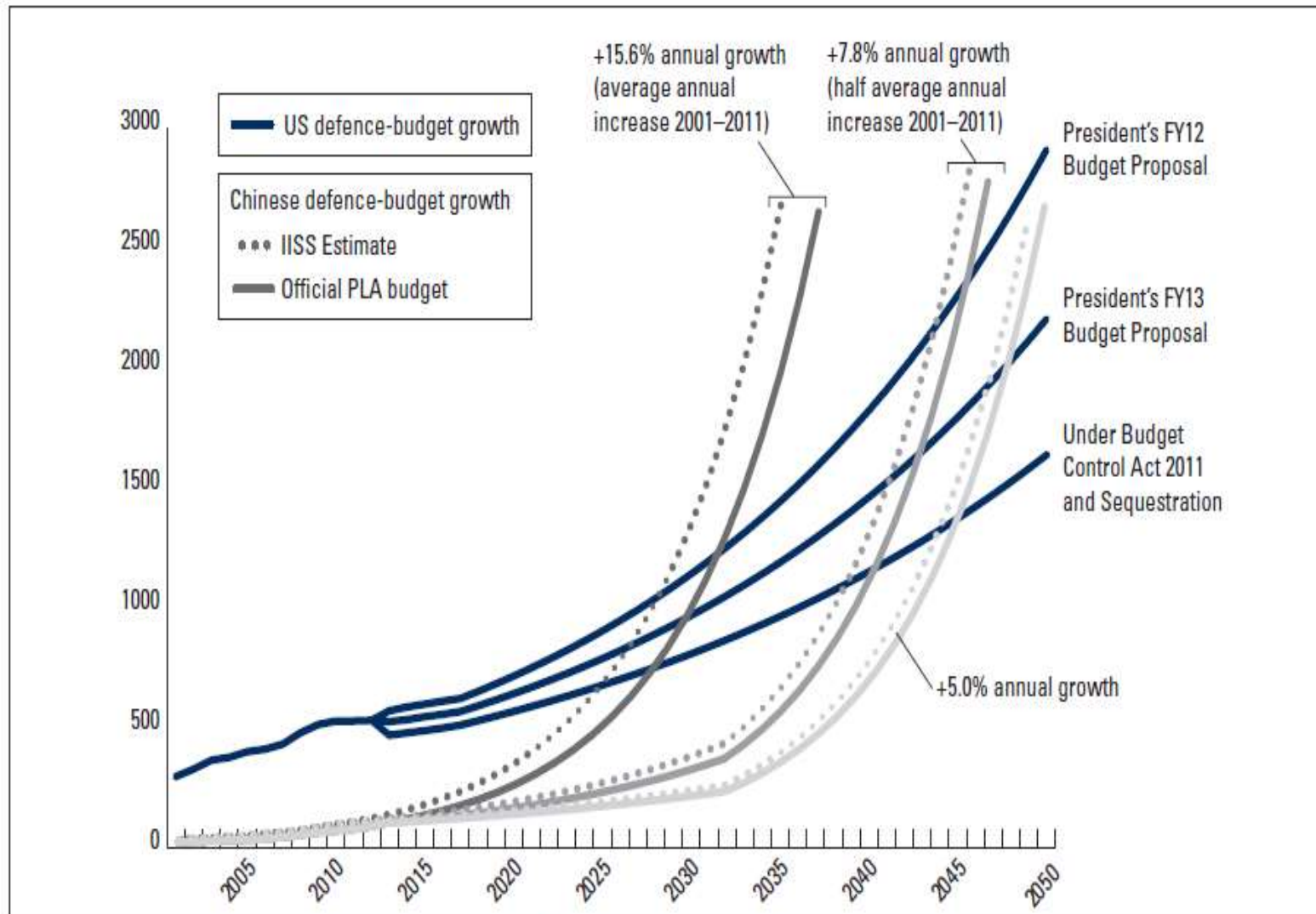
Economic forecasters project that China's economic growth will slow during the next 10 years, falling from 6.6 percent in 2018 to 3 percent in 2030, which could slow future defense spending growth. Assuming accurate economic projections and a steady defense burden, China will remain the largest spender in the Indo-Pacific region besides the United States

## 2018 Official Defense Budget Comparison as Publicly Stated by Countries Listed (adjusted for inflation to 2018 USD)

	Billion (USD)
China (official budget)	\$170.4
India	\$60.8
Japan	\$47.4
Russia (national defense budget)	\$43.8
South Korea	\$36.6
Taiwan	\$10.6

- **NATO reports \$672.3 billion in U.S. spending in 2018. DoD reports \$730.1 billion in U.S. Outlays for DoD and DoE**
- **NATO Reports \$276.0 billion in NATO European spending**

# China versus U.S.: Convergence in Military Spending — IISS vs. OSD Guesstimate



China-United States Defence Expenditure Convergence 2001-2050

OSD expects China's defense budget to increase by an annual average of 7 percent... Growing to \$260 billion by 2020 for a force that, although expanding, is expected over the near-term to remain primarily regional.

As of March 2016, the DoD Comptroller forecasted that U.S. defense budget outlays will reach \$606 billion in current dollars over the same period for a force with a global footprint.

# China's Rising Military Technology and Industrial Base

# China 2019 Defense White Paper on Technology and Industrial Base - I

Major countries around the world are readjusting their security and military strategies and military organizational structures. They are developing new types of combat forces to seize the strategic commanding heights in military competition. The US is engaging in technological and institutional innovation in pursuit of absolute military superiority. Russia is advancing its New Look military reform. Meanwhile, the UK, France, Germany, Japan and India are rebalancing and optimizing the structure of their military forces.

Driven by the new round of technological and industrial revolution, the application of cutting-edge technologies such as artificial intelligence (AI), quantum information, big data, cloud computing and the Internet of Things is gathering pace in the military field. International military competition is undergoing historic changes. New and high-tech military technologies based on IT are developing rapidly. There is a prevailing trend to develop long-range precision, intelligent, stealthy or unmanned weaponry and equipment. War is evolving in form towards informationized warfare, and intelligent warfare is on the horizon.

Great progress has been made in the Revolution in Military Affairs (RMA) with Chinese characteristics. However, the People's Liberation Army (PLA) has yet to complete the task of mechanization, and is in urgent need of improving its informationization. China's military security is confronted by risks from technology surprise and growing technological generation gap. Greater efforts have to be invested in military modernization to meet national security demands. The PLA still lags far behind the world's leading militaries.

...Efforts will be made to advance the integrated development of mechanization and informationization, speed up the development of intelligent military, create a modernized military force structure with Chinese characteristics, improve and develop socialist military institutions with Chinese features, and constantly enhance the capabilities to fulfill the missions and tasks in the new era...The strategic goals for the development of China's national defense and military in the new era are:

- to generally achieve mechanization by the year 2020 with significantly enhanced informationization and greatly improved strategic capabilities;
- to comprehensively advance the modernization of military theory, organizational structure, military personnel, and weaponry and equipment in step with the modernization of the country and basically complete the modernization of national defense and the military by 2035; and
- to fully transform the people's armed forces into world-class forces by the mid-21st century.

...Outer space is a critical domain in international strategic competition. Outer space security provides strategic assurance for national and social development. In the interest of the peaceful use of outer space, China actively participates in international space cooperation, develops relevant technologies and capabilities, advances holistic management of space-based information resources, strengthens space situation awareness, safeguards space assets, and enhances the capacity to safely enter, exit and openly use outer space.

# China 2019 Defense White Paper on Technology and Industrial Base - II

Cyberspace is a key area for national security, economic growth and social development. Cyber security remains a global challenge and poses a severe threat to China. China's armed forces accelerate the building of their cyberspace capabilities, develop cyber security and defense means, and build cyber defense capabilities consistent with China's international standing and its status as a major cyber country. They reinforce national cyber border defense, and promptly detect and counter network intrusions. They safeguard information and cyber security, and resolutely maintain national cyber sovereignty, information security and social stability.

*...Promoting innovation in defense S&T and military theory.* China's armed forces are accelerating the implementation of the strategy to develop the military through S&T in a bid to maintain and enhance the strength of the areas where they lead, and intensify innovation in emerging areas. They have made great progress in independent innovation in some strategic, cutting-edge and disruptive technologies, and succeeded in developing strategic hi-tech products such as the Tianhe-2 supercomputer. Focusing on war and fighting wars, China's armed forces have innovated in military doctrines and delivered outcomes in military strategy, joint operations and informationization, which have provided a theoretical support to defense and military development.

*Establishing a modernized weaponry and equipment system.* China's armed forces are optimizing the overall composition of weaponry and equipment, coordinating the efforts of all services and arms in this regard, promoting the balanced development of main battle equipment, information systems, and support equipment, with a view to comprehensively raising standardization, serial development and interoperability. Old equipment is being phased out, and a system created that mainly comprises new and high-tech weaponry and equipment. Type 15 tanks, type 052D destroyers, J-20 fighters, and DF-26 intermediate and long-range ballistic missiles have been commissioned.

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# OSD on Chinese Civil-Military Integration

## Key Takeaways

- In recent years, China's leaders have elevated CMI to a national strategy focused on aligning civil and defense technology development to achieve greater efficiency, innovation, and growth.
- China wants the successes of CMI to support completing military modernization by 2035 and developing a “world-class” military by 2049.

After existing in various forms since the beginning of the PRC, CMI, also known as military-civil fusion, became a military hardware modernization strategy in the 1990s, evolving as China moved from primarily acquiring foreign defense technologies to modernizing its industrial base and developing domestic defense technologies. In 2015, President Xi elevated CMI to a national strategy focused on aligning civil and defense technology development to achieve greater efficiency, innovation, and growth.

President Xi called on CMI to support the “basic” completion of PLA modernization by 2035 and the status of China as a “world-class” military power by mid-century. China incentivized the civilian sector to enter the defense market through tax incentives and other financial subsidies, and set up a procurement website to enable public bids on defense contracts. Ineffective top-level coordination, corruption, and lack of understanding on how to implement CMI slowed progress.

In 2017, China established a central committee for CMI development to centralize government control and oversight of CMI and to break down organizational barriers to implementation. The committee has issued guidance on public outsourcing of defense contracts and regulations to align technology standards in order to improve cooperation on joint projects. The committee has also promoted increased innovation in defense technology development with plans for provincial-level CMI demonstration zones where participants experiment with methods of decreasing organizational impediments and practicing innovation.

While chairing the third meeting of the committee in 2018, President Xi called for more focused reforms of weapons procurement systems and other CMI efforts to generate breakthroughs in 2018. The national CMI strategy goes beyond hardware modernization to include initiatives in the education, personnel, investment, infrastructure, and logistics sectors. The PLA is downsizing the number of uniformed defense industry personnel and integrating civilian personnel into military research, training, and operations. The national CMI strategy also emphasizes harnessing emerging dual-use technologies such as AI, machine learning, big data, and unmanned systems to facilitate what PLA writings refer to as “intelligentized” warfare, or using multiple data streams and information flows to enable PLA operations.



# OSD on China's Rising Military Technology and Industrial Base - I

China's investment in technology and its manufacturing base—coupled to its rising military expenditures, sophisticated technology espionage activities, and imports of high technology weapons—, have radically improved its military technology and industrial base as well. Assessments differ over such assessments and China consistently denies that it undertakes such espionage activities, but the U.S. Office of the Secretary of Defense (OSD) reported to Congress in 2019 that China was still carrying out major such espionage activities in the United States and had made major advances in its efforts to achieve parity with the U.S., Russia, and Europe.

## DEVELOPMENTS AND TRENDS IN CHINA'S DEFENSE INDUSTRY

### Key Takeaways

- > China's defense-industrial complex continues to adapt and reorganize to improve weapon system research, development, acquisition, test, evaluation, and production.
- > China has realigned its S&T decision-making apparatus by establishing two advisory groups that promote a strategic approach to military modernization and enhance collaboration.

**Defense Sector Reform.** China's defense-industrial complex continues to adapt and reorganize to improve weapon system research, development, acquisition, test, evaluation, and production (RDATL&P). Inherent to this effort is a realignment of China's S&T decision-making apparatus and the establishment of two advisory groups at the highest levels of government. One group is focused on promoting a strategic approach to military modernization, and the other encourages innovation through a doctrine of increased collaboration between China's military- and state-owned (defense) industrial sector and its private and commercial industrial enterprises. During the past four years, the CMC and the State Council implemented organizational and policy changes to advance the PLA's defense research and increase its

capacity for innovation through market sector cooperation.

- > One of the most influential reforms to help improve RDATL&P occurred in 2015 with the establishment of the Strategic Committee of Science, Technology, and Industry Development for National Defense, a high-level advisory group chaired by the State Administration for Science, Technology, and Industry for National Defense. The committee, comprising military and civilian industrial, government, and technical leaders and experts, advises China's military and defense-industrial leaders on military modernization issues and on opportunities to develop emerging technologies.
- > The CMC, in 2016, established the S&T Commission, a high-level defense research body, as an independent organization under the high command. It also emphasized Civil-Military Integration (CMI), a phrase used in part to refer to the defense and commercial industrial sectors sharing or combining resources to develop dual-use technologies, policies, and organizations for mutual benefit but with a particular emphasis on assimilating private sector innovation into the defense industrial base. The 2017 establishment of a Central Commission for Integrated Military and Civilian Development, responsible for overseeing CMI efforts, underscores the importance China assigns to this initiative.

> In early 2017, the PLA set up a Scientific Research Steering Committee, which falls directly under the CMC, consisting of scientists and engineers that have experience with cutting-edge technologies. Along with the CMC S&T Commission, the committee will spearhead S&T innovation by advising the CMC on early-stage research projects.

> In July 2017, China reorganized the three top PLA academic institutes – the PLA Academy of Military Science (AMS), the National Defense University, and the National University of Defense Technology – as part of its PLA reform initiative. With the new structure, the AMS will focus on scientific research related to military affairs, facilitating closer ties between military theory and S&T development.

In 2016, China adopted its 13th Five-Year Plan (2016–2020) which, among other things, sets focus areas for R&D and innovation. Many of the focus areas featured have defense implications, such as aerospace engines – including turbofan technology – and gas turbines; quantum communications and computing; innovative electronics and software; automation and robotics; special materials and applications; nanotechnology; neuroscience, neural research, and AI; and deep space exploration and on-orbit servicing and maintenance systems. China also is concentrating substantial R&D resources on nuclear fusion, hypersonic technology, and the

deployment and hardening of an expanding constellation of multipurpose satellites.

Two of the most influential proponents in promoting and enforcing China's RDATL&P, S&T, and CMI initiatives are the State Administration for Science, Technology and Industry for National Defense and the CMC's Equipment Development Department (EDD), which work together to monitor and guide the state and military sides of China's defense-industrial apparatus, respectively. The EDD and its military service counterparts cooperate with China's 10 state-owned defense industrial corporations through a network of military representative bureaus and offices to supervise quality control and defense contract compliance. In 2018, the United States announced sanctions against the EDD related to purchases of military equipment from Russia and imposed pursuant to the Countering America's Adversaries Through Sanctions Act (CAATSA).

The National Science Foundation of China (NSFC), the China Academy of Sciences (CAS), and the Ministry of Science and Technology (MOST) are key to S&T decision-making, funding and promoting basic and applied research, scientific innovation, and high-tech integration throughout China's scientific, engineering, and civil-military industrial complex. CAS, working closely with NSFC, is the highest academic institution for comprehensive R&D in the natural and applied sciences in China and reports directly to the State Council in an advisory capacity,



# OSD on China's Rising Military Technology and Industrial Base - II

## MILITARY EQUIPMENT MODERNIZATION TRENDS

### Key Takeaways

- > Many of China's missile programs are comparable to other top-tier producers, and China can use aspects of the S-400 SAM system it began receiving from Russia in 2018 to reverse-engineer capabilities it lacks.
- > China is the top ship-producing nation in the world by tonnage, with the capability to domestically produce naval gas turbine and diesel engines as well as shipboard weapons and electronic systems, making it nearly self-sufficient for all shipbuilding components.

**Missile and Space Industry.** Most of China's missile programs, including its ballistic and cruise missile systems, are comparable in quality to other international top-tier producers. China produces a wide range of ballistic, cruise, air-to-air, and surface-to-air missiles (SAMs) for the PLA and for export, which has enhanced its primary assembly and solid propellant rocket motor production facilities.

China received the first S-400 SAM system it purchased from Russia in April 2018. China can use aspects of the S-400 to reverse-engineer capabilities it lacks. China's space industry is rapidly expanding its ISR, navigation, and communication satellite constellations and making substantial strides in space lift capabilities, human spaceflight, and lunar exploration programs. China is looking to expand its space launch vehicle industry to support commercial launches and make rapid satellite launch services available to foreign customers. China is planning to launch, assemble in-orbit, and operate a crewed Chinese space station before 2025.

**Naval and Shipbuilding Industry.** China is the top ship-producing nation in the world by tonnage, increasing its shipbuilding capacity and capability for all naval classes, including submarines and surface combatants as well as lift and amphibious ships. China's two largest state-owned shipbuilders – the China State Shipbuilding Corporation and the China Shipbuilding Industry Corporation – collaborate on ship designs and construction to increase shipbuilding efficiency. China produces its naval gas turbine and diesel engines domestically – as well as almost all shipboard weapons and electronic systems – making it nearly self-sufficient for all shipbuilding components.

**Armaments Industry.** China's production capacity is advancing in nearly every category of PLA ground systems, including armored personnel carriers, assault vehicles, air defense

artillery systems, artillery systems and pieces, and main and light battle tanks. Notably, China began testing unmanned Type-59 tanks in November 2018. China can produce ground weapon systems at or near world-class standards; however, quality deficiencies persist with some exported equipment, which is limiting China's ability to broadly expand export markets.

**Aviation Industry.** China's aviation industry has produced large transport aircraft, modern fourth- and fifth-generation fighters incorporating low-observable technologies, modern reconnaissance and attack UAVs, and attack helicopters. China's commercial aircraft industry has invested in high-tech machine tooling and production processes to develop avionics and other components needed to produce military aircraft. However, even with heavy investment in its aero-engine industry, China's military and commercial aircraft industry remains reliant on foreign-sourced components for dependable, proven, and high-performance aircraft engines as exemplified in China's decision in May 2018 to build its commercial C919 airliner with France's CFM International Leap 1C engine. China is developing the CJ-1000AX high-bypass turbofan to power the C919 and aims to have it enter service in 2021. China's ability to produce commercial and military aircraft is improving because of China's ongoing investment in the domestic ARJ21, C919, and CRJ929 wide-body commercial airliners and the Y-20 large transport program.

## SCIENCE AND TECHNOLOGY GOALS IN SUPPORT OF MILITARY MODERNIZATION

### Key Takeaways

- > China's 13th Five-Year Plan calls for accelerating research on “majority influential disruptive technologies” and the pursuit of “leapfrog” S&T developments in order to win “a competitive advantage in the new round of industry transformation.”
- > China has mobilized vast resources to fund research and subsidize companies involved in strategic S&T fields while pressing private firms, universities, and provincial governments to cooperate with the military in developing advanced technologies.
- > China is pursuing a number of advanced military capabilities with disruptive potential such as hypersonic weapons, electromagnetic railguns, directed energy weapons, and counterspace capabilities.

**State Plans.** China has issued an array of major national plans over the last decade that stress indigenous innovation and the rapid development of strategic S&T sectors, such as information and communications technology, high end manufacturing, alternative energy, and biotechnology. China's 13th Five-Year Plan calls for accelerating research on “majority influential disruptive technologies” and the pursuit of “leapfrog” S&T developments in



# OSD on China's Rising Military Technology and Industrial Base - III

order to win "a competitive advantage in the new round of industry transformation." China has increasingly funded basic research and made comprehensive efforts to grow the country's inventive capabilities over the last decade.

- > The 2017 National Artificial Intelligence Plan describes steps for China to become the "world's major AI innovation center" by 2030 and calls for the country to accelerate the integration of AI with the economy, society, and national defense. The plan foresees a great expansion in the "breadth and depth of AI applications in... national defense construction."
- > Other plans address the development of various sectors of China's robust Internet ecosystem to include cloud computing, the big data industry, e-commerce, and next-generation broadband wireless communications networks, including fifth-generation (5G) wireless networks. Due to information-sharing requirements with Chinese security services as stipulated in Chinese laws, worldwide expansion of Chinese-made equipment in 5G networks will challenge the security and resiliency of other countries' networks.

China continues to execute "Made in China 2025," an ambitious industrial masterplan centered around "smart manufacturing" that aims to create a vanguard of Chinese corporations that are global leaders in these 10 strategic industries: new generation

information technology, high-grade machine tooling and robotics, aerospace equipment, marine engineering equipment and high-tech ships, advanced rail transportation equipment, new-energy automobiles, electric power equipment, agricultural equipment, new materials, and biomedicine and high-tech medical devices. The plan stresses the need to replace imported technology with domestically produced technology, a goal that corresponds with China's desire to reduce its reliance on other nations and develop a fully indigenous defense sector. In addition to presenting an economic challenge to nations that export high-tech products, the plan directly supports China's military modernization goals by stressing proprietary mastery of advanced dual-use technologies. China's leaders have softened their rhetoric regarding "Made in China 2025" in response to concerns that advanced industrial countries have regarding Chinese theft and illicit acquisition of sensitive intellectual property pursuant to that policy.

**Heavy Government and Corporate Sector Investment.** China has mobilized vast resources to fund research and subsidize companies involved in strategic S&T fields while pressing private firms, universities, and provincial governments to cooperate with the military in developing advanced technologies. Although China remains reliant on certain types of foreign technology, the country's decades-long execution of a strategy of advancing domestic S&T R&D through large-scale technology transfer has deepened the

expertise of Chinese scientists and engineers and placed them at, or near, the forefront of many scientific fields.

- > Chinese state investment funds established to support priority industries have marshaled an estimated hundreds of billions of dollars in capital.
- > China expects to field an exascale computer based on domestically produced technology by 2020, ahead of the United States, the European Union, and Japan.
- > China conducted the first quantum-secured intercontinental videoconference in September 2017 and plans to have a satellite-enabled, global quantum-encrypted communications capability operational by 2030. China is also reportedly building the world's largest quantum research facility slated to open in the city of Hefei in 2020.
- > In January 2018, scientists from CAS reported they had broken a technological barrier by successfully cloning primates.

China's private sector, led by Internet companies Baidu, Alibaba, and Tencent (BATs) and telecommunications equipment manufacturers Huawei and ZTE, is driving the development of emerging technologies, such as facial recognition and 5G, by establishing innovation centers and funding technology startups, or in the case of 5G, competing to build the world's next-generation networks. Chinese technology companies are also

expanding into overseas markets, in some cases, by offering smart-city technologies, a development that could increase their access to foreign talent and data.

- > In 2018, Tencent and Alibaba made intensive investments in the Chinese robotics start-up UBTECH and the AI startup SenseTime, respectively.
- > In November 2017, the Chinese start-up Yitu won a U.S. government-sponsored competition involving facial recognition technology. Yitu, along with other Chinese AI and facial recognition firms like SenseTime, Megvii, and DeepGlint, reportedly received hundreds of millions of dollars in investments in 2017. China is the world's largest market for video surveillance technologies.
- > The 2017 *National Intelligence Law* requires Chinese companies, such as Huawei and ZTE, to support, provide assistance, and cooperate in China's national intelligence work, wherever they operate.

**Potential Military Applications.** China is pursuing a number of advanced military capabilities with disruptive potential such as hypersonic weapons, electromagnetic railguns, directed energy weapons, and counterspace capabilities. The country's effort to build national corporate champions that achieve rapid market dominance across a range of frontier technologies directly complements the PLA's modernization efforts and carries

serious military implications. Given China's willingness to deploy emerging technologies rapidly and at massive scale as well as China's focus on CMI, the PLA would likely quickly benefit from any Chinese scientific breakthroughs with military utility. Potential military applications of some emerging technologies include:

- > *AI and Advanced Robotics:* enhanced forecasting, manufacturing, C4ISR, and surveillance technology, unmanned systems, human-machine teaming, swarming technology, and lethal autonomous weapons.
- > *Semiconductors and Advanced Computing:* enhanced cyber operations and weapons design, and shortened R&D cycles.
- > *Quantum Technologies:* secure global communications, enhanced computing and decryption capabilities, detection of stealth platforms, and enhanced submarine navigation.
- > *Hypersonic and Directed Energy Weapons:* global strike and defeat of missile defense systems, and anti-satellite, anti-missile, and anti-unmanned aircraft system capabilities.
- > *Advanced Materials and Alternative Energy:* improved military equipment and weapon systems.



# OSD on Chinese Technology Espionage

## FOREIGN TECHNOLOGY ACQUISITION

### Key Takeaways

- > China is investing in the critical technologies that will be foundational for future innovations, both for commercial and military applications.
- > In 2018, Chinese espionage efforts to acquire sensitive, dual-use, or military-grade equipment included dynamic random access memory, aviation technologies, and anti-submarine warfare technologies.

In 2018, China continued to supplement indigenous military modernization efforts through the acquisition of foreign technologies and know-how. China is actively pursuing an intensive campaign to obtain foreign technology through imports, foreign direct investment, industrial and cyberespionage, and establishment of foreign R&D centers. China is investing in the critical technologies that will be foundational for future innovations both for commercial and military applications: AI, robotics, autonomous vehicles, quantum information sciences, augmented and virtual reality, financial technology, and gene editing. The line demarcating products designed for commercial versus military purposes is blurring with these new technologies. China's legal acquisition efforts supplement its military-industrial base through methods and practices, which include:

- > *Imports:* China acquires dual-use, export controlled technology by applying for licenses through the U.S. Department of Commerce. The majority of China's imports have traditionally been electronic and materials processing and test, inspection, and production equipment.
- > *Foreign Direct Investment:* China actively invests in or outright purchases foreign companies that have technology, facilities, and people working in key technology areas.
- > *Talent Recruitment:* China uses various incentive strategies to attract foreign personnel to work on and manage strategic programs and fill technical knowledge gaps, including the "Thousand Talents Program," which prioritizes recruiting people of Chinese descent or recent Chinese emigrants whose recruitment the Chinese government views as necessary to Chinese scientific and technical modernization, especially with regard to defense technology.
- > *Research and Development Centers:* China actively seeks partnerships with private, government, and academic research labs to gain exposure to cutting-edge technology and researchers. These partnerships also provide the technical know-how to run, manage, and organize such facilities.

## ESPIONAGE ACTIVITIES SUPPORTING CHINA'S MILITARY MODERNIZATION.

Multiple U.S. criminal indictments since 2015 involve Chinese nationals, non-ethnic Chinese U.S. citizens, and naturalized Chinese U.S. citizens or permanent resident aliens procuring and exporting controlled items to China, according to a U.S. Department of Justice summary of major U.S. export enforcement, economic espionage, and sanctions-related criminal cases. Chinese efforts to acquire sensitive, dual-use, or military-grade equipment included radiation hardened integrated circuits, monolithic microwave integrated circuits, accelerometers, gyroscopes, naval and marine technologies, syntactic foam trade secrets, space communications, military communication jamming equipment, dynamic random access memory, aviation technologies, and anti-submarine warfare.

- > In November 2018, a Chinese national residing in the United States was charged with conspiring to export devices with military applications to Chinese government and military actors. The Chinese national fulfilled instructions from the Chinese military to obtain dual-use technology used for anti-submarine warfare and other advanced military capabilities. This included remotely operated side scan sonar systems, hydrophones, robotic boats, unmanned

underwater vehicles, and unmanned surface vehicles.

- > In October 2018, a group of Chinese Ministry of State Security (MSS) intelligence officers, associated cyber actors, and other co-conspirators were indicted on charges of conspiring to steal sensitive technological information related to turbofan engines used in commercial airliners. At the time of the intrusions, a Chinese state-owned enterprise was developing a comparable engine for use in commercial aircraft manufactured in China and elsewhere.
- > In October 2018, a Chinese MSS officer was arrested and charged with economic espionage involving the theft of trade secrets for civilian and military aircraft technology related to engineering services and signature material, advanced communication systems, jet engines and aircraft propulsion, and engine containment structures from leading U.S. aviation firms. In addition, the officer targeted industry experts for recruitment by facilitating travel to China under the guise of delivering university presentations.

The intelligence officer also provided monetary compensation and other forms of reimbursement to these experts.

- > In September 2018, a Chinese state-owned enterprise was implicated in a conspiracy to commit economic espionage through the theft, conveyance, and possession of stolen trade secrets from a U.S. semiconductor company. The U.S. company is a global leader in the semiconductor industry and specializes in dynamic random-access memory (DRAM). China identifies DRAM development as a national priority.
- > Also in September 2018, a Chinese national was charged for acting within the United States as an illegal agent of the Chinese government. The MSS tasked the Chinese national with providing biographical data on individuals for recruitment, including Chinese nationals working in the United States as engineers and scientists (some as defense contractors). The Chinese national entered the United States on a student visa to study electrical engineering and enlisted in the U.S. Army Reserves under the Military Accessions Vital to the National Interest program.

# China's Shifting Balance of Arms Imports and Exports

# China's Shifting Balance of Arms Exports

China's balance of arms exports reflects a rise in its exports of less advanced arms – along with exports of some arms where China already has advanced designs – and Chinese imports of more advanced weapons and technology from states like the U.S. and Russia. At the same time, such data present a number of problems. China has one of the most advanced systems of industrial and defense technology espionage in the world, and these imports do not show up in estimates of its arms trade. The sale or transfer of arms to friendly states and non-state actors has also long been a form of hybrid warfare, and the arms trade is often as much a matter of strategic influence or proxy warfare as one of seeking economic advantage.

More generally, estimates of the trends in arms exports are even more uncertain than estimates of military spending. Many reported arms deals never actually take place, or materialize in radically different ways over a period of a year from the announced “deal.” Other sales or transfer take place with little or no notice, are covert, or are provided in the form of aid or preferential terms. As a result, efforts to convert them into current dollars are often largely guesstimates, and efforts to convert them into constant dollars ignore the reality of payments and “life cycles” for the deal that can extend over more than a decade.

These problems are compounded by the fact that past U.S. government reporting of declassified estimates through the CRS and to the IISS have become highly sporadic, and have not been updated since 2016. The commercial services that attempt to estimate such data are unreliable, and think tanks and research centers are limited in resources and have no access to intelligence data. Moreover, arms transfer estimates do not take account of espionage and stolen technology – key factors in China's efforts to improve its forces and military industrial-technology base.

That said, it is still clear from data provided by sources like the U.S. government and SIPRI that China remains a major importer of weapons and military technology, and is dependent on Russia for a range of imports of jet engine, missile, sensor, and other military systems – although this dependence is steadily dropping over time, and will probably end well within the next decade.

It is also clear that China's vastly expanded military industrial base already makes it a major arms exporter to developing states, particularly in Asia, and gives it considerable strategic leverage. China now imports the advanced systems necessary to support its effort to achieve parity and a lead in military weapons and systems while it earns influence by exporting less sophisticated weapons.

Here, SIPRI provides a good summary of the key trends in China's overt arms trade, although the numbers are uncertain and SIPRI does not comment on Chinese technology and industrial espionage and theft:

Whereas Chinese arms exports rose by 195 percent between 2004–2008 and 2009–13, they increased by only 2.7 percent between 2009–13 and 2014–18. In 2014–18 Asia and Oceania accounted for 70 percent of Chinese arms exports, Africa for 20 percent and the Middle East for 6.1 percent.

The number of countries to which China delivers major arms has grown significantly over the past few years. In 2014–18 China delivered major arms to 53 countries, compared with 41 in 2009–13 and 32 in 2004–2008. Pakistan was the main recipient (37 percent) in 2014–18, as it has been for all five-year periods since 1991. China supplied relatively small volumes of major arms to a wide variety of countries: 39 of the 53 recipients in 2014–18 each accounted for less than 1 percent of total Chinese arms exports.

China's arms exports are limited by the fact that many countries—including 4 of the top 10 arms importers in 2014–18 (India, Australia, South Korea and Vietnam)—will not procure Chinese arms for political reasons. Nonetheless, improvements in Chinese military technology have opened up opportunities for arms export growth, including exports to new customers. In 2014–18 China became the largest exporter in the niche market of unmanned combat aerial vehicles (UCAVs), with states.

# OSD on Chinese Arms Exports in 2019

In 2018, China's arms sales increased, continuing a trend that enabled China to become the world's fastest-growing arms supplier during the past 15 years. From 2013 through 2017, China was the world's fourth-largest arms supplier, completing more than \$25 billion worth of arms sales. China sold military equipment worth more than \$10 billion to the Middle East. Saudi Arabia, Iraq, and the United Arab Emirates accounted for most of China's arms sales in the region. The Indo-Pacific region was China's second-largest regional arms market, with more than \$8 billion worth of arms sales, more than \$5 billion of which was to Pakistan. Contracts signed within the past few years for guided rockets, ballistic missiles, armed UAVs, submarines, and surface warships sustained sales growth for Chinese arms exporters. The Aviation Industry of China (AVIC), an exporter of armed UAVs and fixed-wing aircraft, claimed in a rare public statement that it secured record profits in 2017, illustrating China's rising profile among the world's most prolific arms suppliers. China's ability to remain among the world's top five global arms suppliers largely hinges on continued strong sales to key Middle East and Indo-Pacific customers, as well as sustained demand for its armed UAVs and precision-strike weapons.

- **Armed UAVs.** China's market for armed UAVs continues to grow; China now sells CAIHONG series UAVs to at least Burma, Iraq, Pakistan, Saudi Arabia, and the United Arab Emirates. China faces little competition for these sales; most armed UAV exporters have signed the Missile Technology Control Regime and/or the Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies and face sales restrictions.
- **Precision-Strike Weapons.** Filling another niche in the global arms market, China has sold precision-guided rockets and ballistic missile systems, though it typically does not identify countries purchasing these types of arms. Industry reports in 2018 highlighted sales of Chinese-made WS-3A and WS-22 satellite-guided rockets, as well as several export variant ballistic missile systems (the M20, BP-12, and Joint Attack Rocket and Missile systems).
- **Naval Combatants.** China's naval warship sales have also surged since 2015, highlighted by Pakistan's purchase of eight YUAN variant submarines for more than \$3 billion. Thailand also purchased one YUAN variant submarine in 2017 and has expressed interest in purchasing two more. To date, China has not delivered any YUAN variants, though it delivered two MING-class submarines to Bangladesh in 2016. Also, in 2017 and 2018, China sold frigates to Bangladesh (two Type 053H3s) and Pakistan (four Type 054As), and donated one unspecified frigate to Sri Lanka.

China's arms sales operate through state-run export organizations such as AVIC and North Industries Corporation (NORINCO) that primarily seek to generate profits. Arms transfers also are a component of China's foreign policy, used in conjunction with other types of military, economic aid, and development assistance to support broader foreign policy goals. These include securing access to natural resources and export markets, promoting political influence among host country elites, and building support in international forums.

Many of China's arms recipients are developing countries that tend to buy Chinese arms because they are less expensive than comparable systems sold by other arms manufactures. Although Chinese arms are considered by some potential customers to be of lower quality and reliability, many Chinese systems are offered with enticements such as gifts, donations, and flexible payment options. Some Chinese systems include advanced capabilities. Chinese arms also tend to carry fewer end-use restrictions and are monitored less rigorously than competitors' arms exports, a factor that attracts customers with less access to other sources of military equipment because of political or economic reasons.

# DoD on Chinese Arms Sales 9.2018

**Arms Sales.** China's arms sales are conducted via state-run organizations that primarily seek to generate profits and offset defense-related research and development costs. Arms transfers are also a component of China's foreign policy, used in conjunction with other military cooperation, economic aid, and development assistance to support broader foreign policy goals. These include securing access to natural resources and export markets, promoting political influence among host country elites, and building support in international forums.

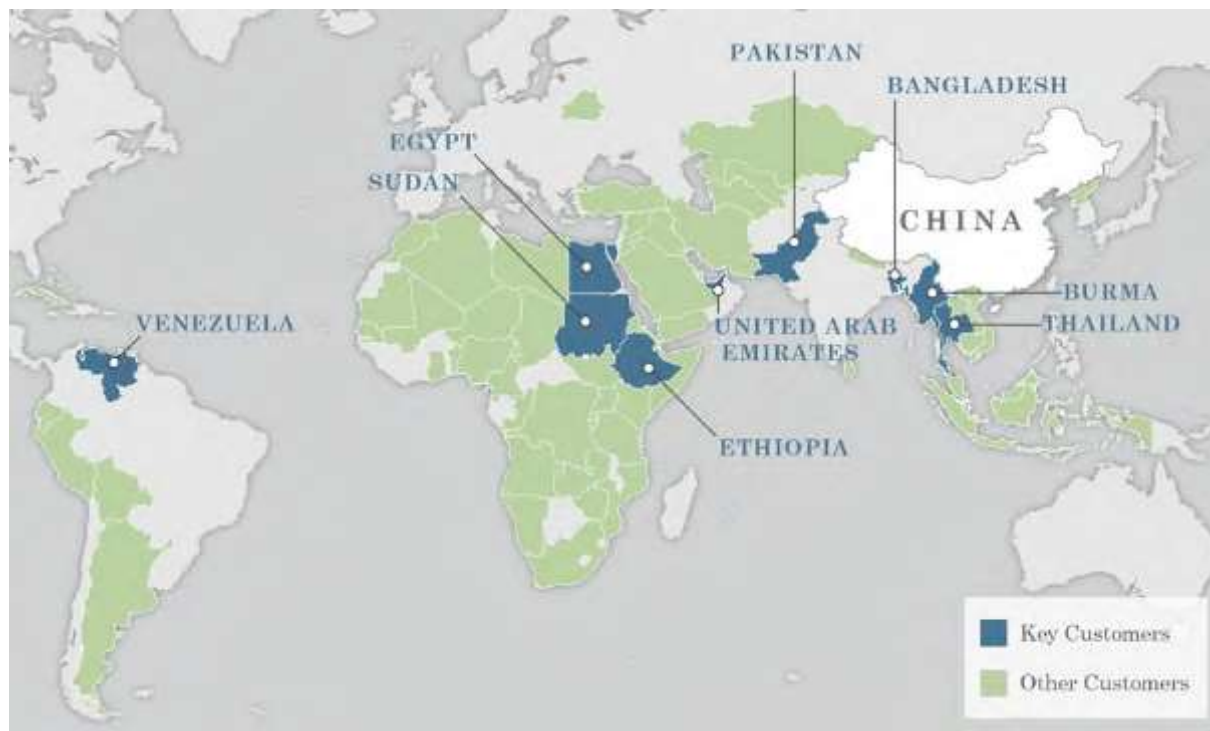
Between 2012 and 2016, China was the fifth largest arms supplier in the world, completing more than \$20 billion in sales including \$8 billion in military equipment sales to Indo-Pacific countries, primarily to Pakistan (many funded via loans), Bangladesh, and Burma. China's second largest arms sales were to the Middle East and North Africa, likely due to the demand for armed UAVs – a niche market where China is one of the world's few suppliers. China's ability to remain among the top five global arms suppliers largely hinges on continued strong sales to Pakistan and demand for its armed UAVs.

Chinese arms are lower quality and less reliable than those offered by the top international arms suppliers, but many have advanced capabilities. Most of China's customers are developing countries that prefer less expensive Chinese arms. These arms generally come with few end-use restrictions, which is attractive to customers who may not have access to other arms sources for political or economic reasons. Key developments and examples include the following:

- Submarines are becoming a more prominent Chinese export to countries along China's periphery. In 2015, China signed an agreement to sell Pakistan eight YUAN-class submarines; the first four submarines will be built in China and the remaining four in Pakistan. China delivered two MING-class diesel attack submarines to Bangladesh in late-2016 and continues to market a variety of submarine options at international trade shows. In May 2017, China finalized a \$390 million contract with Thailand for one Chinese-built S26T diesel-electric submarine to be delivered in 2023.
- China has sold armed UAVs to several Middle East and North African states, including Iraq, Saudi Arabia, Egypt, and the United Arab Emirates. China faces little competition for sale of such systems, as most countries that produce armed UAVs are restricted from selling the technology as signatories of the Missile Technology Control Regime and/or the Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies.
- In March 2018, state-owned China Shipbuilding Industry Corporation (CSIC) signed an MOU with the Royal Thai Armed Forces to collaborate on unspecified military equipment and technologies. CSIC claimed the deal contributed to Xi Jinping's "going out" strategy to expand China's defense industry presence in key foreign markets.
- In June 2018, China finalized contracts with Pakistan and Bangladesh for conventional arms. The Pakistan contract is for delivery of two Type 054A multi-role frigates valued at \$500 million, which Pakistan anticipates receiving before 2021. The Bangladesh contract is reportedly valued at more than \$200 million for the sale of an additional 23 K-8W intermediate jet trainers. Bangladesh currently operates K-8W aircraft it bought from China in 2014.
- In July 2018, China's defense attaché announced Beijing would donate a frigate to the Sri Lankan Navy. The donation came three weeks after the Sri Lankan Navy announced its plan to shift its Southern Command HQ to Hambantota Port to reinforce sovereignty over the port, which the PRC leased for 99 years and a Chinese state-owned enterprise owns and operates. The PLA is also constructing facilities at the Sri Lankan military academy.



# DIA on Chinese Arms Sales in 2019



Algeria	Congo, Republic of	Kuwait	North Korea	Timor-Leste
Angola	Cuba	Laos	Peru	Turkey
Argentina	Djibouti	Lebanon	Qatar	Turkmenistan
Belarus	Ecuador	Libya	Rwanda	Uganda
Benin	Equatorial Guinea	Malaysia	Saudi Arabia	Uzbekistan
Bolivia	Eritrea	Mali	Senegal	Vietnam
Burundi	Ghana	Mauritania	Seychelles	Yemen
Cambodia	Indonesia	Morocco	Somalia	Zambia
Cameroon	Iran	Mozambique	South Africa	Zimbabwe
Chad	Iraq	Namibia	South Sudan	
Congo, Democratic Republic of	Jordan	Nepal	Sri Lanka	
	Kazakhstan	Niger	Syria	
	Kenya	Nigeria	Tanzania	

Over 65 countries have been recipients of Chinese arms since 2002.

Source: Office of the Secretary of Defense, Military and Security Developments Involving the Republic of China, Annual Report to Congress, May 16, 2018, Department of Defense. China Military Power 2018, pp. 105-106

# CRS Summary of China's Status as An Arms Exporter and Importer in 2016 - I

## China

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 2012 to 2015, the value of China's arms transfer agreements with developing nations has averaged over \$4 billion annually. During the period of this report, the value of China's arms transfer agreements with developing nations was highest in 2015 at \$6 billion (in current dollars). China's arms agreements total in 2014 was \$3.3 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 especially large agreements for major weapon systems. Comparatively, few developing nations with significant financial resources have purchased Chinese military equipment during the eight-year period of this report. 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 weapon 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) and how its interpretation of MTCR guidelines differs from other member states. 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 the 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 United Nations 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 of the month-long period, set aside for negotiations, this effort failed to achieve the necessary consensus on a treaty draft. 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.<sup>5</sup> The U.N. adopted the treaty as a resolution following a vote on April 2, 2013; China and Russia abstained. The treaty entered into force on December 24, 2014. To date, 78 states have ratified the treaty, with the United States as a signatory. President Obama transmitted the treaty to the Senate for its advice and consent on December 9, 2016.

## Asia

The data on regional arms-transfer agreements from 2008 to 2015 indicate that Asia, after the Near East, is the second largest region of the developing world for orders of conventional weaponry. Throughout Asia, several developing nations have been upgrading and modernizing their defense forces, and this has led to new conventional weapons sales in that region. Beginning in the mid-1990s, Russia became the principal supplier of advanced conventional weaponry to China for about a decade—selling it fighters, submarines,

# CRS Summary of China's Status as An Arms Exporter and Importer in 2016 - II

destroyers, and missiles—while establishing itself as the principal arms supplier to India. Russian arms sales to these two countries have been primarily responsible for much of the increase in Asia's overall share of the arms market in the developing world during much of the period of this report. Russia has also expanded its client base in Asia, securing aircraft orders from Malaysia, Vietnam, Burma, and Indonesia. It is notable that India, while the principal Russian arms customer, during recent years has sought to diversify its weapons supplier base, purchasing the Phalcon early warning defense system aircraft in 2004 from Israel and numerous items from France in 2005, in particular six Scorpene diesel attack submarines. In 2008 India purchased six C130J cargo aircraft from the United States. In 2010, the United Kingdom sold India 57 Hawk jet trainers for \$1 billion. In 2010 Italy also sold India 12 AW101 helicopters. In 2011, France secured a \$2.4 billion contract with India to upgrade 51 of its Mirage-2000 combat fighters, and the United States agreed to sell India 10 C-17 Globemaster III aircraft for \$4.1 billion. This pattern of Indian arms purchases indicates that Russia will likely face strong new competition from other major weapons suppliers for the India arms market, and it can no longer be assured that India will consistently purchase its major combat systems. Indeed, India in 2011 had eliminated Russia from the international competition to supply a new-generation combat fighter aircraft, a competition won by France. In 2015 Russia and India agreed to a contract in which India would procure at least 200 Ka-226T helicopters.

Asia has over time been the second-largest developing-world arms market. In 2012-2015, Asia ranked second, accounting for 31.3% of the total value of all arms transfer agreements with developing nations (\$72.2 billion in current dollars). In the earlier period, 2008-2011, the Asia region ranked second, accounting for 28.8% of all such agreements (\$61 billion in current dollars)

In the earlier period (2008-2011), the United States ranked first in the value of arms transfer agreements with Asia with 27.53% (\$16.8 billion in current dollars). Russia made 26.23% of this region's agreements in 2008-2011. The major Western European suppliers, as a group, made 17% of this region's agreements. In the later period (2012-2015), the United States ranked first in Asian agreements with 36.53% (\$26.4 billion in current dollars); Russia ranked second with 24.53% (\$17.7 billion in current dollars). The major West European suppliers, as a group, made 16.9% of this region's agreements in 2012-2015.

# Continuing Dependence on Outside Powers: Chinese Arms Imports by Supplier Country in 2010-2018

(In Comparative SIPRI Trend Indicator Values (TIVs) in Millions – Not Currency)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Belarus														170						170
France	91	108	145	131	223	177	142	149	160	128	152	167	182	182	148	160	117	98	84	2744
Germany	8	8	6	8	16	16	12	10	3	3	3	3	3	11	9	12	5	8	17	162
Israel	28	28																		55
Russia	2231	2500	2541	2076	2887	3156	2465	1316	1514	1087	744	796	724	788	705	742	636	909	1304	29120
Switzerland	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	33	33	1170
Ukraine	29	41	58	3	33	82	128	64	54	28			632	86	140	86	90	103	108	1763
United Kingdom	70	70	60	60	60	70	50	50	60	70	70	70	70	70	70	70	60	40	20	1160
Uzbekistan																34	68			102
<b>Total</b>	<b>2521</b>	<b>2819</b>	<b>2875</b>	<b>2342</b>	<b>3284</b>	<b>3566</b>	<b>2862</b>	<b>1654</b>	<b>1856</b>	<b>1381</b>	<b>1034</b>	<b>1102</b>	<b>1675</b>	<b>1372</b>	<b>1137</b>	<b>1169</b>	<b>1041</b>	<b>1190</b>	<b>1566</b>	<b>36445</b>

Source: Stockholm International Peace Research Institute (SIPRI) [http://armstrade.sipri.org/armstrade/html/export\\_values.php](http://armstrade.sipri.org/armstrade/html/export_values.php), June 17, 2019; for full definition and details see SIPRI, <http://sipri.org/databases/armstransfers/sources-and-methods/>

## Continuing Dependence on Outside Powers: Total Chinese Arms Imports by Major Weapons Category in 2010-2018

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Aircraft	1287	2440	2306	1884	2183	860	941	683	189	297	473	536	257	526	368	513	527	642	626	17539
Air defense systems	265	15	15	109	109	15	15	235	455	235	15	15	15	15	15	15	15	8	268	1848
Artillery	1																			1
Engines	65	82	89	107	244	184	143	162	199	181	273	309	462	479	501	349	298	288	283	4698
Missiles	321	165	324	150	290	529	654	487	825	617	120	120	120	120	120	92	28	48	275	5401
Naval weapons					30		20	23	10		8	8	13	28	25	23	28	25	25	263
Sensors	82	117	141	93	169	178	69	64	178	50	146	114	178	146	50	178	146	121	89	2308
Ships	500				260	1800	1020						632	59	59			59		4388
Total	2521	2819	2875	2342	3284	3566	2862	1654	1856	1381	1034	1102	1675	1372	1137	1169	1041	1190	1566	36445

Source: Stockholm International Peace Research Institute (SIPRI) [http://armstrade.sipri.org/armstrade/html/export\\_values.php](http://armstrade.sipri.org/armstrade/html/export_values.php), June 17, 2019; for full definition and details see SIPRI, <http://sipri.org/databases/armstransfers/sources-and-methods/>

# U.S. Government Estimate of China's Role in Global Arms Exports: 2008-2016

**Figure 2. Arms Transfer Agreements Worldwide**  
(supplier percentage of value)



Source: U.S. government.

**Figure 3. Arms Transfer Agreements With Developing Nations**  
(supplier percentage of value)



Source: U.S. government.

**Table 1. Worldwide Arms Transfer Agreements, 2008-2015 and Suppliers' Share with Developing World**  
(in millions of current 2015 U.S. dollars)

Supplier	Worldwide Agreements Value 2008-2011	Percentage of Total with Developing World
United States	139,437	79.71%
Russia	36,000	91.11%
France	23,200	92.67%
United Kingdom	4,000	70.00%
China	10,500	99.05%
Germany	9,600	56.25%
Italy	8,900	56.18%
All Other European	20,400	70.59%
All Others	14,600	74.66%
<b>TOTAL</b>	<b>266,637</b>	<b>80.19%</b>

Supplier	Worldwide Agreements Value 2012-2015	Percentage of Total with Developing World
United States	126,034	67.95%
Russia	52,500	92.57%
France	29,200	94.86%
United Kingdom	10,800	96.30%
China	17,100	100.00%
Germany	15,900	81.76%
Italy	5,500	81.82%
All Other European	42,200	86.97%
All Others	17,800	72.47%
<b>TOTAL</b>	<b>317,034</b>	<b>80.92%</b>

Source: *Conventional Arms Transfers to Developing Nations, 2007-2014*, Congressional Research Service, 12.19.16, <https://www.google.com/search?client=firefox-b-1-d&q=conventional+arms+transfers+to+developing+nations>, p. 20



# U.S. Government Estimate of China's Sales by Year: 2008-2016

**Table 3. Arms Transfer Agreements with Developing Nations, by Supplier, 2008-2015**  
(in millions of current U.S. dollars)

	2008	2009	2010	2011	2012	2013	2014	2015	2008-2015
United States	27,200	13,119	14,695	56,131	11,331	17,835	29,735	26,743	194,264
Russia	5,400	14,900	6,800	5,700	16,700	10,700	10,200	11,000	81,400
France	5,600	9,300	1,900	4,700	3,100	3,800	5,600	15,200	49,200
United Kingdom	0	1,100	1,200	500	5,700	3,600	400	700	13,200
China	2,200	3,000	2,000	3,200	3,500	4,300	3,300	6,000	27,500
Germany	3,000	2,200	100	100	4,900	7,000	400	700	18,400
Italy	1,400	1,300	1,200	1,100	1,500	900	1,100	1,000	9,500
All Other European	4,100	4,600	2,800	2,900	5,800	3,600	24,400	2,900	51,100
All Others	2,000	4,200	1,500	3,200	3,000	4,700	4,200	1,000	23,800
<b>TOTAL</b>	<b>50,900</b>	<b>53,719</b>	<b>32,195</b>	<b>77,531</b>	<b>55,531</b>	<b>56,435</b>	<b>79,335</b>	<b>65,243</b>	<b>468,364</b>

**Table 14. Arms Deliveries to Developing Nations, by Supplier, 2008-2015**  
(in millions of current U.S. dollars)

	2008	2009	2010	2011	2012	2013	2014	2015	2008-2015
United States	7,354	7,352	8,402	9,912	10,330	10,589	12,184	11,904	78,028
Russia	6,400	5,400	6,700	8,400	9,600	9,700	9,400	6,200	61,800
France	800	700	1,700	1,200	2,200	2,900	2,600	6,200	18,300
United Kingdom	1,300	1,200	1,600	1,500	1,100	1,600	2,600	200	11,100
China	2,200	1,800	3,200	1,700	2,100	2,600	1,900	2,900	18,400
Germany	1,400	1,900	1,400	1,200	800	400	1,600	1,100	9,800
Italy	200	600	1,200	1,300	1,400	800	600	1,500	7,600
All Other European	2,300	2,500	3,200	4,700	3,200	3,300	2,900	2,400	24,500
All Others	1,000	1,800	2,000	2,200	1,700	1,300	2,400	1,200	165,100
<b>TOTAL</b>	<b>22,954</b>	<b>23,252</b>	<b>29,402</b>	<b>32,112</b>	<b>32,430</b>	<b>33,189</b>	<b>36,184</b>	<b>33,604</b>	<b>243,127</b>

Source: Catherine A. Theohary, *Conventional Arms Transfers to Developing Nations, 2007-2014*, Congressional Research Service, R44716, 12.19.16, <https://www.google.com/search?client=firefox-b-1-d&q=conventional+arms+transfers+to+developing+nations>, p. 31, 39



## U.S. Government Estimate of China's Weapons Export Deliveries: 2008-2016

Weapons Category	U.S.	Russia	China	Major West European*	All Other European	All Others
<b>2008-2011</b>						
Tanks and Self-Propelled Guns	348	630	490	360	550	50
Artillery	155	110	340	140	600	190
APCs and Armored Cars	188	570	620	420	1,630	580
Major Surface Combatants	0	2	3	5	5	4
Minor Surface Combatants	0	8	113	64	52	118
Guided Missile Boats	0	2	0	0	0	4
Submarines	0	2	0	4	1	0
Supersonic Combat Aircraft	58	170	30	40	130	50
Subsonic Combat Aircraft	0	0	20	50	20	80
Other Aircraft	62	20	130	50	160	40
Helicopters	35	270	20	150	70	50
Surface-to-Air Missiles	1,088	8,160	2,080	360	650	500
Surface-to-Surface Missiles	1,285	70	0	0	0	10
Anti-Ship Missiles	133	260	80	80	10	50
<b>2012-2015</b>						
Tanks and Self-Propelled Guns	76	430	130	80	390	10
Artillery	232	130	250	40	630	430
APCs and Armored Cars	1	680	760	960	920	460
Major Surface Combatants	0	3	6	13	2	4
Minor Surface Combatants	0	8	19	67	67	86
Guided Missile Boats	0	0	2	2	0	7
Submarines	0	4	0	8	0	2
Supersonic Combat Aircraft	45	100	20	20	20	40
Subsonic Combat Aircraft	0	0	0	20	10	30
Other Aircraft	35	20	50	130	260	50
Helicopters	2	280	40	140	30	50
Surface-to-Air Missiles	346	6,300	1,310	1,130	240	630
Surface-to-Surface Missiles	163	80	10	0	0	0
Anti-Ship Missiles	116	40	110	210	0	20

Source: *Conventional Arms Transfers to Developing Nations, 2007-2014*, Congressional Research Service, 12.19.16,  
<https://www.google.com/search?client=firefox-b-1-d&q=conventional+arms+transfers+to+developing+nations>, p. 50

# SIPRI Summary of China's Status as An Arms Exporter and Importer in 2019 - I

## Exporter

Whereas Chinese arms exports rose by 195 percent between 2004–2008 and 2009–13, they increased by only 2.7 percent between 2009–13 and 2014–18. In 2014–18 Asia and Oceania accounted for 70 percent of Chinese arms exports, Africa for 20 percent and the Middle East for 6.1 percent.

The number of countries to which China delivers major arms has grown significantly over the past few years. In 2014–18 China delivered major arms to 53 countries, compared with 41 in 2009–13 and 32 in 2004–2008.

Pakistan was the main recipient (37 percent) in 2014–18, as it has been for all five-year periods since 1991. China supplied relatively small volumes of major arms to a wide variety of countries: 39 of the 53 recipients in 2014–18 each accounted for less than 1 percent of total Chinese arms exports.

China's arms exports are limited by the fact that many countries—including 4 of the top 10 arms importers in 2014–18 (India, Australia, South Korea and Vietnam)—will not procure Chinese arms for political reasons.

Nonetheless, improvements in Chinese military technology have opened up opportunities for arms export growth, including exports to new customers. In 2014–18 China became the largest exporter in the niche market of unmanned combat aerial vehicles (UCAVs), with states in the Middle East among the main recipients.

## Importer

Despite the rapid development of its indigenous arms-producing capabilities in recent years, China was the world's sixth largest arms importer in 2014–18 and accounted for 4.2 percent of the global total. Its arms imports decreased by 7.0 percent between 2009–13 and 2014–18. Russia accounted for 70 percent of Chinese arms imports in 2014–18. China remains reliant on imports for certain arms technologies such as engines for combat aircraft and large ships as well as long-range air and missile defense systems. Its own arms industry has yet to develop the technological capability to match Russian suppliers in these fields.

# SIPRI Summary of China's Status as An Arms Exporter and Importer in 2019 - II

	Exporting Country	% Share of Global Arms			% Change	Main Clients Percentage Share of Exporter's Total		
		2014-18	2009-13	from 2009-13		Exports: 2014-2018		
		to 2014-18 <sup>a</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>			
1	United States	36	30	29		Saudi Arabia (22)	Australia (7.7)	UAE (6.7)
2	Russia	21	27	-17		India (27)	China (14)	Algeria (14)
3	France	6.8	5.1	43		Egypt (28)	India (9.8)	Saudi Arabia (7.4)
4	Germany	6.4	6.1	13		South Korea (19)	Greece (10)	Israel (8.3)
5	China	5.2	5.5	2.7		Pakistan (37)	Bangladesh (16)	Algeria (11)
6	United Kingdom	4.2	4.3	5.9		Saudi Arabia (44)	Oman (15)	Indonesia (11)
7	Spain	3.2	2.9	20		Australia (42)	Turkey (13)	Saudi Arabia (8.3)
8	Israel	3.1	2.1	60		India (46)	Azerbaijan (17)	Vietnam (8.5)
9	Italy	2.3	2.7	-6.7		Turkey (15)	Algeria (9.1)	Israel (7.6)
10	Netherlands	2.1	1.9	16		Jordan (15)	Indonesia (15)	USA (11)
11	South Korea	1.8	1.0	94		Indonesia (17)	Iraq (17)	UK (15)
12	Ukraine	1.3	2.7	-47		China (27)	Russia (23)	Thailand (14)
13	Switzerland	1.0	0.9	20		Saudi Arabia (19)	China (18)	Indonesia (9.3)
14	Turkey	1.0	0.4	170		UAE (30)	Turkmenistan (23)	Saudi Arabia (10)
15	Sweden	0.7	1.9	-62		Saudi Arabia (16)	UAE (14)	Algeria (10)
16	Canada	0.6	0.9	-33		Saudi Arabia (22)	India (13)	UAE (7.6)
17	Norway	0.5	0.6	-12		Oman (28)	Finland (23)	USA (21)
18	UAE	0.3	0.2	103		Egypt (41)	Jordan (10)	Yemen (7.6)
19	Czechia	0.3	0.1	472		Iraq (40)	USA (17)	Vietnam (9.9)
20	Belarus	0.3	0.5	-26		Vietnam (37)	Sudan (18)	Myanmar (12)
21	Australia	0.3	0.3	3.9		USA (53)	Indonesia (25)	Oman (8.8)
22	South Africa	0.3	0.5	-35		USA (21)	UAE (21)	India (9.8)
23	Brazil	0.2	0.2	21		Afghanistan (32)	Indonesia (25)	Lebanon (9.1)
24	Finland	0.2	0.2	-9.1		Poland (56)	UK (7.1)	Sweden (6.7)
25	Portugal <sup>b</sup>	0.2	0.0	457		Romania (89)	Belgium (7.0)	Uruguay (2.7)

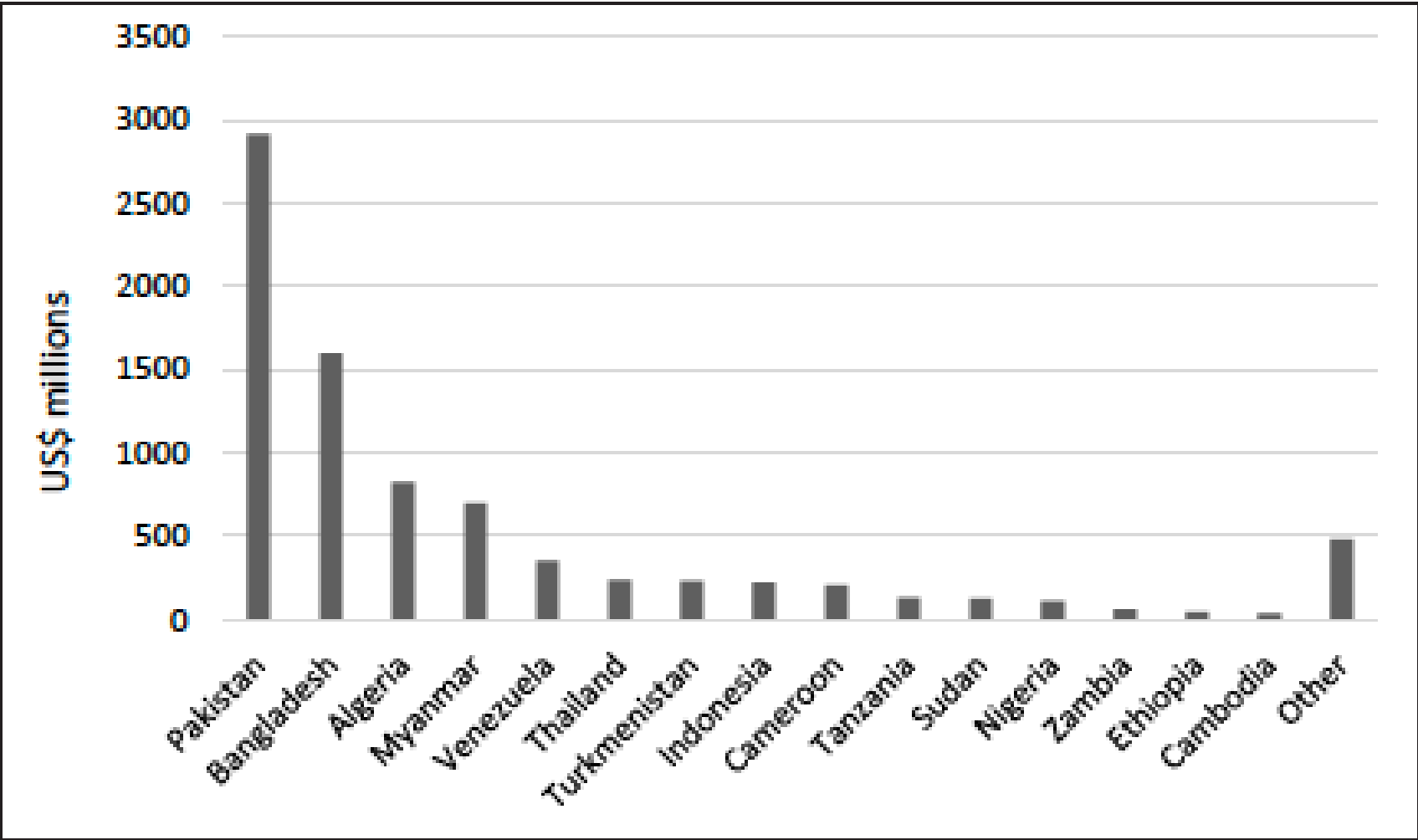
a. Change in volume of trade of total arms exports per exporter between periods

b. For Portugal, changes between periods is only 0.03%.

Source: Excerpted from Stockholm International Peace Research Institute (SIPRI): Pieter D. Wezeman, Aude Fleurant, Alexandra Kuimova, Nan Tian, and Siemon T. Wezeman, TRENDS IN INTERNATIONAL ARMS TRANSFERS, 2018, SIPRI Fact Sheet, April 2019

<https://www.sipri.org/publications/2019/sipri-fact-sheets/trends-international-arms-transfers-2018>, and SIPRI arms transfer data base.

The “Proxy” Problem — China’s Arms Exports by Recipient: 2013-2017



Source: Stockholm International Peace Research Institute, “SIPRI Arms Transfer Database.”

# Shifting Impact on Outside Powers: Chinese Total Arms Exports by Major Weapons Category in 2010-2018

(SIPIRI Estimates of total numbers using SIPRI categories)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Aircraft	59	273	333	426	88	75	285	127	284	152	525	403	564	592	273	476	465	437	555	6388
Air defense systems	15	15	15	15	15			15				62	85	81	48	208	438	8	30	1050
Armored vehicles	16	64	25	45	131	64	100	128	167	177	428	263	387	637	271	241	221	289	184	3838
Artillery	70	16	20	45	38	10	24	25	36	40	35	48	17	26	94	46	16	23	32	660
Engines														0		1				1
Missiles	93	74	78	78	91	85	127	122	117	147	167	161	232	184	193	228	457	149	167	2951
Naval weapons	3	3	3		2	4		2						5	8	13	2	12		56
Sensors	16	16	13	21	13	38	51	35	41	115	69	26	69	108	39	25	90	55	10	847
Ships	27	55	40	70	35	11	81	56		508	255	290	161	415	235	608	671	254	63	3835
Total	299	515	525	700	413	286	668	509	644	1140	1478	1252	1515	2047	1160	1845	2360	1227	1040	19625

Stockholm International Peace Research Institute (SIPRI) [http://armstrade.sipri.org/armstrade/html/export\\_values.php](http://armstrade.sipri.org/armstrade/html/export_values.php), June 17, 2019; for full definition and details see SIPRI, <http://sipri.org/databases/armstransfers/sources-and-methods/>.

# Shifting Impact on Importing Powers: Value of Chinese Arms Exports by Importing Country in 2010-2018 - I

(In Comparative SIPRI Trend Indicator Values (TIVs) in Millions – Not Currency)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Afghanistan																		1		1
Algeria	11	12	15				61				18				68	247	499	17	33	980
Angola																1	15			15
Argentina											1									1
Bahamas																		0		0
Bahrain																	4			4
Bangladesh	11	2			7	1	184	66	10		13	81	151	480	204	451	261	204	75	2200
Belarus																	2	1	1	4
Benin											0			0						0
Bolivia				5								21			20		4		1	51
Burundi													5							5
Cambodia								56		4			15	39						114
Cameroon													9	118	85					212
Central African Republic																			1	1
Chad								4	2		16			39						61
Congo							1	0		1										2
Cote d'Ivoire																		4		4
Djibouti															8	1	4			13
DR Congo																1				1
Ecuador							0				8									8
Egypt		18	67	88	88	21		35	35	35	35		1	1	1			15	15	454

# Shifting Impact on Importing Powers: Value of Chinese Arms Exports by Importing Country in 2010-2018 - II

(In Comparative SIPRI Trend Indicator Values (TIVs) in Millions – Not Currency)

Equatorial Guinea											34									34
Ethiopia													2	50	2					53
Gabon					5		1													6
Ghana		2			1			14		11	2	56		22		13	8			130
Guyana			2																	2
Indonesia							10	3	3		2	8	65	74	35	41	42	37	30	350
Iran	69	80	81	84	80	43	54	47	47	47	62	52	31	9	9	9				807
Iraq					20											17				37
Jordan						8					2				1		24			35
Kazakhstan																	9		23	32
Kenya	12							10			13				7	10	11			61
Kuwait	30	15	20	21																86
Laos									7				15	15		1		3	51	91
Malaysia										5										5
Mali	7																	4		11
Mauritania			17	7													34			58
Mexico							6													6
Morocco											221	34	34							289
Mozambique															4		2			5
Myanmar	3	50	9	57	74	23	10	2	10	17	5	277	254	190	64	184	169	8	105	1508
Namibia		14					66		66	5			52	9			3	34		248
Nepal						2											8	1		10
Niger										1								3		4
Nigeria											156				57	22	36			271
Oman			3	15																18
Pakistan	69	299	286	267	77	78	98	144	250	758	747	578	583	719	413	620	751	559	448	7744



# Shifting Impact on Importing Powers: Value of Chinese Arms Exports by Importing Country in 2010-2018 - III

(In Comparative SIPIRI Trend Indicator Values (TIVs) in Millions – Not Currency)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Peru										1	1					13				15
Qatar																		29	88	118
Rwanda								7	3									1	3	14
Saudi Arabia									33	33						35	15	35	40	191
Senegal																	16	20		36
Seychelles												4			10					14
Sierra Leone							9					2				0	1			13
Slovakia																		13		13
Somalia																		2		2
South Sudan															12					12
Sri Lanka	29	21	3	8	18	28	49	48	59		4									266
Sudan		3	16	97	16	39	25	7	28	6	17	18	29	28	32	27	12	32	32	462
Syria										56	15				5					76
Tajikistan																			3	3
Tanzania				46			0	0		25		76	113	118	14	20		2		414
Thailand	25					11	11			12		2	20	24	8	1	77	131	50	372
Timor-Leste											18									18
Trinidad and Tobago																16				16
Turkey	6		7	7	14	14	28	35	35	35	35	35	35							286
Turkmenistan																	230	4		234
UAE														15	15	15	15	35	40	135
Uganda									14											14
Unknown recipient(s)					0															0
Uzbekistan															15					15
Venezuela							14	27	41	54	89	8	51	97	74	100	76			629
Zambia	28						21	4	2				51				33	33		170
Zimbabwe					13	21	21													55
Total	299	515	525	700	413	286	668	509	644	1140	1478	1252	1515	2047	1160	1845	2360	1227	1040	19625

# **PART FIVE: KEY AREAS OF U.S. MILITARY FOCUS**

# Key Areas of U.S. Military Focus

The previous sections have already shown that China's present and future ability to cooperate, compete and fight a conflict can be seen from many different perspectives – and that China's present strategy is focused more on economic growth and the development of fully competitive modern forces than any form of conflict. At the same time, it is clear that the U.S. now sees China as its key peer in both civil and military terms, and that its strategy focuses on competition and possible conflict, rather than cooperation.

China's white papers do not yet directly address these aspects of U.S. strategy, but it is clear from the military charts and data that follow that Chinese military developments have focused on the U.S. as a competitor and potential threat in similar ways for well over a decade. It is also clear that China is shaping the rises in its military expenditures — and its plans to acquire parity or superiority in military technology — around its assessments of U.S. plans and capabilities. Once again, in the real world, grand strategy does not consist of what nations say, but rather of what they actually do.

Accordingly, this section of the report introduces the analysis of China's perception of its strategic goals, possible threats, and the development of its military forces by outlining U.S. perceptions of China's expanding role in the Pacific, the developments in U.S. strategy and forces, and how the U.S. is shaping its forces in the present military balance. It does not attempt a full net assessment, but it does attempt to provide the context necessary for a paper that focuses on U.S. and Chinese strategic competition.

It is important to note, however, that the following sections focus on China's regional concerns as well as U.S. and Chinese strategic competition, and how its rising power affects its military capabilities relative to Asian states and its ability to protect its status as a major economic and trading power.

It also concludes by providing an overview of open source data on the developments in each key aspect of Chinese military forces – many of which are driven by the need to deter and potentially fight U.S. forces, but many of which are also driven by China's need to deal with regional powers and by unique Chinese approaches to grand strategy, strategy, and tactics.

**U.S. Military Forces Affecting  
(and Affected By)  
China, the Pacific, the South  
China Sea, and Indian Ocean**

# **U.S. Military Forces Affecting China, the Pacific, the South China Sea, and Indian Ocean**

The previous charts and tables showing the comparative size of Chinese, Russian, and USA forces have focused on the total global strength of each power. In practice, deterrence, hybrid operations, asymmetric warfare, conventional warfare, and nuclear warfare all have one thing in common. There is virtually no chance that a scenario will arrive where global or major regional power use all of their forces, and the total military balance determines the outcome.

This is particularly true of the United States. It works closely with strategic partners. It has major deployments in the U.S. that would take time to bring to readiness and deploy, and major deployments in most regions of the world that it must sustain in part in most conflicts that involve other regions. Accordingly, any comparison of U.S. and Chinese military power must focus initially on the forces the U.S. already has in Asia and the Pacific and the role a given strategic partner would play in a given scenario, plus the power projection forces the U.S. might deploy from the Continental U.S. and other regions.

There is no clear way to show the full range of U.S. forces that might be involved in a confrontation or conflict with China, but the U.S. does have a set of forces that are clearly focused on Asia and the Pacific called the United States Indo-Pacific Command (USINDOPACOM). The charts in this section that display unclassified estimates of these forces by the U.S. command and the IISS provide a broad picture of the military capabilities the U.S. would draw upon in anything short of a general war, although the U.S. would probably deploy significant elements of its forces stationed in the U.S. to meet the needs of a given crisis or conflict. The following tables and charts describe these forces, their size, and their deployments. They also describe some near-term priorities for force improvement which provide useful insights into how the U.S. is reacting to China's military progress.

The final graphics show the location and function of key U.S. bases and a sample year of U.S. military exercises. These graphics both provide a picture of U.S. regional capabilities and of some of the reasons that China sees the U.S. position in the Pacific as being a potential threat.

It should be noted that the U.S. has never provided exact details on its efforts to build up its forces in the Indo-Pacific Command (USINDOPACOM) — and related power projection forces based in the U.S. — since it first announced a “pivot to East Asia” and then a “rebalancing to Asia” in 2012. It has, however, been increasing selected aspects of its forces in Asia since 2015 — initially as a reaction to the collapse of the FSU and Warsaw Pact and then to the rise of China. The U.S. FY2018, FY2019, and FY2020 do not describe such a force building and increases in readiness in detail, but many elements of these annual budget requests do reflect increasing U.S. forces, force modernization, and improvements in global U.S. power projection capability.

The maps showing U.S. bases do not include every local deployment, but are accurate pictures of the location of major bases. Here, it should be stressed that the Pacific covers a vast area, and forward basing is critical to sustaining any major joint force U.S. deployment in a given area.

# U.S. Indo-Pacific Command (USINDOPACOM) AOR

USINDOPACOM,  
<http://www.pacom.mil/About-USINDOPACOM/USPACOM-Area-of-Responsibility/>,  
11.18



# United States Indo-Pacific Command (USINDOPACOM)

The United States Indo-Pacific Command (USINDOPACOM) Area of Responsibility (AOR) encompasses about half the earth's surface, stretching from the waters off the west coast of the U.S. to the western border of India, and from Antarctica to the North Pole. There are few regions as culturally, socially, economically, and geo-politically diverse as the Asia-Pacific. The 36 nations that comprising the Asia-Pacific region are home to more than 50% of the world's population, 3,000 different languages, several of the world's largest militaries, and five nations allied with the U.S. through mutual defense treaties. Two of the three largest economies are located in the Asia-Pacific along with 10 of the 14th smallest. The AOR includes the most populous nation in the world, the largest democracy, and the largest Muslim-majority nation. More than one third of Asia-Pacific nations are smaller, island nations that include the smallest republic in the world and the smallest nation in Asia.

USINDOPACOM is one of six geographic [Unified Combatant Commands](#) of the United States Armed Forces. Commander, U.S. Indo-Pacific Command (CDRUSINDOPACOM) is the senior U.S. military authority in the Indo-Pacific Command AOR. CDRUSINDOPACOM reports to the President of the United States through the Secretary of Defense and is supported by four component commands: [U.S. Pacific Fleet](#), [U.S. Pacific Air Forces](#), [U.S. Army Pacific](#) and [U.S. Marine Forces, Pacific](#). These commands are headquartered in Hawai'i and have forces stationed and deployed throughout the region.

USINDOPACOM protects and defends, in concert with other U.S. Government agencies, the territory of the United States, its people, and its interests. With allies and partners, USINDOPACOM is committed to enhancing stability in the Asia-Pacific region by promoting security cooperation, encouraging peaceful development, responding to contingencies, deterring aggression, and, when necessary, fighting to win. This approach is based on partnership, presence, and military readiness.

USINDOPACOM recognizes the global significance of the Asia-Pacific region and understands that challenges are best met together. Consequently, USINDOPACOM will remain an engaged and trusted partner committed to preserving the security, stability, and freedom upon which enduring prosperity in the Asia-Pacific region depends.

**VISION:** USINDOPACOM ensures a Free and Open Indo-Pacific alongside a constellation of like-minded Allies and Partners, united by mutual security, interests, and values in order to deter adversary aggression, protect the Homeland, and be ready to fight and win in armed conflict.

**MISSION:** U.S. Indo-Pacific Command will implement a combat credible deterrence strategy capable of denying our adversaries sustained air and sea dominance by focusing on posturing the Joint Force to win before fighting while being ready to fight and win, if required.

## FOCUS AREAS:

1. Joint Force Lethality - We must continue to develop and field capabilities necessary to deter aggression and prevail in armed conflict should deterrence fail.
2. Design & Posture - We will adapt from our historical service-centric focus in Northeast Asia to a new more integrated joint forces blueprint which is informed by the changing threat environment and challenges of the 21st Century across the entire Indo-Pacific.
3. Exercises, Experimentation, & Innovation - Targeted innovation and experimentation investments will evolve the joint force while developing asymmetrical capability to counter adversary capabilities.
4. Allies & Partners - Through increased interoperability, information-sharing, and expanded access across the region, we present a compatible and interoperable coalition to the adversary in crisis and armed conflict. USINDOPACOM headquarters is located in the Nimitz-MacArthur Building on Camp H.M. Smith just outside of Honolulu, Hawaii.



# U.S. Indo-Pacific Command Strategy: Summary of U.S. Forces and Force Improvement Efforts - I

USINDOPACOM currently has more than 2,000 aircraft; 200 ships and submarines; and more than 370,000 Soldiers, Sailors, Marines, Airmen, DoD civilians, and contractors assigned within its area of responsibility. The largest concentration of forces in the region are in Japan and the ROK. A sizable contingent of forces (more than 5,000 on a day-to-day basis) are also based in the U.S. territory of Guam, which serves as a strategic hub supporting crucial operations and logistics for all U.S. forces operating in the Indo-Pacific region. Other allies and partners that routinely host U.S. forces on a smaller scale include the Philippines, Australia, Singapore, and the United Kingdom through the island of Diego Garcia.

In order to overcome the tyranny of distance, posture that supports and enables inter- and intra-theater logistics must be flexible and resilient, and the pre-positioning of equipment is critical. Specifically, we are exploring expeditionary capabilities; dynamic basing of maritime and air forces; special operations forces capable of irregular and unconventional warfare; anti-submarine capabilities; cyber and space teams equipped for multi-domain operations; and, unique intelligence, surveillance, and reconnaissance (ISR) capabilities – among other investments. From leveraging existing access in the Compact States, to pursuing co-development with our most capable allies and partners, we will continue to forward-station leading edge technologies, such as 5th generation fighters in the Indo-Pacific.

DoD is also developing new operating concepts to increase our lethality, agility, and resilience that will be further implemented through our evolving posture. For example, as part of the Multi-Domain Operations concept, the U.S. Army will test Multi-Domain Task Forces intended to create temporary windows of superiority across multiple domains, and allow the Joint Force to seize, retain, and exploit the initiative. The U.S. Army will test the Multi-Domain Task Forces through the Pacific Pathways program to determine the right capability mix and locations. Furthermore, the Expeditionary Advanced Base Operations is an emerging U.S. Navy and Marine Corps operating concept to provide resilience and support to maritime operations inside contested environments. It is intended to deny adversary freedom of action; control key maritime terrain; and support Joint Force air and maritime requirements by operating from austere locations at a tempo that complicates adversary targeting. In addition, DoD will continue to ensure a force posture that enables the United States to undertake a spectrum of missions including security cooperation, building partner capacity, collaboration on transnational threats, and joint and combined training.

The Department is undertaking a range of efforts to enhance Joint Force preparedness for the most pressing scenarios. Examples of DoD initiatives include:

- Investments in Advanced Training Facilities at the Joint Pacific Alaska Range Complex to present a more realistic and representative training environment;
- Investments in unit and depot maintenance across Air Force and Naval Aviation to achieve an 80 percent fighter readiness goal by the end of Fiscal Year (FY) 2019; and,
- Investments in advanced missile defense systems interoperable with allied systems in Japan and Australia.

# U.S. Indo-Pacific Command Strategy: Summary of U.S. Forces and Force Improvement Efforts - II

The Department is also modernizing the force to meet the demands of high-end competition. Illustrative examples of key investments include:

- Acceleration of the development and forward presence of U.S. land forces' Multi-Domain Task Force, utilizing Security Force Assistance Brigades to build partner capacity and strengthen multinational teams, and expanding Pacific Pathways to deepen relationships with U.S. allies and partners;
- Strategic deterrence enhancements associated with investments in the new Columbia-class ballistic missile submarine;
- Purchase of 110 4th- and 5th-generation aircraft which will result in both capability and capacity improvements;
- Purchase of approximately 400 Advanced Medium-Range Air-to-Air Missiles;
- Purchase of more than 400 Joint Air-Surface Missiles – Extended Range;
- Investments in two Unmanned Surface Vehicles, additional Long Range Anti-Ship Missiles, and additional Maritime Strike Tactical Tomahawks;
- Increased capacity in Anti-Surface Warfare, Anti-Submarine Warfare, and Ballistic Missile Defense (BMD) by purchasing 10 more destroyers within the FY 2020-2024 Future Years Defense Program;
- Investment in resources to support offensive and defensive cyberspace operations; and,
- Efforts to unify, focus, and accelerate the development of space doctrine, capabilities, and expertise to outpace future threats, institutionalize advocacy of space priorities, and further build space warfighting culture

# U.S. Indo-Pacific Command Deployments and Forces in 2018

**AUSTRALIA:** US Pacific Command • 1,500; 1 SEWS at Pine Gap; 1 comms facility at Pine Gap; 1 SIGINT stn at Pine Gap; US Strategic Command • 1 detection and tracking radar at Naval Communication Station Harold E Holt

**BRITISH INDIAN OCEAN TERRITORY:** US Strategic Command • 300; 1 Spacetrack Optical Tracker at Diego Garcia; 1 ground-based electro-optical deep space surveillance system (GEODSS) at Diego Garcia

**US Pacific Command** • 1 MPS sqn (MPS-2 with equipment for one MEB) at Diego Garcia with 2 AKRH; 3 AKR; 1 AKEH; 1 ESD; 1 naval air base at Diego Garcia, 1 support facility at Diego Garcia

**GUAM:** US Pacific Command • 6,000; 4 SSGN; 1 MPS sqn (MPS-3 with equipment for one MEB) with 2 AKRH; 4 AKR; 1 ESD; 1 AKEH; 1 bbr sqn with 6 B-52H *Stratofortress*; 1 tkr sqn with 12 KC-135R *Stratotanker*; 1 tpt hel sqn with MH-60S; 1 SAM bty with THAAD; 1 air base; 1 naval base

**JAPAN:** US Pacific Command • 53,900

US Army 2,700; 1 corps HQ (fwd); 1 SF gp; 1 avn bn; 1 SAM bn  
US Navy 20,250; 1 HQ (7th Fleet) at Yokosuka; 1 base at Sasebo; 1 base at Yokosuka

## FORCES BY ROLE

3 FGA sqn at Iwakuni with 10 F/A-18E *Super Hornet*; 1 FGA sqn at Iwakuni with 10 F/A-18F *Super Hornet*; 2 EW sqn at Iwakuni/Misawa with 5 EA-18G *Growler*; 1 AEW&C sqn at Iwakuni with 5 E-2D *Hawkeye*; 2 ASW hel sqn at Atsugi with 12 MH-60R; 1 tpt hel sqn at Atsugi with 12 MH-60S

## EQUIPMENT BY TYPE

1 CVN; 3 CGHM; 2 DDGHM; 8 DDGM (2 non-op); 1 LCC; 4 MCO; 1 LHD; 1 LPD; 2 LSD  
USAF 12,150

## FORCES BY ROLE

1 HQ (5th Air Force) at Okinawa – Kadena AB; 1 ftr wg at Misawa AB with (2 ftr sqn with 22 F-16C/D *Fighting Falcon*); 1 wg at Okinawa – Kadena AB with (2 ftr sqn with 27 F-15C/D *Eagle*; 1 ftr sqn with 14 F-22A *Raptor*; 1 tkr sqn with 15 KC-135R *Stratotanker*; 1 AEW&C sqn with 2 E-3B/C *Sentry*; 1 CSAR sqn with 10 HH-60G *Pave Hawk*); 1 tpt wg at Yokota AB with 10 C-130J-30 *Hercules*; 3 Beech 1900C (C-12J); 1 Spec Ops gp at Okinawa – Kadena AB with (1 sqn with 5 MC-130H *Combat Talon*; 1 sqn with 5 MC-130J *Commando II*; 1 unit with 5 CV-22 *Osprey*); 1 ISR sqn with RC-135 *Rivet Joint*; 1 ISR UAV flt with 5 RQ-4A *Global Hawk*  
JSMC 18,800

## FORCES BY ROLE

1 mne div; 1 mne regt HQ; 1 arty regt HQ; 1 recce bn; 1 mne bn; 1 amph aslt bn; 1 arty bn; 1 FGA sqn with 12 F/A-18C *Hornet*; 1 FGA sqn with 12 F/A-18D *Hornet*; 1 FGA sqn with 12 F-35B *Lightning II*; 1 tkr sqn with 15 KC-130J *Hercules*; 2 tpt sqn with 12 MV-22B *Osprey*  
US Strategic Command • 1 AN/TPY-2 X-band radar at Shariki; 1 AN/TPY-2 X-Band radar at Kyogamisaki

**KOREA, REPUBLIC OF:** US Pacific Command • 28,500

US Army 19,200

## FORCES BY ROLE

1 HQ (8th Army) at Seoul; 1 div HQ (2nd Inf) located at Tongduchon; 1 armd bde; 1 (cvt avn) hel bde; 1 MRL bde; 1 AD bde; 1 SAM bty with THAAD

## EQUIPMENT BY TYPE

M1A2 SEPv2 *Abrams*; M2A2/M3A3 *Bradley*; M109A6; M270A1 *MLRS*; AH-64D *Apache*; CH-47F *Chinook*; UH-60L/M *Black Hawk*; MIM-104 *Patriot*; FIM-92A *Avenger*; 1 (APS) armd bde eqpt set  
US Navy 250

USAF 8,800

## FORCES BY ROLE

1 (AF) HQ (7th Air Force) at Osan AB; 1 ftr wg at Osan AB with (1 ftr sqn with 20 F-16C/D *Fighting Falcon*; 1 atk sqn with 24 A-10C *Thunderbolt II*); 1 ftr wg at Kunsan AB with (2 ftr sqn with 20 F-16C/D *Fighting Falcon*); 1 ISR sqn at Osan AB with U-2S  
USMC 250

**MARSHALL ISLANDS:** US Strategic Command • 1 detection and tracking radar at Kwajalein Atoll

**PACIFIC OCEAN:** US Pacific Command • US Navy • 3rd Fleet: 8 SSBN; 21 SSGN; 4 SSN; 4 CVN; 10 CGHM; 21 DDGHM; 6 DDGM; 9 FFHM; 3 MCO; 1 LHA; 3 LHD; 5 LPD; 3 LSD

**PHILIPPINES:** US Pacific Command • *Operation Pacific Eagle* - Philippines 250

**SINGAPORE:** US Pacific Command • 200; 1 log spt sqn; 1 spt facility

**THAILAND:** US Pacific Command • 300

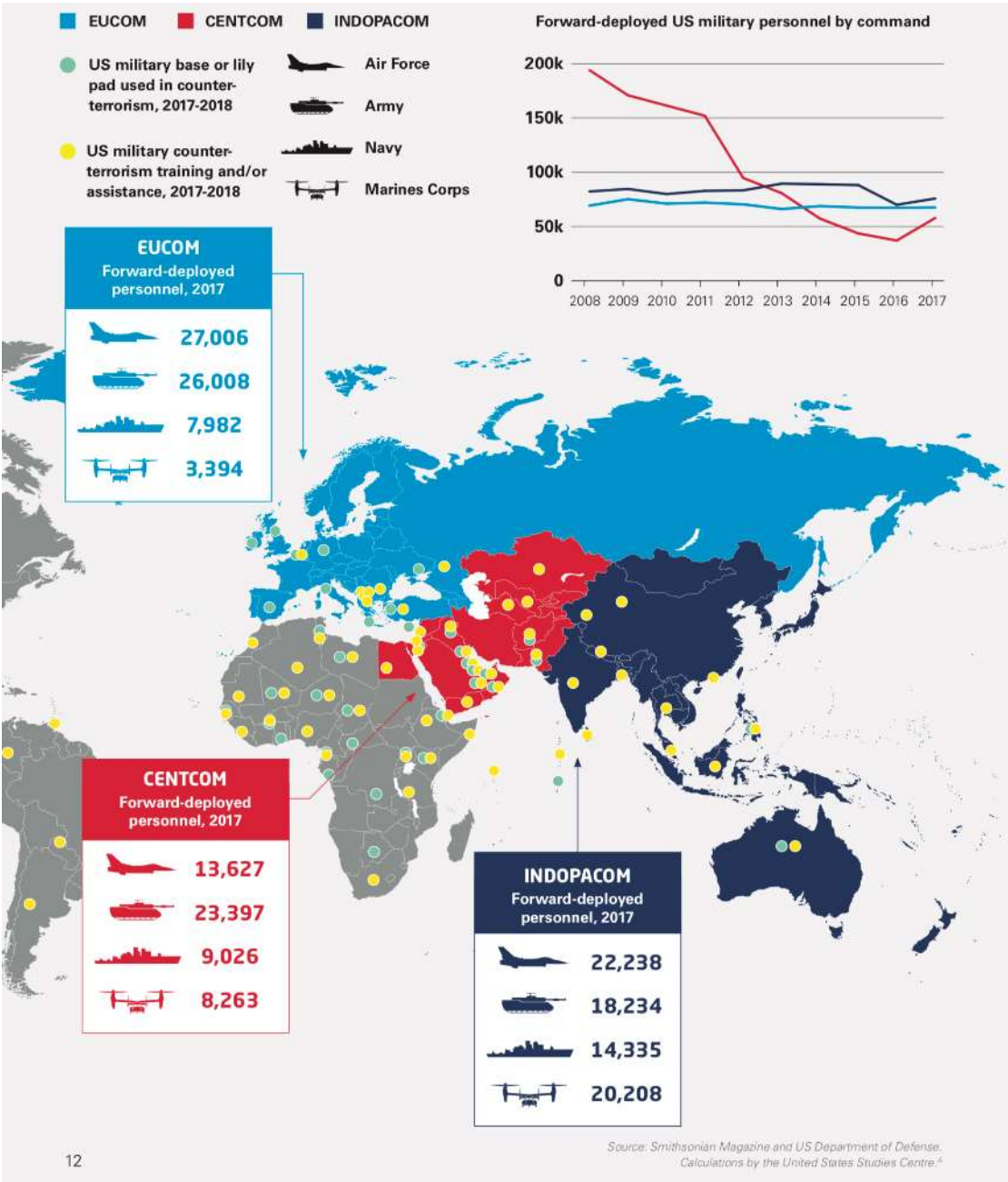
## U.S. Forces in USINDOPACOM in 2019

Approximately 375,000 U.S. military and civilian personnel are assigned to USINDOPACOM and its different components across the Indo-Asia-Pacific region. According to USINDOPACOM, those assignments are broken out as follows:

- **Approximately 28,500 U.S. service members and their families are stationed in the Republic of Korea**, while U.S. Forces Japan consists of approximately 54,000 military personnel and their dependents. As of September 2016, approximately 5,000 service members and their families were stationed in Guam.
- U.S. Pacific Fleet consists of approximately **200 ships** (including five aircraft carrier strike groups), nearly **1,100 aircraft**, and more than **130,000** sailors and civilians.
- Marine Corps Forces, Pacific includes **two Marine Expeditionary Forces** and about 86,000 personnel and **640 aircraft**.
- U.S. Pacific Air Forces comprises approximately **46,000** airmen and civilians and more than **420** aircraft.
- U.S. Army Pacific has approximately **106,000** personnel from one corps and two divisions, plus over **300** aircraft assigned throughout the AOR.
- These component command personnel figures also include more than **1,200** Special Operations personnel. Department of Defense civilian employees in the Pacific Command AOR number about **38,000**.

# University of Sydney Estimate of Trends in US Power Projection of Forward Deployed Personnel by Major U.S. Command

Source: Ashley Townshend and Brendan Thomas-Noone and Matilda Steward with Matilda Steward, *Averting Crisis: American Strategy*, United States Studies Centre, University of Sydney, August 2019, p. 12





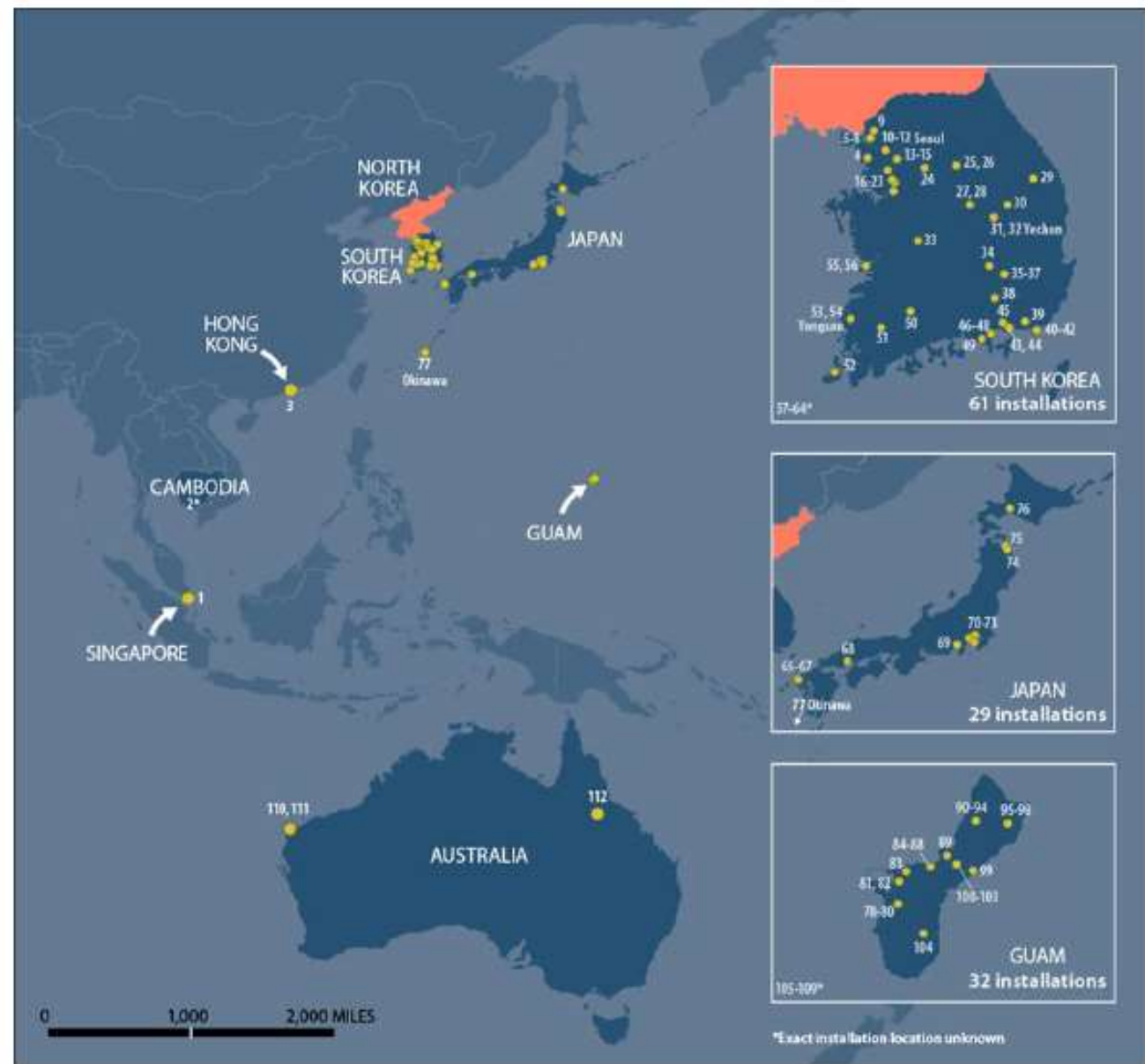
## U.S. Allies and Bases in Region



Light blue denotes a treaty ally or an actual part of the United States. | (CSIS)

## U.S. Bases in Pacific

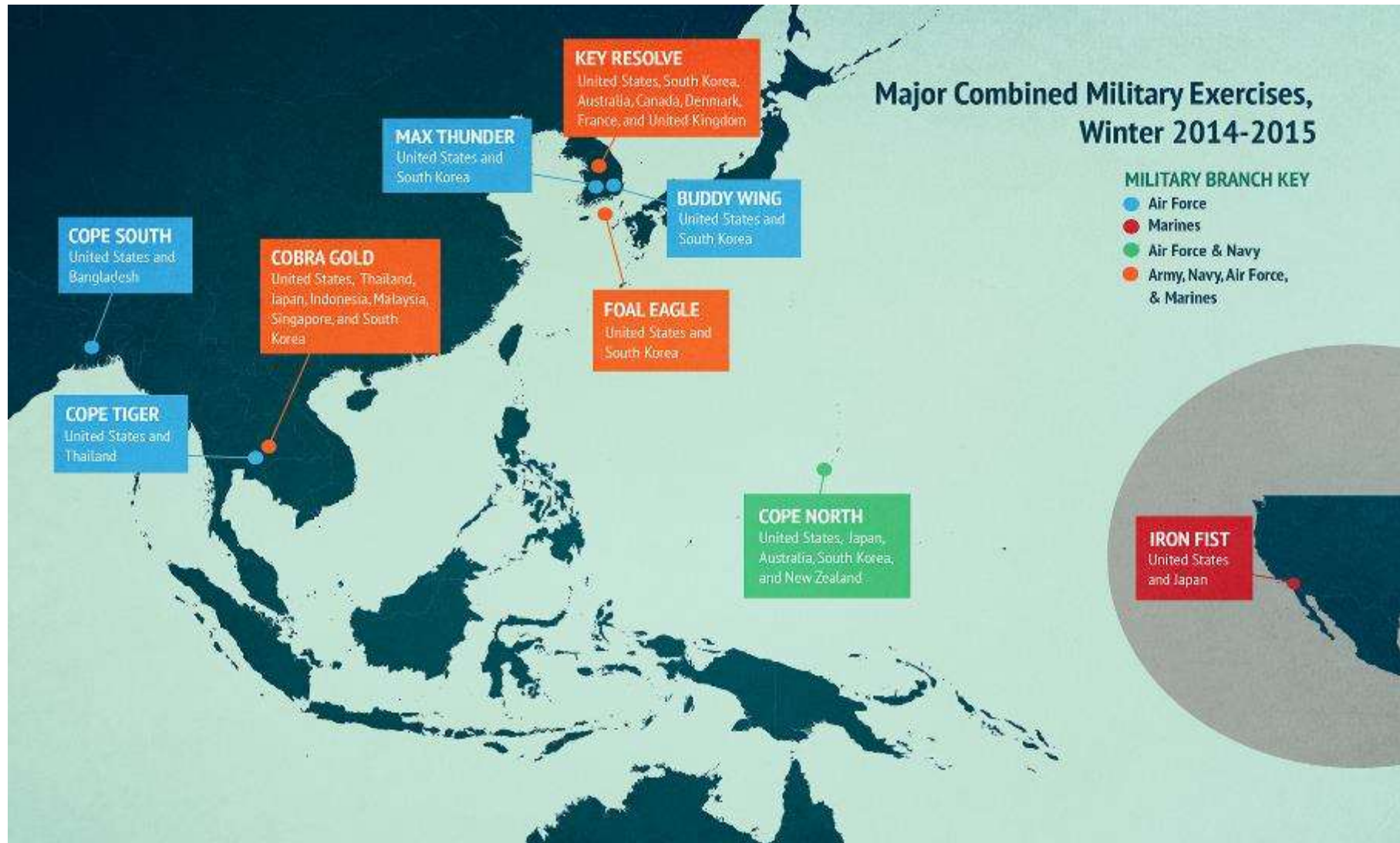
Kathleen J. McInnis and others,  
 “The The North Korean Nuclear  
 Challenge: Military Options and  
 Issues for Congress,” Congressional  
 Research Service, [www.crs.gov](http://www.crs.gov),  
 R44994, November 6, 2017.



**Sources:** Graphic created by CRS. Information generated by Hannah Fischer using data from the Department of Defense Base Structure Report, FY2015, available at <https://www.acq.osd.mil/eie/Downloads/BSI/Base%20Structure%20Report%20FY15.pdf>; Department of State (2015); Esri (2016).



## U.S. Joint Pacific Exercises in 2014-2015



Source: <https://amti.csis.org/the-evolving-role-of-military-exercises-in-asia/>

# **The U.S. Side of the Shifting Asia-Pacific Regional Balance**

## **U.S. Military Forces Affecting China, the Pacific, the South China Sea, and Indian Ocean**

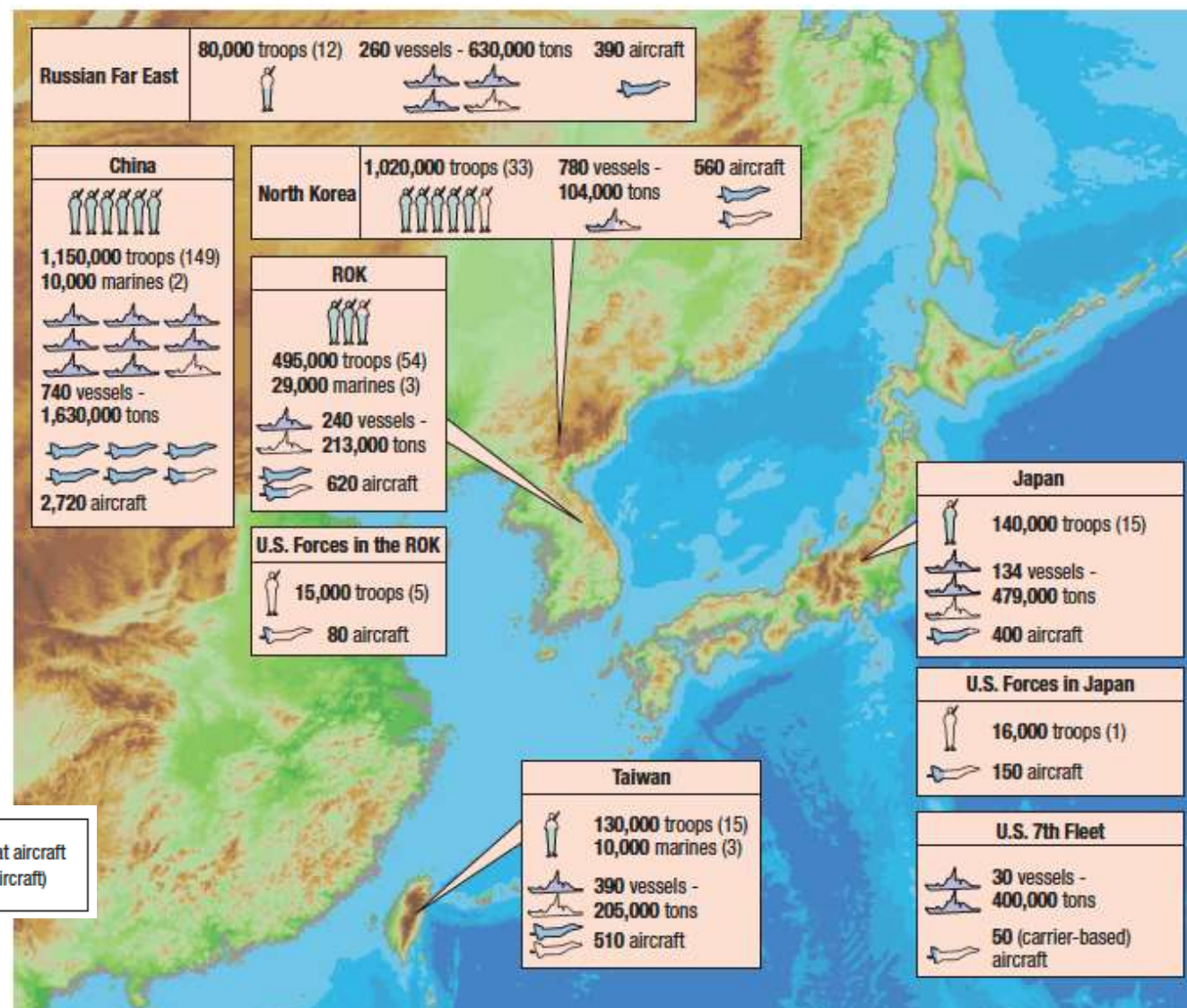
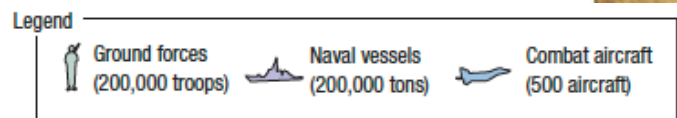
The charts and tables in this section provide Japanese and Korean assessments of the regional balance between U.S., Chinese, and other military forces. There are no open source estimates by the U.S. government that provide unclassified official estimates, but the numbers shown in each estimate seem to be reasonable broad estimates of the force totals involved.

Such totals do not, however, reflect levels of readiness, modernization, and military experience. They do not reflect the forces likely to be allocated to any given scenarios, and are relevant largely to scenarios involving theater-wide conventional wars. Such conflicts seem much less likely than political-economic tensions, competitions, and conflicts — including hybrid operations that do not actually involve military clashes. All of the major powers have strong strategic, economic, and military incentives to avoid major clashes or conflicts or terminate them as soon as possible — given the immense cost of any major conventional conflict and its aftermath, and the risk of nuclear war.

Accordingly, the capability of any given side to use force to exert influence — passively or in limited conflicts — may be just as important in the real world as the capability to deter, fight, and successfully terminate major conflicts. The ability to preemptively or suddenly use limited forces successfully in hybrid or asymmetric operations in limited regional conflicts may also dominate the competition between China, the U.S. and other major powers. Similarly the ability to deter the escalation of limited clashes or conflicts on favorable terms may be as critical as the ability to deter and successfully fight large-scale conflicts.

The public statements of Chinese national strategy may not recognize these realities, but they are logical extensions of Chinese strategy since at least the days of Sun Tzu, and Chinese staff colleges and writing clearly emphasize such options. The same recognition is increasingly part of official U.S. military education, although U.S. policymakers often do emphasize the risk or possibility of large-scale conflicts.

# Japanese Estimate of Regional Military Balance: 2017

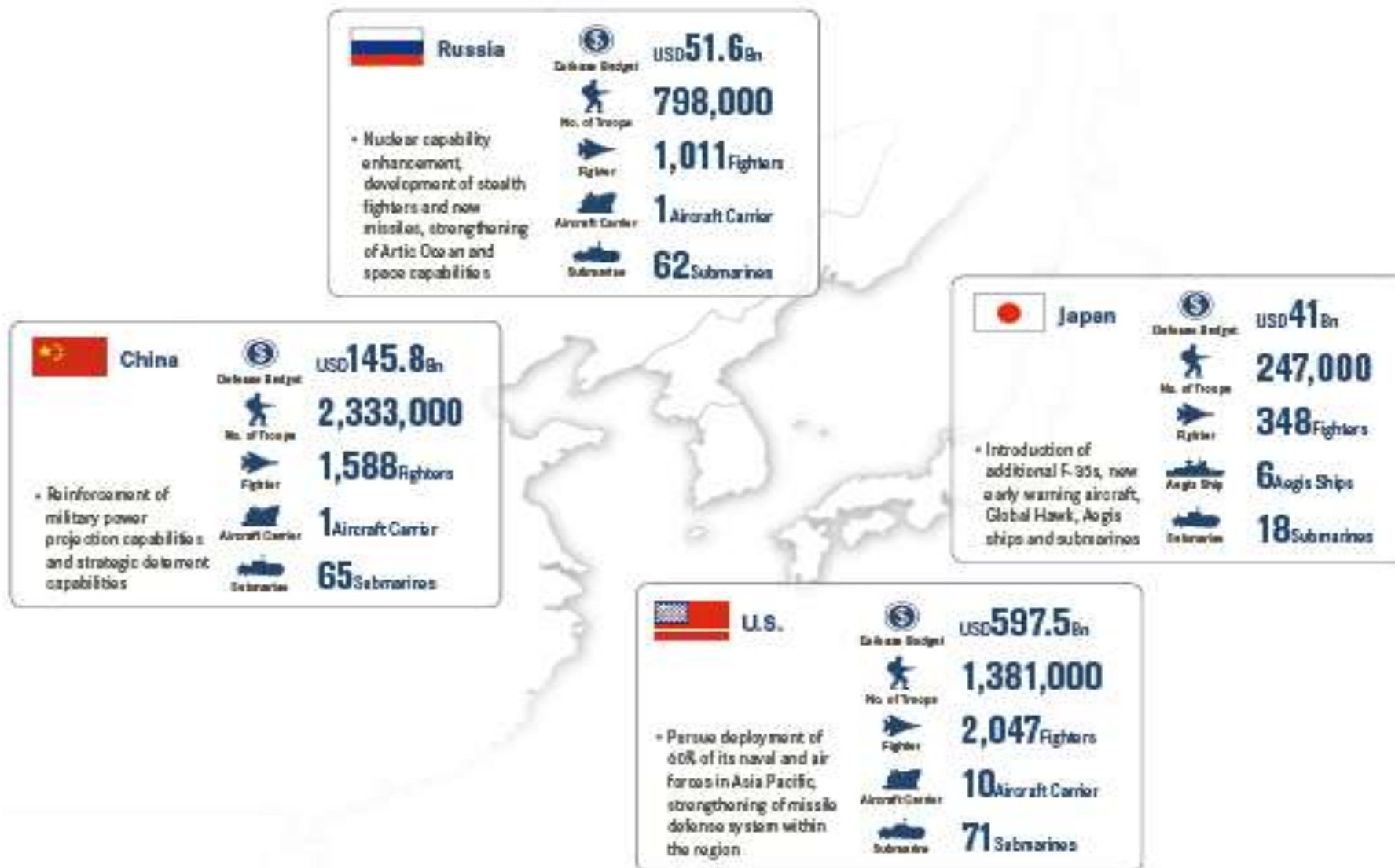


1. Source: "The Military Balance 2017," documents published by the U.S. DoD, etc.
2. Figures for Japan indicate the strength of each SDF as of the end of 2016; the number of combat aircraft is the sum of ASDF aircraft (excluding transport aircraft) and MSDF aircraft (fixed-wing aircraft only).
3. Figures for the U.S. ground forces in Japan and the ROK are those of the 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. That of North Korea shows only divisions. That of Taiwan includes military police as well.
6. The number of U.S. 7th Fleet vessels and aircraft indicates those which are forward-deployed in Japan and Guam.
7. Figures of combat aircraft of the U.S. Forces, Japan and the U.S. 7th Fleet include only fighters.

Adapted from Defense of Japan  
2017 (Annual White Paper) Digest,  
[http://www.mod.go.jp/e/publ/w\\_pape  
r/2017.html/](http://www.mod.go.jp/e/publ/w_pape/r/2017.html/) p. 47.



# South Korean Estimate of Regional Military Balance: 2016 - I



• Sources: *The Military Balance 2016* (International Institute for Strategic Studies, Feb. 2016.), *Defense of Japan 2016*, etc.

# South Korean Estimate of Regional Military Balance: 2016 - II

## Number of Troops

Unit: persons

Category	U.S.	Russia	China	Japan
Total	1,381,250	798,000	2,333,000	247,150
Army	509,450	240,000	1,600,000	151,000
Navy	326,800	148,000	235,000	45,500
Air Force	319,950	145,000	398,000	47,100
Others	Marine Corps 185,050 Coast Guard 40,000	Airborne 34,000 Strategic 80,000 Command/support 151,000	Rocket Forces 100,000	Joint Staff Office 3,550

## Army

Category	U.S.	Russia	China	Japan
Divisions/Brigades	10/45	4/89	23/128	9/6
Tanks	5,884	20,200	6,540	687
Infantry combat vehicles	6,559	13,900	3,950	68
Reconnaissance vehicles	1,900	2,200	650(light tanks)	162
Armored vehicles	24,377	12,000	4,150	792
Towed artillery	1,242	13,165	6,140	422
Self-propelled guns	1,469	6,120	2,280	166
Multiple launch rocket systems	1,205	4,070	1,872	99
Mortar	2,483	4,130	2,586	1,103
Anti-tank guided weapons	SP 1,512	SP N/A	SP 480	SP 37
Ground-to-air missiles	1,207	1,520	312	700
Helicopters	4,200	1,278	760	412
Aircraft	222	-	8	8

Adapted from South Korea, *Defense White Paper*, 2016, p. 264.

# South Korean Estimate of Regional Military Balance: 2016 - III

## Navy

Category		U.S.	Russia	China	Japan
Submarines		57	49	61	18
Strategic nuclear submarines		14	13	4	-
Aircraft carriers		10	1	1	-
Cruisers		22	6	-	-
Destroyers		62	18	19	38
Frigates		4	10	54	9
Patrol and coastal combatants		57	89	199	6
Mine sweepers		11	45	49	27
Amphibious vessels		30	19	50	3
Landing craft		245	30	73	8
Auxiliary ships		71	625	171	28
Fighters		956	72	346	-
Helicopters		720	195	111	131
Marine Corps	Marine division	3	3 brigades	2 brigades	-
	Tanks	447	250	73	-
	Reconnaissance vehicles	252	60	-	-
	Amphibious assault APC	1,311	1,000	-	-
	Personnel transport APC	2,467	400	152	-
	Cannons	1,506	365	40	-
	Anti-tank missiles	95	-	-	-
	UAV/ISRs	139	-	-	-
	Aircraft	445	-	-	-
	Helicopters	455	-	-	-

## Air Force

Category		U.S.	Russia	China	Japan
Strategic bombers		157	139	-	-
Bombers		-	-	120	-
Reconnaissance aircraft		ISR-UAV-CISR 454	85	51	17
Command and control aircraft		4	8	5	-
Fighters		FTR-FGR-ATK 1,890	872	1,468	348
Transport aircraft		686	432	325	61
Tankers		461	15	11	5
AWACS		AWE&C-EW 45	18	8	17
Trainers		1,128	204	950	245
Helicopters		161	669	53	46
Civil Reserve Air Fleet		553	-	-	-
EW aircraft		ELINT 33	32	13	3

\* Source: The Military Balance 2016 (International Institute for Strategic Studies, February 2016) and Defense of Japan 2016 (Annual White Paper) (August 2016)



# U.S. Views of China's Strategic Posture in the Pacific

# U.S. Views of China's Strategic Posture in the Pacific

As the following sections show, China's strategic posture focuses on all of China's coasts, borders, and neighbors. Like its economy and trade, China's military posture focuses as much on its claims to territory claimed by other Asian states like Japan and South Korea, Russia, Taiwan, Southeast Asia, Central Asia, and South Asia as it does on competition with the United States. Moreover, China cannot separate its strategy and military development in Asia from its focus on the U.S. The U.S. is the strategic partner of many Asian states, and has considerable political, economic, and military influence over many others.

As these later sections also show, these same claims alter China's strategic relations with virtually all its neighbors, including ones as far away as the Philippines. They are helping to drive fundamental shifts in China's force posture from a reliance on massive land forces to the creation of modern air and naval forces, modern ground forces designs for joint warfare, and increased power projection and "blue water" naval-air-missile forces.

The Western Pacific, and Chinese forces in its Eastern mainland and the South China Sea are, however, the areas that are now of particular strategic concern to the United States, and the key focus of U.S. and Chinese strategic competition. China has steadily modernized its forces in the areas which allow it to operate in the Eastern Pacific, South China Sea, and in the areas extending to which is called the Second Island Chain – an areas roughly equivalent to the claims that the Chiang Kai Shek regime made to the "Nine Dashed Line" in 1947 — after end of World War II. China associates these lines with the historical claims it can make tracing back to the height of the Chinese Empire, and its current regime modified them slightly in 2009 to better define its claims in the South China Sea and make its claims in the areas north of Taiwan less clear.

The maps that following in this section show U.S. views of China's expanding military forces in these areas – as well as other parts of the Pacific, and their possible role in air, missile, and naval operations. They also show maps of China's efforts to expand its military role and control over the two island chains in the Pacific that are now called the "First and Second Island Chains." This expansion of the military forces China deploys on these island chains — particularly in the South China Sea — are key areas of U.S. concern, although the U.S. is also concerned with Chinese operations in Exclusive Economic Zones (EEZs) throughout the world and China's steadily expanding exercises and military presence in other areas.

China, in turn, is reacting to the U.S. build-up and modernization of its forces in the Pacific. The next series of maps shows what Liddell Hart called the "other side of the hill." It provides a Chinese think tank view of the potential threat posed by U.S. forces in the Pacific, outer Island zone, and South China Sea issues in English by a Chinese research center. It is clear that China's focus on the U.S. is in many ways the mirror image of the U.S. focus on China.

Finally, the last chart in this section provides a summary of a Rand net assessment of the trends in U.S. and Chinese warfighting capability in two key zones shown in the previous maps: Taiwan and the Spratly Islands. Such a net assessment of possible conflict capabilities is highly scenario and time dependent, and its conclusions go well beyond the scope of this analysis. However, it is important to point out that military power is ultimately determined by the ability to deter, limit, win, and successfully terminate a given conflict – and not by static measures of force strength.

# China's Eastern Theater- 2018

Source: Office of the Secretary of Defense, *Military and Security Developments Involving the Republic of China, Annual Report to Congress*, May 16, 2018, Department of Defense. China Military Power 2018, p.98.



# China's Southern Theater



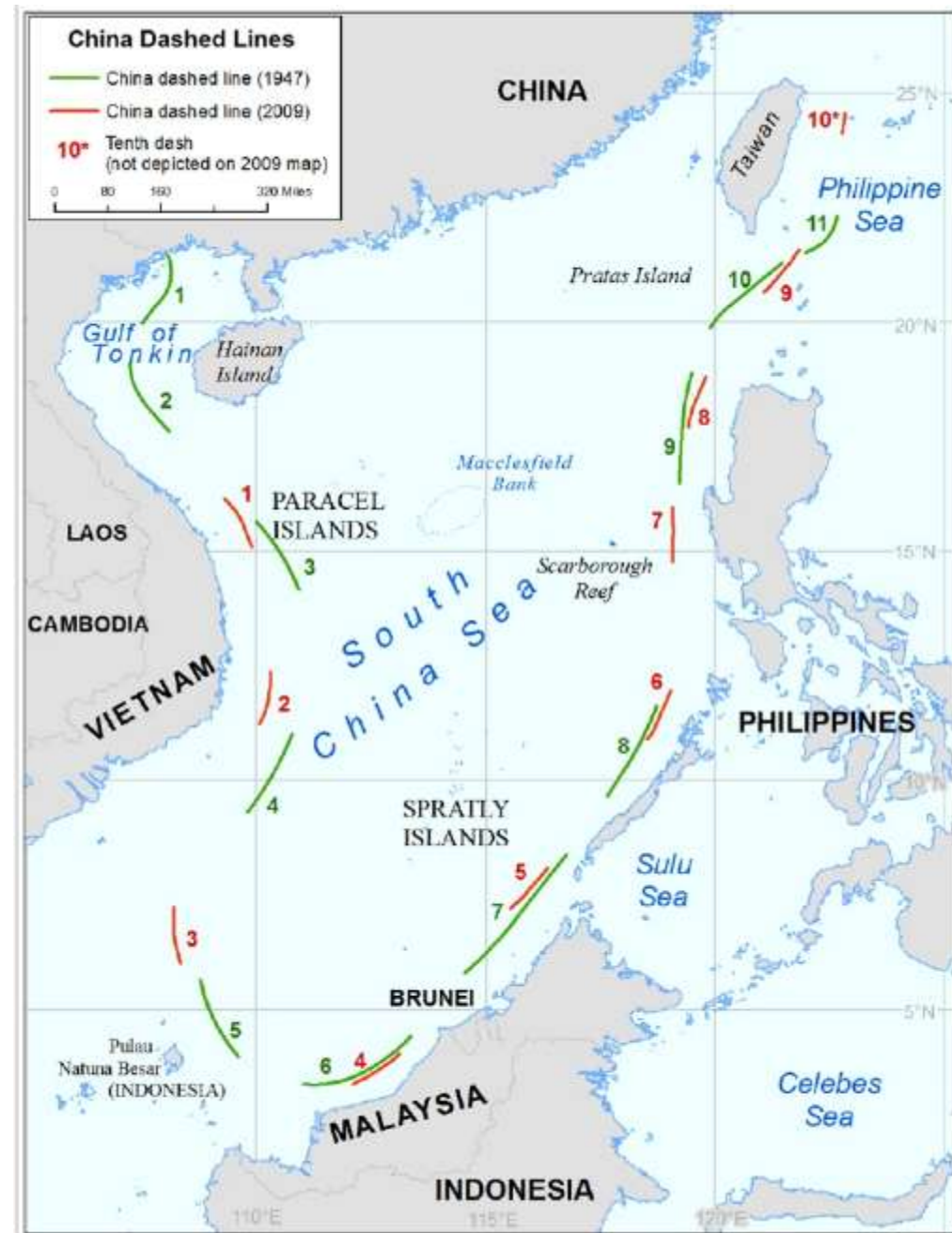
Source: Office of the Secretary of Defense, *Military and Security Developments Involving the Republic of China, Annual Report to Congress*, May 16, 2018, Department of Defense. China Military Power 2018, p. 99.

## Chinese Claims in the Eastern Pacific – The Nine (1947) and Ten (2009) Dashed Lines

The Nine-Dash Line – shown in red – has its origins in demarcation claims made by the the Republic of China that were described in broad terms in 1947 – before the regime of Chiang Kai Shek was defeated by Maoist forces. Since that time, both the People’s Republic of China (Mainland) and the Republic of China (Taiwan) Have made claims to a "10-dash line" (2009 and 2011) and "11-dash line.

The full range of Chinese claims is shown in the following major section of this report, and it is important to note that China has not filed a formal claim based on specific position for each dash or the connecting lines between them. They do not cover Chinese claims in the North Western Pacific, cover all of Taiwan and the Taiwan Strait, or define specific EEZs and air defense zones.

As such, they define China’s broad strategic claims while giving China considerable flexibility in defining and negotiating specific lines with specific countries.

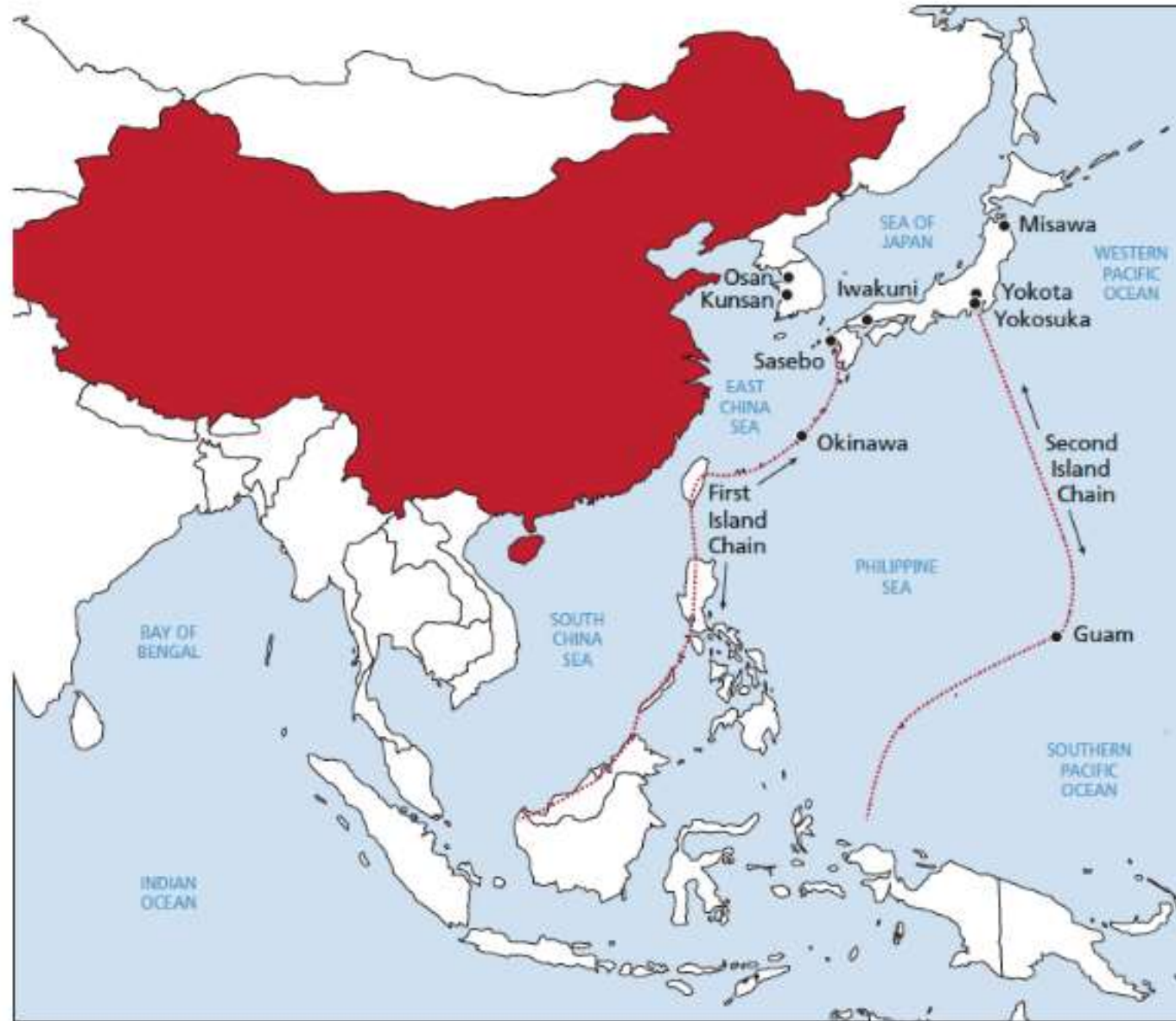


Adapted from John Grady, "U.S., Partners Should Prepare For Chinese Reaction To Impending Territorial Dispute Arbitration," *USNI News*, Updated: June 21, 2016 10:48 AM

A map of China's shifting definition of the so-called Nine-Dash Line. US State Dept. Image



# PLA Demarcation of First and Second Island Chains



RAND RR1782-2.1

Source: RAND, *US Military Forces and Capabilities for a Dangerous World*, RR1782, 2017, p. 9.



## DIA Estimate of First and Second Island Chain Boundaries: 2019

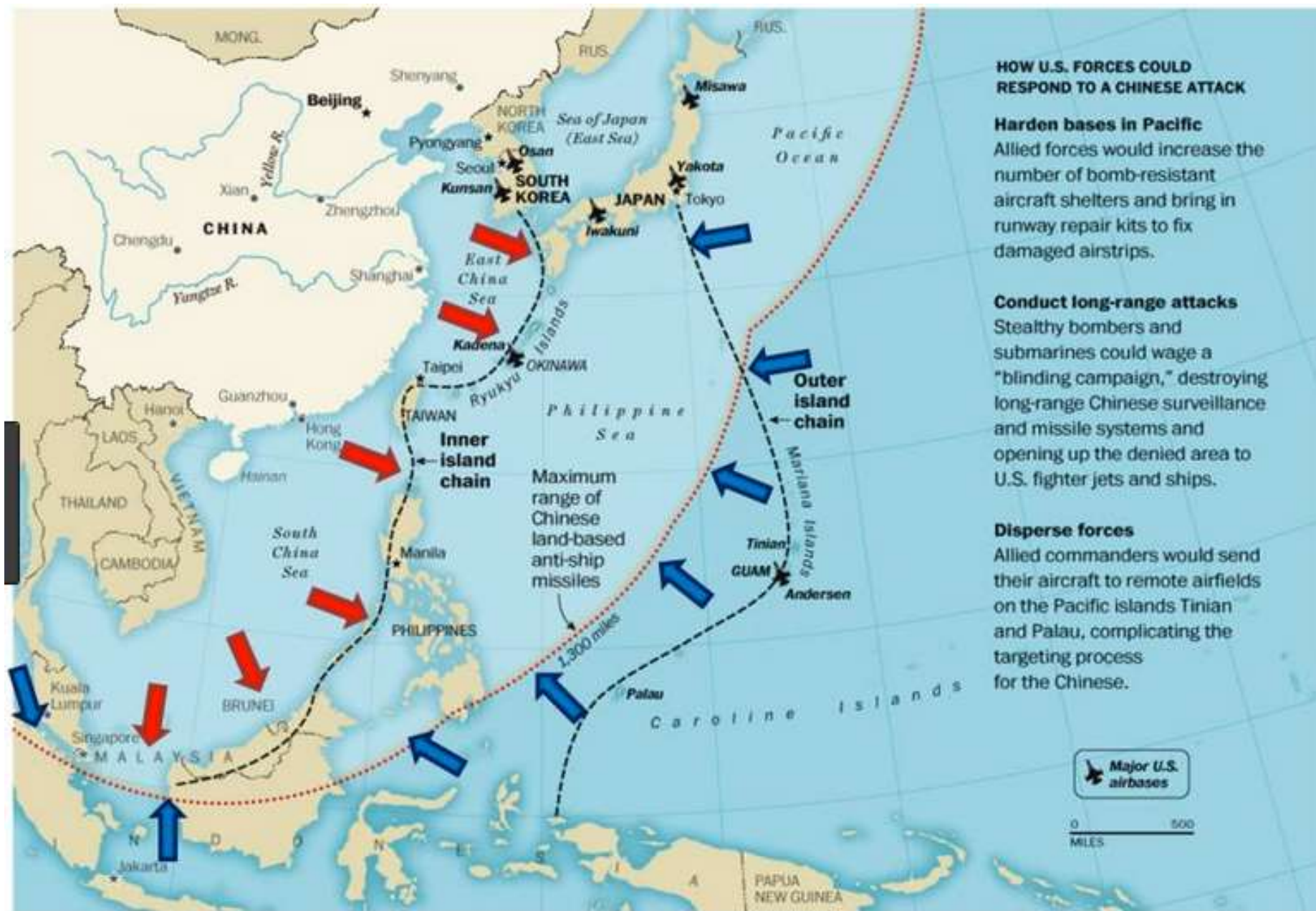


Source: DIA, *China Military Power, Modernizing a Force to Win - 2019*, Department of Defense, 2019, p. 32

## ONI Chinese (~~Defensive~~) Military Layers

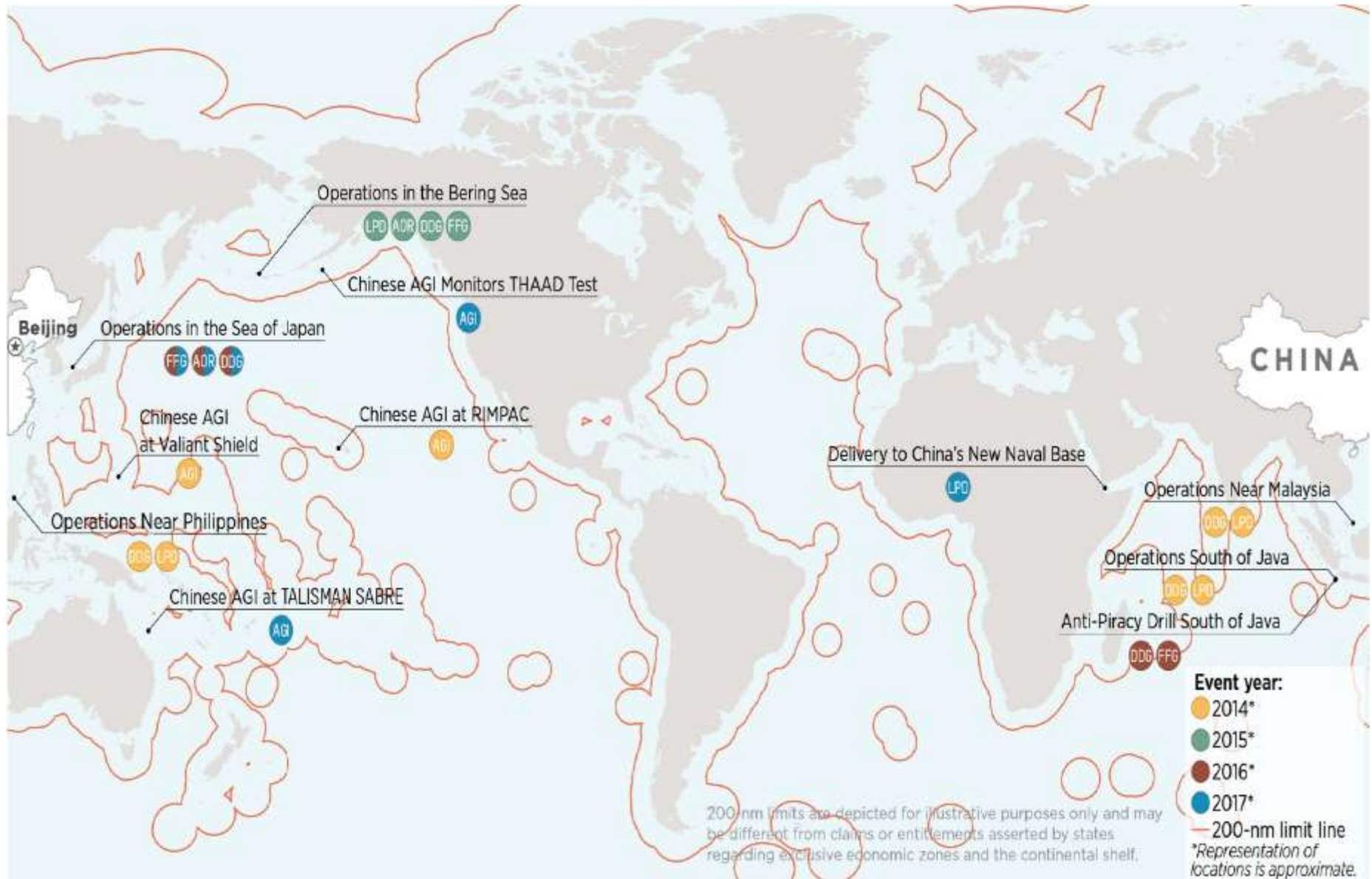


*China's anti-access area denial defensive layers. Office of Naval Intelligence Image*



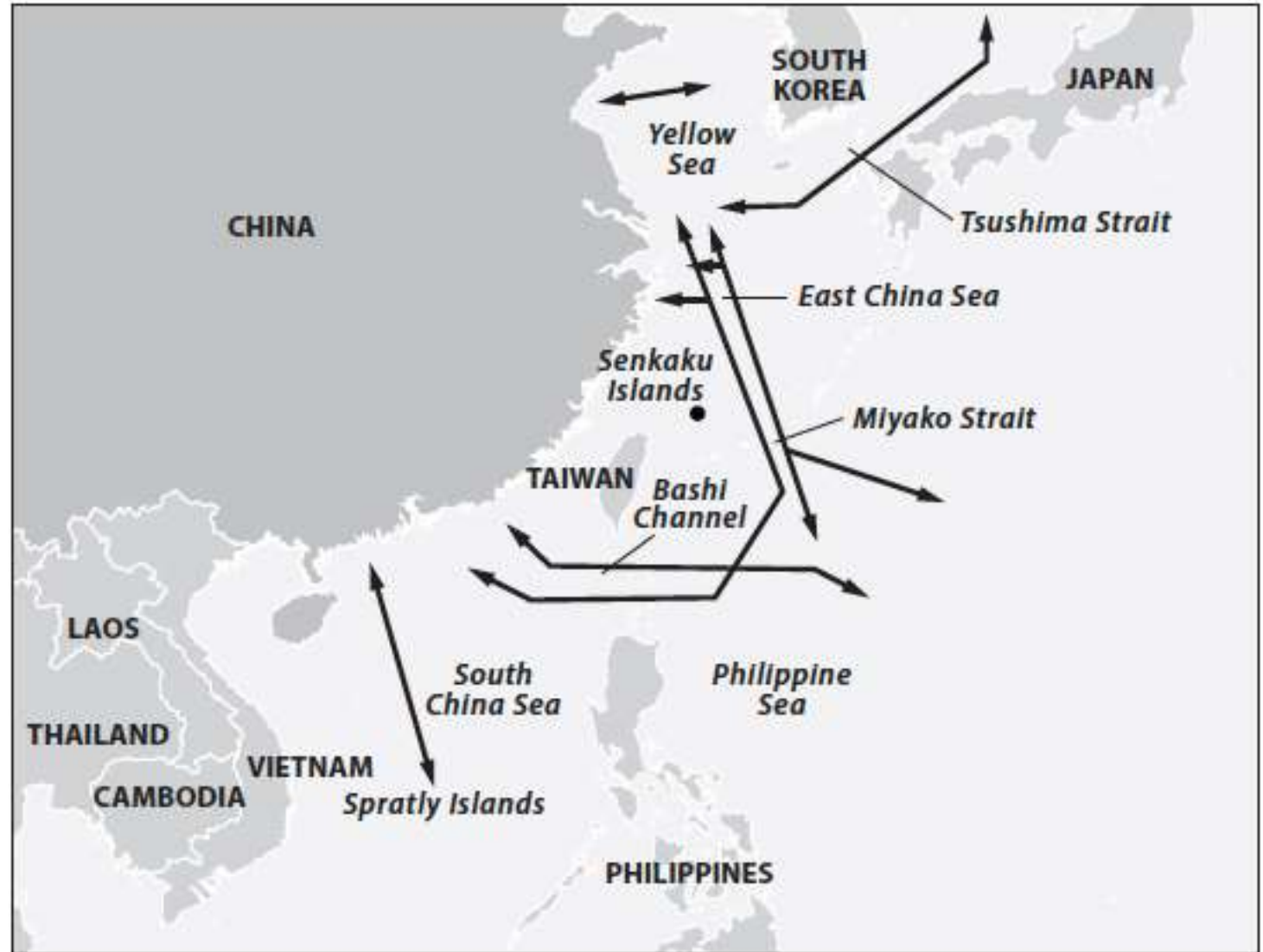


# Uninvited Operations in Foreign EEZs



Source: Office of the Secretary of Defense, *Military and Security Developments Involving the Republic of China, Annual Report to Congress*, May 16, 2018, Department of Defense. China Military Power 2018, p. 69.

## PLA Air Force and Navy Long Range Training Flights Over Water



2018 Report to Congress of  
the U.S. and China Security  
Review Commission  
Congress, 115th  
Session, 2nd  
November 2018, p. 173

# Locations of 2001, 2002, and 2009 U.S.-Chinese Incidents at Sea and In Air

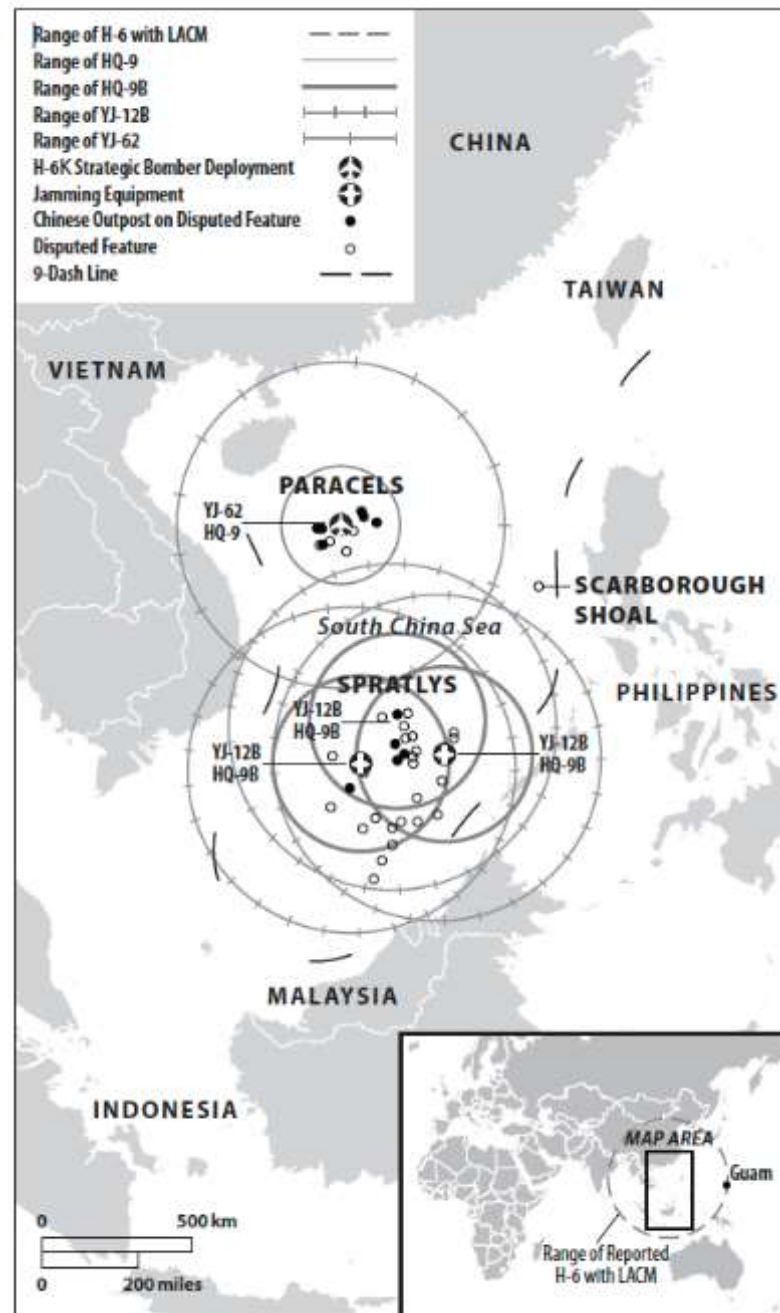
An incident occurred on September 30, 2018, between the U.S. Navy destroyer *Decatur* (DDG-73) and a Chinese destroyer, as the *Decatur* was conducting a freedom of navigation (FON) operation near Gaven Reef in the Spratly Islands. In the incident, the Chinese destroyer overtook the U.S. destroyer close by on the U.S. destroyer's port (i.e., left) side.

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 p. 6. and China's Actions in South and East China Seas: Implications for U.S. Interests—Background and Issues for Congress, Congressional Research Service, R42784 / Updated January 31, 2019 <https://crsreports.congress.gov>, p. 11.





# Location and Range of PLA South China Sea Deployments



Source: 2018 Report to Congress of the U.S. and China Security Review Commission 115th Congress, 2<sup>nd</sup> Session, November 2018, p. 170.

# Rebalancing in Asia and the “60% solution”

## A Chinese Perception of U.S. Presence in the Pacific

Source: National Institute for South China Sea Studies, *Report on the Military Presence of the United States of America in the Asia-Pacific Region*, 2016, Current Affairs Press, Hainan, 2016, p. 47.



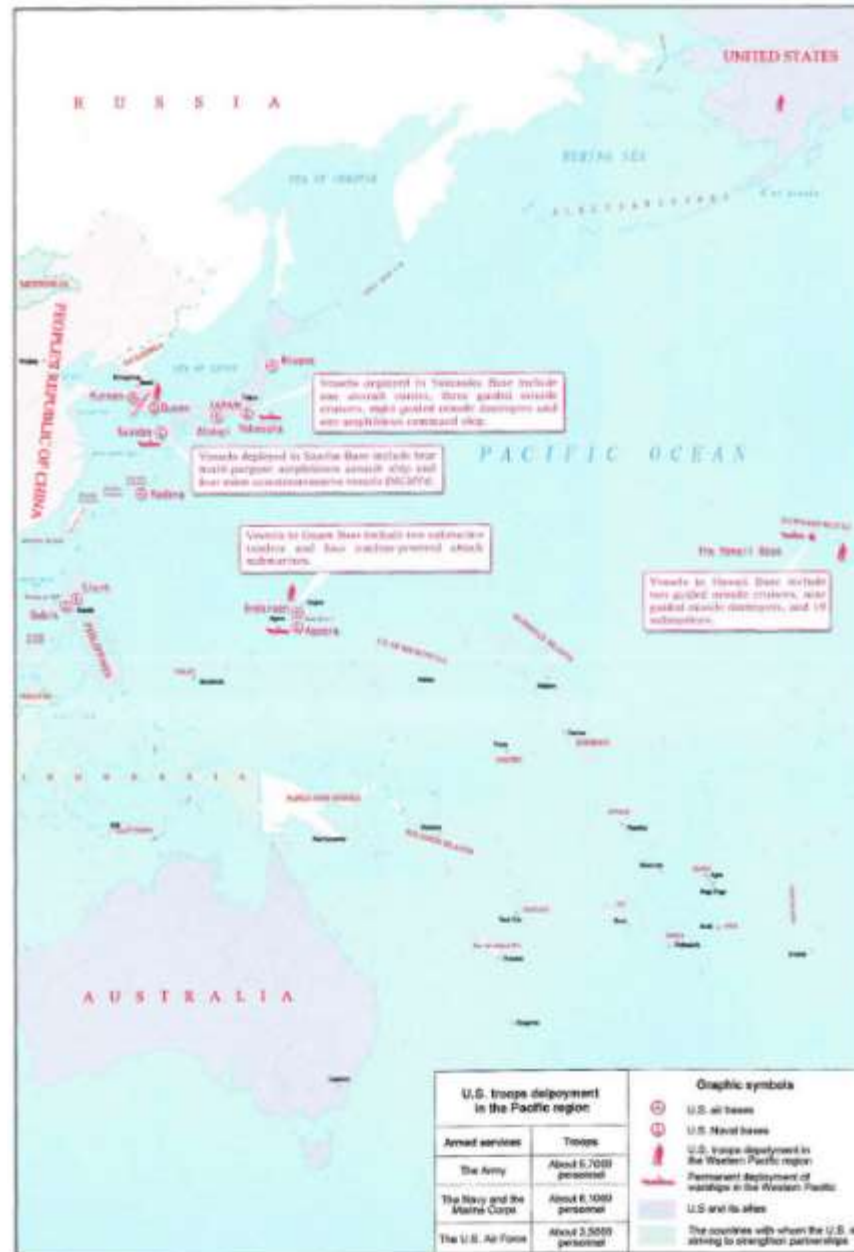
# A Chinese Perception of U.S. Presence in the Outer Island Chain

Source: National Institute for South China Sea Studies, *Report on the Military Presence of the United States of America in the Asia-Pacific Region, 2016*, Current affairs Press, Hainan, 2016, p. 47.



# A Chinese Perception of U.S. Presence in the Southern Pacific and South China Sea

Source: National Institute for South China Sea Studies, *Report on the Military Presence of the United States of America in the Asia-Pacific Region*, 2016, Current affairs Press, Hainan, 2016, p. 47



# The RAND Score Card: 1996-2017

Scorecard	Taiwan Conflict				Spratly Islands Conflict			
	1996	2003	2010	2017	1996	2003	2010	2017
1. Chinese attacks on air bases								
2. U.S. vs. Chinese air superiority								
3. U.S. airspace penetration								
4. U.S. attacks on air bases								
5. Chinese anti-surface warfare								
6. U.S. anti-surface warfare								
7. U.S. counterspace								
8. Chinese counterspace								
9. U.S. vs. China cyberwar								
10. Nuclear stability (confidence in secure second-strike capability)	Country		1996, 2003, and 2010		2017			
	China		Low confidence		Medium confidence			
	U.S.		High confidence					

Source: RAND, The US-China Military Scorecard, 1996-2017, RAND [https://www.rand.org/pubs/research\\_reports/RR392.html](https://www.rand.org/pubs/research_reports/RR392.html). RR-392-AF, 2015.

**PART SIX: CHINA, THE U.S., AND  
OTHER ASIAN POWERS —  
COMPETING CLAIMS IN ASIA  
AND THE PACIFIC**



# China, the U.S., and Other Asian Powers: Competing Claims in Asia and the Pacific

China's 2019 Defense White Paper is the first such Chinese documents to describe China's security policies towards its neighbors in detail. It is highly positive in character, minimizes the levels of tension involved, and declare China's desire to find peaceful and cooperative solutions to ever problems. These China views are question in the first series of charts in in this section

The maps and data that follow, however, describe a wide range of Chinese territorial disputes with its neighbors, and key areas of U.S.-Chinese competition in the South China Sea. They illustrate a wide range of differences between China and its neighbors, as well as the emergence of a wide range of new Chinese facilities in the South China Sea – and the related First and Second Island Chains – that directly challenge the past level of U.S. naval, air, and missile superiority in this area and that give China substantial new strategic leverage over its neighbors.

These claims are complex. They often grow out of claims based on decisions during an era of colonial exploitation, and mix history with modern international law and the search for national advantage. The legitimacy of any given claim is reflected in the fact that there are so many different maps and descriptions of the issues involved in most claims, and is too complex to address in this summary graphic assessment.

As for their impact on U.S. and Chinese competition, the U.S. and Chinese positions regarding such claims may be broadly summarized as follows:

- The U.S. does not take a position towards such Chinese claims. It focuses instead on its interpretation of international law and the position that China should negotiate flexibly, should not exploit its rising military power in such negotiations, and should negotiate collectively where there a multiple claims – rather than attempt to negotiate on a one-on-one basis that gives it a natural advantage. It also claims such negotiations should be based on freedom of navigation and limited territorial control of naval and maritime traffic and air control zones based on the territorial limits set under international law.
- China's position has been that it is obeying international law. It states that it is asserting claims that reflect its historical rights – some dating back to the period before Western colonization and others relating to Japanese occupation and World War II. It does not accept decisions made outside negotiations with China made by international bodies and claims the right to build bases and military facilities on the reefs and islands under its control.

Many if these competing claims represent boundaries based on the peak influence of a given regional power or colonial state relative to China, just as China's claims have tenuous historical legitimacy over time. It is also important to note that such claims – and much of modern international law – is the product of a period when China was at war, occupation, or comparatively weak; when the military capability to control maritime and traffic was far less developed, and offshore rights and economic access to remote boundary areas was far less important. As the next sections show, this is particularly true of the South China Sea.

As the same time, legal and economic claims cannot be divorced from strategic influence and military power. As China has shown in the South China Sea, the occupation and arming of key strategic points in the Western Pacific can have a major impact on both its strategic influence and the regional military balance.

# China 2019 Defense White Paper on Other Asian Powers and Competing Claims - I

Asia-Pacific countries are increasingly aware that they are members of a community with shared destiny. Addressing differences and disputes through dialogue and consultation has become a preferred policy option for regional countries, making the region a stable part of the global landscape. The Shanghai Cooperation Organization (SCO) is forging a constructive partnership of non-alliance and non-confrontation that targets no third party, expanding security and defense cooperation and creating a new model for regional security cooperation. The China-ASEAN Defense Ministers' Informal Meeting and the ASEAN Defense Ministers' Meeting Plus (ADMM-Plus) play positive roles in enhancing trust among regional countries through military exchanges and cooperation. The situation of the South China Sea is generally stable and improving as regional countries are properly managing risks and differences. Steady progress has been made in building a coordinated counter-terrorism mechanism among the militaries of the regional countries. A balanced, stable, open and inclusive Asian security architecture continues to develop.

...Regional hotspots and disputes are yet to be resolved. Despite positive progress, the Korean Peninsula still faces uncertainty. South Asia is generally stable while conflicts between India and Pakistan flare up from time to time. Political reconciliation and reconstruction in Afghanistan is making progress in the face of difficulties. Problems still exist among regional countries, including disputes over territorial and maritime rights and interests, as well as discord for ethnic and religious reasons. Security hotspots rise from time to time in the region.

China's homeland security still faces threats. Land territorial disputes are yet to be completely resolved. Disputes still exist over the territorial sovereignty of some islands and reefs, as well as maritime demarcation. Countries from outside the region conduct frequent close-in reconnaissance on China by air and sea, and illegally enter China's territorial waters and the waters and airspace near China's islands and reefs, undermining China's national security.

China's overseas interests are endangered by immediate threats such as international and regional turmoil, terrorism, and piracy. Chinese diplomatic missions, enterprises and personnel around the world have been attacked on multiple occasions. Threats to outer space and cyber security loom large and the threat of non-traditional security issues posed by natural disasters and major epidemics is on the rise.

...China has made every effort to create favorable conditions for its development through maintaining world peace, and has equally endeavored to promote world peace through its own development. China sincerely hopes that all countries will choose the path of peaceful development and jointly prevent conflicts and wars.

China is committed to developing friendly cooperation with all countries on the basis of the Five Principles of Peaceful Coexistence. It respects the rights of all peoples to independently choose their own development path, and stands for the settlement of international disputes through equal dialogue, negotiation and consultation. China is opposed to interference in the internal affairs of others, abuse of the weak by the strong, and any attempt to impose one's will on others. China advocates partnerships rather than alliances and does not join any military bloc. It stands against aggression and expansion, and opposes arbitrary use or threat of arms. The development of China's national defense aims to meet its rightful security needs and contribute to the growth of the world's peaceful forces. History proves and will continue to prove that China will never follow the beaten track of big powers in seeking hegemony. No matter how it might develop, China will never threaten any other country or seek any sphere of influence.

# China 2019 Defense White Paper on Other Asian Powers and Competing Claims - II

...China has a land border of more than 22,000 km and a coastline of over 18,000 km, China surpasses most of countries in the number of neighboring countries, the length of land border, and the complexity of maritime security. Therefore, it is a daunting task for China to safeguard its territorial sovereignty, maritime rights and interests, and national unity.

China's armed forces maintain a rigorous guard against encroachment, infiltration, sabotage or harassment so as to safeguard border security and stability. China has signed border cooperation agreements with 9 neighboring countries and set up border meeting mechanisms with 12 countries. China's armed forces have established mechanisms for exchanges with neighboring countries at three levels: national defense ministry, Theater Commands (TCs), and border troops. They conduct regular friendly mutual visits, working meetings, joint patrols and joint exercises targeting transnational crime with their foreign counterparts. They work together with Kazakhstan, Kyrgyzstan, Russia and Tajikistan to implement the border disarmament treaty. They strive to promote stability and security along the border with India, and take effective measures to create favorable conditions for the peaceful resolution of the Donglang (Doklam) standoff. They enhance control along the border with Afghanistan to guard against the infiltration of terrorists. They strengthen security management along the border with Myanmar, so as to secure stability and public safety in the border areas. Since 2012, China's border troops have completed over 3,300 joint patrols and conducted over 8,100 border meetings with their foreign counterparts. They have cleared mines from 58 square kilometers of land, closed 25 square kilometers of landmine area, and disposed of 170,000 explosive devices such as landmines along the borders with Vietnam and Myanmar.

China's armed forces defend important waters, islands and reefs in the East China Sea, the South China Sea and the Yellow Sea, acquire full situation awareness of adjacent waters, conduct joint rights protection and law enforcement operations, properly handle maritime and air situations, and resolutely respond to security threats, infringements and provocations on the sea. Since 2012, China's armed forces have deployed vessels on over 4,600 maritime security patrols and 72,000 rights protection and law enforcement operations, and safeguarded maritime peace, stability and order.

China's armed forces conduct air defense, reconnaissance and early warning, monitor China's territorial air and peripheral air space, carry out alert patrols and combat takeoff, and effectively respond to emergencies and threats to maintain order and security in the air.

With a commitment to building a community with a shared future in its neighborhood, China endeavors to deepen military partnership with its neighbors. The PLA keeps close contacts with the military leaderships of the neighboring countries. Given more than 40 reciprocal military visits at and above service commander level every year, high-level military exchanges have covered almost all of China's neighbors and contributed to growing strategic mutual trust. China has set up defense and security consultations as well as working meeting mechanisms with 17 neighboring countries to keep exchange channels open. In recent years, China has regularly held serial joint exercises and training on counter-terrorism, peacekeeping, search and rescue, and tactical skills with its neighboring countries, and carried out extensive exchanges and practical cooperation on border and coastal defense, academic institutions, think tanks, education, training, medical science, medical service, and equipment and technology. In addition, defense cooperation with ASEAN countries is moving forward. The military relationships between China and its neighboring countries are generally stable.

# China 2019 Defense White Paper on Other Asian Powers and Competing Claims - III

...China actively supports the institutional development of the Conference on Interaction and Confidence-Building Measures in Asia (CICA), advocates common, comprehensive, cooperative and sustainable security in Asia, and plays an important role in building an Asian security cooperation architecture.

In the principles of openness, inclusiveness and pragmatic cooperation, China actively participates in multilateral dialogues and cooperation mechanisms including the ADMM-Plus, ASEAN Regional Forum (ARF), Shangri-La Dialogue, Jakarta International Defense Dialogue and Western Pacific Naval Symposium, regularly holds China-ASEAN defense ministers' informal meetings, and proposes and constructively promotes initiatives to strengthen regional defense cooperation. The China-ASEAN *Maritime Exercise-2018*, the first between Chinese and ASEAN militaries, was held in October 2018 and demonstrated the confidence and determination of the countries in maintaining regional peace and stability.

Upholding amity, sincerity, mutual benefit and inclusiveness in its neighborhood diplomacy, China is committed to building an amicable relationship and partnership with its neighbors, and peaceful resolution of disputes over territory and maritime demarcation through negotiation and consultation. China has settled its border issues with 12 of its 14 land neighbors and signed treaties on good-neighborliness, friendship and cooperation with 8 countries on its periphery.

China holds it a priority to manage differences and enhance mutual trust in maintaining the stability of its neighborhood. China has proposed a China-ASEAN defense ministers' hotline and established direct defense telephone links with Vietnam and the ROK. It has kept contact through telephone or fax, and conducted border meetings and joint patrols, with the militaries of the countries on its land borders on regular or irregular basis. Since 2014, five high-level border meetings between China and Vietnam have been held. To implement the important consensus reached by the leaders of China and India, the two militaries have exchanged high-level visits and pushed for a hotline for border defense cooperation and mechanisms for border management and border defense exchanges. Since the second half of 2016, China and the Philippines have increased dialogue on maritime security, bringing the two sides back on track in addressing the South China Sea issue through friendly consultation. In May 2018, the defense authorities of China and Japan signed a memorandum of understanding on maritime and air liaison and put it into practice in June.

China and the ASEAN countries have comprehensively and effectively implemented the DOC, and actively advanced the consultations on the COC. They are committed to extending practical maritime security cooperation, developing regional security mechanisms and building the South China Sea into a sea of peace, friendship and cooperation

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# OSD on China's Strategy Towards Territorial Disputes - 2019

China seeks to secure its objectives without jeopardizing the regional stability that remains critical to the economic development that has helped the CCP maintain its monopoly on power. However, China's leaders employ tactics short of armed conflict to pursue China's strategic objectives through activities calculated to fall below the threshold of provoking armed conflict with the United States, its allies and partners, or others in the Indo-Pacific region. These tactics are particularly evident in China's pursuit of its territorial and maritime claims in the South and East China Seas as well as along its borders with India and Bhutan. In 2018, China continued militarization in the South China Sea by placing anti-ship cruise missiles and long-range surface-to-air missiles on outposts in the Spratly Islands, violating a 2015 pledge by Chinese President Xi Jinping that "China does not intend to pursue militarization" of the Spratly Islands. China is also willing to employ coercive measures – both military and non-military – to advance its interests and mitigate opposition from other countries.

...China's use of force in territorial disputes has varied widely since 1949. Some disputes led to war, as in 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 recent cases involving land border disputes, China has sometimes been willing to compromise with and even offer concessions to its neighbors. Since 1998, China has settled 11 land-based territorial disputes with six of its neighbors. In recent years, China has employed a more coercive approach to deal with several disputes that continue over maritime features and ownership of potentially rich offshore oil and gas deposits.

**China and Japan** have overlapping claims to both the continental shelves and the exclusive economic zones (EEZs) in the **East China Sea**. The East China Sea contains natural gas and oil, though hydrocarbon reserves are difficult to estimate. 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. Japan has accused China of breaching a principled consensus reached in 2008 that both sides would respect an equidistant median line in the East China Sea for resource development while conducting joint development of oil and natural gas field in a delineated area spanning the line near the northern end. Japan is concerned that China has conducted oil and gas drilling on the Chinese side of the median line of the East China Sea since 2013. China continues to contest Japan's administration of the nearby Senkaku Islands.

The **South China Sea** plays an important role in security considerations across East Asia because Northeast Asia relies heavily on the flow of oil and commerce through South China Sea shipping lanes, including more than 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 features within its self-proclaimed "nine-dash line" – claims disputed in whole or part by Brunei, the Philippines, Malaysia, and Vietnam. Taiwan, which occupies Itu Aba Island in the Spratly Islands, makes the same territorial assertions as China. In 2009, China protested extended continental shelf submissions in the South China Sea made by Malaysia and Vietnam. In its protest to the UN Commission on the Limits of the Continental Shelf, China included its ambiguous "nine-dash line" map. China also stated in a 2009 *note verbale* 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." In July 2016, a tribunal established pursuant to the Law of the Sea Convention ruled that China's claims to "historic rights" over the South China Sea encompassed by the "nine-dash line" could not exceed its maritime rights under the Law of the Sea Convention. China did not participate in the arbitration, and Chinese officials publicly voiced opposition to the ruling. By the terms of the Convention, the ruling is binding on China.

Tensions remain with India along the shared border over **Arunachal Pradesh**, which China asserts is part of Tibet and therefore part of China, and over the **Aksai Chin** region at the western end of the Tibetan Plateau. Chinese and Indian patrols regularly encounter one another along the disputed border, and both sides often accuse one another of border incursions. In 2017, Indian forces intercepted a PLA road construction unit on the Doklam Plateau near the Doka La Pass, near the tri-border region of China, Bhutan, and India. The encounter led to a 73-day standoff before both sides agreed to mutually disengage from the site.

# DIA on China's Expanding Regional and Global Role: 2019 - I

Even as PLA capabilities have improved and units have begun to operate farther from the Chinese mainland, Beijing has continued to emphasize what it perceives as a “period of strategic opportunity” during which it can pursue development without a major military conflict. In line with this perception, Beijing has implemented an approach to external engagement that seeks to enhance China's reach and power through activities calculated to fall below the threshold of alarming the international community about China's rise or provoking the United States, its allies and partners, or others in the Asia-Pacific region into military conflict or an anti-China coalition. This is particularly evident in China's pursuit of its territorial and maritime sovereignty claims in the South and East China Seas. In the South China Sea, China primarily uses maritime law enforcement ships, with its Navy ships in protective positions, to pressure other claimants and limit access to Chinese-occupied features. China's expansion of disputed features and construction in the Spratly Islands using large-scale land reclamation demonstrates China's capacity—and a shift in willingness to exercise that capacity short of military conflict—to strengthen China's control over disputed areas, enhance China's presence, and challenge other claimants.

China's maritime emphasis and concern with protecting its overseas interests have increasingly drawn the PLA beyond China's borders and immediate periphery. The evolving focus of the PLA Navy (PLAN)— from “offshore waters defense” to a mix of offshore waters defense and “open-seas protection”—reflects China's desire for a wider operational reach. Since 2009, the PLA has incrementally expanded its global operations beyond the previously limited port calls and UN PKO missions. The PLAN has expanded the scope and frequency of extended-range naval deployments, military exercises, and engagements.

The establishment in Djibouti of the PLA's first overseas military base with a deployed company of Marines and equipment, and probable follow-on bases at other locations, signals a turning point in the expansion of PLA operations in the Indian Ocean region and beyond. These bases, and other improvements to the PLA's ability to project power during the next decade, will increase China's ability to deter by military force and sustain operations abroad.

Beijing's longstanding interest to eventually compel Taiwan's reunification with the mainland and deter any attempt by Taiwan to declare independence has served as the primary driver for China's military modernization. Beijing's anticipation that foreign forces would intervene in a Taiwan scenario led the PLA to develop a range of systems to deter and deny foreign regional force projection. The implementation of Hu's New Historic Missions in 2004 led to the incremental expansion of the military's modernization priorities to develop a PLA capable of operating in new domains and at increasing distances from the mainland. During this modernization process, PLA ground, air, naval, and missile forces have become increasingly able to project power during peacetime and in the event of regional conflicts. Beijing almost certainly will use this growing ability to project power to bolster international perceptions of its role as a regional power and global stakeholder.

Although Beijing states that its intent is to serve as a stabilizing force regionally, in practice the PLA's actions frequently result in increased tensions. Since 2012, Beijing has routinely challenged Tokyo's Senkaku Island claims in the East China Sea. China's Coast Guard frequently conducts incursions into the contiguous zone surrounding the islands to further China's claims, while its Navy operates around the claims to enforce administration. The PLA has expanded and militarized China's outposts in the South China Sea, and China's Coast Guard, backed by the PLAN, commonly harasses Philippine and Vietnamese ships in the region.

Examples of incremental improvements to PLA power projection in the region are readily found in annual military exercises and operations. For instance, in 2015 the PLA Air Force (PLAAF) carried out four exercise training missions past the first island chain through the Bashi Channel, the northernmost passage of the Luzon Strait, and through the Miyako Strait closer to Japan. The Miyako Strait flights were 1,500 kilometers from Guam, within range of the PLAAF's CJ-20 air-launched land-attack cruise missile (LACM). Also in 2015, the PLAAF began flying the H-6K medium-range bomber, the PLAAF's first aircraft capable of conducting strikes on Guam (with air-launched LACMs like the CJ-20), past the first island chain into the western Pacific.

Source: DIA, *China Military Power: Modernizing a Force to Fight and Win*, 2019, DIA-02-1706-085, 2019, pp. 29-28.



## DIA on China's Expanding Regional and Global Role: 2019 - II

China is also developing new capabilities that will enhance Beijing's ability to project power. In September 2016, then-PLAAF Commander Gen Ma Xiaotian confirmed for the first time that the PLAAF was developing a new long-range bomber that would undoubtedly exceed the range and capabilities of the H-6K. Although the H-6K recently began flying with LACMs, this Chinese-built airframe is the 10th design variant of the Soviet Tu-16, which began flying in 1952. In 2016, China and Ukraine agreed to restart production of the world's largest transport aircraft, the An-225, which is capable of carrying a world-record payload of nearly 254 tons. China expects the first An-225 to be delivered and operational by 2019. If used by the military, this capability would facilitate the PLA's global reach.

In addition to land-based aircraft, China is currently building its first domestically designed and produced aircraft carrier. The primary purpose of this first domestic aircraft carrier will be to serve a regional defense mission. Beijing probably also will use the carrier to project power throughout the South China Sea and possibly into the Indian Ocean. The carrier conducted initial sea trials in May 2018 and is expected to enter into service by 2019.

Other areas that reflect China's growing military presence abroad include China's participation in UN peacekeeping operations. Separately, China routinely employs its modern hospital ship, *Peace Ark*, to support HADR missions worldwide. In 2015, the PLA conducted its first permissive noncombatant evacuation operation, to extricate Chinese and other civilians from Yemen supported by Yemeni security forces.

China's efforts to enhance its presence abroad, such as establishing its first foreign military base in Djibouti and boosting economic connectivity by reinvigorating the New Silk Road Economic Belt and 21st Century Maritime Road under the "Belt and Road Initiative" (BRI), could enable the PLA to project power at even greater distances from the Chinese mainland. In 2017, China's leaders said that the BRI, which at first included economic initiatives in Asia, South Asia, Africa, and Europe, now encompasses all regions of the world, including the Arctic and Latin America, demonstrating the scope of Beijing's ambition.

Growing PLA mission areas and enhanced presence abroad may lead to an increase in demand for the PLA to protect China's overseas interests and provide support to Chinese personnel. China's increased presence also introduces the possibility that the PLA could play a more prominent role in delivering global public goods in the future.

# China & Maritime Issues: Chinese 2017 White Paper - I

The overall maritime situation remains stable in the region. It is in all parties' common interest and consensus to maintain maritime peace, security and freedom of navigation and overflight. However, non-traditional maritime security threats are on the rise. The ecological environment in many marine areas has been damaged. Marine natural disasters occur frequently, and leaks of oil or hazardous chemicals happen from time to time. In addition, there are often cases of piracy, smuggling and drug trafficking. Misunderstandings and lack of mutual trust among some countries about traditional security issues also pose risks to maritime security.

China has called for even-handed, practical and mutually beneficial maritime security cooperation. It adheres to the purposes and principles of the Charter of the United Nations, the fundamental principles and legal system defined by universally recognized international laws and modern maritime laws, including the UNCLOS and the Five Principles of Peaceful Coexistence, in dealing with regional maritime issues, and is committed to coping with traditional and non-traditional maritime security threats through cooperation. Maintaining maritime peace and security is the shared responsibility of all countries in the region, and serves the common interests of all parties. China is dedicated to strengthening cooperation and jointly tackling challenges with all relevant parties so as to maintain maritime peace and stability.

China has indisputable sovereignty over the Nansha Islands and their adjacent waters. China has always been committed to resolving disputes peacefully through negotiation and consultation, managing disputes by setting rules and establishing mechanisms, realizing mutually beneficial outcomes through cooperation for mutual benefit, and upholding peace and stability as well as freedom of navigation and overflight in the South China Sea. China and the ASEAN countries stay in close communication and dialogue on the South China Sea issue.

When fully and effectively implementing the DOC, the two sides have strengthened pragmatic maritime cooperation, steadily advanced the consultations on COC and made positive progress. China resolutely opposes certain countries' provocations of regional disputes for their selfish interests.

# China & Maritime Issues: Chinese 2017 White Paper - II

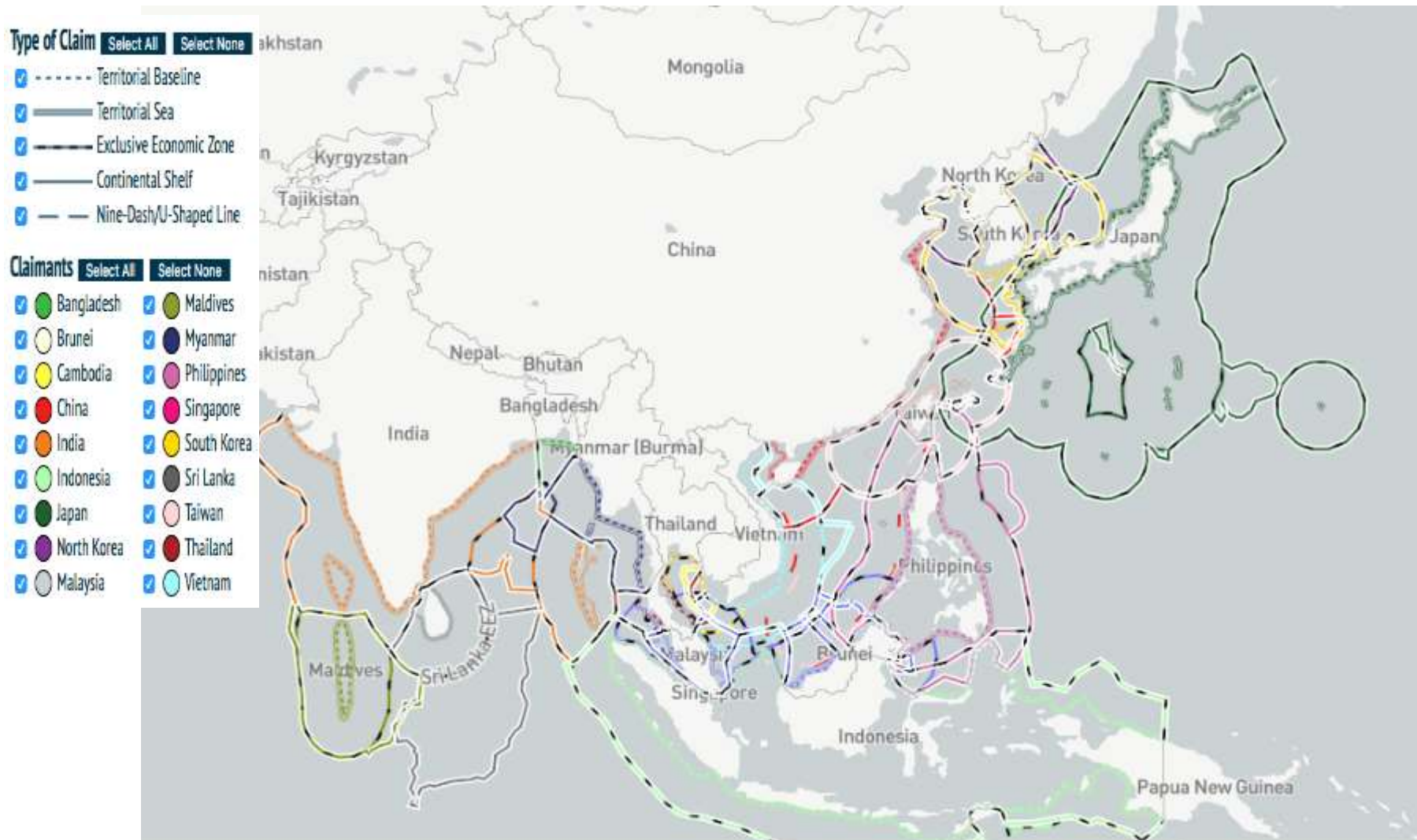
China is forced to make necessary responses to the provocative actions which infringe on China's territorial sovereignty and maritime rights and interests, and undermine peace and stability in the South China Sea. No effort to internationalize and judicialize the South China Sea issue will be of any avail for its resolution; it will only make it harder to resolve the issue, and endanger regional peace and stability.

Issues concerning the Diaoyu Islands and maritime demarcation in the East China Sea exist between China and Japan. The Diaoyu Islands are an integral part of China's territory. China's sovereignty over the Diaoyu Islands has a sufficient historical and legal basis. China and Japan have maintained dialogues on issues related to the East China Sea and held several rounds of high-level consultations.

They have had communication and reached consensus on crisis management and control in the air and waters of the East China Sea, maritime law enforcement, oil and gas exploration, scientific research, fisheries and other issues. China is willing to properly manage the situation and resolve related issues through continued dialogue and consultation.

China and the ROK have extensive and in-depth exchanges of views on maritime demarcation, and launched relevant negotiations in December 2015.

# Full Range of Competing National Claims in the Pacific and Indian Ocean



Adapted from CSIS Asia Maritime Transparency Initiative , interactive maps, <https://amti.csis.org/maritime-claims-map/>, 1.7.19

# OSD on Range of Chinese Territorial Claims - 2019

## Selected Chinese Territorial Claims



Source: Office of the Secretary of Defense, Military and Security Developments Involving the Republic of China, Annual Report to Congress, May 2018, Department of Defense. *China Military Power 2019*, p.8.



# DIA on Range of Chinese Territorial Claims - 2019

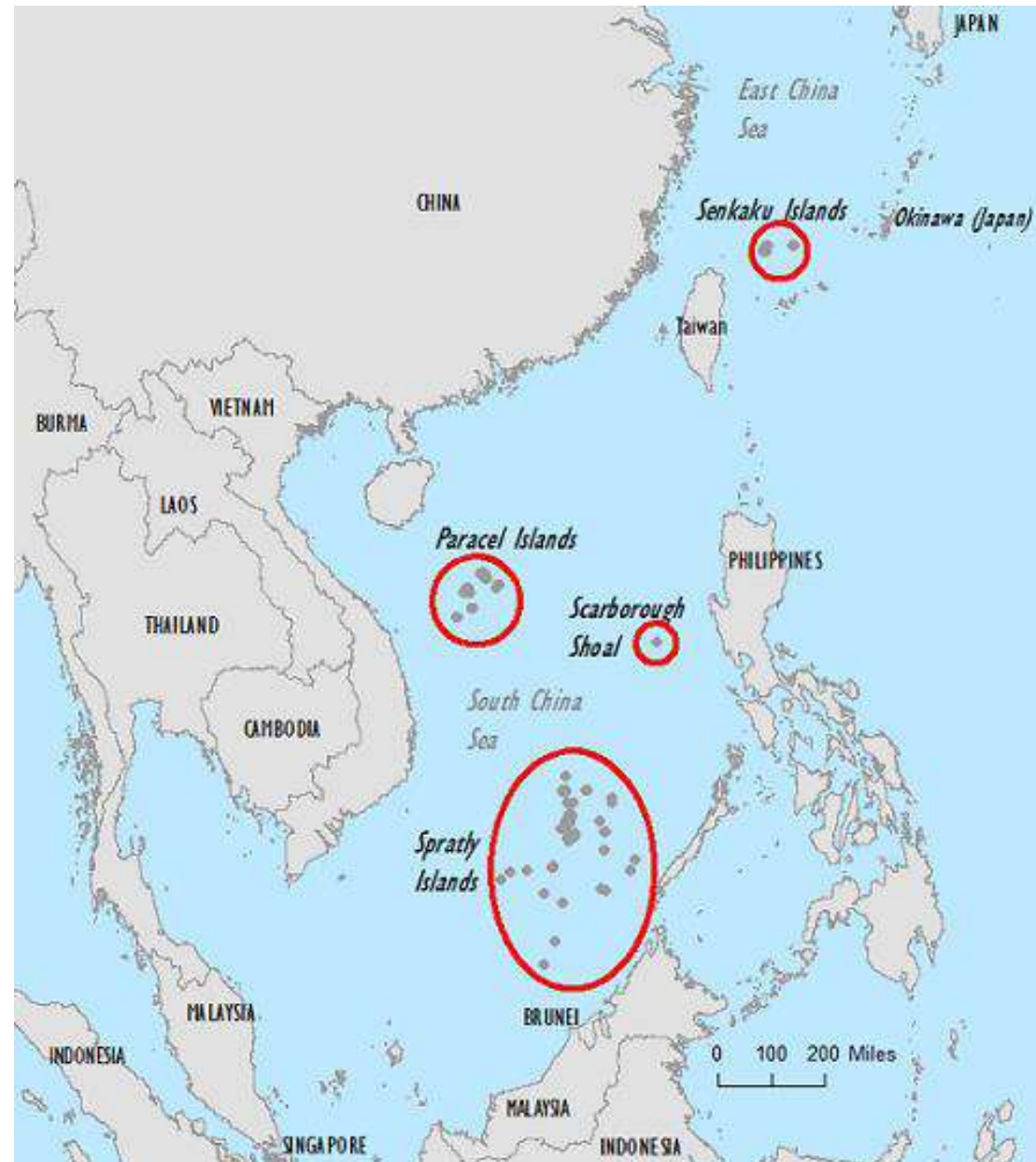
DIA, *China Military Power, Modernizing a Force to Win* - 2019, Department of Defense, 2019, p.11.





# Maritime Territorial Disputes Involving China

Island groups  
involved in  
principal disputes



Source: China's Actions in South and East China Seas: Implications for U.S. Interests—  
Background and Issues for Congress,  
Congressional Research Service, R42784 /  
Updated January 31, 2019  
<https://crsreports.congress.gov>, p. 8.

## EEZs Overlapping Zone Enclosed by Map of Nine-Dash Line

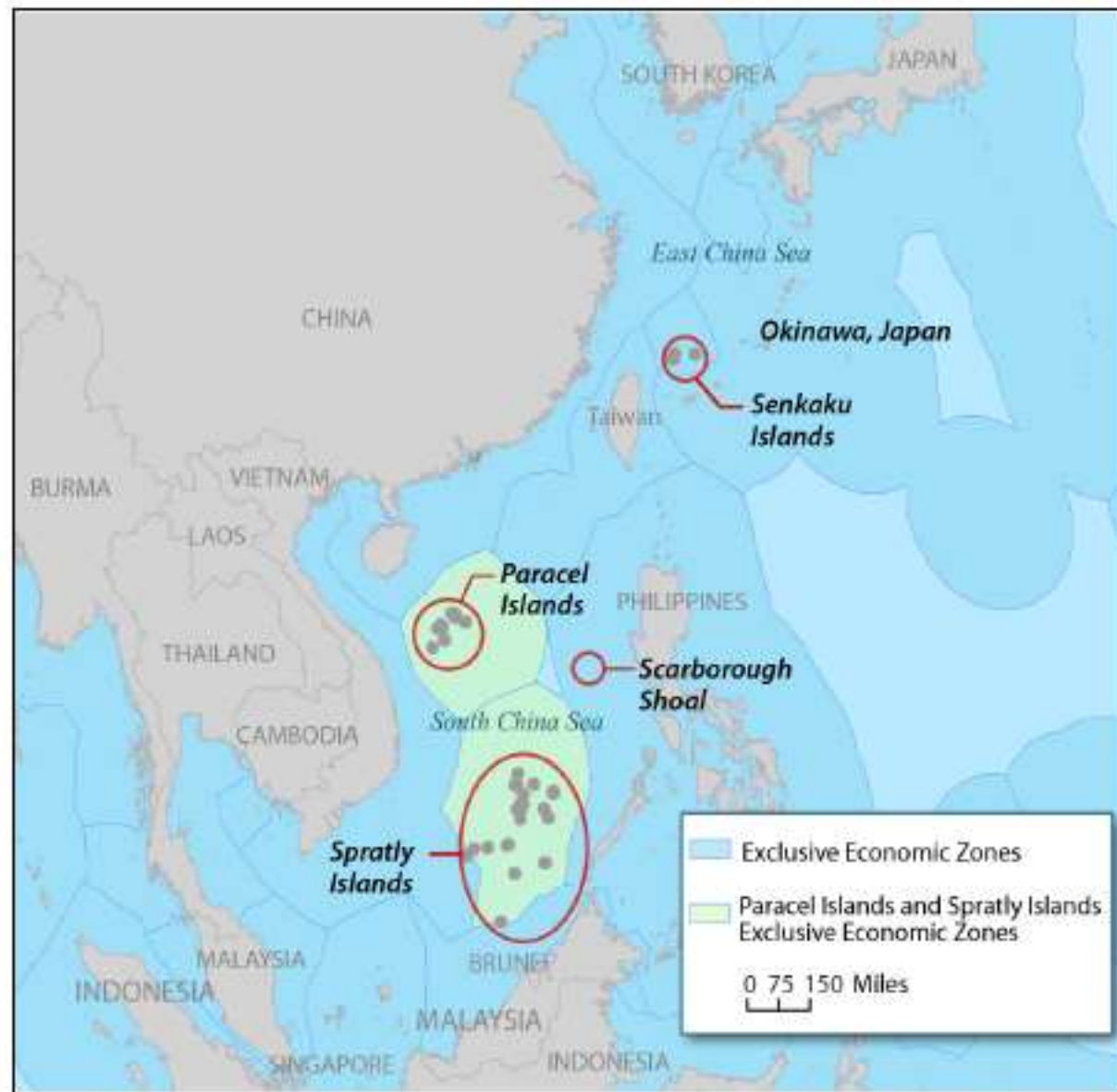


Source: China's Actions in South and East China Seas: Implications for U.S. Interests—Background and Issues for Congress, Congressional Research Service, R42784 / Updated January 31, 2019 <https://crsreports.congress.gov>, p. 88.

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.

# EEZs in South China Sea and East China Sea



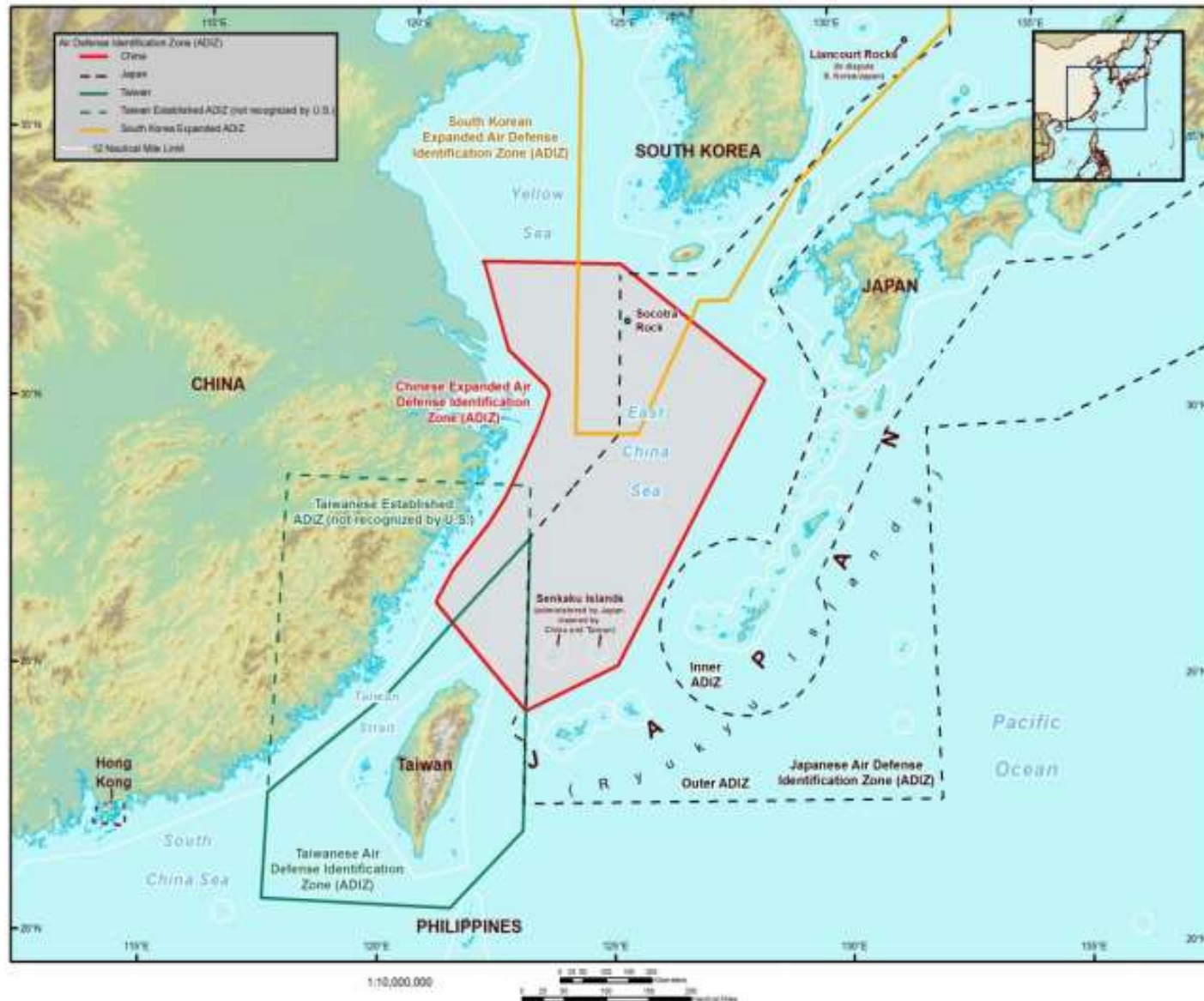
Source: China's Actions in South and East China Seas: Implications for U.S. Interests—Background and Issues for Congress, Congressional Research Service, R42784 / Updated January 31, 2019 <https://crsreports.congress.gov>, p. 98.

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/vmdcdata/marbound>.

Note: Disputed islands have been enlarged to make them more visible.

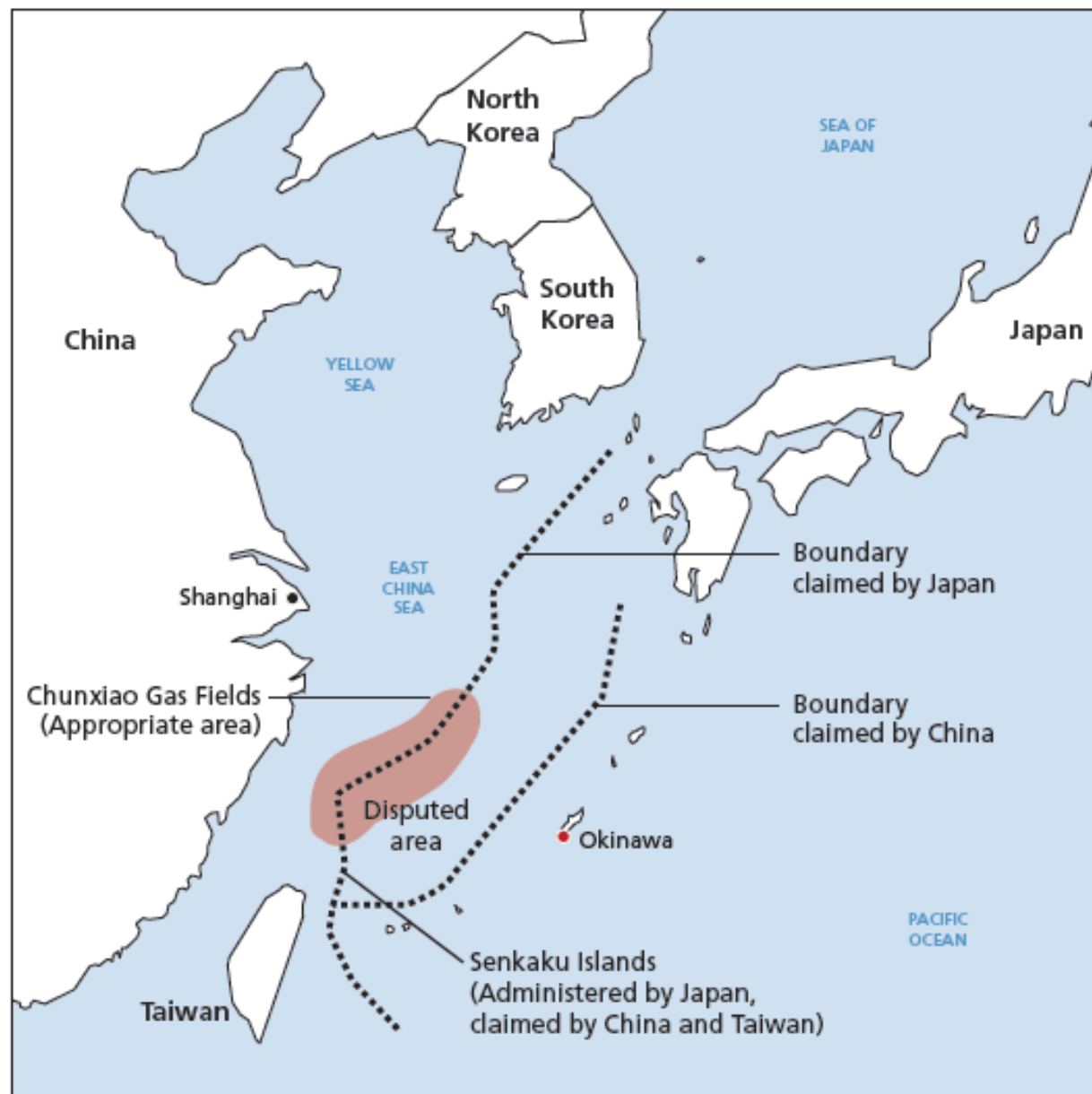


# Air Defense Zone (ADIZ) Issues



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

## Disputed Claims in East China Sea



Source: RAND, *US Military Forces and Capabilities for a Dangerous World*, RR1782, 2017, p. 20.

# **Military Build Up in South China Sea as Part of Overall Change in China's Strategic Posture**



# Chinese and U.S. Competition in the South China Sea

Taiwan and the Koreas have long been potential areas of possible conflict between China and the United States, although the risks inherent in such conflicts are so great that both powers have recognized the need to overtly or tacitly cooperate in some areas, and limit their level of competition in most others. The South China sea, however, has become an area of steadily increasing competition.

China's steady build-up of its ability to project air, naval, and missile power into the region has produced the force levels shown on the first map in this section and has demonstrated its growing capability to compete with the U.S. in military as well as economic terms. The same is true of China's conversion of reefs and small islands in the area within the two island chains into islands, or larger islands, and its creation of military bases and facilities on these islands – which are shown in the charts that follow. It is clear from these charts and maps that China may not yet have created a full blue water navy in the Western Pacific, but it has created the equivalent of “blue water” islands that approach the limits of the second island chain, and that have greatly extended its radar, missile, and air operations coverage.

The photos of these “bases” that following help illustrate their vulnerability, and China is still developing many of the missile and naval capabilities it would need to directly challenge the U.S. At the same time, the Chinese build-up in the South China Sea has had a major impact on the perceptions of other Asian states – including America's strategic partners.

If it is viewed from the perspective of “hybrid operations” rather than the capability to fight a major war, it has confronted the U.S. with Chinese capabilities that it now cannot challenge directly without escalating to a level of conflict that can easily become more costly than the U.S. will choose to risk. At the same time, China cannot directly exploit its growing military capabilities without facing the mirror image of such risks.

The U.S. tends to see China's actions in the South China Sea as aggressive, but China has its own perspective and interests. The following sections show that China's motives extend far beyond competition of naval claims with Asian powers or expanding its perimeter of military operations far beyond China's coasts. The South China Sea plays a critical role in China's trade and energy imports, while it is far less important in economic terms to the United States. Moreover, it was a key center of the Japanese and western colonial activity that exploited China from the Opium Wars to the end of World War II.

The U.S. also differs from China in the extent to which it separates trade and economic policy from its overall strategy and its military elements. The U.S. has recently pursued trade wars with China and other Asian powers, and abandoned its Trans Pacific Partnership efforts for relatively narrow and loosely defined economic advantages in terms of trade, while simultaneously focusing on military competition and the risk of conflict with China. As noted at the beginning of this analysis, China's grand strategy does not decouple its military and economic dimensions, looks further into the future than the U.S., and focuses at least as much on its overall economic interests as military deterrence and warfighting considerations.

# China 2019 Defense White Paper on China's Claims in the South China Sea

China resolutely safeguards its national sovereignty and territorial integrity. The South China Sea islands and Diaoyu Islands are inalienable parts of the Chinese territory. China exercises its national sovereignty to build infrastructure and deploy necessary defensive capabilities on the islands and reefs in the South China Sea, and to conduct patrols in the waters of Diaoyu Islands in the East China Sea. China is committed to resolving related disputes through negotiations with those states directly involved on the basis of respecting historical facts and international law. China continues to work with regional countries to jointly maintain peace and stability. It firmly upholds freedom of navigation and overflight by all countries in accordance with international law and safeguards the security of sea lines of communication (SLOCs).

...China's armed forces defend important waters, islands and reefs in the East China Sea, the South China Sea and the Yellow Sea, acquire full situation awareness of adjacent waters, conduct joint rights protection and law enforcement operations, properly handle maritime and air situations, and resolutely respond to security threats, infringements and provocations on the sea. Since 2012, China's armed forces have deployed vessels on over 4,600 maritime security patrols and 72,000 rights protection and law enforcement operations, and safeguarded maritime peace, stability and order.

China's armed forces conduct air defense, reconnaissance and early warning, monitor China's territorial air and peripheral air space, carry out alert patrols and combat takeoff, and effectively respond to emergencies and threats to maintain order and security in the air.

...Since the second half of 2016, China and the Philippines have increased dialogue on maritime security, bringing the two sides back on track in addressing the South China Sea issue through friendly consultation.

...China and the ASEAN countries have comprehensively and effectively implemented the DOC, and actively advanced the consultations on the COC. They are committed to extending practical maritime security cooperation, developing regional security mechanisms and building the South China Sea into a sea of peace, friendship and cooperation .

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# OSD on China's Role in the South China Sea: 2019 - I

## SOUTHERN THEATER COMMAND

The Southern Theater Command is oriented toward the South China Sea, Southeast Asia border security, and territorial and maritime disputes.

The area of responsibility of the Southern Theater Command (STC) covers mainland and maritime Southeast Asia, including the South China Sea. This geographic area implies that the STC is responsible for securing the South China Sea, supporting the ETC in any invasion of Taiwan, responding to territorial disputes, and assuring the security of SLOCs vital to China's global ambitions. Located within the STC are two group armies, a naval fleet, two marine brigades, one Air Force base, and two Rocket Force bases. .

## SOUTH CHINA SEA

### Key Takeaways

- Though China has ceased South China Sea land reclamation and completed major military infrastructure at three outposts, it has continued militarization by deploying anti-ship and anti-aircraft missile systems to its Spratly Islands outposts.
- Outposts are capable of supporting military operations since China deployed advanced weapon systems to its outposts in early 2018; however, no large-scale air presence has been observed in the Spratly Islands.

**Developments in the Security Situation.** In July 2016, a tribunal under the Law of the Sea Convention ruled in the case brought by the Philippines that China's claims to "historic rights" over the South China Sea encompassed by the "nine-dash line" could not exceed its maritime rights under the Law of the Sea Convention. Despite the decision, China continues to use coercive tactics, including the employment of PLA naval and paramilitary vessels, to enforce its claims and advance its interests. China does so in ways calculated to be below the threshold of provoking conflict. In the South China Sea, China has continued militarization. Anti-ship cruise missiles and long-range surface-to-air missiles have been deployed to Spratly Islands outposts, and China's strategic bombers have conducted take-off and landing drills on Woody Island in the Paracel Islands.

China states that an international military presence within the South China Sea is a challenge to its sovereignty. China has continued to escalate coercive tactics to enforce its claims within the South China Sea. This escalation culminated in an unsafe encounter with the *USS Decatur* in September 2018 that led to criticism against China from some U.S. international partners.

Tensions have continued during negotiations between ASEAN countries and China on a code of conduct agreement. China has reportedly proposed that the code of conduct require unanimous approval by all parties for military exercises involving countries outside of China or ASEAN in the South China Sea. In August 2018, China mounted wave-monitoring devices on Woody Island and conducted scientific surveys in contested regions despite negative reactions from Vietnam.

## OSD on China's Role in the South China Sea: 2019 - II

### **Outposts Capable of Supporting Military Operations.**

In early 2018, China continued its gradual deployment of military jamming equipment as well as advanced anti-ship and anti-aircraft missile systems to its Spratly Islands outposts. The missile systems are the most capable land-based weapons systems deployed by China in the disputed South China Sea. China completed shore-based infrastructure on four small outposts in the Spratly Islands in early 2016. Facilities on Johnson, Gaven, Hughes, and Cuarteron Reefs include administrative buildings, weapons stations, and sensor emplacements. By early 2018, China had completed more extensive military infrastructure on three larger outposts in the Spratly Islands at Fiery Cross, Subi, and Mischief Reefs. These installations now include aviation facilities, port facilities, fixed-weapons positions, barracks, administration buildings, and communications facilities.

No substantial land has been reclaimed at any of the outposts since China completed its artificial island creation in the Spratly Islands in late 2015, after adding over 3,200 acres of land to the seven features it occupies in the Spratlys. China has stated these projects are mainly to improve marine research, safety of navigation, and the living and working conditions of personnel stationed on the outposts. However, the outposts provide airfields, berthing areas, and resupply facilities that will allow China to maintain a more flexible and persistent military and paramilitary presence in the area. This improves China's ability to detect and challenge activities by rival claimants or third parties, widen the range of capabilities available to China, and reduce the time required to deploy them.

Source: Office of the Secretary of Defense, *Military and Security Developments Involving the Republic of China, Annual Report to Congress*, May 2, 2019, Department of Defense. China Military Power 2018, p. 75.

# China's Southern Theater- 2019



Source: Office of the Secretary of Defense, *Military and Security Developments Involving the Republic of China, Annual Report to Congress*, May 2, 2019, Department of Defense. China Military Power 2018, p.76.

# Key Chinese Deployments and Activity in the Paracels and Spratlys: As of Early 2018

- Has deployed YJ-12B anti-ship cruise missiles and HQ-9B surface-to-air missile systems on each of the reefs, and built missile shelters.
- J-10 and J-11 fighter jets to Woody Island. China has built identical [hangars for combat aircraft](#) at Woody and on each of the Big Three, it is likely that J-10s or J-11s will soon deploy.
- Y-8 and Xian Y-7 military transport aircraft, and Y-8 maritime patrol or signals intelligence. Some at Subi Reef. Philippines, which has about 100 civilians and a small military garrison on Thitu Island just 12 nautical miles away.
- Military jamming equipment mounted on three trucks.
- Several varieties of the PLAN Type 053 frigate were seen at the Big Three, including what appear to be Type 053H1, Type 053H1G, and Type 053H3 frigates, plus Type 056 Jiangdao-class corvettes and Type 051B Luhai-class destroyer.
- Several different Type 072 landing ships, as well as a Type 073A landing ship, have been seen at the Big Three. The larger Type 072 landing ships are capable of transporting and landing tanks, heavy vehicles, and air-cushioned hovercraft in amphibious operations. The medium-sized Type 073A carries smaller tanks or troops for similar operations.
- Two AGI signals intelligence gathering ships, a Hai Yang and a Type 815G, and Type 639 oceanographic surveillance ship.
- Harbin Z-8 transport helicopters and a Harbin BZK-005 drone deployed to Woody Island. The BZK-005 is a high altitude, long endurance surveillance drone.
- China Coast Guard ships seen at the outposts include several former PLAN Jianghu-class 053H1 frigates, redubbed Jianghu-1 WFF ships.



# China's Original Nine Dashed Line Claims in the South China Sea



# EEZs Overlapping the Zone Enclosed by the Nine Dash Line

The map of the nine-dash line, also called the U-shaped line or the cow tongue,... predates the establishment of the People's Republic of China (PRC) in 1949. The map has been maintained by the PRC government, and maps published in Taiwan also show the nine line segments...

In a document submitted to the United Nations on May 7, 2009...China stated the following:

"China 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 (see attached map [of the nine-dash line]). The above position is consistently held by the Chinese Government, and is widely known by the international community."

...The map does not always have exactly nine dashes. Early versions of the map had as many as 11 dashes, and a map of China published by the Chinese government in June 2014 includes 10 dashes.<sup>166</sup> The exact positions of the dashes have also varied a bit over time.

Source: Ronald O'Rourke, U.S.-China Strategic Competition in South and East China Seas: Background and Issues for Congress, CRS R-42784, Updated August 23, 2019, p. 64

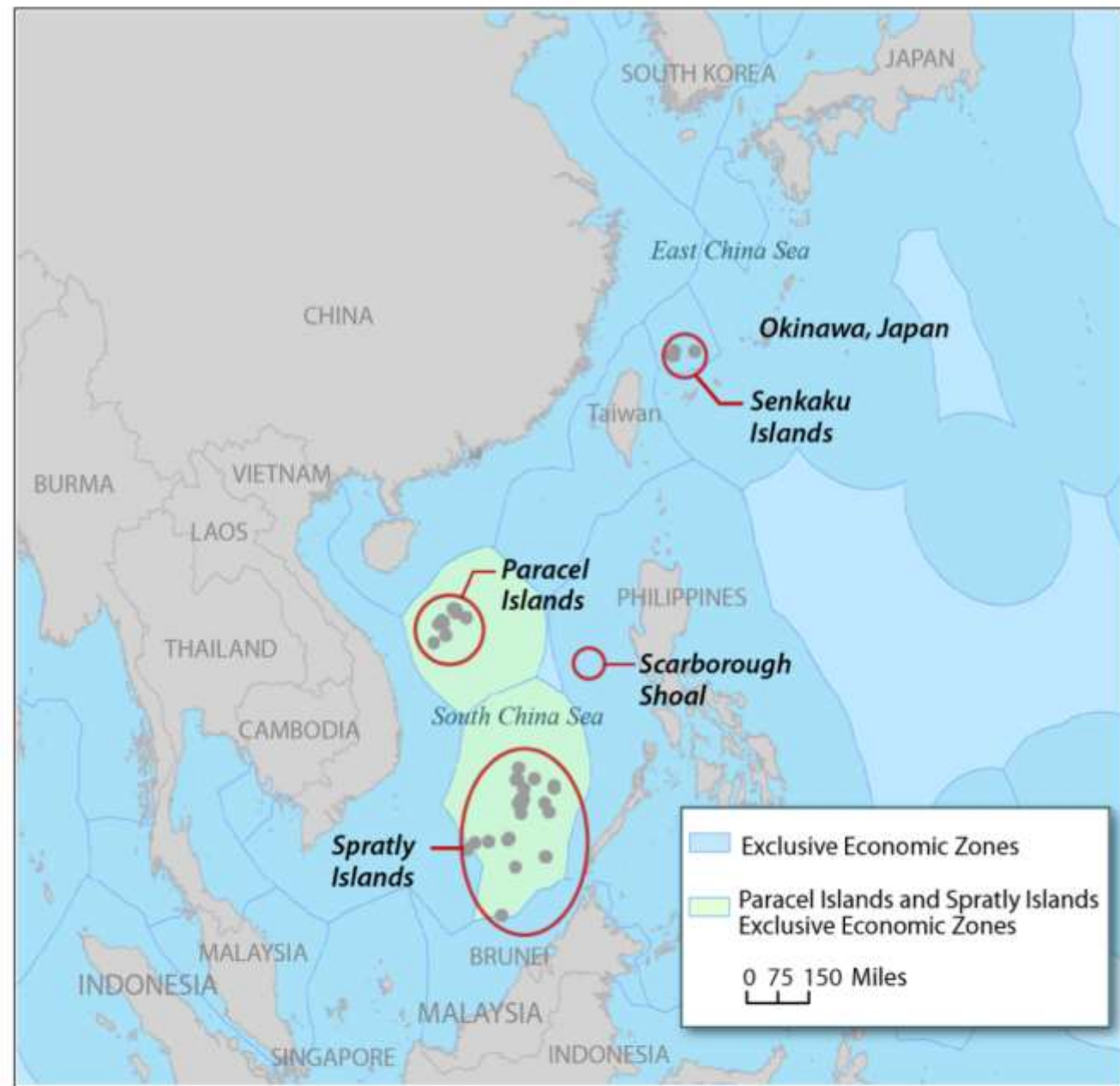


**Source:** Source: Eurasia Review, September 10, 2012.

**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.

# EEZs Overlapping the Key Islands in Dispute and Related Chinese EEZ Claims

Source: Ronald O'Rourke,  
U.S.-China Strategic  
Competition in South and  
East China Seas:  
Background and Issues for  
Congress, CRS R-42784,  
Updated August 23, 2019,  
p. 74.



**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/vmdcdata/marbo>

**Note:** Disputed islands have been enlarged to make them more visible.

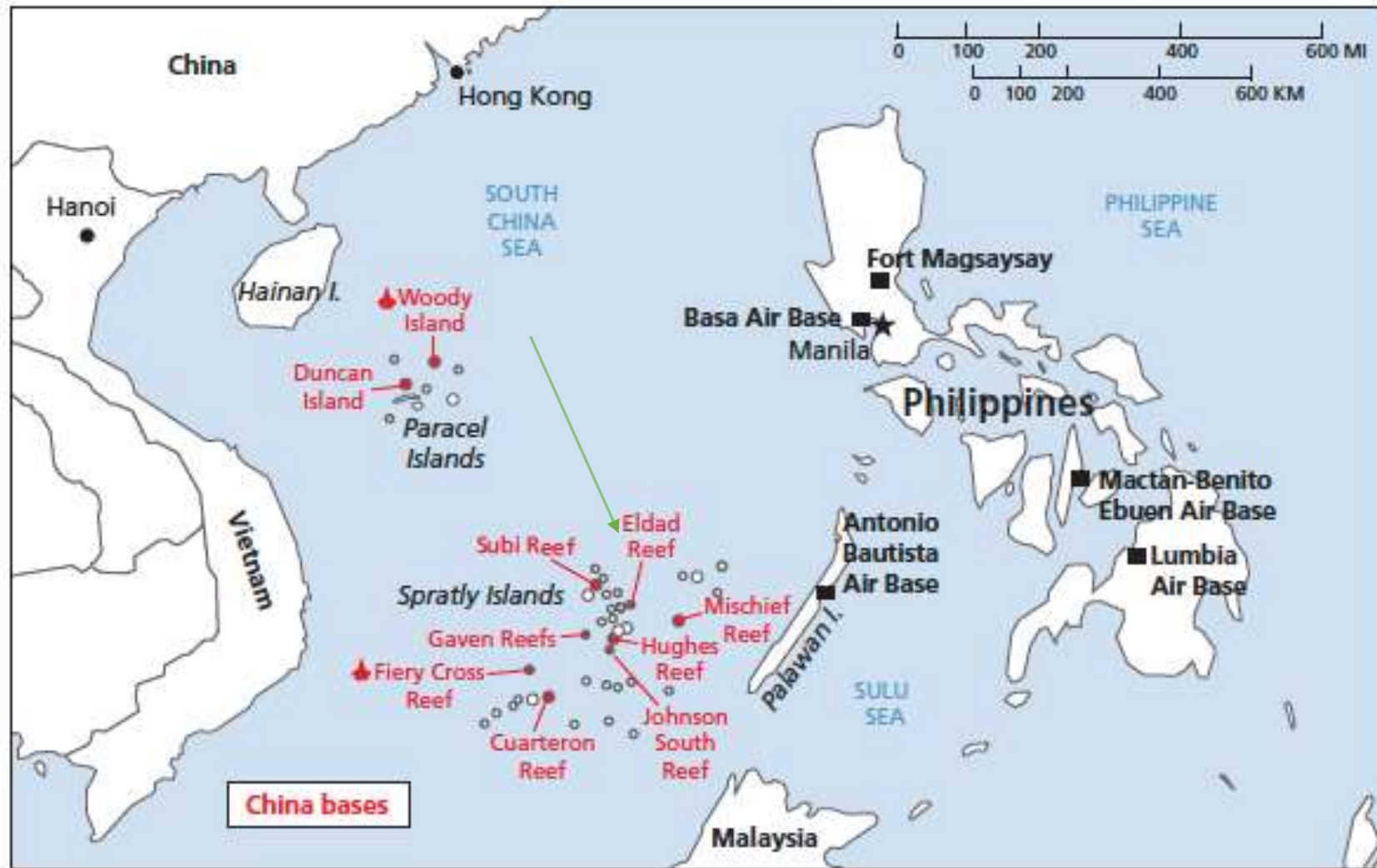


# Areas of Gray Zone Competition Between China and Southeast Asian States in 2019



Source: Lori Fisler Damrosch and Bernard H. Oxman, "Agora: The South China Sea," *American Journal of International Law*, Vol. 107, No. 1, January 2013, p. 96; and Lyle L. Morris, Michael J. Mazarr, Jeffery W. Hornug, Stephanie Pezaed, Anika Binnendijk, Marta Kepe, *Gaining Competitive Advantage in the Gray Zone, Response Options for Coercive Aggression Below the Threshold of Major War*, Rand, June 2019, p. 29.

## Chinese Occupied Islands vs. Philippine Bases: 2017



# Chinese Ship Deployments in the Paracels and Spratlys at “Big Three” outposts at Fiery Cross, Mischief, and Subi Reefs in 2018

Satellite images show that PLAN destroyers, frigates, and other combat ships and CCG patrol vessels regularly visit the artificial islands, along with many auxiliary and logistics vessels. Admittedly, relying on satellite imagery, which captures only those ships that happen to be in port (as opposed to out on patrol) at a specific moment in time, provides a limited picture of naval and coast guard deployments. But the ubiquity of PLAN and CCG ships in images of Fiery Cross, Mischief, and Subi Reefs since the start of 2017 suggests how robust the PLAN and CCG presence at the island bases has become.



Source: CSIS AMTI Project, *An Accounting of Chinese Deployments to the Spratly Islands*, May 9, 2018, <https://amti.csis.org/chinese-power-projection/> and <https://mail.google.com/mail/u/0/#inbox/16347781d0432c32>.



# U.S Freedom of Navigation (FON) Operations in the South and East China Seas: 5/2017-3/2019

Details shown are based on press reports

Date	Location in SCS	U.S. Navy Ship	Notes
May 25, 2017	Mischief Reef in Spratly Islands	<i>Dewey</i> (DDG-105)	
July 2, 2017	Triton Island in Paracel Islands	<i>Stethem</i> (DDG-63)	
August 10, 2017	Mischief Reef in Spratly Islands	<i>John S. McCain</i> (DDG-56)	
October 10, 2017	Paracel Islands	<i>Chaffee</i> (DDG-90)	
January 17, 2018	Mischeif Reef in Spratly Islands	<i>Hopper</i> (DDG-70)	
March 23, 2018	Mischeif Reef in Spratly Islands	<i>Mustin</i> (DDG-89)	
May 27, 2018	Tree, Lincoln, Triton, and Woody islands in Paracel Islands	<i>Antietam</i> (CG-54) and <i>Higgins</i> (DDG-76)	The U.S. Navy reportedly considers that the Chinese warships sent to warn off the U.S. Navy ships maneuvered in a "safe but unprofessional" manner.
September 30, 2018	Gaven and Johnson Reefs in Spratly Islands	<i>Decatur</i> (DDG-73)	This operation led to a tense encounter between the <i>Decatur</i> and a Chinese destroyer.
November 26, 2018	Paracel Islands	<i>Chancellorsville</i> (CG-62)	
January 7, 2019	Tree, Lincoln, and Woody islands in Paracel Islands	<i>McCampbell</i> (DDG-85)	
February 11, 2019	Mischief Reef in Spratly Islands	<i>Spruance</i> (DDG-111) and <i>Preble</i> (DDG-88)	
May 6, 2019	Gaven and Johnson Reefs in Spratly Islands	<i>Preble</i> (DDG-88) and <i>Chung Hoon</i> (DDG-93)	
May 19, 2019	Scarborough Shoal in Spratly Islands	<i>Preble</i> (DDG-88)	

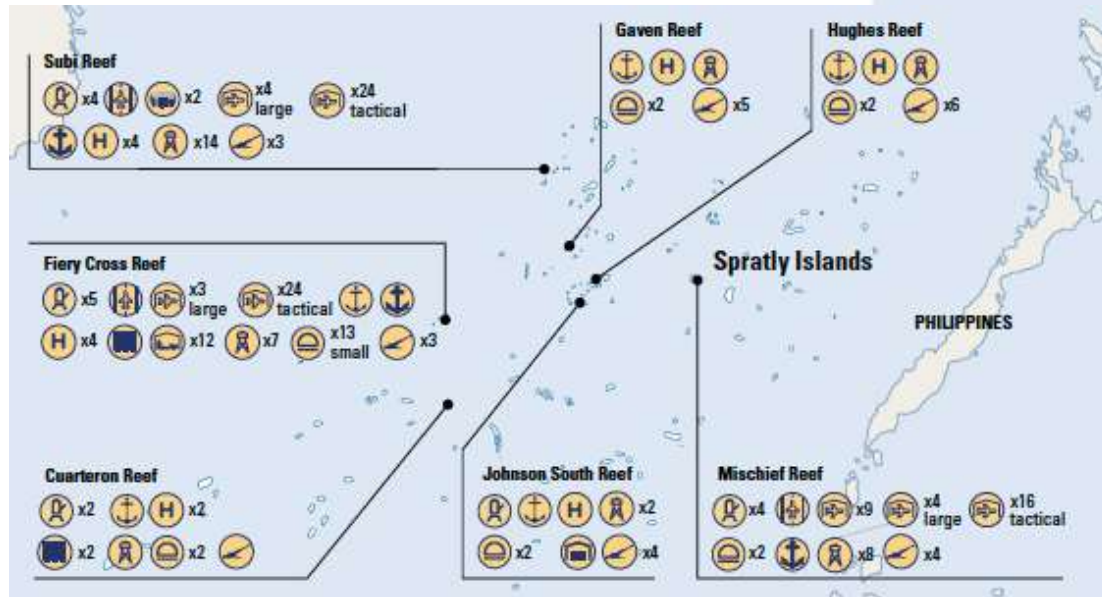
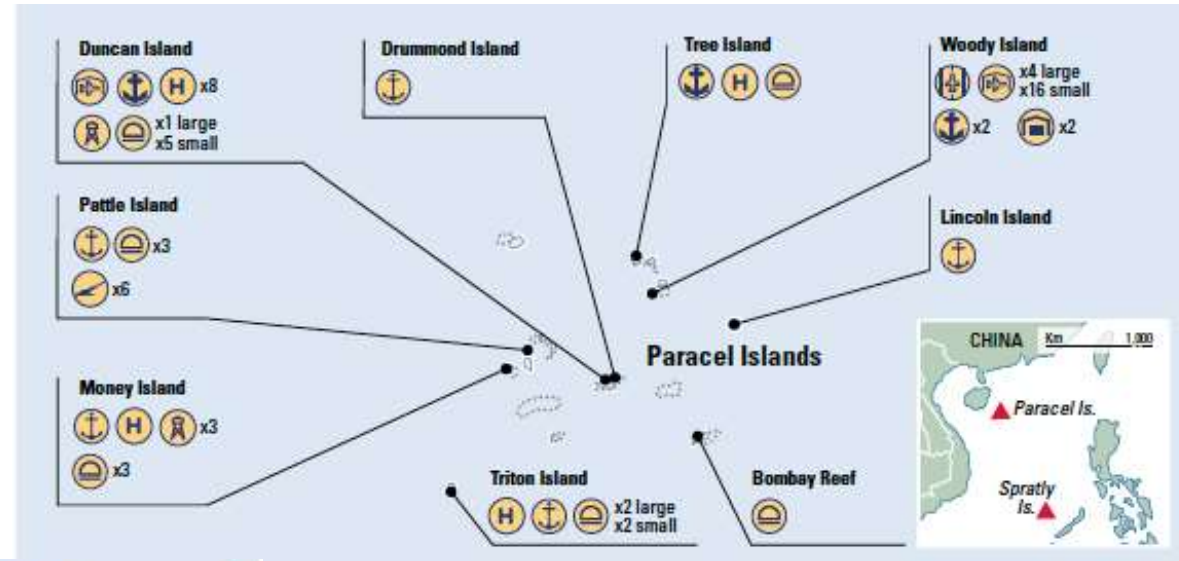
**Source:** Table prepared by CRS based on press reports about each operation.

**Notes:** Reported dates may vary by one day due to the difference in time zones between the United States and the SCS.

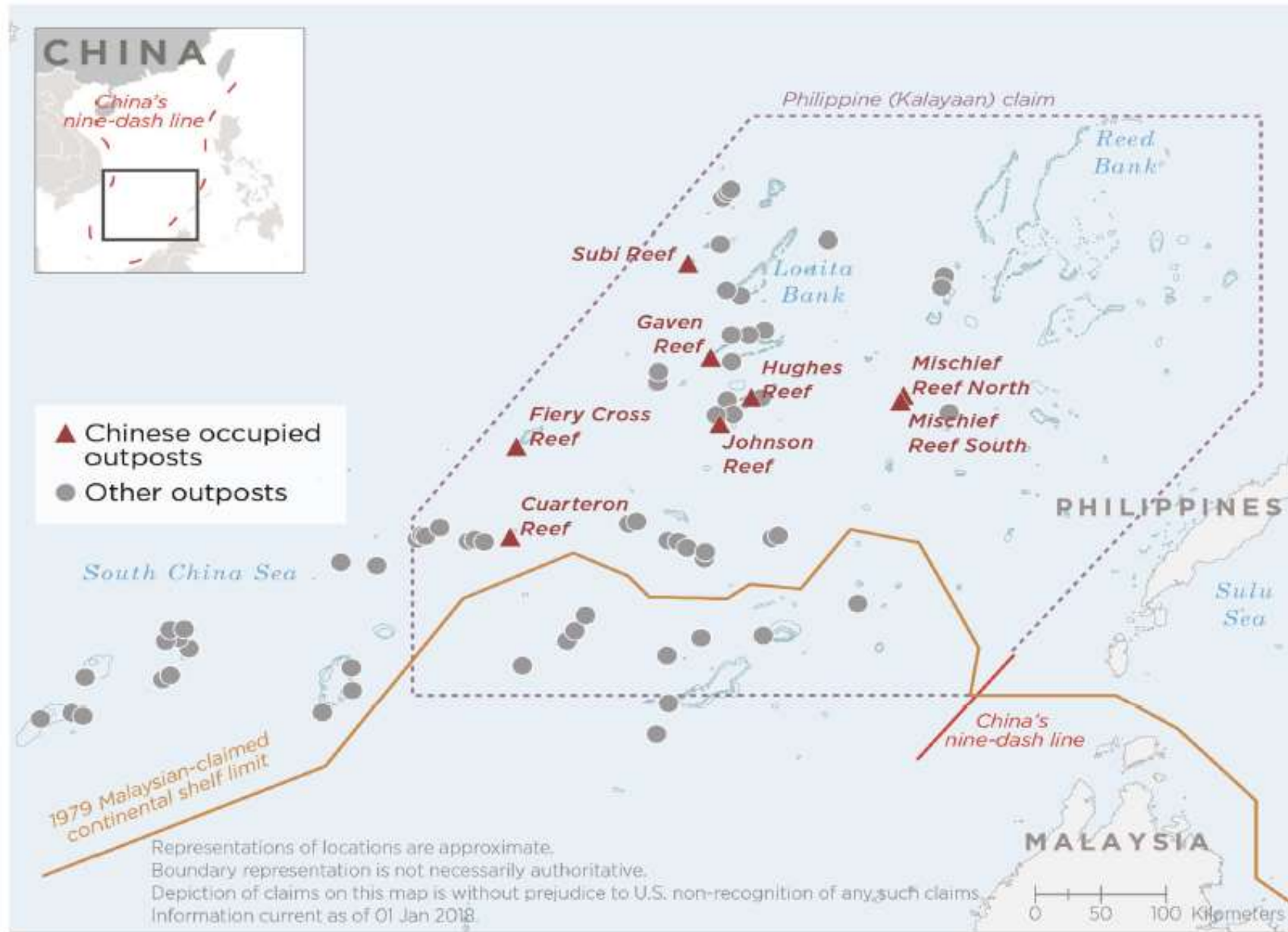
# IISS Estimate of Chinese Bases in South China Sea: 2018

China's land reclamation in the Spratlys and Paracels seems to have stopped in recent years, and the focus has instead turned to building up permanent infrastructure. All the Chinese-controlled features in the Spratlys have what appear to be permanent weapons emplacements but this is not the case in the Paracels, though weapons have appeared there occasionally. This might be due to the proximity of the Paracels to Hainan, making them less vulnerable. In the Spratlys, a variety of radars and radomes

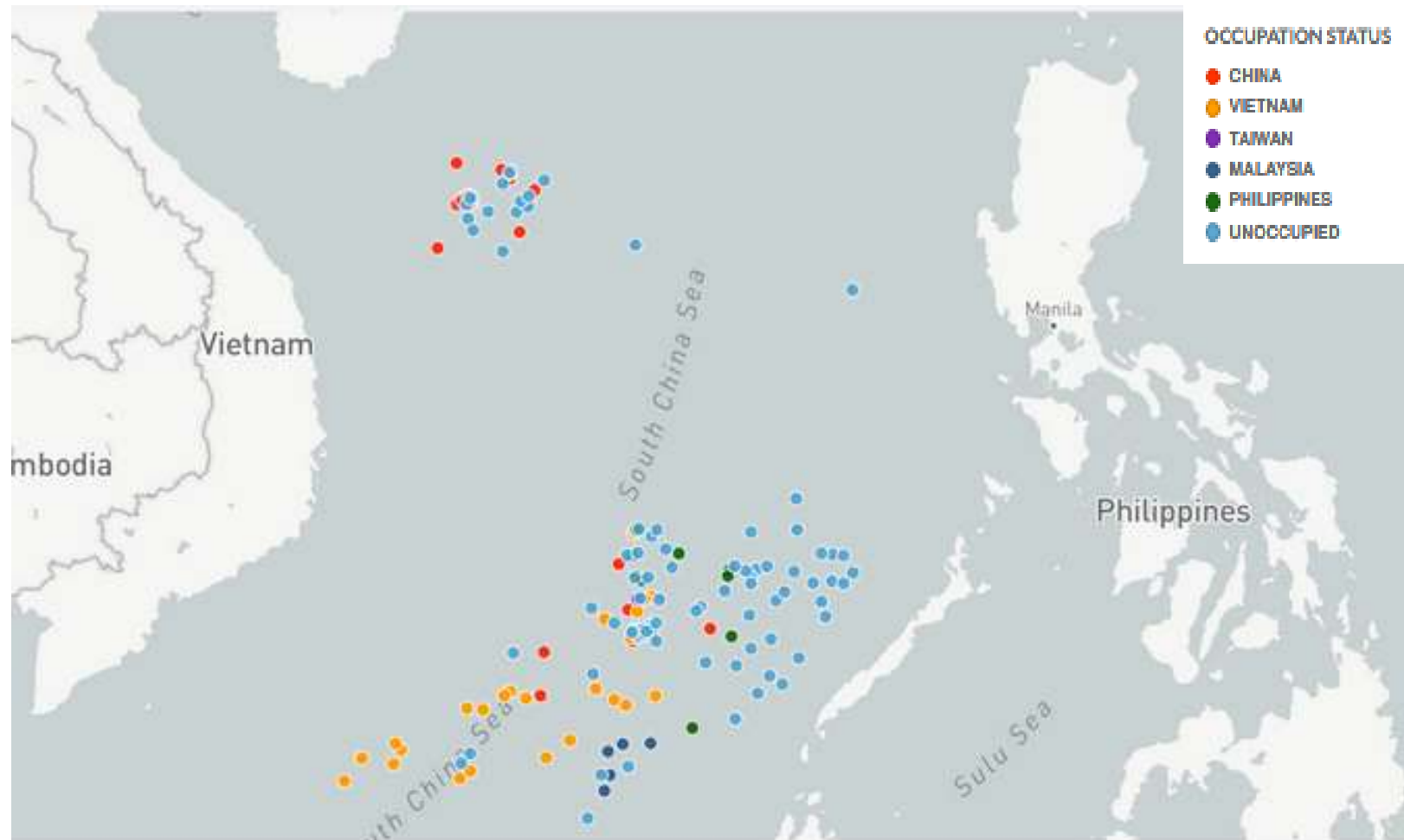
now seem to be part of the permanent infrastructure, indicating the extent of Chinese command-and-control and ISR capabilities in the South China Sea. The ports in the Spratly Islands, including deep-water berths, could in the future support a wide range of naval vessels. Lastly, 3 km runways, aircraft hangars and weapons-storage facilities on Woody Island in the Paracels and Subi, Fiery Cross and Mischief reefs in the Spratlys will enable greater reach for Chinese airpower.



# Outputs in the Spratly Islands in 2018



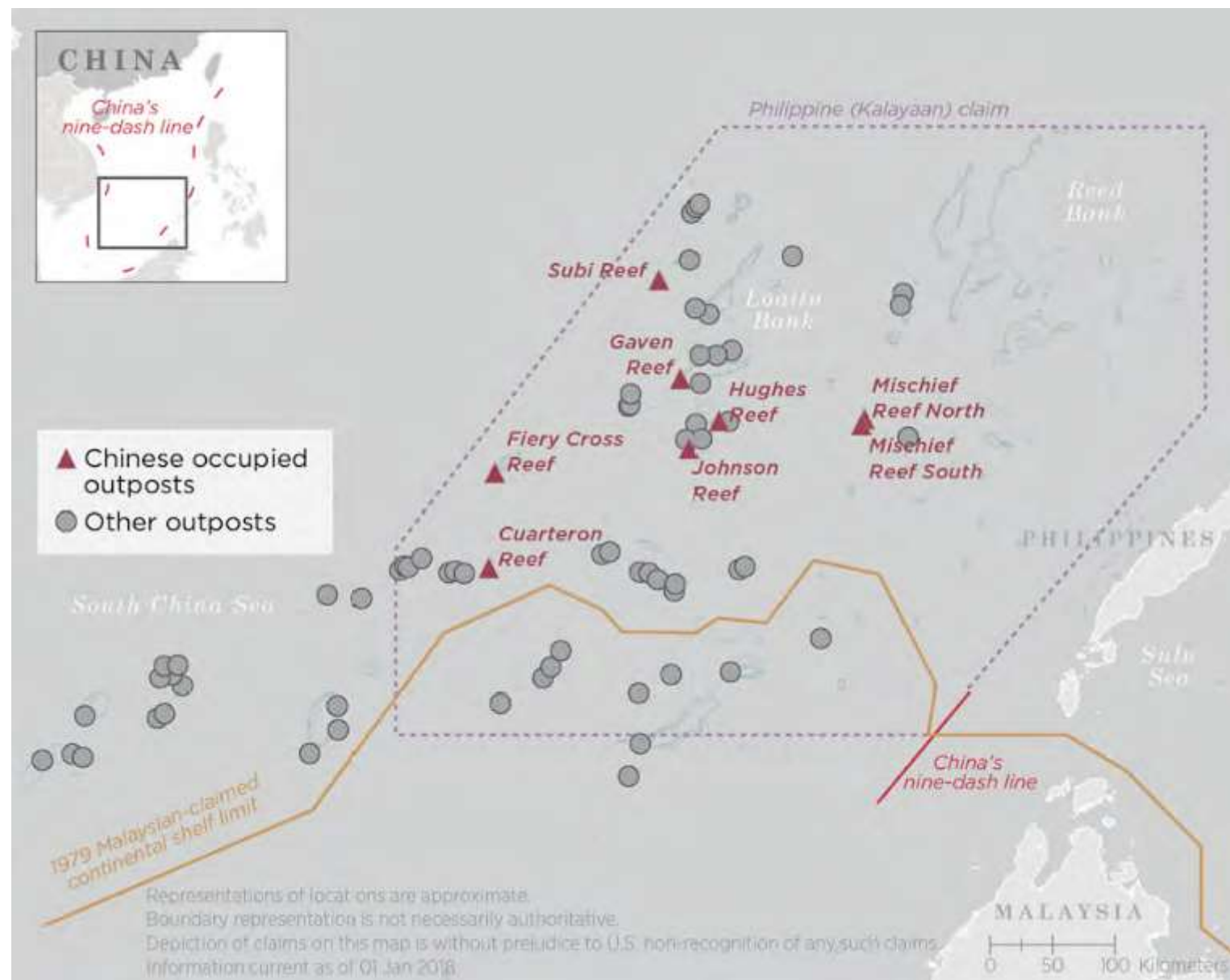
# Who Occupied What in the South China Sea in 2019



Source: CSIS AMTI Project, <https://amti.csis.org/chinese-power-projection/>



# DIA on Chinese Outposts in the Spratly Islands- 2019



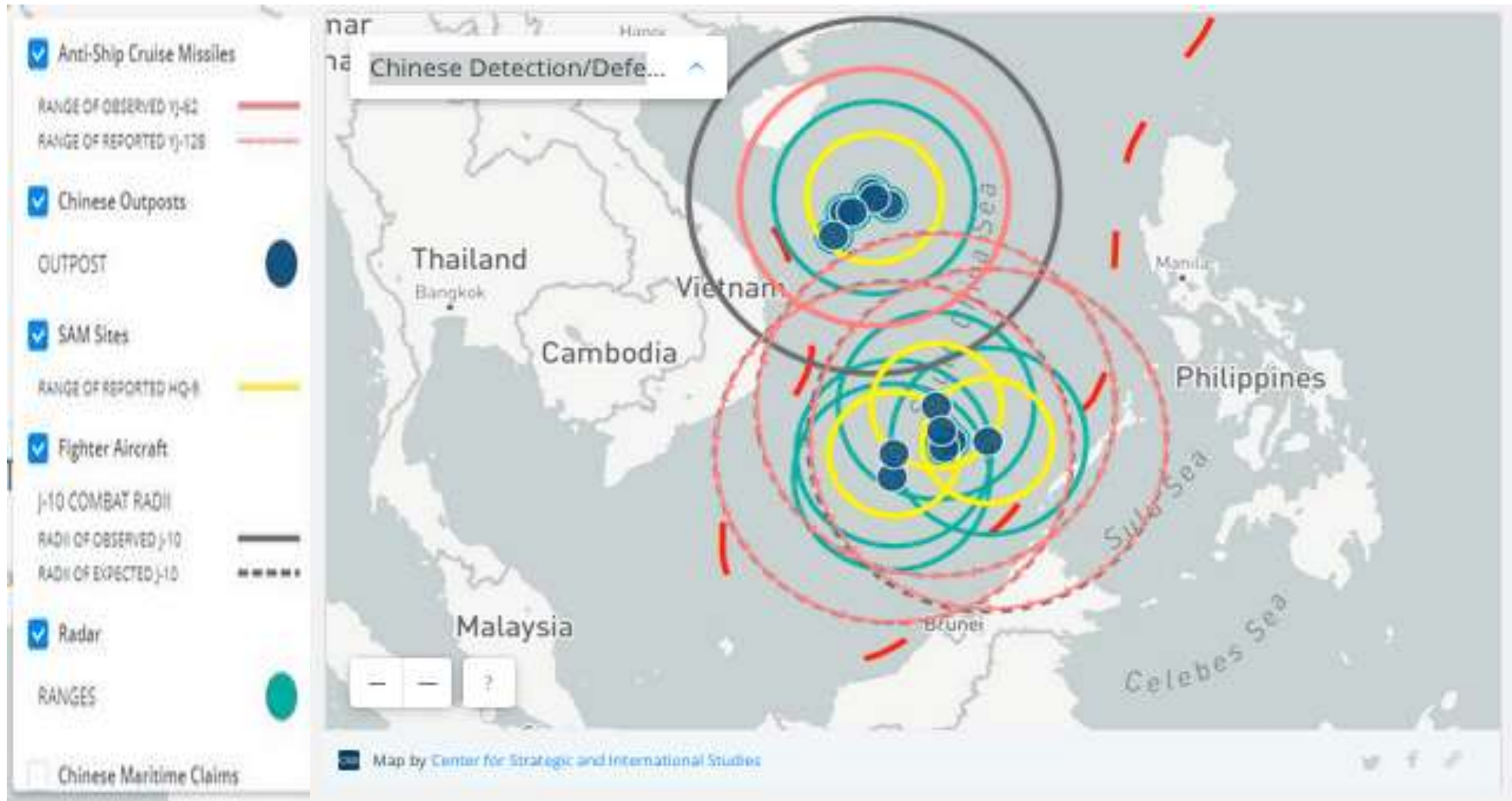
DIA, *China Military Power: Modernizing a Force to Fight and Win*, 2019, DIA-02-1706-085, 2019, p. 8.

# Impact of Current and Expected Chinese Deployments of Air and Missile Platforms in the Paracels and Spratlys: Early 2018 - I





## Impact of Current and Expected Chinese Deployments of Air and Missile Platforms in the Paracels and Spratlys: Early 2018 - II



Source: CSIS AMTI Project, *An Accounting of Chinese Deployments to the Spratly Islands*, May 9, 2018, <https://amti.csis.org/chinese-power-projection/> and <https://mail.google.com/mail/u/0/#inbox/16347781d0432c32>

# Chinese Fighter and Bomber Ranges from Power Projection Facilities in the South China Sea in 2019

## CHINESE OUTPOSTS

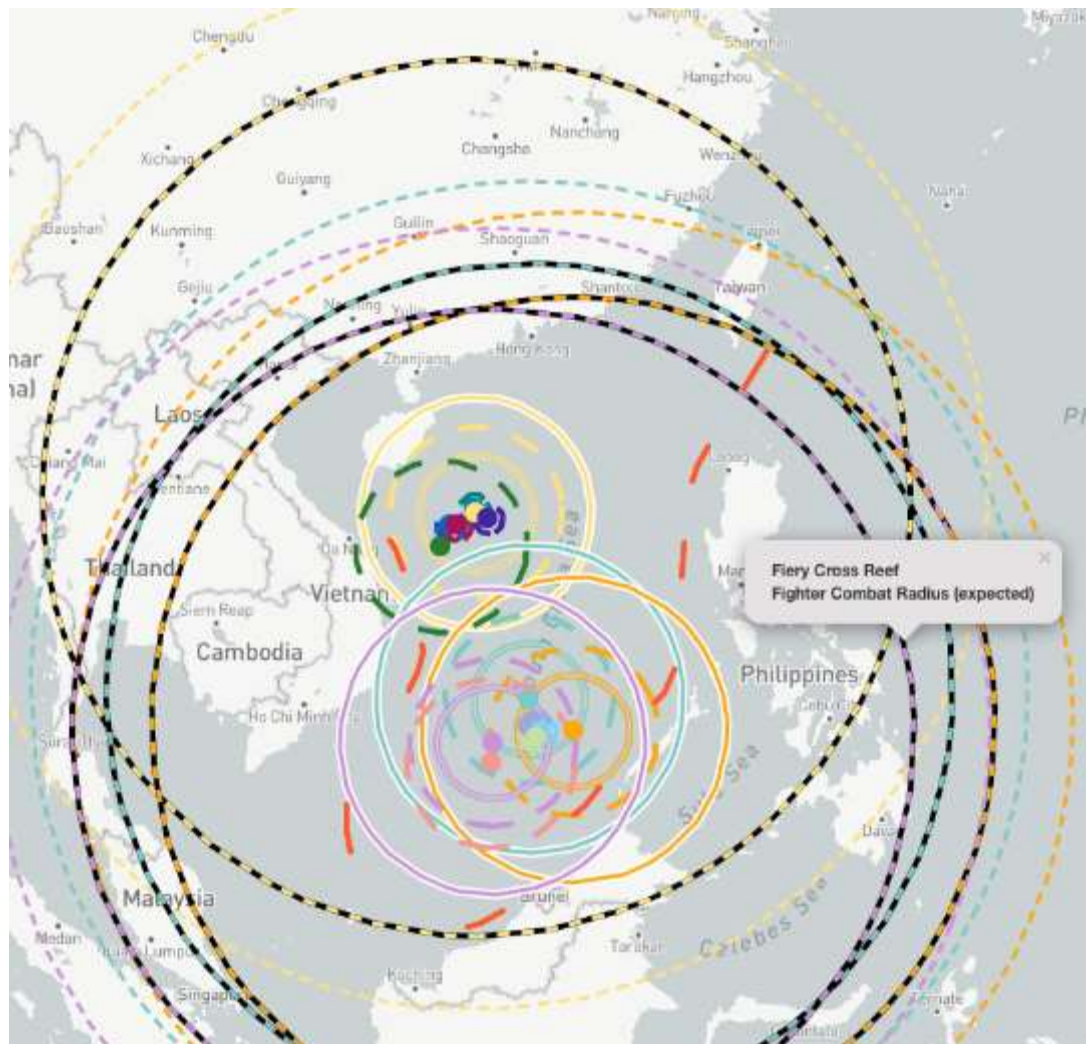
- |                    |                  |
|--------------------|------------------|
| ✓ Cuarteron Reef   | ✓ Duncan Island  |
| ✓ Fiery Cross Reef | ✓ Lincoln Island |
| ✓ Gaven Reefs      | ✓ Money Island   |
| ✓ Hughes Reef      | ✓ Tree Island    |
| ✓ Johnson Reef     | ✓ Triton Island  |
| ✓ Mischief Reef    | ✓ Woody Island   |
| ✓ Subi Reef        |                  |

## CAPABILITIES

- |   |                             |
|---|-----------------------------|
| ✓ | — Bomber Aircraft           |
| ✓ | — SAM Sites                 |
| ✓ | — Fighter Aircraft          |
| ✓ | — Anti-Ship Cruise Missiles |
| ✓ | — Radar                     |

## CHINESE MARITIME CLAIMS

- |   |                  |
|---|------------------|
| ✓ | — Nine-Dash Line |
|---|------------------|

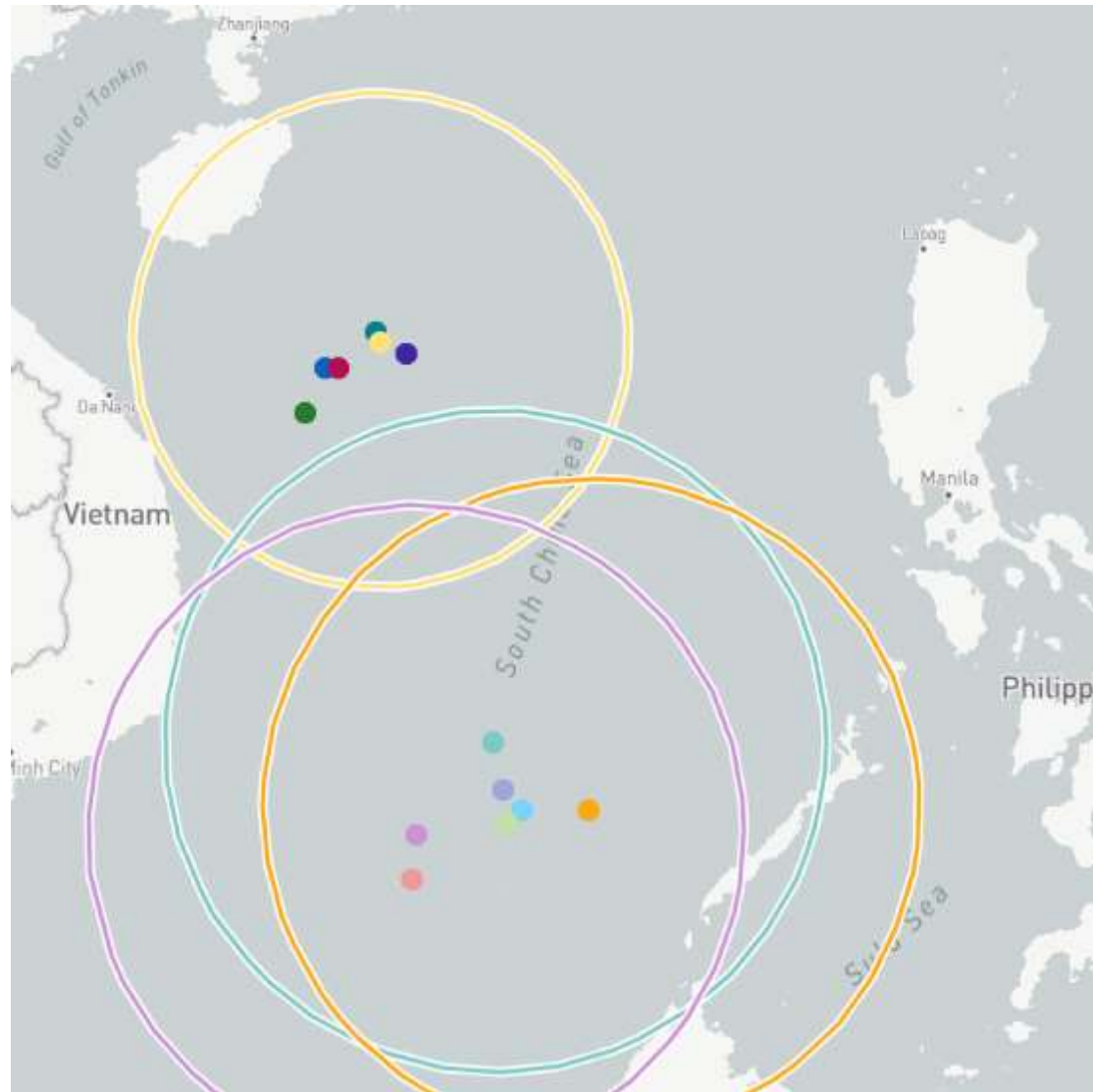


Adapted from CSIS Asia Maritime Transparency Initiative , interactive maps, <https://amti.csis.org/chinese-power-projection/>, 1.7.19

# Chinese Anti-Ship Cruise Missile Ranges from Power Projection Facilities in the South China Sea in 2019

## CHINESE OUTPOSTS

- |                    |                  |
|--------------------|------------------|
| ✓ Cuarteron Reef   | ✓ Duncan Island  |
| ✓ Fiery Cross Reef | ✓ Lincoln Island |
| ✓ Gaven Reefs      | ✓ Money Island   |
| ✓ Hughes Reef      | ✓ Tree Island    |
| ✓ Johnson Reef     | ✓ Triton Island  |
| ✓ Mischief Reef    | ✓ Woody Island   |
| ✓ Subi Reef        |                  |



Adapted from CSIS Asia Maritime Transparency Initiative, interactive maps, <https://amti.csis.org/chinese-power-projection/>, 1.7.19.



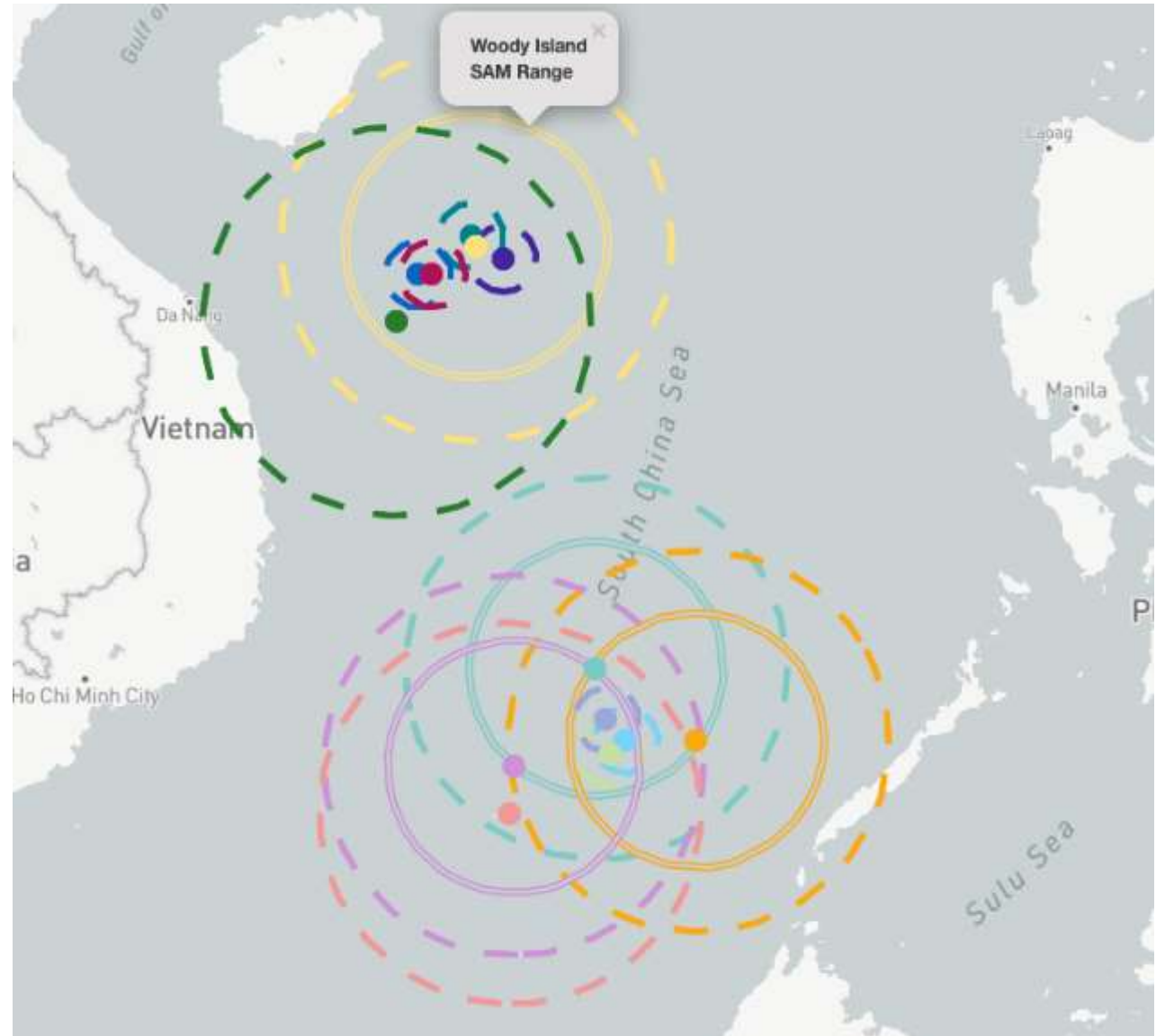
# Chinese Radar and Surface-to-Air Missile Ranges from Facilities in the South China Sea

## CHINESE OUTPOSTS

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Cuarteron Reef   | <input checked="" type="checkbox"/> Duncan Island  |
| <input checked="" type="checkbox"/> Fiery Cross Reef | <input checked="" type="checkbox"/> Lincoln Island |
| <input checked="" type="checkbox"/> Gaven Reefs      | <input checked="" type="checkbox"/> Money Island   |
| <input checked="" type="checkbox"/> Hughes Reef      | <input checked="" type="checkbox"/> Tree Island    |
| <input checked="" type="checkbox"/> Johnson Reef     | <input checked="" type="checkbox"/> Triton Island  |
| <input checked="" type="checkbox"/> Mischief Reef    | <input checked="" type="checkbox"/> Woody Island   |
| <input checked="" type="checkbox"/> Subi Reef        |  |

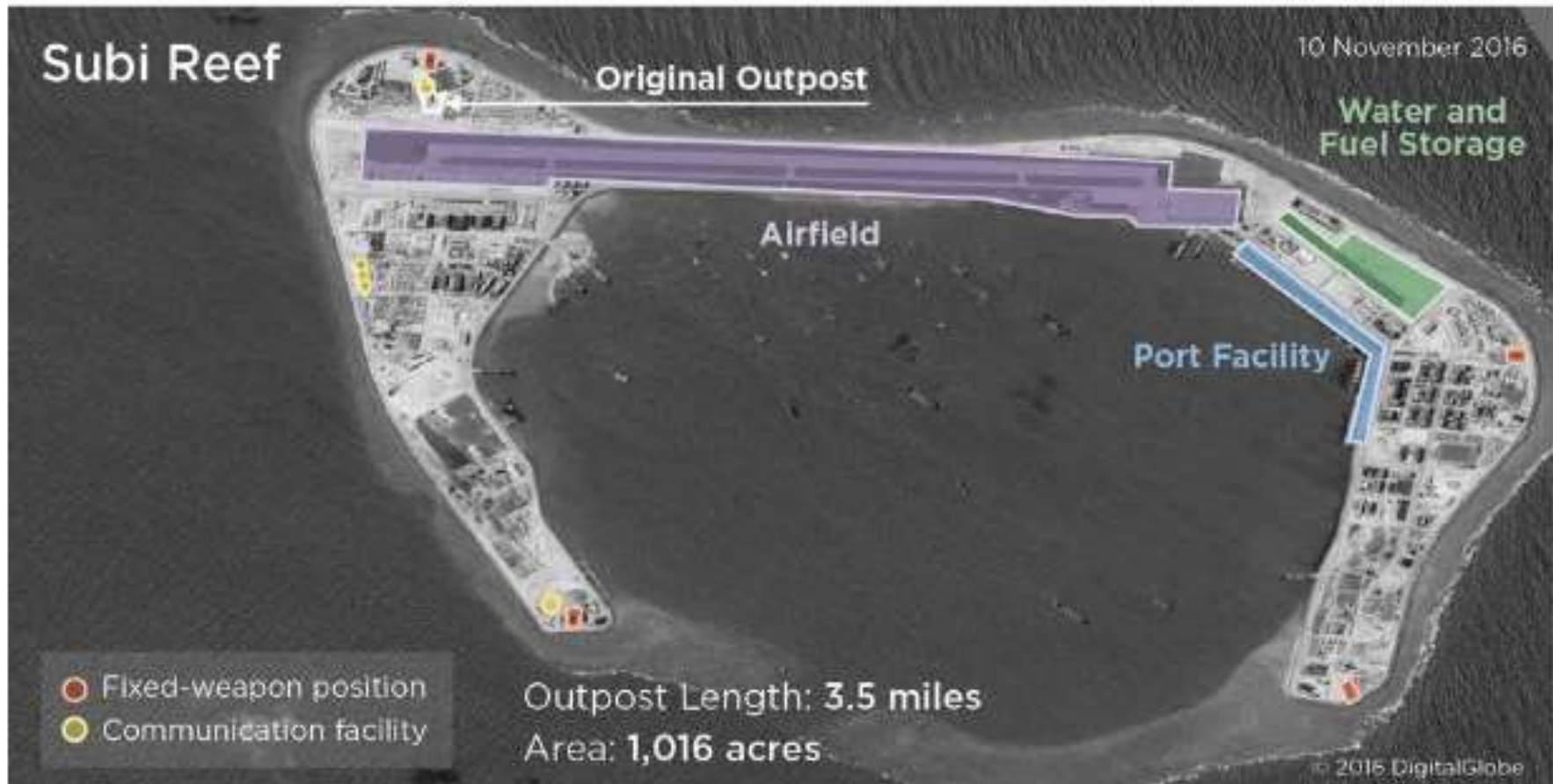
## CAPABILITIES

- |                                     |                           |
|-------------------------------------|---------------------------|
| <input type="checkbox"/>            | Bomber Aircraft           |
| <input checked="" type="checkbox"/> | SAM Sites                 |
| <input type="checkbox"/>            | Fighter Aircraft          |
| <input type="checkbox"/>            | Anti-Ship Cruise Missiles |
| <input checked="" type="checkbox"/> | Radar                     |



Adapted from CSIS Asia Maritime Transparency Initiative , interactive maps, <https://amti.csis.org/chinese-power-projection/>, 1.7.19.

## China's Outposts on the Subi Reef



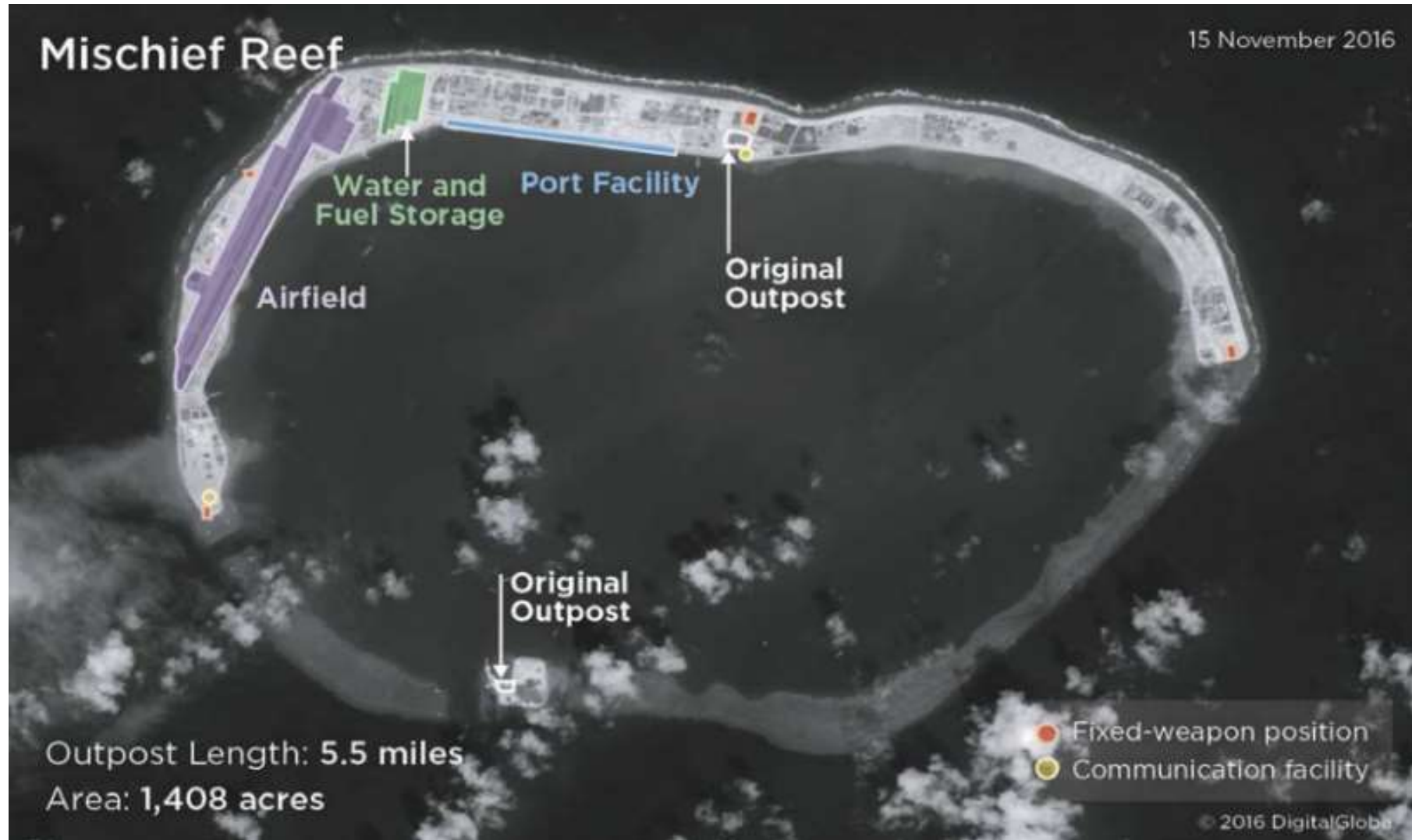
## Making Woody Island a Base



NOTE: Woody Island is a substantial base on an artificial island containing an airfield with a length of more than 3,000 meters. The close-up image shows the deployment of a long-range SAM battery.



## Building Island Bases: Mischief Reef



## Possible Military facilities on New “Islands”



Source: BBC, <http://www.bbc.com/news/world-asia-china-39165080>.

# **The Critical Role of Chinese Trade in the South China Sea**

# The Critical Role of Trade Through the South China Sea

An analysis by the China Power group in the CSIS illustrates the importance of the South China Sea to China in trade terms. It states that,

The United Nations Conference on Trade and Development (UNCTAD) estimates that roughly [80 percent of global trade](#) by volume and 70 percent by value is transported by sea. Of that volume, 60 percent of maritime trade passes through Asia, with the South China Sea carrying an estimated one-third of global shipping.<sup>1</sup> Its waters are particularly critical for China, Taiwan, Japan, and South Korea, all of which rely on the Strait of Malacca, which connects the South China Sea and, by extension, the Pacific Ocean with the Indian Ocean. As the second-largest economy in the world with over 60 percent of its trade in value traveling by sea, China's economic security is closely tied to the South China Sea.

As a vital artery of trade for many of the world's largest economies, the South China Sea has garnered significant attention. The high concentration of commercial goods flowing through the relatively narrow Strait of Malacca has raised concerns about its vulnerability as a strategic chokepoint. Writings on the South China Sea frequently claim that \$5.3 trillion worth of goods transits through the South China Sea annually, with \$1.2 trillion of that total accounting for trade with the U.S. This \$5.3 trillion figure has been used regularly since late 2010, despite significant changes in world trade over the last five-plus years.

In pursuit of an accurate estimation, China Power constructed a new dataset for South China Sea trade using common shipping routes, automatic identification system (AIS) data, and bilateral trade flows. This approach relied on calculating a summation of all bilateral trade flowing through the South China Sea. China Power found that an estimated \$3.4 trillion in trade passed through the South China Sea in 2016. These estimates represent a sizeable proportion of international trade, constituting between 21 percent of global trade in 2016, but is nonetheless 36 percent smaller than the original \$5.3 trillion.

For many of the world's largest economies, the South China Sea is an essential maritime crossroads for trade. Over 64 percent of China's maritime trade transited the waterway in 2016, while nearly 42 of Japan's maritime trade passed through the South China Sea in the same year. The United States is less reliant on South China Sea, with just over 14 percent of its maritime trade passing through the region.

... The frequent citing of the \$5.3 trillion figure in various publications implies an overwhelming concern among the media, scholars, and governments that a disruption of South China Sea trade would precipitate a global economic crisis. Concerns surrounding the \$5.3 trillion figure are often tied to suspicions that China's growing regional influence may embolden Beijing to disrupt commercial shipping. While certain contingencies may prompt China's leaders to take coercive action, this possibility is less likely during peacetime.

China's reliance on the South China Sea leaves it vulnerable to maritime trade disruptions. In 2003, then-President Hu Jintao drew attention to the potential threat posed by ["certain major powers"](#) aiming to control the Strait of Malacca, and highlighted the need for China to adopt new strategies to address this concern. Thereafter, the Chinese media drew significant attention to the potential risk outlined by Hu Jintao and Chinese scholars stressed the need to solve this "Malacca Dilemma" by exploring alternative shipping routes.<sup>2</sup>

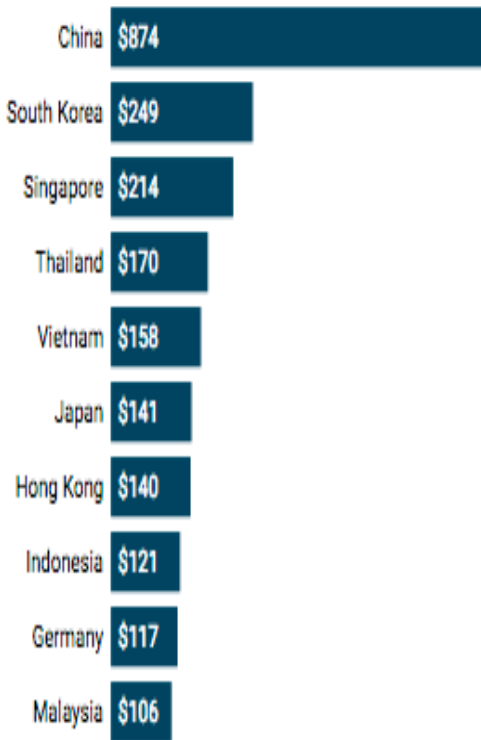
The charts that follow summarize that analysis. It is important to note, however, that China's dependence on maritime trade is also a key reason that China has developed one of the world's largest maritime fleets.

Source: "How much trade transits the South China Sea?," China Power Project, CSIS, <https://chinapower.csis.org/much-trade-transits-south-china-sea/>

# Total Traffic Through the South China Sea: \$3.37 Trillion in 2016

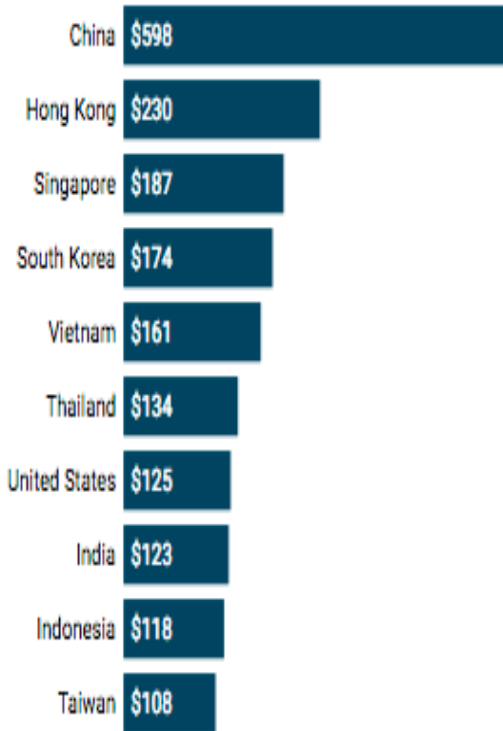
## Exports Through the SCS (billions)

Top ten exporters



## Imports Through the SCS (billions)

Top ten importers



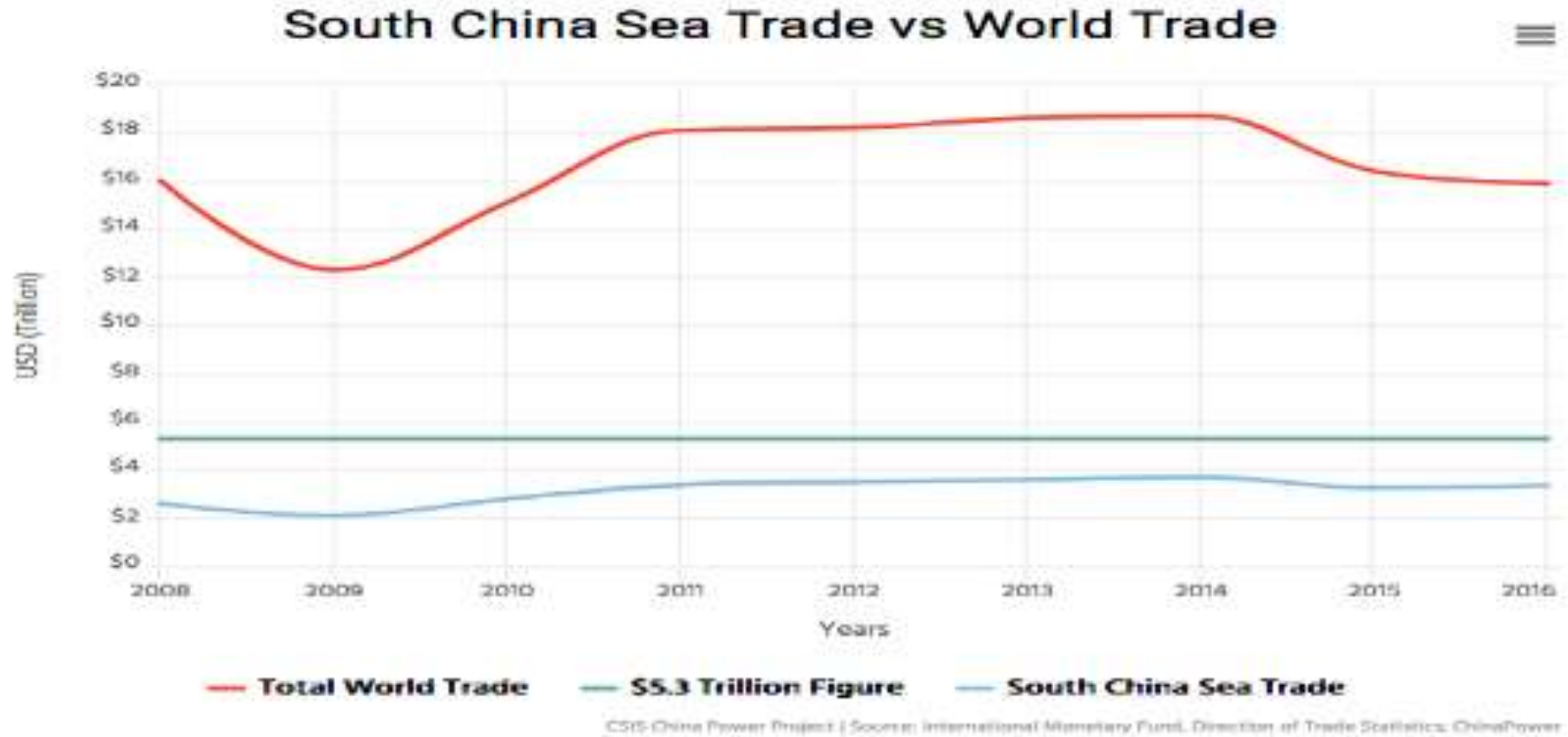
Country	% Share of World GDP	Trade Value through South China Sea (USD billions)	South China Sea Trade As % of All Trade in Goods
United States	24.5	208	5.72
China	14.8	1470	39.5
Japan	6.53	240	19.1
Germany	4.58	215	9.00
United Kingdom	3.46	124	11.8
France	3.26	83.5	7.77
India	2.99	189	30.5
Italy	2.45	70.5	8.14
Brazil	2.37	77.3	23.4
Canada	2.02	21.8	2.67

CSIS China Power Project : International Maritime Trade

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Source: *CSIS China Power Project*, <https://chinapower.csis.org/much-trade-transits-south-china-sea/>.

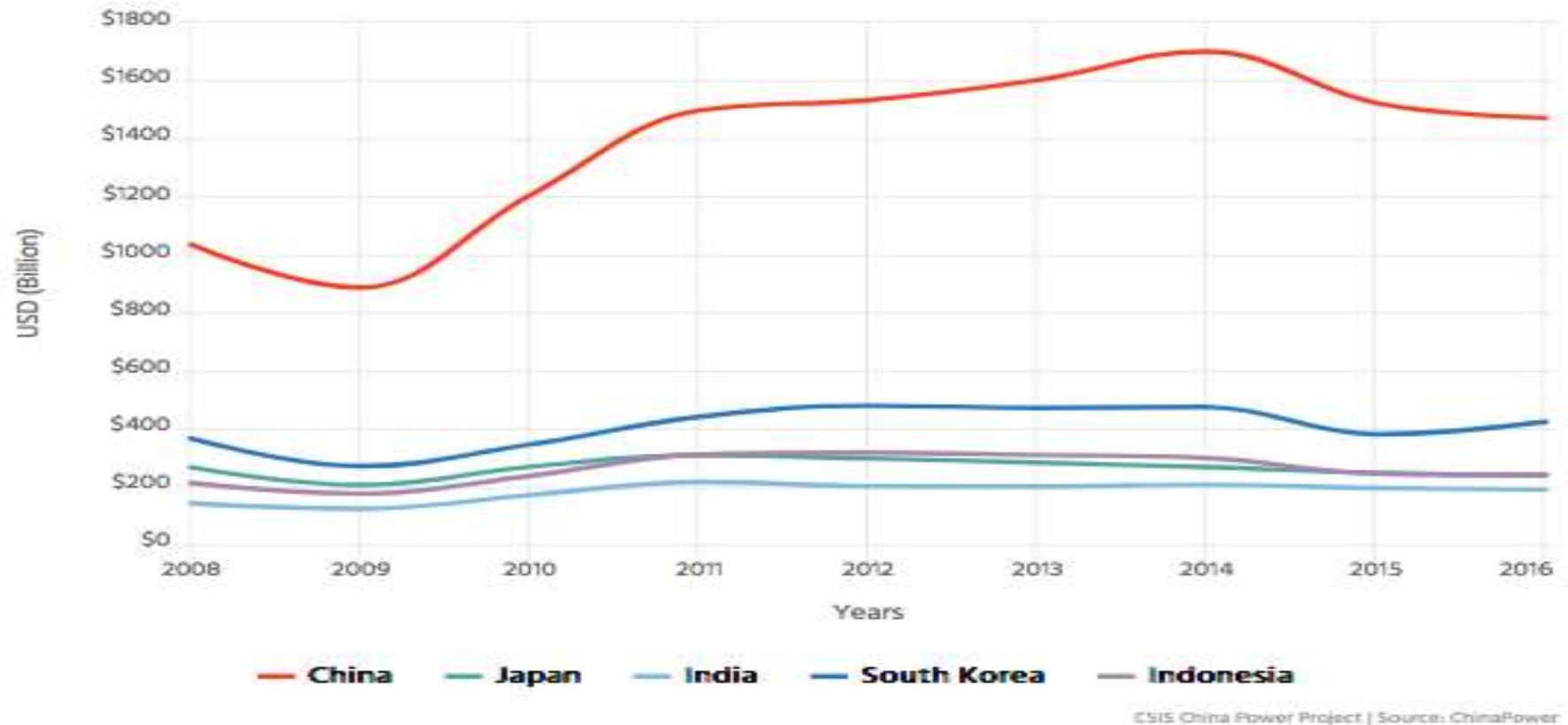
# Global Trade vs. Trade Through the South China Sea – 2008-2016:



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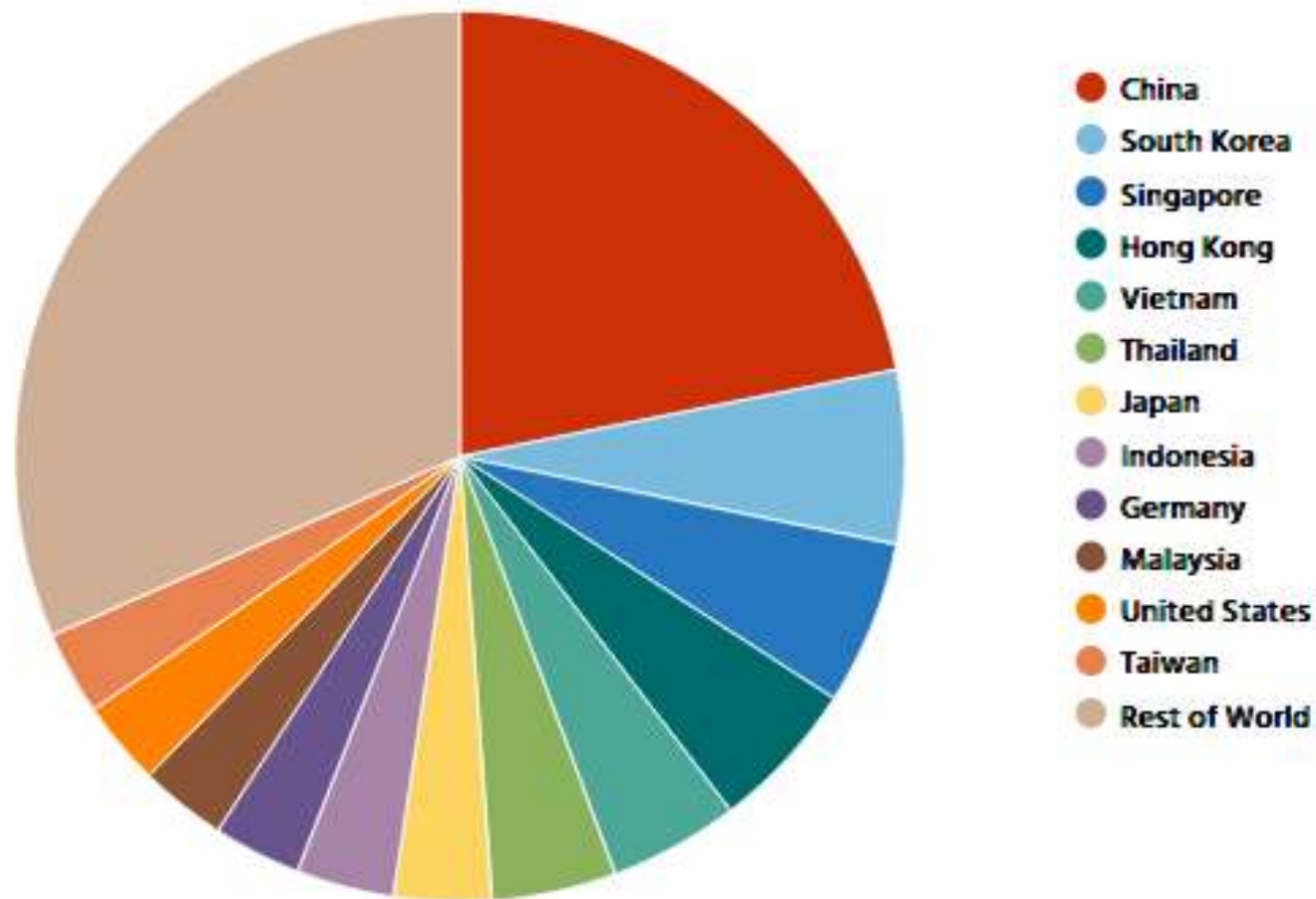


# Trade of Key Countries Through the South China Sea – 2008-2016



Given the significance of the South China Sea for Chinese trade, Beijing may be more inclined to take steps to preserve the free flow of trade than it is to disrupt regional trade flows. Even under extreme hypothetical conditions where Chinese capabilities expanded to the point where it was capable of letting its own commerce pass while stopping that of other countries, such a move would be risky. Long-term interference with shipping traffic would increase insurance premiums on commercial vessels and force shippers to consider more expensive trade route alternatives. This is not to say that such a scenario is impossible. Dire circumstances may compel China to take disruptive action, but this would come at a considerable financial cost to China, greatly degrade China's standing among other countries, and could precipitate an assertive response by outside powers.

# Percent of South China Sea Trade: 2016



CSIS China Power Project | Source: ChinaPower

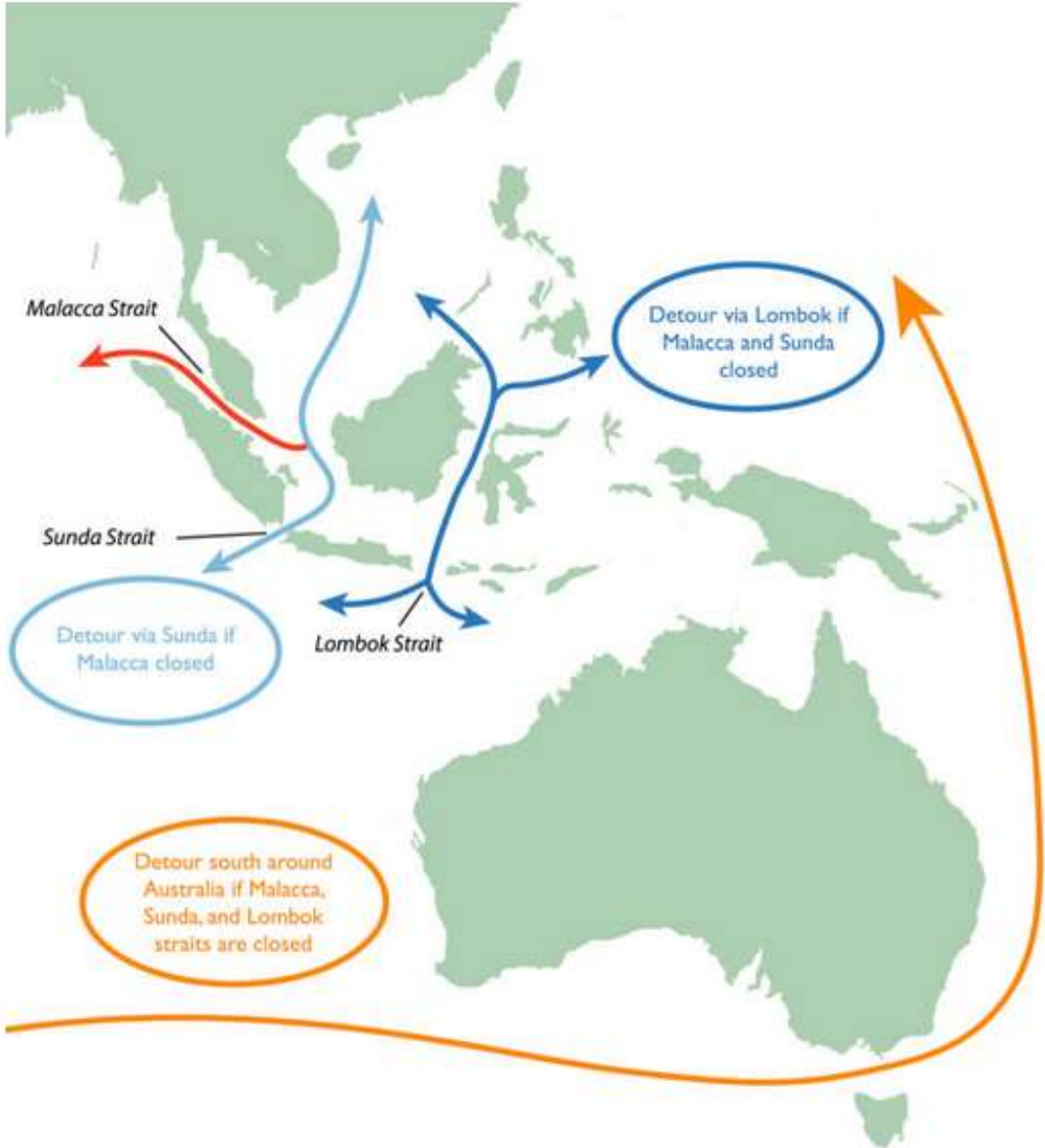
# Avoiding the Strait of Malacca Has Massive Costs

(See the China Power full study cited below for the details of the risk assessment)

Estimated Cost to Reroute All Malacca Traffic (Million USD)

	Sunda+	% of SCS trade over period	Lombok	% of SCS trade over period	Australia	% of SCS trade over period
Daily	9.21		17.00		92.98	
Weekly	64.49	0.08-0.10	119.03	0.15-0.18	650.85	0.80-1.01
Monthly	279.46		515.80		2,820.35	

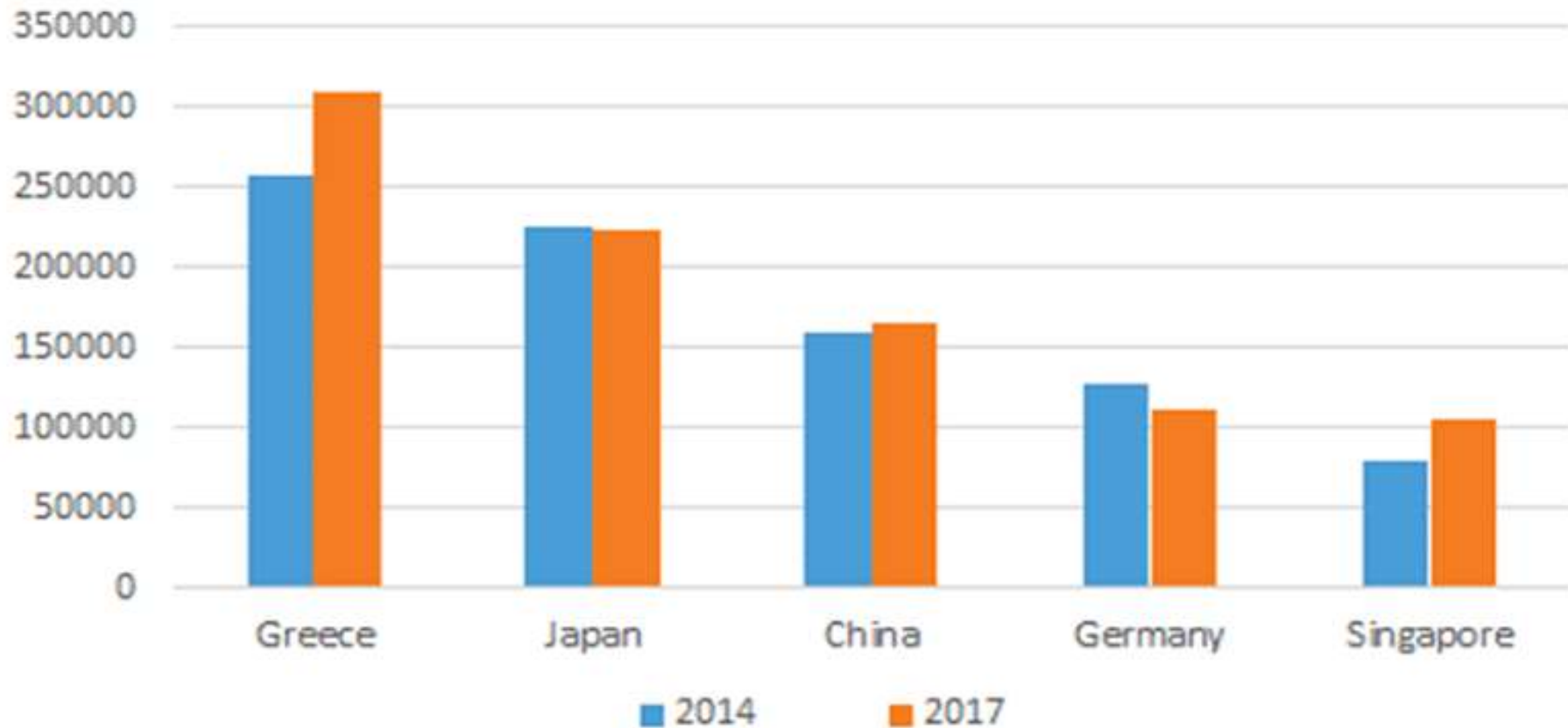
CSIS ChinaPower Project



Source: CSIS China Power Project, <https://chinapower.csis.org/much-trade-transits-south-china-sea/>.

## Top 5 merchant fleet owning economies

*Fleet in thousands of DWTs (dead weight tons)*  
2014 and 2017



Source: UNCTAD secretariat [maritime statistics](#), based on data provided by Clarksons Research.

# **Chinese Energy Transit and Resource Potential in the South China Sea**



# OSD - China's Hydrocarbon Strategy - 2019

## CHINA'S HYDROCARBON STRATEGY

### Key Takeaways

- > China's interest in ensuring reliable, cost-effective, and diverse energy sources to support its economic growth drives its overseas investments.
- > China hopes to diversify energy suppliers and transport options.

China's interest in ensuring reliable, cost-effective, and diverse fuel sources to support and sustain its economic development has led it to participate in oil and natural gas projects in more than 40 countries. In 2018, China imported oil to meet approximately 71 percent of its needs. This figure is projected to grow to approximately 80 percent by 2035 according to the International Energy Agency (IEA). In 2018, China met 44 percent of its natural gas demand with imports, which is projected to grow to 46 percent by 2035 according to the IEA. China looks primarily to the Persian Gulf, Africa, Russia, and Central Asia to satisfy its growing oil and gas demand.

China relies on SLOCs such as the South China Sea and Strait of Malacca for the majority of its hydrocarbon deliveries. In 2018, approximately 78 percent of China's oil imports and 16 percent of natural gas imports transited the South China Sea and Strait of Malacca. Despite China's efforts to diversify energy suppliers, the sheer volume of oil and liquefied natural

gas imported from the Middle East and Africa will make securing strategic SLOCs a priority for China for many years.

New or upgraded crude oil pipelines from Russia to China and Kazakhstan to China demonstrate China's interest in increasing overland supply. In early 2018, China doubled the capacity of its pipeline to Russia from 300,000 to 600,000 barrels per day. In April 2017, the Burma-China crude oil pipeline was commissioned. This 440,000-barrels per day pipeline bypasses the Strait of Malacca by transporting crude oil from Kyaukpyu, Burma, to Kunming, China. The pipeline is completed; however, it will be operating at partial capacity for 1-2 years while the Kunming Refinery still operates in a testing capacity. Saudi Arabia and other Middle Eastern and African countries supply the crude oil for the pipeline.

In 2018, approximately 28 percent of China's natural gas imports (46.7 billion cubic meters) came from Turkmenistan by pipeline via Kazakhstan and Uzbekistan. This pipeline is designed to carry 55 billion cubic meters per year with Turkmenistan and China planning to expand it to 80 billion cubic meters per year in 2020. A natural gas pipeline connecting China to Burma can deliver 12 billion cubic meters per year, but only 3.04 billion cubic meters of gas were shipped in 2018. As of September 2018, Russia completed about 93 percent of the Power of Siberia pipeline that will deliver Russian natural gas to China by December 2019. The contract for this pipeline is for 30

years and provides that 38 billion cubic meters of natural gas be delivered to China each year.

Several Chinese companies, often in pursuit of China's economic development goals, are also interested in gaining access to advanced technologies to try to improve efficiency, obtain and deploy clean energy technologies, and increase profits.

Source: OFFICE OF THE SECRETARY OF DEFENSE, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China, China Military Power, 2019*, May 2019, pp. 12-13.



# Chinese Energy Transit and Resource Potential in the South China Sea

China is one of the world largest consumers of oil and gas and is the world's largest petroleum importer. It presently is critically dependent on petroleum imports and most estimates indicate this dependence will increase steadily through 2040. Most such imports flow through the Strait of Malacca to the South China Sea – which is in itself a major potential source of undersea oil and gas.

The graphs and charts in this section summarize China's present level of dependence on such imports, and the economic and strategic importance of this energy flow – as well as the influence China gains over other key Asian importers like Japan, Taiwan, and South Korea. They provide a clear picture of why China sees securing the South China Sea as a key strategic interest, and why it is seeking to develop higher levels of energy efficiency, other sources of energy, and imports through pipelines that bypass the Strait of Malacca and South China Sea.

Here, it is important to note the the U.S. Energy Information Agency regards the Strait of Malacca as on the world's most energy important chokepoints.

The Strait of Malacca, located between **Indonesia, Malaysia, and Singapore**, links the Indian Ocean to the **South China Sea** and to the Pacific Ocean. The Strait of Malacca is the shortest sea route between Persian Gulf suppliers and the Asian markets—notably China, Japan, South Korea, and the Pacific Rim.

Oil shipments through the Strait of Malacca supply China and Indonesia, two of the world's fastest-growing economies. This Strait is the primary chokepoint in Asia, with an estimated 16.0 million b/d flow in 2016, compared with 14.5 million b/d in 2011. Crude oil generally makes up between 85% and 90% of total oil flows per year, and petroleum products account for the remainder (Table 3).

At its narrowest point in the Phillips Channel of the Singapore Strait, the Strait of Malacca is only about 1.7 miles wide, creating a natural bottleneck with the potential for collisions, grounding, or oil spills.<sup>8</sup> According to the International Maritime Bureau's Piracy Reporting Centre, piracy, including attempted theft and hijackings, is a threat to tankers in the Strait of Malacca, and ships saw an increasing number of attacks in 2015. Data for 2016 were not available at the time of publication.<sup>9</sup>

If the Strait of Malacca were blocked, nearly half of the world's fleet would be required to reroute around the Indonesian archipelago, such as through the Lombok Strait between the Indonesian islands of Bali and Lombok, or through the Sunda Strait between Java and Sumatra.<sup>10</sup> Rerouting would tie up global shipping capacity, add to shipping costs, and potentially affect energy prices.

Several proposals have been made to build bypass options and reduce tanker traffic through the Strait of Malacca. In particular, China and Myanmar (Burma) commissioned the Myanmar-China natural gas pipeline in 2013 that stretches from Myanmar's ports in the Bay of Bengal to the Yunnan province of China. The pipeline has a capacity of 424 billion cubic feet per year. The oil portion of the pipeline was completed in August 2014 and it is now operational at full capacity since the 260,000 b/d refinery in Yunnan, China, began operating in June 2017. The Myanmar-China oil line transports Middle Eastern oil, allowing it to bypass the Strait of Malacca.<sup>11</sup>

The Strait of Malacca is also an important transit route for liquefied natural gas (LNG) from Persian Gulf and African suppliers, particularly Qatar, to East Asian countries with growing LNG demand. The biggest importers of LNG in the region are Japan and South Korea.

**Strait of Malacca oil and liquefied natural gas (LNG) flows, 2011-16**

million barrels per day	2011	2012	2013	2014	2015	2016
Total oil flows through Strait of Malacca	14.5	15.1	15.4	15.5	15.5	16.0
crude oil	12.8	13.2	13.3	13.3	13.9	14.6
refined products	1.7	1.9	2.1	2.2	1.6	1.4
LNG (Tcf per year)	2.8	3.5	3.9	4.1	3.6	3.2

Notes: Tcf = Trillion cubic feet.

Sources: U.S. Energy Information Administration analysis based on

Lloyd's List Intelligence, IHS Waterborne, BP.<sup>12</sup>

# Chinese Hydrocarbon Strategy 2019

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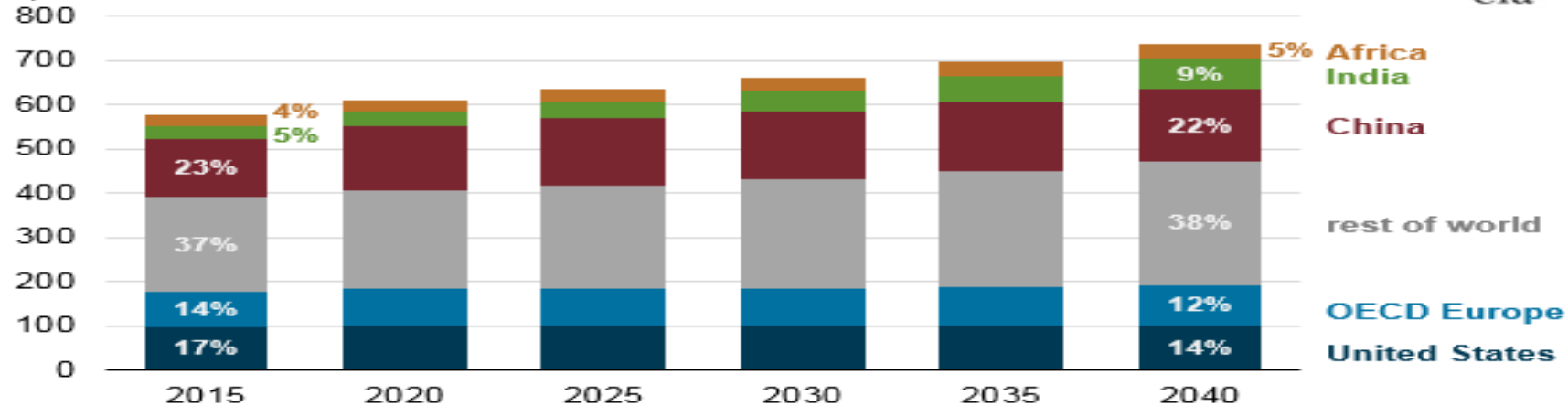
China's Top Crude Suppliers 2018

Country	Volume (1,000 barrels/day)	Percentage of Imported Crude Oil
Russia	1,434	15
Saudi Arabia	1,136	12
Angola	949	10
Iraq	902	10
Oman	659	7
Brazil	633	7
Iran	586	6
Kuwait	465	5
Venezuela	333	4
Congo (Brazzaville)	252	3
Others	1,903	21
<b>Total</b>	<b>9,252</b>	<b>100</b>

# Uncertain Estimates of China's Future Energy Needs

U.S. EIA Estimates show a major range through 2040 according to China's policy

World total primary energy consumption (2015-2040)  
quadrillion British thermal units



Source: U.S. Energy Information Administration, *International Energy Outlook 2018*

Table 9. China total delivered energy consumption, by case and end-use sector, 2015-40

(quadrillion Btu)

Case/sector	2015	2020	2025	2030	2035	2040	Average annual percent change (2015-40)
<b>IEO2018 Reference case*</b>							
Industrial end-use sector	71.2	75.5	74.0	70.5	67.8	65.7	-0.3%
All other end-use sectors	27.9	31.7	35.2	38.4	41.4	44.4	1.9%
<b>Total delivered energy</b>	<b>99.1</b>	<b>107.2</b>	<b>109.2</b>	<b>108.9</b>	<b>109.2</b>	<b>110.1</b>	<b>0.4%</b>
<b>No Transition case</b>							
Industrial end-use sector	71.2	78.4	82.8	83.7	84.5	85.5	0.7%
All other end-use sectors	27.9	32.4	37.8	42.7	47.4	52.2	2.5%
<b>Total delivered energy</b>	<b>99.1</b>	<b>110.8</b>	<b>120.6</b>	<b>126.4</b>	<b>131.8</b>	<b>137.7</b>	<b>1.3%</b>
<b>Fast Transition case</b>							
Industrial end-use sector	71.2	71.9	77.0	77.7	78.8	80.3	0.5%
All other end-use sectors	27.9	32.0	37.3	42.0	46.9	52.3	2.5%
<b>Total delivered energy</b>	<b>99.1</b>	<b>104.0</b>	<b>114.2</b>	<b>119.7</b>	<b>125.7</b>	<b>132.6</b>	<b>1.2%</b>

Notes: Totals may not equal sum of components due to independent rounding.

\*The IEO2018 Reference case includes updates to the macroeconomic information, but no modeling changes have been made to other end-use sectors or assumptions

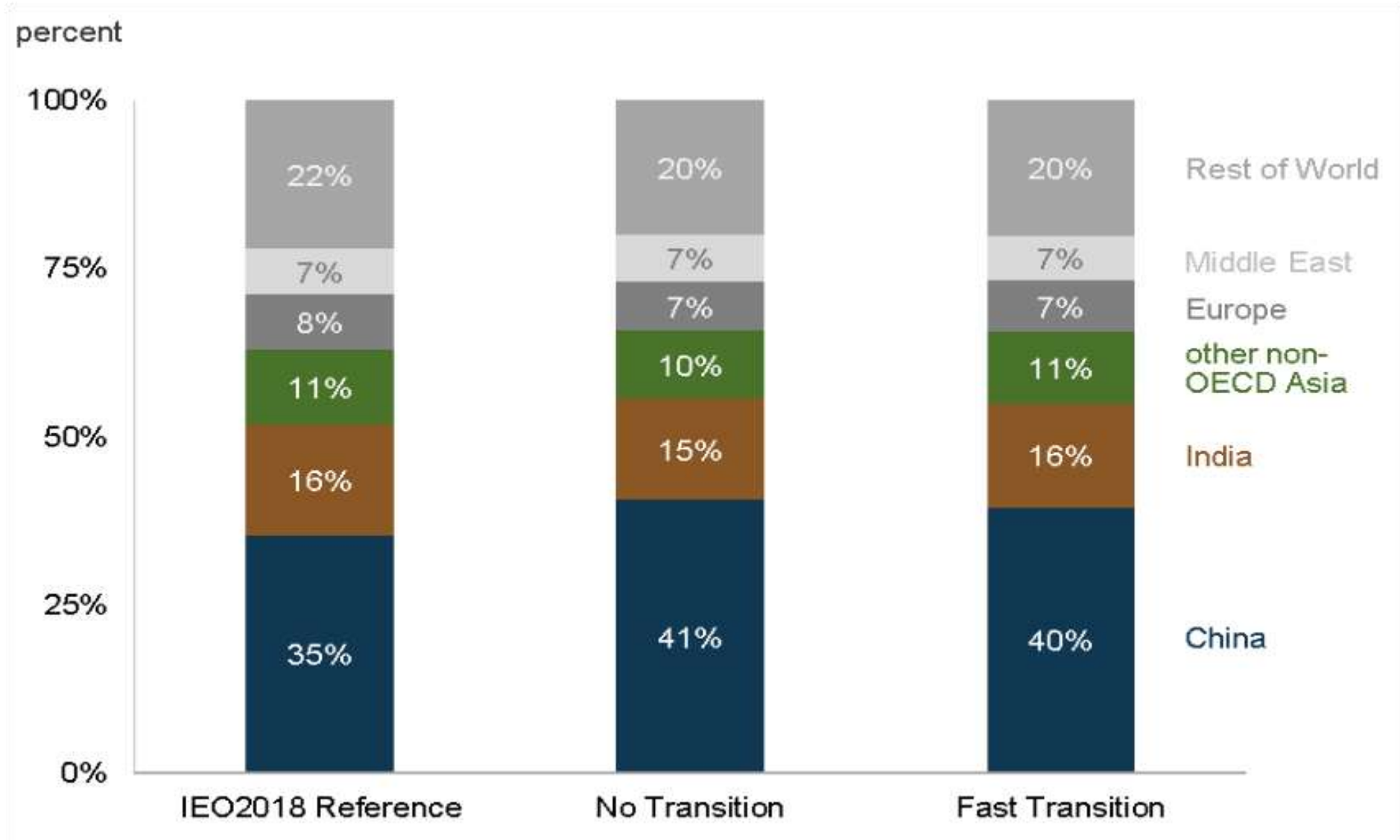
Sources: U.S. Energy Information Administration (EIA), World Energy Projection System Plus (2018), IEO2018 Reference case, run tPGDfix\_AEO2018\_Nov30dbb\_180104.155422;

No Transition case, run CHI\_Hi\_lowCpercent\_trial2\_180221.132410; and Fast Transition case, run, IEO18\_HiCEIS\_180314.133003

Source: DOE/EIA, [EIA's latest International Energy Outlook highlights analysis of China, India, and Africa](https://www.eia.gov/outlooks/ieo/china/?src=-f2); and Energy implications of China's transition toward consumption-led growth, IEO 2018, July 24, 2018, <https://www.eia.gov/outlooks/ieo/china/?src=-f2>.

# China's Dependence on Energy Intensive Manufacturing Through 2040:

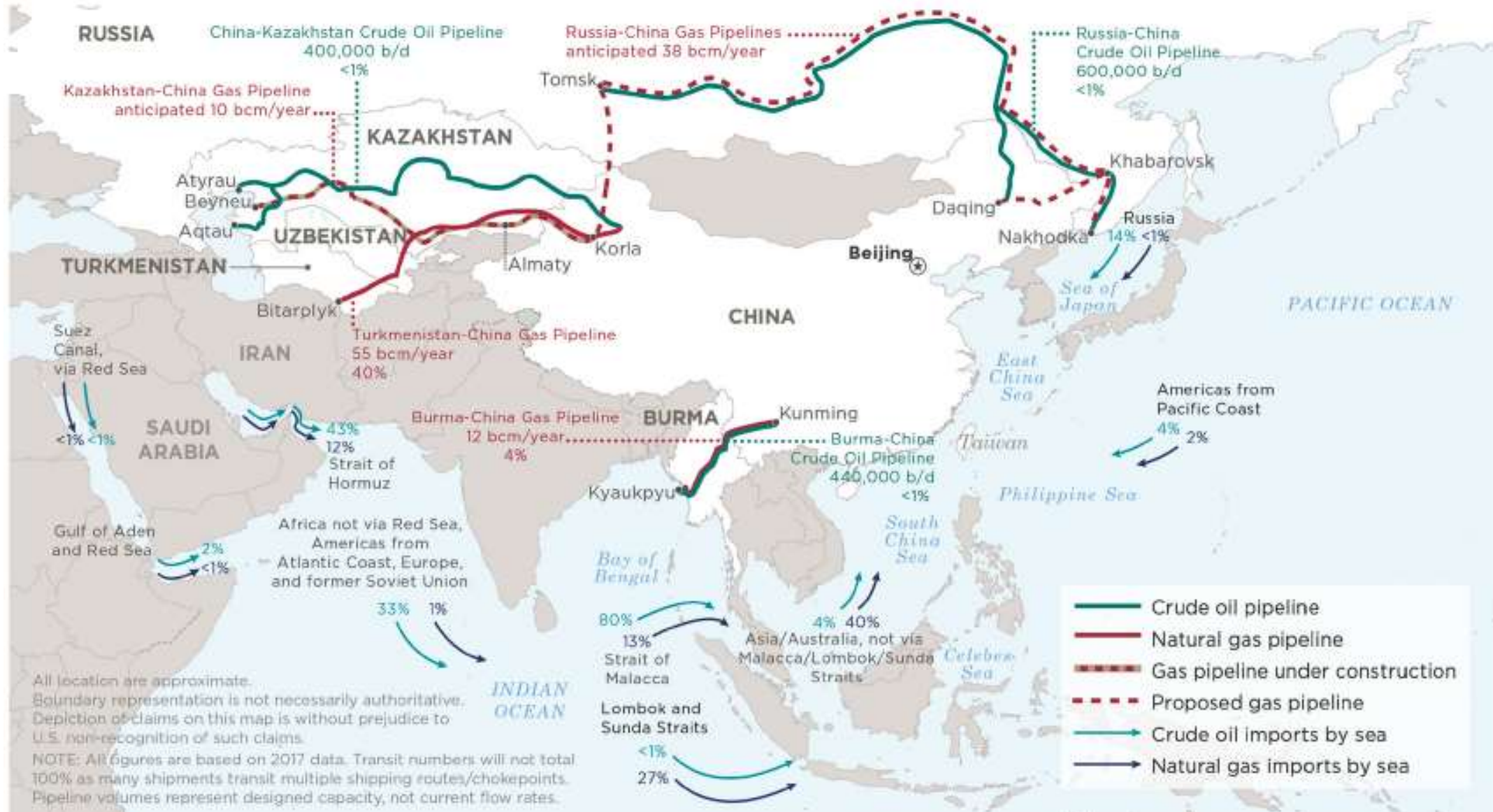
U.S. EIA Estimate of Share of world energy-intensive manufacturing gross output by region in 2040



Source: DOE/EIA, Energy implications of China's transition toward consumption-led growth, July 2018.

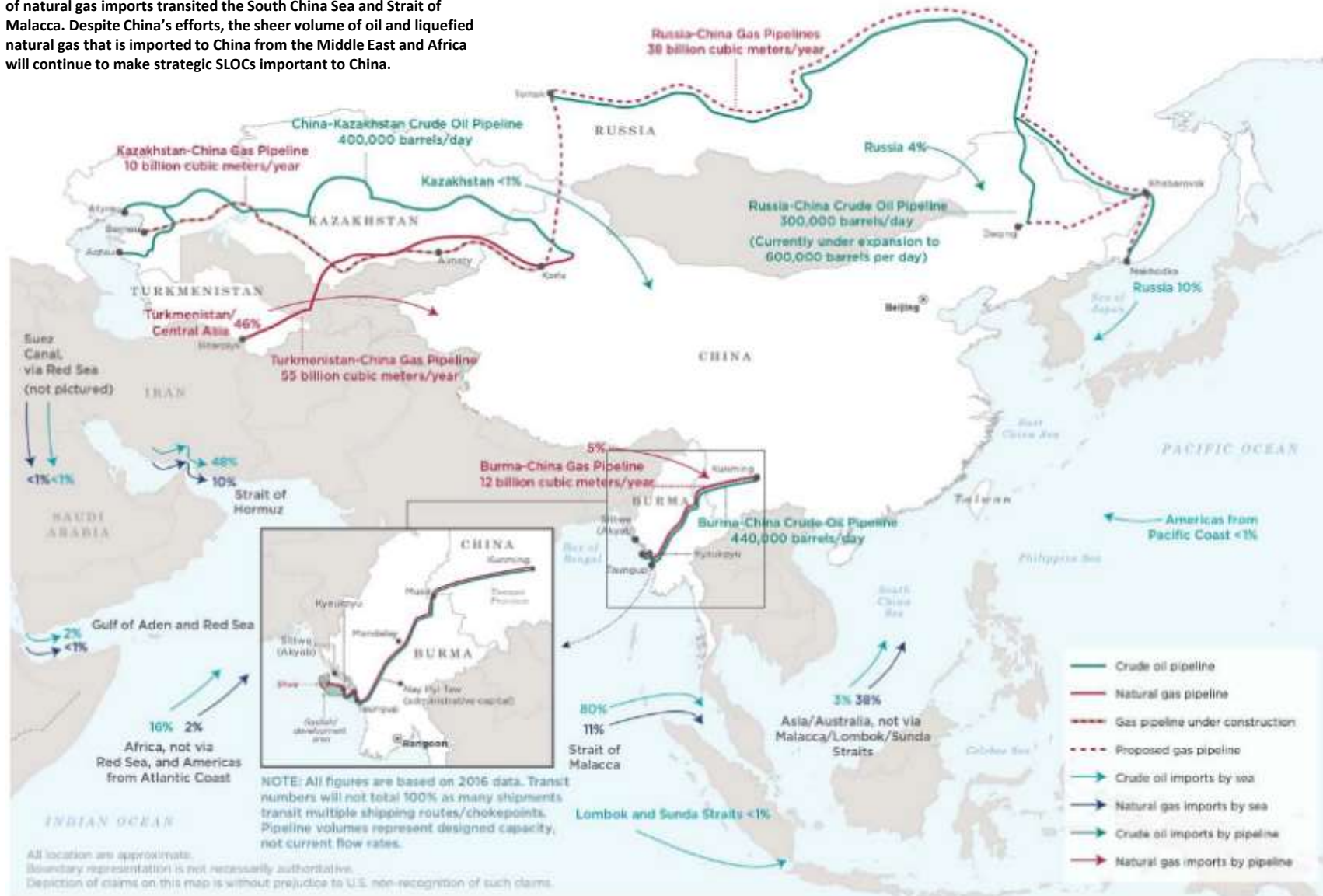


# China's Energy Import Transit Routes - I



# China's Energy Import Transit Routes - II

In 2016, approximately 80 percent of China's oil imports and 11 percent of natural gas imports transited the South China Sea and Strait of Malacca. Despite China's efforts, the sheer volume of oil and liquefied natural gas that is imported to China from the Middle East and Africa will continue to make strategic SLOCs important to China.

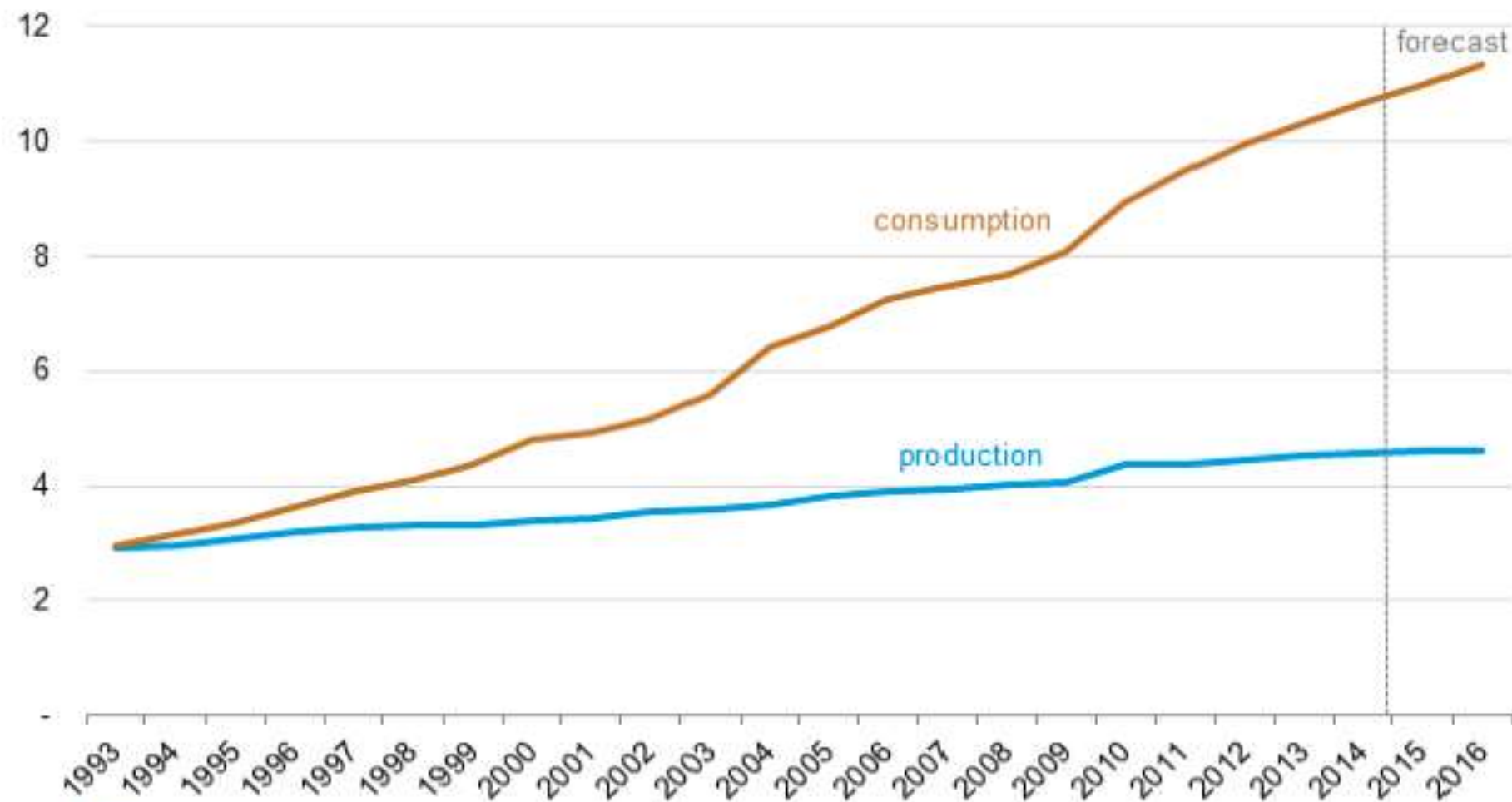




# China's Energy Vulnerability - I

## China's oil production and consumption, 1993-2016

million barrels per day

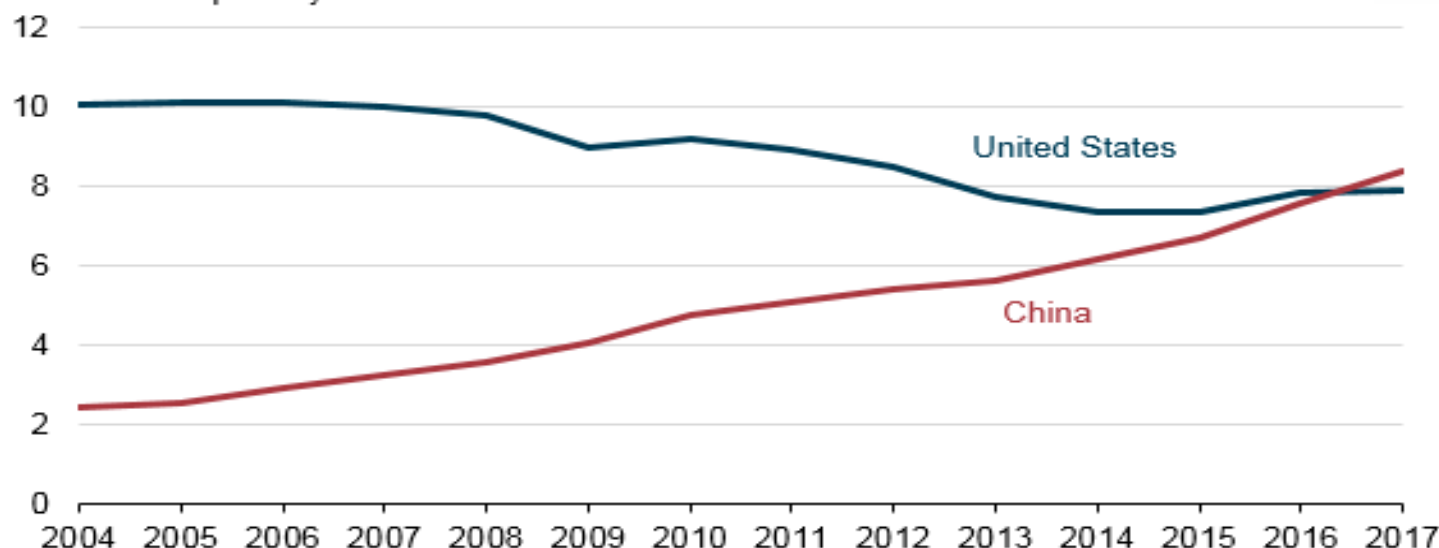


Source: Energy Information Administration and *Short-Term Energy Outlook*, May 2015

## China's Energy Vulnerability - II

### China surpassed the United States as the world's largest crude oil importer in 2017

Annual U.S. and China gross crude oil imports (2004-2017)  
million barrels per day



Source: U.S. Energy Information Administration, *Petroleum Supply Monthly* and *Weekly Petroleum Status Report*, China General Administration of Customs, based on Bloomberg, L.P.

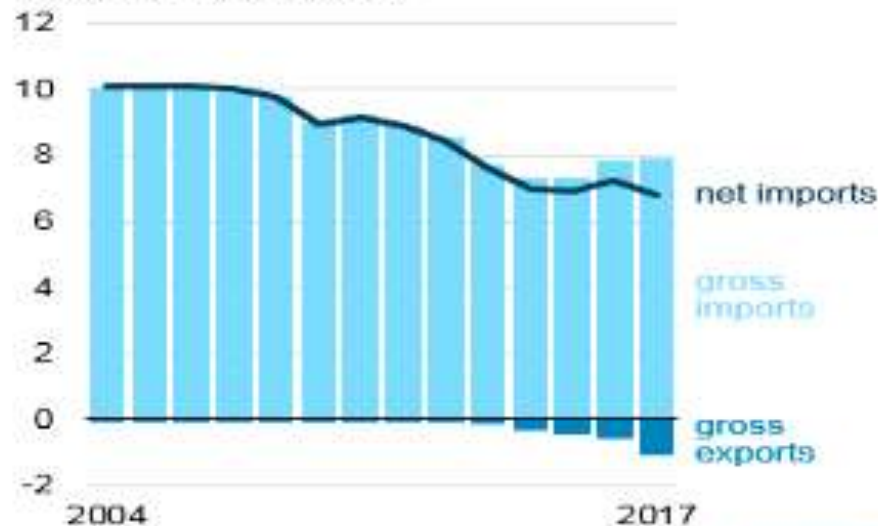
Note: December U.S. imports derived from weekly crude oil imports.

China surpassed the United States in annual gross crude oil imports in 2017, importing 8.4 million barrels per day (b/d) compared with 7.9 million b/d for the United States. China had become the world's largest net importer (imports minus exports) of total petroleum and other liquid fuels in 2013. New refinery capacity and strategic inventory stockpiling combined with declining domestic oil production were the major factors contributing to the recent increase in China's crude oil imports.

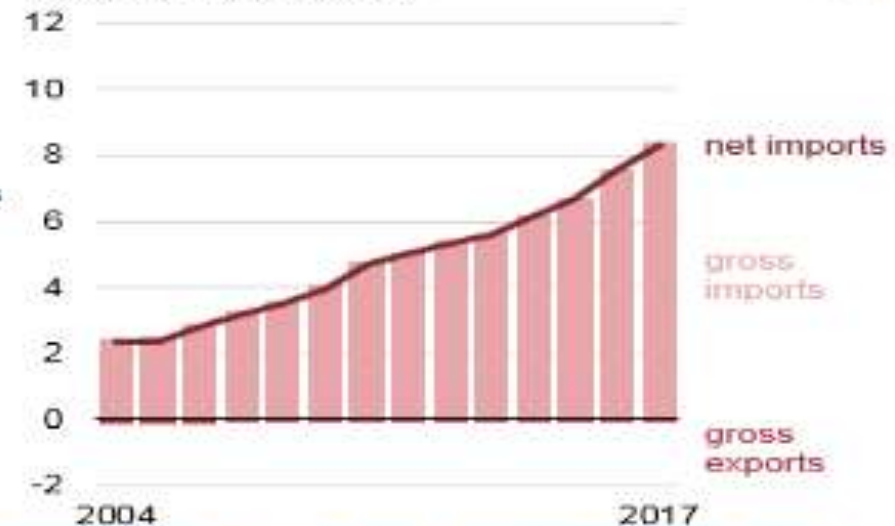
# China's Energy Vulnerability - III

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**U.S. crude oil trade (2004-2017)**  
million barrels per day



**China crude oil trade (2004-2017)**  
million barrels per day



eia

Source: U.S. Energy Information Administration, *Petroleum Supply Monthly* and *Weekly Petroleum Status Report*, China General Administration of Customs, based on Bloomberg, L.P.  
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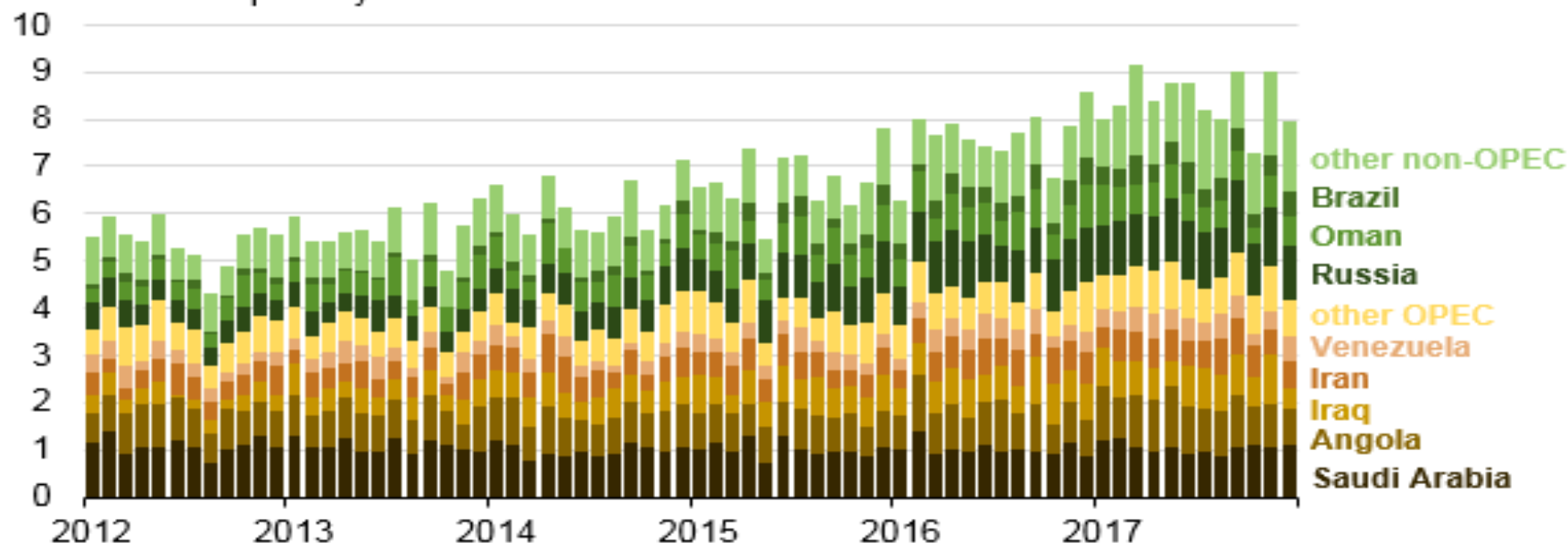
In 2017, 56% of China's crude oil imports came from countries within the Organization of the Petroleum Exporting Countries (OPEC), a decline from the peak of 67% in 2012. More so than other countries, Russia and Brazil increased their market shares of Chinese imports between those years from 9% to 14% and from 2% to 5%, respectively.

## China's Energy Vulnerability - IV

Russia surpassed Saudi Arabia as China's largest source of foreign crude oil in 2016, exporting 1.2 million b/d to China in 2017 compared with Saudi Arabia's 1.0 million b/d. OPEC countries and some non-OPEC countries, including Russia, agreed to [reduce crude oil production through the end of 2018](#), which may have allowed other countries to increase their market shares in China in 2017.

**China crude oil imports by source (2012-2017)**

million barrels per day



Source: China General Administration of Customs, based on Bloomberg, L.P

Several factors are driving the increase in China's crude oil imports. China had the largest decline in domestic petroleum and other liquids production among non-OPEC countries in 2016, and EIA estimates it will have had the second-largest decline in 2017. Total liquids production in China averaged 4.8 million b/d in 2017, a year-over-year decline of 0.1 million b/d (2%) from 2016, and further declines in both 2018 and 2019 are forecasted in EIA's January 2018 [Short-Term Energy Outlook](#) (STEO).

# China's Energy Vulnerability - V

Locations of increased crude oil imports in China (2017)



Source: U.S. Energy Information Administration

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In contrast to declining domestic production, EIA estimates that growth in China's consumption of petroleum and other liquid fuels in 2017 was the world's largest for the ninth consecutive year, growing 0.4 million b/d (3%) to 13.2 million b/d. As China has built up inventories of strategic petroleum reserves, China's crude oil imports have increased faster than their domestic consumption.

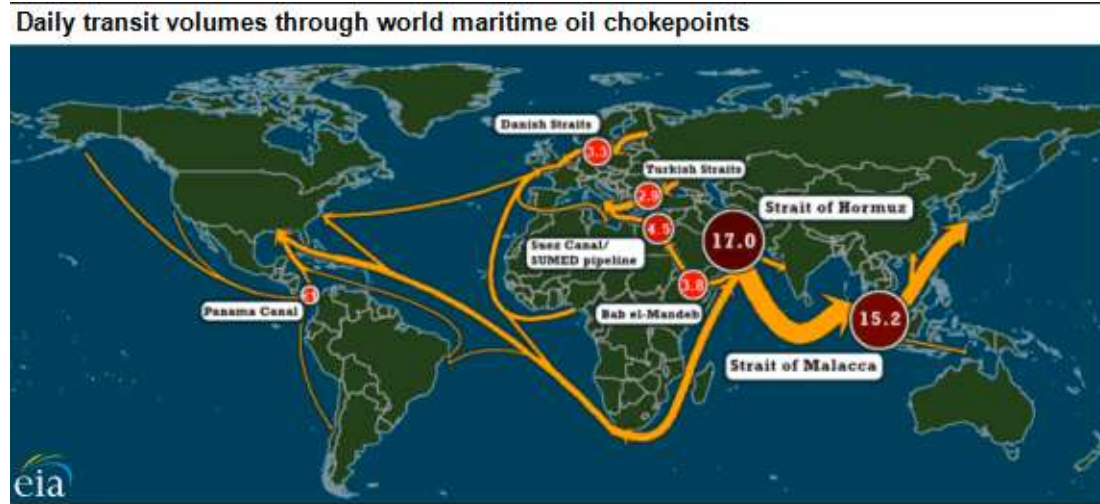
In addition, China has [reformed its refining sector](#) by reducing restrictions on both imports and exports. Since mid-2015, China granted crude oil import licenses to independent refineries in northeast China, which have since increased refinery utilization and crude oil imports.

China's crude oil imports have also increased because of higher refinery runs and expanding refinery capacity. China's refinery runs increased by an estimated 0.5 million b/d in 2017 to 11.4 million b/d, driven in part by two refinery expansions in the second half of the year. A 260,000 b/d refinery in Anning in Yunnan province started operating in the third quarter of 2017. The China National Offshore Oil Corporation's (CNOOC) Huizhou refinery increased capacity by 200,000 b/d and increased its imports from various sources in the third and fourth quarters of 2017.

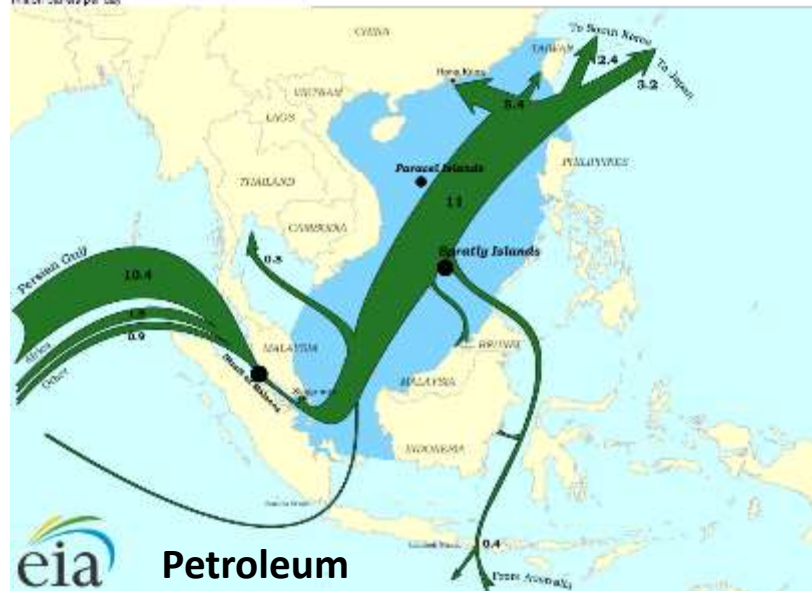
Ongoing infrastructure expansions will likely contribute to further increases in China's crude oil imports. In January 2018, China and Russia began operating an expansion of the East Siberia-Pacific Ocean (ESPO) pipeline, doubling its delivery capacity to approximately 0.6 million b/d. According to trade press reports, as much as 1.4 million b/d of new refinery capacity is planned to open in China by the end of 2019. Given China's expected decline in domestic crude oil production, imports will likely continue to increase over at least the next two years.



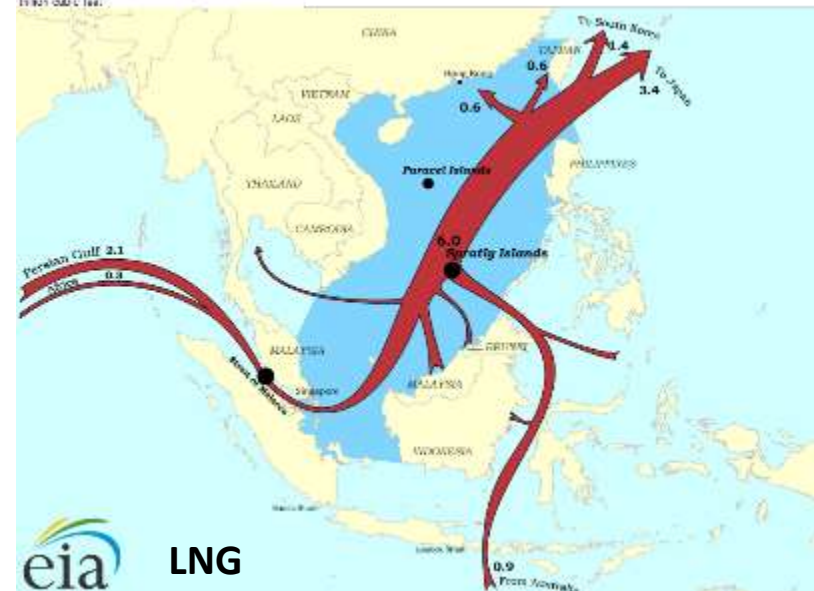
# Chinese Dependence on the Flow of Petroleum Exports



Major crude oil trade flows in the South China Sea (2011)  
in million barrels per day



Major LNG trade flows in the South China Sea (2011)  
in million cubic feet



<https://www.eia.gov/todayinenergy/detail.php?id=10671>, and <https://www.eia.gov/beta/international/regions-topics.cfm?RegionTopicID=WOTC>.



## EIA: More Than 30% of Global Maritime Oil Trade Moves Through South China Sea - 2016

### Major crude oil trade flows in the South China Sea (2016)

total 15.0 million barrels per day



The South China Sea is a major trade route for crude oil, and in 2016, more than 30% of global maritime crude oil trade, or about 15 million barrels per day (b/d), passed through the South China Sea.

More than 90% of crude oil volumes flowing through the South China Sea in 2016 transited the Strait of Malacca, the shortest sea route between suppliers in Africa and the Persian Gulf and markets in Asia, making it one of the world's primary oil [transit chokepoints](#). In addition, a significant amount of crude oil (about 1.4 million b/d) passes through the strait on its way to Singapore and the west coast of Peninsular Malaysia, where it is refined before transiting the South China Sea in the form of petroleum products.

## EIA: More Than 30% of Global Maritime Oil Trade Moves Through South China Sea - 2018

The South China Sea is a major trade route for the Middle East, which accounted for more than 70% of total South China Sea crude oil shipments in 2016. Saudi Arabia is the largest source of crude oil, making up almost one-fourth of crude oil volumes traversing the South China Sea. More than half of Saudi Arabia's global crude oil shipments traveled through the South China Sea in 2016.

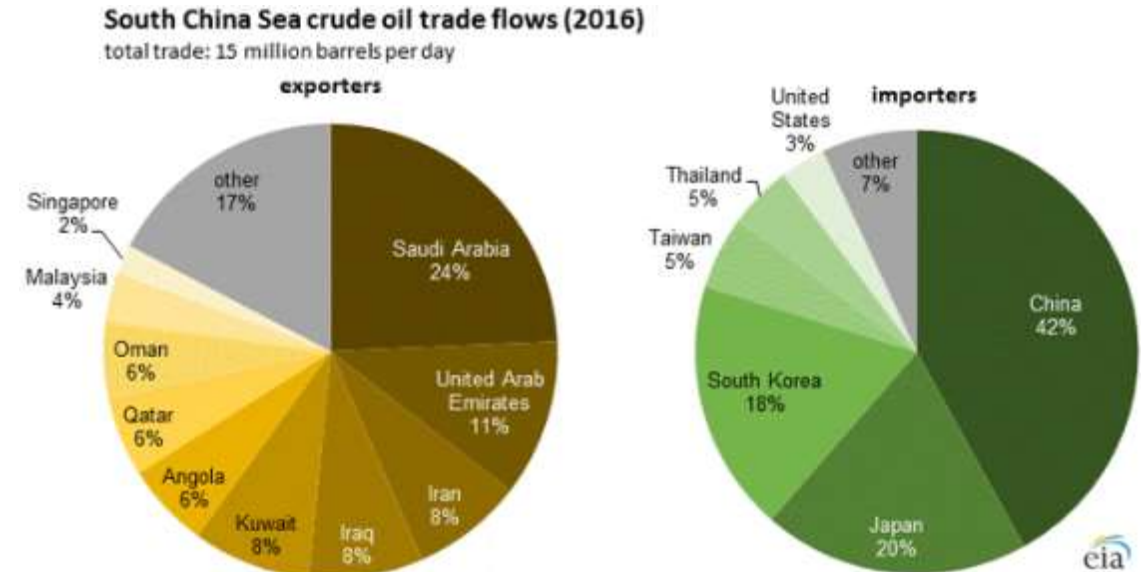
Before the lifting of United Nations sanctions on Iran's crude oil exports in January 2016, Iran relied heavily on Asian markets for most of its exports. After the sanctions were lifted, Iran could once again export crude oil to Europe. However, the South China Sea route still accounted for 52% of Iran's crude oil exports in 2016.

Indonesia and Malaysia together accounted for 5% of crude oil loadings that passed through the South China Sea in

2016 and 2% of crude oil receipts. Most of the crude oil from these countries that passes through the South China Sea is exported to other countries. However, some intra-country trade also crosses the southern portion of the South China Sea as cargoes move between eastern and western ports within each country. Singapore accounted for 2% of crude oil loadings that passed through the South China Sea in 2016 and 1% of crude oil receipts. Although Singapore does not produce crude oil, it is a major hub for refining crude oil and for storing and transshipping crude oil and petroleum products. In 2016, 95% of Singapore's crude oil exports passed through the South China Sea. Most of these volumes originally came from the Middle East, and about half went to China.

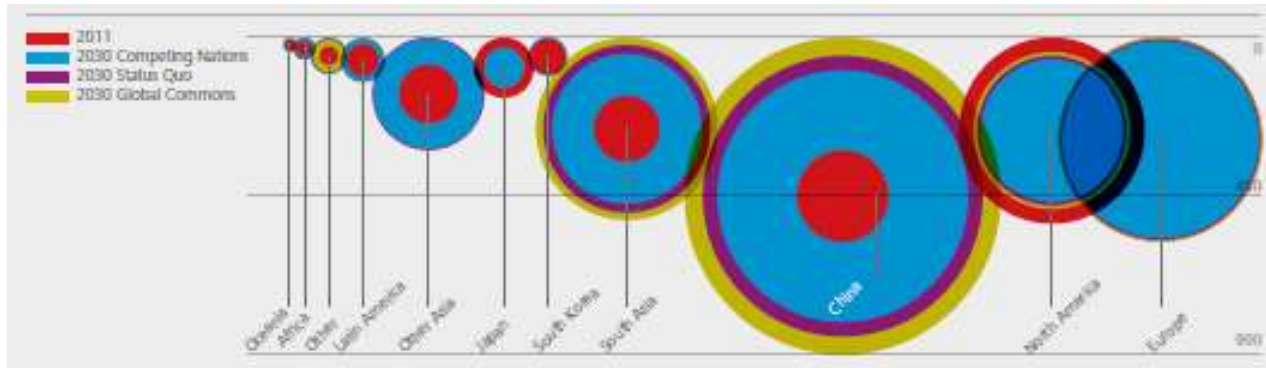
The three crude oil importers with the largest volumes passing through the South China Sea—China, Japan, and South Korea—collectively accounted for 80% of total crude oil volumes transiting the South China Sea in 2016. About 90% of China's 2016 maritime crude oil shipments were transported through the South China Sea. China's crude oil imports have increased substantially over the past few years as a result of the country's robust energy demand growth and stagnant crude oil production, and the country recently surpassed the United States as the [world's largest crude oil importer](#). A significant portion of these incremental volumes that are sent to northern China from eastern Russia by pipeline and by shipping vessels does not pass through the South China Sea.

About 90% of the crude oil imported by Japan and South Korea was shipped through the South China Sea in 2016. Most of Japan's and South Korea's imports are from Middle Eastern suppliers and are transported through the Strait of Malacca and then the South China Sea.

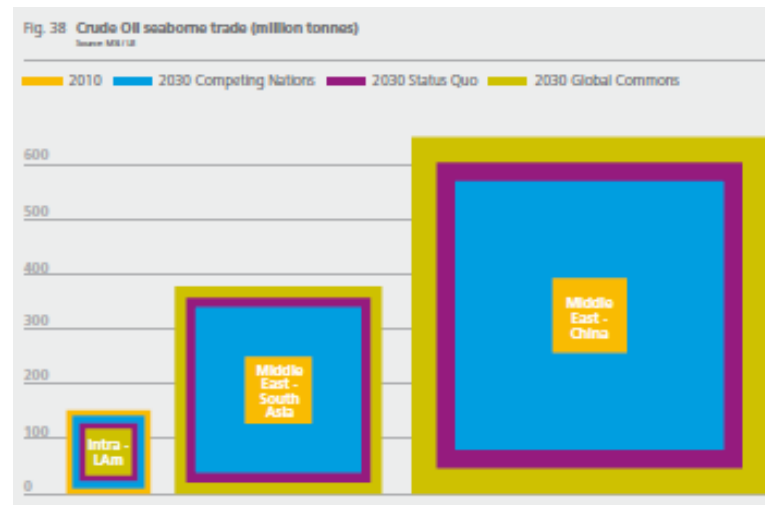


# Guesstimate of increase in Crude Oil Flows and Seaborne Trade in Tons: 2010 vs. 2030

## Crude Oil Imports in Million Tons

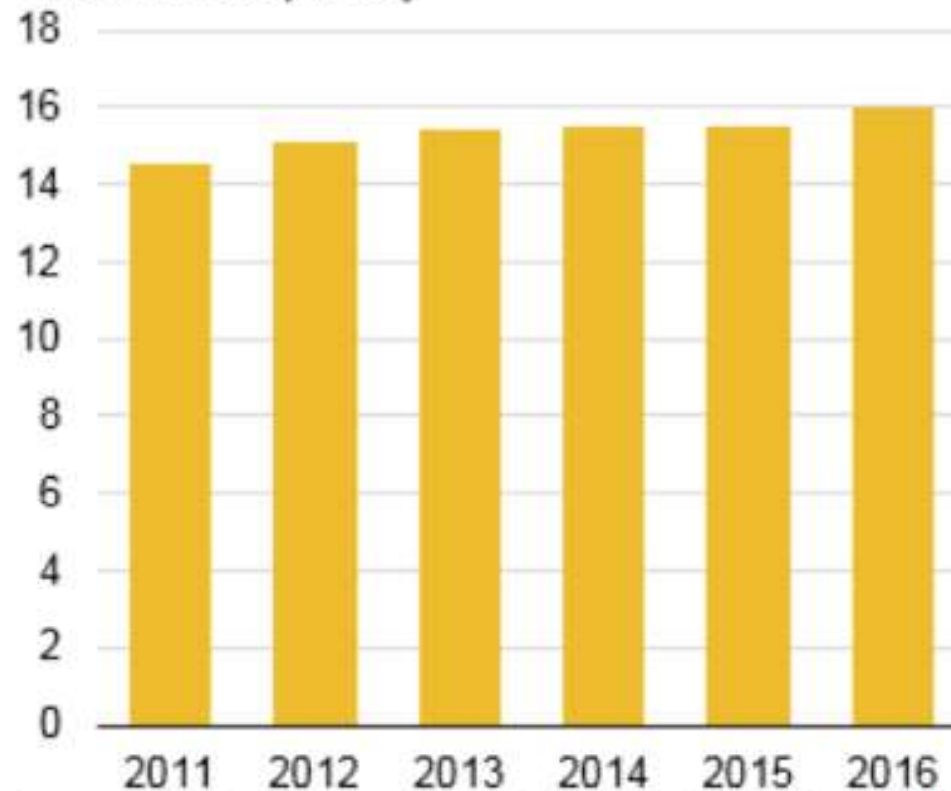


## Crude Oil Seaborne trade in Million Tons



# Oil Transit Through the Strait of Malacca

Crude oil and petroleum products transported through the Strait of Malacca  
million barrels per day



**Source:** U.S. Energy Information Administration, *2017 World Oil Transit Chokepoints*

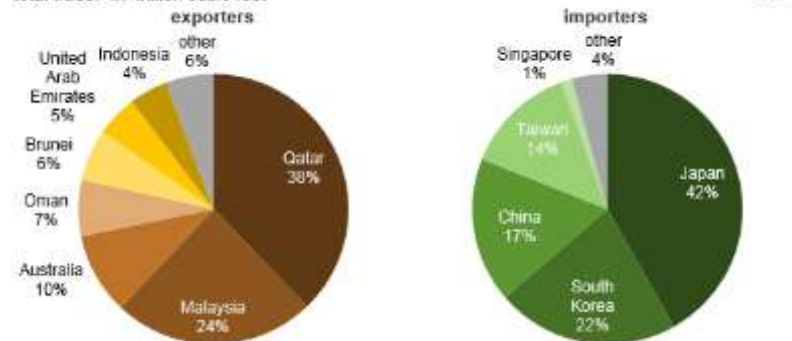
**Note:** Includes crude oil and petroleum liquids.

61% of all maritime petroleum and other liquids move through Strait of Malacca. 85% to 90% is crude oil.

Source: EIA, The Strait of Malacca, *A Key Oil Trade Chokepoint*, August 11, 2017

# LNG Trade Flows -2016

South China Sea liquefied natural gas trade flows (2016)  
total trade: 4.7 trillion cubic feet



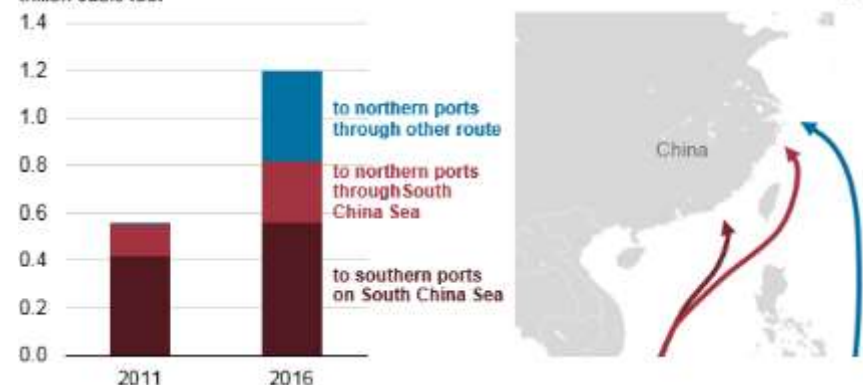
The South China Sea is a major route for liquefied natural gas (LNG) trade, and in 2016, almost 40% of global LNG trade, or about 4.7 trillion cubic feet (Tcf), passed through the South China Sea.

The South China Sea is an important trade route for Malaysia and Qatar. The two LNG exporters collectively accounted for more than 60% of total South China Sea LNG volumes in 2016. Almost half of Qatar's global LNG shipments traveled through the South China Sea in 2016. All of Malaysia's LNG exports pass through the South China Sea, as the country's one LNG export complex lies on the South China Sea coast.

Several other LNG exporters also use South China Sea trade routes to reach LNG importers. In 2016, Oman, Brunei, and the United Arab Emirates shipped between 84% and 100% of their total LNG exports through the South China Sea.

Other LNG exporters in the region, such as Australia and Indonesia, make more use of other trade routes to reach LNG markets. In 2016, about 23% of total Australian LNG exports and about 29% of Indonesian LNG exports were shipped by way of the South China Sea. Much of the remainder of Australia's and Indonesia's LNG exports passed to the east of the Philippines and Taiwan, avoiding the South China Sea on the way to customers in Japan, South Korea, and northern China.

China liquefied natural gas imports  
trillion cubic feet



The four LNG importers with the largest volumes passing through the South China Sea are Japan, South Korea, China, and Taiwan, collectively accounting for 94% of total LNG volumes going through the South China Sea in 2016. Japan is the world's largest LNG importer, and slightly more than half of all of Japan's LNG imports in 2016 were shipped by way of the South China Sea. Similarly, about two-thirds of the LNG imported by South Korea—the world's second-largest LNG importer—was shipped through the South China Sea that year.

More than two-thirds of China's LNG imports and more than 90% of Taiwan's LNG imports passed through the South China Sea in 2016. Total imports of LNG to China have more than doubled over the previous five years, from 0.56 Tcf in 2011 to 1.20 Tcf in 2016. However, more than half of the growth in China's LNG imports were volumes that went to northern ports without transiting the South China Sea. Based on projections in the [International Energy Outlook 2017](#), EIA projects that [China will surpass South Korea](#) as the world's second-largest LNG importer by 2018 and nearly match Japan's level of LNG imports by 2040.



## 40% of Global LNG (4.7 TCF) Moves Through the South China Sea

### Major liquefied natural gas trade flows in the South China Sea (2016)

trillion cubic feet



Source: EIA, "Today in Energy," November 2, 2017, <https://www.eia.gov/todayinenergy/detail.php?id=33592>.



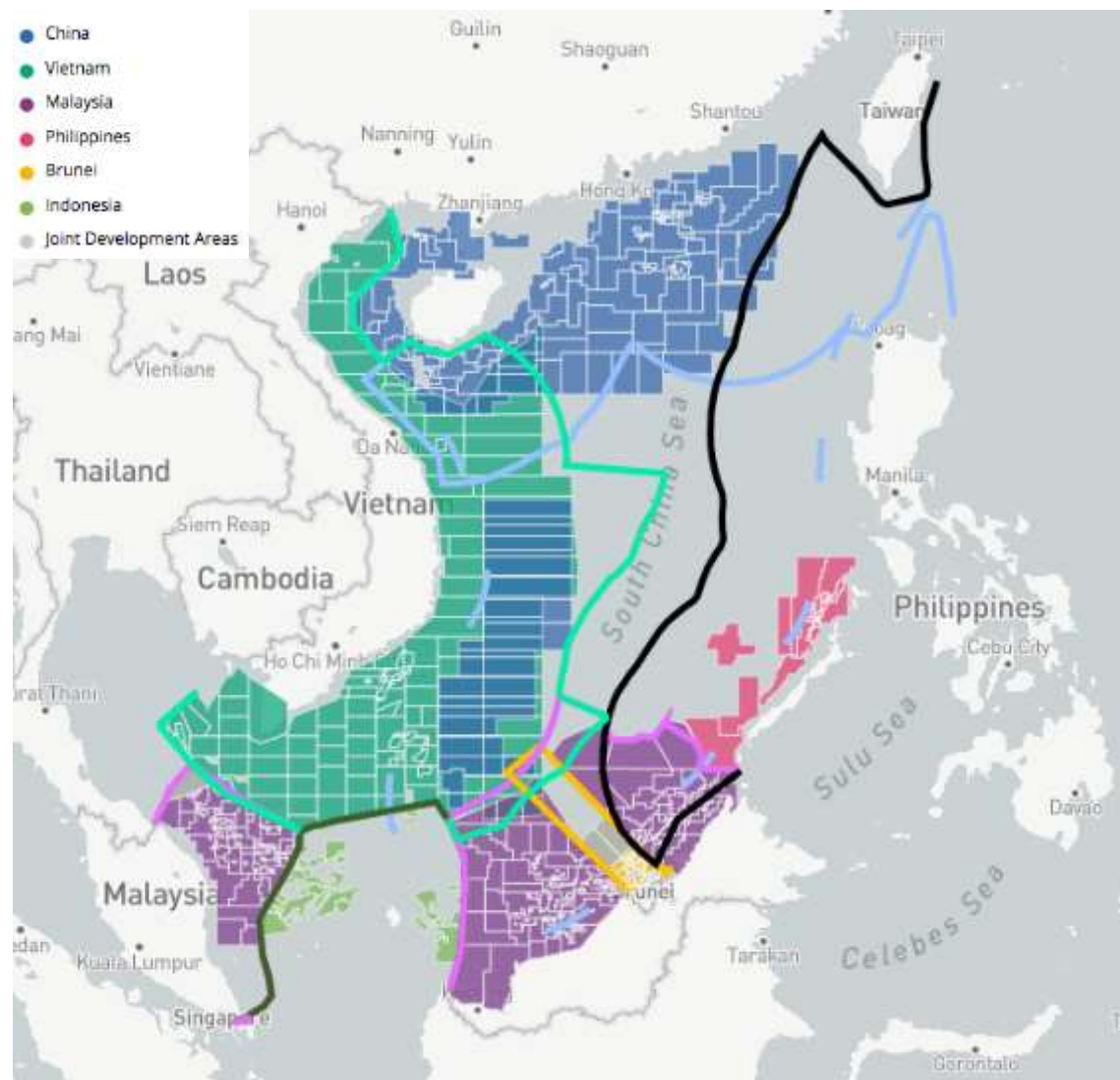
## Possible Energy Reserves in the South China Sea

Experts disagree over the potential oil and gas reserves in the South China Sea, and such estimates can only be fully confirmed by actual exploration and development. These reserves may, however, be an important part of China's efforts to expand its claims and influence in the region and find ways to be less dependent on imports from the Gulf and through the Strait of Malacca

The Asia Maritime Transparency Initiative in the CSIS concludes that,

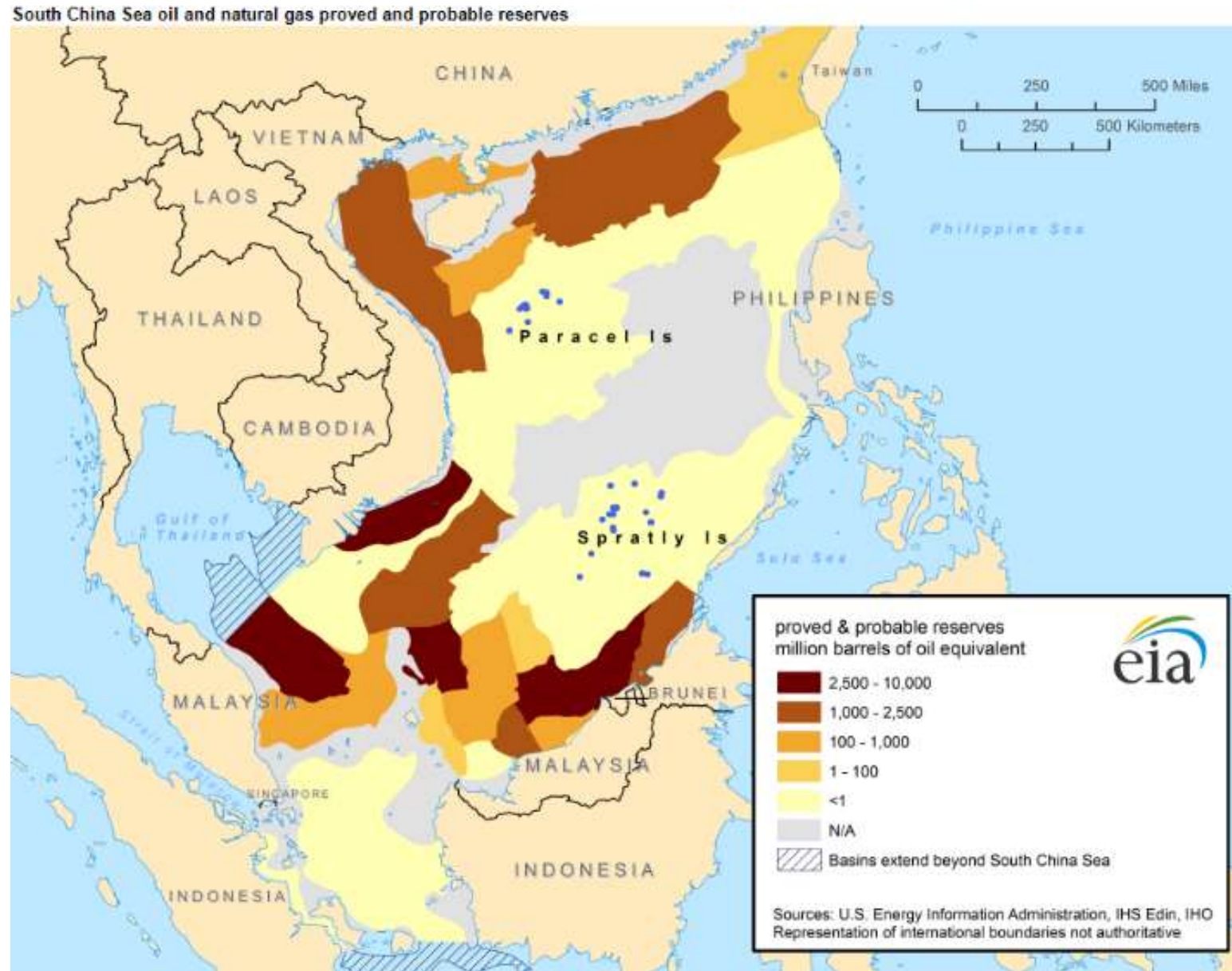
The U.S. Energy Information Agency estimates that the South China Sea holds about 190 trillion cubic feet of natural gas and 11 billion barrels of oil in proved and probable reserves, most of which lie along the margins of the South China Sea rather than under disputed islets and reefs. The U.S. Geological Survey in 2012 estimated that there could be another 160 trillion cubic feet of natural gas and 12 billion barrels of oil undiscovered in the South China Sea. Beijing's estimates for hydrocarbon resources under the sea are considerably higher but still modest in relation to China's overall demand—the country's oil consumption in 2018 is expected to top 12.8 million barrels per day.

CSIS provides an interactive form of the map below on its web site that provides updated estimates of the possible energy reserves where such data are available. (<https://amti.csis.org/south-china-sea-energy-exploration-and-development/>).



# South China Sea Energy Reserves (EIA)

Source: EIA,  
[Contested areas of South China Sea likely have few conventional oil and gas resources](https://www.eia.gov/todayinenergy/detail.php?id=10651),  
 April 3, 2012,  
<https://www.eia.gov/todayinenergy/detail.php?id=10651>



# South China Sea

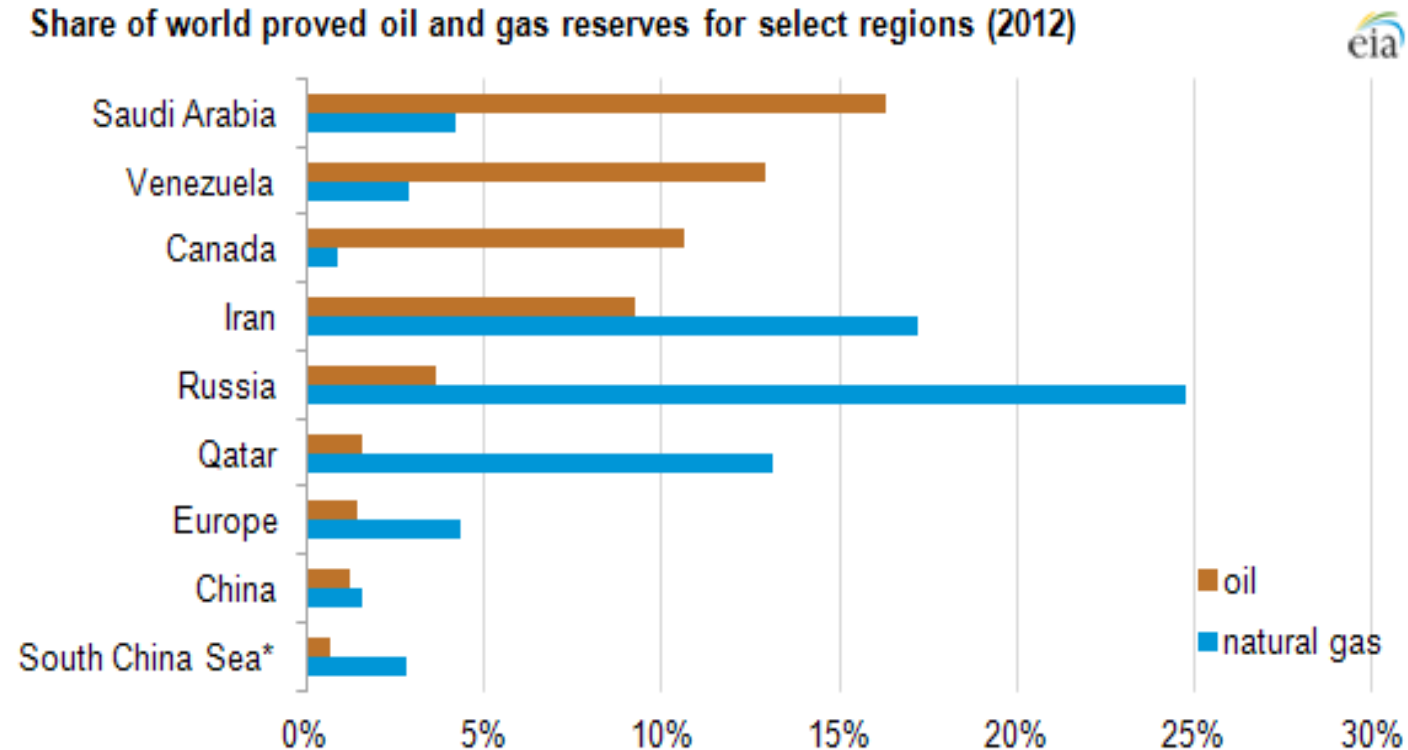
## Limited Proven Oil & Gas Reserves (EIA)

EIA, [Contested areas of South China Sea likely have few conventional oil and gas resources](https://www.eia.gov/todayinenergy/detail.php?id=10651), April 3, 2012, <https://www.eia.gov/todayinenergy/detail.php?id=10651>

EIA's analysis shows that most fields containing discovered oil and natural gas are clustered in uncontested parts of the South China Sea, close to shorelines of the coastal countries, and not near the contested islands. Industry sources suggest almost no oil and less than 100 billion cubic feet of natural gas in **proved** and **probable** reserves exist in fields near the Spratly Islands. The Paracel Island territory has even less natural gas and no oil.

In total, the South China Sea has about 11 billion barrels of oil and 190 trillion cubic feet of natural gas rated as proved or probable reserves. These levels are similar to the amount of proved oil reserves in **Mexico** and about two-thirds of the proved natural gas reserves in Europe, not including Russia (see figure below).

Share of world proved oil and gas reserves for select regions (2012)



Source: U.S. Energy Information Administration, International Energy Statistics, South China Sea Regional Analysis Brief.

\*Note: South China Sea includes proved and probable reserves.



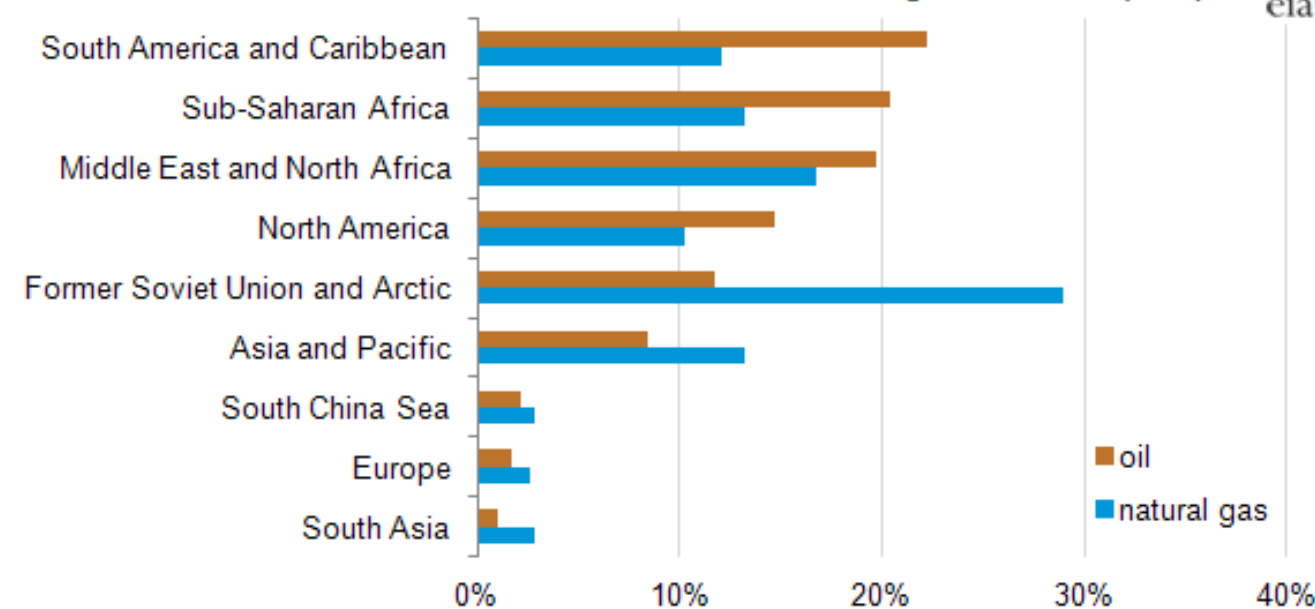
# South China Sea

## Little Discovery Potential for Oil & Gas Reserves (EIA)

EIA, [Contested areas of South China Sea likely have few conventional oil and gas resources](https://www.eia.gov/todayinenergy/detail.php?id=10651), April 3, 2012, <https://www.eia.gov/todayinenergy/detail.php?id=10651>

In addition to proved and probable reserves, the South China Sea may have additional hydrocarbons in underexplored areas. The U.S. Geological Survey (USGS) estimated in 2012 that about 12 billion barrels of oil and 160 trillion cubic feet of natural gas might exist as undiscovered resources in the South China Sea, excluding the Gulf of Thailand and other adjacent areas. About one fifth of these resources may be found in contested areas, particularly in the Reed Bank at the northeast end of the Spratly Islands, which is claimed by China, Taiwan, and Vietnam. These additional resources are not considered commercial reserves at this time; extracting them may not be economically feasible.

Share of estimated world undiscovered conventional oil and gas resources (2012)



Source: U.S. Energy Information Administration, International Energy Statistics, South China Sea Regional Analysis Brief, and U.S. Geological Survey, Estimate of Undiscovered Conventional Oil and Gas Resources of the World, 2012.

The Paracel Island area may also contain significant [natural gas hydrate resources](#). While test drills are promising, commercial development of natural gas hydrates in the South China Sea is many years away given technological challenges and current natural gas prices.

# **PART SEVEN: CHINESE STRATEGIC DEVELOPMENTS AFFECTING OTHER ASIAN POWERS**

# Chinese Strategic Developments and Other Asian Powers

The U.S. naturally focuses on the prospects for Chinese cooperation, competition, and conflict with the U.S. As has already been discussed in dealing with China's "belt and road" policies, however, China has growing strategic interests – and areas of tension and potential conflict – with many other states in Asia. As the following map shows, China shares a border with Russia – one of the two existing nuclear superpowers, and with Japan, Central Asia, Pakistan and India, and a range of South East Asia states.

While the bulk of its exports now travel by sea – and are likely to continue to do so – it is also seeking to develop high capacity rail routes to Europe, and pipeline networks through Iran and Central Asia to secure its energy supplies. Once again, Chinese grand strategy cannot separate its economic and military dimensions. It does, however, face several key military *and economic* challenges:

- Creating a stable strategic partnership with a Russia whose superpower status is now largely a function of its nuclear forces, and ability to threaten European states on its borders.
- Expanding its economic role in Central Asia while dealing with the challenge of Uighur minority interest in China and Islamic extremism, and the need to avoid tension with Russia as China's influence increases in relative terms.
- Dealing with the tensions and potential conflicts between the two Koreas – seeking to both preserve North Korea as a friendly buffer state and secure its growing economic links to South Korea and Japan – as well as competing Chinese and Japanese claims as to islands, EEZs and air traffic zones.
- Dealing with long-standing tensions with India over their common border and the natural rivalry between Asia's two largest powers, and in part by seeking to build strategic partnerships with Pakistan and Afghanistan.
- Seeking to expand its strategic influence and economic role in Southeast Asian states, some of which are strategic partners of the United States.
- Seeking to limit Australian military ties to the United States, and secure Australian trade and exports of key commodities.

As has been touched upon in the earlier economic data, China also has a broad internal interest in developing central and western China to both strengthen its economic and military power and reduce or eliminate serious poverty in China. The Chinese leadership has made it clear that such efforts have a high priority and are a critical element in ensuring China's future development and internal stability.



## China's Land Borders in Asia



# Comparative Asian Military Spending

## **China Leads Asian Military Spending**

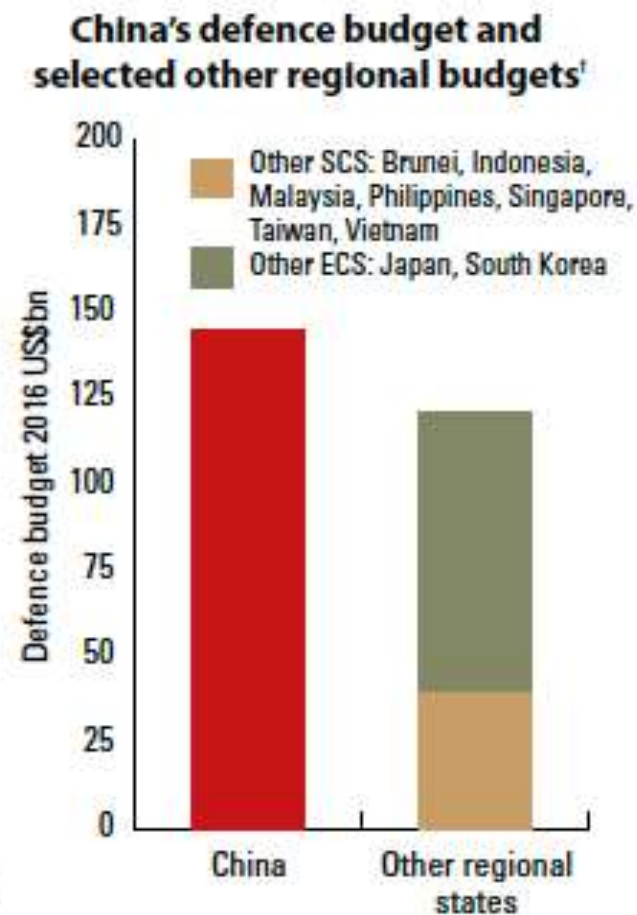
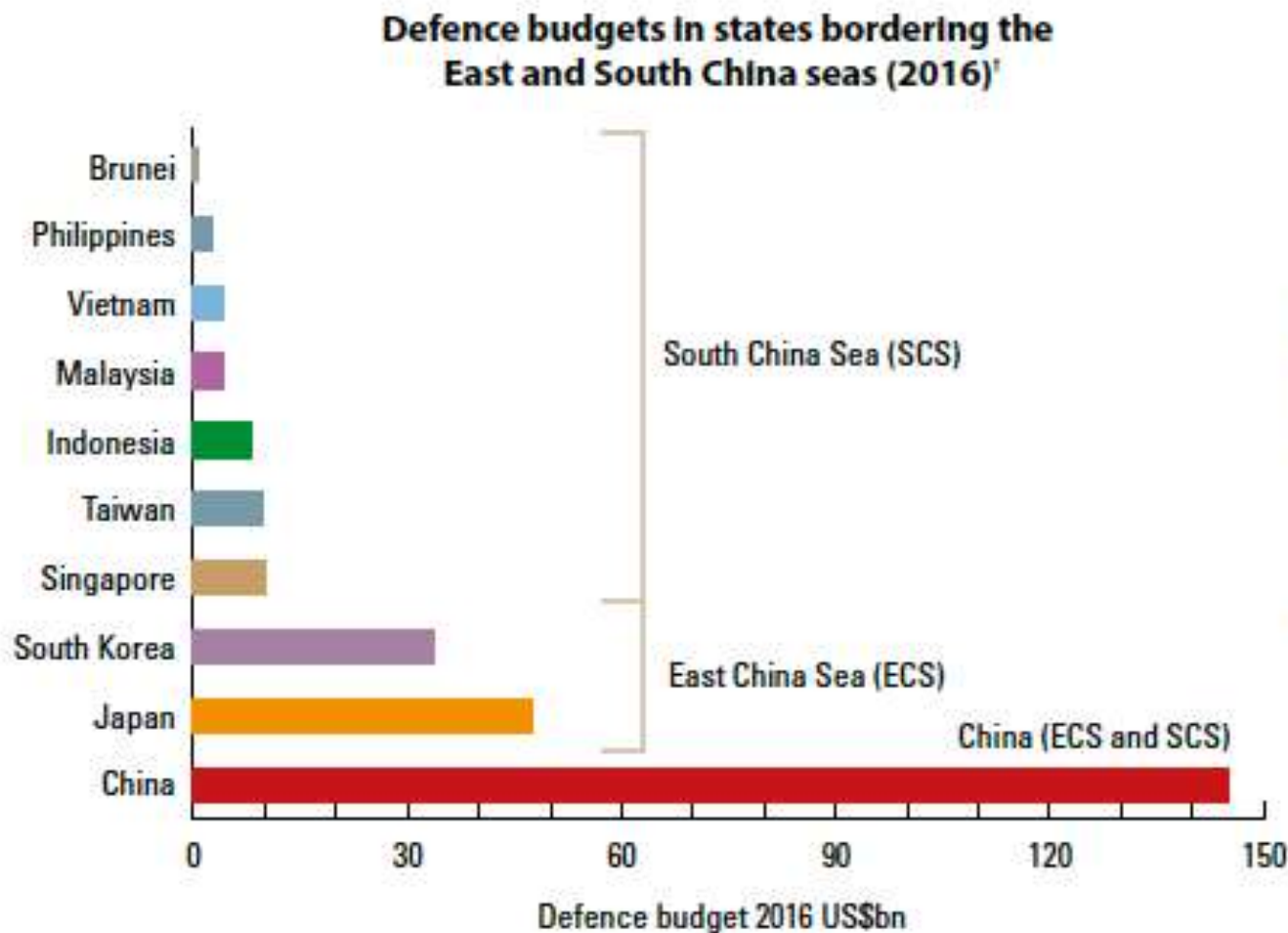
China's claims regarding military spending, and the problems in estimating Chinese military spending and comparing it with other states, have already been discussed in other sections. They and apply as much to comparisons of Chinese spending with other Asian powers as they do to comparisons with the United States and Russia. It should also be noted that the comparisons shown include very different mixes of Asian states.

The range of estimates in the charts in this section make it clear, however, that China has sharply outspent other Asian powers since at least 2008, and that its rate of spending has continued to rise more quickly than that of neighboring states in recent years.

What is less apparent from, summary metrics – but becomes very clear from a separate detailed comparison of the changes in Chinese forces with those in other Asian states – is that China has spent its military budgets with a far better focus and levels of effectiveness than most of its neighbors. This is particularly true of India, its only potential rival in size. China not only has invested better in modernization – and creating a domestic military industrial base, it has done a far better job of trading force size for force quality.

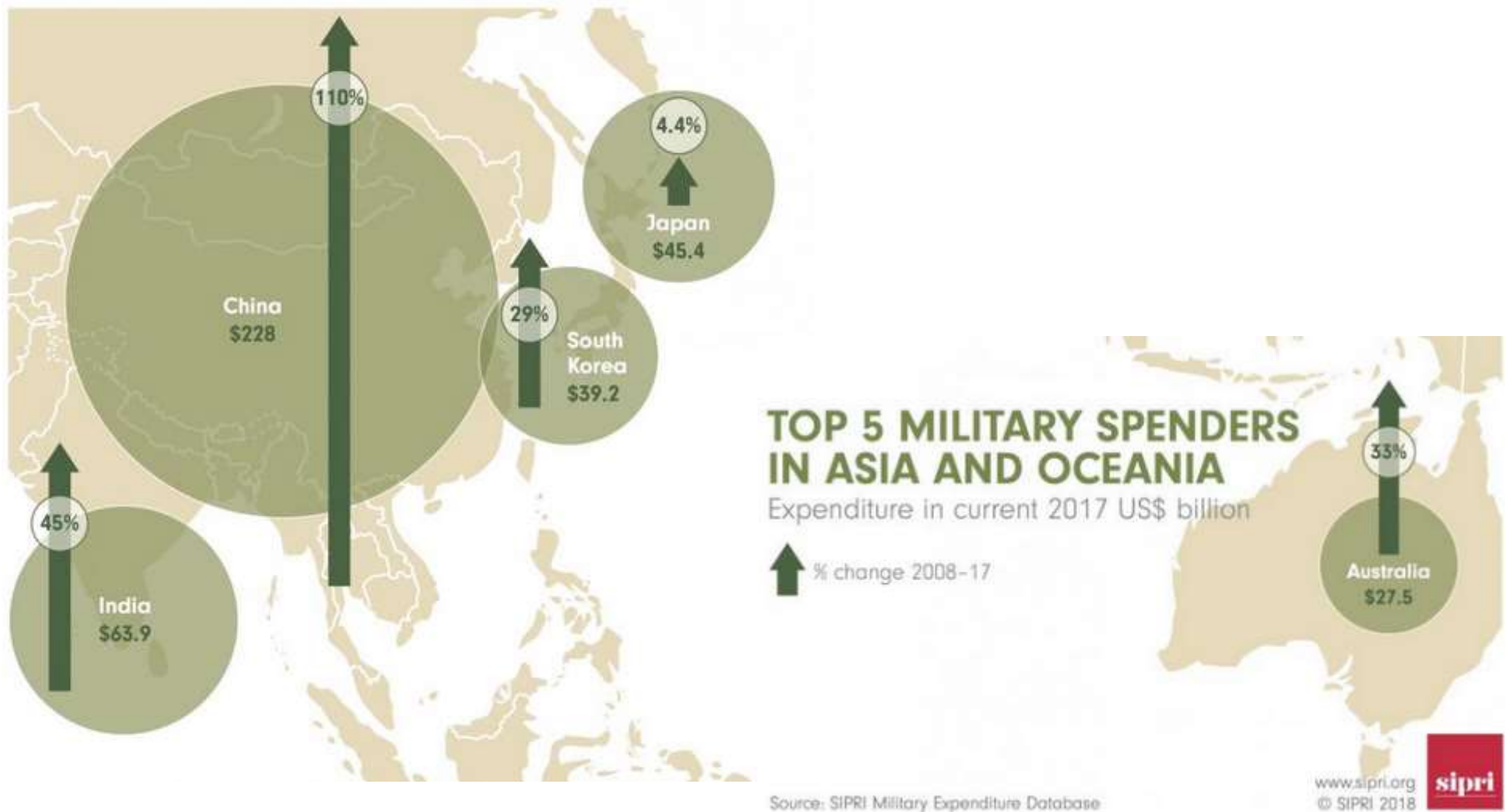
In broad terms, it is also clear from looking at IHS Janes and IISS reporting on the force developments in Asian states that only China, Japan, Taiwan, and the Koreas have made steady efforts to expand and modernize their force levels. Some other states are funding particular aspects of their forces, but not on a balanced basis that would support joint warfare in their particular area of operations.

# China versus Asia: IISS in 2016



Source: IISS, Military Balance, 2017, p. 21

# SIPRI Top Five Asian Military Budgets: 2017

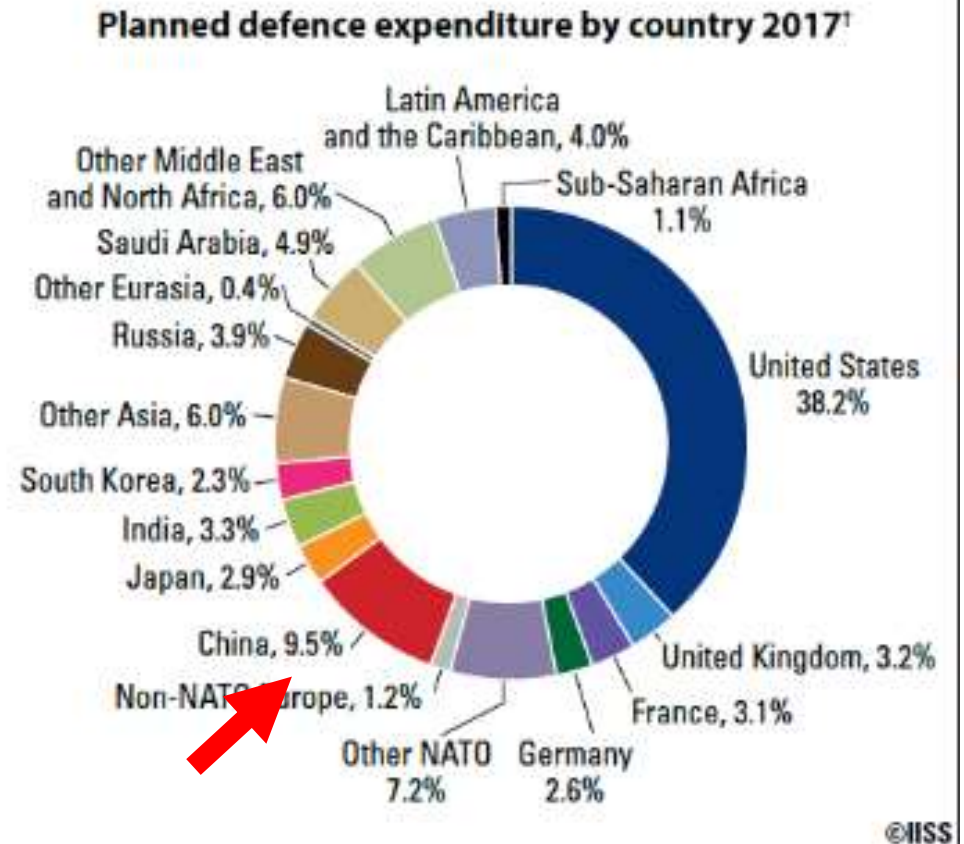
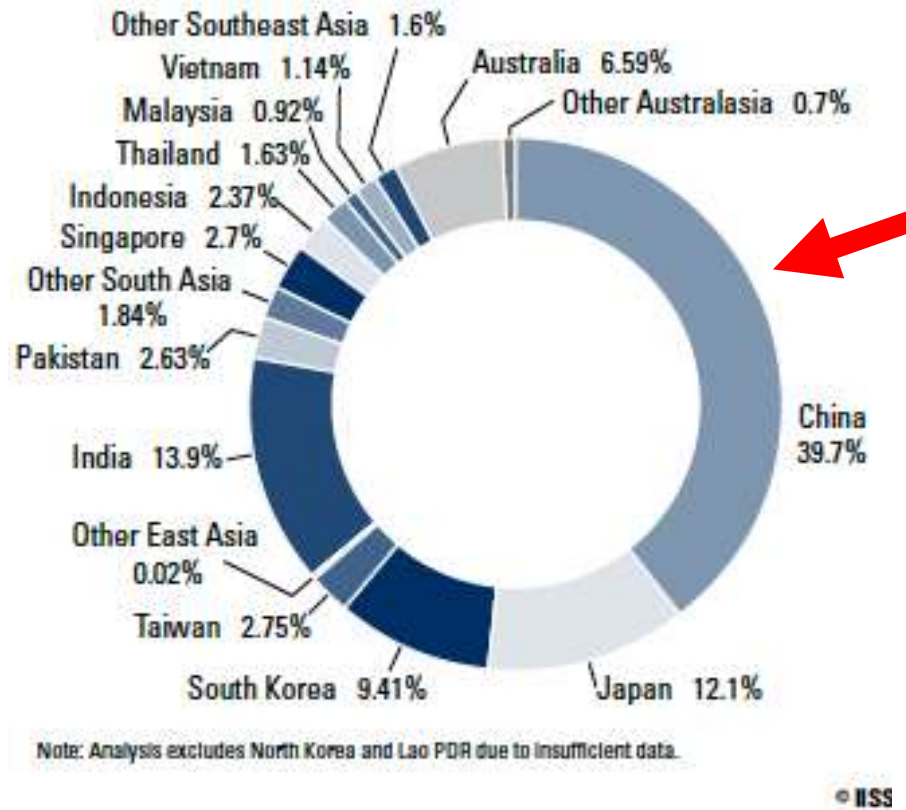




# IISS/SIPRI Guesstimate of Comparative Asian Military Budgets: 2017

SIPRI

IISS





## **China versus Asia: IISS vs. SIPRI (\$150 vs. \$228 billion) in 2017**

### **IISS**

**China officially earmarked RMB 1.02 trillion (US \$150 billion in 2017 for defense, although this number is considered to exclude Key expenses such as research and development and arms imports.**

**This is a nominal increase of 7.1%. Compared to RMB955 (\$U.S. 144 bn) in 2016.**

**The next highest were India (US \$52.5bn and Japan US\$46bn.) South Korea spent \$35.7 billion. North Korean could not be estimated.**

### **SIPRI**

**China leads continued spending increase in Asia and Oceania.**

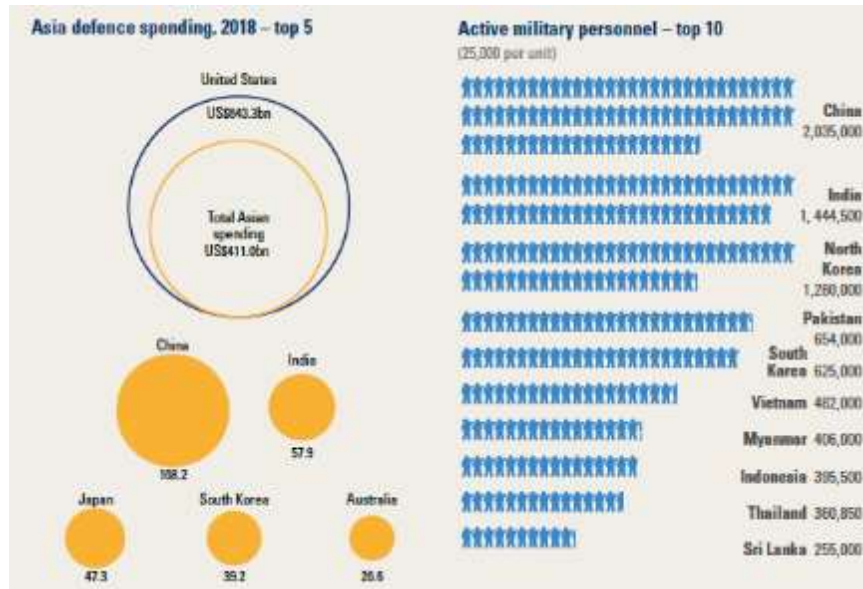
**Military expenditure in Asia and Oceania rose for the 29th successive year.**

**China, the second largest spender globally, increased its military spending by 5.6 percent to \$228 billion in 2017.**

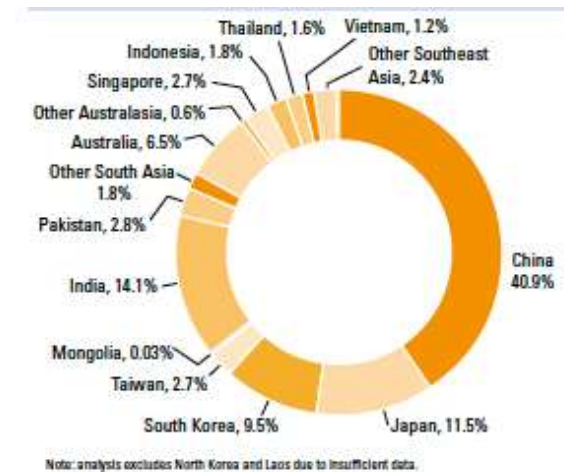
**China's spending as a share of world military expenditure has risen from 5.8 percent in 2008 to 13 percent in 2017.**

**India spent \$63.9 billion on its military in 2017, an increase of 5.5 percent compared with 2016, South Korea's spending, at \$39.2 billion, rose by 1.7 percent between 2016 and 2017.**

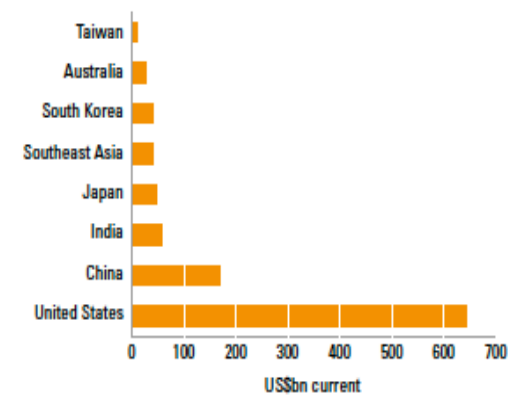
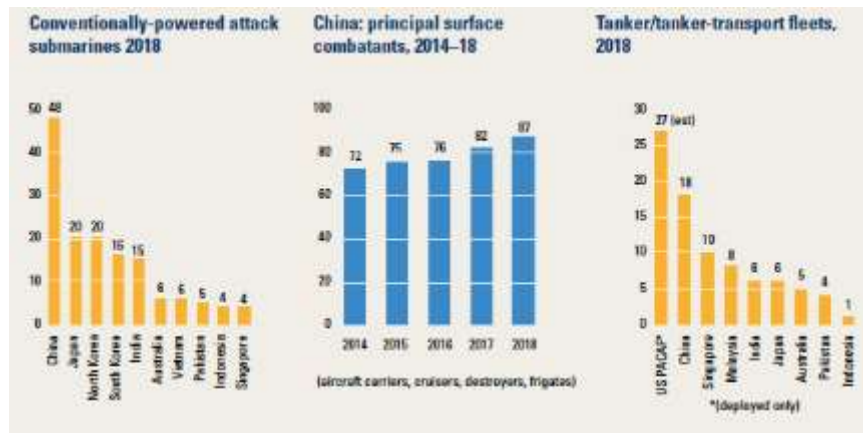
# IISS — Top Asian Military Powers in 2018



Asian Share by Country and Sub Region: 2017



Asian Spending by Country and Sub Region: 2018



Southeast Asia includes Brunei, Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor-Leste and Vietnam. No data available for Laos

# SIPRI Asian Military Spending in 2018:

Military spending in Asia and Oceania was \$507 billion in 2018 and accounted for 28 percent of global military spending. Five of the top 15 global spenders in 2018 are in this region: China (rank 2), India (rank 4), Japan (rank 9), South Korea (rank 10) and Australia (rank 13). It is the only region in which annual growth has been continuous since 1988, and the 46 percent increase between 2009 and 2018 was by far the largest of any region.

The increase was due primarily to the rise in Chinese spending, which in 2018 accounted for 49 percent of total spending in the region, compared with 31 percent in 2009. Between 2017 and 2018, military spending increased in Central and South Asia (4.2 percent) and in East Asia (4.1 percent), while spending decreased in South East Asia (−0.8 percent) and Oceania (−2.9 percent).

There were substantial increases in all four subregions between 2009 and 2018, ranging from 20 percent in Oceania to 54 percent in East Asia. Military expenditure fell between 2009 and 2018 in only 8 of the 27 countries in Asia and Oceania, with data available for 2018. India's military spending rose in 2018 for the fifth consecutive year, and was 3.1 percent higher than in 2017. At \$66.5 billion, India's spending was 29 percent higher than in 2009. Despite this rise, India's military burden in 2018 was at one of its lowest levels since the early 1960s: 2.4 percent of GDP compared with 2.9 percent in 2009. Increases in Indian military expenditure are largely motivated by tensions and rivalry with Pakistan and China. Pakistan's military spending in 2018 was \$11.4 billion, making it the 20th-largest spender globally. Pakistan's military spending has increased every year since 2009. It rose by 73 percent between 2009 and 2018 and by 11 percent between 2017 and 2018. Pakistan's military burden in 2018 was 4.0 percent of GDP—the highest level since 2004. Military spending by Japan was \$46.6 billion in 2018, almost unchanged from 2017 (down by 0.1 percent).

Japan's military spending as a share of GDP in 2018 was 0.9 percent. In South Korea the upward trend in military spending since 2000 continued. In 2018 its military expenditure reached \$43.1 billion, an increase of 5.1 percent compared with 2017 and of 28 percent compared with 2009. Australian military spending was \$26.7 billion in 2018. It grew by 21 percent between 2009 and 2018 but fell by 3.1 percent between 2017 and 2018. Australia's military expenditure, including major arms procurement, has risen over the past decade in response to a perceived increase in threats to its security.

Some of the smaller spenders in Asia and Oceania, such as Malaysia and Afghanistan, have made notable decreases over the past few years. Despite ongoing tensions with its neighbors over rights in the South China Sea and its strong economic growth in recent years, Malaysia's military spending fell in 2018 (−8.2 percent) for the third consecutive year. The decreases are part of an effort to reduce the country's budget deficit and debts. By 2017 Afghanistan's military expenditure had dropped by 26 percent compared with 2009 but in 2018 spending increased by 6.7 percent to \$198 million. Afghanistan's military burden of 1.0 percent of GDP in 2018 is perhaps surprisingly low considering the high intensity of the conflict between the Afghan Government and the Taliban insurgency. However, most of the financial cost of the war in Afghanistan has been shouldered by the USA.

# China and Southeast Asia

# China and Southeast Asia

The Chinese 2019 Defense White Paper again presents only the positive side of China's relations with its neighbors. As for U.S. official view of this aspect of Chinese strategy, there are two striking anomalies in the OSD and DIA coverage of U.S. competition with China. One – addressed later in this analysis – is the lack of any discussion of the size and nature of China's holding of nuclear weapons. The second is the broader competition for economic and military influence, and strategic advantage – in the broad range of Southeast Asia states. The previous focus on the South China Sea touches on these issues but does not address the broader competition affecting arc of states from the Philippines to Bangladesh, and particularly the states near China's borders – a competition that extend into the Pacific on an axis extending as far as Australia.

In the past, the U.S. emphasized strategic partnership with a number of these states – notably Singapore, Thailand, Indonesia, the Philippines, and Australia – along with growing ties to Vietnam. It also created the Trans Pacific Partnership (TPP) as a way of expanding its economic ties and influence. These efforts to create military strategic partnerships still continue but have had notably less priority in U.S. assessments of China.

For all of the occasional talk of arms races affecting China in Southeast Asia, it is clear from both the previous military spending data and the detailed unclassified force data in open sources like the IISS and IHS Janes, that only Singapore and Australia are seeking to fully modernize their forces. Many have low standards of training and readiness, and large elements of their heavy equipment and aircraft are not operational. While a number of Southeast Asian and Pacific states have enough military forces to be important strategic partners to the U.S. – notably Australia, Indonesia, Malaysia, Thailand, Singapore, and Vietnam – no such state can seriously compete with China in expanding and modernizing its forces and all would need U.S. support in any serious military confrontation.

As for economics, the U.S. abandonment of the TPP effectively made this effort at regional cooperation a gift to China, while U.S. burdensharing efforts and trade policies/wars have further undermined U.S. economic competitiveness.

The data on Chinese trade – and other indications of the full size of Chinese investment – indicate that China already benefits from its trading relations with most SE Asian states although these are a comparatively small aspects of Chinese economic activity. China has made mistakes of its own – particularly in the form of poorly planned, managed, and cost controlled projects in Southeast Asian states – like its port project in Sri Lanka and its dam and power projects in Cambodia and Myanmar – that have indicated that China may be serving its own interests at a high cost to that of its neighbors. It also has sometimes confronted its neighbors over fishing, EEZ, and other claims and rights that have needlessly raised tensions between China and other states.

Nevertheless, China can easily afford to offer better terms and control over its project efforts, and its trade, investment, and development – rather than the military and claims issues in the region – that may well give China a lasting advantage over time if the U.S. continues its current emphasis on trade battles and burdensharing.

# China's 2019 Defense White Paper on Southeast Asia - I

The China-ASEAN Defense Ministers' Informal Meeting and the ASEAN Defense Ministers' Meeting Plus (ADMM-Plus) play positive roles in enhancing trust among regional countries through military exchanges and cooperation.

...With a commitment to building a community with a shared future in its neighborhood, China endeavors to deepen military partnership with its neighbors. The PLA keeps close contacts with the military leaderships of the neighboring countries. Given more than 40 reciprocal military visits at and above service commander level every year, high-level military exchanges have covered almost all of China's neighbors and contributed to growing strategic mutual trust. China has set up defense and security consultations as well as working meeting mechanisms with 17 neighboring countries to keep exchange channels open.

In recent years, China has regularly held serial joint exercises and training on counter-terrorism, peacekeeping, search and rescue, and tactical skills with its neighboring countries, and carried out extensive exchanges and practical cooperation on border and coastal defense, academic institutions, think tanks, education, training, medical science, medical service, and equipment and technology. In addition, defense cooperation with ASEAN countries is moving forward. The military relationships between China and its neighboring countries are generally stable .

...Theater Commands (TCs), and border troops...strengthen security management along the border with Myanmar, so as to secure stability and public safety in the border areas...They have cleared mines from 58 square kilometers of land, closed 25 square kilometers of landmine area, and disposed of 170,000 explosive devices such as landmines along the borders with Vietnam and Myanmar.

China actively supports the institutional development of the Conference on Interaction and Confidence-Building Measures in Asia (CICA), advocates common, comprehensive, cooperative and sustainable security in Asia, and plays an important role in building an Asian security cooperation architecture.

In the principles of openness, inclusiveness and pragmatic cooperation, China actively participates in multilateral dialogues and cooperation mechanisms including the ADMM-Plus, ASEAN Regional Forum (ARF), Shangri-La Dialogue, Jakarta International Defense Dialogue and Western Pacific Naval Symposium, regularly holds China-ASEAN defense ministers' informal meetings, and proposes and constructively promotes initiatives to strengthen regional defense cooperation. The China-ASEAN *Maritime Exercise-2018*, the first between Chinese and ASEAN militaries, was held in October 2018 and demonstrated the confidence and determination of the countries in maintaining regional peace and stability.

...Upholding amity, sincerity, mutual benefit and inclusiveness in its neighborhood diplomacy, China is committed to building an amicable relationship and partnership with its neighbors, and peaceful resolution of disputes over territory and maritime demarcation through negotiation and consultation. China has settled its border issues with 12 of its 14 land neighbors and signed treaties on good-neighborliness, friendship and cooperation with 8 countries on its periphery.

China holds it a priority to manage differences and enhance mutual trust in maintaining the stability of its neighborhood. China has proposed a China-ASEAN defense ministers' hotline and established direct defense telephone links with Vietnam and the ROK. It has kept contact through telephone or fax, and conducted border meetings and joint patrols, with the militaries of the countries on its land borders on regular or irregular basis. Since 2014, five high-level border meetings between China and Vietnam have been held.



# China's 2019 Defense White Paper on Southeast Asia - II

## Regional Cooperation

Platform	Year of Inception	Description
ASEAN Defense Ministers' Meeting Plus	2010	ADMM-Plus is the largest and highest-level dialogue and cooperation mechanism on defense and security in the Asia-Pacific region. Since 2016, under the mechanism, the PLA has participated in a joint exercise on peacekeeping and demining in India, and exercises on maritime security and counter-terrorism in both Brunei and Singapore. From 2017 to 2020, China and Thailand co-chair the counter-terrorism expert working group.
Beijing Xiangshan Forum	2006	This annual forum is co-hosted by the China Association for Military Science and the China Institute for International Strategic Studies. The Xiangshan Forum was upgraded to a track-1.5 platform of international security and defense dialogue in 2014. It was renamed the Beijing Xiangshan Forum in 2018. The forum advocates the principles of equality, openness, inclusiveness and mutual learning. In Oct. 2018, the 8th Beijing Xiangshan Forum was held with the participation of over 500 representatives from 67 countries and 7 international organizations. The forum injected strong positive energy into regional and international security cooperation.
ASEAN Regional Forum	1994	The forum has a membership of 27 countries and is the official multilateral platform for security dialogue and cooperation in the Asia-Pacific. Since 2015, China has hosted important meetings and events including the ARF Peacekeeping Experts' Meeting, the ARF Defense Officials' Dialogue, the ARF Heads of Defense Universities/Colleges/Institutions Meeting, and the ARF Security Policy Conference.
Shangri-La Dialogue	2002	The dialogue is hosted by the International Institute for Strategic Studies, a think tank based in London, and co-hosted by the Ministry of Defense of Singapore. It is held in early June every year in the Shangri-La Hotel in Singapore. At the 17th Shangri-La Dialogue in 2018, the Chinese delegation, on the topic of "Strategic Implications of Military Capability Development in the Asia-Pacific", explained the important proposals of President Xi Jinping on building a new model of international relations and a community with a shared future for mankind, and actively promoted a joint effort with relevant countries to maintain regional security and stability.

Platform	Year of Inception	Description
ASEAN Regional Forum	1994	The forum has a membership of 27 countries and is the official multilateral platform for security dialogue and cooperation in the Asia-Pacific. Since 2015, China has hosted important meetings and events including the ARF Peacekeeping Experts' Meeting, the ARF Defense Officials' Dialogue, the ARF Heads of Defense Universities/Colleges/Institutions Meeting, and the ARF Security Policy Conference.

## Major Exercises Since 2012

States/ Organizations	Codename	Location and Time
Malaysia	Peace and Friendship Joint Military Exercises	Tabletop exercise held in Malaysia in Dec. 2014; in Malaysia in Sept. 2015; in Malaysia in Nov. 2016
Vietnam	China-Vietnam Joint Naval Patrols in the Beibu Gulf	Held in the shared fishing zone in the Beibu Gulf for 13 times from 2012 to 2018
Malaysia, Thailand	Peace and Friendship 2018 Joint Military Exercise	Held in Malaysia in Oct. 2018 by militaries of China, Malaysia and Thailand
ASEAN	Maritime Exercise-2018	Held in Zhanjiang and the maritime and air space to the east in Oct. 2018
Thailand	Falcon Strike Joint Training	Held in Thailand in Nov. 2015; in Thailand in Aug. 2017; in Thailand in Sep. 2018

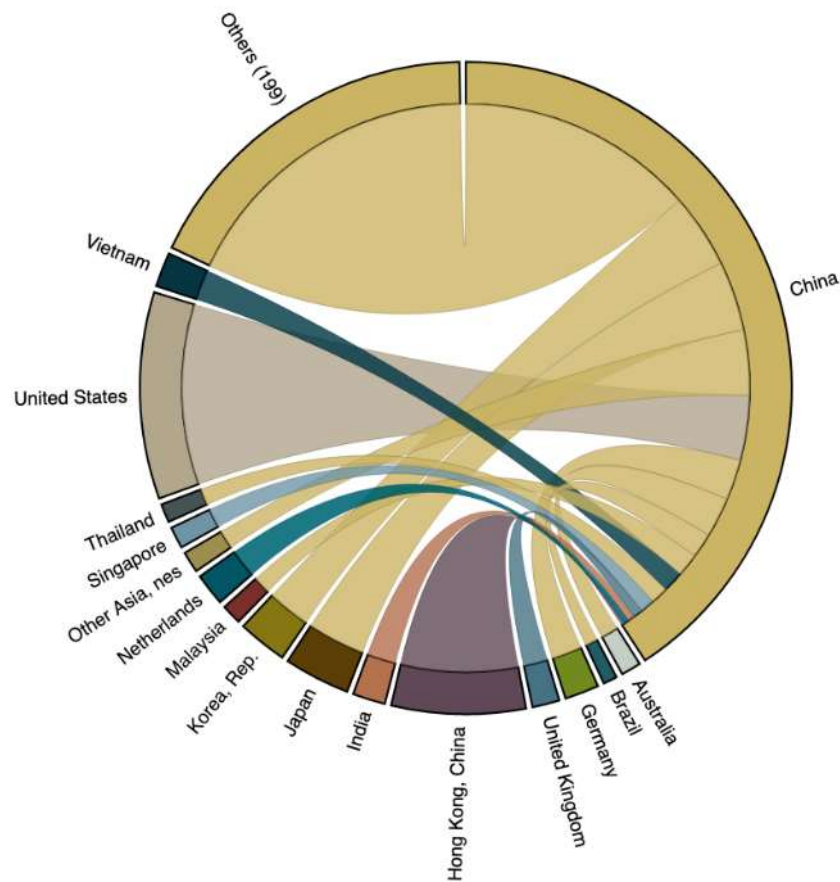
# Selected Southeast Asian and Oceanic Asian Military forces in 2018

Country	Australia	Bangladesh	Cambodia	Indonesia	Laos	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam
Defense spending \$USB	26.56	3.16	0.95	7.32	?	3.87	1.95	2.79	11.0	6.51	4.83
Total Active Military	57,050	157,050	124,300	395,500	25,600	113,000	406,000	142,350	72,500	360,850	482,000
<b>Army</b>											
Actives	29,000	126,150	75,000	300,400	25,600	70,000	375,000	101,000	50,000	130,000	412,000
Tanks	59	276	200+	79	25	48	185+	0	96	360	1,270
OAFVs	253	16	94+	556	10	371	181+	61	994+	394	1,020
APCs	431	481	230+	634+	50	832	431+	387	1,576+	1,140	1,380+
Artillery- SP	-	12	0	74	0	0	42	0	54	32	30+
Artillery- Towed	54	363+	400+	133+	62	134	264+	220	88	617	2,300
Artillery- MRL	0	6	33+	36	0	36	36+	0	18	68	710+
Armed Helicopters	22	2	0	14	0	0	10	0	27	0	0
<b>Navy</b>											
Actives	13,660	16,900	2,800	65,000	NA	18,000	16,000	23,750	3,000	44,000	40,000
Submarines	6	2	0	4	0	2	0	0	4	0	8
Major Combat-Missile	13	4	0	15	0	8	8	0	17	9	10
Other Major Surface Combat	0	2	0	17	0	6	1?	0	0	7	5
Patrol-Missile	0	9	0	16	0	8	11	3	0	6	20
Patrol-Other	15	33	14	17	0	23	9	30	7	34	12
Mine	4	5	0	8	0	4	0	0	4	17	13
Principal Amphibious	3	1	0	5	0	0	0	2	4	2	7
Landing Craft	17	14	1	72	0	0	15	11	23	14	12
Active marines	0	0	0	20,000	(600)	0	(800)	8,300	0	0	(27,000)
<b>Air Force</b>											
Actives	14,400	14,000	1,500	30,100	3,500	15,000	15,000	17,600	13,500	46,000	30,000
Total Combat Aircraft	172	81	0	109	0	66	153	44	105	150	73
Modern Fighters	81	8	0	49	0	37	21	12?	100	64	46
Recce/Intell/EW	18	0	0	0	0	3	0	12?	0	5	0
AC&W	6	0	0	0	0	0	0	0	4	2	0
Maritime Patrol/ASW	22	2	0	6?	0	6	0	3	5	2	0
Major SAM Launchers	0	0	0	0	0	0	4+	0	31?	0	39?

Source: IISS, "Asia," *Military Balance*, 2019, pp. 224-319. Air Force data do not include Army and Navy aircraft. Navy data do not include very small patrol craft.

# Chinese Trade and Southeast Asia in Perspective: 2017

## Share of All Chinese Exports and Imports in 2017



Partner Name	Trade Balance (US\$ Thousand)	Export (US\$ Thousand)	Import (US\$ Thousand)	Import Partner Share (%)	Export Partner Share (%)
World	419,577,995.51	2,263,370,504.30	1,843,792,508.80	100.00	100.00
East Asia & Pacific	23,830,879.87	857,757,804.76	833,876,924.89	45.23	37.90
Europe & Central Asia	121,882,292.78	467,132,342.50	345,250,049.72	18.73	20.64
North America	286,070,752.34	461,833,625.42	174,864,873.08	9.48	20.40
United States	273,886,290.85	430,328,146.52	154,441,855.87	8.38	19.01
South Asia	87,974,239.81	107,382,082.93	19,389,843.32	1.05	4.74
Middle East & North Africa	9,715,094.23	124,582,742.26	114,869,648.03	6.23	5.50
Hong Kong, China	271,880,382.85	270,270,548.47	7,317,183.82	0.40	12.34
Latin America & Caribbean	2,785,958.31	130,838,575.31	127,274,517.00	6.90	5.75
Japan	-28,526,072.50	137,258,833.31	165,784,905.81	8.99	6.08
Korea, Rep.	-78,849,377.55	102,703,770.59	177,553,154.15	9.63	4.54
Thailand	-3,054,358.32	36,541,726.59	41,596,082.91	2.26	1.70
Vietnam	21,242,631.18	71,817,248.16	50,374,616.98	2.73	3.16
Malaysia	-12,713,856.74	41,712,282.70	54,426,139.44	2.95	1.84
Other Asia, nes	-111,578,096.83	43,983,206.35	155,961,303.18	8.46	1.94
India	51,886,881.83	66,042,252.50	16,345,370.68	0.89	3.01
Australia	-53,570,893.27	41,438,227.66	95,009,120.93	5.15	1.83
Indonesia	6,183,079.03	34,757,384.54	28,574,305.51	1.55	1.54
Singapore	10,788,076.79	48,013,300.48	34,249,823.69	1.88	1.99
Russian Federation	1,440,306.78	42,930,599.82	41,360,293.06	2.34	1.89
Philippines	12,606,793.34	20,065,932.46	19,239,177.21	1.04	1.42
Pakistan	16,417,009.59	18,250,788.59	1,833,219.00	0.10	0.81
Bangladesh	14,202,870.28	15,109,021.00	876,144.72	0.05	0.67
New Zealand	-4,290,866.34	5,100,102.86	8,391,069.20	0.45	0.23
Sri Lanka	3,777,965.50	4,687,995.86	310,030.36	0.02	0.18
Myanmar	4,422,116.27	8,948,464.37	4,526,348.00	0.25	0.40
Cambodia	3,775,616.73	4,763,194.40	1,007,591.88	0.05	0.21
Nepal	3,064,949.31	3,188,493.08	103,969.87	0.01	0.14
Mongolia	-3,931,701.63	1,235,611.57	5,167,313.20	0.28	0.05
Lao PDR	-185,646.15	1,419,351.18	1,604,997.33	0.09	0.06
Brunei	285,783.06	637,592.77	351,809.71	0.02	0.03
Afghanistan	537,778.37	541,205.98	3,427.62	0.00	0.02
East Timor	131,023.45	132,596.62	1,573.17	0.00	0.01

# China, Russia, and the North

# China, Russia, and the North

China and Russia have formed a steadily improving strategic partnership, and one very different from the days in which Soviet pressure on China's border helped lead China to join with the U.S. in containing the Soviet Union. The two nations now cooperate in training, and China's 2019 Defense White Paper shows it has stepped up in its military exercises with Russia. Russia provides China with advanced military technology through its arms sales, and both countries cooperate with the former Asian republics of the Soviet Union as part of the Shanghai Cooperation Council.

The relative power of each state has shifted radically, however, since the break up of the Soviet Union. Russia is now a "superpower" only in the nuclear sense, although it presents a major potential conventional threat to the NATO states near its border and remains a center of advanced military technology. Russia now has a relatively limited "petro-economy" that cannot compete with China in economic size. Russia lags far behind China in both economic growth and military spending. While estimates differ, the previous sections have shown that Chinese annual military spending is now at least three to four times that of Russia.

The charts and tables in this section reflect China's growing emphasis on this strategic partnership. It also reflects the fact that Russia no longer deploys force to secure its borders with China, and that Mongolia is not a scene of confrontation as well. The maps shown in various parts of this analysis show that Russia still maintains major military forces in the Far East and Pacific, but US official estimates of both Russian and Chinese deployments indicate that they are focused on other military forces and threats. Later sections of this analysis show, however, that several key issues remain unresolved:

- It is still unclear whether China will attempt to compete with the U.S. – and indirectly with the Russian – nuclear force size and modernization.
- China and Russia do seem to compete at some levels for influence in the former Asian Republics. At the same time, Russian development in the Far East does not compete with Chinese commercial interests, and has therefore opened up parts of Russia to rising Chinese commercial influence.
- Mongolia's future alignments are unclear.
- It still seems unlikely that either power would come to the direct support of the other in the event of a conflict in Europe, Asia, or some other location.
- China has an interest in the artic, but it is unclear how this will affect its relations with Russia.

# China's View of Military Cooperation with Russia and the U.S.:

## 2015 Defense White Paper

Developing all-round military-to-military relations. China's armed forces will further their exchanges and cooperation with the Russian military within the framework of the comprehensive strategic partnership of coordination between China and Russia, and foster a comprehensive, diverse and sustainable framework to promote military relations in more fields and at more levels.

China's armed forces will continue to foster a new model of military relationship with the US armed forces that conforms to the new model of major-country relations between the two countries, strengthen defense dialogues, exchanges and cooperation, and improve the CBM mechanism for the notification of major military activities as well as the rules of behavior for safety of air and maritime encounters, so as to strengthen mutual trust, prevent risks and manage crises.

....China's armed forces will work to further defense and security cooperation in the Shanghai Cooperation Organization (SCO), and continue to participate in multilateral dialogues and cooperation mechanisms such as the ASEAN Defense Ministers' Meeting Plus (ADMM+), ASEAN Regional Forum (ARF), Shangri-La Dialogue (SLD), Jakarta International defense Dialogue (JIDD) and Western Pacific Naval Symposium (WPNS). The Chinese military will continue to host multilateral events like the Xiangshan Forum, striving to establish a new framework for security and cooperation conducive to peace, stability and prosperity in the Asia-Pacific region.



# China and Russia: Chinese 2017 White Paper

China and Russia are each other's biggest neighbor, and strategic partner of cooperation and priority in diplomacy. Over the years, China-Russia relations have gained healthy, stable and fast development, and made new achievements through joint efforts. In 2001 the two countries signed the Good-Neighborly Treaty of Friendship and Cooperation, which established the idea of a lasting friendship in legal form.

In 2011 the bilateral relationship was upgraded to a comprehensive strategic partnership of coordination based on equality, mutual trust, mutual support, common prosperity and lasting friendship. In 2014 the China-Russia comprehensive strategic partnership of coordination entered a new stage.

This partnership has presented a more positive momentum of development at a high level. President Xi Jinping and Russian President Vladimir Putin have met frequently. During the latter's visit to China in June 2016 the two sides signed three joint statements: the Joint Statement by the People's Republic of China and the Russian Federation, Joint Statement by the People's Republic of China and the Russian Federation on Strengthening Global Strategic Stability, and Joint Statement by the People's Republic of China and the Russian Federation on Cooperation in Information Cyberspace Development.

In September that year the two heads of state met for the third time, during the G20 Hangzhou Summit, and agreed to increase their firm mutual support on issues concerning each other's core interests, energetically promote the idea of a lasting friendship established in the Good-Neighborly Treaty of Friendship and Cooperation, actively promote their development strategies and their efforts to promote the Belt and Road Initiative and Eurasian Economic Union, hold a Year of Media Exchange, and maintain close coordination and cooperation in international and regional affairs, so as to inject strong vigor into bilateral relations.

China and Russia have maintained good cooperation in Asia-Pacific affairs. The two sides continue to strengthen their cooperation within regional multilateral frameworks, safeguard the purposes and principles of the Charter of the United Nations and universally recognized norms governing international relations, uphold the achievements of World War II and international justice, advance the process of a political solution to regional hotspot issues, and contribute more positive energy to regional peace, stability, development and prosperity.

China-Russia military relations have made further progress. In 2015 the two militaries jointly commemorated the 70th anniversary of the victory of the World Anti-Fascist War, and sent high-ranking officers and teams to each other's commemoration activities and military parades. The two militaries successfully held joint maritime drills twice in a year for the first time.

China participated in all events of the international military skill competition hosted by Russia, and the first Chinese Military Culture Week was held in Russia. In 2016 the two militaries maintained positive interaction. The First Joint Computer-Enabled Anti-Missile Defense Exercise was held. China participated in the international military games in Russia and Kazakhstan. In September China and Russia conducted the Maritime Joint Exercise 2016. The two militaries have also maintained close coordination within the defense and security cooperation framework of the SCO.

Source: Ministry of Foreign affairs, *China's Policies on Asia-Pacific Security Cooperation*, January 2017, [https://www.fmprc.gov.cn/mfa\\_eng/zxxx\\_662805/t1429771.shtml](https://www.fmprc.gov.cn/mfa_eng/zxxx_662805/t1429771.shtml), 2017/01/11.

# China and Russia: China's 2019 Defense White Paper

The military relationship between China and Russia continues to develop at a high level, enriching the China-Russia comprehensive strategic partnership of coordination for a new era and playing a significant role in maintaining global strategic stability. The Chinese and Russian militaries have continued the sound development of exchange mechanisms at all levels, expanded cooperation in high-level exchanges, military training, equipment, technology and counter-terrorism, and realized positive interaction and coordination on international and multilateral occasions. Since 2012, Chinese and Russian militaries have held 7 rounds of strategic consultations. From August to September 2018, at the invitation of the Russian side, the PLA participated in Russia's *Vostok* strategic exercise for the first time.

...Russia is strengthening its nuclear and non-nuclear capabilities for strategic containment, and striving to safeguard its strategic security space and interests.

...Russia is advancing its New Look military reform.

...China's armed forces have established mechanisms for exchanges with neighboring countries at three levels: national defense ministry, Theater Commands (TCs), and border troops. They conduct regular friendly mutual visits, working meetings, joint patrols and joint exercises targeting transnational crime with their foreign counterparts. They work together with Kazakhstan, Kyrgyzstan, Russia and Tajikistan to implement the border disarmament treaty.

In June 2001, China, Kazakhstan, Kyrgyzstan, Russia, Tajikistan and Uzbekistan co-founded the Shanghai Cooperation Organization. The SCO has now grown into a new type of comprehensive regional cooperation organization covering the largest area and population in the world. The Shanghai Spirit featuring mutual trust, mutual benefit, equality, consultation, respect for diverse civilizations and pursuit of common development has come into being.

...Great Wall Counter-Terrorism International Forum. 2016: The inaugural session of the forum was held in Beijing in Nov. 2016 with the theme of "counter-terrorism in urban areas". Representatives from 25 countries including Russia, France, Egypt and Brazil participated. The second forum was held in Beijing in May 2018 with the theme of "counter-terrorism in mountainous areas". Representatives from 27 countries including France, Nigeria, Chile and Pakistan participated.

... (Joint Sea Exercises) Held in the Yellow Sea waters near Qingdao in Apr. 2012; in Peter the Great Gulf in Jul. 2013; in the north maritime and air space of the East China Sea to the east of Yangtze River Estuary in May 2014; in the east of the maritime and air space of the Mediterranean in May 2015; in Peter the Great Gulf, off the coast of Vladivostok, and the maritime and air space of Sea of Japan in Aug. 2015; in Zhanjiang and the east of the maritime and air space of Zhanjiang in Sep. 2016; in the Baltiysk, St. Petersburg and southeast Baltic Sea in Jul. 2017; in Vladivostok and the designated area between Peter the Great Gulf and the south Okhotsk Sea in Sep. 2017.

...Aerospace Security Computer-Enabled Anti-Missile Command-and-Staff Exercises: Held in Russia in May 2016, and in China in Dec. 2017

## OSD on China and Russia - 2019

China has partnered with other authoritarian states, such as Russia, to mitigate U.S. pressure tactics. China and Russia share a preference for a multipolar world order and frequently jointly oppose U.S.-sponsored measures at the United Nations Security Council (UNSC).

In the wake of Western sanctions against Russia, China has increased investment in Russia's economy. The Chinese Minister of National Defense Wei Fenghe visited Moscow in April 2018 "to let the Americans know about close ties between the armed forces of China and Russia."

...New or upgraded crude oil pipelines from Russia to China and Kazakhstan to China demonstrate China's interest in increasing overland supply. In early 2018, China doubled the capacity of its pipeline to Russia from 300,000 to 600,000 barrels per day.

# Russian Military Forces in the Far East In 2018

## Eastern Military District

HQ located at Khabarovsk

### Army

#### FORCES BY ROLE

##### COMMAND

4 army HQ

##### SPECIAL FORCES

1 (Spetsnaz) SF bde

##### MANOEUVRE

###### Armoured

1 tk bde

6 MR bde

###### Mechanised

4 MR bde

1 MGA div

##### SURFACE-TO-SURFACE MISSILE

4 SRBM/GLCM bde with *Iskander-M/K*

##### COMBAT SUPPORT

3 arty bde

1 MRL bde

1 engr bde

1 NBC bde

4 NBC regt

##### COMBAT SERVICE SUPPORT

4 log bde

##### AIR DEFENCE

4 AD bde

### Reserves

#### FORCES BY ROLE

##### MANOEUVRE

###### Mechanised

8 MR bde

## Pacific Fleet

### EQUIPMENT BY TYPE

#### SUBMARINES 23

##### STRATEGIC 5 SSBN

TACTICAL 18: 5 SSGN (of which 2 in refit); 5 SSN (of which 4 in refit); 8 SSK

PRINCIPAL SURFACE COMBATANTS 8: 1 CGHM;

6 DDGHM (of which 2 in refit); 1 FFGHM

PATROL AND COASTAL COMBATANTS 24: 4

FSGM; 8 FSM; 9 PCFG; 3 PBM

MINE WARFARE 8: 2 MSO; 6 MSC

AMPHIBIOUS 9: 4 LST; 3 LCM; 2 LCU

### Naval Aviation

#### FORCES BY ROLE

##### FIGHTER

1 sqn with MiG-31B/BS *Foxhound*

##### ANTI-SUBMARINE WARFARE

3 sqn with Ka-27/Ka-29 *Helix*

2 sqn with Il-38 *May\**; Il-18D; Il-22 *Coot B*

1 sqn with Tu-142MK/MZ/MR *Bear F/J\**

##### TRANSPORT

2 sqn with An-12BK *Cub*; An-26 *Curl*; Tu-134

### EQUIPMENT BY TYPE

#### AIRCRAFT

FTR 12 MiG-31B/BS *Foxhound*

ASW 23: 11 Tu-142MK/MZ/MR *Bear F/J*; 12 Il-38 *May*

EW • ELINT 1 Il-22 *Coot B*

TPT 6: 2 An-12BK *Cub*; 3 An-26 *Curl*; 1 Tu-134

#### HELICOPTERS

ASW Ka-27 *Helix*

TPT • Medium Ka-29 *Helix*; Mi-8 *Hip*

### Naval Infantry

#### FORCES BY ROLE

##### MANOEUVRE

###### Mechanised

2 naval inf bde

##### AIR DEFENCE

1 SAM regt

### Coastal Artillery and Missile Troops

#### FORCES BY ROLE

##### COASTAL DEFENCE

2 ASHM bde

## Military Air Force

### 11th Air Force & Air Defence Army

#### FORCES BY ROLE

##### FIGHTER/GROUND ATTACK

1 regt with MiG-31BM *Foxhound*; Su-27SM

*Flanker*; Su-30M2; Su-30SM; Su-35S *Flanker*

1 regt with Su-35S *Flanker*; Su-30SM

1 regt with Su-25 *Frogfoot*; Su-30SM

##### GROUND ATTACK

1 regt with Su-24M/M2 *Fencer*; Su-34 *Fullback*

1 regt with Su-25SM *Frogfoot*

##### ISR

1 regt with Su-24MR *Fencer E*

##### TRANSPORT

2 sqn with An-12 *Cub*/An-26 *Curl*/Tu-134 *Crusty*/  
Tu-154 *Careless*

##### ATTACK/TRANSPORT HELICOPTER

1 bde with Ka-52A *Hokum B*; Mi-8 *Hip*; Mi-26 *Halo*

1 regt with Ka-52A *Hokum B*; Mi-8 *Hip*; Mi-26 *Halo*

1 regt with Mi-24P *Hind*; Mi-8 *Hip*

##### AIR DEFENCE

2 regt with 9K37M *Buk-M1-2* (SA-11 *Gadfly*);

9K317 *Buk-M2* (SA-17 *Grizzly*); S-300V (SA-12 *Gladiator/Giant*)

2 regt with S-300PS (SA-10B *Grumble*)

2 regt with S-400 (SA-21 *Growler*); 96K6 *Pantsir-S1* (SA-22 *Greyhound*)

### EQUIPMENT BY TYPE

#### AIRCRAFT

FTR 20 MiG-31B/BS/BM *Foxhound*

FGA 112: 23 Su-27SM *Flanker*; 2 Su-30M2; 29 Su-30SM;

24 Su-34 *Fullback*; 34 Su-35S *Flanker*

ATK 102: 20 Su-24M *Fencer*; 10 Su-24M2 *Fencer*; 72 Su-25/Su-25SM *Frogfoot*

ISR 28 Su-24MR *Fencer E*

TPT 24: 22 An-12 *Cub*/An-26 *Curl*; 1 Tu-134 *Crusty*; 1 Tu-154 *Careless*

#### HELICOPTERS

ATK 36: 24 Ka-52A *Hokum B*; 12 Mi-24P *Hind*

TPT 60: Heavy 4 Mi-26 *Halo*; Medium 56 Mi-8 *Hip*

##### AIR DEFENCE • SAM

Long-range S-300PS (SA-10B *Grumble*); S-300V (SA-12 *Gladiator/Giant*); S-400 (SA-21 *Growler*)

Medium-range 9K317 *Buk-M1-2* (SA-11 *Gadfly*); 9K317 *Buk-M2* (SA-17 *Grizzly*)

Short-range 96K6 *Pantsir-S1* (SA-22 *Greyhound*)

## Airborne Troops

#### FORCES BY ROLE

##### MANOEUVRE

###### Air Manoeuvre

2 air aslt bde

# China's Northern Theater Forces Are Oriented Toward Korea and Its Western Theater Forces Towards Central Asia

## Northern Theater



## Western Theater



Source: Office of the Secretary of Defense, *Military and Security Developments Involving the Republic of China, Annual Report to Congress*, May, 2019, Department of Defense. *China Military Power 2019*, p. 78 & 80.



# Recent Russian Exercises with China

Date (Duration)	Exercise Name or Type (Location)	Other Participants (Number)	Type of Exercise	Details
Dec. 2017 (6 days)	Aerospace Security-2017 (Beijing, China)	Russia	Missile Defense	In a continuation of growing missile defense cooperation in recent years, the two countries held their second computer-simulated tabletop exercise designed to “practice cooperation of [both sides] to repel missile threats from third countries.”
Aug. 2018 (6 days)	Peace Mission-2018 (Chebarkul, Russia)	Multiple; Shanghai Cooperation Organization [SCO] members (China sent 700 troops from the Western Theater Command, including an armored tank battle group, an Air Force battle group, and a special operations unit)	Counter-terrorism	In the ninth SCO exercise since they commenced in 2005, the SCO member militaries conducted a joint, live-fire drill surrounding and defeating a terrorist camp involving air and ground forces. India and Pakistan notably participated in their first exercise since becoming full SCO members in 2017.

Date (Duration)	Exercise Name or Type (Location)	Other Participants (Number)	Type of Exercise	Details
Sept. 2018 (7 days)	Vostok-2018 (Trans-Baikal region, Russia)	Russia and Mongolia (Russia contributed 290,000 troops from its army, air force, and navy. China sent around 3,200 troops from the Northern Theater Command, including Type 99 main battle tanks, six JH-7A fighter-bombers and 24 WZ-9 and WZ-19 helicopters.)	Land, Maritime, and Air	Russia for the first time invited China to participate in one of its large-scale, joint, strategic exercises—the largest of its kind since 1981—and China’s contribution to the exercise was the biggest it has sent abroad. The exercise was designed to simulate a conventional campaign to counter an enemy invasion, and intended to deepen cooperation between the two militaries.
Late 2018	Joint Sea-2018 (Qingdao, China)	Russia	Maritime	To be announced

*Note:* From late July to mid-August, the PLA participated in the International Army Games-2018, a Russia-led annual military competition that has been held since 2015. For the second year in a row, China hosted some of the events (four of 18 events). The competition serves as a venue for the PLA to train with the Russian Armed Forces and other militaries, and helps build mutual trust. Participants for the exercise in China include Armenia, Azerbaijan, Belarus, Egypt, Iran, Pakistan, Kazakhstan, Uzbekistan, Venezuela, and Zimbabwe. *China Military Online*, “Defense Ministry’s Regular Press Conference on April 26,” April 27, 2018.

*Source:* Various.<sup>230</sup>



# China and the Arctic

China has increased activities and engagement in the Arctic region since gaining observer status on the Arctic Council in 2013. In January 2018, China published its first Arctic strategy that promoted a “Polar Silk Road” and self-declared China to be a “Near-Arctic State.” The strategy identifies China’s interests as access to natural resources, securing Arctic SLOCs, and promoting an image of a “responsible major country” in Arctic affairs. The strategy highlights China’s icebreaker vessels and research stations as integral to its implementation.

China maintains research stations in Iceland and Norway and operates one Ukrainian-built icebreaking research vessel, the *Xuelong*, which in 2017 completed its 8th Arctic expedition and became the first Chinese official vessel to traverse Canada’s Northwest Passage. In 2016, China commissioned the first of a new series of “ice-capable” patrol boats. In late September 2018, the *Xuelong* completed its 9th Arctic expedition. In September, China also launched its second icebreaking research vessel, the domestically built *Xuelong 2*. The *Xuelong 2* will be able to break ice 1.5 meters thick, compared to the original *Xuelong*’s maximum of 1.2 meters. Furthermore, the *Xuelong 2* is the first polar research vessel that can break ice while moving forwards or backwards.

Arctic border countries have raised concerns about China’s expanding capabilities and interest in the region. The government of Denmark has publicly expressed concern about China’s interest in Greenland, which has included proposals to establish a research station in Greenland, establish a satellite ground station, renovate airports, and expand mining. Civilian research could support a strengthened Chinese military presence in the Arctic Ocean, which could include deploying submarines to the region as a deterrent against nuclear attacks. In September 2018, a Russian expert at the Russian International Affairs Council stated the Russian Federation was strongly opposed to foreign icebreakers operating on the Northern Sea Route, including U.S. and Chinese icebreakers. Outside potential friction over the Northern Sea Route, the Arctic region is an area of opportunity for Sino-Russian commercial cooperation, in addition to energy development and infrastructure projects such as the Yamal liquefied natural gas project.

# China and Central Asia

## **China and Central Asia**

As the maps that follow show, China shares borders with several Central Asian states, and its expanding economy and need for oil, gas, and minerals gives China a natural economic interests in the kind of “belt and road” initiatives described earlier. Russia still maintains considerable political and military interests in these states, but China’s development has made it a growing economic force, and one that may open up major new rail and pipeline routes to the region and to Europe.

There are no major territorial or border disputes involving China, and so far the Shanghai Cooperation Organization has allowed Russia and China to cooperate in dealing with the region. Russia may have its reservations about the growth of China’s economic role and influence, but it seems to have accepted China’s growing role.

The main security issue in Central Asia affecting China’s strategy is the Uighur issue and China’s concern that movements could pose an Islamic extremism threat or support Uighur extremist groups in China.

# Chinese 2019 Defense White Paper: Central Asia

China has signed border cooperation agreements with 9 neighboring countries and set up border meeting mechanisms with 12 countries. China's armed forces have established mechanisms for exchanges with neighboring countries at three levels: national defense ministry, Theater Commands (TCs), and border troops. They conduct regular friendly mutual visits, working meetings, joint patrols and joint exercises targeting transnational crime with their foreign counterparts. They work together with Kazakhstan, Kyrgyzstan, Russia and Tajikistan to implement the border disarmament treaty...They enhance control along the border with Afghanistan to guard against the infiltration of terrorists.

...Since 2012, the PAP has deployed large numbers of troops annually in security duties, counter-terrorism, emergency response, and maritime rights protection and law enforcement. It has completed around 10,000 security assignments during major events such as the G20 Summit, the APEC Economic Leaders' Meeting, the Belt and Road Forum for International Cooperation, the BRICS Leaders Meeting, and the SCO Qingdao Summit, and participated in the response to 671 hostage situations, incidents of severe violence, and terrorist attacks. Since 2014, the PAP has assisted the government of Xinjiang Uygur Autonomous Region in taking out 1,588 violent terrorist gangs and capturing 12,995 terrorists.

...Under the PLAA, there are 5 TC army commands, the Xinjiang military command, and the Tibet military command

...China has set up defense and security consultations as well as working meeting mechanisms with 17 neighboring countries to keep exchange channels open. In recent years, China has regularly held serial joint exercises and training on counter-terrorism, peacekeeping, search and rescue, and tactical skills with its neighboring countries, and carried out extensive exchanges and practical cooperation on border and coastal defense, academic institutions, think tanks, education, training, medical science, medical service, and equipment and technology...The military relationships between China and its neighboring countries are generally stable.

...China is active in international and regional counter-terrorism cooperation. It has strengthened such cooperation within the framework of the SCO. China hosts and participates in joint counter-terrorism exercises, cracks down on illegal trafficking of weapons, ammunition and explosives, cooperates with SCO members to identify and cut off channels for terrorist infiltration, and promotes international counter-terrorism intelligence exchange and information sharing. It hosts the Great Wall International Forum on Counter-Terrorism, and actively participates in multilateral counter-terrorism mechanisms such as the APEC Counter-Terrorism Working Group and the Global Counter-Terrorism Forum. Bilateral counter-terrorism consultations have been held with certain countries. China initiated the establishment of the Quadrilateral Cooperation and Coordination Mechanism (QCCM), a counter-terrorism cooperation and coordination mechanism by the militaries of Afghanistan, China, Pakistan and Tajikistan. The QCCM has convened two military leaders' meetings and conducted counter-terrorism exchange and cooperation, actively safeguarding regional security.

...QCCM among the Military Forces of Afghanistan, China, Pakistan and Tajikistan, 2016. The QCCM was built to provide coordination and mutual support in situation evaluation, evidence verification, intelligence sharing, capacity building, and training. China has always emphasized that the mechanism is not targeted against any other country or international organization and is ready to join all parties in expanding cooperation, increasing counter terrorism capacity, and safeguarding regional peace and stability. To date, two military leaders' meetings have been held

# Chinese 2019 Defense White Paper: Shanghai Cooperation Organization

In June 2001, China, Kazakhstan, Kyrgyzstan, Russia, Tajikistan and Uzbekistan co-founded the Shanghai Cooperation Organization. The SCO has now grown into a new type of comprehensive regional cooperation organization covering the largest area and population in the world. The Shanghai Spirit featuring mutual trust, mutual benefit, equality, consultation, respect for diverse civilizations and pursuit of common development has come into being. With its commitment to building an SCO community with a shared future and developing a new model of international relations, the organization has made a new contribution to regional peace and development. In June 2017, the SCO expanded for the first time and admitted India and Pakistan as member states. In April 2018, China hosted the first SCO Defense Ministers' Meeting since the organization expanded its membership. The member states continue to strengthen defense and security exchanges and cooperation, including *Peace Mission* exercises, and *Fanfare for Peace* military tattoos, to further promote good-neighborliness and strategic mutual trust, increase military cultural exchanges, and enhance unity and friendship.

...Established in 2001 on the basis of the Shanghai Five (China, Kazakhstan, Kyrgyzstan, Russia and Tajikistan) mechanism, the SCO aims to enhance mutual trust, good-neighborliness and friendship among the member states, encourages the member states to effectively cooperate in such fields as politics, economy, culture and education. The organization is committed to maintaining and safeguarding regional peace, security and stability and building a new international political and economic order that is democratic, fair and equitable. The member states have signed important documents including the Treaty on Long-term Good-neighborly Relations, Friendships and Cooperation among the Shanghai Cooperation Organization Member States. From 9th to 10th Jun. 2018 in Qingdao, President Xi Jinping presided over the first Council of Heads of State of the SCO with an expanded membership, and stressed that member states will continue to uphold the Shanghai Spirit, make joint efforts to build an SCO community with a shared future, and promote a new model of international relations.

...The Shanghai Cooperation Organization (SCO) is forging a constructive partnership of non-alliance and non-confrontation that targets no third party, expanding security and defense cooperation and creating a new model for regional security cooperation.

# China and Central Asian Borders





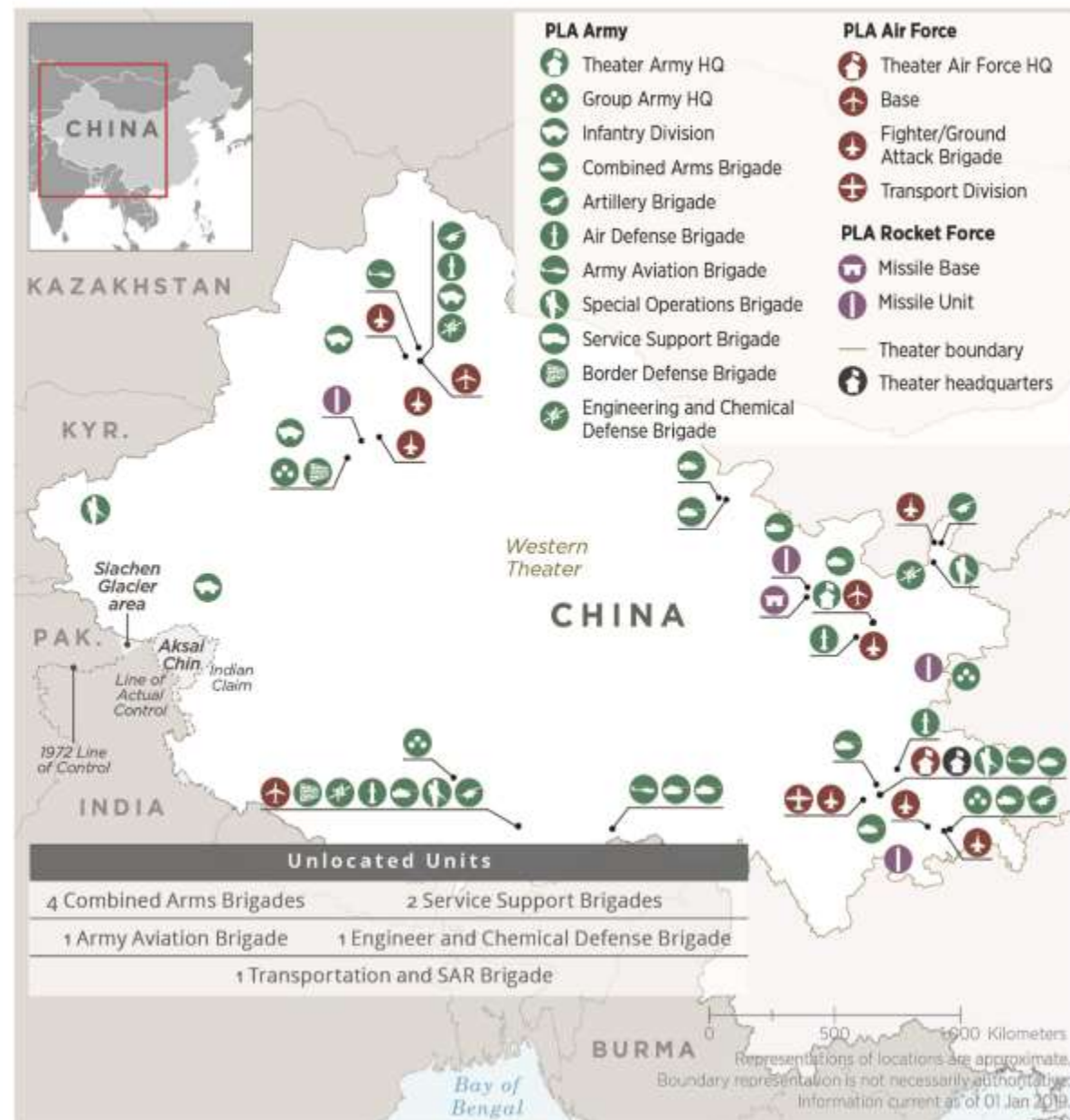
# SHANGHAI COOPERATION ORGANIZATION

Founded in Shanghai in 2001, the SCO is comprised of China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan



# China's Forces in Central Asia

## Western Theater



Office of the Secretary of Defense,  
*Military and Security Developments  
 Involving the Republic of China,*  
*Annual Report to Congress,*  
 Department of Defense. China  
 Military Power 2019, May, 2019, p.  
 80.

# The Shanghai Cooperation Organization

The Shanghai Cooperation Organization (SCO) is a permanent intergovernmental international organization, the creation of which was announced on 15 June 2001 in Shanghai (China) by the Republic of Kazakhstan, the People's Republic of China, the Kyrgyz Republic, the Russian Federation, the Republic of Tajikistan, and the Republic of Uzbekistan. It was preceded by the Shanghai Five mechanism.

The Shanghai Cooperation Organization Charter was signed during the St. Petersburg SCO Heads of State meeting in June 2002, and entered into force on 19 September 2003. This is the fundamental statutory document which outlines the organization's goals and principles, as well as its structure and core activities.

The historical meeting of the Heads of State Council of the Shanghai Cooperation Organization was held on 8-9 June 2017 in Astana. In the meeting the status of a full member of the Organization was granted to the Republic of India and the Islamic Republic of Pakistan.

The SCO's main goals are as follows: strengthening mutual trust and neighborliness among the member states; promoting their effective cooperation in politics, trade, the economy, research, technology and culture, as well as in education, energy, transport, tourism, environmental protection, and other areas; making joint efforts to maintain and ensure peace, security and stability in the region; and moving towards the establishment of a democratic, fair and rational new international political and economic order.

The SCO:

- Comprises eight member states, namely the Republic of India, the Republic of Kazakhstan, the People's Republic of China, the Kyrgyz Republic, the Islamic Republic of Pakistan, the Russian Federation, the Republic of Tajikistan, and the Republic of Uzbekistan;
- Counts four observer states, namely the Islamic Republic of Afghanistan, the Republic of Belarus, the Islamic Republic of Iran and the Republic of Mongolia;
- Has six dialogue partners, namely the Republic of Azerbaijan, the Republic of Armenia, the Kingdom of Cambodia, the Federal Democratic Republic of Nepal, the Republic of Turkey, and the Democratic Socialist Republic of Sri Lanka.

The Heads of State Council (HSC) is the supreme decision-making body in the SCO. It meets once a year and adopts decisions and guidelines on all important matters of the organization. The SCO Heads of Government Council (HGC) meets once a year to discuss the organization's multilateral cooperation strategy and priority areas, to resolve current important economic and other cooperation issues, and also to approve the organization's annual budget. The SCO's official languages are Russian and Chinese.

In addition to HSC and HGC meetings, there is also a mechanism of meetings at the level of heads of parliament; secretaries of Security Councils; ministers of foreign affairs, defense, emergency relief, economy, transport, culture, education, and healthcare; heads of law enforcement agencies and supreme and arbitration courts; and prosecutors general. The Council of National Coordinators of SCO Member States (CNC) acts as the SCO coordination mechanism.

The organization has two permanent bodies — the SCO Secretariat based in Beijing and the Executive Committee of the Regional Anti-Terrorist Structure (RATS) based in Tashkent. The SCO Secretary-General and the Director of the Executive Committee of the SCO RATS are appointed by the Council of Heads of State for a term of three years. Rashid Alimov (Tajikistan) and Yevgeny Sysoyev (Russia) have held these positions, respectively, since 1 January 2016.



# **China and the Shanghai Cooperation Organization: Chinese 2017 White Paper - I**

Since 2015 the Shanghai Cooperation Organization (SCO) has maintained sound and steady development. Progress has been made in political, security, economic and cultural cooperation, leading to the firmer international standing and greater influence of the SCO.

President Xi Jinping attended the 15th Meeting of the Council of the Heads of State of the SCO member states on July 9-10, 2015 in Ufa, Russia, where they signed the Ufa Declaration of the Heads of State of SCO Member States and the SCO Member States Agreement on Border defense Cooperation, and approved important documents including the Shanghai Cooperation Organization's Development Strategy until 2025 and the SCO Member States 2016-2018 Cooperation Program on Combating Terrorism, Separatism and Extremism.

Premier Li Keqiang chaired the 14th Meeting of the Council of the Heads of Government (Prime Ministers) of the SCO member states held in China on December 14-15, 2015. The leaders at the meeting laid out plans for cooperation in various fields for the next stage, issued the Statement of the Heads of Government (Prime Ministers) of SCO Member States on Regional Economic Cooperation, adopted the resolution on Preparation for Creating the SCO Development Bank and the SCO Development Foundation (Specialized Account), and witnessed the signing of the Program of Interaction Between the Customs Agencies of the SCO member states for 2016-2021 and the Memorandum of Understanding between the Secretariat of the SCO and the Secretariat of the UN Economic and Social Commission for Asia and the Pacific.



# **China and the Shanghai Cooperation Council: Chinese 2017 White Paper - II**

**On June 23-24, 2016 the 16th Meeting of the Council of the Heads of State of the SCO member states was held in Tashkent, Uzbekistan. President Xi Jinping attended the meeting.**

**The heads of the member states signed the Tashkent Declaration on the 15th Anniversary of the SCO, approved the Action Plan for 2016-2020 on Implementation of the SCO Development Strategy Towards 2025, and adopted the Memorandums of the Obligations on the Entry of the Republic of India and the Islamic Republic of Pakistan to the SCO.**

**Since 2015 meetings of heads of various departments including security council secretaries, foreign ministers, defense ministers, economic and trade ministers, culture ministers and heads of emergency response agencies have been held.**

**These meetings deepened and expanded cooperation in various fields, and increased the SCO's international influence. China has promoted and participated in SCO cooperation across the board. China's bilateral relations with other SCO member states, observer states and dialogue partners have continued to grow.**

# **Terrorism: Chinese 2017 White Paper**

**At present, the counterterrorism situation in the Asia-Pacific region is undergoing complex and profound changes. The region faces severe security and stability challenges posed by violent and extremist ideologies spreading at an ever-faster pace, more active terrorist and extremist forces, rising threats from cyber terrorism, and frequent violent terrorist activities, in particular the infiltration of international terrorist organizations and the inflow of foreign terrorist fighters.**

**Terrorism is a common scourge of the international community and humanity as a whole. The Chinese government opposes terrorism in all forms and calls on the international community to cooperate in fighting terrorism on the basis of the purposes and principles of the Charter of the United Nations and other universally recognized norms governing international relations. China believes that dialogue among different civilizations should be enhanced and a holistic approach taken to eliminate the breeding grounds of terrorism by addressing both its symptoms and root causes by political, economic and diplomatic means. At the same time, there should be no double standard in fighting terrorism, which should not be associated with any particular country, ethnicity or religion.**

**China faces a formidable task to maintain political security and social stability. Separatist forces for “East Turkistan independence” and “Tibet independence” have inflicted serious damage, particularly with escalating violent terrorist activities by “East Turkistan independence” forces.**

**Besides, anti-China forces have never given up their attempt to instigate a “color revolution” in this country.**



# China, India, Pakistan, and Afghanistan

# Chinese 2019 Defense White Paper: India, Pakistan, and Afghanistan

South Asia is generally stable while conflicts between India and Pakistan flare up from time to time. Political reconciliation and reconstruction in Afghanistan is making progress in the face of difficulties...Japan and India are rebalancing and optimizing the structure of their military forces.

...Theater Commands (TCs), and border troops. They conduct regular friendly mutual visits, working meetings, joint patrols and joint exercises targeting transnational crime with their foreign counterparts. They strive to promote stability and security along the border with India, and take effective measures to create favorable conditions for the peaceful resolution of the Donglang (Doklam) standoff. They enhance control along the border with Afghanistan to guard against the infiltration of terrorists.

...In June 2017, the SCO expanded for the first time and admitted India and Pakistan as member states...To implement the important consensus reached by the leaders of China and India, the two militaries have exchanged high-level visits and pushed for a hotline for border defense cooperation and mechanisms for border management and border defense exchanges

..China has signed border cooperation agreements with 9 neighboring countries and set up border meeting mechanisms with 12 countries. China's armed forces ...enhance control along the border with Afghanistan to guard against the infiltration of terrorists.

...China has set up defense and security consultations as well as working meeting mechanisms with 17 neighboring countries to keep exchange channels open. In recent years, China has regularly held serial joint exercises and training on counter-terrorism, peacekeeping, search and rescue, and tactical skills with its neighboring countries, and carried out extensive exchanges and practical cooperation on border and coastal defense, academic institutions, think tanks, education, training, medical science, medical service, and equipment and technology...The military relationships between China and its neighboring countries are generally stable.

...China is active in international and regional counter-terrorism cooperation...China initiated the establishment of the Quadrilateral Cooperation and Coordination Mechanism (QCCM), a counter-terrorism cooperation and coordination mechanism by the militaries of Afghanistan, China, Pakistan and Tajikistan. The QCCM has convened two military leaders' meetings and conducted counter-terrorism exchange and cooperation, actively safeguarding regional security.

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...Pakistan: Friendship Joint Anti-Terrorism Training; Held in Ningxia, China in Dec. 2015; at National Counter Terrorism Center Pabbi, Pakistan in Oct. 2016; Eagle/Shahen Joint Training, A total of 6 training sessions held in China and Pakistan from 2013 to 2018.

...India, Hand in Hand Anti-Terrorism Joint Training, Held in Sichuan, China in Nov. 2013; in Maharashtra, India in Nov. 2014; in Yunnan, China in Oct. 2015; in Maharashtra, India in Nov. 2016; in Sichuan, China in Dec. 2018.

# OSD: China, India, Pakistan, and Afghanistan

China and India are to some extent natural rivals as the two largest powers in Asia. They also have had border disputes whose origins date back to poorly demarcated borders and claims in the 1840s, and which led to a short border war in 1962 over two areas – Aksai Chin and Arunachal Pradesh in mountainous areas of limited commercial and strategic importance. Both sides have made several attempts to resolve these issues, but these so far have failed. They both deploy military forces to cover their current areas of occupation and incidents and new disputes have repeatedly occurred.

These disputes have helped lead China to turn to Pakistan as an economic partner and make it a focus for Chinese arms sales – as well as economic loans and investment – making Pakistan an important part of China’s “belt and road” initiative. India, in turn, reached out to the Soviet Union and Russia for arms, and more recently to the U.S. as a potential ally and counterweight to China. Their competition has also had some impact on Chinese and Indian Ocean rivalries in the Indian Ocean as China emerges as more of a blue water navy, deploys forces for the UN anti-piracy campaign in Somalia, and establishes a base in Djibouti in the Red Sea.

It is unclear, however, that China has any major interests that would lead it into a meaningful conflict with India, or that India would risk engaging in a serious conflict with China. No one can ignore the fact both sides remain deployed against the other in the dispute areas, and there is a risk that a more serious conflict could occur, but it is unlikely that China would seek such a conflict, support Pakistan in some future war with India, or seek any form of control over Afghanistan – although it does have mining and trading interests in the country and concerns over the potential threat of support to extremist groups in or near China.

# The Chinese Western Theater Command and India - I

## **WESTERN THEATER COMMAND**

The Western Theater Command (WTC) is geographically the largest theater command within China and is likely responsible for responding to conflict with India and managing terrorism in western China. Located within the WTC are two group armies, three Air Force bases, one Rocket Force base, and PAP units that conduct internal security operations.

Counterterrorism is a key issue within the WTC, which includes the Xinjiang and Tibet Autonomous Regions where China is focused on perceived threats of separatism and terrorism. China's campaign is characterized as combating terror and separatist forces before they enter China, particularly from Afghanistan, while employing an internal "re-education" campaign for any individuals suspected of having sympathies for anti-government elements.

## **CHINA-INDIA BORDER**

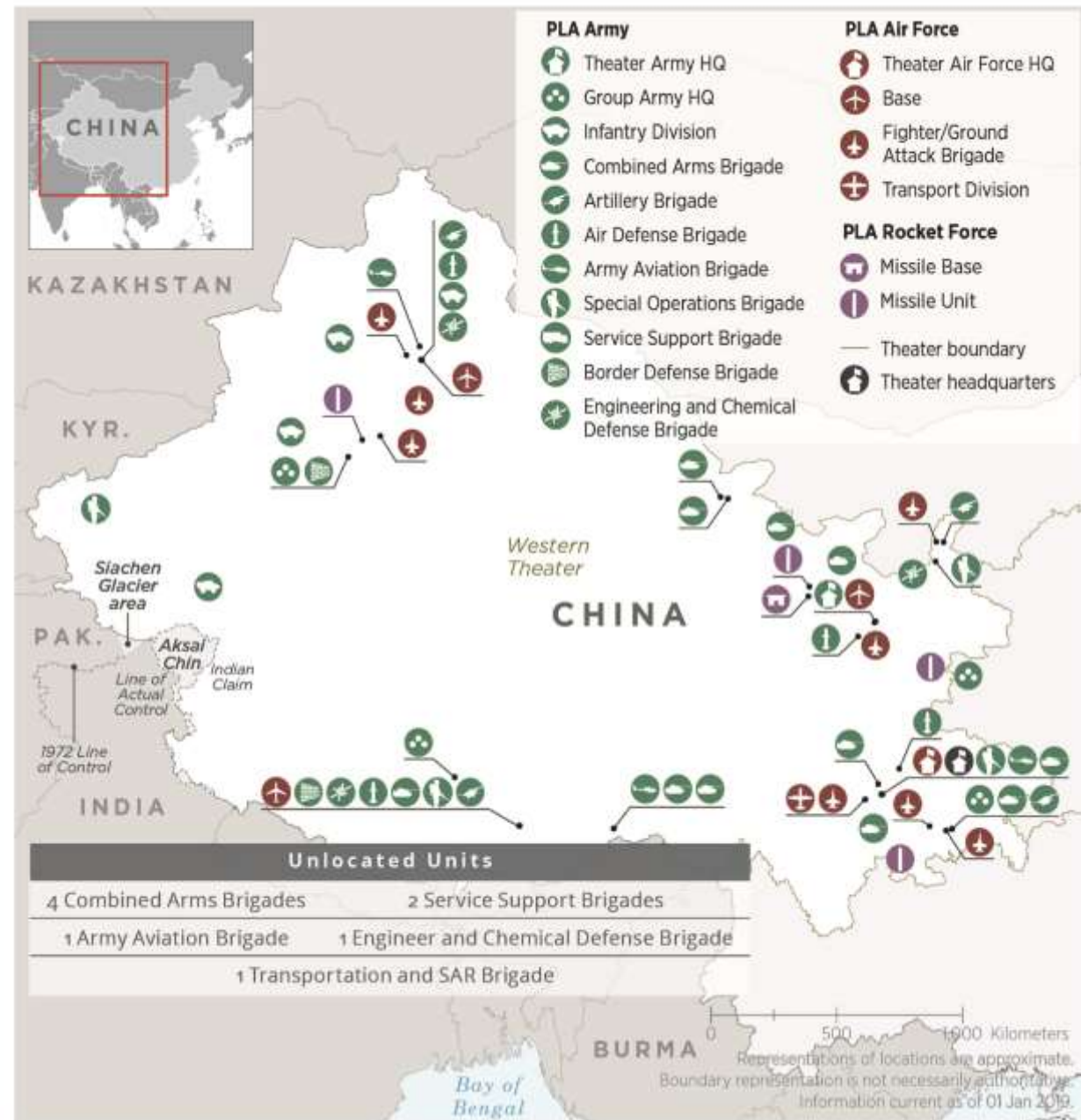
Tensions between China and India persist along the western and eastern sections of their disputed border. Chinese and Indian patrols regularly encounter one another along the disputed border, and both sides often accuse one another of border incursions. Despite a summer 2018 low-level standoff in Demchok, China and India have thus far prevented these disagreements from escalating to a level similar to the 73-day border standoff at the Doklam Plateau. Chinese and Indian forces engage in regular border meetings to discuss disputes and are generally able to resolve misunderstandings to prevent the escalation of minor confrontations. However, an enduring settlement of the 2017 border dispute remains elusive.

- Chinese and Indian military and civilian leaders continue discussions on the development of mechanisms to defuse tensions, at both the immediate border areas as well as the national level, through military exchanges and a proposed direct crisis hotline.
- In April 2018, President Xi and Prime Minister Modi held an informal meeting and expressed support for a resolution on the border.

In November 2018, India and China resumed their annual defense dialogue, which was followed by a special representative meeting on the border co-chaired by Indian National Security Advisor Ajit Doval and Chinese State Councilor Wang Yi.

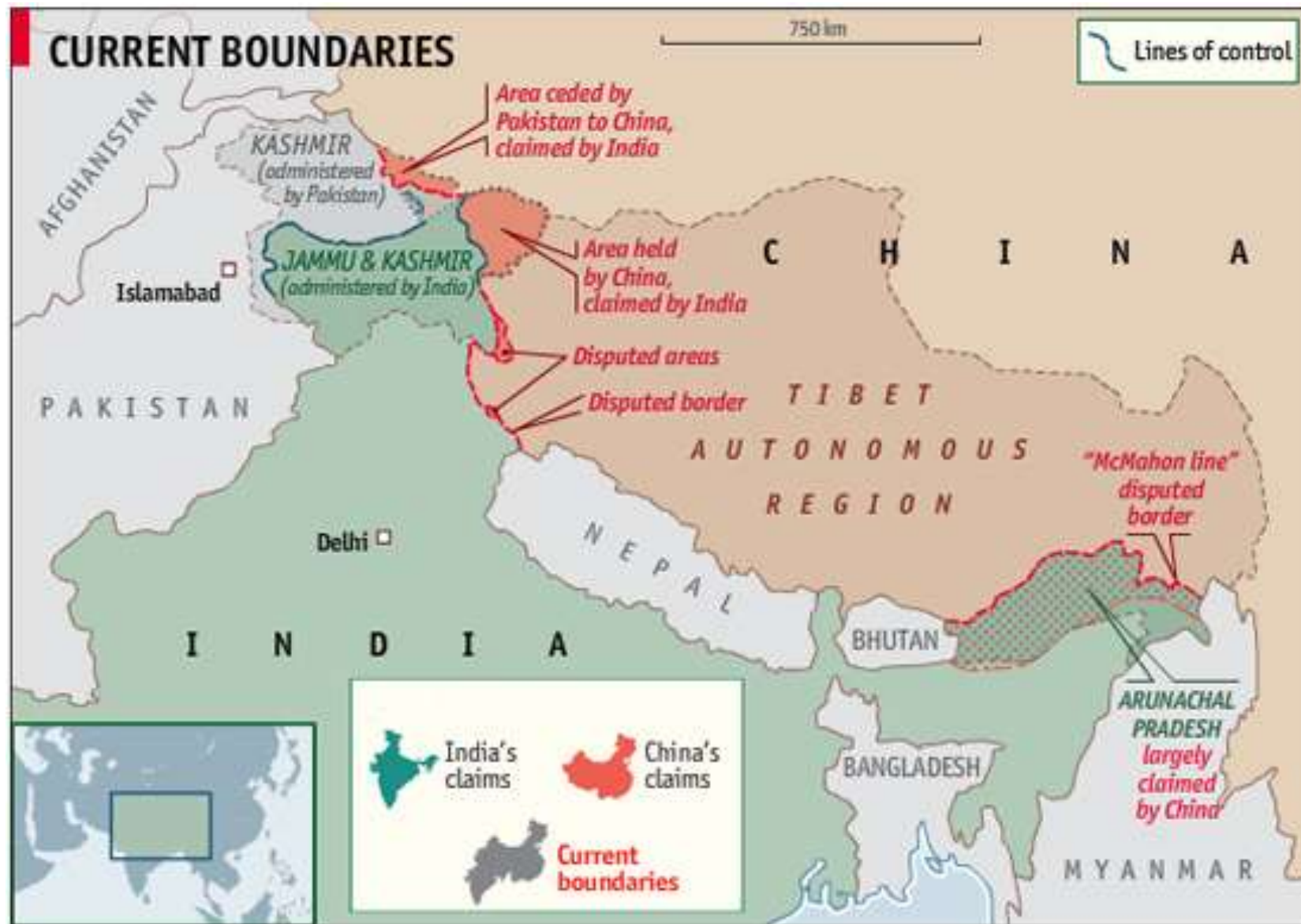
# The Chinese Western Theater Command and India - II

## Western Theater



Source: Office of the Secretary of Defense, *Military and Security Developments Involving the Republic of China, Annual Report to Congress*, May 2, 2019, Department of Defense. China Military Power 2019, p. 78.

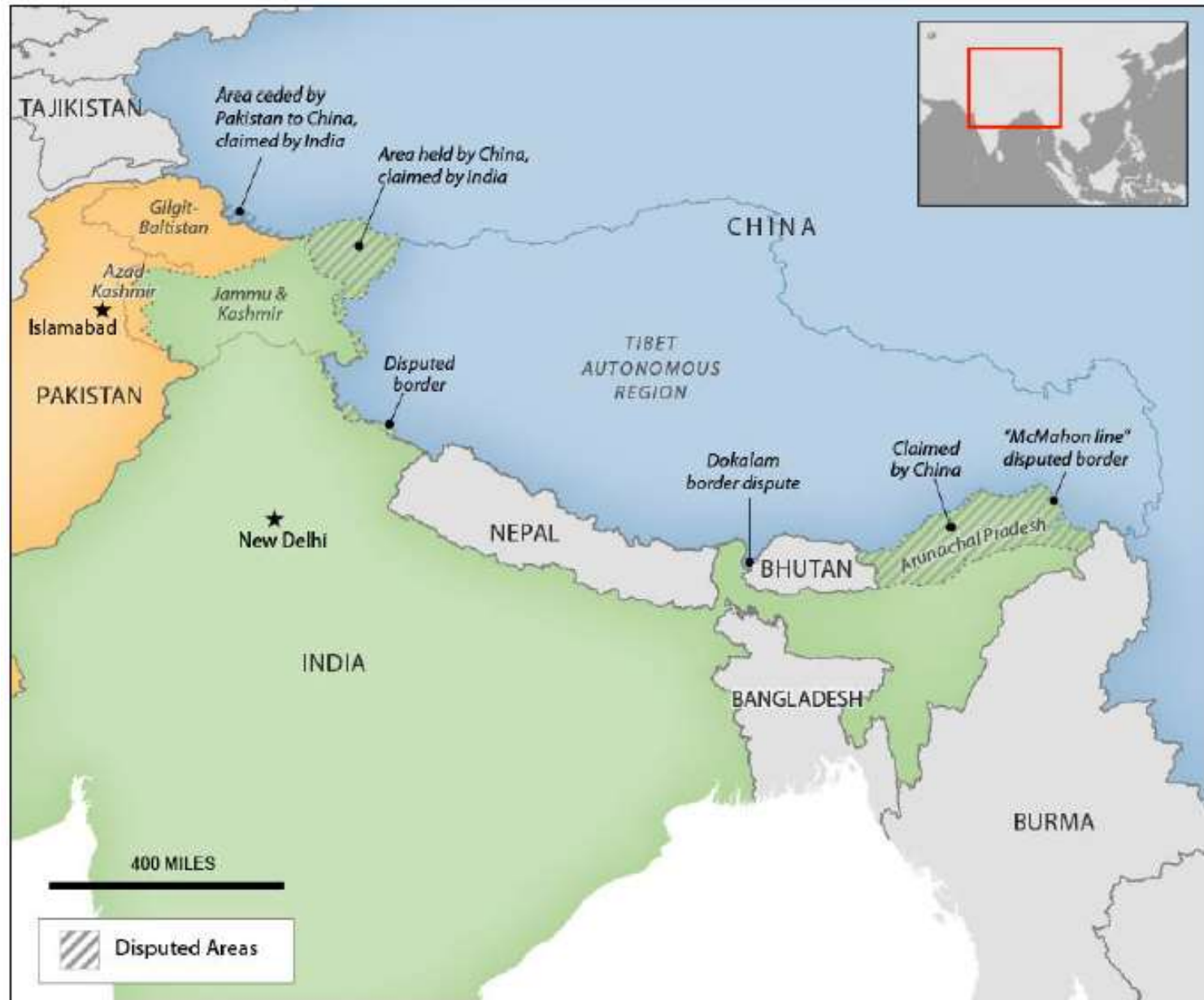
# China and Indian Border Issues



Source: The Economist



# China-India Border Region



(name redacted),  
China-India Great  
Power Competition  
in the Indian Ocean  
Region: Issues for  
Congress, CRS  
R45194, April 20,  
2018, p. 19

# China-India Military Balance – 2018

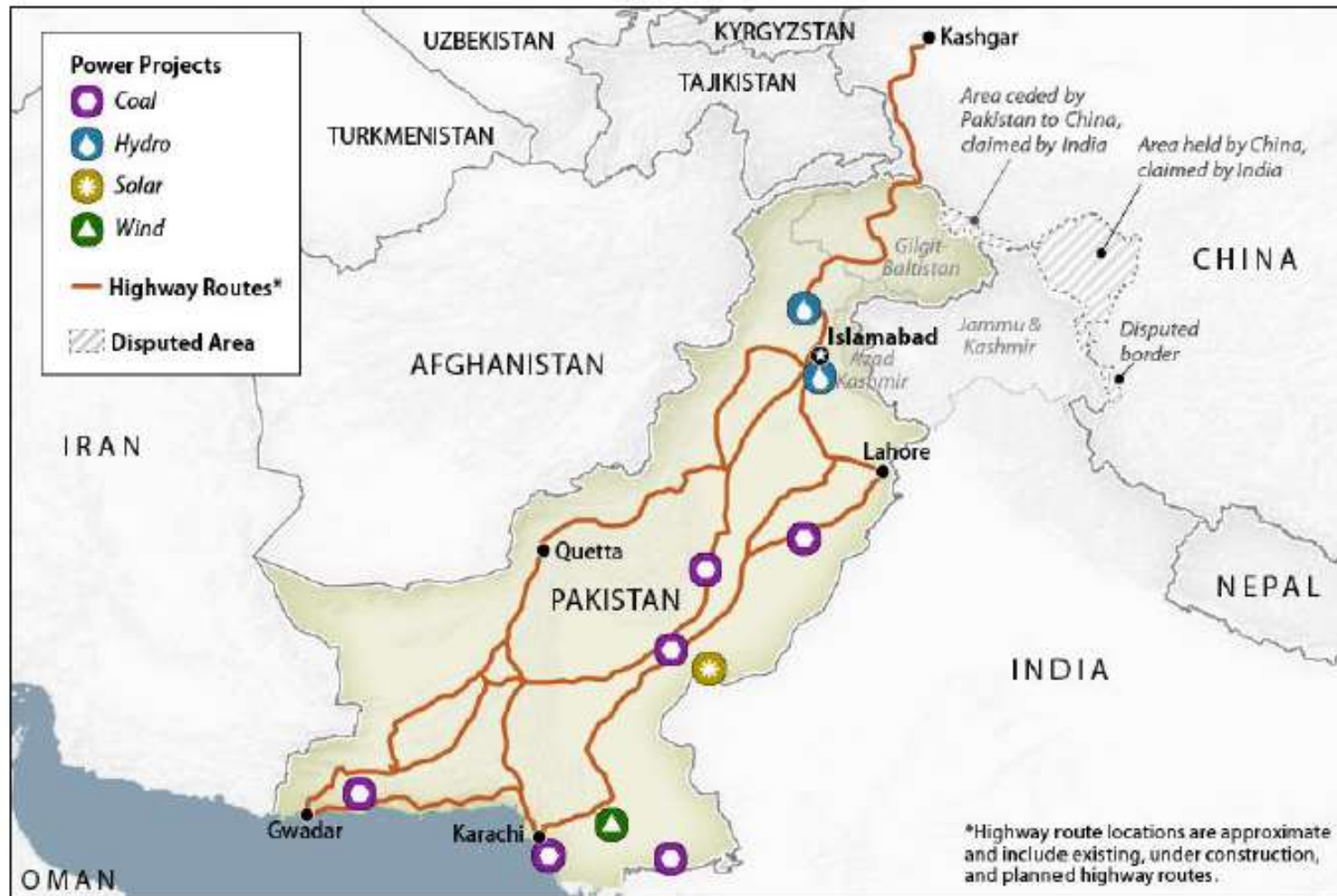
	India	China
Total active force	1,395,100	2,183,000
Strategic forces	na	100,000
Army	1,200,000	1,150,000
Navy	58,350	235,000
Air Force	127,200	398,000
Principal surface combatants	28	79
Aircraft carriers <sup>a</sup>	1	1 <sup>b</sup>
Submarines	14	57
Naval combat aircraft	73	348
Air Force combat aircraft	803	2,307
Nuclear warheads <sup>c</sup>	130	270
Defense budget <sup>d</sup>	\$51 billion (2016)	\$145 billion (2016)
GDP	\$2,515 billion (2017 est.)	\$12,284 billion (2017 est.)
GDP growth	6.7% (2017 est.)	6.9% (2017 est.)

**Source:** *The Military Balance*, International Institute for Military Studies, 2017. "Nuclear Weapons: Who Has What at a Glance," Arms Control Association, January 2018. Economist Intelligence Unit, India and China Country Reports, 2018.

**Notes:** na = not available.

- China has one operational aircraft carrier, the *Liaoning*. Its second carrier is expected to undergo sea trials in 2018. China reportedly began construction of a third carrier in 2017. India's *Vikramaditya* aircraft carrier is currently in service. Its second carrier, the *Vikrant*, is in late development stages. A third Indian aircraft carrier the *Vishal* is reportedly in mid-design stage. See Franz-Stephan Gady, "Will China's New Aircraft Carrier Start Sea Trials This Week?" *The Diplomat*, April 23, 2018, and Abraham Ait, "US and French Fighters Contend for a Place Aboard India's New Aircraft Carrier," *The Diplomat*, February 24, 2018.
- Includes four SSBN nuclear-armed submarines.
- Estimates.
- Between 2007 and 2016 China's military spending increased 118%; India's defense spending increased by 54% over the same period. "A New Military Order?" *Times of India*, February 14, 2018. China's 2018 military budget of \$175 billion represents a 8.1% increase from 2017. "China Boosts Military Spending 8%," *CNN*, March 5, 2018.

# China-Pakistan Economic Corridor



**Source:** Graphic created by CRS. Map and information generated by (name redacted) and Calvin DeSouza using data from the Council on Foreign Relations (2017); the *Economist* (2017); the Department of State (2015); Esri (2016); and DeLorme (2016), correspondence with Department of State (2017).



# China and Afghan Border Issues



# **China & Afghanistan: Chinese 2017 White Paper**

**China supports peace and reconstruction in Afghanistan, and hopes to see an Afghanistan that is united, stable, prosperous and at peace with its neighboring countries.**

**Since 2015 China has increased assistance to Afghanistan in support of that government's capacity building. In the wake of a 7.8-magnitude earthquake in northern Afghanistan in October 2015 China provided assistance for disaster-relief efforts.**

**China believes that only an inclusive reconciliation process that is "Afghan-led and Afghan-owned" can provide the ultimate solution to the Afghanistan issue. China will continue to play a constructive role in advancing the reconciliation process in Afghanistan.**

# China and Japan



# China and Japan

As is the case with Korea, China's relations with Japan cannot be separated from the history of Japanese conquest and military occupation. Memories are long and the history of Chinese and Japanese relations is one that played a major role in China's dark years. Key benchmarks include:

- The Sino-Japanese War: 1884-1895
- Manchurian Incident/Japanese Invasion: 1931
- Full Japanese Invasion (Marco Polo Bridge/Peking/Nanking massacre): 1937-1945
- U.S. use of Japan as a base in the Korean war: 1950-1953

The most visible sign of such tensions lies in the Chinese claims in the Northwest Pacific shown in the maps and charts in this section – and the rising level of Chinese naval and air activity near Japan and the Senkaku islands.

At the same time, however, China may be more concerned in strategic terms with the U.S.-Japanese strategic partnership, with U.S. basing and port facilities in Japan, with potential increases in Japan's military capabilities, with Japan's improving coverage of missile attacks and missile defenses, and with Japan's role in providing support to the U.S. in the event of another Korean War.

# Chinese 2019 Defense White Paper: Japan

The deployment of the Terminal High Altitude Area Defense (THAAD) system in the Republic of Korea (ROK) by the US has severely undermined the regional strategic balance and the strategic security interests of regional countries. In an attempt to circumvent the post-war mechanism, Japan has adjusted its military and security policies and increased input accordingly, thus becoming more outward-looking in its military endeavors. Australia continues to strengthen its military alliance with the US and its military engagement in the Asia-Pacific, seeking a bigger role in security affairs.

...Japan and India are rebalancing and optimizing the structure of their military forces.

...In May 2018, the defense authorities of China and Japan signed a memorandum of understanding on maritime and air liaison and put it into practice in June.

# OSD on China's Tensions with Japan - 2019

## Key Takeaways

- China continues to use maritime law enforcement ships and aircraft to patrol near the Japan-administered Senkaku Islands.
- In May 2018, China and Japan signed the Maritime and Aerial Communication Mechanism systems program.

China claims sovereignty over the Japan-administered Senkaku Islands in the East China Sea, which are also claimed by Taiwan.

The United States does not take a position on sovereignty of the Senkaku Islands but recognizes Japan's administration of the islands and continues to reaffirm that the islands fall within the scope of Article 5 of the U.S.-Japan Mutual Security Treaty. China uses maritime law enforcement ships and aircraft to patrol near the islands.

During 2018, China maintained a presence in the Senkaku Islands with typically four China Coast Guard ships in the territorial waters (within 12 nm) around the islands. In January 2018, a PLAN Shang-class nuclear-powered attack submarine (SSN) sailed underwater in the vicinity of the Senkaku Islands. Separately, the PLAN frequently advances into the Pacific Ocean by passing between Japan's Okinawa and Miyako Islands. The PLAN East Sea Fleet regularly conducts military exercises in the Sea of Japan to prepare for potential conflicts. However, during Premier Li Keqiang's visit to Japan in May 2018, China and Japan signed the Maritime and Aerial Communication Mechanism, designed to avoid accidental encounters.

# **DIA's Similar Assessment of China's Role in the East China Sea: 2019**

## **Key Takeaways**

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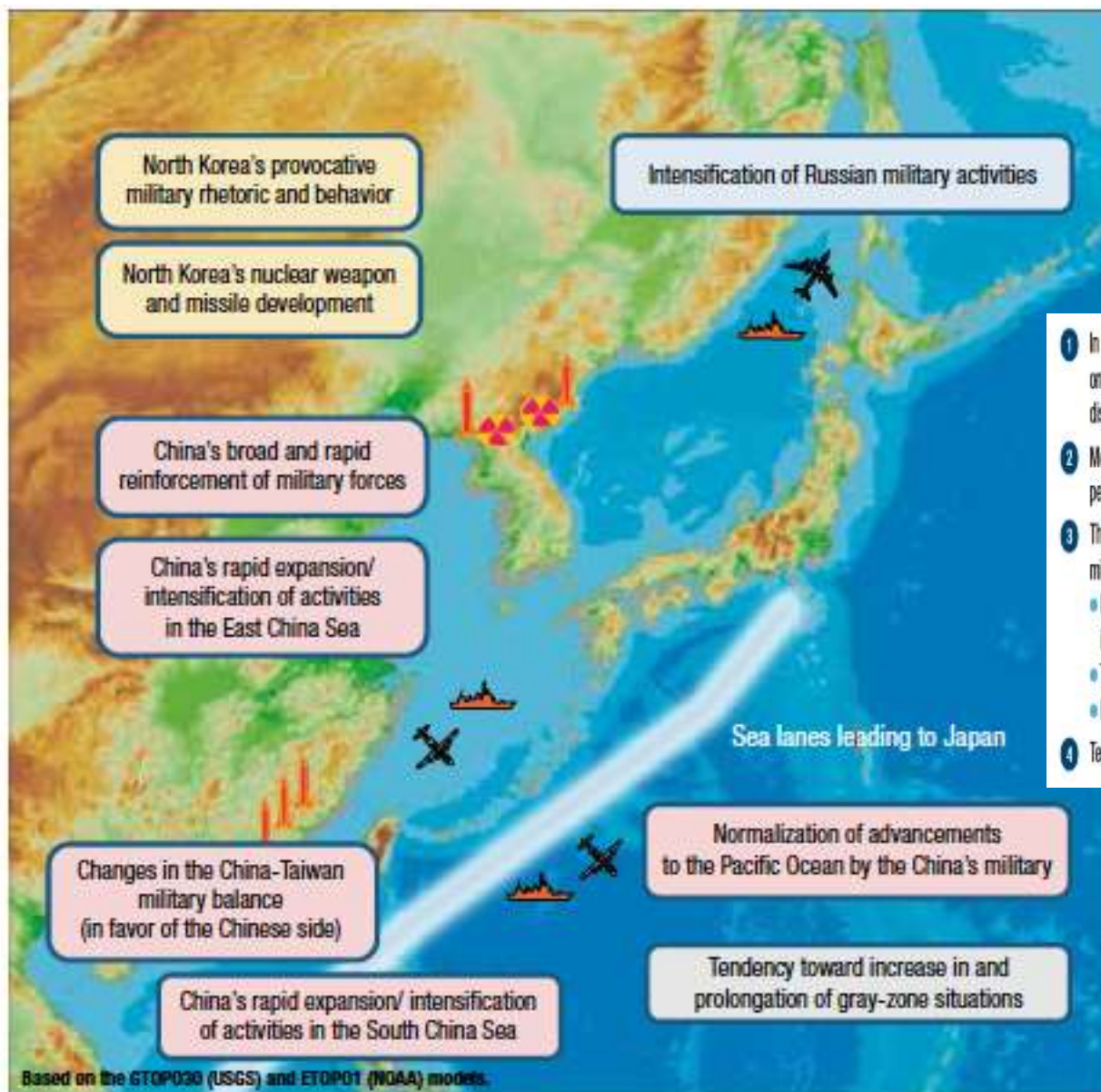
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However, during Premier Li Keqiang's visit to Japan in May 2018, China and Japan signed the Maritime and Aerial Communication Mechanism, designed to avoid accidental encounters.

# Japanese Estimate of Security Situation Surrounding Japan: 2018



- 1 In the area surrounding Japan, there is a concentration of nations with large-scale military capabilities, and a regional cooperation framework on security has not yet to be fully institutionalized, leading to the existence of uncertainty and unclarity, including the persistence of territorial disputes and unification issues.
- 2 Meanwhile, there has been a tendency towards an increase in and prolongation of so-called "gray-zone" situations; that is, neither pure peacetime nor contingencies over territory, sovereignty, and economic interests.
- 3 There has also been a noticeable trend among neighboring countries to modernize and reinforce their military capabilities and to intensify their military activities. The security challenges and destabilizing factors in the Asia-Pacific region are characterized below:
  - North Korea's military development such as nuclear weapon and ballistic missile development represents an unprecedentedly serious and imminent threat.
  - The unilateral escalation of China's military activities poses a strong security concern for the region including Japan and international community.
  - Russia has tendency to intensify its military activities, including in areas surrounding Japan, and this trend needs to paid due attention.
- 4 Territorial disputes over the Northern Territories and Takeshima, both of which are inherent parts of the territory of Japan, remain unresolved.

# NYT Summary of Japanese Claims Issues

"Territorial Disputes Involving Japan," New York Times,  
<https://archive.nytimes.com/www.nytimes.com/interactive/2012/09/20/world/asia/Territorial-Disputes-Involving-Japan.html?action=click&contentCollection=Asia%2520Pacific&module=RelatedCoverage&pgtype=article&region=Marginalia>



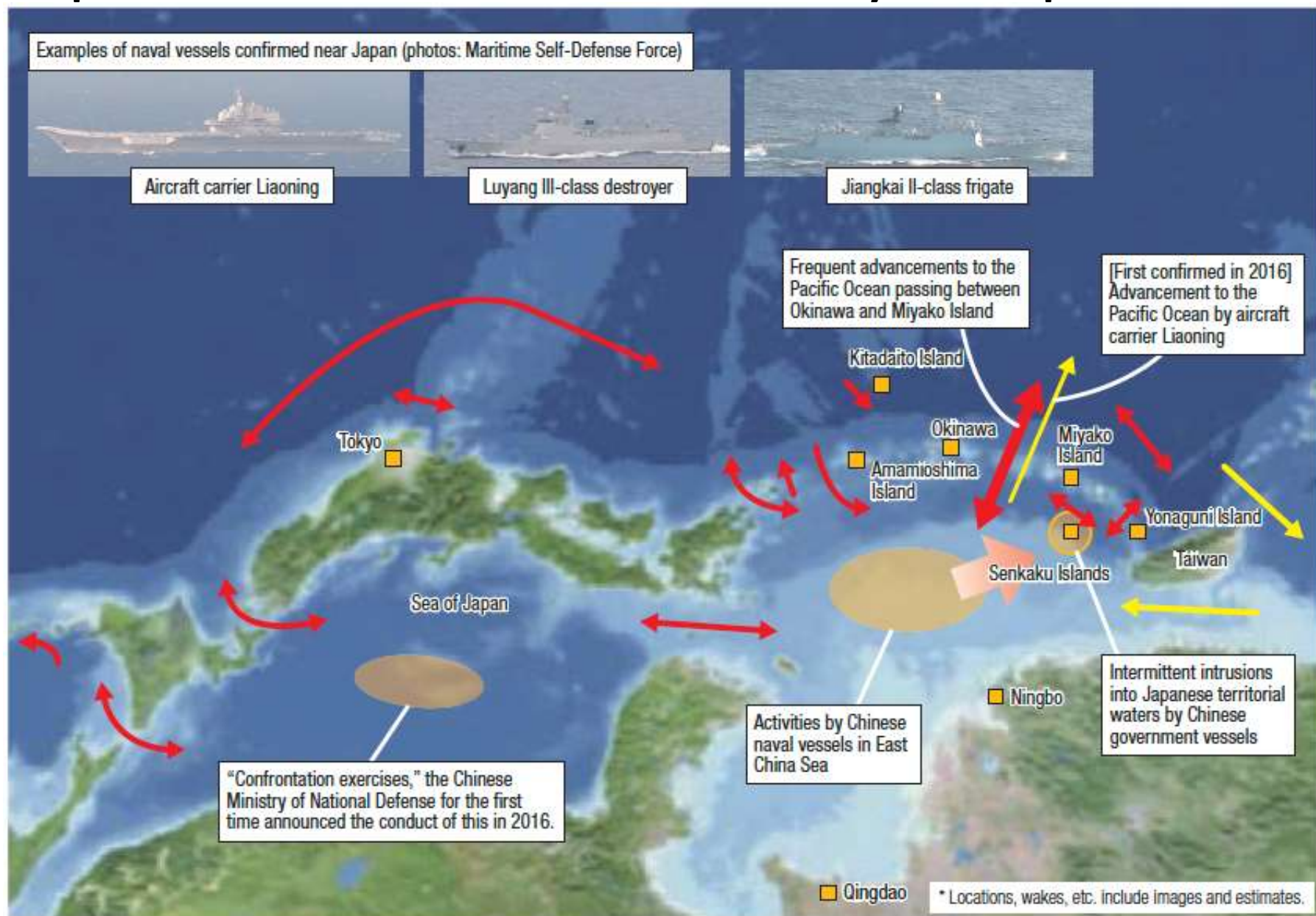
<p><b>Senkaku Islands</b> (Japan's name) <b>Diaoyu</b> (China's name)</p>  <p>Kyodo News, via Associated Press</p> <p>Claimed by China and Taiwan, but administered by Japan.</p>	<p><b>Dokdo</b> (South Korea) <b>Takeshima Islands</b> (Japan)</p>  <p>Lee Sang-hak/Yonhap, via Reuters</p> <p>Administered by South Korea, but claimed by Japan.</p>	<p><b>Kurile Islands</b> (Russia) <b>Northern Territories</b> (Japan)</p>  <p>RIA Novosti, via Reuters</p> <p>Controlled by Russia, claimed by Japan.</p>
<p><b>BACKGROUND</b></p> <p>Japan annexed the islands in 1895, saying that they were unclaimed territory. It says China started showing interest in them only in the early 1970s, after possible oil reserves were discovered nearby. China says that the islands were Chinese for centuries and that Japan took them as a first step toward its later invasion of the Chinese mainland.</p>	<p>The barely inhabitable volcanic islets are surrounded by rich fishing grounds and natural gas deposits. Japan says it reconfirmed its right to Takeshima in 1905, during a war with Russia. Since the 1950s, South Korea has maintained a police post there.</p>	<p>Soviet forces occupied the islands in 1945, deported Japanese inhabitants and brought in settlers. In 1956, Russia offered to return one of the three islands claimed by Japan and a small group of islets as part of a peace treaty. But Japan rejected that compromise, maintaining that all the islands should be returned.</p>



# The Strategic Position of the Senkaku Islands



# Japanese Estimate of Chinese Naval Activity Near Japan in 2017



# Japanese Estimate of Chinese Air Activity Near Japan in 2017

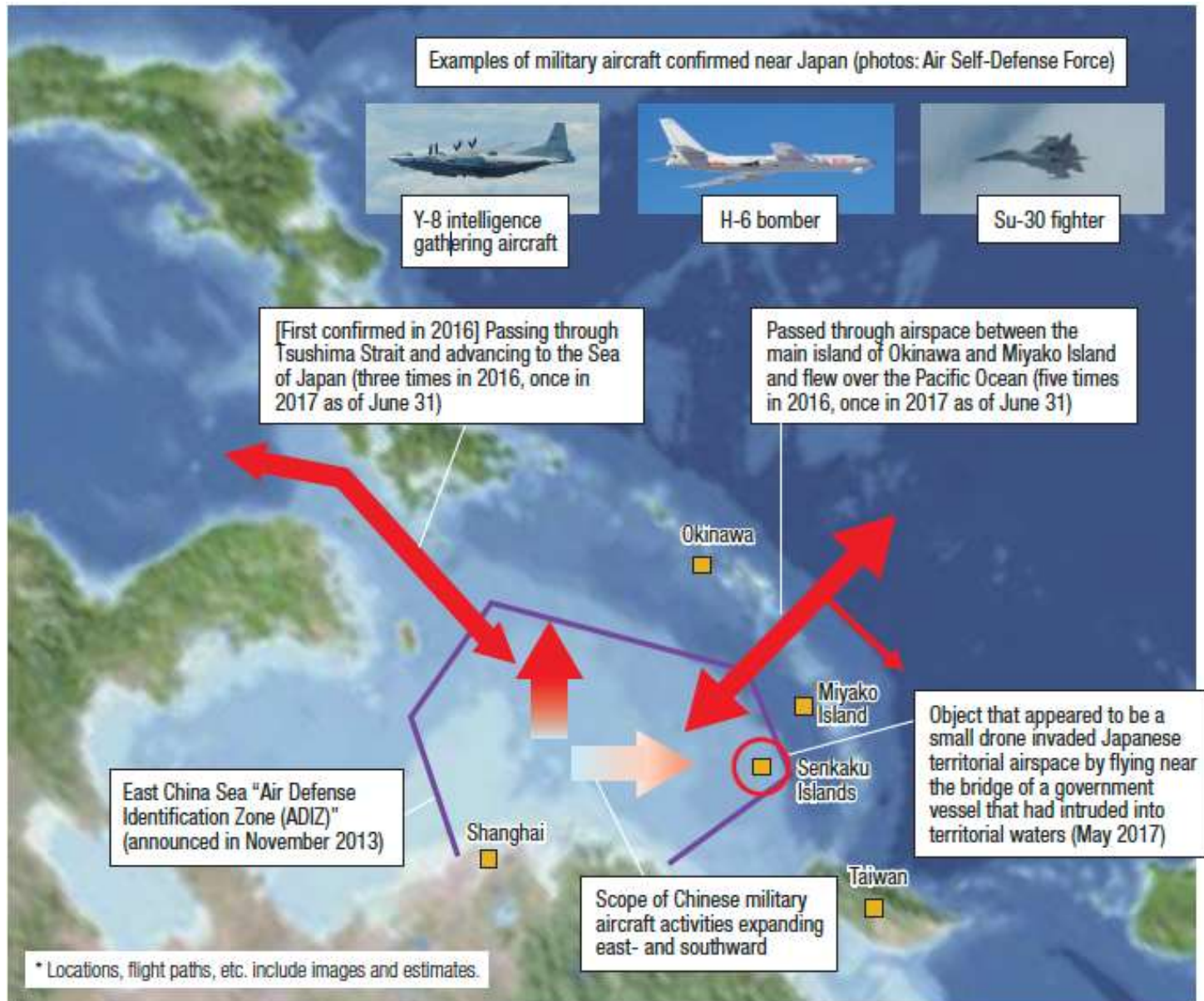
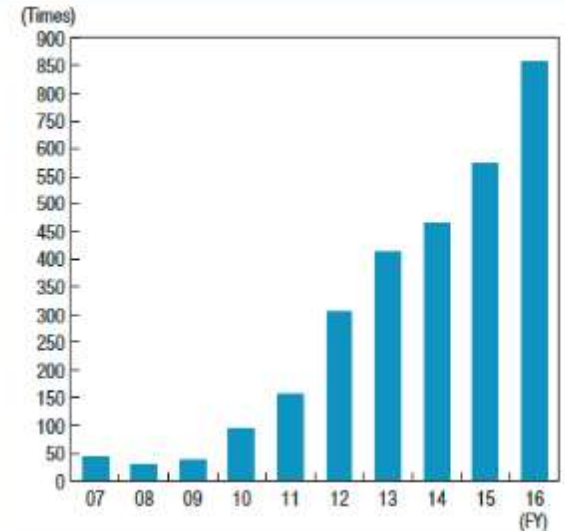


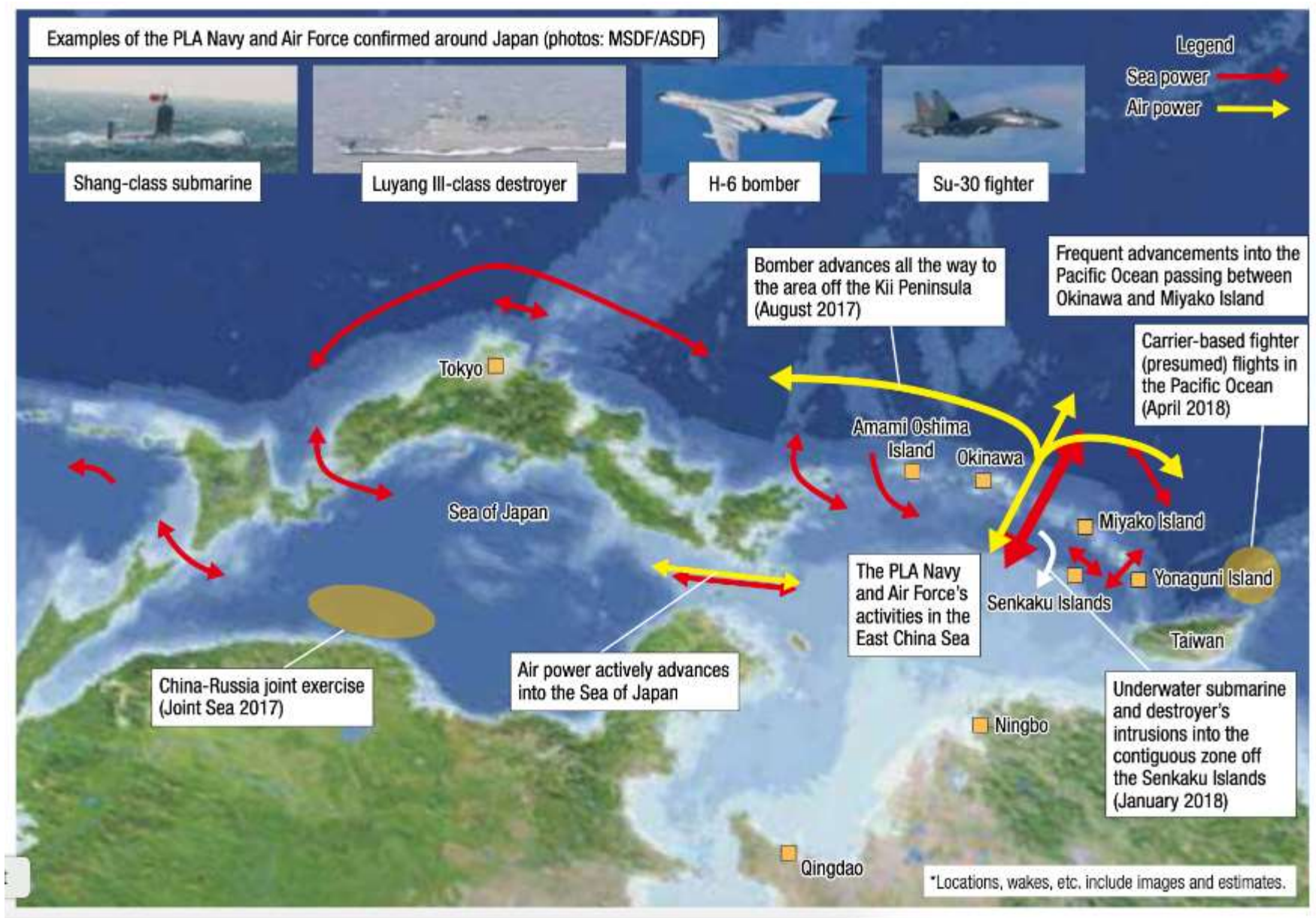
Fig. I-2-3-5

Changes in the Number of Scrambles against Chinese Aircraft

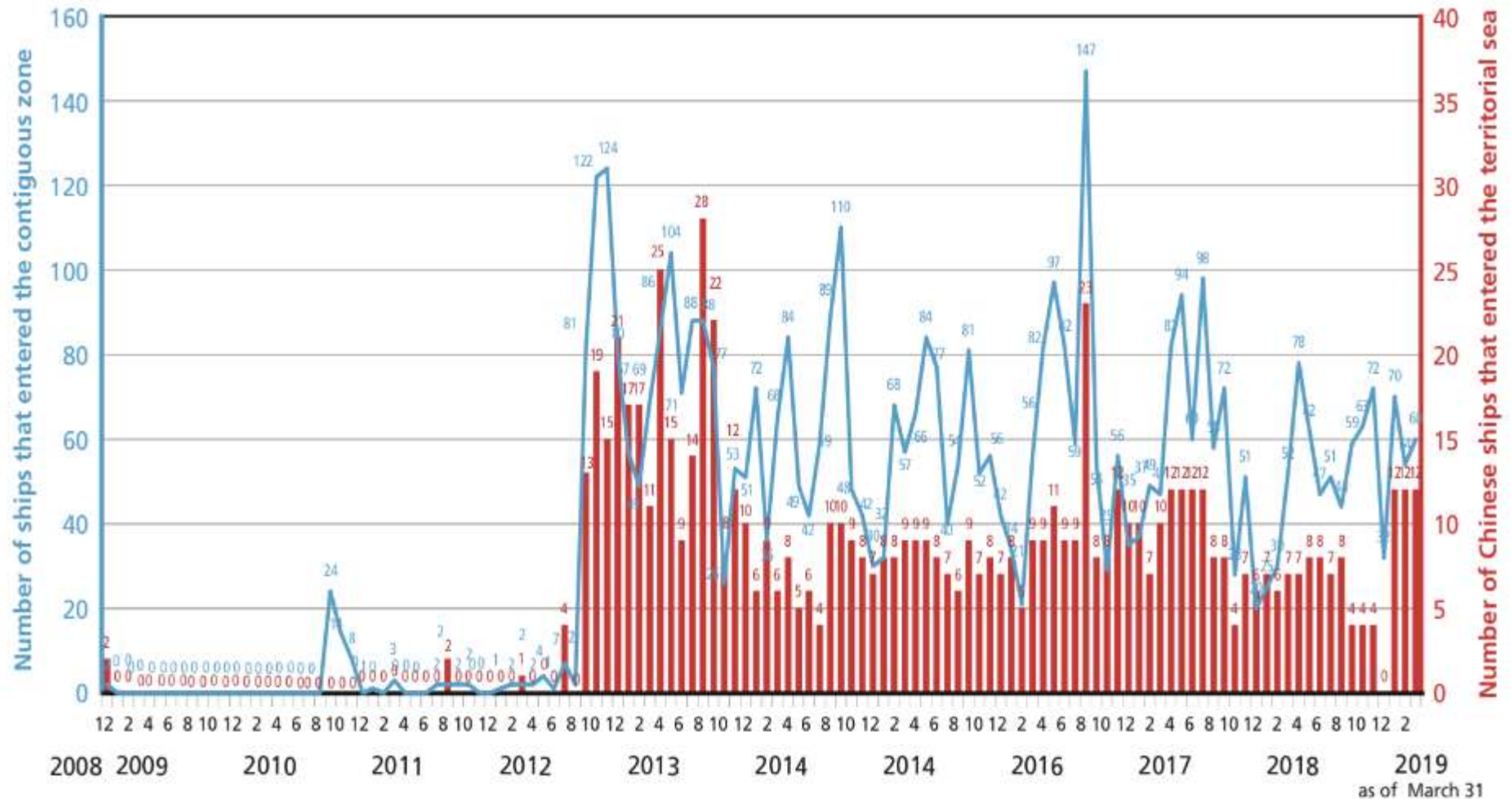




# Japanese Estimate of Chinese Naval Activity Near Japan in 2018



# Chinese Government Vessels Near the Senkaku Islands: 2008-3/2019



Source: JCG, "The Numbers of Chinese Government and Other Vessels That Entered Japan's Contiguous Zone or Intruded into Territorial Sea Surrounding the Senkaku Islands," chart, March 31, 2019 ; and Lyle L. Morris, Michael J. Mazarr, Jeffery W. Hornug, Stephanie Pezaed, Anika Binnendijk, Marta Kepe, *Gaining Competitive Advantage in the Gray Zone, Response Options for Coercive Aggression Below the Threshold of Major War*, Rand, June 2019, p. 95.

# U.S. Forces in Japan

## US Pacific Command • 39,950

US Army 2,900; 1 corps HQ (fwd); 1 SF gp; 1 avn bn; 1 SAM bn

US Navy 11,700; 1 HQ (7th Fleet) at Yokosuka; 1 base at Sasebo; 1 base at Yokosuka

### FORCES BY ROLE

3 FGA sqn at Atsugi with 10 F/A-18E *Super Hornet*; 1 FGA sqn at Atsugi with 10 F/A-18F *Super Hornet*; 1 EW sqn at Atsugi with 5 EA-18G *Growler*; 1 AEW&C sqn at Atsugi with 5 E-2D *Hawkeye*; 2 ASW hel sqn at Atsugi with 12 MH-60R; 1 tpt hel sqn with 12 MH-60S

### EQUIPMENT BY TYPE

1 CVN; 3 CGHM; 2 DDGHM; 7 DDGM (2 non-op); 1 LCC; 4 MCO; 1 LHD; 1 LPD; 2 LSD

## USMC 13,600

### FORCES BY ROLE

1 mne div; 1 mne regt HQ; 1 arty regt HQ; 1 recce bn; 1 mne bn; 1 amph aslt bn; 1 arty bn; 1 FGA sqn with 12 F/A-18C *Hornet*; 1 FGA sqn with 12 F/A-18D *Hornet*; 1 FGA sqn with 12 F-35B *Lightning II*; 1 tkr sqn with 12 KC-130J *Hercules*; 2 tpt sqn with 12 MV-22B *Osprey*

## USAF 11,450

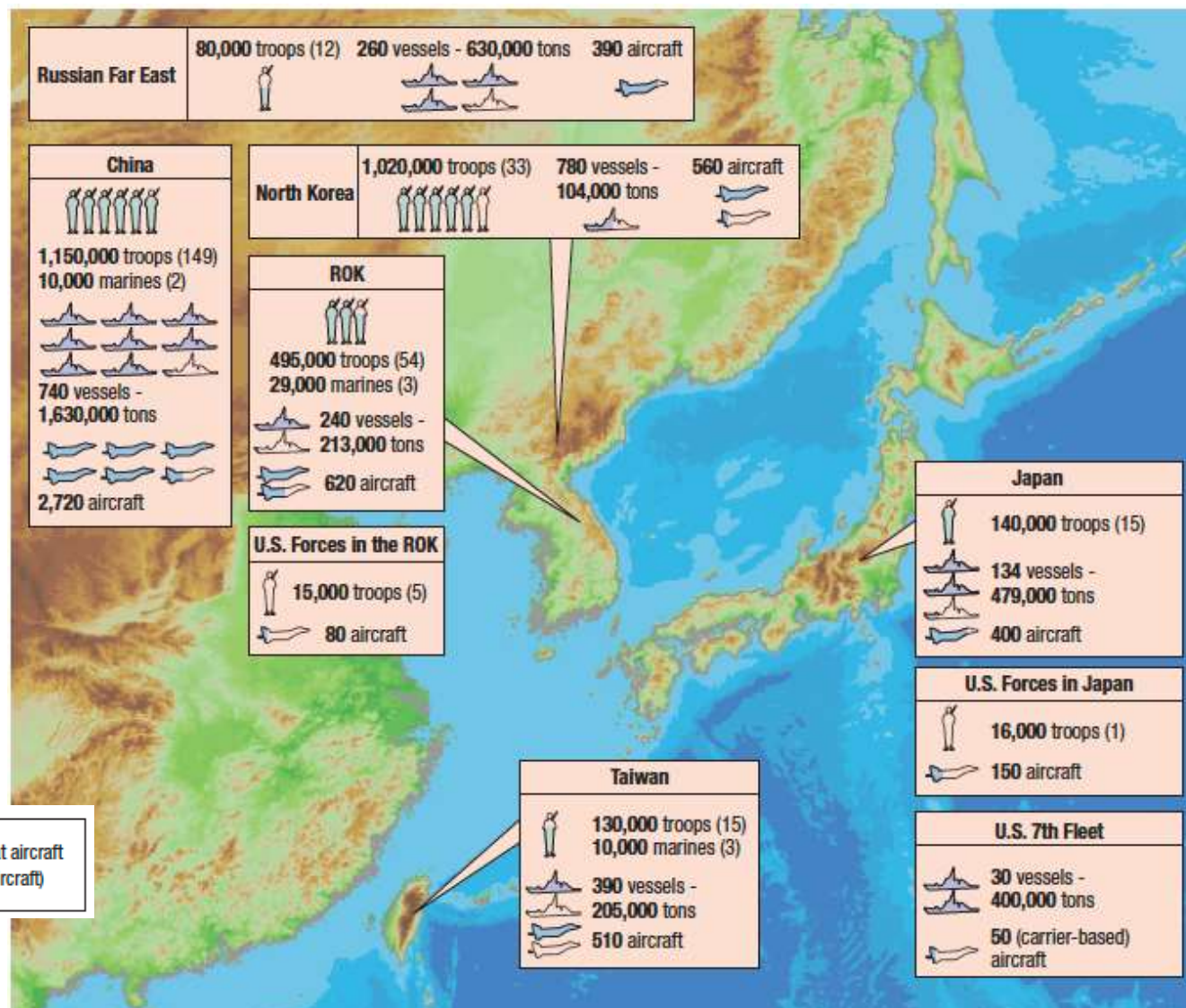
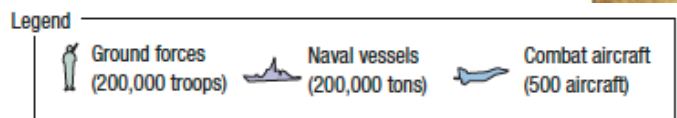
### FORCES BY ROLE

1 HQ (5th Air Force) at Okinawa – Kadena AB; 1 ftr wg at Misawa AB with (2 ftr sqn with 22 F-16C/D *Fighting Falcon*); 1 wg at Okinawa – Kadena AB with (2 ftr sqn with 27 F-15C/D *Eagle*; 1 FGA sqn with 12 F-35A *Lightning II*; 1 tkr sqn with 15 KC-135R *Stratotanker*; 1 AEW&C sqn with 2 E-3B/C *Sentry*; 1 CSAR sqn with 10 HH-60G *Pave Hawk*); 1 tpt wg at Yokota AB with 10 C-130H *Hercules*; 3 Beech 1900C (C-12J); 1 Spec Ops gp at Okinawa – Kadena AB with (1 sqn with 5 MC-130H *Combat Talon*; 1 sqn with 5 MC-130J *Commando II*); 1 ISR sqn with RC-135 *Rivet Joint*; 1 ISR UAV flt with 5 RQ-4A *Global Hawk*

US Strategic Command • 1 AN/TPY-2 X-band radar at Shariki; 1 AN/TPY-2 X-Band radar at Kyogamisaki



# Japanese Estimate of Regional Military Balance: 2017



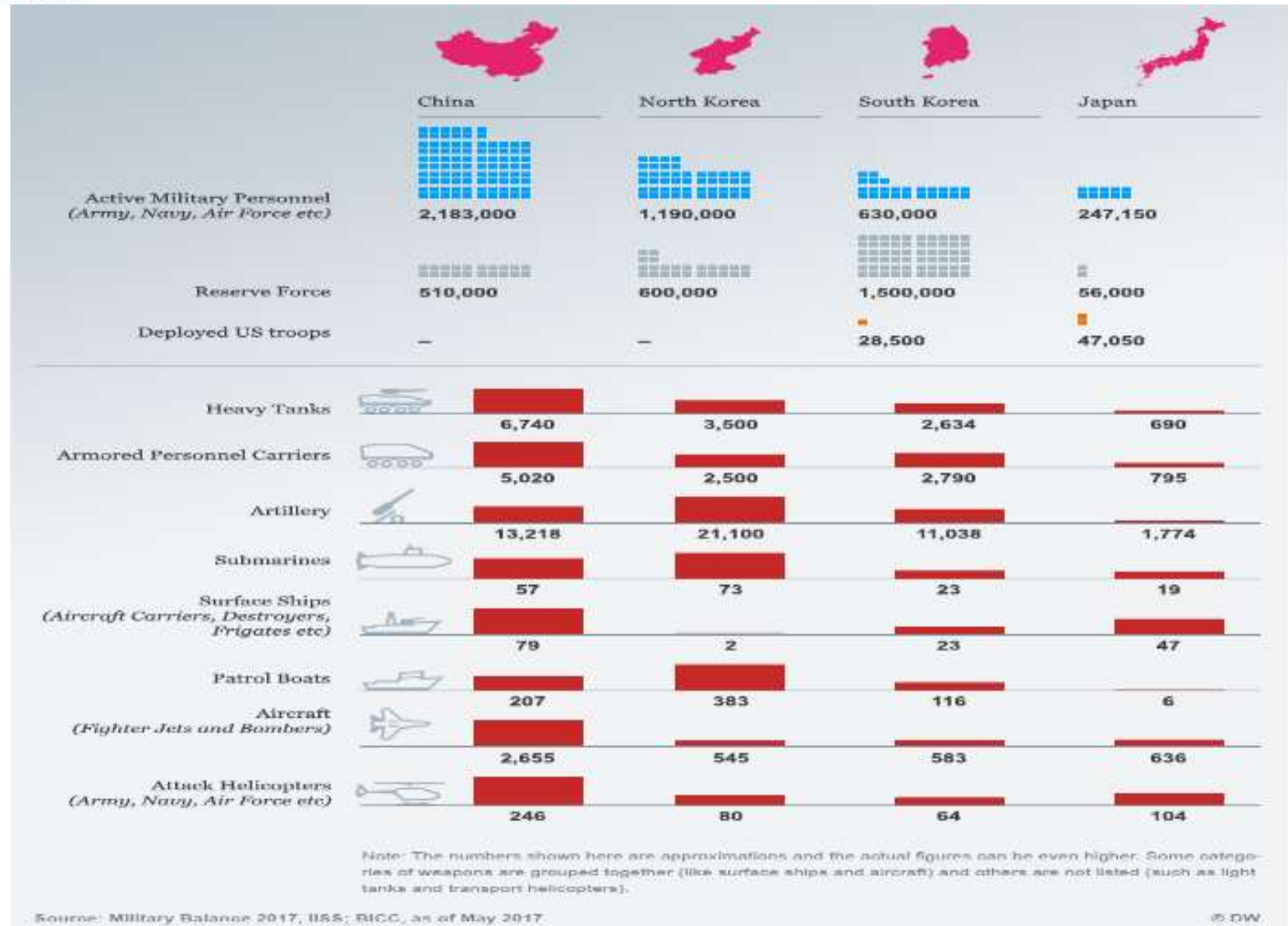
1. Source: "The Military Balance 2017," documents published by the U.S. DoD, etc.
2. Figures for Japan indicate the strength of each SDF as of the end of 2016; the number of combat aircraft is the sum of ASDF aircraft (excluding transport aircraft) and MSDF aircraft (fixed-wing aircraft only).
3. Figures for the U.S. ground forces in Japan and the ROK are those of the 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. That of North Korea shows only divisions. That of Taiwan includes military police as well.
6. The number of U.S. 7th Fleet vessels and aircraft indicates those which are forward-deployed in Japan and Guam.
7. Figures of combat aircraft of the U.S. Forces, Japan and the U.S. 7th Fleet include only fighters.

Adapted from Defense of Japan 2017  
(Annual White Paper) Digest,  
[http://www.mod.go.jp/e/publ/w\\_paper/2017.html/](http://www.mod.go.jp/e/publ/w_paper/2017.html/) p. 47.

# DW Estimate of Northern Asia Balance 2017

(Varying estimates  
for key powers. No  
credible estimates of  
North Korea)

Source: Deutsche Welle, "US  
report warns of China military  
development overseas,"  
7.6.17,  
<http://www.dw.com/en/us-report-warns-of-china-military-development-overseas/a-39138715>



# China, the Koreas, Russia and the U.S.

# China and the Koreas

Like Taiwan, the Koreas remain a critical area where both China and the United States must continue to plan for the risk of actual war, but where both share a common interest in avoiding and deterring such a conflict, and in limiting any clash and crisis before it can escalate. This issue has become steadily more complex as North Korea (Democratic People's Republic of Korea or DPRK) has developed nuclear weapons and missile capabilities that can attack Japan and the United States.

China has supported the U.S. in developing international sanctions that are intended to make the DPRK give up its nuclear program while supporting formal efforts to end the Korean war, bring the DPRK and South Korea (Republic of Korea or ROK) together, and Shift the DPRK to a model of economic development close to that of China and one that can produce a far wealthier and more stable country.

China has also attempted to block the deployment of U.S. anti-missile radars and forces on the ground that they can help limit China's ability to use its strategic nuclear forces to deter the U.S. – although the technical arguments China raises in support of this position seem to be deeply flawed.

It is far from clear how this situation is evolving. It has recently lurched back and forth between U.S. confrontation with North Korea over its nuclear programs and claims that the issues can be resolved in ways that would trade the DPRK nuclear and long-range missile programs for an easing of UN sanctions and economic aid. Russia – which also shares a border with the DPRK — has taken a mixed stand, though largely in support of China.

Neither China nor the U.S. has issued a detailed official discussion of the role that China might play in a future Korean War, but it is clear that China has major forces near the border and might well act if the DPRK was threatened with the kind of defeat that might eliminate the DPRK as buffer state friendly to China.

The maps and force tables in this section illustrate these aspects of the total military balance, but it is almost impossible to guess how an actual war that brought China into the conflict might evolve, the level of escalation that could result, or the risks in terms of a U.S. and Chinese conflict.

# China & Korean Nuclear Issue: Chinese 2017 White Paper

China's position on the Korean Peninsula nuclear issue is consistent and clear-cut. China is committed to the denuclearization of the peninsula, its peace and stability, and settlement of the issue through dialogue and consultation.

Over the years, China has made tremendous efforts to facilitate the process of denuclearization of the peninsula, safeguard the overall peace and stability there, and realize an early resumption of the Six-Party Talks. In January and September this year the Democratic People's Republic of Korea (DPRK) conducted two nuclear tests and launched missiles of various types, violating UN Security Council resolutions and running counter to the wishes of the international community.

China has made clear its opposition to such actions and supported the relevant Security Council resolutions to prevent the DPRK's further pursuit of nuclear weapons.

China will continue to work with the international community and strive for denuclearization and long-term peace and stability of the peninsula and of Northeast Asia as a whole. At the same time, other parties concerned should not give up the efforts to resume talks or their responsibilities to safeguard peace and stability on the peninsula.



## China & ABM Issue: Chinese 2017 White Paper

The anti-ballistic missile issue concerns global strategic stability and mutual trust among major countries. China always holds the view that the anti-ballistic missile issue should be treated with discretion. Forming Cold War style military alliances and building global and regional anti-ballistic missile systems will be detrimental to strategic stability and mutual trust, as well as to the development of an inclusive global and regional security framework. Countries should respect other countries' security concerns while pursuing their own security interests, and follow the principle of maintaining global strategic stability without compromising the security of any country so as to jointly create a peaceful and stable international security environment featuring equality, mutual trust and mutually beneficial cooperation.

Despite clear opposition from relevant countries including China, the US and the Republic of Korea (ROK) announced the decision to start and accelerate the deployment of the THAAD anti-ballistic missile system in the ROK. Such an act would seriously damage the regional strategic balance and the strategic security interests of China and other countries in the region, and run counter to the efforts for maintaining peace and stability on the Korean Peninsula. China firmly opposes the US and ROK deployment of the THAAD anti-ballistic missile system in the ROK, and strongly urges the US and the ROK to stop this process.



## Chinese 2019 Defense White Paper: Koreas

The deployment of the Terminal High Altitude Area Defense (THAAD) system in the Republic of Korea (ROK) by the US has severely undermined the regional strategic balance and the strategic security interests of regional countries. In an attempt to circumvent the post-war mechanism, Japan has adjusted its military and security policies and increased input accordingly, thus becoming more outward-looking in its military endeavors. Australia continues to strengthen its military alliance with the US and its military engagement in the Asia-Pacific, seeking a bigger role in security affairs.

...Regional hotspots and disputes are yet to be resolved. Despite positive progress, the Korean Peninsula still faces uncertainty.

...China has played a constructive role in the political settlement of regional hotspots such as the Korean Peninsula issue...

# Chinese–Russian Air Clash with South Korea: July 23. 2019

South Korean jets fired nearly 400 warning shots and 20 flares on Tuesday near a Russian surveillance plane that Kores and Japan said flew near disputed islands in the Sea of Japan, also known as the East Sea, that the two countries claim. The alleged incursion happened over the disputed Dokdo/Takeshima islands, which are occupied by South Korea but also claimed by Japan.

South Korea's military said that in total three Russian and two Chinese military aircraft entered the Korea Air Defence Identification Zone (KADIZ) on Tuesday morning. One of those planes - an A-50 Russian surveillance plane - also violated its territorial airspace twice, it said, before leaving. South Korea said its jets fired flares and machine-gun warning shots when the Russian plane intruded. It also deployed F-15 and F-16 planes to intercept it. Russian and Chinese bombers and reconnaissance planes have occasionally entered the zone in recent years, but this is the first incident of its kind between Russia and South Korea.

...This first "joint air patrol" involving Russian and Chinese long-range aircraft in the Asia Pacific region, sends a powerful signal of the developing military relationship between Moscow and Beijing. This still falls short of a formal alliance but their joint exercises are larger and more sophisticated.

In 2013, South Korea has announced it is expanding its air defence zone, which will now partially overlap with a similar zone announced by China. The two zones now both included a rock claimed by both countries and controlled by South Korea. The defence ministry said it would co-ordinate with "related countries".

China announced a new Air Defence Identification Zone (ADIZ) last month, in a move that raised regional tensions.

Both countries' zones will cover the airspace above a rock called leodo by South Korea and Suyan by China, which is claimed by both countries. It is part of the Dokdo (Solitary islands) in Korea, Takeshima (Bamboo islands) in Japan Claimed by Japan and South Korea, but occupied by South Korea since 1954. The islands consist of two main islands and about 30 smaller rocks. A South Korean coastguard detachment has been stationed there since 1954.

As well as leodo rock, South Korea's Defence Ministry said the new military air defence zone would cover the airspace above Marado and Hongdo islands controlled by Seoul in waters south of the peninsula. The new parameters were a direct challenge to China's own air defence zone, which covers part of the same area.





# China Korea Border





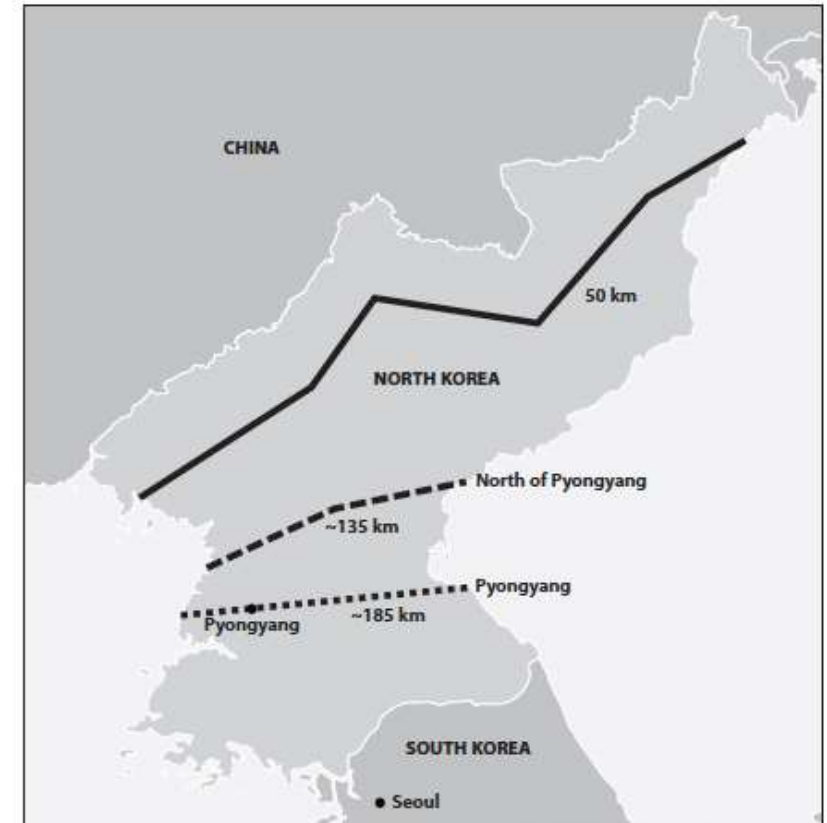
# China-Russia-Korea Border



# North Korea: Nearby Chinese Forces and Possible Chinese Buffer Zones



Source: Adapted from James Griffiths and Serenitie Wang, "Is China Reinforcing Its Border with North Korea?" *CNN*, July 26, 2017; Jamestown Foundation.



Note: These demarcation lines show potential Chinese buffer zones in North Korea. The top line is 31 miles (50 km) from the Sino-North Korean border, the middle line runs north of Pyongyang approximately 84 miles (135 km) from the border, and the bottom line splits the major North Korean cities of Pyongyang and Wonsan about 115 miles (185 km) from the border.

Source: Adapted from Bruce W. Bennett, "Preparing for the Possibility of a North Korean Collapse," *RAND Corporation*, 2013, 275.

## North Korea: Nuclear Facilities



Source: 2018 Report to Congress of the U.S. and China Security Review Commission, 115th Congress, 2<sup>nd</sup> Session, November 2018, p. 424.



# OSD on China's Northern Theater Forces and Role in Korea - 2019

## NORTHERN THEATER COMMAND

### Key Takeaway

- > The Northern Theater Command is oriented toward the Korean Peninsula and Russian border security.

The area of responsibility of the Northern Theater Command (NTC) covers the majority of its Mongolian and Russian border areas, North Korea, and the Yellow Sea. It is responsible for operations along China's northern periphery, as well as counterterrorism operations. Located within the NTC are three group armies, a naval fleet, two marine brigades, two Air Force bases, one Rocket Force base, and PAP units that conduct internal security operations.

## RELATIONS WITH NORTH KOREA

### Key Takeaways

- > China's relationship with North Korea has taken a positive turn from a strained period during 2017.
- > The PLA continues to conduct military exercises in preparation for a contingency on the Korean Peninsula.

China's relationship with North Korea has taken a positive turn from a strained period after China increased implementation of UN Security Council (UNSC) resolutions in 2017. China has largely enforced the UNSC

resolution sanctions against North Korea. Xi had three meetings with Kim Jong Un in 2018, along with numerous lower-level official exchanges in both North Korea and China. China's objectives for the Korean Peninsula include stability, denuclearization, and the absence of U.S. forces near China's border. China's focus on maintaining stability on the Korean Peninsula includes preventing North Korea's collapse and preventing a military conflict on the Peninsula. China continues to advocate for a dual-track approach towards North Korea that embraces both dialogue and pressure, and has claimed credit for the suspension of U.S.-South Korean military exercises in exchange for the suspension of North Korean nuclear and missile activity.

China has long been concerned about stability along its border with North Korea. The PLA conducts military exercises in preparation for a contingency on the Korean Peninsula including air, land, sea, and chemical defense training events. Should a crisis or conflict occur on the Peninsula, China's leaders could order the NTC to engage in a range of operations. These could include securing the China-North Korea border to prevent the flow of refugees or a military intervention into North Korea. China could also cite the *Treaty of Friendship, Cooperation and Mutual Assistance* it signed with North Korea in July 1961 as a justification to cross the border into North Korea.

# China's Northern Theater Forces in 2019



Source: Office of the Secretary of Defense, *Military and Security Developments Involving the Republic of China*, Annual Report to Congress, May 2, 2019, Department of Defense. China Military Power 2019, p. 80.

## U.S. Forces in South Korea

**US Pacific Command • 28,500**

**US Army 19,200**

### **FORCES BY ROLE**

1 HQ (8th Army) at Seoul; 1 div HQ (2nd Inf) located at Tongduchon; 1 armd bde; 1 (cbt avn) hel bde; 1 MRL bde; 1 AD bde; 1 SAM bty with THAAD

### **EQUIPMENT BY TYPE**

M1 *Abrams*; M2/M3 *Bradley*; M109; M270 MLRS; AH-64 *Apache*; OH-58D *Kiowa Warrior*; CH-47 *Chinook*; UH-60 *Black Hawk*; MIM-104 *Patriot*/FIM-92A *Avenger*; 1 (APS) armd bde eqpt set

**US Navy 250**

**USAF 8,800**

### **FORCES BY ROLE**

1 (AF) HQ (7th Air Force) at Osan AB; 1 ftr wg at Osan AB with (1 ftr sqn with 20 F-16C/D *Fighting Falcon*; 1 atk sqn with 24 A-10C *Thunderbolt II*); 1 ftr wg at Kunsan AB with (2 ftr sqn with 20 F-16C/D *Fighting Falcon*); 1 ISR sqn at Osan AB with U-2S

**USMC 250**

# South Korean Estimate of Regional Military Balance: 2016 - I



\* Sources: *The Military Balance 2016* (International Institute for Strategic Studies, Feb. 2016.), *Defense of Japan 2016*, etc.



# South Korean Estimate of Regional Military Balance: 2016 - II

## Number of Troops

Unit: persons

Category	U.S.	Russia	China	Japan
Total	1,381,250	798,000	2,333,000	247,150
Army	509,450	240,000	1,600,000	151,000
Navy	326,800	148,000	235,000	45,500
Air Force	319,950	145,000	398,000	47,100
Others	Marine Corps 185,050 Coast Guard 40,000	Airborne 34,000 Strategic 80,000 Command/support 151,000	Rocket Forces 100,000	Joint Staff Office 3,550

## Army

Category	U.S.	Russia	China	Japan
Divisions/Brigades	10/45	4/89	23/128	9/6
Tanks	5,884	20,200	6,540	687
Infantry combat vehicles	6,559	13,900	3,950	68
Reconnaissance vehicles	1,900	2,200	650(light tanks)	162
Armored vehicles	24,377	12,000	4,150	792
Towed artillery	1,242	13,165	6,140	422
Self-propelled guns	1,469	6,120	2,280	166
Multiple launch rocket systems	1,205	4,070	1,872	99
Mortar	2,483	4,130	2,586	1,103
Anti-tank guided weapons	SP 1,512	SP N/A	SP 480	SP 37
Ground-to-air missiles	1,207	1,520	312	700
Helicopters	4,200	1,278	760	412
Aircraft	222	-	8	8

# South Korean Estimate of Regional Military Balance: 2016 - III

## Navy

Category		U.S.	Russia	China	Japan
Submarines		57	49	61	18
Strategic nuclear submarines		14	13	4	-
Aircraft carriers		10	1	1	-
Cruisers		22	6	-	-
Destroyers		62	18	19	38
Frigates		4	10	54	9
Patrol and coastal combatants		57	89	199	6
Mine sweepers		11	45	49	27
Amphibious vessels		30	19	50	3
Landing craft		245	30	73	8
Auxiliary ships		71	625	171	28
Fighters		956	72	346	-
Helicopters		720	195	111	131
Marine Corps	Marine division	3	3 brigades	2 brigades	-
	Tanks	447	250	73	-
	Reconnaissance vehicles	252	60	-	-
	Amphibious assault APC	1,311	1,000	-	-
	Personnel transport APC	2,467	400	152	-
	Cannons	1,506	365	40	-
	Anti-tank missiles	95	-	-	-
	UAV/ISRs	139	-	-	-
	Aircraft	445	-	-	-
	Helicopters	455	-	-	-

## Air Force

Category		U.S.	Russia	China	Japan
Strategic bombers		157	139	-	-
Bombers		-	-	120	-
Reconnaissance aircraft		ISR-UAV-CISR 454	85	51	17
Command and control aircraft		4	8	5	-
Fighters		FTR-FGR-ATK 1,890	872	1,468	348
Transport aircraft		686	432	325	61
Tankers		461	15	11	5
AWACS		AWE&C-EW 45	18	8	17
Trainers		1,128	204	950	245
Helicopters		161	669	53	46
Civil Reserve Air Fleet		553	-	-	-
EW aircraft		ELINT 33	32	13	3

\* Source: The Military Balance 2016 (International Institute for Strategic Studies, February 2016) and Defense of Japan 2016 (Annual White Paper) (August 2016)



# China and Taiwan

# China and Taiwan

The South China Sea may be the area which gets the most public attention to U.S. and Chinese military competition and the risk of conflict, but Taiwan has remained a key area for such planning in spite of the U.S. opening to China, and receives the most attention to the risk of actual conflict.

This does not mean that it is the area of highest risk. Both the U.S. and China see how dangerous any major conflict or even major military clash or incident can be in this region, and have strong reasons to show restraint and avoid any risk of a major war. At the same time, there are few areas where China has taken so clear a strategic position, and the complex mix of Chinese and Taiwanese politics, Chinese military exercises and force shifts, Taiwanese military modernization and the issue of U.S. arms sales to Taiwan, and U.S. willingness to send combat ships through the Taiwan Straits all combine to present some risk of a crisis or conflict.

These charts and tables that follow present a much clearer U.S. and Taiwanese view of the military situation than of the Chinese view. China has made it definitively clear that it regards Taiwan as Chinese territory, has pushed hard for changes in Taiwan's internal politics that could bring it back into some form of union with China, has attempted to block U.S. arms transfers to Taiwan, and has used trade to gain economic leverage. It has not, however, made public the level of open source data on the military balance and development in the region provided by Taiwan and the United States.

The U.S. never agreed to halt arms sales and informal military relations with Taiwan when it established diplomatic relations with China in 1979 – largely as part of a joint U.S.- Chinese effort to counter pressure from the Soviet Union, even though it did break formal diplomatic relations with Taiwan. It has provided major arms transfers ever since as part of the Taiwan Relations Act that was passed shortly after the U.S. established relations with China, and which requires that the United States provide Taiwan with defensive weapons to deter an attack from China.

The United States broadened this support in 1982 by issuing a Six Assurances document which stated that the U.S. would not set a date for ending arms sales to Taiwan.

It is unclear how the changes in U.S. strategy since 2017, and how the focus on military and economic competition with China, will affect this situation. China has, however, hardened its position relative to Taiwan as a result of shifts in Taiwanese internal politics that have produced a government less willing to be flexible in dealing with China, the U.S. has been more willing to host senior Chinese officials, and the U.S. has agreed to major new arms sales to Taiwan.

Taiwan requested 66 F-16V fighter jets from the US in February 2019, and bought \$500 million worth of arms and services including F-16 parts and training. In July 2019, the Department of Defense notified Congress of a request for the sale of some \$2 billion more arms, including 108 M1A2T Abrams tanks, as well as Hercules armored vehicles and heavy equipment transporters and \$220 million in Stinger anti-aircraft missiles. This notification came shortly before Taiwan's president, Tsai Ing-wen, was due to visit the United States.

# Chinese 2017 White Paper on Taiwan

**The Taiwan issue bears on China's reunification and long-term development, and reunification is an inevitable trend in the course of national rejuvenation. In recent years, cross-Taiwan Straits relations have sustained a sound momentum of peaceful development, but the root cause of instability has not yet been removed, and the "Taiwan independence" separatist forces and their activities are still the biggest threat to the peaceful development of cross-Straits relations.**

# Chinese 2019 Defense White Paper: Taiwan

**Resolutely Safeguarding China's Sovereignty, Security and Development Interests.** This is the fundamental goal of China's national defense in the new era. China's national defense aims...

- to oppose and contain “Taiwan independence”;
- to crack down on proponents of separatist movements such as “Tibet independence” and the creation of “East Turkistan”;

...To solve the Taiwan question and achieve complete reunification of the country is in the fundamental interests of the Chinese nation and essential to realizing national rejuvenation. China adheres to the principles of “peaceful reunification”, and “one country, two systems”, promotes peaceful development of cross-Straits relations, and advances peaceful reunification of the country. Meanwhile, China resolutely opposes any attempts or actions to split the country and any foreign interference to this end. China must be and will be reunited. China has the firm resolve and the ability to safeguard national sovereignty and territorial integrity, and will never allow the secession of any part of its territory by anyone, any organization or any political party by any means at any time. We make no promise to renounce the use of force, and reserve the option of taking all necessary measures. This is by no means targeted at our compatriots in Taiwan, but at the interference of external forces and the very small number of “Taiwan independence” separatists and their activities. The PLA will resolutely defeat anyone attempting to separate Taiwan from China and safeguard national unity at all costs

...The fight against separatists is becoming more acute. The Taiwan authorities, led by the Democratic Progressive Party (DPP), stubbornly stick to “Taiwan independence” and refuse to recognize the 1992 *Consensus*, which embodies the one-China principle. They have gone further down the path of separatism by stepping up efforts to sever the connection with the mainland in favor of gradual independence, pushing for *de jure* independence, intensifying hostility and confrontation, and borrowing the strength of foreign influence. The “Taiwan independence” separatist forces and their actions remain the gravest immediate threat to peace and stability in the Taiwan Strait and the biggest barrier hindering the peaceful reunification of the country. External separatist forces for “Tibet independence” and the creation of “East Turkistan” launch frequent actions, posing threats to China's national security and social stability.

...China's armed forces conduct air defense, reconnaissance and early warning, monitor China's territorial air and peripheral air space, carry out alert patrols and combat takeoff, and effectively respond to emergencies and threats to maintain order and security in the air. Aiming at safeguarding national unity, China's armed forces strengthen military preparedness with emphasis on the sea. By sailing ships and flying aircraft around Taiwan, the armed forces send a stern warning to the “Taiwan independence” separatist forces.

...China resolutely opposes the wrong practices and provocative activities of the US side regarding arms sales to Taiwan, sanctions on the CMC Equipment Development Department and its leadership, illegal entry into China's territorial waters and maritime and air spaces near relevant islands and reefs, and wide-range and frequent close-in reconnaissance.

# OSD on China's Relations with Taiwan - 2019

China continues to implement reforms associated with the establishment of its five theater commands, each of which is responsible for developing command strategies and joint operational plans and capabilities relevant for specific threats, as well as responding to crises and safeguarding territorial sovereignty and stability. Taiwan persistently remains the PLA's main "strategic direction," one of the geographic areas the leadership identifies as having strategic importance. Other strategic directions include the East China Sea, the South China Sea, and China's borders with India and North Korea.

China's overall strategy toward Taiwan continues to incorporate elements of both persuasion and coercion to hinder the development of political attitudes in Taiwan favoring independence. Taiwan lost three additional diplomatic partners in 2018, and some international fora continued to deny the participation of representatives from Taiwan. Although China advocates for peaceful unification with Taiwan, China has never renounced the use of military force, and continues to develop and deploy advanced military capabilities needed for a potential military campaign.

- Relations between China and Taiwan remained cool through 2018.
- Bowing to Chinese pressure, the Dominican Republic, Burkina Faso, and El Salvador switched diplomatic relations from Taipei to Beijing.
- The PLA continued Taiwan Strait contingency preparations.

...Relations between China and Taiwan remained at an impasse through 2018. Since the 2016 election of Tsai Ing-wen as Taiwan's president, China halted formal communication with Taiwan and has repeatedly stressed that Taiwan must accept the "1992 Consensus" to restart formal engagement. Since November 2016, China's leaders have directly equated the "1992 Consensus" to "one China," which was reaffirmed by President Xi in the 19th Party Congress work report. Taiwan President Tsai Ing-wen has continually pledged to maintain the status quo in cross-Strait relations and called for talks with China without using the "1992 Consensus" as a precondition for negotiations.

In May 2016, China suspended consultations between its Taiwan Affairs Office and Taiwan's Mainland Affairs Council that had begun in 2014. China continues to thwart Taiwan's efforts to participate in international organizations such as the World Health Organization and INTERPOL. China has also maintained its diplomatic pressure on Taiwan, convincing the Dominican Republic, Burkina Faso, and El Salvador to switch diplomatic relations from Taipei to Beijing in 2018. Despite the stalled government-to-government consultations, the CCP continues to engage with the opposition Kuomintang (KMT) party, and China continues to hold lower-level cross-Strait exchanges such as the municipal Shanghai-Taipei Twin City Forum.

The PLA continues to prepare for contingencies in the Taiwan Strait to deter, and if necessary, compel Taiwan to abandon moves toward independence. The PLA also is likely preparing for a contingency to unify Taiwan with the mainland by force, while simultaneously deterring, delaying, or denying any third-party intervention on Taiwan's behalf. As part of a comprehensive campaign to pressure Taiwan and the Tsai Administration, China has increased military exercises in the vicinity of Taiwan, including circumnavigation flights by the PLAAF and naval exercises in the East China Sea.

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# OSD on China's Strategy for Taiwan and Military Capabilities in the Taiwan Strait - 2019

Although China advocates for peaceful unification with Taiwan, China has never renounced the use of military force; the circumstances under which China has historically warned it would use force remain ambiguous and have evolved over time. China has an array of options for a Taiwan campaign, ranging from an air and maritime blockade to a full-scale amphibious invasion to seize and occupy some or all of Taiwan or its offshore islands. PLA services and support forces continue to improve training and acquire new capabilities for a Taiwan contingency, but there is no indication China is significantly expanding its landing ship force necessary for an amphibious assault on Taiwan.

China appears prepared to defer the use of force as long as it believes that unification over the long term remains possible and that the costs of conflict outweigh the benefits. China argues that the credible threat of 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 that it would use force have evolved over time in response to the island's declarations of its political status, changes in PLA capabilities, and China's view of Taiwan's relations with other countries. These circumstances 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 forces stationed on Taiwan.

Article 8 of China's 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.



# Major US Arms Sales to Taiwan - 2019

New York Times, August 16, 2019 - The Trump administration is moving forward with an \$8 billion sale of F-16V fighter jets to Taiwan, American officials said Friday...The sale of 66 jets to Taiwan would be the largest or one of the largest single arms package transactions between the United States and the democratic, self-governing island...Congress passed the Taiwan Relations Act of 1979 to set legal guidelines for ties with Taiwan. The act says the United States government must “provide Taiwan with arms of a defensive character.”

...In his first term, President Barack Obama approved two large packages worth a total of \$12 billion, then moved on sales of less than \$2 billion in 2015. President George W. Bush approved packages worth less than \$5 billion total in his first term, then pushed through sales worth more than \$10 billion in his second term...Previous requests, including one for 66 new F-16s, were rejected by the Obama administration. The White House at the time instead offered to upgrade Taiwan’s existing fleet of about 140 F-16A/B Block 20 aircraft, the first of which have been delivered to Taiwan’s Air Force. As of March, however, this process was behind schedule.

WASHINGTON, July 8, 2019 - The State Department has made a determination approving a possible Foreign Military Sale of M1A2T Abrams Tanks and related equipment and support for an estimated cost of \$2 billion. The Defense Security Cooperation Agency delivered the required certification notifying Congress of this possible sale today. The request includes one hundred eight (108) M1A2T Abrams Tanks; one hundred twenty-two (122) M2 Chrysler Mount Machine Guns; two hundred sixteen (216) M240 Machine Guns; fourteen (14) M88A2 HERCULES Vehicles; sixteen (16) M1070A1 Heavy Equipment Transporters (HET); five hundred seventy-two (572) M1002 TPMP-T1 Rounds; three hundred fifty-nine (359) M831A1 HEAT Rounds; and six hundred twenty-one (621) M865 TPCSPS-T2 Rounds, and eight hundred twenty eight (828) M830AI HEAT Rounds...

WASHINGTON, July 8, 2019 - The State Department has made a determination approving a possible Foreign Military Sale of Stinger missiles and related equipment and support for an estimated cost of \$223.56 million. TECRO has requested to buy two hundred fifty (250) Block I -92F MANPAD Stinger missiles and four (4) Block I -92F MANPAD Stinger Fly-to-Buy missiles. Also included is one (1) Captive Flight Trainer (CFT), twenty-three (23) Field Handling Trainers (FHTs), one hundred eight (108) Gripstock Control Groups, one hundred eight (108) Medium Thermal Weapon Sights (MTWS), seven (7) Tracking Head Trainers (THTs), two (2) Sierra Coolant Recharging Units (CRUs), one (1) Missile Go/No Go Test Set, one hundred eight (108) Identification Friend or Foe (IFF), TFF Development, one (1) Integrated Electronic Technical Manuals (IETMs)...

Source: Defense Security Assistance Agency, News Release, <https://www.dsca.mil/major-arms-sales/taipei-economic-and-cultural-representative-office-united-states-tecro-m1a2t-abrams>, July 8, 2019; <https://www.dsca.mil/major-arms-sales/taipei-economic-and-cultural-representative-office-united-states-tecro-stinger>, July 8, 2019; Edward Wong, “Trump Administration Approves F-16 Fighter Jet Sales to Taiwan,” *New York Times*, August 16, 2019, <https://www.nytimes.com/2019/08/16/world/asia/taiwan-f16.html>; Joe Gould and Mike Ye, “Trump OK’s F-16 sale to Taiwan amid China tensions,” *Defense News*, August 16, 2019, <https://www.defensenews.com/congress/2019/08/16/trump-oks-f-16-sale-to-taiwan-amid-china-tensions/>.

# DoD on China's Readiness to Attack Taiwan in 2017

Preparation for a Taiwan conflict with the possibility of U.S. intervention continues to play a prominent role in China's military modernization program.

**PLA Army.** The PLAA is increasingly armed and trained in ways that prepare it for a Taiwan invasion scenario. The PLAA often conducts training, including amphibious landing training, under realistic conditions, including in difficult weather and at night. Improved networks provide real-time data transmissions within and between units, enabling better C2 during operations. Additionally, the PLAA's ongoing fielding of advanced air defense equipment is significantly enhancing the self-defense of key C2 elements and other critical assets believed to have potential use against Taiwan. As the number of these new systems grows in the PLAA, the force's ability to defend cross-Strait amphibious lodgments will increase.

**PLA Navy.** The PLAN is improving anti-air and anti-surface warfare capabilities, developing a credible at-sea nuclear deterrent, and introducing new platforms 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 as well as to deter and counter any potential third party intervention in a Taiwan conflict.

**PLA Air Force.** The PLAAF has maintained a force posture that provides it with a variety of capabilities for a Taiwan contingency. First, it has stationed a large number of advanced aircraft within an unrefueled range of Taiwan, providing it 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 counterattack. Third, China's development of support aircraft provides the PLAAF with improved ISR capability to support PLA operations in a contingency.

**PLA Rocket Force.** The PLARF is prepared to conduct missile attacks and precision strikes against high-value targets such as Taiwan's C2 facilities, air bases, radar sites, and others in an attempt to degrade Taiwan's defenses, neutralize Taiwan's leadership, or break the public's will to fight.

**Strategic Support Force.** PLA writings emphasize the importance of the space and cyberspace domains in joint operations, suggesting that the SSF, reportedly responsible for these areas, would be active in a Taiwan contingency; however, information about the force's posture for such a conflict is scarce.

# OSD on China's Readiness to Attack Taiwan in 2019:

## Effect of PLA Reform on a Taiwan Contingency

One of the overarching goals of the structural reforms to reshape the PLA was to construct a military capable of conducting complex joint operations, including those that would be involved in a Taiwan contingency. PLA reforms are aimed at clarifying command authorities, improving joint integration, and facilitating the transition from peace to war. The abolishment of military regions in favor of military theaters – in this case, the PLA's Eastern Theater Command (ETC) – has also likely streamlined and improved the PLA's ability to conduct yearlong planning and preparation for joint military operations across the Taiwan Strait. PLA combat units are likely experiencing decreased readiness and proficiency to conduct large-scale joint operations as they reorganize units, integrate new capabilities, and adjust to new command structures.

A significant addition to the overall structure of the PLA is the establishment of the SSF and the JLSF. During a Taiwan contingency, the JLSF, in conjunction with subordinate joint logistics support centers, would coordinate joint logistics and the delivery of materiel as well as oversee various civil-military support systems to sustain the campaign. The creation of the SSF likely improves the PLA's ability to execute and coordinate IO (particularly cyber, electronic warfare, and counterspace) in a Taiwan contingency. It may also improve the PLA's ability to manage and provide space-based reconnaissance to the CMC and the ETC, improving PLA command staffs' situational awareness of Taiwan's military units and facilities. The PLA is likely still exploring how to reform its joint command processes to integrate IO and ISR capabilities more fully at the theater-level, but structural reforms have removed the biggest barriers to integrating these strategic capabilities at the theater-level.

Structural reforms within the military and paramilitary forces also have implications on resources and operational capabilities available to the PLA for a future Taiwan contingency.

- In 2018, the PLAAF Airborne Corps conducted training exercises involving long-range raid and airborne operations based on actual warplans. The airborne corps underwent major changes in 2017, reorganizing its previous units into airborne infantry brigades, a special operations brigade, an aviation brigade, and a support brigade. Since 2017, ongoing PLA Army reforms have reduced the number of group armies from 18 to 13, retired or downsized army divisions into combined arms brigades, and reorganized the Army's two amphibious mechanized infantry divisions into amphibious brigades.
- The PLANMC in 2018 continued to expand from two to six brigades, but the newly created units lack required equipment and operational training.

...The Eastern Theater Command (ETC) likely executes operational control over national defense matters related to Japan and Taiwan, including contingencies in and around the Taiwan Strait and the Senkaku Islands. In 2018, the ETC focused on a series of training and exercises to improve joint operations and combat readiness, organizing almost 20 exercises and drills consisting of long-distance sea training, aerial combat, and live-fire training. Located within the ETC are three group armies, a naval fleet, two marine brigades, two Air Force bases, and one missile base.

- In May 2018, the ETC Joint Operations Command Center (JOCC) organized a closely coordinated PLAAF exercise between the Eastern Theater and Southern Theater Commands. In addition, the PLAAF flew fighter aircraft and long-range cruise missile capable bombers around Taiwan. The PLAAF also employed a KJ-2000 early warning aircraft for command, control, and escort to support Su-35 fighters and J-11 fighter flights to the Miyako Strait and the Bashi Channel.
- In the East China Sea, the ETC conducted combat drills throughout the year focused on naval operations. In October 2018, a PLAN flotilla conducted a series of drills, including anti-submarine warfare training by employing destroyers and frigates in formations simulating encirclement of underwater targets. They further completed more than ten training objectives in auxiliary gun firing, visit-board-search-and-seizure drills, and nuclear and chemical defense drills.

# OSD on China's Military Options in Taiwan in 2019

China has a range of options based on the PLA's increasing capabilities in multiple domains. China could pursue a measured approach by signaling its readiness to use force or conduct punitive actions against Taiwan. The PLA could also conduct a more comprehensive campaign designed to force Taiwan to capitulate to unification, or unification dialogue, under China's terms. China would seek to deter potential U.S. intervention in any Taiwan contingency campaign. Failing that, China would attempt to delay intervention and seek victory in an asymmetric, limited war of short duration. In the event of a protracted conflict, China might choose to escalate cyberspace, space, or nuclear activities in an attempt to end the conflict, or it might choose to fight to a standstill and pursue a political settlement. The PLA could initiate the military options listed below individually or in combination.

**Air and Maritime Blockade.** PLA writings describe a Joint Blockade Campaign in which China would employ kinetic blockades of maritime and air traffic, including a cut-off of Taiwan's vital imports, to force Taiwan's capitulation. According to these writings, large-scale missile strikes and possibly seizures of Taiwan's offshore islands would accompany a Joint Blockade in an attempt to achieve a rapid Taiwan surrender, while at the same time, posturing air and naval forces to conduct weeks or months of blockade operations if necessary. China's air and maritime blockade operations will also likely be complemented by concurrent EW, network attacks, and IO to further isolate Taiwan's authorities and populace.

**Limited Force or Coercive Options.** China could use a variety of disruptive, punitive, or lethal military actions in a limited campaign against Taiwan, probably in conjunction with overt and clandestine economic and political activities supported by a variety of IO to shape perceptions or undercut the effectiveness or legitimacy of the Taiwan authorities. 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 Taiwan population's confidence in their leaders. 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 air 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 resolve.

**Invasion of Taiwan.** Publicly available Chinese writings describe different operational concepts for an amphibious invasion of Taiwan. 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 electronic warfare. 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 or the entire island.

Large-scale amphibious invasion is one of the most complicated and difficult military operations. Success depends upon air and maritime superiority, the rapid buildup and sustainment of supplies onshore, and uninterrupted support. An attempt to invade Taiwan would likely 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, even assuming a successful landing and breakout, make an amphibious invasion of Taiwan a significant political and military risk.

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 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 involves significant, and possibly prohibitive, political risk because it could galvanize pro-independence sentiment on Taiwan and generate international opposition.

# OSD on Taiwan's Defensive Capabilities in 2019

Taiwan has historically enjoyed military advantages in the context of a cross-Strait conflict, such as technological superiority and the inherent geographic advantages of island defense, but China's multi-decade military modernization effort has eroded or negated many of these advantages. Although Taiwan is taking important steps to compensate for the growing disparities – building its war reserve stocks, growing its defense-industrial base, improving joint operations and crisis response capabilities, and strengthening its officer and noncommissioned officer corps – these improvements only partially address Taiwan's declining defensive advantages. Taiwan's Ministry of National Defense 2017 *National Defense Report* reflects adjustments to the military's strategy for defending the island, placing greater emphasis on protecting its littorals and near-shore coastal areas. The modified strategy stresses enhanced asymmetric capabilities, as well as suggesting greater reliance on Taiwan's Air Force and Navy.

Taiwan's armed forces are authorized to fill approximately 215,000 billets, including 188,000 active duty billets. Active duty forces are supported by reservists and civil defense volunteers. The Ministry of National Defense has stated that its goal is to fill 90 percent of the billets (or about 169,000) by 2020. Taiwan's military modernization program envisions a continued decrease in Taiwan's active duty force to approximately 175,000 personnel as part of a transition to an all-volunteer force. This transition has slowed due to severe difficulties recruiting enough volunteers. The cost savings from manpower reductions provides some margin to improve individual pay and benefits, housing, and incentive pay; however, these savings have been insufficient to cover the full increase in manpower-related costs needed to attract and retain personnel under the new system. The unanticipated magnitude of transition costs has led Taiwan to divert funds from foreign and indigenous defense acquisition programs, as well as near-term training and readiness. Taiwan also faces considerable equipment and readiness challenges.

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In addition, Taiwan's military spending remains at approximately two percent of its gross domestic product. In October 2018, the MND said it would increase the island's defense budget by 5.6 percent to NT \$346 billion (\$11.3 billion). Meanwhile, China's official defense budget continues to grow, and for 2018, is roughly 14.5 times that of Taiwan, with much of it focused on developing the capability to unify Taiwan with the mainland by force. Recognizing the growing disparity between their respective defense expenditures, Taiwan has stated that it is working to develop new concepts and capabilities for asymmetric warfare. Some specific areas of emphasis include offensive and defensive information and electronic warfare, high-speed stealth vessels, shore-based mobile missiles, rapid mining and minesweeping, unmanned aerial systems, and critical infrastructure protection. The United States maintains a "one-China" policy that is based on the Taiwan Relations Act (TRA) and the three Joint Communiqués. The United States opposes unilateral actions aimed at altering the status quo. The United States continues to support the peaceful resolution of cross-Strait issues in a manner, scope, and pace acceptable to both sides.

Consistent with the TRA, the United States contributes to peace, security, and stability in the Taiwan Strait by providing defense articles and services to enable Taiwan to maintain a sufficient self-defense capability. In September 2018, the United States announced the sale of \$330 million in military equipment, comprised mostly of spare parts for various military aircraft including F-16, C-130, F-5, Indigenous Defense Fighter, all other aircraft systems and subsystems, and other related elements of logistics and program support. Since 2010, the United States has announced more than \$15 billion in arms sales to Taiwan.

# DIA on China's Expanding Eastern Theater and Taiwan: 2019 - I

The Eastern Theater Command is oriented toward Taiwan and the East China Sea. The Eastern Theater Command (ETC) likely executes operational control over national defense matters related to Japan and Taiwan, including contingencies in and around the Taiwan Strait and the Senkaku Islands. In 2018, the ETC focused on a series of training and exercises to improve joint operations and combat readiness, organizing almost 20 exercises and drills consisting of long-distance sea training, aerial combat, and live-fire training. Located within the ETC are three group armies, a naval fleet, two marine brigades, two Air Force bases, and one missile base.

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# DIA on China's Expanding Eastern Theater and Taiwan: 2019 - II

## DEVELOPMENTS IN THE SECURITY SITUATION IN THE TAIWAN STRAIT

- Relations between China and Taiwan remained cool through 2018.
- Bowing to Chinese pressure, the Dominican Republic, Burkina Faso, and El Salvador switched diplomatic relations from Taipei to Beijing.
- The PLA continued Taiwan Strait contingency preparations.

Relations between China and Taiwan remained at an impasse through 2018. Since the 2016 election of Tsai Ing-wen as Taiwan's president, China halted formal communication with Taiwan and has repeatedly stressed that Taiwan must accept the "1992 Consensus" to restart formal engagement.

Since November 2016, China's leaders have directly equated the "1992 Consensus" to "one China," which was reaffirmed by President Xi in the 19th Party Congress work report. Taiwan President Tsai Ing-wen has continually pledged to maintain the status quo in cross-Straits relations and called for talks with China without using the "1992 Consensus" as a precondition for negotiations.

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The PLA continues to prepare for contingencies in the Taiwan Strait to deter, and if necessary, compel Taiwan to abandon moves toward independence. The PLA also is likely preparing for a contingency to unify Taiwan with the mainland by force, while simultaneously deterring, delaying, or denying any third-party intervention on Taiwan's behalf. As part of a comprehensive campaign to pressure Taiwan and the Tsai Administration, China has increased military exercises in the vicinity of Taiwan, including circumnavigation flights by the PLAAF and naval exercises in the East China Sea.

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Source: DIA, *China Military Power: Modernizing a Force to Fight and Win*, 2019, DIA-02-1706-085, 2019, p. 70-71.

## Trump Administration Notifications of Major Foreign Military Sales to Taiwan: 2017-2019

Date	Major Items	Value
August 20, 2019	66 F-16C/D Block 70 Aircraft and related equipment and support, including 75 General Electric F110 fighter engines.	\$8 billion
July 8, 2019	108 M1A2T Abrams tanks and related equipment and support	\$1.45 billion
July 8, 2019	250 Block I-92F MANPAD Stinger missiles and 4 Block I-92F MANPAD Stinger fly-to-buy missiles, and related equipment and support	\$114.13 million
April 15, 2019	Continuation of pilot training program and maintenance/logistics support for F-16 aircraft currently at the Luke Air Force Base, Arizona	est. \$500 million
September 24, 2018	Cooperative Logistics Supply Support arrangement for stock replenishment supply of spare parts and repair/replace of spare parts for F-16, C-130, F-5, Indigenous Defense Fighter (IDF), and all other aircraft systems and subsystems.	\$330 million
June 29, 2017	50 AGM-88B High-Speed Anti-Radiation Missiles (HARMs), 10 AGM 88-B Training HARMs, and related support and materials	\$147.5 million
June 29, 2017	16 Standard Missile-2 (SM-2) Block IIIA All-Up Rounds (AUR), 47 MK 93 MOD 1 SM-2 Block IIIA Guidance Sections (GSs), 5 MK 45 MOD 14 SM-2 Block IIIA Target Detecting Devices (TDDs) Shrouds and related equipment and support	\$125 million
June 29, 2017	46 MK-48 Mod 6AT Heavyweight Torpedoes (HWT) and related equipment and support	\$250 million
June 29, 2017	MK-54 Lightweight Torpedo (LWT) Conversion Kits and related equipment and support	\$175 million
June 29, 2017	56 AGM-154C Joint Standoff Weapons (JSOW) Air-to-Ground Missiles and related equipment and support	\$185.5 million
June 29, 2017	Upgrade of AN/SLQ-32(V)3 Electronic Warfare Systems in support of 4 ex-KIDD Class destroyers	\$80 million
June 29, 2017	SRP Operations and Maintenance follow-on sustainment package	\$400 million

**Source:** Compiled from notifications from 2017 to 2019 posted on the website of the Defense Security Cooperation Agency (DSCA).

# China's Eastern Theater Command Military Forces in 2019



Source: Office of the Secretary of Defense, *Military and Security Developments Involving the Republic of China*, Annual Report to Congress, May 2, 2019, Department of Defense. China Military Power 2019, p. 72.

# China-Taiwan Military Balance in 2019 - I

Taiwan Strait Military Balance, Ground Forces

	China		Taiwan
	Total	Eastern and Southern Theaters	Total
<b>Total Ground Force Personnel</b> <sup>1</sup>	1,020,000	408,000	140,000
<b>Group Armies</b>	13	5	3
<b>Combined Arms Brigades</b>	78 (includes 5 with amphibious role)	30 (includes 5 with amphibious role)	NA
<b>Mechanized Infantry Brigades</b>	Transitioning to Combined Arms Brigades (see above)		3
<b>Motorized Infantry Brigades</b>			6
<b>Armor Brigades</b>			4
<b>Air Assault/Army Aviation Brigades</b>	15	5	4
<b>Artillery Brigades</b>	15	5	3
<b>Airborne Brigades</b>	6	6	0
<b>Marine Brigades</b>	6	4	2
<b>Tanks</b>	5,800	UNKNOWN	800
<b>Artillery Pieces</b>	8,000	UNKNOWN	1,000

**Note:** This chart focuses on PLA combat units and applies observed widespread changes in the new group armies to all group army units. Methodology applied for the new group army construct as the PLA Army transitions to brigades is one of each specialty brigade (army aviation/air assault and artillery) and six combined arms brigades. Some units are likely in the early stages of development and not fully operational. The "Taiwan Strait Area" includes select national-level assets and units in the PLA's Eastern and Southern Theater Commands. We are unable to estimate the number of tanks and field artillery located in these two theaters at this time.

## Notes:

Due to ongoing restructuring of combat units as part of PLA reforms, the characterization and numbers of units and systems are approximate as units are in the process of establishing, downsizing, reorganizing, or disbanding. The data in this year's report also consequently applies a new methodology that may result in significantly different numbers than shown in previous reports, but does not necessarily reflect a sudden change in capability.

<sup>1</sup> Of the 1,020,000 personnel in the PLA ground forces, it is estimated that 915,000 are in combat units, with 360,000 in the Taiwan Strait Area.

Taiwan Strait Military Balance, Naval Forces

	China		Taiwan
	Total	Eastern and Southern Theater	Total
<b>Aircraft Carriers</b>	1	0	0
<b>Destroyers</b>	33	23	4
<b>Frigates</b>	54	43	22
<b>Corvettes</b>	42	33	0
<b>Tank Landing Ships/ Amphibious Transport Dock</b>	37	35	14
<b>Medium Landing Ships</b>	22	16	0
<b>Diesel Attack Submarines</b>	50	34	2
<b>Nuclear Attack Submarines</b>	6	2	0
<b>Ballistic Missile Submarines</b>	4	4	0
<b>Coastal Patrol (Missile)</b>	86	68	44
<b>Coast Guard Ships</b>	248	N / A	23

**Note:** 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 Eastern and Southern Theater Navies would participate in direct action against the Taiwan Navy. The Northern Theater Navy (not shown) would be responsible primarily for protecting the sea approaches to China, but could provide mission-critical assets to support other fleets. In conflict, China may also employ CCG and PAFMM ships to support military operations. This table reflects operational units and does not include units under construction, outfitting, or conducting sea trials.

# China-Taiwan Military Balance in 2019 - II

## Taiwan Strait Military Balance, Air Forces

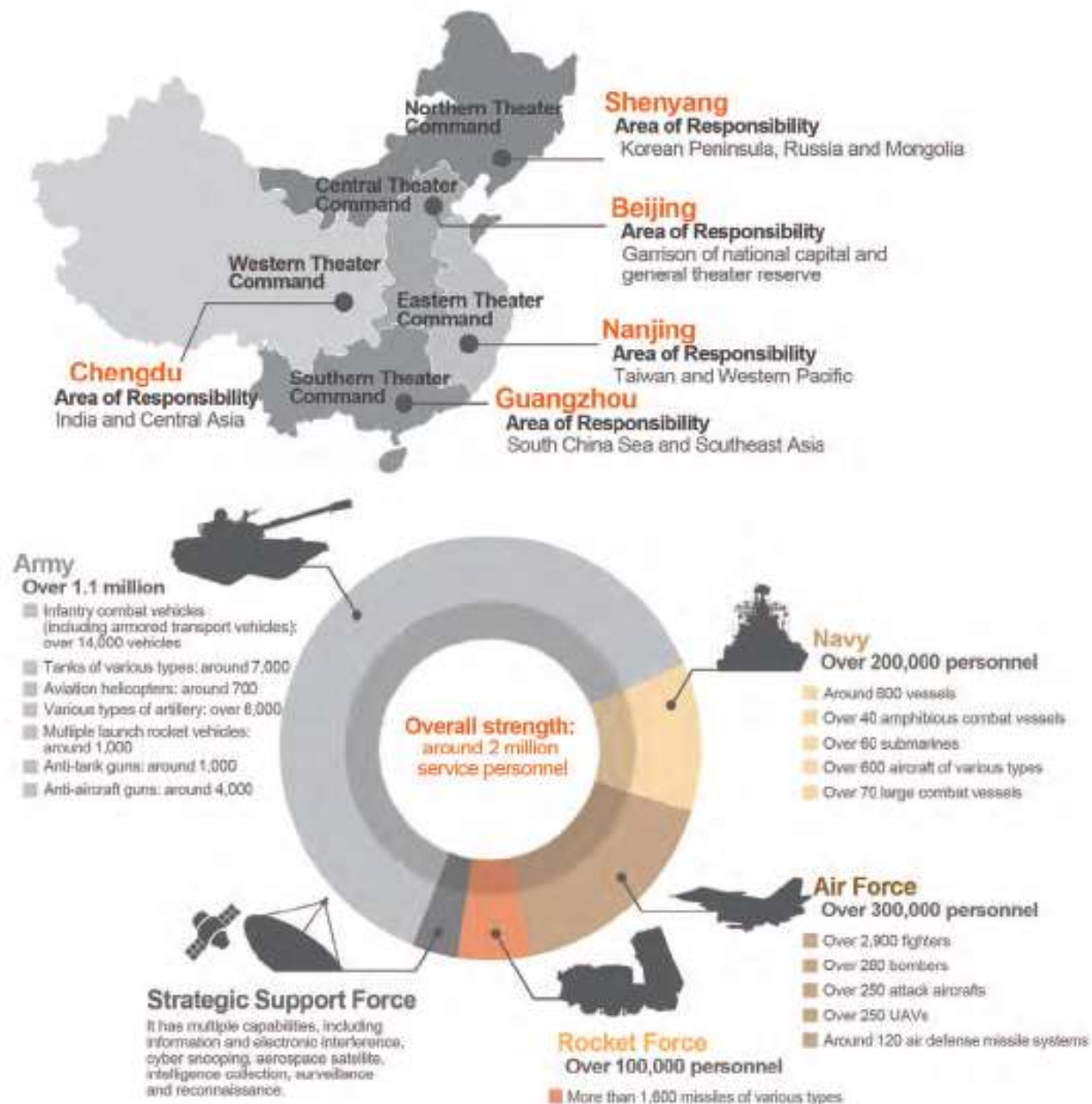
	China		Taiwan
	<i>Total</i>	<i>Eastern and Southern Theater</i>	<i>Total</i>
<b>Fighters</b>	1,500 (2,600*)	600 (750*)	350 (450*)
<b>Bombers/Attack</b>	450	250	0
<b>Transport</b>	450	30	30
<b>Special Mission Aircraft</b>	150	90	30
<p><b>Note:</b> This chart displays estimated totals of operational military aircraft from both PLAAF and PLAN Aviation. However, the PLAAF may supplement its military transports with civilian aircraft in a combat scenario.</p> <p>*The totals in parentheses include fighter trainers.</p>			

## China's Rocket Force

<i>System</i>	<i>Launchers</i>	<i>Missiles</i>	<i>Estimated Range</i>
ICBM	90	90	>5,500km
IRBM	80	80-160	3,000-5,500km
MRBM	150	150-450	1,000-3,000km
SRBM	250	750-1500	300-1,000km
GLCM	90	270-540	>1,500km



# Taiwan Estimate of Chinese Military Forces – 2017





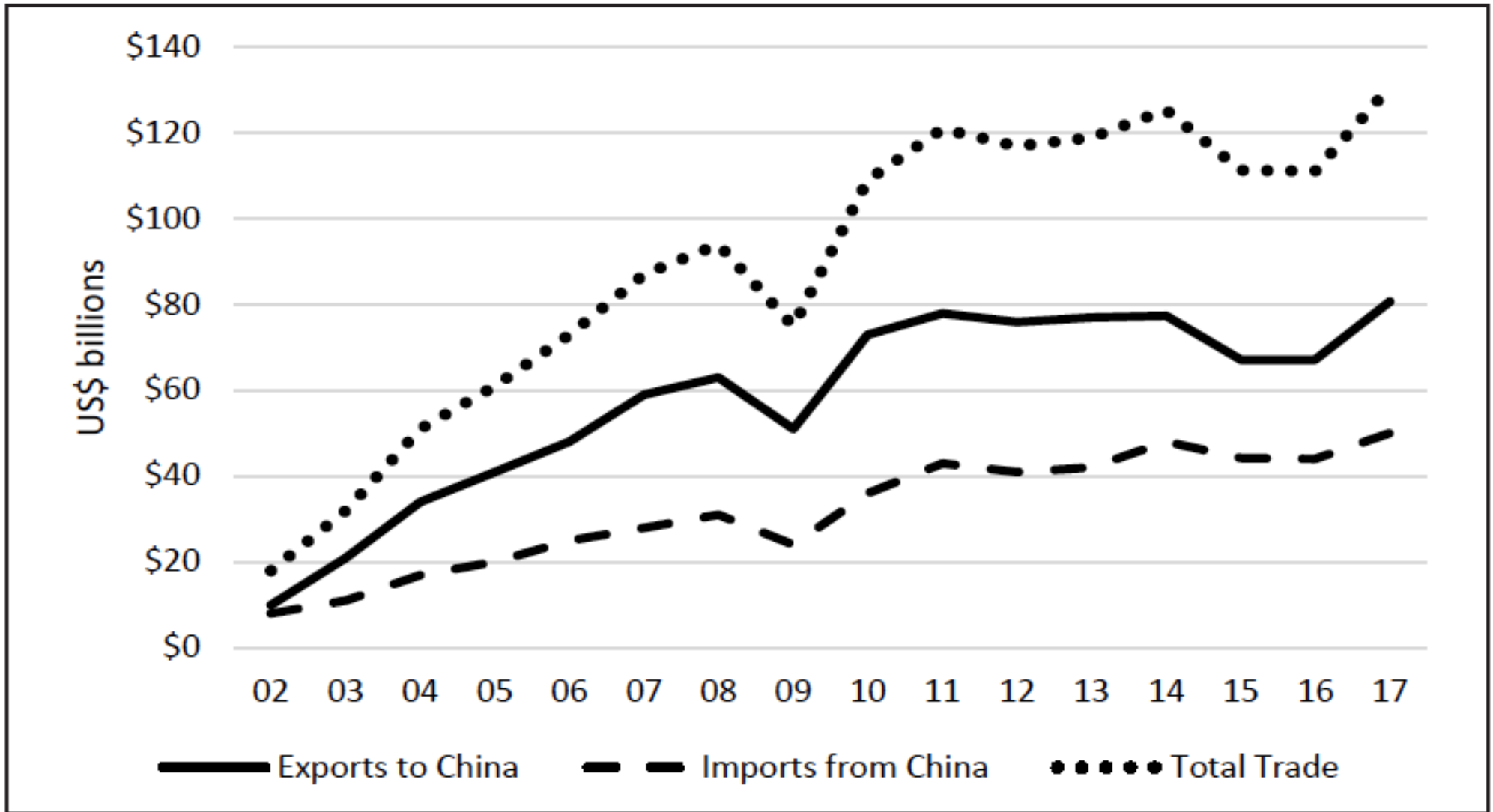
# Japanese Estimate of Chinese vs. Taiwan Land Forces in 2017



		China	Taiwan (Reference)
Total military forces		Approx. 2.2 million troops	Approx. 220,000 troops
Ground forces	Group troops	Approx. 1.15 million troops	Approx. 130,000 troops
	Tanks, etc.	Type-99/A, Type-98/A, Type-96/A, Type-88A/B and others Approx. 7,400 vehicles	M-60A, M-48A/H and others  Approx. 1,200 vehicles
Maritime forces	Warships	Approx. 740 vessels / 1,630,000 tons	Approx. 390 vessels / 210,000 tons
	Aircraft carriers, destroyers, and frigates	Approx. 80 vessels	Approx. 20 vessels
	Submarines	Approx. 60 vessels	4 vessels
	Marines	Approx. 10,000 troops	Approx. 10,000 troops
Air forces	Combat aircraft	Approx. 2,720 aircraft	Approx. 510 aircraft
	Modern fighters aircraft	J-10 x 346 Su-27/J-10 x 329 Su-30 x 97 J-15 x 13 J-16 x 2 (under tests) J-20 x 2 (under tests) (Fourth-/fifth-generation fighters (total): 789)	Mirage 2000 x 56 F-16 x 144 Ching-kuo x 128 (Fourth-generation fighters (total): 328)
Reference	Population	Approx. 1.38 billion	Approx. 23 million
	Term of service	2 years	1 year

Source: "The Military Balance 2017," etc. China's total military forces to be cut by 300,000 troops by the end of 2017.

## Taiwan's Increasing Trade with China: 2002-2017



Source: Taiwan's Bureau of Foreign Trade, *Trade Statistics*. <http://cus93.trade.gov.tw/FSCE000F/FSCE000F>.

# DoD on China's Amphibious Capability in 2019

The PLA continues to make modest gains in amphibious warfare by developing additional capabilities to conduct amphibious landings and seize and defend small islands. The PLA has 12 units organized and equipped to conduct amphibious operations.

During the last five years, the PLAA and the PLANMC have fielded new equipment designed specifically for amphibious operations such as the ZBD-05 amphibious infantry fighting vehicle and the PLZ-07B amphibious self-propelled howitzer.

The PLA has also made efforts to improve its ability to insert forces by air, restructuring the Airborne Corps and establishing Army Air assault units, which would be charged with aerial insertion and seizing key terrain. Both PLAA and PLANMC units equipped for amphibious operations conduct regular company- to battalion-level amphibious training exercises, and the PLA continues to integrate aerial insertion training into larger exercises, including dropping airborne forces from the Y-20 heavy-lift aircraft for the first time. However, the PLA rarely conducts amphibious exercises involving echelons above a battalion, though both PLAA and PLANMC units have emphasized the development of combined arms battalion formations since 2012.

In 2018, the PLANMC made minimal gains in its proficiency to conduct amphibious operations. Only its original two brigades continued to demonstrate the capacity to conduct this mission set. Although the scale and tempo of PLANMC training increased in an effort to indoctrinate the new brigades, they have not received their full complement of required equipment and are not fully mission capable. Consequently, the scope of training was rudimentary, and the new brigades remain unequipped to perform amphibious assault operations.

# DIA on Chinese Amphibious Capabilities in 2019 - I

China's amphibious ship force has slowly grown since a modernization program began in the early 2000s. Since 2005, China has built six large Yuzhao (Type 071) class amphibious transport docks, signaling China's development of an expeditionary warfare and over-the-horizon amphibious assault capability as well as inherent HADR and counterpiracy capabilities. The Yuzhao can carry up to four of the new Yuyi air-cushion utility landing craft (similar to the U.S. landing craft air cushion, LCAC) as well as four or more helicopters, armored vehicles, and troops on long-distance deployments. Additional Yuzhao construction is expected in the near term, as is a follow-on amphibious assault ship (landing helicopter assault, LHA, which Chinese sources term the "Type 075") that not only is larger but incorporates a full flight deck for helicopters. Production on the LHA is expected to begin soon, if it has not already begun.

An expanded set of missions farther into the western Pacific Ocean and Indian Ocean, such as counterpiracy deployments, HADR missions, survey voyages, and goodwill port visits, has increased demands on and broadened the experience of the PLAN's fleet of oceangoing replenishment and service vessels. The PLAN recently launched two new Fuyi class fast combat support ships, intended to support aircraft carrier battle groups, as well as the smaller Fuchi class replenishment oilers, which support surface action groups and long-distance deployments. These ships constantly rotate in support of China's Gulf of Aden counterpiracy deployments and regularly accompany surface groups operating beyond the first island chain. At present, China has at least 10 fleet replenishment ships operational, with more under construction.

In addition, China has added a variety of oceangoing auxiliary ships in recent years, including submarine rescue ships, hospital ships, salvage and rescue ships, survey ships, intelligence collection ships, and various large transport ships.

The PLAN Marine Corps (PLANMC) is the PLAN's land combat arm. Its primary mission is to conduct offensive and defensive amphibious assault in the South China Sea, including the Paracel Island and Spratly Island chains, and potentially the Senkaku Islands. The PLANMC is tasked with seizing and consolidating beachheads, destroying an opposing force at the beachhead and adjacent areas, organizing landing areas, and supporting landings by the PLAA. Other missions include conducting amphibious raids; seizing and occupying enemy naval bases, seaports, and islands; building beachhead protective zones; and covering the PLAA as it advances inland from the coast.

**Roles and Missions.** The PLANMC's mission appears to be evolving beyond amphibious operations and toward a more expeditionary mission beyond China's borders. This is in line with the PLA's evolving strategy as outlined in *China's Military Strategy*. For the PLAN, the New Historic Missions mean an increased focus on "diversified missions" or noncombat missions. Many of the tasks assigned to the armed forces in the white paper are ideally suited to the PLANMC, including ensuring Chinese sovereignty claims, safeguarding China's security and interests "in new domains," safeguarding the security of China's interests overseas, and performing such tasks as emergency rescue and disaster relief, rights and interest protection, and guard duty. The PLANMC already is designated a rapid-reaction force for the PLA and has deployed on numerous occasions in response to natural disasters in China, including floods and earthquakes. The PLANMC is the natural land-based force of choice for HADR efforts overseas. In 2017, the PLA also chose to deploy PLANMC troops to the PLA's first overseas base, in Djibouti, reflecting the Marine Corps' growing role in China's military.

Elements of the PLANMC are consistently deployed as part of the PLAN's counterpiracy task groups operating in the Gulf of Aden. The size of the embarked force is no larger than a platoon. These Marines may be regular infantry troops but more likely come from an amphibious reconnaissance group subordinate to the amphibious reconnaissance battalion. They are highly trained in the tactics, techniques, and procedures required for a counterpiracy mission, including VBSS, hostage rescue, and small-team assault. VBSS tactics include fast-roping or rappelling from PLAN helicopters.

**Units.** The PLANMC is subordinate to the PLAN and consists of seven brigades. Marine brigades are located in each of the North, East, and South Sea Fleets' areas of responsibility. Recent PLA reforms included the establishment of a PLANMC headquarters, probably to oversee the administrative man, train, and equip functions of the growing Marine Corps, and also included the appointment of the PLANMC's first commander. Each brigade has a headquarters element, an armored regiment, at least two infantry battalions, a howitzer battalion, a missile battalion, a communications and guard battalion, an engineer and chemical defense battalion, a maintenance battalion, and an amphibious reconnaissance battalion (special operations). Estimates of the PLANMC's troop strength differ widely and have been reported as high 35,000, but the actual number is probably between 28,000 and 35,000, evenly divided among the 7 brigades.

# DIA on Chinese Amphibious Capabilities in 2019 - II

The PLAN provides the PLANMC with both maritime and air (helicopter) transport, a force enabler for PLANMC amphibious warfare operations.<sup>2</sup> The PLANMC does not have an organic air assault element and probably would rely on PLAN ground-attack fixed-wing aircraft or PLAA helicopters in a close air support role. The PLANMC also has a limited logistics capability.

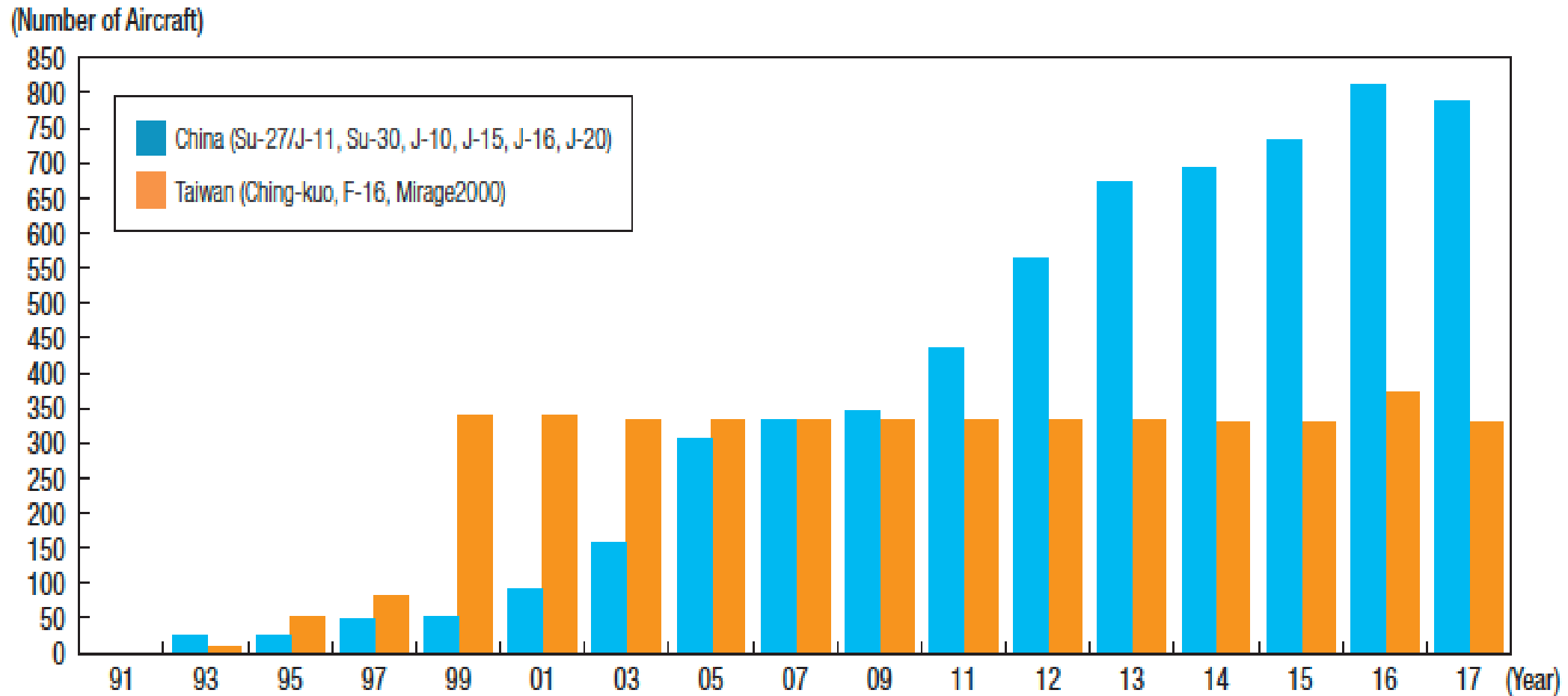
**Equipment.** The PLANMC is a fully amphibious force capable of conducting amphibious assault operations using combined-arms tactics and multiple avenues of approach. It is the most capable amphibious force of any South China Sea claimant. The PLANMC can simultaneously seize multiple islands in the Spratlys. It also is capable of rapidly reinforcing China's outposts in the Paracels. The PLANMC still faces challenges and limitations in close air support/air assault and logistics sustainment for large-scale amphibious operations. The PLANMC is incapable of defeating near-peer or peer countries such as the United States, Japan, South Korea, and Russia in amphibious or ground warfare.

The PLANMC's primary fighting vehicles are based on a single chassis and include the ZBD-05 AIFV and the ZLT-05 amphibious assault gun.<sup>245,246</sup> Noncombatant amphibious variants of the ZBD chassis include an armored recovery vehicle and an armored ambulance. Additional combat equipment includes man-portable air defense systems, antipersonnel mortars, antitank rocket launchers, and flamethrowers. The PLANMC is also equipped with amphibious combat engineering equipment for obstacle removal, beach improvement, and construction of defenses once ashore.

# Japanese Estimate of Chinese vs. Taiwan Air Modernization

Fig. I-2-3-8

Changes in the Number of Modern Fighter Aircraft of China and Taiwan



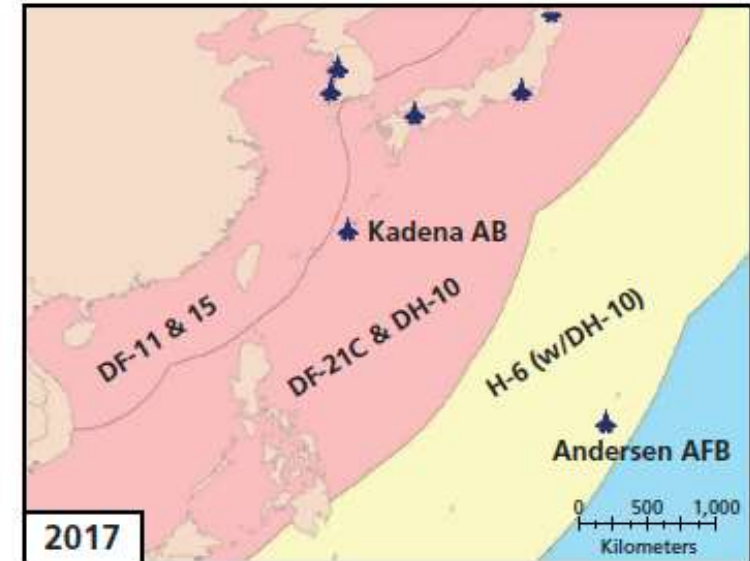
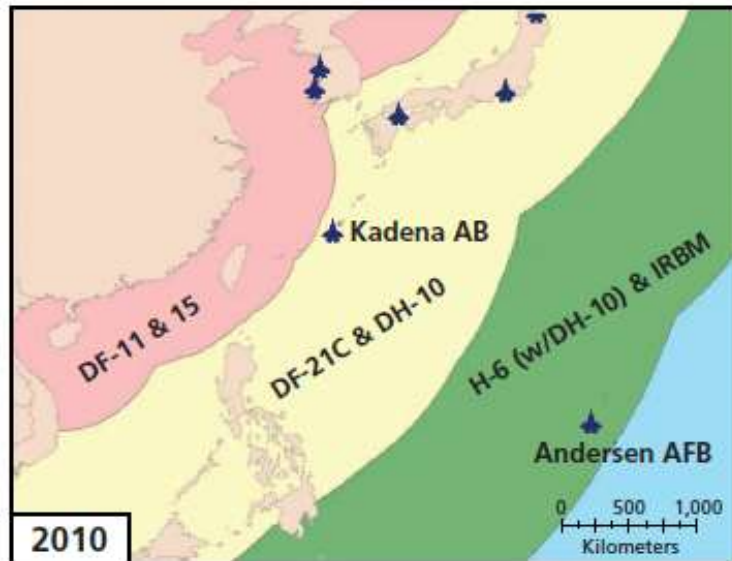
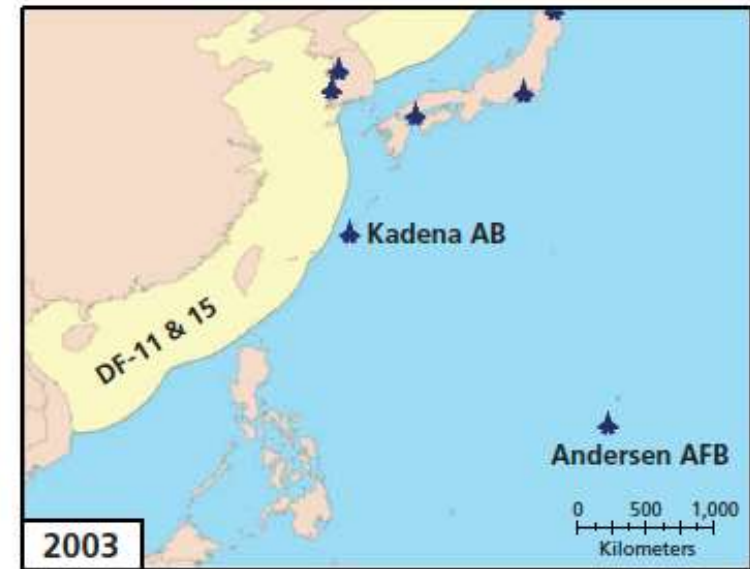
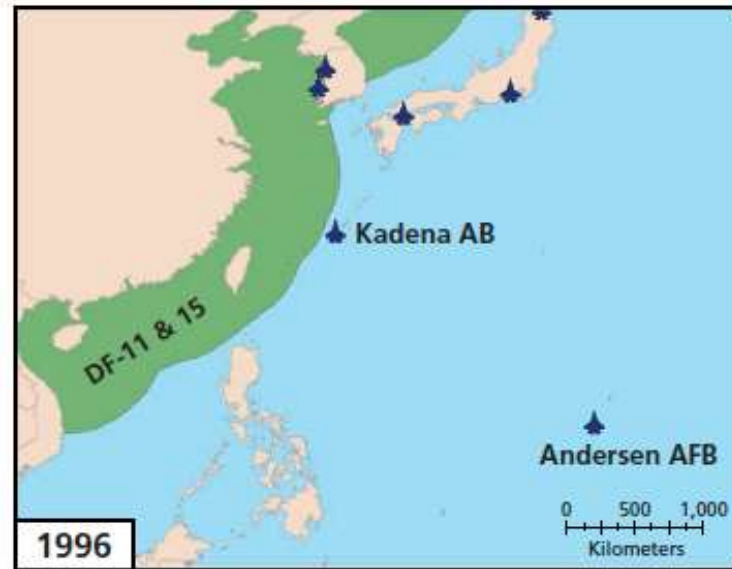
Source: "The Military Balance" (of respective years)



# Growth of Chinese Land Attack Missile Capability

In 1996 China had less than 100 that could reach Taiwan. Now China has highly accurate systems that can reach beyond Guam.

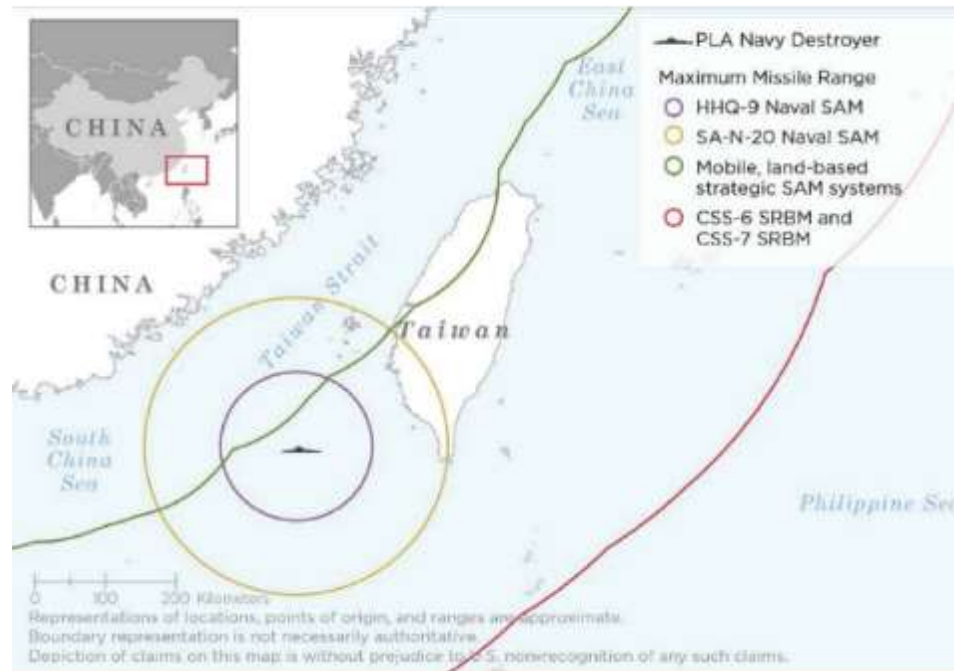
Source: RAND, *US Military Forces and Capabilities for a Dangerous World*, RR1782, 2017, p. 10.



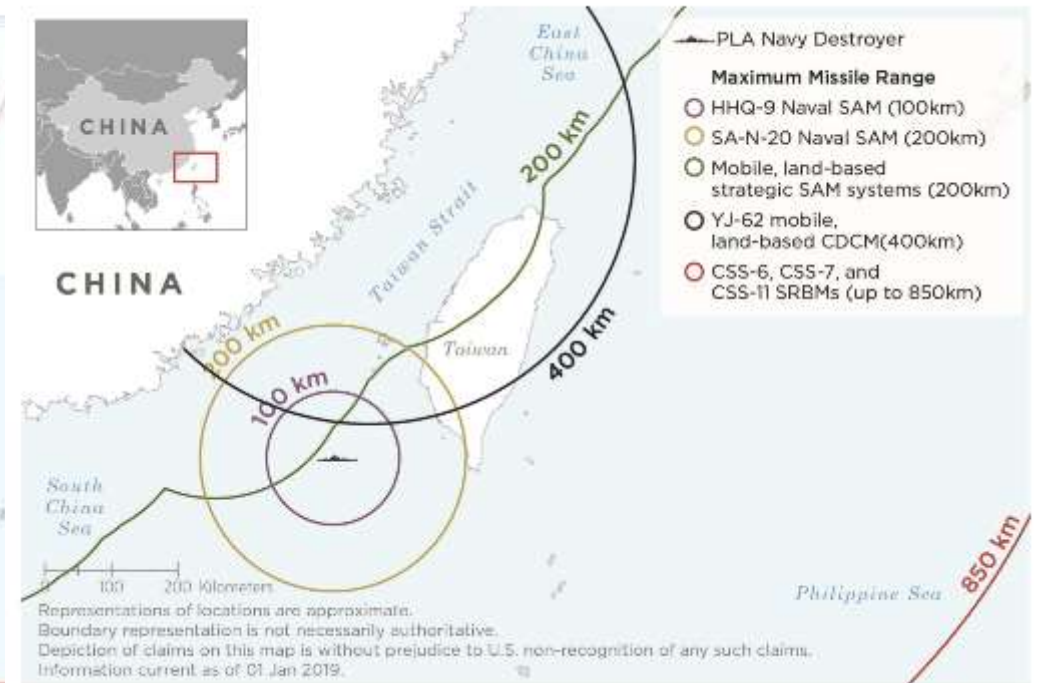
Threat level:  10s of missiles  100s of missiles  1,000s of missiles

# Shifting Balance of SAM, SSM, and Cruise Missile Capability in the Taiwan Straits: 2017 vs. 2019

Taiwan Strait SAM and SRBM Coverage 2017



Taiwan Strait 2019



Source: Department of Defense, Chinese Military Power, 2017, p. 78; and Department of Defense, Chinese Military Power, 2019, p. 87.

# **PART EIGHT: CHINESE FORCE DEVELOPMENT AND MODERNIZATION**

# China's Force Development and Modernization

China's 2019 Defense White Paper provides a whole new set of insights into China's military developments which are summarized in this section. At the same time, includes summaries of the U.S. Office of the Secretary of Defense (OSD) and Defense Intelligence Agency (DIA) estimates, and considerable additional detail on Chinese force developments and change in military organization and tactics. So do outside governments like Taiwan, Japan, and South Korea, and a number of think tanks and research centers – including the IISS, SIPRI, CSIS, and many other such groups. These studies cover many highly detailed aspects of China's force development – which has acquired all of the complexity and rapid pace of change in U.S., Russian, and the most advanced military forces in other states.

The summaries of Chinese views of its military modernization, and by major mission and military service that follow, highlight these developments when they are particularly important in understanding U.S. and Chinese competition and what might happen in a conflict – relying heavily on China's 2019 Defense White Paper, and OSD and DIA reporting in 2019. They cannot, however, cover many of the detailed changes in Chinese forces, and the possible ways they will affect the balance of deterrence and warfighting capability. There are simply too many variables, too many different estimates, and too many ways they can affect future confrontations, clashes, and wars.

There also are serious uncertainties in even the official data and summary judgments in many cases. Some outside sources also tend to exaggerate the probable strategic importance of a given capability or development. In other cases, experts may fail to anticipate military developments and progress that prove critical in a given conflict. Estimates of current and future performance, deployments, and comparability with other systems have proved wrong in the past and are certain to do so in the future, and are influenced by all of the differences in Chinese, U.S. and other perspectives cited earlier.

What is clear, however, is that Chinese military development has become far more modern and flexible, that it seeks to adopting as many advances in other forces as possible, and that it is often highly original in character. This depth of innovation is sometimes disguised by Chinese terminology, which can sometimes take the form of a near slogans while the actual level of military development involved is both sophisticated and more experimental. This includes the Chinese emphasis on advanced forms of joint warfare, precision strike and smart missiles, space, cyber, and many other areas of Chinese force development.

As is shown in this section, Chinese nuclear forces and weapons of mass destruction are a major area of uncertainty – as are many aspects of how U.S. and Russian nuclear forces will evolve. It is clear that China is developing a wide range of new delivery options. It is not clear which systems will be deployed over time, or how China's inventory of nuclear weapons will evolve to arm them. The same is true of China's future approach to missile defense, and nuclear strategy — including its somewhat uncertain existing claims regarding “no first use.” What is clear is that China's forces are developing to the point where the U.S. must consider China's future strategic nuclear forces in any evaluation of the U.S.-Russian nuclear balance, nuclear warfighting, and arms control.

# **Chinese Military Modernization: Key Goals and Trends**

# Chinese Military Modernization: Key Goals and Trends

China's military modernization and force capabilities are extremely difficult to characterize. China has not provided defense white papers in recent years, and the past papers have provided steadily fewer specifics and details. At the same time, the official estimates by OSD and DIA used in this study describe advances and changes in virtually every area of Chinese forces, tactics, military technology, and regional capability. This is particularly striking because these two sources are careful to avoid speculation, and are verified by far better collection capabilities than are available to other countries or any private source.

As noted earlier, this study can only highlight a limited number of such developments, and it is important to note that it does not cover several key internal political development in Chinese military modernization like new command and management systems, improved Communist Party Control, improve discipline, and the fight against corruption.

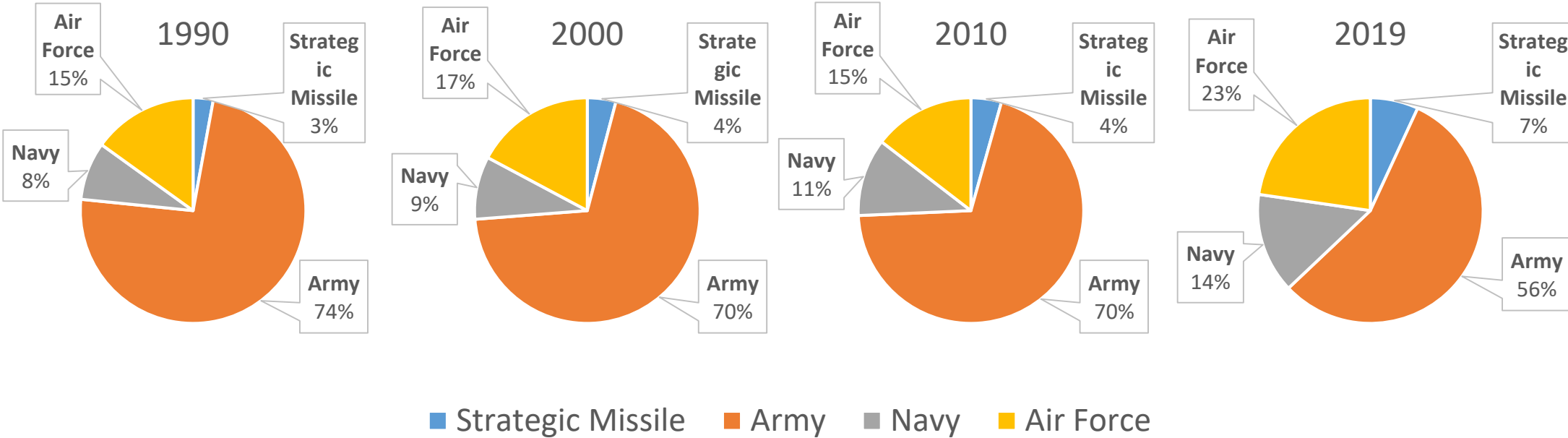
It is still clear, however, that China is acting on many of the goals it set in the past and is making advances in virtually every area of its military development, in each of its military services and paramilitary forces, and many cutting edge areas of military technology, tactics, and operational practice. It is also clear from U.S. official reports that China is actively improving its capability to perform the broad strategic tasks that it outlined in its 2015 Defense White Paper.

The graphics in this section summarize some key points in the Chinese White Paper and compare the 2017 and 2019 summary analyses in the OSD report on *Chinese Military Power*. They are, however, only a broad introduction to the full scale and diversity of Chinese efforts.

It should also be noted that they reflect Chinese claims and plans, and there is no way to independently assess how effective China has been in many of the areas involved, or to know actual performance and levels of technical progress.



# China's Changing Military Personnel: 1990-2019



Category	Total	Strategic Missile	% of Total	Army	% of Total	Navy	% of Total	Air Force	% of Total	Paramilitary
1980	4,450,000	ND	ND	3,600,000	(80.9%)	360,000	(8.1%)	490,000	(11.0%)	ND
1990	3,030,000	90,000	(3.0%)	2,300,000	(75.9%)	260,000	(8.6%)	470,000	(15.5%)	12,000,000
2000	2,470,000	100,000	(4.0%)	1,700,000	(68.8%)	220,000	(8.9%)	420,000	(17.0%)	1,000,000
2010	2,285,000	100,000	(4.4%)	1,600,000	(70.0%)	255,000	(11.2%)	333,000	(14.6%)	660,000
2019	2,035,000	120,000	(5.9%)	975,000	(47.9%)	250,000	(12.3%)	395,000	(19.4%)	660,000

Source: World Bank, <https://data.worldbank.org/indicator/MS.MIL.TOTL.P1?end=2017&locations=CN&start=1985&view=chart>, and IISS, Military Balance.

# China's Military Goals: 2015 Defense White Paper

China's national strategic goal is to complete the building of a moderately prosperous society in all respects by 2021 when the CPC celebrates its centenary; and the building of a modern socialist country that is prosperous, strong, democratic, culturally advanced and harmonious by 2049 when the People's Republic of China (PRC) marks its centenary.

It is a Chinese Dream of achieving the great rejuvenation of the Chinese nation. The Chinese Dream is to make the country strong. China's armed forces take their dream of making the military strong as part of the Chinese Dream. Without a strong military, a country can be neither safe nor strong.

In the new historical period, aiming at the CPC's goal of building a strong military in the new situation, China's armed forces will unswervingly adhere to the principle of the CPC's absolute leadership, uphold combat effectiveness as the sole and fundamental standard, carry on their glorious traditions, and work to build themselves into a people's military that follows the CPC's commands, can fight and win, and boasts a fine style of work.

In the new circumstances, the national security issues facing China encompass far more subjects, extend over a greater range, and cover a longer time span than at any time in the country's history. Internally and externally, the factors at play are more complex than ever before. Therefore, it is necessary to uphold a holistic view of national security, balance internal and external security, homeland and citizen security, traditional and non-traditional security, subsistence and development security, and China's own security and the common security of the world.

To realize China's national strategic goal and implement the holistic view of national security, new requirements have been raised for innovative development of China's military strategy and the accomplishment of military missions and tasks.

In response to the new requirement of safeguarding national security and development interests, China's armed forces will work harder to create a favorable strategic posture with more emphasis on the employment of military forces and means, and provide a solid security guarantee for the country's peaceful development. In response to the new requirement arising from the changing security situation, the armed forces will constantly innovate strategic guidance and operational thoughts so as to ensure the capabilities of fighting and winning.

In response to the new requirement arising from the worldwide RMA, the armed forces will pay close attention to the challenges in new security domains, and work hard to seize the strategic initiative in military competition. In response to the new requirement coming from the country's growing strategic interests, the armed forces will actively participate in both regional and international security cooperation and effectively secure China's overseas interests.

And in response to the new requirement arising from China's all-round and deepening reform, the armed forces will continue to follow the path of civil-military integration (CMI), actively participate in the country's economic and social construction, and firmly maintain social stability, so as to remain a staunch force for upholding the CPC's ruling position and a reliable force for developing socialism with Chinese characteristics.

# China's Strategic Tasks: 2015 Defense White Paper

China's armed forces mainly shoulder the following strategic tasks:

- To deal with a wide range of emergencies and military threats, and effectively safeguard the sovereignty and security of China's territorial land, air and sea;
- To resolutely safeguard the unification of the motherland;
- To safeguard China's security and interests in new domains;
- To safeguard the security of China's overseas interests;
- To maintain strategic deterrence and carry out nuclear counterattack;
- To participate in regional and international security cooperation and maintain regional and world peace;
- To strengthen efforts in operations against infiltration, separatism and terrorism so as to maintain China's political security and social stability; and
- To perform such tasks as emergency rescue and disaster relief, rights and interests protection, guard duties, and support for national economic and social development.

# China's Active Defense: 2015 Defense White Paper

Shortly after the founding of the PRC in 1949, the Central Military Commission (CMC) established the military strategic guideline of active defense, and later, in line with the developments and changes in the national security situation, has made a number of major revisions of it. In 1993 the military strategic guideline of the new era was formulated, which took winning local wars in conditions of modern technology, particularly high technology, as the basic point in making preparation for military struggle (PMS). In 2004, the guideline was further substantiated, and the basic point for PMS was modified to winning local wars under conditions of informationization.

...To implement the military strategic guideline of active defense in the new situation, China's armed forces will optimize the military strategic layout. In view of China's geostrategic environment, the security threats it faces and the strategic tasks they shoulder, the armed forces will make overall planning for strategic deployment and military disposition, in order to clearly divide areas of responsibility for their troops, and enable them to support each other and act as an organic whole.

Threats from such new security domains as outer space and cyber space will be dealt with to maintain the common security of the world community. China's armed forces will strengthen international security cooperation in areas crucially related to China's overseas interests, to ensure the security of such interests.

To implement the military strategic guideline of active defense in the new situation, China's armed forces will uphold the following principles:

- To be subordinate to and in the service of the national strategic goal, implement the holistic view of national security, strengthen PMS, prevent crises, deter and win wars;
- To foster a strategic posture favorable to China's peaceful development, adhere to the national defense policy that is defensive in nature, persevere in close coordination of political, military, economic and diplomatic work, and positively cope with comprehensive security threats the country possibly encounters;
- To strike a balance between rights protection and stability maintenance, and make overall planning for both, safeguard national territorial sovereignty and maritime rights and interests, and maintain security and stability along China's periphery;
- To endeavor to seize the strategic initiative in military struggle, proactively plan for military struggle in all directions and domains, and grasp the opportunities to accelerate military building, reform and development;
- To employ strategies and tactics featuring flexibility and mobility, give full play to the overall effectiveness of joint operations, concentrate superior forces, and make integrated use of all operational means and methods.

# Chinese 2019 Defense White Paper: Military Modernization - I

Implementing the military strategic guideline for a new era, China's armed forces strive to keep in alignment with and contribute to the general strategies of the Communist Party of China (CPC) and the country, adopt a holistic approach to national security, strengthen the awareness of potential dangers, crises and wars, and actively adapt to the new landscape of strategic competition, the new demands of national security, and new developments in modern warfare, so as to effectively fulfill their tasks and missions in the new era.

To respond to the security threats facing the country, China's armed forces take solid steps to strengthen military preparedness and comprehensively enhance combat capabilities for the new era. Efforts have been made to build the military strategy into a balanced and stable one for the new era, which focuses on defense and coordinates multiple domains. Based on the idea that China's national defense is the responsibility of all Chinese people, China's armed forces give full play to the overall power of the people's war by innovating in its strategies, tactics and measures.

Building a fortified national defense and a strong military commensurate with the country's international standing and its security and development interests is a strategic task for China's socialist modernization. Drawing lessons from history, China strengthens its national defense and military to provide security guarantee for its peaceful development.

To strengthen China's national defense and military in the new era, it is imperative to comprehensively implement Xi Jinping's thinking on strengthening the military, thoroughly deliver on Xi Jinping's thinking on military strategy, continue to enhance the political loyalty of the armed forces, strengthen them through reform and technology, run them in accordance with the law, and focus on the capabilities to fight and win. Efforts will be made to advance the integrated development of mechanization and informationization, speed up the development of intelligent military, create a modernized military force structure with Chinese characteristics, improve and develop socialist military institutions with Chinese features, and constantly enhance the capabilities to fulfill the missions and tasks in the new era.

The strategic goals for the development of China's national defense and military in the new era are:

- to generally achieve mechanization by the year 2020 with significantly enhanced informationization and greatly improved strategic capabilities;
- to comprehensively advance the modernization of military theory, organizational structure, military personnel, and weaponry and equipment in step with the modernization of the country and basically complete the modernization of national defense and the military by 2035; and
- to fully transform the people's armed forces into world-class forces by the mid-21st century.

## **...Maintaining Combat Readiness**

Maintaining combat readiness is an important assurance of effective response to security threats and fulfillment of tasks. The Central Military Commission (CMC) and the TCs' joint operations commands perform combat readiness duties strictly, and conduct regular inspections and drills to ensure combat readiness at all times. Consistent efforts are made to improve the capabilities of joint operations command to exercise reliable and efficient command over emergency responses, and to effectively accomplish urgent, tough and dangerous tasks. In 2018, the CMC conducted surprise inspections throughout the armed forces and organized readiness drills for the units, covering 21 provinces, autonomous regions and municipalities directly under the central government, and parts of the East China Sea and South China Sea.

# Chinese 2019 Defense White Paper: Military Modernization - II

The PLA and the People's Armed Police Force (PAP) give greater priority to combat readiness. Efforts are made to strictly act on relevant regulations and procedures, fulfill readiness duties, conduct targeted exercises and training, and maintain standardized order, with a view to staying ready to act when required and effectively carrying out readiness (combat) duties.

## **Carrying Out Military Training in Real Combat Conditions**

Military training is the basic practice of the armed forces in peacetime. China's armed forces put military training in an important position and take combat effectiveness as the sole and fundamental criterion. In order to enhance realistic training, they optimize the policy framework and criteria in this respect, establish and improve the relevant supervision system, conduct supervision on military training for emergencies and combat across the services, implement the responsibility system for training and readiness, and organize extensive contests and competitions to encourage officers and soldiers to step up military training.

Military training in real combat conditions across the armed forces is in full swing. Since 2012, China's armed forces have carried out extensive mission-oriented training tailored to the specific needs of different strategic directions and exercises of all services and arms, including 80 joint exercises at and above brigade/division level.

The history of the people's armed forces is a history of reform and innovation. In the new era, China is advancing defense and military modernization across the board and deepening reform in national defense and armed forces in all respects, with a focus on removing institutional barriers and solving structural and policy-related problems to adapt to the trends of worldwide RMA and the demands of national security. Historic strides have been made in strengthening the armed forces.

## **Reforming the Leadership and Command System**

The reform in the leadership and command system is a significant measure in response to the call of a modern and specialized military capable of fighting and winning wars in the information age, aiming to improve the operational effectiveness and development efficiency of the military. Adhering to the general principle of "the CMC exercising overall leadership, the TCs responsible for military operations and the services focusing on developing capabilities", the PLA endeavors to enhance the CMC's centralized and unified leadership and its functions of strategic command and strategic management. The PLA has dismantled the long-established systems of general departments, military area commands (MAC) and the force composition with a dominating land force, and established new leadership, management and operational command systems.

*Reorganizing and establishing new CMC functional organs.* To optimize the functional and institutional setup of the CMC organs, the former General Staff Headquarters, General Political Department, General Logistics Department and General Armaments Department have been reshuffled into 15 organs under the centralized CMC leadership to advise, execute and serve. Thus, the chains of command, development, management and supervision are more streamlined, and the responsibilities of decision-making, planning, execution and assessment are more properly delegated.

*Improving the leadership and management system for services and arms.* The PLA has:

- Established the PLAA leading organs by integrating the functions of the former general departments concerning the development of the land force;



# Chinese 2019 Defense White Paper: Military Modernization - III

- Established the PLASSF by combining strategic support forces across the services and CMC organs;
- Renamed the Second Artillery Force the PLARF; and
- Established the PLAJSF by integrating strategic and campaign level forces mainly for general-purpose support.

Thus, a CMC-Services-Troops leadership and management system has been put in place.

*Establishing and improving the joint operations command system.* By improving the joint operations command organ of the CMC and setting up those at the theater level, the PLA has established a lean and efficient joint operations command system composed of permanent and specialized commanding establishments for both peacetime and wartime operations. The former Shenyang, Beijing, Lanzhou, Jinan, Nanjing, Guangzhou and Chengdu MACs have been reorganized into 5 TCs: Eastern Theater Command (ETC), Southern Theater Command (STC), Western Theater Command (WTC), Northern Theater Command (NTC), and Central Theater Command (CTC). Thus, a CMC-TCs-Troops operations command system has been established.

*Adjusting scale and proportion, and restructuring force composition.* 300,000 personnel have been cut to keep the total active force at 2 million. Reform measures have been taken to transfer more officer positions to non-commissioned officers and civilian staff, downsize the leading organs at all levels by reducing their subordinate sections, leadership hierarchies and staff, and streamline the institutions and personnel in arts, sports, press, publication, logistical support, medical facilities, depots, and educational and research institutes. Thus, the number of personnel in the leading organs at and above regiment level has been cut by about 25%, and that of non-combat units by almost 50%. The PLA has significantly downsized the active force of the PLAA, maintained that of the PLAAF at a steady number, moderately increased that of the PLAN and PLARF, and optimized the force structures of all services and arms. The PLA has restructured the defense reserves. The deployment of combat forces has been adjusted for a strategic configuration that meets the demands of safeguarding China's national security in the new era.

*Reorganizing the troops and rebuilding new-type combat forces.* The previous 18 group armies have been reorganized into 13 new ones. All major combat units of the PLA follow a group army-brigade-battalion system. Reform measures have been taken to reinforce the combat capacity of the arms, reduce the command hierarchies and combine the troops at lower levels. New types of combat forces have been enhanced to conduct special operations, all-dimensional offense and defense, amphibious operations, far seas protection and strategic projection, aiming to make the force composition complete, combined, multi-functional and flexible.

*Rebalancing and reorganizing military educational and research institutions.* The PLA and the PAP have restructured the previous 77 universities and colleges into 44. The National Defense University (NDU) and the National University of Defense Technology (NUDT) have been reorganized. China's armed forces have established the CMC Steering Committee on Military Scientific Research and reorganized the Academy of Military Sciences (AMS) and the research institutes of the services. Thus, the military scientific research forces have been rebalanced with the AMS as the lead, the research institutes of the services and arms as the main forces, and the research components in educational institutions and the troops as supplements.

# Chinese 2019 Defense White Paper: Military Modernization - IV

## Reforming Military Policies and Institutions

China's armed forces take combat effectiveness as the criterion in the reform of military policies and institutions and encourage the initiative, enthusiasm and creativity of all members of the armed forces. Reform is designed to build and improve the system of socialist military policies and institutions with Chinese characteristics.

They have deepened reform in the institutions for Party building in the military to uphold the authority of the CPCCC and its centralized and unified leadership, and ensure the absolute leadership of the CPC over the military. Rules and regulations including the *Decision of China's Armed Forces on Strengthening Party Building in the Military in the New Era* have been formulated to improve the Party's institutions in the military in order to enhance its political and theoretical buildup, consolidate organizations, improve conduct, and enforce discipline.

They have innovated in policies and institutions for military force employment in a bid to effectively perform all missions and tasks in the new era. Rules and regulations have been formulated including the *Regulations on Vessel Protection Operations (Trial)*. The institutions of military strategic guidance, regulations on combat readiness duties, and rules and regulations on joint operations have all been optimized.

They have reformulated policies and institutions to further develop combat capabilities. Laws and regulations have been formulated and amended including the *Law of the People's Republic of China on National Defense Transportation*, the *Law of the People's Republic of China on the Protection of Military Installations* and the *Regulations on Civilian Personnel in the Military*. Newly-updated military training regulations and outlines have been promulgated. They have made progress in establishing the career officers system, optimizing the institutions of military welfare and support, improving the military honors system, and refining policies and institutions in training, equipment development, logistics, military research and national defense mobilization. Meanwhile, bigger legislative steps have been taken in relation to military officers and military service.

They have reformed the policies and institutions for military management to elevate the efficacy of military systems and boost quality development of the military. Rules and regulations have been formulated including the newly-updated *Regulations on Routine Service of the People's Liberation Army (Trial)*, the *Regulations on Discipline of the People's Liberation Army (Trial)*, the *Regulations on Formation of the People's Liberation Army (Trial)*, and the *Regulations on Military Legislation*. China's armed forces are enhancing institutional innovation in strategic management, defense expenditure management, and the military judicial system.

They have suspended all paid services. As of June, 2018, paid services provided by leading organs, operational units, and military-affiliated public institutions at all levels had been basically suspended, involving 15 sectors such as real estate lease, agricultural and associated products, and hospitality. Over 100,000 such projects have been suspended as scheduled, accounting for 94% of the total. The armed forces have achieved the goal of withdrawing from running businesses.

# Chinese 2019 Defense White Paper: Military Modernization - V

## ...Promoting Defense and Military Development in All Respects

*Placing theoretical and political buildup at the top of the agenda of the armed forces.* China's armed forces unswervingly take Xi Jinping's thinking on strengthening the military as the guidance, firmly uphold General Secretary Xi Jinping as the core of the CPCCC and the whole Party, firmly uphold the authority of the CPCCC and its centralized and unified leadership, and follow the CMC Chairman responsibility system, in an effort to further strengthen the consciousness of the need to maintain political integrity, think in big-picture terms, follow the leadership core and keep in alignment. In accordance with the *Decision on Issues Relating to the Military Political Work in the New Era* issued in December 2014, China's armed forces have improved their political work and embarked on a new journey of development. In order to fully strengthen the Party leadership and Party building of the military in the new era, a CMC meeting on party building was held in August, 2018. Great efforts are being made to cultivate revolutionary officers and soldiers of the new era with faith, ability, courage and integrity, and build troops with iron-like faith, conviction, discipline and commitment.

*Strengthening strategic management.* Adopting demand-oriented planning and planning-led resource allocation, China's armed forces have established and improved the strategic management procedures of demand-planning-budgeting-execution-evaluation. They have completed a system of strategic plans and programs composed of the development strategies of the military as a whole, and its key areas, branches, and the PAP. They have regulated military strategic planning, promulgated and implemented the *Outline of the 13th Five-Year Plan for Military Development*, and optimized the mechanisms for evaluation, supervision and control.

*...Building a combat-oriented modern logistics system.* China's armed forces are putting in place a support mechanism combining centralized and decentralized support, as well as general and special-purpose supplies, with PLAJLSF as the backbone force and service logistics units as supplements. They are also building a joint, lean and efficient logistic support system with the strategic and campaign level forces as the main force, the affiliated forces as the support, and the civil sectors as supplements. Logistics units have been incorporated into TC-level joint training, trans-theater training by services and arms, and joint exercises and training with foreign militaries to strengthen the integrated training of logistical and operational forces. China's armed forces have acquired a rapid, multi-dimensional and precise support capability.

...The PLA Joint Logistic Support Force (PLAJLSF), as the main force for joint logistics as well as strategic and campaign level support, is an important component of the modern military force with Chinese characteristics. It comprises the support forces for inventory and warehousing, medical services, transport, force projection, oil pipelines, engineering and construction management, reserve assets management, and procurement. Under the PLAJLSF, there are 5 joint logistic support centers located respectively in Wuxi (Jiangsu Province), Guilin (Guangxi Zhuang Autonomous Region), Xining (Qinghai Province), Shenyang (Liaoning Province), and Zhengzhou (Henan Province), as well as the PLA General Hospital and the PLA Center for Disease Prevention and Control. In line with the requirements of joint support for joint operations and joint training, the PLAJLSF is being integrated into the joint operations system to enhance the capabilities of integrated joint logistics, so as to build a strong and modernized joint logistic support force.

...China attends to both development and security. It is making an integrated effort to build a prosperous country and a strong military, and striving for the coordinated development of national defense and the economy. Following the principle of building the armed forces through diligence and thrift, China takes into consideration the development of the economy and the demands of national defense, decides on the appropriate scale and composition of defense expenditure, and manages and applies these funds in accordance with law.

# Chinese 2019 Defense White Paper: Military Modernization - VI

## China's Defense Expenditure Since 2012

In the new era, to keep pace with the country's modernization, China is focusing on building a fortified national defense and a strong military commensurate with the country's international standing, and its national security and development interests. China is striving to narrow the gap between its military and the world's leading militaries, and make up the deficiencies in the military's capabilities in modern warfare. Defense expenditure is growing steadily and the breakdown of spending is being continuously optimized.

In terms of usage, China's defense expenditure is assigned to three sectors – personnel, training and sustainment, and equipment. Personnel expenses mainly cover the salaries, allowances, food, bedding, clothing, insurance, subsidies and pensions for officers, non-ranking officers, soldiers and contracted civilians, as well as retirees supported from the defense budget. Training and sustainment expenses mainly cover training of the troops, institutional education, construction and maintenance of installations and facilities, and other expenditure on routine consumables. Equipment expenses mainly cover R&D, testing, procurement, repairs, maintenance, transport and the storage of weaponry and equipment. In terms of scope, defense expenditure covers all active forces, reserve forces and militia.

Since 2012, the increase in defense expenditure has been primarily spent for the following purposes:

1. Adapting to national economic and social development, improving the wellbeing of service personnel, ensuring regular increases in military salaries, and bettering the working, training and living conditions of the troops;
2. Increasing input in weaponry and equipment development, phasing out the outdated, upgrading the old, and developing and procuring the new, such as aircraft carriers, fighters, missiles and main battle tanks, to steadily modernize weaponry and equipment;
3. Deepening national defense and military reform, supporting major reforms in military leadership and command systems, force structure and composition, and policies and institutions;
4. Supporting training in real combat conditions, enhancing strategic-level training, joint training at TCs' level and training of services and arms, and improving the conditions for simulated, networked and force-on-force training; and
5. Supporting diverse military tasks including the UNPKOs, vessel protection operations, humanitarian assistance operations and disaster relief efforts.

# Building a More Capable PLA – Developments in 2017

China is committed to building a more capable PLA that can fight jointly, harness real-time, data-networked command and control and precision strike; and operate increasingly far away from China's shores.

- Highlights in 2017: cutting 300,000 personnel, flattening to a brigade structure, building expeditionary capability, and placing paramilitary forces solely under the control of the PLA.
- Notable 2017 exercise elements included air and ground operations coordination, incorporating multiple military services' intelligence, surveillance, and reconnaissance (ISR) data, and using joint air firepower guidance teams to provide targeting information to multiple services' assets.
- PLA Army reforms included disestablishment of five group army headquarters, reorganization of many divisions and regiments into combined arms brigades, and formation of some air assault brigades.
- The PLAN Marine Corps (PLANMC) is expanding. Previously consisting of 2 brigades, approximately 10,000 personnel, and limited in geography and mission, by 2020, the PLANMC will consist of 7 brigades, may exceed 30,000 personnel, and will have expanded its mission to include expeditionary operations.
- The PLAN conducted its longest goodwill tour in 2017, traveling to 20 countries in the Indo-Pacific region, Europe, Africa, and Oceania.
- In 2017, the PLAN launched an aircraft carrier and a cruiser, and three destroyers, additional surface combatants, support ships, and intelligence-collection ships entered service. The world's largest seaplane also completed its first flight in December 2017.
- The PLA Air Force (PLAAF) has been re-assigned a nuclear mission. The deployment and integration of nuclear-capable bombers would, for the first time, provide China with a nuclear "triad" of delivery systems dispersed across land, sea, and air.
- The Chinese Communist Party continued its vigorous efforts to root out armed forces corruption in 2017. In September 2017, two former Central Military Commission (CMC) members, the previous Joint Staff Department chief, Fang Fenghui, and previous Political Work Department director, Zhang Yang, were reportedly detained for questioning in an anti-graft probe, a first in decades for sitting CMC officers.
- Computer systems around the world, including those owned by the U.S. Government, continued to be targeted by China-based intrusions through 2017.



# OSD on Chinese Military Power in 2018: Key Findings

China's strategy is to harness the initial two decades of the 21st century as a "period of strategic opportunity" to facilitate China's development and expand the country's "comprehensive national power," which includes improving its military, the People's Liberation Army (PLA).

- At the 19th Party Congress in October 2017, President Xi enumerated objectives for the "basic realization of socialist modernization" by 2035, which included China becoming one of the most "innovation-oriented" countries, significant enhancement of the country's soft power, and continued economic prosperity.
- Xi's speeches at the 19th Party Congress and the PLA's 90th anniversary highlighted recent progress "accelerating toward informatization" that will provide the PLA with a "great rise in strategic capability."
- China's military leaders want to achieve mechanization and make "major progress" toward informatization by 2020, reach a goal of "basic modernization" by 2035, and become a world-class military by the middle of this century.

China's leaders increasingly seek to leverage China's growing economic, diplomatic, and military clout to establish regional preeminence and expand the country's international influence.

- China uses the Belt and Road Initiative to develop strong ties with other countries to shape their interests to align with China's and deter confrontation or criticism of China's approach to sensitive issues.
- In July 2017, Sri Lanka and a Chinese-state owned enterprise signed a 99-year lease for Hambantota Port, following similar deals in Piraeus, Greece, and Darwin, Australia.
- In August 2017, China officially opened its first overseas base in Djibouti, deploying a company of marines and equipment to the base.

Source: Office of the Secretary of Defense, *Military and Security Developments Involving the Republic of China, Annual Report to Congress*, "Fact Sheet" May 16, 2018, Department of Defense.

China does not want to jeopardize regional stability, which remains critical to its economic development, but is willing to employ coercive measures to advance its interests and mitigate other countries' opposition.

- In 2017, China used economic and diplomatic pressure, unsuccessfully, in an attempt to urge South Korea to reconsider its deployment of the Terminal High-Altitude Area Defense (THAAD) system.
- In August 2017, China conducted a coordinated PLA Navy (PLAN), China Coast Guard (CCG), and People's Armed Forces Maritime Militia patrol around Thitu Island and planted a flag on Sandy Cay, a sandbar within 12 nautical miles of Subi Reef and Thitu Island, possibly in response to the Philippines' reported plans to upgrade its runway on Thitu Island.
- In 2017, China continued building infrastructure at three large Spratly Islands outposts. China also made political and economic overtures to Southeast Asian countries to diminish regional concerns over its actions in the South China Sea.
- In 2017, China entered within 12 nautical miles of the Senkaku Islands on average once every 10 days with multiple CCG vessels.
- After a 70-day standoff near Doka La Pass, India and China agreed to withdraw their military forces, but both countries maintain a heightened military presence in the surrounding region. India halted another Chinese road construction effort in disputed territory in Arunachal Pradesh in December 2017.

China also continues to employ persuasion and coercion vis-à-vis Taiwan.

- Taiwan lost an additional diplomatic partner in 2017 (Panama), and international fora denied participation or observership to Taiwan representatives.
- In 2017, the PLAAF significantly increased Taiwan circumnavigations, passing through both the Miyako Strait and the Bashi Channel in the same mission.
- In June 2017, the United States announced the sale of \$1.42 billion in defense articles and services to Taiwan, including MK-48 6AT Heavy-Weight Torpedoes, AGM-154 Joint Standoff Weapons, and AGM-88 High-Speed Anti-Radiation Missiles.



# OSD on Chinese Military Developments in 2019: Key Findings - I

## Key Takeaways

- China's leaders continue to emphasize developing a military that can fight and win.
- In 2018, China published a new *Outline of Training and Evaluation* that emphasized realistic and joint training across all warfare domains, and covered missions and tasks aimed at "strong military opponents."
- China's growing overseas interests have increasingly propelled the PLA to think about how it will operate beyond China's borders and immediate periphery.
- China typically publishes a white paper on its military strategy every two years, but has not released one since 2015.

China's military strategy, as outlined in its 2015 defense white paper *China's Military Strategy* and further delineated in the latest iteration of the PLA National Defense University's *Science of Strategy*, is to build strong, combat-effective armed forces capable of winning regional conflicts and employing integrated, real-time C2 networks. Throughout 2018, China's leaders stressed these tenets with a particular emphasis on developing a military that can fight and win.

- The 2015 defense white paper also echoed themes from previous publications, reflecting a growing emphasis on the importance of the maritime domain, the PLA Air Force's shift towards offensive operations, the PLA Army's long-distance mobility operations, and the need for superiority in the information domain, including through space and cyber operations. Typically released every two years, China did not release a new defense white paper in 2017 or 2018.
- In 2018, the PLA promulgated a new *Outline of Military Training and Evaluation* that emphasized realistic and joint training across all warfare domains, addressed changes in the PLA following recent military reforms, incorporated a global perspective, and covered missions and tasks aimed at "strong military opponents." The new outline also implemented standards for training that rely on the experiences of foreign militaries and absorbs the methods those militaries use.

The PLA is pursuing an ambitious modernization program that aligns with China's two centenary goals. China's military leaders want to achieve mechanization and make "major progress" toward informatization by 2020, ahead of the first centenary goal. The concept of "informatization" figures prominently in PLA writings and is roughly analogous to the U.S. military's concept of "net-centric" capability: a force's ability to use advanced information technology and communications systems to gain operational advantage over an adversary. PLA writings highlight the benefit of near real-time shared awareness of the battlefield in enabling quick, unified effort to seize tactical opportunities. They also seek to complete military modernization by 2035 and become a "world-class" military by the second centenary goal of 2049. Although China has not defined what that means, some observers have interpreted it as meaning developing capabilities on par with other global militaries, especially the United States.

**Military Strategic Guidelines.** In 2015, China's leadership directed the PLA to be capable of fighting and winning "informatized local wars" with an elevated emphasis on "maritime military struggle," adjusting its guidance on the type of war the PLA should be prepared to fight. China promulgated this revision through its "military strategic guidelines," the top-level directives derived from China's military strategy that prescribe concepts, assess threats, and set priorities for planning, force posture, and modernization. This update indicates China expects significant elements of a modern conflict to occur at sea.

# OSD on Chinese Military Developments in 2019: Key Findings - II

## Modernization

China is advancing a comprehensive military modernization program aimed at completing modernization by 2035 and making the PLA into a “world-class” military by 2049...China aims to complete military modernization by 2035 and make the PLA into a “world-class” military by 2049, through both modernization as well as structural and command changes. During the last decade, China has increased its capability to address a range of regional security objectives, beyond its continued emphasis on capabilities for Taiwan contingencies.

Modernization includes improvements to military capabilities to conduct A2/AD against potential third-party intervention, as well as nuclear deterrence and power projection operations. The PLA continues to develop capabilities to conduct space, counterspace, electronic warfare, and cyberspace operations. The PLA seeks enhanced joint operations C2, joint logistics support, and a real-time surveillance, reconnaissance, and warning system to bolster its warfighting capability. PLA modernization includes command and force structure reforms to improve operational flexibility and readiness for future deployments.

## ...Strategy

- China’s leadership has adjusted its national military strategic guidelines about how to fight local wars two other times since the fall of the Soviet Union. In 1993, Jiang Zemin directed the PLA to prepare for local war under modern, high-tech conditions after observing U.S. military operations in the Gulf War. In 2004, Hu Jintao ordered the military to focus on winning “local war under informatized conditions.”
- Taiwan persistently remains the PLA’s main “strategic direction.” One of the geographic areas the leadership identifies as having strategic importance, in authoritative military publications. Other strategic directions include the East China Sea, the South China Sea, and China’s borders with India and North Korea. PLA reforms have oriented each new theater command toward a specific strategic direction.
- In 2015, China’s military strategy outlined eight “strategic tasks,” or types of missions the PLA must be ready to execute: safeguard the sovereignty of China’s territory; safeguard national unification; safeguard China’s interests in new domains such as space and cyberspace; maintain strategic deterrence; participate in international security cooperation; maintain China’s political security and social stability; and conduct emergency rescue, disaster relief, and “rights and interest protection” missions.

**Active Defense.** China characterizes its military strategy as one of “active defense,” a concept it describes as strategically defensive but operationally offensive. It is rooted in a commitment not to initiate armed conflict, but to respond robustly if an adversary challenges China’s national unity, territorial sovereignty, or interests. According to this concept, China may conduct defensive counterattacks by responding to an attack or striking preemptively to disrupt an adversary’s preparations to attack. The PLA interprets active defense to include both de-escalation and seizing the initiative. Active defense is enshrined in the 2015 *National Security Law* and is included in the PLA’s major strategy documents. President Xi’s speech during the PLA’s 90th anniversary parade in 2017 further highlighted that China would never conduct “invasion and expansion,” but also would never permit “any piece of Chinese territory” to separate from China.

**Coercive Approach.** As part of its “active defense” strategy, China’s leaders use tactics short of armed conflict to pursue China’s strategic objectives. Activities are calculated to fall below the threshold of provoking armed conflict with the United States, its allies and partners, or others in the Indo-Pacific region. These tactics are particularly evident in China’s pursuit of its territorial and maritime claims in the South and East China Seas as well as along its borders with India and Bhutan.

# OSD on Chinese Military Developments in 2019: Key Findings - III

In recent years, the PLA has also increased patrols around and near Taiwan using bomber, fighter, and surveillance aircraft to signal Taiwan. China additionally employs nonmilitary tools coercively, including economic tools during periods of political tensions with countries that China accuses of harming its national interests. After Australia's public debate on Chinese influence in Australian politics, China delayed customs approval for Australian beef and wine imports in early 2018. China's consulate in Sydney also warned Chinese students that studying in Australia was dangerous, and more than 20 Chinese school visits to Australia were cancelled.

**Growing Global Presence.** As China's overseas interests have grown over the past two decades, they have increasingly propelled the PLA to think about how it will operate beyond China's borders and its immediate periphery. In 2004, one of the new historic missions given to the PLA by then-Chinese President Hu Jintao was to support China's overseas interests and diplomacy. The PLAN's evolving focus – from “offshore waters defense” to a mix of “offshore waters defense” and “open seas protection” – reflects the high command's expanding interest in a wider operational reach. China's military strategy and ongoing PLA reform reflect the abandonment of its historic focus on control of geography through the use of expanding defensive perimeters in favor of a maritime strategy to defend interests abroad. Similarly, doctrinal references to a “forward edge defense” that would move potential conflicts far from China's territory suggest PLA strategists envision an increasing role for the PLA overseas.

A more robust overseas logistics and basing infrastructure would allow China to project and sustain military power at greater distances. China's leaders may assess that a mixture of military logistics models, including preferred access to overseas commercial ports and a limited number of exclusive PLA logistics facilities, probably collocated with commercial ports, most closely aligns with China's overseas military logistics needs. In August 2017, China officially opened a military base in Djibouti, its first overseas military base. Chinese officials claim that the base – which they describe as a logistics facility – will support China's anti- piracy operations in the Horn of Africa and its UN peacekeeping deployments. China will seek to establish additional military bases in countries with which it has a longstanding friendly relationship and similar strategic interests, such as Pakistan, and in which there is a precedent for hosting foreign militaries. China's overseas military basing will be constrained by the willingness of potential host countries to support a PLA presence. International press reporting in 2018 indicated that China sought to expand its military basing and access in the Middle East, Southeast Asia, and the western Pacific.

**Stability and Security Operations.** The PLA continues to emphasize the importance of stability and security operations, stressing training and equipment enhancements to improve force capabilities for these missions. These operations encompass emergency response, counterterrorism, international rescue, humanitarian assistance/disaster relief (HA/DR), peacekeeping operations (PKO), and various other security tasks falling into the category of military operations other than war (MOOTW). In recent years, the PLA has embraced MOOTW by revising doctrine and teaching materials and incorporating MOOTW into its readiness and modernization plans. In 2018, the PLA focused on regional counterterrorism cooperation in the midst of China's mass detention in Xinjiang of more than one million Uighurs, Kazakhs, and other Muslims in government camps, where their daily activities are restricted and heavily monitored.

- In a speech during the 8th Beijing Xiangshan Forum, Minister of National Defense General Wei Fenghe highlighted China's promotion of the “China-Afghanistan-Pakistan-Tajikistan” four- country counterterrorism cooperation mechanism known as the Quadrilateral Cooperation and Coordination Mechanism. In 2018, China engaged in counterterrorism exercises with Cambodia, Nepal, India, Pakistan, Kyrgyzstan, Tajikistan, Uzbekistan, Kazakhstan, and Russia.
- China also tasks the PAP with emergency response and counterterrorism operations, with PAP forces training for these missions through 2018.
- In 2018, the PLA continued to implement structural reforms, make progress on fielding indigenous systems, and strengthen the ability of the Strategic Support Force and the Joint Logistics Support Force to enable operational support capabilities and joint operations.

# Changing Nuclear, Chemical, and Biological Forces and Delivery Systems

# Nuclear, Chemical, and Biological Forces and Delivery Systems

The data in this section summarize the description of nuclear programs in China's 2015 and 2019 Defense White Papers. They then examine the assessments of China's current nuclear programs by OSD, the NPR, and DIA. They then examine the nuclear modernization programs of the U.S. and Russia, and the trends in the global nuclear balance. It is clear that China is still a small nuclear power by U.S. and Russian standards.

The data do show that China is modernizing and expanding virtually every element of its nuclear forces, including each element of its nuclear weapons and missile, sea, and air delivery systems. What are not clear are China's current and planned holdings of nuclear weapons, China's future plans for deploying additional delivery systems, its commitment to some form of no first use, first preemption, or launch on warning, and the extent to which it will accept what might be called a form of "minimum assured destruction." The charts and maps that follow provide some broad indications of the rate of increase in its nuclear weapons holding and its near-term plans to increase its delivery systems, but they do not indicate whether China will continue to rely on forces that can certainly inflict massive countervalue damage to U.S or Russian cities, but are too limited to have major value in any kind of counterforce exchange.

It is unclear, however, that China has reason to seek any form of parity with the Russia or the U.S. As is shown in one of the tables in this section, the Chinese ability to destroy 10-20 major Russian or the U.S cities would inflict unacceptable casualties by any standard other than total war. China's capability for "minimum assured destruction" still acts as a massive deterrent to any broad form of nuclear escalation.

Chinese restraint in deploying nuclear weapons might also have some value in decoupling China from any U.S. and Russian nuclear crisis or conflict and China may create other forms of counterforce capability by deploying large-scale precision guided conventionally-armed weapons. Similarly, the number of dual-capable missiles with conventional or nuclear warheads adds to the uncertainty any attack would face in analyzing the Chinese threat or executing a counterforce attack.

The data on Chinese biological and chemical weapons is too limited to provide useful indicators. China certainly has the ability to design and build such weapons, but it is unclear that it has done so.

Both OSD and DIA also make a point of describing Chinese underground facilities as defensive – possibly to refute arguments that China may be concealing large numbers of nuclear weapons in such facilities.

# China's View of Nuclear Weapons: 2015 Defense White Paper

The nuclear force is a strategic cornerstone for safeguarding national sovereignty and security. China has always pursued the policy of no first use of nuclear weapons and adhered to a self-defensive nuclear strategy that is defensive in nature.

China will unconditionally not use or threaten to use nuclear weapons against non-nuclear-weapon states or in nuclear-weapon-free zones, and will never enter into a nuclear arms race with any other country.

China has always kept its nuclear capabilities at the minimum level required for maintaining its national security.

China will optimize its nuclear force structure, improve strategic early warning, command and control, missile penetration, rapid reaction, and survivability and protection, and deter other countries from using or threatening to use nuclear weapons against China.

...In line with the strategic requirement of being lean and effective and possessing both nuclear and conventional missiles, the PLA Second Artillery Force (PLASAF) will strive to transform itself in the direction of informationization, press forward with independent innovations in weaponry and equipment by reliance on science and technology, enhance the safety, reliability and effectiveness of missile systems, and improve the force structure featuring a combination of both nuclear and conventional capabilities. The PLASAF will strengthen its capabilities for strategic deterrence and nuclear counterattack, and medium- and long-range precision strikes.

The PLAAF will boost its capabilities for strategic early warning, air strike, air and missile defense, information countermeasures, airborne operations, strategic projection and comprehensive support.

The PLAN will enhance its capabilities for strategic deterrence and counterattack, maritime maneuvers, joint operations at sea, comprehensive defense and comprehensive support.



# Chinese 2019 Defense White Paper: Nuclear Forces

International strategic competition is on the rise. The US has adjusted its national security and defense strategies, and adopted unilateral policies. It has provoked and intensified competition among major countries, significantly increased its defense expenditure, pushed for additional capacity in nuclear, outer space, cyber and missile defense, and undermined global strategic stability. NATO has continued its enlargement, stepped up military deployment in Central and Eastern Europe, and conducted frequent military exercises. Russia is strengthening its nuclear and non-nuclear capabilities for strategic containment, and striving to safeguard its strategic security space and interests. The European Union (EU) is accelerating its security and defense integration to be more independent in its own security.

The non-proliferation of weapons of mass destruction remains problematic. The international non-proliferation regime is compromised by pragmatism and double standards, and hence faces new challenges. Extremism and terrorism keep spreading. Non-traditional security threats involving cyber security, bio-security and piracy are becoming more pronounced. The Iranian nuclear issue has taken an unexpected turn, and there is no easy political solution to the Syrian issue. The security of individual countries is becoming increasingly intertwined, interlinked and interactive. No country can respond alone or stand aloof.

...China is always committed to a nuclear policy of no first use of nuclear weapons at any time and under any circumstances, and not using or threatening to use nuclear weapons against non-nuclear-weapon states or nuclear-weapon-free zones unconditionally. China advocates the ultimate complete prohibition and thorough destruction of nuclear weapons. China does not engage in any nuclear arms race with any other country and keeps its nuclear capabilities at the minimum level required for national security. China pursues a nuclear strategy of self-defense, the goal of which is to maintain national strategic security by deterring other countries from using or threatening to use nuclear weapons against China.

...Nuclear capability is the strategic cornerstone to safeguarding national sovereignty and security. China's armed forces strengthen the safety management of nuclear weapons and facilities, maintain the appropriate level of readiness and enhance strategic deterrence capability to protect national strategic security and maintain international strategic stability.

...The PLARF plays a critical role in maintaining China's national sovereignty and security. It comprises nuclear missile, conventional missile and support forces, and subordinate missile bases. In line with the strategic requirements of having both nuclear and conventional capabilities and deterring wars in all battlespaces, the PLARF is enhancing its credible and reliable capabilities of nuclear deterrence and counterattack, strengthening intermediate and long-range precision strike forces, and enhancing strategic counter-balance capability, so as to build a strong and modernized rocket force.

...China has played a constructive role in the political settlement of regional hotspots such as the Korean Peninsula issue, the Iranian nuclear issue and Syrian issue....

China actively participates in international arms control, disarmament and non-proliferation. ...China objects to arms race and strives to protect global strategic balance and stability. To this end, China has signed or acceded to dozens of relevant multilateral treaties including the Treaty on the Non-proliferation of Nuclear Weapons. In 2015 China announced the establishment of the USD1 billion China-UN Peace and Development Fund in the following decade, which was officially put into operation in 2016.

# Chinese 2019 Defense White Paper: NBC and Other Arms Control Treaties

Major Multilateral Treaties on Arms Control, Disarmament and Non-Proliferation Joined by China		
Category	Treaties	Time
Nuclear	Protocol to the Treaty on a Nuclear-Weapon-Free Zone in Central Asia	Signed in May 2014, approved in Apr. 2015 by the Standing Committee of the National People's Congress
	Protocol Additional to the Agreement Between the People's Republic of China and the International Atomic Energy Agency for the Application of Safeguards in China	Signed in Dec. 1998, entered into force in Mar. 2002
	Comprehensive Nuclear Test Ban Treaty	Signed in Sep. 1996
	Protocol I and II to the African Nuclear-Weapon-Free Zone Treaty	Signed in Apr. 1996, instrument of ratification deposited in Oct. 1997
	Convention on Nuclear Safety	Signed in Sep. 1994, ratified in Apr. 1996
	Treaty on the Non-Proliferation of Nuclear Weapons	Acceded in Mar. 1992
	Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Sea-Bed and the Ocean Floor and in the Subsoil Thereof	Acceded in Feb. 1991
	Convention on the Physical Protection of Nuclear Material	Acceded in Feb. 1989
	Agreement Between the People's Republic of China and the International Atomic Energy Agency for the Application of Safeguards in China	Signed in Sep. 1988, entered into force in Sep. 1989
	Additional Protocol II and III to the South Pacific Nuclear-Free Zone Treaty	Signed in Feb. 1987, instrument of ratification deposited in Oct. 1988
Chemical	Convention on the Prohibition of Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction	Signed in Jan. 1993, instrument of ratification deposited in Apr. 1997
	Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction	Acceded in Nov. 1984
Biological	Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare	Statement issued to acknowledge the Protocol in Jul. 1952

Category	Treaties	Time
Conventional	Protocol on Explosive Remnants of War (Protocol V) of Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or Have Indiscriminate Effects	Instrument of ratification deposited in Jun. 2010
	Protocol Against the Illicit Manufacturing of and Trafficking in Firearms, Their Parts and Components and Ammunition, Supplementing the United Nations Convention Against Transnational Organized Crime	Signed in Dec. 2002
	Protocol on Blinding Laser Weapons Annexed to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects (Protocol IV)	Instrument of ratification deposited in Nov. 1998
	Amended Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices Annexed to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects (Amended Protocol II)	Instrument of ratification deposited in Nov. 1998
	Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects and Protocols I-III	Signed in Sep. 1981, instrument of ratification deposited in Apr. 1982; amendment of Article 1 of the Convention ratified in Jun. 2003, instrument of ratification deposited in Aug. 2003
Others	Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques	Acceded in Jun. 2005
	Convention on Registration of Objects Launched into Outer Space	Acceded in Dec. 1988
	Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space	Acceded in Dec. 1988
	Convention on International Liability for Damage Caused by Space Objects	Acceded in Dec. 1988
	Treaty on Principles Concerning the Activities of States in the Exploration and Use of Outer Space Including the Moon and other Celestial Bodies	Acceded in Dec. 1983
	The Antarctic Treaty	Acceded in Jun. 1983

# U.S. Nuclear Posture Review on Chinese Nuclear Forces 2/2018 - I

While the United States has continued to reduce the number and salience of nuclear weapons, others, including Russia and China, have moved in the opposite direction. Russia has expanded and improved its strategic and non-strategic nuclear forces. China's military modernization has resulted in an expanded nuclear force, with little to no transparency into its intentions. North Korea continues its illicit pursuit of nuclear weapons and missile capabilities in direct violation of United Nations (U.N.) Security Council resolutions. Russia and North Korea have increased the salience of nuclear forces in their strategies and plans and have engaged in increasingly explicit nuclear threats. Along with China, they have also engaged in increasingly aggressive behavior in outer space and cyber space.

... Since 2010 we have seen the return of Great Power competition. To varying degrees, Russia and China have made clear they seek to substantially revise the post-Cold War international order and norms of behavior. Russia has demonstrated its willingness to use force to alter the map of Europe and impose its will on its neighbors, backed by implicit and explicit nuclear first-use threats. Russia is in violation of its international legal and political commitments that directly affect the security of others, including the 1987 Intermediate-Range Nuclear Forces (INF) Treaty, the 2002 Open Skies Treaty, and the 1991 Presidential Nuclear Initiatives. Its occupation of Crimea and direct support for Russia-led forces in Eastern Ukraine violate its commitment to respect the territorial integrity of Ukraine that they made in the 1994 Budapest Memorandum. China meanwhile has rejected the ruling of the Permanent Court of Arbitration Tribunal that found China's maritime claims in the South China Sea to be without merit and some of its related activities illegal under the U.N. Convention on the Law of the Sea and customary international law. Subsequently, China has continued to undertake assertive military initiatives to create "facts on the ground" in support of its territorial claims over features in the East and South China Seas.

... Russia and China are pursuing asymmetric ways and means to counter U.S. conventional capabilities, thereby increasing the risk of miscalculation and the potential for military confrontation with the United States, its allies, and partners. Both countries are developing counter-space military capabilities to deny the United States the ability to conduct space-based intelligence, surveillance, and reconnaissance (ISR); nuclear command, control, and communications (NC3); and positioning, navigation, and timing. Both seek to develop offensive cyberspace capabilities to deter, disrupt, or defeat U.S. forces dependent on computer networks. Both are fielding an array of anti-access area denial (A2/AD) capabilities and underground facilities to counter U.S. precision conventional strike capabilities and to raise the cost for the United States to reinforce its European and Asian allies and partners. While nuclear weapons play a deterrent role in both Russian and Chinese strategy, Russia may also rely on threats of limited nuclear first use, or actual first use, to coerce us, our allies, and partners into terminating a conflict on terms favorable to Russia. Moscow apparently believes that the United States is unwilling to respond to Russian employment of tactical nuclear weapons with strategic nuclear weapons.

The United States does not wish to regard either Russia or China as an adversary and seeks stable relations with both. We continue to seek a dialogue with China to enhance our understanding of our respective nuclear policies, doctrine, and capabilities; to improve transparency; and to help manage the risks of miscalculation and misperception. The United States and Russia have in the past maintained strategic dialogues to manage nuclear competition and nuclear risks. Given Russian actions, including its occupation of Crimea, this constructive engagement has declined substantially. The United States looks forward to a new day when Russia engages with the United States, its allies, and partners transparently and constructively, without aggressive actions and coercive nuclear threats. Nevertheless, this review candidly addresses the challenges posed by Russian, Chinese, and other states' strategic policies, programs, and capabilities, particularly nuclear, and the flexible, adaptable, and resilient U.S. nuclear capabilities required to protect the United States, allies and partners.

...Consistent with Chinese President Xi's statement at the 19th Party Congress that China's military will be "fully transformed into a first tier force" by 2050, China continues to increase the number, capabilities, and protection of its nuclear forces. While China's declaratory policy and doctrine have not changed, its lack of transparency regarding the scope and scale of its nuclear modernization program raises questions regarding its future intent. China has developed a new road-mobile strategic intercontinental ballistic missile (ICBM), a new multi-warhead version of its DF-5 silo-based ICBM, and its most advanced ballistic missile submarine armed with new submarine-launched ballistic missiles (SLBM). It has also announced development of a new nuclear-capable strategic bomber, giving China a nuclear triad. China has also deployed a nuclear-capable precision guided DF-26 intermediate-range ballistic missile capable of attacking land and naval targets. As with Russia, despite criticizing U.S. homeland missile defense—which is directed against limited missile threats—China has announced that it is testing a new mid-course missile defense system, plans to develop sea-based mid-course ballistic missile defense, and is developing theater ballistic missile defense systems, but has provided few details.

# U.S. Nuclear Posture Review on Balance of Nuclear Forces 2/2018 - II

## NEW NUCLEAR DELIVERY SYSTEMS SINCE 2010

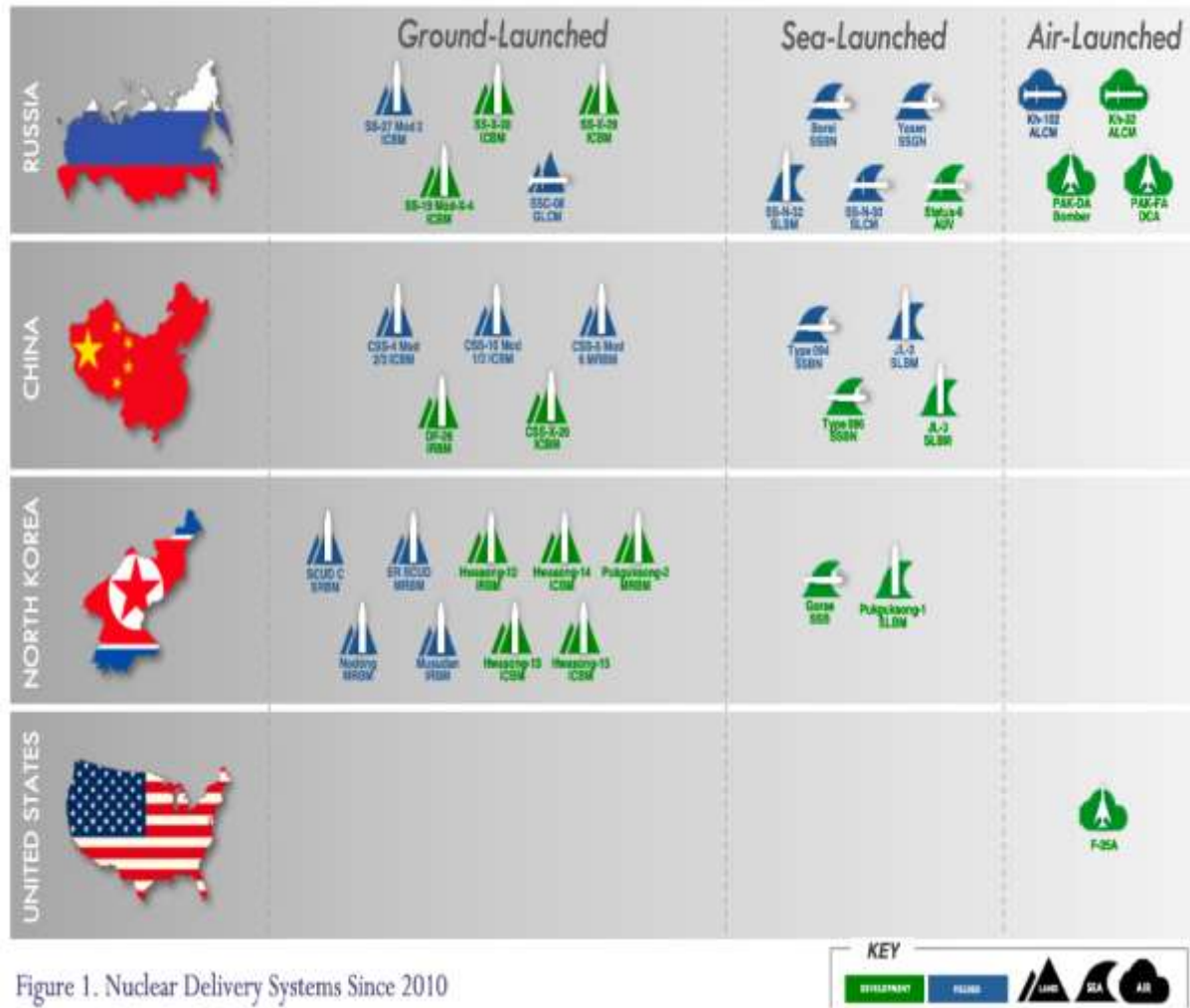
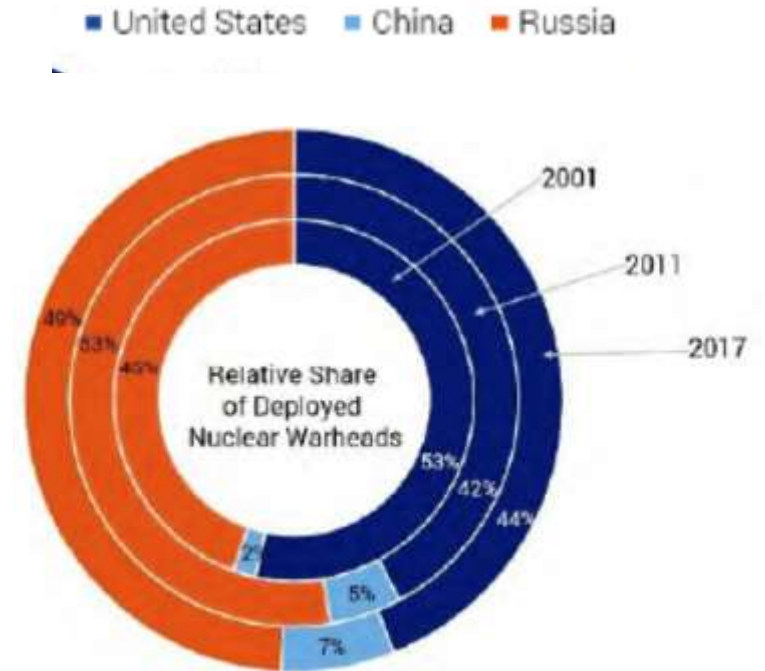


Figure 1. Nuclear Delivery Systems Since 2010

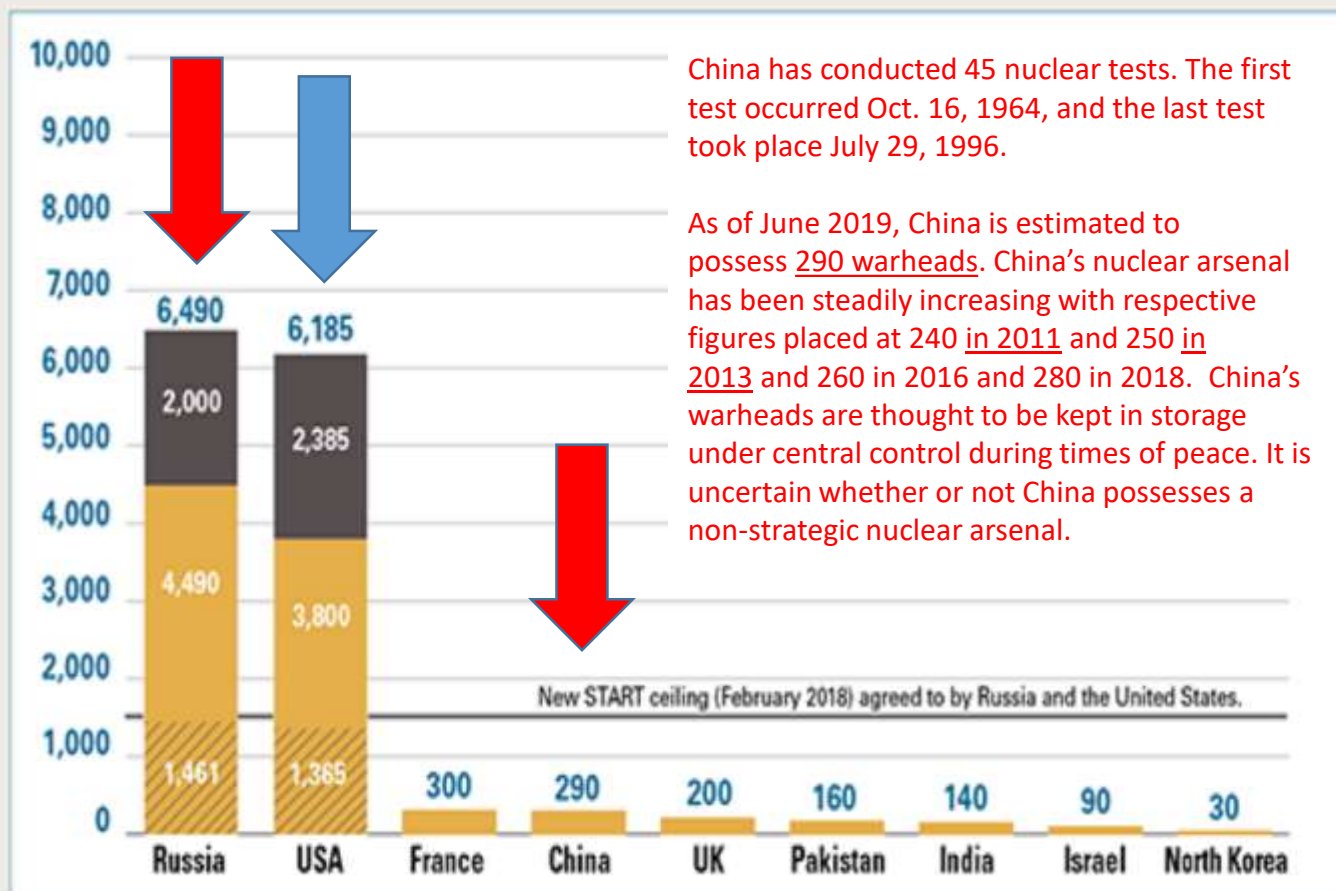
Data provided by the DoD





# Arms Control Association Nuclear Assessment: 2019 - I

The world's nuclear-armed states possess a combined total of nearly 14,000 nuclear warheads; more than 90% belong to Russia and the United States. Approximately 9,500 warheads are in military service, with the rest awaiting dismantlement.



- Retired:** warheads no longer in the stockpile but remain intact as they await dismantlement
- Stockpiled:** warheads assigned for potential use on military delivery vehicles; includes active and inactive warheads.
- Strategic Deployed:** warheads on ballistic missiles and at U.S. bomber bases. *Numbers based on New START counting rules which attributes one deployed warhead per deployed heavy bomber no matter how many warheads each bomber actually carries.*

Sources: Hans M. Kristensen and Matt Korda; U.S. Department of State; Stockholm International Peace Research Institute. Updated June 2019.

Arms Control  
Association

# Arms Control Association Nuclear Assessment: 2019 - II

## Nuclear Doctrine

China was the first nuclear-weapon state to declare publicly that it will not be the first to use nuclear weapons. Beijing has emphasized that this vow stands “at any time or under any circumstances.” However, the omission of China’s “No First Use” policy from its 2013 defense white paper caused [considerable concern](#) amongst U.S. analysts. Nevertheless, in its [2015 military strategy](#) white paper it reaffirmed its no first use policy and further pledged not to engage in a nuclear arms race. The report also states, “China has always kept its nuclear capabilities at the minimum level required for maintaining its national security. China will optimize its nuclear force structure, improve strategic early warning, command and control, missile penetration, rapid reaction, and survivability and protection, and deter other countries from using or threatening to use nuclear weapons against China.”

Regardless, [some theorize](#) that the modernization of China’s nuclear arsenal, its intent on increasing its nuclear warfare capabilities, and its posturing demonstrate a doctrine of counternuclear coercion or limited deterrence.

## Fissile Material

Although China has not publicly declared a halt to the production of fissile material for weapons purposes, highly enriched uranium (HEU) and separated plutonium, general speculation is that Beijing has stopped its production. China is reported to have last produced HEU in 1989 and last produced separated plutonium in 1991.

The International Panel on Fissile Material's [2015 report](#) estimates that China maintains a stockpile of  $18 \pm 4$  metric tons of military HEU and  $1.8 \pm 0.5$  metric tons of weapon-grade plutonium. At the present, the [limited size](#) of China’s military stockpile restricts its ability to produce more warheads.

China has not declared a civilian HEU stockpile and, as of 2016, maintains an estimated [civilian plutonium stockpile](#) of only 25.6 kg.

## Proliferation Record

China has a record of assisting states with nuclear and missile programs in the past, but in 2000, China made a [public commitment](#) not to assist “in any way, any country in the development of ballistic missiles that can be used to deliver nuclear weapons.”

China has aided Pakistan’s nuclear and missile programs among other states. Iran, Libya, North Korea, and Saudi Arabia have also been identified as recipients of sensitive technologies and materials from China.

The China Nuclear Energy Industry Corporation (CNEIC)—with government authorization—has [exported Miniature Neutron Source Reactors](#) (MNSR) to Pakistan, Iran, Syria, Ghana, and Nigeria. These reactors run on highly enriched uranium fuel, albeit a fraction of what is necessary for a nuclear warhead, which has been supplied by China to recipient states.

There have been efforts made by China to work with those states to convert these reactors to use low enriched uranium fuel, including a [2010 agreement](#) between the U.S. Argonne National Laboratory and the China Institute of Atomic Energy for a new facility in China to produce LEU replacement cores in MNSR's.

Nuclear Supplier Group (NSG) members, including the United States, saw enough improvement in China’s nuclear export behavior that they extended membership to China in 2004. Nonetheless, China [has sold](#) reactors to Pakistan, as was revealed in a 2010 agreement between the two nations. This trade, however, contravenes NSG guidelines. China’s bid to join the Missile Technology Control Regime failed in 2004, due to continuing concerns about Chinese missile and missile technology transactions. China, however, maintains that it voluntarily abides by the regime’s guidelines.

A 2017 [State Department Compliance report](#) cited that “in 2016, Chinese entities continued to supply missile programs of proliferation concern.”

Chinese entities have been regularly sanctioned for [nonproliferation violations](#) by the U.S. government. For example, several Chinese entities were sanctioned under the Iran, North Korea, and Syria Nonproliferation Act (INKSNA) sanctions in 2016.

The United States has also, at various times, imposed sanctions on Chinese entities for missile and [chemical weapons related transfers](#) to Pakistan and Iran such as the provision of dual-use chemical weapons precursors and production equipment to Iran beginning in 1997.



# Arms Control Association Nuclear Assessment: 2019 - III

## **Nuclear Modernization**

Hans M. Kristensen & Robert S. Norris [report](#) that, “The modernized force is more mobile, responsive, and accurate, and can overwhelm a limited US ballistic missile defense system.” According to the U.S. Department of Defense (DOD), China continues to field new and more advanced nuclear delivery systems with improved range and destructive capability. China’s decision to switch some of its missiles from [liquid to solid](#) fuel has improved their capabilities, in both range and promptness of launch.

## **Intercontinental Ballistic Missiles (ICBM)**

China appears to maintain a minimal force of nuclear-armed ICBMs to ensure Beijing’s ability to execute a second strike.

Estimates place China as having around 143 nuclear-capable land-based missiles capable of delivering approximately 163 warheads. A 2016 Bulletin of the Atomic Scientists report [estimates](#) that around 50-75 of these land-based missiles are ICBMs, whereas the DOD’s annual military power report on China in 2017 [figures China’s ICBM](#) arsenal at around 75-100 ICBMs. Only 40-50 of China’s ICBMs are capable of targeting the continental United States. China’s ICBM arsenal contains:

**DF-4** (CSS-3): 5,500+ km range.

**DF-5A** (CSS-4, Mod 2): 13,000+ km range.

**DF-5B** (CSS-4, Mod 3): ~12,000 km range. The DF-5B is a variant of the DF-5A upgraded to carry MIRVs.

**DF-5C**: on Jan. 31 2017, it was reported that China had [flight tested](#) the DF-5C, fixed with 10 warheads—a breakthrough in China’s nuclear weapons development. However, some experts are skeptical of this claim. The DF-5C is [reported](#) to be a two-stage, liquid-fueled missile with a range of around 8,000 miles (approximately 13,000 km).

**DF-31** (CSS-10, Mod 1): 7,000+ km range.

**DF-31A** (CSS-10 Mod 2): 11,000+ km range.

**DF-41**: in development; [flight-tested](#) in 2016 with two MIRVs. It is a three-stage, solid propellant missile with an [estimated range](#) of 12,000-15,000 km and is believed to be able to carry up to ten warheads. The DF-41 is intended to replace the older liquid-fueled DF-5As.

China is in the process of replacing the older liquid-fueled missiles such as the DF-4 and DF-5A with the solid-fueled ICBMs.

In January 2017, the DF-41, never publically displayed before, was [alleged to have been deployed](#) at the Russian border, although many experts believe it has not completed development.

China’s land-based missiles, both conventional and nuclear, are under the control of the PLA Rocket Force, a command of [100,000 personnel](#).

## **Submarines and Submarine-Launched Ballistic Missile (SLBM)**

As of March 2017, China has a fleet of 4 *Jin*-class (Type 094) nuclear-powered ballistic missile submarines (SSBNs). The *Jin*-class SSBNs are designed to carry the new JL-2 SLBMs.

An additional 4 *Jin*-class SSBNs have been commissioned and at least one is under construction.

[China possesses](#) two SLBM types:

**JL-1** (CSS-NX-3): [estimated range](#) of 1,000+ km. JL-1 missiles are being replaced by JL-2s.

**JL-2** (CSS-NX-14): a modified version of the DF-31 ICBM; estimated range of 7,000+ km but some [estimates](#) place the number at 8,000-9,000 km.

Five *Jin*-class submarines [may enter service](#) before China begins developing and fielding its next-generation SSBN, the Type 096, over the coming decade. The type 096 submarine is expected to carry both the JL-2 and a new missile, the JL-3, which is to be the JL-2’s anticipated successor.

Despite various claims to the contrary, it is unclear whether or not Chinese submarines have undergone any deterrent patrols. Beginning in early 2015, it was [reported](#) that a Chinese SSBN has undergone a 95-day patrol.

## **Strategic Bombers**

China has begun to update its outdated nuclear-capable bomber fleet. According to a DOD report, China continued, in 2015, to develop long-range bombers, including some that Chinese military analysts have described as “capable of performing strategic deterrence.”

The PLA air force was assigned a “strategic deterrence” mission in 2012.

As of December 2016, China’s [fleet of nuclear-capable bombers](#) consisted of about 20 Hong-6 (H-6) bombers based on Soviet designs, with a range of only 3,100+ km.

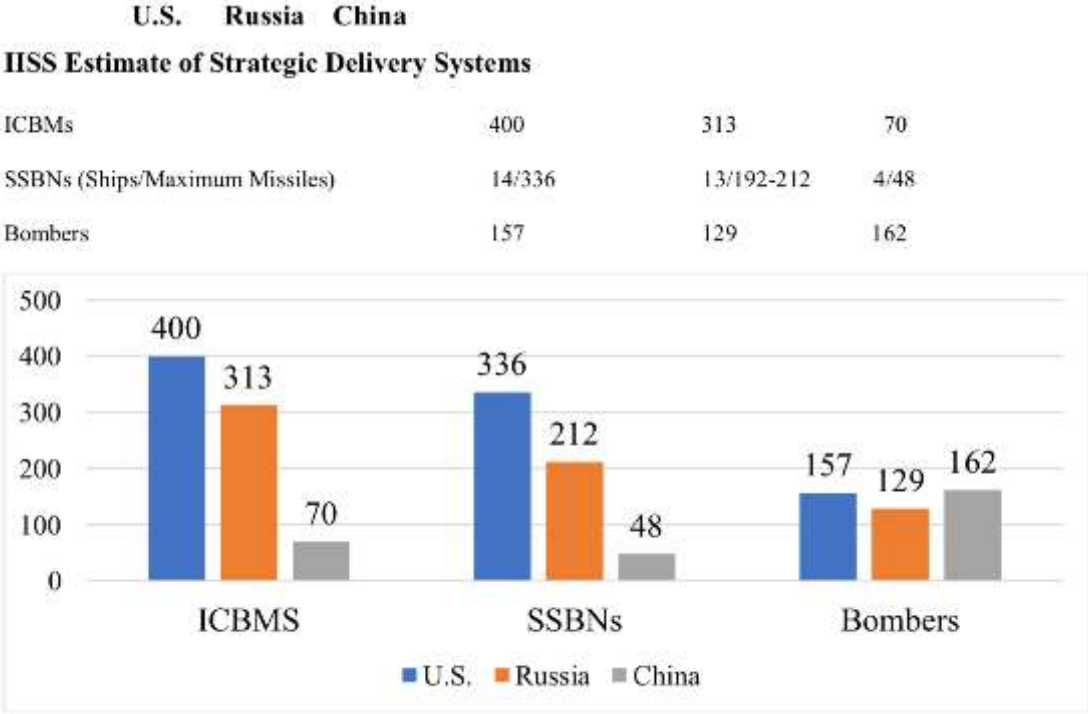
The H-6 bombers are only capable of delivering an unspecified number of gravity-based bombs but are [not believed](#) to be assigned an active nuclear mission.

[Media](#) reports suggest that China may [develop a new nuclear bomber](#) capability in the future.

The PLA Air Force operates a [fully redesigned](#) H-6 variant known as the H-6k that has an extended range and is capable of carrying six land attack cruise missiles.

In March 2017 it was [announced](#) that the 5<sup>th</sup> generation Chengdu J-20 stealth fighter jet had entered into service, putting China one step closer to rivaling U.S. air superiority in East Asia.

# US State Department Estimate of Chinese, Russian and U.S. Delivery Systems in 2019



**U.S. State Department Estimate of START forces (September 1, 2018) versus Chinese Forces**

Deployed ICBMs, Deployed SLBMs, and Deployed Heavy Bombers	659	577	N/A
Warheads on Deployed ICBMs, on Deployed SLBMs, and Nuclear Warheads Counted for Deployed Heavy Bombers	1,358	1,420	N/A
Deployed and Non-deployed Launchers of ICBMs, Deployed and Non-deployed Launchers of SLBMs, and Deployed and Non-deployed Heavy Bombers	800	775	N/A

U.S. State Department, Bureau of Arms Control, Verification, and Compliance, *New START Treaty Aggregate Numbers of Strategic Offensive Arms*, Fact Sheet, September 1, 2018; IISS, *Military Balance 2018*, p. 22

This figure shows an IISS estimate of U.S, Russian, and Chinese forces based on the IISS *Military Balance* for 2018, along with a comparison of the START data on the accountable holdings of U.S. and Russia reported by the U.S. State Department in September 2018. In contrast, a January 2018 study by Gregory Kulacki of the Union of Concerned Scientists states the Department of Defense indicated that China had 75-100 ICBMs compared to 400 for the U.S.<sup>18</sup> While the Department reported that Chinese was beginning to deploy missiles that were capable of carrying MIRV/d warheads, all existing U.S. ICBMs could carry three nuclear weapons while deployed China's ICBMs could still only carry one. Kulacki also reports that China had four nuclear submarines with a total launch capability of 48 missiles, and a fifth under construction that could launch 12 more. The U.S had 248 submarine- launched ballistic missiles (SLBMs) on 12 SSBNs. Once again, Chinese missiles could only carry one. The U.S. missiles could carry up to 12 warheads – for a total of 2,976 – although the START Treaty limited the total to 1,152, and the U.S. actually deployed only 890. Although only START has limited the number of strategic nuclear weapons the U.S. can load on its bombers, Kulacki estimates the U.S. has a total of 1,100 nuclear bombs that its bombers and fighter could carry, and 526 nuclear warheads on air-launched cruise missiles. He notes the U.S. evidently has several hundred "dual capable" CJ-10 land-launched and CJ-20 air launched cruise missiles, but their actual nuclear capability is unclear.

# Chinese Nuclear Forces in 2018

Type	NATO designation	Number of launchers	Year deployed	Range (kilometers)	Warhead x yield <sup>a</sup> (kilotons)	Number of warheads
<b>Land-based ballistic missiles</b>						
sDF-4	CSS-3	~5	1980	5,500+	1 x 3,300	~10
DF-5A	CSS-4 Mod 2	~10	1981	13,000+	1 x 4,000–5,000	~10
DF-5B	CSS-4 Mod 3	~10	2015	~13,000	3 x 200–300	~30
DF-15	CSS-6	?	1990	600	1 x ?	? <sup>b</sup>
DF-21	CSS-5 Mods 2, 6	~40	1991, 2000, 2016	2,150	1 x 200–300	~80 <sup>c</sup>
DF-26	?	16	(2017)	4,000+	1 x 200–300	16
DF-31	CSS-10 Mod 1	~8	2006	7,000+	1 x 200–300	~8
DF-31A	CSS-10 Mod 2	~32	2007	11,000+	1 x 200–300	~32
DF-31AG <sup>d</sup>	(CSS-10 Mod 3?)	(16)	(2017)	?	(1 x ?)	?
DF-41	CSS-X-20	n.a.	?	?	n.a.	n.a.
<i>Subtotal:</i>			~121			~186 <sup>e</sup>
<b>Submarine-launched ballistic missiles<sup>f</sup></b>						
JL-2	CSS-N-14	48	(2016)	7,000+	1 x 200–300	48
<b>Aircraft</b>						
H-6 <sup>g</sup>	B-6	(~20)	1965	3,100+	1 x bomb (1 x ALBM)	(~20) 0
Fighters <sup>h</sup>	?	?	?	n.a.	1 x bomb	?
<b>Cruise Missiles<sup>i</sup></b>						
<b>Total</b>						<b>~254 (280)<sup>j</sup></b>

<sup>a</sup>The Chinese nuclear testing program demonstrated a wide range of warhead yields. While older and less accurate missiles were equipped with megaton-yield warheads, new and more accurate missiles carry warheads with much lower yields, possibly in the low hundreds of kilotons. It is possible that some warheads have even lower yield options.

<sup>b</sup>The CIA concluded in 1993 that China “almost certainly” had developed a warhead for the DF-15, but it is unclear whether the capability was fielded.

<sup>c</sup>This table only counts nuclear versions DF-21 (CSS-5 Mod 1) and DF-21A (CSS-5 Mod 2), each of which has fewer than 50 launchers deployed. The conventional DF-21C and DF-21D are not counted.

<sup>d</sup>The US designation for the DF-31AG (sometime called DF-31B) is not known. Nor is it clear if the DF-31AG TEL is simply an improved launcher for the existing DF-31A ICBM or carries a new missile. Rumors about MIRV capability have not been confirmed.

<sup>e</sup>The missile and warhead inventory may be larger than the number of launchers, some of which can be reused to fire additional missiles.

<sup>f</sup>The former JL-1 SLBM and its warheads are thought to have been retired and dismantled.

<sup>g</sup>Bombers were used to conduct at least 12 of China’s nuclear test explosions between 1965 and 1979. Gravity bomb models are displayed in museums, and China is apparently developing a possible nuclear-capable air-launched ballistic missile for the H-6. Although they do not have an active nuclear mission, we estimate that a small number of the bombers may have a secondary nuclear capability. Aircraft range is equivalent to combat radius, which for some H-6 bombers can be extended with air refueling.

<sup>h</sup>A fighter-bomber was used in a nuclear test in 1972 and models of tactical gravity bombs are exhibited at Chinese museums, but it is not clear whether a tactical bomb capability has been fielded.

<sup>i</sup>US military publications have from time to time attributed nuclear capability to various Chinese cruise missiles, an air-launched cruise missile being the most consistent candidate.

<sup>j</sup>The number in parentheses includes nearly 30 warheads produced for additional DF-26s and the DF-41, for a total stockpile of approximately 280 warheads.

Source: Hans M. Kristensen & Robert S. Norris (2018) “Chinese nuclear forces, 2018,” *Bulletin of the Atomic Scientists*, 74:4, 289-295, DOI: 10.1080/00963402.2018.1486620  
To link to this article: <https://doi.org/10.1080/00963402.2018.1486620p.290>

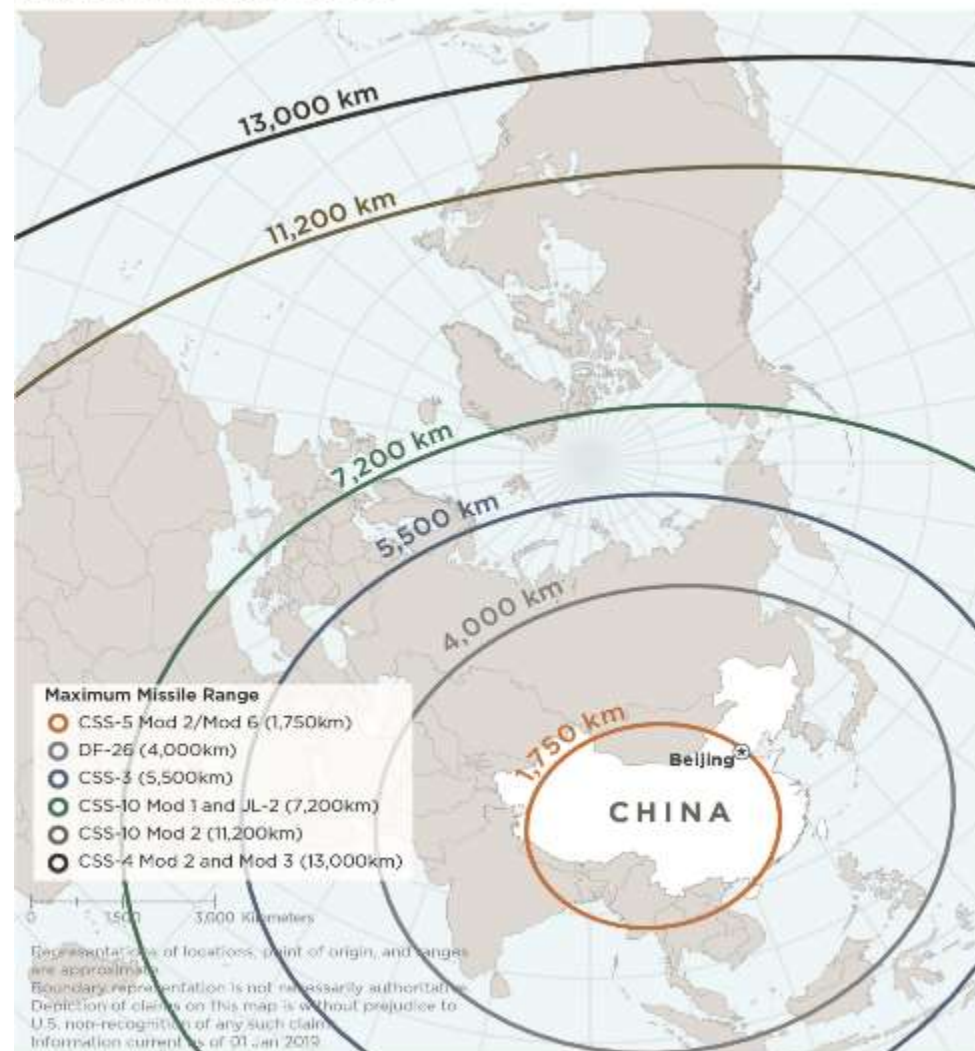


# OSD Estimate of Chinese Nuclear and Conventional Strike Ranges in 2019

## Conventional Strike Capabilities



## Nuclear Ballistic Missiles



# The Uncertain Nuclear Future: Global Nuclear Warhead Stockpiles in 2019

	Country	Total	ICBMs	IRBMs/ MRBMs	SRBMs	GLCMs	Air-launched <sup>1</sup>	SLBMs	NSNWs & Defensive weapons	Reserve
Major Powers	U.S.	<b>3800</b>	800				850	1920	230 (NSNW only)	2050
	Russia	<b>4490</b>	1165				786	720	1820	2890
Middle Powers	China	<b>280+</b>	110	96			20	48		21+ <sup>2</sup>
	UK	<b>225</b>						120		105
	France	<b>300</b>					54	240		6
	Pakistan	<b>140-150</b>		36	66	12	36			
	India	<b>130-140</b>		24	46 <sup>3</sup>		48	12		
Minor Power	DPRK	<b>20<sup>4</sup></b>								

This table includes all nuclear-capable launchers even if not deployed.

1. The "Air-launched" category includes air-launched cruise missiles, gravity bombs, and any potential air-launched ballistic missiles.

2. In the BAS 2018 report, 30 warheads are estimated to be split between the DF-26 and DF-41, but it is unclear how many are allocated to each missile. Nine have been allocated to China's new ICBMs, but the rest remain counted as reserve warheads. Additionally, it is unclear how many of the new missiles noted in OSD's 2019 annual report on Chinese military power are assigned nuclear warheads, which raises the possibility that China's true inventory is greater than 280.

3. The number of India's SRBMs includes four launched by the two Sukanya-class patrol vessels.

4. North Korea is believed to have enough special nuclear material for 30–60 warheads, but likely has fewer than 20 in inventory. The data is sourced from the previously cited Nuclear Notebook articles published by the Bulletin of Atomic Scientists, SIPRI's 2017 Annual Yearbook, and Hollande, "Discours sur la dissuasion nucléaire."

# Mutual Minimal Assured Destruction: An Illustrative Target Base (Urban Population in Millions)

(Population in Millions)

Rough estimate by the authors based on different databases. China's cities are now showing extremely rapid growth relative to those of U.S. and Russia. Note that even high yield thermonuclear weapons would leave many survivors given the size of most urban areas.

<u>United States</u>			<u>Russia</u>		<u>China</u>	
<u>Rank</u>	<u>Name</u>	<u>Population</u>	<u>Name</u>	<u>Population</u>	<u>Name</u>	<u>Population</u>
1	New York	8,537,673	Moscow	10,381,222	Shanghai	22,315,474
2	Los Angeles	4,030,668	Saint Petersburg	5,028,000	Beijing	11,716,620
3	Chicago	2,687,682	Novosibirsk	1,419,007	Tianjin	11,090,314
4	Houston	2,340,814	Yekaterinburg	1,349,772	Guangzhou	11,071,424
5	Phoenix	1,679,243	Nizhniy Novgorod	1,284,164	Shenzhen	10,358,381
6	Philadelphia	1,573,688	Samara	1,134,730	Wuhan	9,785,388
7	San Antonio	1,541,456	Omsk	1,129,281	Dongguan	8,000,000
8	San Diego	1,438,060	Kazan	1,104,738	Chongqing	7,457,600
9	Dallas	1,359,133	Rostov-na-Donu	1,074,482	Chengdu	7,415,590
10	San Jose	1,030,796	Chelyabinsk	1,062,919	Nanjing	7,165,292
<b>Top 10</b>		<b>26,219,213</b>		<b>24,968,315</b>		<b>106,376,083</b>
11	Austin	983,366	Ufa	1,033,338	Nanchong	7,150,000
12	Jacksonville	907,529	Volgograd	1,011,417	Xi'an	6,501,190
13	Fort Worth	893,997	Perm	982,419	Shenyang	6,255,921
14	San Francisco	888,653	Krasnoyarsk	927,200	Hangzhou	6,241,971
15	Columbus	880,182	Saratov	863,725	Harbin	5,878,939
16	Charlotte	873,363	Voronezh	848,752	Tai'an	5,499,000
17	Indianapolis	860,902	Tol'yatti	702,879	Suzhou	5,345,961
18	Seattle	746,046	Krasnodar	649,851	Shantou	5,329,024
19	Denver	719,116	Ulyanovsk	640,680	Jinan	4,335,989
20	Washington DC	702,756	Izhevsk	631,038	Zhengzhou	4,253,913
<b>Top 20</b>		<b>34,675,123</b>		<b>33,259,614</b>		<b>163,167,991</b>
21	El Paso	692,100	Yaroslavl	606,730	Changchun	4,193,073
22	Boston	687,584	Barnaul	599,579	Dalian	4,087,733
23	Nashville	673,008	Vladivostok	587,022	Kunming	3,855,346
24	Detroit	665,713	Irkutsk	586,695	Qingdao	3,718,835
25	Portland	658,347	Khabarovsk	579,000	Foshan	3,600,000
26	Oklahoma City	653,865	Khabarovsk Vtoroy	578,303	Puyang	3,590,000
27	Las Vegas	653,840	Orenburg	550,204	Wuxi	3,543,719
28	Memphis	649,243	Novokuznetsk	539,616	Xiamen	3,531,347
29	Louisville	619,287	Ryazan'	520,173	Tianshui	3,500,000
30	Baltimore	601,188	Tyumen	519,119	Ningbo	3,491,597
<b>Top 30</b>		<b>41,229,298</b>		<b>38,926,055</b>		<b>200,279,641</b>



# OSD on Chinese Nuclear Posture in 2019

## Key Takeaways

- China's nuclear weapons policy prioritizes the maintenance of a limited but survivable nuclear force.
- China has long maintained a "no first use" (NFU) policy, though ambiguity remains over the conditions under which China's NFU policy would no longer apply.
- China continues to improve its ground and submarine-based nuclear capability and is pursuing a viable nuclear "triad" with the development of a nuclear capable air- launched ballistic missile.

China's nuclear weapons policy prioritizes the maintenance of a nuclear force able to survive a first strike and respond with sufficient strength to inflict unacceptable damage on an enemy. China invests considerable resources to maintain a limited, but survivable, nuclear force. China is enhancing peacetime readiness levels for these nuclear forces to ensure their responsiveness. In addition, China insists its new generation of mobile missiles, with warheads consisting of MIRVs and penetration aids, are intended to ensure the viability of its strategic nuclear forces in the face of continued advances in U.S. and, to a lesser extent, Russian strategic ISR, precision strike, and missile defense capabilities.

China has long maintained a 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 at any time and under any circumstances, and will unconditionally refrain from using or threatening to use nuclear weapons against any non-nuclear-weapon state or in nuclear-weapon-free zones.

There is some ambiguity, however, in the narrative in China over the conditions under which China's NFU policy would apply. 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. There has been no indication that national leaders are willing to attach such nuances and caveats to China's existing NFU policy. China's lack of transparency regarding the scope and scale of its nuclear modernization program, however, raises questions regarding its future intent as it fields larger, more-capable nuclear forces.

China's commingling of some of its conventional and nuclear missile forces, and ambiguities in China's NFU conditions, could complicate deterrence and escalation management during a conflict. Potential adversary attacks against Chinese conventional missile force-associated C2 centers could inadvertently degrade Chinese nuclear C2 and generate nuclear use-or-lose pressures among China's leadership. Once a conflict has begun, China's dispersal of mobile missile systems to hide sites could further complicate the task of distinguishing between nuclear and conventional forces and, thus, increase the potential for inadvertent attacks on the latter. China's leadership calculus for responding to conventional attacks on nuclear forces remains a key unknown.

**Land-Based Platforms.** China's nuclear arsenal currently consists of approximately 90 ICBMs, including the silo-based CSS-4 Mod 2 (DF-5A) and Mod 3 (DF-5B); the solid-fueled, road-mobile CSS-10-class (DF-31, DF-31A and DF-31AG); and the more limited range roll-out-to-launch CSS-3 (DF-4). This strategic arsenal is complemented by road-mobile, solid- fueled CSS-5 Mod 2 and Mod 6 (DF-21) MRBMs and DF-26 IRBMs capable of ranging targets in the Indo-Pacific region.

# OSD on Chinese Nuclear Posture in 2019 - II

**Sea-Based Platforms.** China has constructed six JIN-class SSBN, with four operational and two outfitting at Huludao Shipyard. China's JIN SSBNs, which are equipped to carry up to 12 CSS-N-14 (JL-2) SLBMs, are the country's first viable sea-based nuclear deterrent. China's next-generation Type 096 SSBN reportedly will be armed with the follow-on JL-3 SLBM, and it will likely begin construction in the early- 2020s. Based on the 40-plus-year service life of China's first generation SSNs, China will operate its JIN and Type 096 SSBN fleets concurrently.

**Future Developments.** The PLA is upgrading its aircraft with two new air-launched ballistic missiles, one of which may include a nuclear payload. Its deployment and integration would, for the first time, provide China with a viable nuclear "triad" of delivery systems dispersed across land, sea, and air forces.

- The PLA justifies developing a range of technologies China perceives are necessary to counter U.S. and other countries' ballistic missile defense systems, including MaRV, MIRVs, decoys, chaff, jamming, thermal shielding, and hypersonic glide vehicles.
- The PLA will likely continue deploying sophisticated C2 systems and refining C2 processes as growing numbers of mobile ICBMs and future SSBN deterrence patrols require the PLA to safeguard the integrity of nuclear release authority for a larger, more dispersed force.

PLA writings express the value of a "launch on warning" nuclear posture, an approach to deterrence that uses heightened readiness, improved surveillance, and streamlined decision-making processes to enable a more rapid response to enemy attack. These writings highlight the posture's consistency with China's nuclear NFU policy, suggesting it may be an aspiration for China's nuclear forces. China is working to develop a space-based early warning capability that could support this posture in the future.

# DIA on China's Nuclear Posture – 1/2019

*“The nuclear force is a strategic cornerstone for safeguarding national sovereignty and security. China has always pursued the policy of no first use of nuclear weapons and adhered to a self-defensive nuclear strategy. China unconditionally will not use or threaten to use nuclear weapons against non-nuclear-weapon states or in nuclear-weapons-free zones and will never enter into a nuclear arms race with any other country. China will optimize its nuclear force structure; improve strategic early warning, command and control, missile penetration, rapid reaction, and survivability and protection; and deter other countries from using or threatening to use nuclear weapons against China.”*

—Excerpts from *China's Military Strategy*, May 2015

China invests considerable resources to maintain a limited, survivable nuclear force that can guarantee a damaging retaliatory strike. As part of this, China has long maintained a “no first use” (NFU) policy, stating it would use nuclear forces only in response to a nuclear strike against China. There is some ambiguity, however, over the conditions under which China's NFU policy would apply. 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. Nevertheless, there has been no indication that national leaders are willing to attach such nuances and caveats to China's NFU doctrine.

China is developing a new generation of mobile missiles, with warheads consisting of multiple independently targetable reentry vehicles (MIRVs) and penetration aids, intended to ensure the viability of its strategic deterrent in the face of continued advances in U.S. and, to a lesser extent, Russian strategic ISR, precision strike, and missile defense capabilities. China is enhancing peacetime readiness levels for these nuclear forces to ensure responsiveness. China maintains nuclear-capable delivery systems in its Rocket Force and Navy. As of 2017, the Air Force had been reassigned a nuclear mission, probably with a developmental strategic bomber. The bomber's deployment would provide China with its first credible nuclear triad of delivery systems dispersed across land, sea, and air—a posture considered since the Cold War to improve survivability and strategic deterrence.

PLA writings express the value of a “launch on warning” nuclear posture, an approach to deterrence that uses heightened readiness, improved surveillance, and streamlined decision making processes to enable a more rapid response to enemy attack. These writings highlight the posture's consistency with China's NFU policy. China is working to develop a space-based early warning capability that could support this posture in the future.

The PLA is developing a range of technologies to counter U.S. and other countries' ballistic missile defense systems, including maneuverable reentry vehicles (MARVs), MIRVs, decoys, chaff, jamming, thermal shielding, and hypersonic glide vehicles. In addition, the PLA is likely to continue deploying more sophisticated C2 systems and refining C2 processes as growing numbers of mobile intercontinental ballistic missiles (ICBMs) and future nuclear-powered ballistic missile submarine (SSBN) deterrence patrols require the PLA to safeguard the integrity of nuclear release authority for a larger, more dispersed force.

China maintains a stockpile of nuclear warheads and continues research on and development and production of new nuclear weapons. The PLA probably has multiple nuclear warhead designs that are decades old and require routine observation, maintenance, or refurbishment to maintain effectiveness. China's nuclear weapon design and production organization—the China Academy of Engineering Physics—is the key organization in developing and maintaining China's nuclear force. It employs tens of thousands of personnel, and its scientists are capable of conducting all aspects of nuclear weapon design research, including nuclear physics, materials science, electronics, explosives, and computer modeling.

China has the required industrial capacity to enrich uranium and produce plutonium for military needs. The China National Nuclear Corporation operates several uranium enrichment facilities organized under three plants. China probably intends the bulk of its enrichment capacity to support its burgeoning nuclear power industry but could devote some enrichment capacity to support military needs. China's plutonium production reactors probably ceased operation in the 1980s. However, China's reprocessing facilities can extract plutonium from spent reactor fuel.

# DIA on Russia and China's Nuclear Trends – 5/2019 - I

...So let me first begin with Russia. After working together for decades to achieve real nuclear reductions, Russia is upgrading the capacity of its nuclear forces. We assess its overall nuclear stockpile is likely to grow significantly over the next decade.

This assessed growth is primarily driven by a significant projected increase in the number of Russia's non-strategic nuclear weapons. Russia is adding new military capabilities to its existing stockpile of nonstrategic nuclear weapons, including those employable by ships, aircraft, and ground forces. These nuclear warheads include theater- and tactical-range systems that Russia relies on to deter and defeat NATO or China in a conflict.

Russia's stockpile of non-strategic nuclear weapons—already large and diverse and is being modernized with an eye towards greater accuracy, longer ranges, and lower yields to suit their potential warfighting role...We assess Russia to have dozens of these systems already deployed or in development. They include, but are not limited to: short- and close-range ballistic missiles, ground-launched cruise missiles, including the 9M729 missile, which the U.S. Government determined violates the Intermediate-Range Nuclear Forces or INF Treaty, as well as antiship and antisubmarine missiles, torpedoes, and depth charges.

For comparison, the United States currently has a single non-strategic nuclear weapons system: the B-61 gravity bomb.

We assess Russia possesses up to 2,000 such non-strategic nuclear warheads not covered by the New Start Treaty and because of a lack of Russian transparency we have uncertainty in our understanding of the scope and disposition of their stockpile....Accurately accounting for these non-strategic nuclear weapons delivery systems is not only complicated by a lack of transparency but their dual-capable nature. Most Russian systems lack externally distinguishing features that would allow observers to differentiate between conventional and nuclear variants.

Where limits or reductions have existed, such as with the INF Treaty or the 1992 Presidential Nuclear Initiatives, the United States assesses that Russia has not fulfilled them. This is exemplified by the development of the 9M729 ground launched cruise missile...By 2015, Russia had completed a comprehensive flight test program consisting of multiple tests of the 9M729 missile from both fixed and mobile launchers that appeared to be purposefully designed to disguise the true nature of their testing activity, as well as the true capacity of the missile.

While compliance determinations such as the INF Treaty are ultimately made by the U.S. interagency policy community, I want to be clear about the role of the Intelligence Community. It is the job of the Intelligence Community (IC) to analyze those activities that have implications for a country's international obligations. The IC does not use the word compliance but rather characterizes actions as "inconsistent" with the intent of such treaties and uses those assessments to help inform the interagency process.

From an interagency standpoint, the U.S. has determined Russia's actions have strained other key pillars of arms control architecture, including the Chemical Weapons Convention, Open Skies Treaty, the Vienna Document, and the Treaty on Conventional Armed Forces in Europe.

In addition to the anticipated growth in non-strategic nuclear weapons, Russia claims to be developing new warhead designs for strategic systems, such as new high-yield and earth-penetrating warheads to attack hardened military targets like U.S., Allied, and Chinese command and control facilities.

Russia's development of new warhead designs and overall stockpile management efforts have been enhanced by its approach to nuclear testing. The United States believes that Russia probably is not adhering to its nuclear testing moratorium in a manner consistent with the "zero-yield" standard...Our understanding of nuclear weapon development leads us to believe Russia's testing activities would help it to improve its nuclear weapons capabilities. The United States, by contrast, has forgone such benefits by upholding a "zero-yield" standard.

Russia's ongoing, comprehensive build-up in both its strategic and nonstrategic nuclear forces is made possible by sustained and prioritized investments in its nuclear weapons development and production infrastructure. By 2013, Rosatom had modernized dozens of its experimental facilities, and Rosatom's budget has increased roughly 30 percent in real terms from 2010 to 2018 to support these and other operations.

In contrast to the United States, during the past decade, Russia has improved and expanded its production complex, which has the capacity to process thousands of warheads annually.

An increase in its overall nuclear warhead stockpile is not the only source of concern stemming from Russia's broad-based nuclear modernization program...Within the confines of the New START Treaty, Russia claims its overhaul of its strategic rocket forces is roughly 70% complete. Every leg of Russia's triad is being modernized and Russia is fielding new strategic systems, including road-mobile and silo-based intercontinental ballistic missiles (ICBMs), a submarine-launched ballistic missile, an upgraded strategic nuclear bomber, and a strategic air-launched cruise missile.

Many of these new systems have a greater warhead delivery capacity than the systems they are replacing. For example, Russia's aging SS-25 road-mobile ICBM carries a single nuclear

# DIA on Russia and China's Nuclear Trends – 5/2019 - II

ICBM carries a single nuclear warhead, while its replacement—the SS-27—can carry multiple warheads, providing Russia significant capability to “upload” additional warheads onto its strategic delivery systems. The SS-18—Russia’s aging heavy ICBM—carries up to 10 nuclear warheads, while the Russian president claims the Sarmat—its replacement—will carry even more warheads or Russia’s new nuclear-armed “Avanguard” hypersonic glide vehicle.

While we assess Russia is currently adhering to the New START Treaty limits on deployed warheads, this upload capacity will give Russia the ability to increase the number of deployed warheads in a time of crisis.

Russia is also pursuing novel nuclear delivery systems that create a strategic challenge for the U.S. and which are difficult to manage under current arms control agreements.

In March 2018, President Putin unveiled these systems, which include: an intercontinental-range, nuclear-powered and nuclear-armed underwater drone; a nuclear-powered, nuclear-armed intercontinental-range cruise missile; and an air-launched ballistic missile. Russia also continues to modernize its existing automated nuclear command and control launch system, known as “Perimeter.”..President Putin’s high-profile announcement in March 2018 makes clear that Russia is continuing to prioritize investment in its nuclear forces, even at a time of domestic budgetary constraints.

These new nuclear capabilities have come at the expense of other Russian defense priorities, such as the development of a new aircraft carrier, because Russia sees its nuclear weapons as the ultimate guarantor of the country’s survival, perceives a warfighting role for their use, and directs its scarce resources to its nuclear modernization effort...These quantitative and qualitative improvements to Russia’s nuclear arsenal have security implications for the United States and our allies. Russia’s large and diverse stockpile facilitates a doctrine that envisions the potential coercive use of nuclear weapons.

Russia assesses that the threat of nuclear escalation or actual first use of nuclear weapons would serve to “de-escalate” a conflict on terms favorable to Russia. Russian defense officials have spoken publicly about “de-escalating” a conflict through limited nuclear use and it is a fact that the Russian military has prepared plans and is well trained to transition rapidly to nuclear use in order to compel an end to a conventional conflict. Russia’s perception that nuclear use could terminate a conflict on terms favorable to Russia increases the prospect for miscalculation.

**Let me now turn to China as Russia is not the United States’ only strategic competitor expanding its nuclear capability.**

**Over the next decade, China is likely to at least double the size of its nuclear stockpile in the course of implementing the most rapid expansion and diversification of its nuclear arsenal in China’s history. Last year, China launched more ballistic missiles for testing and training than the rest of the world combined.** We expect this modernization to continue and this trajectory is consistent with Chinese President Xi’s vision for China’s military, which he laid out at the 19th Party Congress and stated that China’s military will be “fully transformed into a first tier force” by 2050.

China has developed a new road-mobile ICBM, a new multi-warhead version of its silo-based ICBM, and a new submarine-launched ballistic missile. With its announcement of a new nuclear-capable strategic bomber, China will soon field their own nuclear triad, demonstrating China’s commitment to expanding the role and centrality of nuclear forces in Beijing’s military aspirations. And like Russia, China is also working to field nuclear, theater-range precision-strike systems. While China’s overall arsenal is assessed to be much smaller than Russia’s does not make this trend any less concerning.

Based on the United States’ experience in developing nuclear weapons, we understand the efforts required for China’s substantive and rapid expansion in their nuclear weapons program and capabilities.

**US Government information indicates that China is possibly preparing to operate its test site year-round, a development that speaks directly to China’s growing goals for its nuclear forces. Further, China continues to use explosive containment chambers at its nuclear test site and Chinese leaders previously joined Russia in watering down language in a P5 statement that would have affirmed a uniform understanding of “zero-yield” testing. The combination of these facts and China’s lack of transparency on their nuclear testing activities raise questions as to whether China could achieve such progress without activities inconsistent with the Comprehensive Nuclear-Test-Ban Treaty.**

It is also important to note that—in addition to modernizing their nuclear forces—China and Russia are also pursuing emerging technologies that have the potential to revolutionize undersea warfare and challenge U.S. superiority in the maritime domain.

As our annual threat assessments, national security, and defense strategies have highlighted, the resurgence of great power competition is a geopolitical reality. It is the mindset Russia and China have embraced, the mindset that is guiding their approach to nuclear modernization and investment. Nuclear weapons remain central to Russia and China’s military plans and intentions and therefore remain a critical area of analysis for the Defense Intelligence Agency to provide our senior leadership with decision advantage. .

## China's Over-Water Bomber Capabilities

Office of the Secretary of Defense,  
*Military and Security Developments  
Involving the Republic of China, Annual  
Report to Congress*, May 16, 2018,  
Department of Defense. China Military  
Power 2018, p. 118.





# China Nuclear Weapon-Related Facilities

China maintains a stockpile of nuclear warheads and continues research on and development and production of new nuclear weapons.<sup>88</sup> The PLA probably has multiple nuclear warhead designs that are decades old and require routine observation, maintenance, or refurbishment to maintain effectiveness.

China's nuclear weapon design and production organization—the China Academy of Engineering Physics—is the key organization in developing and maintaining China's nuclear force.<sup>90</sup> It employs tens of thousands of personnel, and its scientists are capable of conducting all aspects of nuclear weapon design research, including nuclear physics, materials science, electronics, explosives, and computer modeling.

Source: DIA, *China Military Power: Modernizing a Force to Fight and Win*, 2019, DIA-02-1706-085, 2019, p. 38.



# Select Advanced PLA Rocket Force Nuclear Systems Entering Service and under Development—November 2018

Equipment	Mission Area	Estimated Service Entry	Implications
DF-41 intercontinental ballistic missile (ICBM)	Deterrence, Assured Retaliation	2018	The DF-41 will be China's first MIRV-capable, road-mobile ICBM. The solid-fuel missile will enhance China's deterrence capabilities.
DF-17 medium-range ballistic missile (MRBM) with Wu-14 (DF-ZF) hypersonic glide vehicle	Strike, Deterrence; A2/AD	2020	The DF-17 is reportedly designed for use with a hypersonic glide vehicle (tested with the Wu-14 [DF-ZF]) and capable of delivering both conventional and nuclear payloads. Its range reportedly falls between 1,800 and 2,500 km. This system will pose challenges to U.S. and allied missile defense systems.

Equipment	Mission Area	Estimated Service Entry	Implications
CH-AS-X-13 nuclear-capable air-launched ballistic missile	Strike; Deterrence	2025	According to DOD, China is developing “two new air-launched ballistic missiles, one of which may include a nuclear payload.” The nuclear-capable version is reportedly a two-stage, solid-fueled ballistic missile with a range of 3,000 km, intended for use with a modified H-6N bomber that has a 6,000-km combat radius. This missile will bolster China's deterrence capabilities.

Select Advanced PLN Naval and PLAF Air Nuclear Systems Entering Service and under Development— November 2018

Equipment	Mission Area	Estimated Service Entry	Implications
Type 096 nuclear-powered ballistic missile submarine (SSBN)	Deterrence	Early 2020s (construction)	Complementing China's four JIN-class nuclear-powered ballistic missile submarines (comprising China's sea-based second strike capability) will be the next-generation Type 096. According to DOD, it may be armed with the JL-3 submarine-launched ballistic missile, which will be capable of striking the continental United States from China's periphery.
Type 093B SHANG-class guided-missile nuclear attack submarine (SSGN)	ASUW; A2/AD; Strike	2020–2030 (construction)	According to DOD, the Type 093B SSGN submarine will improve the PLA Navy's anti-surface warfare capability and "might also provide [the PLA Navy a] more clandestine land-attack option."

Equipment	Mission Area	Estimated Service Entry	Implications
H-20 long-range stealth bomber	Strike; Nuclear Deterrence; A2/AD	2025	China's next-generation bomber will integrate fifth-generation technologies and be capable of carrying nuclear weapons, according to DOD. Replacing the H-6, the H-20 will have an increased range of at least 5,000 miles (mi), boosting China's ability to operate farther from its shores and putting Hawaii at risk.

# OSD on Reasons for U.S. Nuclear Modernization: 4/2019 - I

**Today's Strategic Environment: Increasingly Complex and Dangerous:** For decades, the United States led the world in efforts to reduce the role and number of nuclear weapons. Successive treaties enabled reductions in accountable strategic U.S. nuclear warheads, first to 6,000, and ultimately to 1,550. Thousands of shorter-range nuclear weapons not covered by any treaty were almost entirely eliminated from the U.S. nuclear arsenal. Overall, the U.S. nuclear weapons stockpile has drawn down by more than 85 percent from its Cold War high.

Many hoped conditions had been set for even deeper reductions in global nuclear arsenals. Unfortunately, the United States and our allies now face a security environment with increased complexity and worsening strategic threats. Today's central challenge to our security is the reemergence of long-term strategic competition with Russia and China. While the United States has focused on maintaining its existing nuclear systems, Russia and China have increased the role of nuclear weapons in their strategies and have been actively increasing the size and sophistication of their nuclear forces. Further, North Korea's nuclear capabilities threaten our allies and homeland and add to an already complex strategic picture.

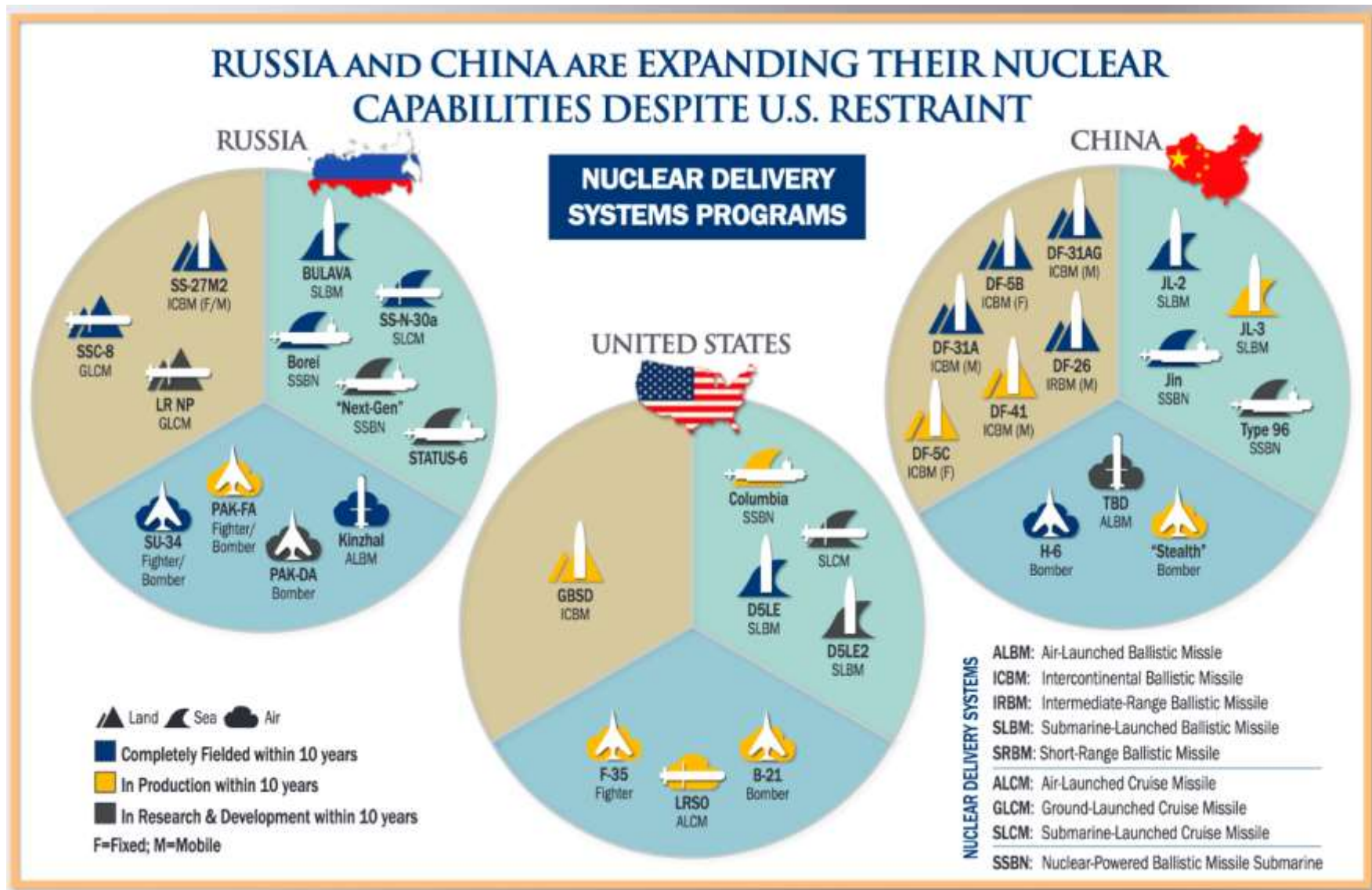
- Russia has been developing, testing, and fielding new systems for its nuclear triad over the past decade. This includes new road-mobile and silo-based ICBMs, ballistic missile submarines and missiles, bomber aircraft, and cruise missiles. Russia is also actively testing never-before-seen nuclear weapon capabilities, such as hypersonic glide vehicles, nuclear-powered cruise missiles, and nuclear-powered unmanned underwater vehicles.
- China is developing, testing, and fielding new generations of land-based ballistic missiles, increasing the range of its submarine-launched ballistic missiles, and pursuing a new bomber. China is also expending significant resources on advanced nuclear-capable systems and hypersonic vehicles.
- North Korea has conducted six increasingly sophisticated nuclear tests and three ICBM flight tests that demonstrated its ability to strike the U.S. homeland.

Nuclear Deterrence is the Bedrock of U.S. National Security. Given the strategic environment, nuclear deterrence is more important now than at any time since the end of the Cold War. A potential nuclear attack against the United States and its allies is the most serious threat to our security. Our nuclear arsenal is the nation's ultimate insurance policy against such an attack.

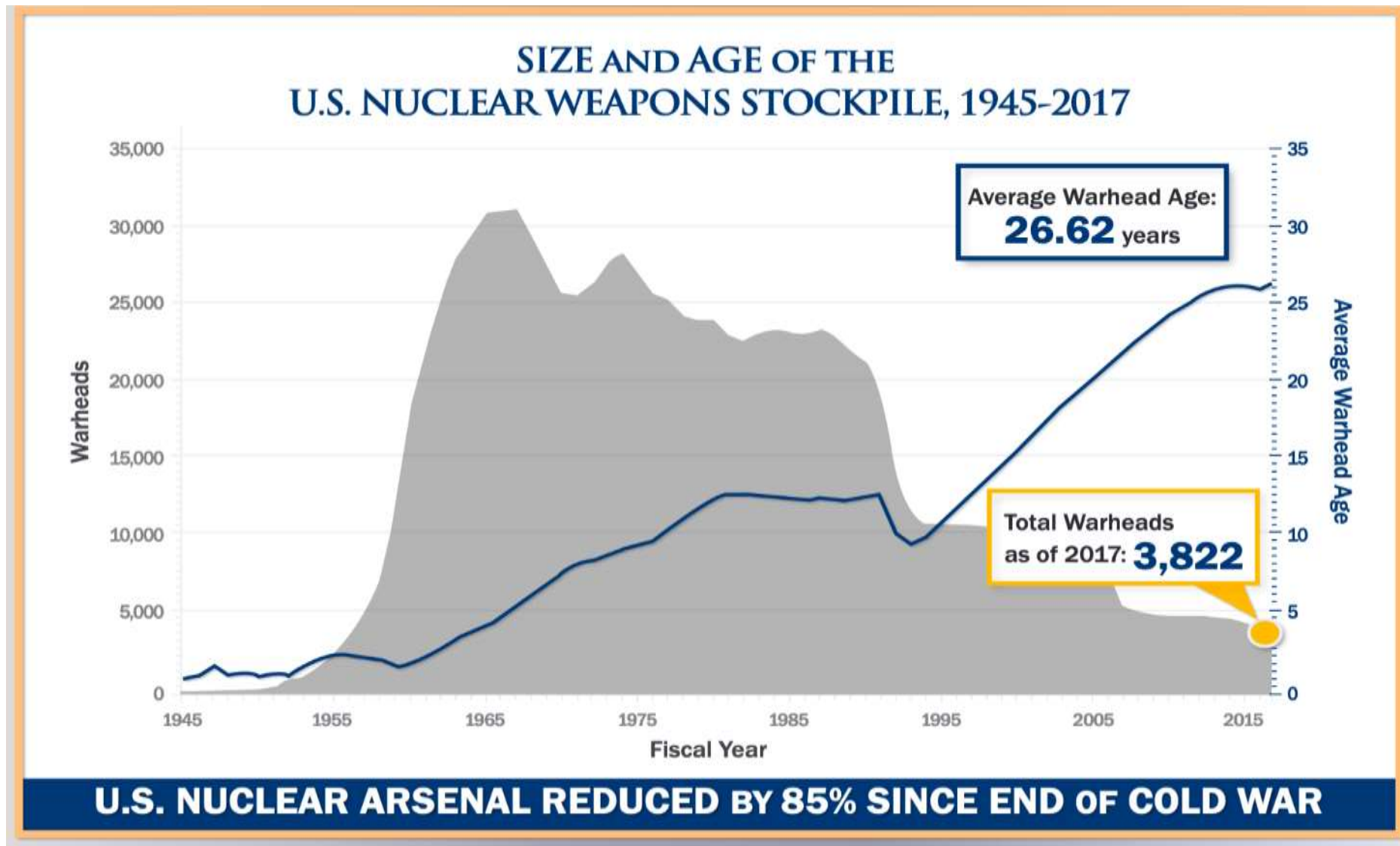
Nuclear forces, along with our conventional forces and other instruments of national power, also help prevent competition and conflict from escalating to large-scale conventional warfare. For these reasons, nuclear deterrence is the #1 priority mission of the Department of Defense. For any President, the use of nuclear weapons is contemplated only in the most extreme circumstances to protect our vital interests and those of our allies and partners. Effective deterrence requires a credible nuclear posture—a credibility based on effective nuclear capabilities and the resolve to use them if required. Our nuclear posture does not imply we seek to fight or win a nuclear war, but rather strengthens deterrence and helps ensure nuclear weapons are never employed.



# OSD on Reasons for U.S. Nuclear Modernization: 4/2019 - II

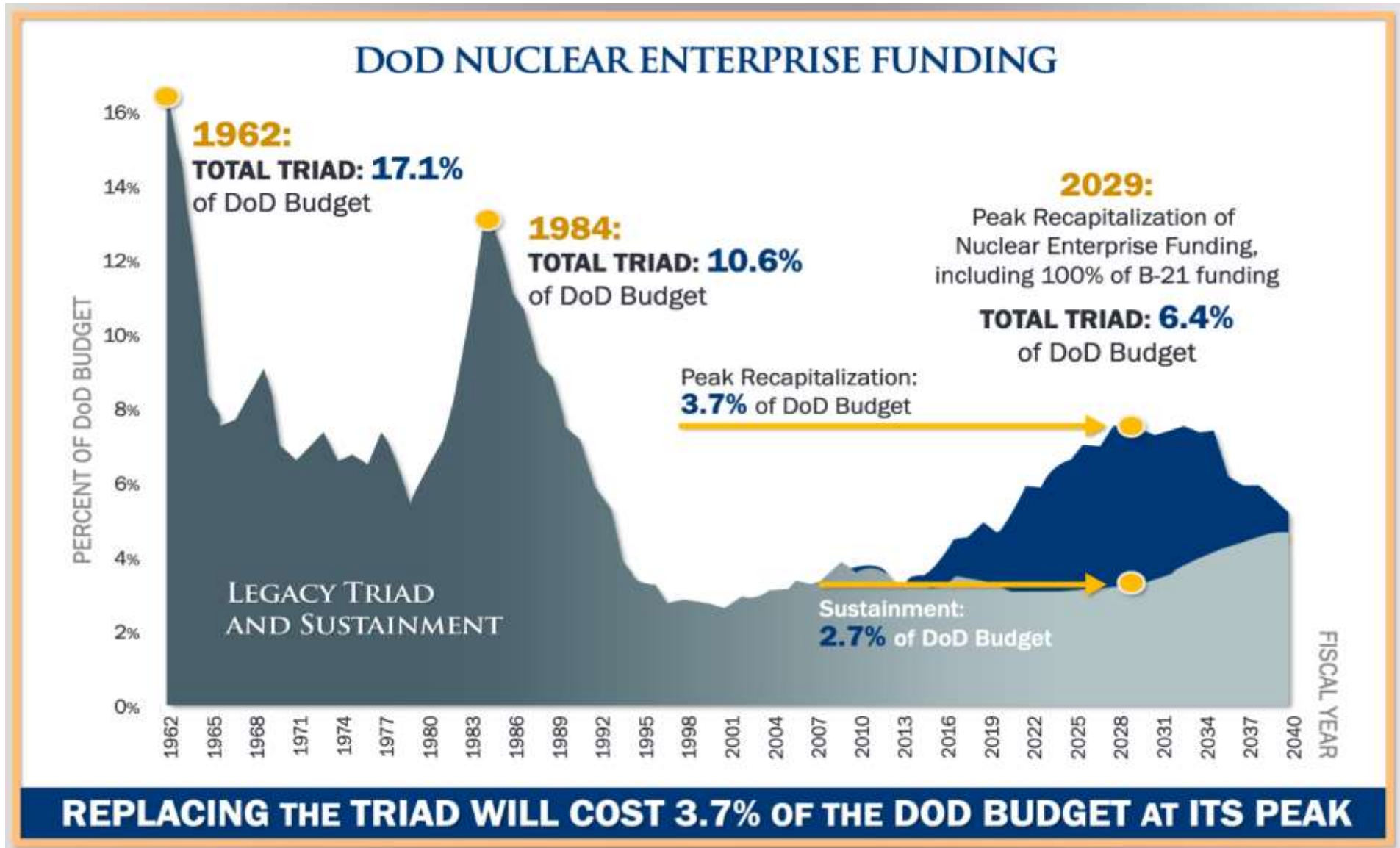


## OSD on Reasons for U.S. Nuclear Modernization: 4/2019 - III





# OSD on Reasons for U.S. Nuclear Modernization: 4/2019 - IV



# OSD on Reasons for U.S. Nuclear Modernization: 4/2019 - V

## FY 2020 BUDGET REQUEST FOR NUCLEAR FORCES HIGHLIGHTS (PROCUREMENT, RDT&E, AND MILCON)

PROGRAM	FY2020	FYDP (2020–24)	INITIAL FIELDING
F-35 Dual-Capable Aircraft (certification)	\$71M	\$246M	FY2024
B-21 Strategic Bomber	\$3B	\$20.1B	Mid-2020s
Ground Based Strategic Deterrent (GBSD) ICBM	\$678M	\$11.3B	FY2029
B61-12 Tailkit Assembly	\$108M	\$157M	–
Long Range Standoff (LRSO) Cruise Missile	\$713M	\$2.4B	Early-2030s
Columbia Class SSBN	\$2.2B	\$20.2B	FY 2031
Low-yield Ballistic Missile	\$19.6M	–	–
Sea-launched Cruise Missile	\$5M	\$5M	TBD

After 25 years of primarily sustaining our Cold War-era systems as we steadily reduced their number, recapitalizing U.S. nuclear forces will require an increase in spending over the next 20 years. Most of the nation's nuclear delivery systems, built in the 1980s and prior, will reach their end-of-service life in the 2025-2035 timeframe and cannot be sustained further. If not recapitalized, these forces will age into obsolescence. Our choice is not between replacing our Cold War systems or keeping them, but between replacing them or losing them altogether.

WARHEADS	FIRST PRODUCTION UNIT (FY)
W76-1 (SLBM)	Complete
W76-2 (SLBM)	FY2019
B61-12 (Bomber/DCA)	FY2020
W88 Alt 370 (SLBM)	FY2020
W80-4 (LRSO)	FY2025
W87-1 (ICBM)	FY2030

### RUSSIAN NON-STRATEGIC NUCLEAR WEAPONS



Russia has approximately 2,000 non-strategic nuclear weapons—of over a dozen different types—including nuclear torpedoes, nuclear air and missile defenses, nuclear depth charges, nuclear landmines, and nuclear artillery shells. None of these are limited by any arms control treaty. In contrast, the U.S. retains a small number of just one type—the B61 nuclear gravity bomb.

# U.S. Nuclear Posture Review on US Nuclear Force Changes - I

The United States does not wish to regard either Russia or China as an adversary and seeks stable relations with both. We have long sought a dialogue with China to enhance our understanding of our respective nuclear policies, doctrine, and capabilities; to improve transparency; and to help manage the risks of miscalculation and misperception....We hope that China will share this interest and that meaningful dialogue can commence. The United States and Russia have in the past maintained strategic dialogues to manage nuclear competition and nuclear risks. Given Russian actions, including its occupation of Crimea, this constructive engagement has declined substantially. We look forward to conditions that would once again allow for transparent and constructive engagement with Russia....Nevertheless, this review candidly addresses the challenges posed by Russian, Chinese, and other states' strategic policies, programs, and capabilities, particularly nuclear. It presents the flexible, adaptable, and resilient U.S. nuclear capabilities now required to protect the United States, allies, and partners, and promote strategic stability.

**Enhancing Deterrence with Non-strategic Nuclear Capabilities...**The triad and non-strategic nuclear forces, with supporting NC3, provides diversity and flexibility as needed to tailor U.S. strategies for deterrence, assurance, achieving objectives should deterrence fail, and hedging.

The increasing need for this diversity and flexibility, in turn, is one of the primary reasons why sustaining and replacing the nuclear triad and non-strategic nuclear capabilities, and modernizing NC3, is necessary now. The triad's synergy and overlapping attributes help ensure the enduring survivability of our deterrence capabilities against attack and our capacity to hold at risk a range of adversary targets throughout a crisis or conflict. Eliminating any leg of the triad would greatly ease adversary attack planning and allow an adversary to concentrate resources and attention on defeating the remaining two legs. Therefore, we will sustain our legacy triad systems until the planned replacement programs are deployed.

The United States currently operates 14 OHIO-class SSBNs and will continue to take the steps needed to ensure that OHIO SSBNs remain operationally effective and survivable until replaced by the COLUMBIA-class SSBN. The COLUMBIA program will deliver a minimum of 12 SSBNs to replace the current OHIO fleet and is designed to provide required deterrence capabilities for decades.

... ongoing life extension program for the B61 bomb, it will be a key contributor to continued regional deterrence stability and the assurance of allies by initiating a capability study leading to an Analysis of Alternatives (AoA) for the rapid development of a modern SLCM.

...The ICBM force consists of 400 single-warhead Minuteman III missiles deployed in underground silos and dispersed across several states. The United States has initiated the Ground-Based Strategic Deterrent (GBSD) program to begin the replacement of Minuteman III in 2029. The GBSD program will also modernize the 450 ICBM launch facilities that will support the fielding of 400 ICBMs.

The bomber leg of the triad consists of 46 nuclear-capable B-52H and 20 nuclear-capable B-2A "stealth" strategic bombers. The United States has initiated a program to develop and deploy the next-generation bomber, the B-21 Raider. It will first supplement, and eventually replace elements of the conventional and nuclear-capable bomber force beginning in the mid-2020s....The B83-1 and B61-11 gravity bombs can hold at risk a variety of protected targets. As a result, both will be retained in the stockpile, at least until there is sufficient confidence in the B61-12 gravity bomb that will be available in 2020.

Beginning in 1982, B-52H bombers were equipped with ALCMs. Armed with ALCMs, the B-52H can stay outside adversary air defenses and remain effective. The ALCM, however, is now more than 25 years past its design life and faces continuously improving adversary air defense systems...The Long-Range Stand-Off (LRSO) cruise missile replacement program will maintain into the future the bomber force capability to deliver stand-off weapons that can penetrate and survive advanced integrated air defense systems, thus supporting the long-term effectiveness of the bomber leg.

The current non-strategic nuclear force consists exclusively of a relatively small number of B61gravity bombs carried by F-15E and allied dual capable aircraft (DCA). The United States is incorporating nuclear capability onto the forward-deployable, nuclear-capable F-35 as a replacement for the current aging DCA. In conjunction with the ongoing life extension program for the B61 bomb, it will be a key contributor to continued regional deterrence stability and the assurance of allies.

... **Nuclear Command, Control, and Communications Modernization...** While once state-of-the-art, the NC3 system is now subject to challenges from both aging system components and new, growing 21st century threats. Of particular concern are expanding threats in space and cyber space, adversary strategies of limited nuclear escalation, and the broad diffusion within DoD of authority and responsibility for governance of the NC3 system, a function which, by its nature, must be integrated...

# U.S. Nuclear Posture Review on US Nuclear Force Changes - II

In light of the critical need to ensure our NC3 system remains survivable and effective, the United States will pursue a series of initiatives. This includes: strengthening protection against cyber threats, strengthening protection against space-based threats, enhancing integrated tactical warning and attack assessment, improving command post and communication links, advancing decision support technology, integrating planning and operations, and reforming governance of the overall NC3 system.

**Nuclear Command, Control, and Communications Modernization...** While once state-of-the-art, the NC3 system is now subject to challenges from both aging system components and new, growing 21st century threats. Of particular concern are expanding threats in space and cyber space, adversary strategies of limited nuclear escalation, and the broad diffusion within DoD of authority and responsibility for governance of the NC3 system, a function which, by its nature, must be integrated. In light of the critical need to ensure our NC3 system remains survivable and effective, the United States will pursue a series of initiatives...This includes: strengthening protection against cyber threats, strengthening protection against space-based threats, enhancing integrated tactical warning and attack assessment, improving command post and communication links, advancing decision support technology, integrating planning and operations, and reforming governance of the overall NC3 system.

**...Nuclear Weapons Infrastructure...** Over the past several decades, the U.S. nuclear weapons infrastructure has suffered the effects of age and underfunding. Over half of NNSA's infrastructure is over 40 years old, and a quarter dates back to the Manhattan Project era. All previous NPRs highlighted the need to maintain a modern nuclear weapons infrastructure, but the United States has fallen short in sustaining a modern infrastructure that is resilient and has the capacity to respond to unforeseen developments. There now is no margin for further delay in recapitalizing the physical infrastructure needed to produce strategic materials and components for U.S. nuclear weapons. Just as our nuclear forces are an affordable priority, so is a resilient and effective nuclear weapons infrastructure, without which our nuclear deterrent cannot exist....The U.S. must have the ability to maintain and certify a safe, secure, and effective nuclear arsenal. Synchronized with DoD replacement programs, the United States will sustain and deliver on-time the warheads needed to support both strategic and non-strategic nuclear capabilities by:

- Completing the W76-1 Life Extension Program (LEP) by Fiscal Year (FY) 2019;
- Completing the B61-12 LEP by FY2024;
- Completing the W88 alterations by FY2024;
- Synchronizing NNSA's W80-4 life extension, with DoD's LRSO program and completing the W80-4 LEP by FY2031;
- Advancing the W78 warhead replacement one year to FY19 to support fielding on GBSD by 2030 and investigate the feasibility of fielding the nuclear explosive package in a Navy flight vehicle;
- Sustaining the B83-1 past its currently planned retirement date until a suitable replacement is identified; and,
- Exploring future ballistic missile warhead requirements based on the threats and vulnerabilities of potential adversaries, including the possibility of common reentry systems between Air Force and Navy systems.
- The United States will pursue initiatives to ensure the necessary capability, capacity, and responsiveness of the nuclear weapons infrastructure and the needed skills of the workforce, including the following:
- Pursue a joint DoD and Department of Energy advanced technology development capability to ensure that efforts are appropriately integrated to meet DoD needs.
- Provide the enduring capability and capacity to produce plutonium pits at a rate of no fewer than 80 pits per year by 2030. A delay in this would result in the need for a higher rate of pit production at higher cost.
- Ensure that current plans to reconstitute the U.S. capability to produce lithium compounds are sufficient to meet military requirements.
- Fully fund the Uranium Processing Facility and ensure availability of sufficient low enriched uranium to meet military requirements.
- Ensure the necessary reactor capacity to produce an adequate supply of tritium to meet military requirements.
- Ensure continuity in the U.S. capability to develop and manufacture secure, trusted strategic radiation-hardened microelectronic systems beyond 2025 to support stockpile modernization.
- Rapidly pursue the Stockpile Responsiveness Program established by Congress to expand opportunities for young scientists and engineers to advance warhead design, development, and production skills.
- Develop an NNSA roadmap that sizes production capacity to modernization and hedging requirements.
- Retain confidence in nuclear gravity bombs needed to meet deterrence needs.
- Maintain and enhance the computational, experimental, and testing capabilities needed to annually assess nuclear weapons.



# OSD on U.S. Nuclear Delivery Developments in FY2020

- **Ground Based Strategic Deterrent (GBSD).** The GBSD system will replace the Minuteman III Intercontinental Ballistic Missile Weapon System (WS), including new flight, WS Command and Control, and ground systems; and conversion, modernization, and replacement of the MM III infrastructure, beginning in 2028. The program is in the Technology Maturation and Risk Reduction (TMRR) phase and is planning for a Milestone B decision and entry into the Engineering and Manufacturing Development (EMD) phase in FY 2020.
- **Long-Range Stand Off (LRSO) cruise missile.** The LRSO effort will develop a weapon system to replace the AGM-86B Air Launched Cruise Missile, which has been operational since 1986. The LRSO weapon system will be capable of penetrating and surviving advanced Integrated Air Defense Systems from significant stand-off ranges to hold strategic targets at risk in support of the Air Force's nuclear deterrence operations core function. The LRSO is also critical for serving as a hedge against risks in the more complex nuclear deterrence system development programs and enhancing the credibility of the DoD deterrent to assure U.S. allies. The program is in the TMRR phase and is planning for a Milestone B decision and entry into the EMD phase in FY 2022.
- **COLUMBIA class Ballistic Missile Submarine (SSBN).** The COLUMBIA class SSBN is being developed to replace the OHIO-class SSBNs starting in October 2030. The Navy will sustain the OHIO class to ensure a smooth transition for the sea-based leg of the Triad with the COLUMBIA class SSBN. The COLUMBIA class program successfully completed Milestone B in January 2017 and has entered the Engineering and Manufacturing Development (EMD) phase. Lead ship construction is planned to begin in 2021.
- **Trident II (D5)Submarine-Launched Ballistic Missile (SLBM) Life Extension (D5LE).** The D5LE program extends the service life of the D5 SLBM and will be deployed on both OHIO-class and COLUMBIA-class SSBNs. The D5LE is in production and achieved Initial Fleet Introduction in February 2017. The Navy will initiate development efforts for a follow-on system to the D5LE in FY 2020
- **B-21 Raider Strategic Bomber.** The B-21 Raider is being developed to acquire an affordable, long range, penetrating aircraft that incorporates proven, mature technologies. This bomber represents a key component to the joint portfolio of conventional and nuclear deep-strike capabilities.
- **F-35A Dual-Capable Aircraft (DCA).** The F-35A DCA will replace the Air Force's F-15 DCA to support extended deterrence. The F-35A DCA is scheduled to achieve nuclear certification in FY 2024.

# IISS on Russian Nuclear Force Changes 2018 - I

- Russia's military doctrine, last updated in 2014, states that the country reserves the right to use its nuclear capability in response to the use of nuclear weapons – or other weapons of mass destruction – against Russia or its allies, and in circumstances where aggression with conventional weapons would put at risk the very existence of the state. While this language indicates that the range of conditions for the use of Russia's nuclear weapons is relatively constrained, it is nuanced enough to allow Moscow to suggest that it can resort to nuclear weapons in a number of scenarios.
- While the Russian political and military leadership clearly understands the catastrophic consequences of a large-scale nuclear exchange, Moscow appears to be maintaining a degree of ambiguity about its intentions and capabilities that make it very difficult to completely rule out the possibility of a limited use of nuclear weapons in some eventualities. Indeed, in its military exercises, Russia has practiced scenarios that involve the use of such weapons.
- During the financially lean years of the 1990s, Russia focused on maintaining the core components of its strategic arsenal, preserving key defense-industrial enterprises, and consolidating development and production in Russia...As more funds became available in the 2000s, the modernization effort was intensified and subsequently expanded to include a number of new programs. To a large extent, this expansion was driven by the defense industry, although the factors that helped justify the modernization effort included the need to maintain numerical parity with the United States and to counter US missile defense developments.
- ...key enterprises involved in the development and production of Russia's strategic systems include the Moscow Institute of Thermal Technology, which leads the development of land and sea-based solid-propellant ballistic missiles (RS-12M2 Topol-M (SS-27 mod 1), RS-24 Yars (SS-27 mod 2) and Bulava), and the Votkinsk Machine Building Plant, which produces the missiles.
- The Makeyev State Rocket Center is the lead developer of liquid-fuel missiles, including modifications of the R-29RM Sineva (SS-N-23 Skiff) submarine launched ballistic missile (SLBM) and the new silo based Sarmat.
- The Tupolev Design Bureau is the main contractor for work on the current range of strategic bombers. Upgrades to old bombers are carried out at several plants, but it is planned that new aircraft production will be concentrated at the Gorbunov Aviation Plant in Kazan.
- ...the Bulava missile program encountered some difficulties at the development and serial-production stages; development of the Sarmat missile is now several years behind schedule; and the industry still has to demonstrate that it can resume the production of strategic bombers.
- Russia is carrying out an active ICBM modernization program, which has accelerated in recent years. The missile system at the center of this modernization is the single-warhead Topol-M (SS-27 mod 1), which was deployed in 1997–2009...When START expired in 2009, Russia switched to deployment of the RS-24 Yars (SS-27 mod 2), which is a version of the Topol-M (probably somewhat upgraded) that uses multiple independently-targetable re-entry vehicles (MIRVs). Both of these missiles are deployed in silos as well as on road-mobile launchers. As of early 2017, Russia was estimated to have 78 single-warhead Topol-M missiles and 96 multiple-warhead Yars ICBMs.
- The relatively new Topol-M and Yars missiles carry about half of all the ICBM warheads in Russia's inventory. The other half are deployed with the older ICBMs that were introduced in the early 1980s. One of these missiles, the UR-100NUTTH (SS-19 mod 3), is in the process of being withdrawn from active service.
- The other, the heavy R-36M2 (SS-18 Satan mod 5), is currently deployed with two missile divisions. With each missile carrying ten warheads, 46 ICBMs of this type account for 460 deployed warheads. These missiles are expected to stay in service until about 2020. After that they will be replaced by Sarmat, a new silo-based liquid- fuel ICBM that is currently under development.
- Russia is working to revive the idea of building a rail-mobile ICBM. Even though the project, known as Barguzin, was not included in the earlier State Armament Program, development is under way and the first missile ejection test took place in November 2016.
- Another missile under development, known as the RS-26 Rubezh, is nominally considered an ICBM, since it demonstrated a range of more than 5,500km in one of its flight tests. Rubezh, however, is believed to be an intermediate-range missile that is based on the first two stages of Yars. Russia completed flight tests of the



# IISS on Russian Nuclear Force Changes 2018 - II

missile in 2014 and initially planned to begin deployment in 2015 to missile units near Irkutsk and at Edrovo/Vypolzovo. However, the deployment was postponed and is not expected to begin until at least mid- 2018.

In 2014 the Russian Navy received the third Project 955 Borey-class ballistic-missile submarine. This delivery was part of Moscow's strategic fleet modernization program, which calls for the construction of eight submarines of this class. The fourth submarine, which is expected to join the fleet in 2019 – and subsequent boats that are currently at various stages of construction – appears to be an upgraded design, called Project 955A Borey-A. Each submarine carries 16 Bulava solid-propellant SLBMs, with up to six warheads on each missile. This construction program is now expected to be completed in 2021.

It seems likely that Delta-III submarines will be withdrawn from service when they are replaced by the new Project 955 Borey, although Delta-IV-class boats will probably remain in service for some time after 2025...Most likely, Russia will continue the Project 955 line along with the development of a new submarine with a solid-propellant missile. Given Bulava's patchy test record, it is possible that the missile will be new as well.

To equip submarines of the Delta-IV class, Russia has relaunched a production line for R-29RMU2 Sineva (SS-N-23) SLBMs and developed an upgraded version of that missile, known as the R-29RMU2.1Layner. This latter missile, accepted for service in 2014, is said to be capable of carrying up to ten warheads, although it is perhaps deployed with only four, like Sineva... no decision about the direction of the SLBM program is understood to have been taken at the time of writing.

The recent overhaul and modernization of the Tu-160 (heavy bomber) fleet has given these aircraft the capability to use conventional weapons as well. Both aircraft can carry the Kh-555 ALCM, which is a conventional version of the Kh-55. They can also carry the new conventional Kh-101 ALCM, and its nuclear version, which is known as Kh-102. The capability of the Tu-160 and Tu-95MS to use conventional ALCMs (Kh-555 as well as Kh-101) was first demonstrated in 2015, when these aircraft were used to attack targets in Syria.

Modernization plans for Russia's strategic aviation currently include two main projects: the development of a new long-range bomber, known as PAK-DA, and revived production of the Tu-160; these newly produced versions are designated Tu-160M2. PAK-DA, meanwhile, is reported to be a subsonic flying-wing aircraft, although there is only scant information on the project.

In order to allow its bombers to conduct stand-off operations, Russia is reportedly working on a new ALCM, known as Kh-BD, with a range that will be considerably greater than that reported for the Kh-101/-102. PAK- DA may conduct its first flight in the 2020s. Once in service, it will replace the old Tu-95MS bombers, although the air force has not yet indicated how many new bombers it would like to procure.

The first Tu-160M2 is also expected to be ready in 2019, with serial production starting in 2021, and the air force is considering an order of up to 50 of the aircraft.

It is estimated that Russia's current active arsenal includes about 2,000 nuclear warheads assigned to non- strategic delivery systems.

The development and deployment of new nuclear-capable delivery systems is clearly under way, although most of the new systems are designed to be dual-capable. One major project in this area is the development of the Iskander-M system, which includes a short-range ballistic missile and a short-range cruise missile. The system is widely believed to be nuclear-capable and has apparently been used in some exercises to simulate nuclear strikes. Russia will soon complete the deployment of Iskander-M in all 12 army and navy missile brigades, where they are replacing older Tochka-U missiles.

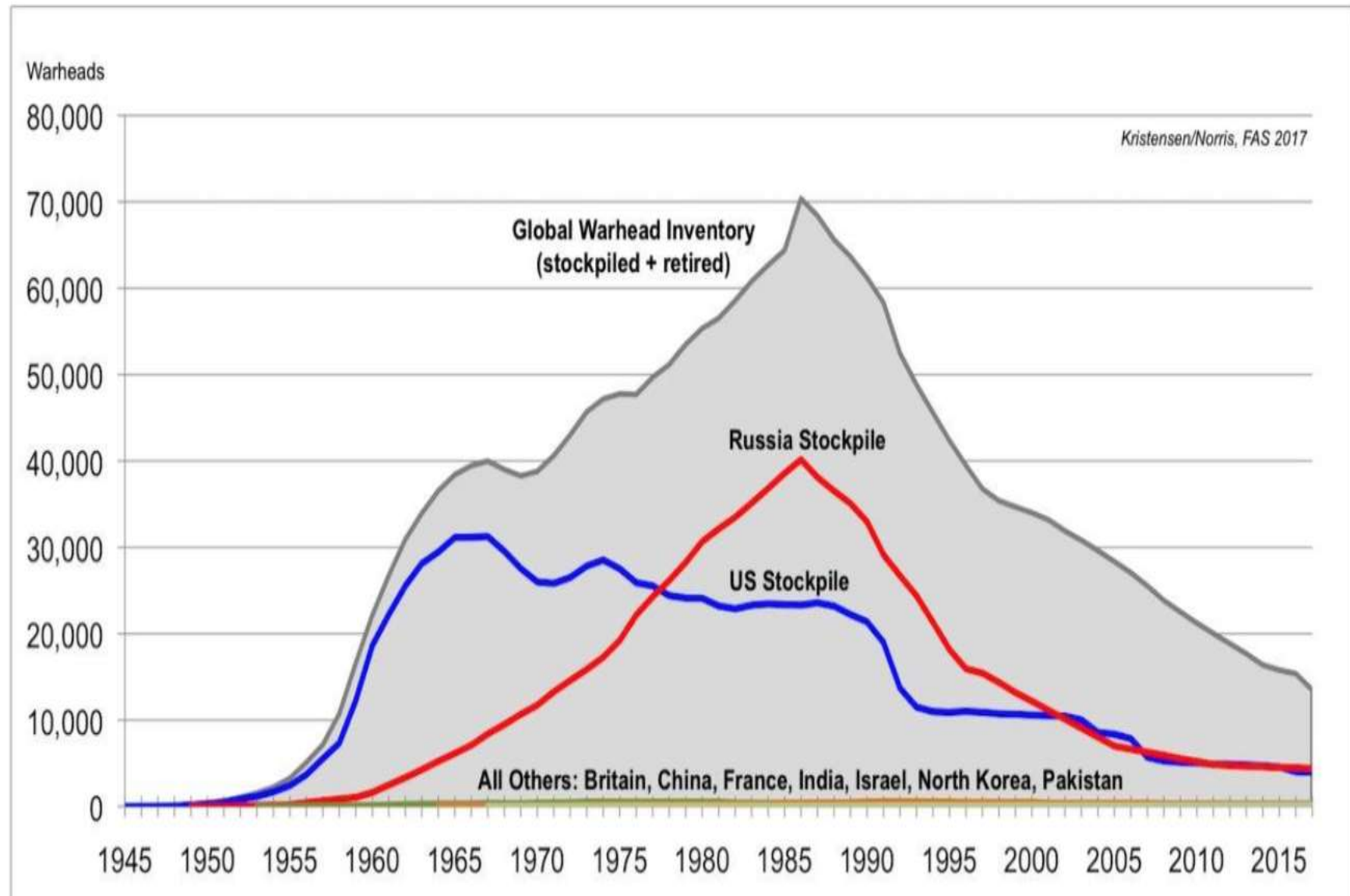
Another important program is the development of a family of long-range cruise missiles that can be deployed on submarines, surface ships and potentially on land-based launchers. This family includes the long-range missile known as the 3M14, a land-attack cruise missile (LACM) that is part of the Kalibr weapon system. Starting in 2015, Russia repeatedly demonstrated the capability of this missile in attacks against targets in Syria...Russia has announced a plan to deploy Kalibr missiles on a range of surface ships and submarines. The first multipurpose submarine of the Project 885 Yasen class, Severodvinsk, has demonstrated the capability to launch...Older types of submarine are being modified to carry these missiles in their torpedo compartments; Yasen, in contrast, is believed to have a mix of vertical launch tubes and missile-capable torpedo tubes.

# Putin on Russian Nuclear Force Changes 3/1/2018

President Putin highlighted additional nuclear force developments in a speech on March 1, 2018. He described these developments as defensive modernization, and partly as a reaction to the U.S. Nuclear Posture Review. He did not highlight the ongoing improvements listed by the IISS, but focused on new systems that he made clear were symbols of Russian innovation and ability to compete with the U.S. His 23 page speech is well worth reading in full, but the key new development he described were:

- **The New Russian RS-28 Sarmat ICBM**, “...the Defence Ministry and enterprises of the missile and aerospace industry are in the active phase of testing a new missile system with a heavy intercontinental missile. We called it Sarmat. Sarmat will replace the Voevoda system made in the USSR....the capabilities of the Sarmat missile are much higher. Weighing over 200 tons, it has a short boost phase, which makes it more difficult to intercept for missile defense systems. The range of the new heavy missile, the number and power of its combat blocs is bigger than Voevoda’s. Sarmat will be equipped with a broad range of powerful nuclear warheads, including hypersonic, and the most modern means of evading missile defense. The high degree of protection of missile launchers and significant energy capabilities the system offers will make it possible to use it in any conditions.”
- **(Nuclear Powered?) Hypersonic Cruise Missile**: “...a small-scale heavy-duty nuclear energy unit that can be installed in a missile like our latest X-101 air-launched missile or the American Tomahawk missile – a similar type but with a range dozens of times longer, dozens, basically an unlimited range. It is a low-flying stealth missile carrying a nuclear warhead, with almost an unlimited range, unpredictable trajectory and ability to bypass interception boundaries. It is invincible against all existing and prospective missile defense and counter-air defense systems. I will repeat this several times today....In late 2017, Russia successfully launched its latest nuclear-powered missile at the Central training ground. During its flight, the nuclear-powered engine reached its design capacity and provided the necessary propulsion. Now that the missile launch and ground tests were successful, we can begin developing a completely new type of weapon, a strategic nuclear weapons system with a nuclear-powered missile.... As the range is unlimited, the missile can maneuver for as long as necessary...
- **Unmanned, High Speed Submersible Vehicle (Status 6 or Canyon Nuclear Torpedo)** “we have developed unmanned submersible vehicles that can move at great depths (I would say extreme depths) intercontinentally, at a speed multiple times higher than the speed of submarines, cutting-edge torpedoes and all kinds of surface vessels, including some of the fastest. It is really fantastic. They are quiet, highly maneuverable and have hardly any vulnerabilities for the enemy to exploit. There is simply nothing in the world capable of withstanding them....Unmanned underwater vehicles can carry either conventional or nuclear warheads, which enables them to engage various targets, including aircraft groups, coastal fortifications and infrastructure...In December 2017, an innovative nuclear power unit for this unmanned underwater vehicle completed a test cycle that lasted many years. The nuclear power unit is unique for its small size while offering an amazing power-weight ratio. It is a hundred times smaller than the units that power modern submarines, but is still more powerful and can switch into combat mode, that is to say, reach maximum capacity, 200 times faster...The tests that were conducted enabled us to begin developing a new type of strategic weapon that would carry massive nuclear ordnance.
- **Hypersonic Air Attack System** “Countries with high research potential and advanced technology are known to be actively developing so-called hypersonic weapons...The speed of sound is Mach 1, speeds between Mach 1 and Mach 5 is called supersonic, and hypersonic is above Mach 5....Military experts believe that it would be extremely powerful, and that its speed makes it invulnerable to current missile and air defense systems, since interceptor missiles are, simply put, not fast enough. In this regard, it is quite understandable why the leading armies of the world seek to possess such an ideal weapon...The unique flight characteristics of the high-speed carrier aircraft allow the missile to be delivered to the point of discharge within minutes. The missile flying at a hypersonic speed, 10 times faster than the speed of sound, can also maneuver at all phases of its flight trajectory, which also allows it to overcome all existing and, I think, prospective anti-aircraft and anti-missile defense systems, delivering nuclear and conventional warheads in a range of over 2,000 kilometers. We called this system *Kinzhal* (Dagger).
- **Gliding Wing Delivery System: Project 4202 or Yu-71**: “...in the near future, the Russian Armed Forces, the Strategic Missile Forces, will receive new hypersonic-speed, high-precision new weapons systems that can hit targets at inter-continental distance and can adjust their altitude and course as they travel. This is a very significant statement because no country in the world as of now has such arms in their military arsenal...Unlike existing types of combat equipment, this system is capable of intercontinental flight at supersonic speeds in excess of Mach 20. As I said in 2004, in moving to its target, the missile’s gliding cruise bloc engages in intensive maneuvering – both lateral (by several thousand km) and vertical. This is what makes it absolutely invulnerable to any air or missile defense system.

# Shifts in U.S.-Soviet/Russian Weapons: 1945-2017



Source: Source: Hans M. Kristensen and Robert S. Norris, "Status of World Nuclear Forces," Federation of American Scientists (FAS), 26 May 2016, available at: <http://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/>.

# U.S.-Russian Weapons Limits Under New Start

The New START Treaty contains three central limits on U.S. and Russian strategic offensive nuclear forces; these are displayed in **Table 1**, below. First, it limits each side to no more than 800 deployed and nondeployed ICBM and SLBM launchers and deployed and nondeployed heavy bombers equipped to carry nuclear armaments. Second, within that total, it limits each side to no more than 700 deployed ICBMs, deployed SLBMs, and deployed heavy bombers equipped to carry nuclear armaments. Third, the treaty limits each side to no more than 1,550 deployed warheads. Deployed warheads include the actual number of warheads carried by deployed ICBMs and SLBMs, and one warhead for each deployed heavy bomber equipped for nuclear armaments. **Table 1** compares these limits to those in the 1991 START Treaty and the 2002 Moscow Treaty.

**Table 1. Limits in START, Moscow Treaty, and New START**

Treaty	START (1991)	Moscow Treaty (2002)	New START (2010)
Limits on Delivery Vehicles	1,600 strategic nuclear delivery vehicles	No limits	800 deployed and nondeployed ICBM launchers, SLBM launchers and heavy bombers equipped to carry nuclear weapons  Within the 800 limit, 700 deployed ICBMs, SLBMs, and heavy bombers equipped to carry nuclear weapons
Limits on Warheads	6,000 warheads attributed to ICBMs, SLBMs, and heavy bombers  4,900 warheads attributed to ICBMs and SLBMs  1,100 warheads attributed to mobile ICBMs  1,540 warheads attributed to heavy ICBMs	1,700-2,200 deployed strategic warheads  No sublimits	1,550 deployed warheads  No sublimits
Limits on Throwweight	3,600 metric tons	No limit	No limit

Source: State Department fact sheets.

**Table 2. U.S. Strategic Nuclear Forces Under New START**

(Estimated current forces and potential New START forces)

	Estimated U.S. Forces, 2010		U.S. Forces, February 5, 2018 <sup>a</sup>			Permitted Forces Under New START <sup>b</sup>		
	Deployed Launchers	Warheads	Total Launchers	Deployed Launchers	Warheads	Total Launchers	Deployed Launchers	Warheads
Minuteman III	450	500	454	400		454	400	400
Peacekeeper	0	0	0	0		0	0	0
Trident	336	1,152	280	203		280	240	1,090
B-52	76	300	46	36		47	41	41
B-2	18	200	20	13		19	19	19
<b>Total</b>	<b>880</b>	<b>2,152</b>	<b>800</b>	<b>652</b>	<b>1,350</b>	<b>800</b>	<b>700</b>	<b>1,550</b>

Source: CRS estimates, Air Force estimates.

- U.S. Department of State, Bureau of State, Bureau of Arms Control, Verification, and Compliance, *New START Treaty Aggregate Numbers of Strategic Offensive Forces*, Fact Sheet, Washington, DC, July 6, 2018, <https://www.state.gov/documents/organization/284376.pdf>. The fact sheet does not display warhead subtotals for each delivery system; it includes only an aggregate across the force.
- This force assumes that the United States retains 14 Trident submarines, with two submarines in overhaul, but that each has only 20 deployed launchers. It also assumes that the Air Force maintains all 450 Minuteman III silos, but places 50 in "warm" status. This appears to be the Air Force preferred option at this time, although the final force structure decision is still pending.

**Table 3. Russian Strategic Nuclear Forces Under New START**

(Estimated current forces and potential New START forces)

	Estimated Forces 2010		Potential Forces under New START		
	Launchers	Warheads	Total Launchers	Deployed Launchers	Deployed Warheads
SS-18 ICBM	68	680	68	20	200
SS-19 ICBM	72	432	0	0	0
SS-25 (mobile)	180	180	0	0	0
SS-27 (mobile)	13	13	27	27	27
SS-27 (silo)	50	50	60	60	60
RS-24 (mobile)	0	0	85	85	340
SS-N-18 (Delta III SSBN)	64 (4 SSBNs)	192	0	0	0
SS-N-23 (Delta IV SSBN)	96 (6 SSBNs)	384	64 (4 SSBNs)	64	256
Bulava (Borey SSBN)	0	0	64 (4 SSBNs)	64	384
Blackjack Bomber	14	168	13	13	13
Bear Bomber	63	688	63	63	63
<b>Total</b>	<b>620</b>	<b>2,787</b>	<b>444</b>	<b>396</b>	<b>1,335</b>

Source: United States Department of State, Fact Sheet, *START Aggregate Numbers of Strategic Offensive Arms*, November 30, 2012; Nuclear Notebook: Russian Nuclear Forces, 2010," *Bulletin of the Atomic Scientists*, January/February 2010; Russian Nuclear Forces <http://russianforces.org/>.

# U.S.-Russian Strategic Offensive Weapons in 2017

Below are each party's aggregate numbers of strategic offensive arms as of September 1, 2017, as drawn from the exchange of data by the parties.

## NEW START TREATY AGGREGATE NUMBERS OF STRATEGIC OFFENSIVE ARMS

Category of Data	United States of America	Russian Federation
<b>Deployed Intercontinental Ballistic Missiles (ICBMs), Deployed Submarine-Launched Ballistic Missiles (SLBMs), and Deployed Heavy Bombers</b>	<b>660</b>	<b>501</b>
<b>Warheads on Deployed ICBMs, on Deployed SLBMs, and Nuclear Warheads Counted for Deployed Heavy Bombers</b>	<b>1393</b>	<b>1561</b>
<b>Deployed and Non-deployed Launchers of ICBMs, Deployed and Non-deployed Launchers of SLBMs, and Deployed and Non-deployed Heavy Bombers</b>	<b>800</b>	<b>790</b>

The New START Treaty does not require annual reductions in strategic offensive arms. The Treaty obligates the parties to reduce and limit their forces so that seven years after entry-into-force of the treaty, February 5, 2018, each Party's aggregate numbers of strategic offensive arms as counted in accordance with the Treaty do not exceed: 700 for deployed ICBMs, deployed SLBMs, and deployed heavy bombers; 1,550 for warheads on deployed ICBMs, warheads on deployed SLBMs, and nuclear warheads counted for deployed heavy bombers; and 800 for deployed and non-deployed ICBM launchers, deployed and non-deployed SLBM launchers, and deployed and non-deployed heavy bombers.

# DIA on Chinese Biological and Chemical Weapons- 2019

China has consistently claimed that it has never researched, produced, or possessed biological weapons and would never do so. Beijing says China has researched only defensive biological technology necessary for China's defense. China acceded to the Biological Weapons Convention (BWC) in 1984. It declared the Academy of Military Science's Institute of Microbiology and Epidemiology in Beijing as a biodefense research facility. China regularly and voluntarily submits to confidence-building measures under the BWC.

Although China is not a member of the Australia Group, China's export control regulations have been in line with Australia Group guidelines and control lists since 2002. China's biotechnology infrastructure is sufficient to produce some biological agents or toxins on a large scale. The Australia Group (AG) is an informal forum of countries which, through the harmonization of export controls, seeks to ensure that exports do not contribute to the development of chemical or biological weapons. Coordination of national export control measures assists Australia Group participants to fulfil their obligations under the Chemical Weapons Convention and the Biological and Toxin Weapons Convention to the fullest extent possible.

China has declared that it once operated a small chemical weapons program for offensive purposes; however, Beijing has consistently maintained that the program was dismantled and all agents and munitions were used before China ratified the Chemical Weapons Convention (CWC) in 1997. Beijing also has declared two historical chemical warfare production facilities that may have produced mustard gas, phosgene, and lewisite. In 1998, Beijing published chemical export control regulations consistent with Organization for the Prohibition of Chemical Weapons (OPCW) standards. It also has consistently updated its chemical control list to reflect changes made to the Australia Group chemical control list. China continues to reaffirm its compliance with the CWC as well as its support for the activities conducted by the OPCW. Since acceding to the CWC, China has declared hundreds of dual-use facilities and has hosted hundreds of facility inspections and OPCW-led seminars.

China's chemical infrastructure is sufficient to research, develop, and produce some chemical agents on a large scale. China probably has the technical expertise to weaponize chemical and biological warfare (CBW) agents, and China's robust armaments industry and numerous conventional weapon systems, including missiles, rockets, and artillery, probably could be adapted to deliver CBW agents. China has the technical expertise, military units, and equipment necessary to detect CBW agents and to defend against a CBW attack. Entities and individuals in China continue to supply countries of concern with technologies, components, and raw materials applicable to weapons of mass destruction and missile programs. Such material and technology transfers could assist countries in developing their own production capabilities



# Arms Control Association CBW Assessment

## **Biological Weapons**

China contends it is in compliance with the Biological Weapons Convention (BWC) despite U.S. allegations asserting the contrary. U.S. State Department compliance assessment reports have said that China possessed an offensive biological weapons capability prior to joining the BWC in 1984.

The [2015 report](#) indicates that China "engaged during the reporting period in biological activities with potential dual-use applications. However, the information did not establish that China is engaged in activities prohibited by the BWC." The [2017 compliance report](#) does not cite any Chinese violations.

## **Chemical Weapons**

China has declared that it has destroyed all chemical weapon agent production facilities and solely conducts defensive chemical warfare research.

Beijing's official position emphasizes the complete prohibition and destruction of chemical weapons. In the past, the U.S. government has alleged that China may be violating its Chemical Weapons Convention (CWC) commitments by secretly pursuing chemical weapons programs.

The State Department's [2010 compliance report](#) concluded that "available information does not allow the United States to confirm whether China has fully declared or explained its historical CW [chemical weapon] activities, including CW production, disposition of produced CW agents, and transfer of CW agents to another country." The [State Department's 2017 CWC report](#) did not list any Chinese compliance issues.

China inherited [approximately](#) 700,000 abandoned chemical weapon (ACW) munitions from the Imperial Japanese Army at the end of World War II. Many of these ACWs are not easily located or properly stored; many of them are buried.

Japan, as of 2017, [continues to jointly work with China](#) to destroy these ACWs. Destruction began in March 2010. In November 2014, the Chinese Foreign Ministry urged Japan to [speed up the destruction process](#). As of December 2014, 50,800 ACWs [had been recovered](#) in China, of which 37,373 were verifiably destroyed.

# DIA on Chinese Underground Facilities

## OSD

The PLA continues to maintain a robust and technologically advanced underground facility (UGF) program to protect all aspects of its military forces, including C2, logistics, missile systems, and naval forces. China has thousands of UGFs and it continues to construct more each year. The PLA utilizes these UGFs to protect valuable assets from the effects of missile strikes and to conceal military operations from adversaries. China's NFU policy also contributed to the construction of UGFs for the country's nuclear forces, which may have planned to survive an initial nuclear first strike by an adversary.

China began to update and expand its military UGF program in the mid- to late-1980s. This modernization effort took on renewed urgency following China's observation of U.S. and Coalition air operations during the 1991 Gulf War and their use in OPERATION ALLIED FORCE. These military campaigns convinced China it needs to build more survivable, deeply buried facilities to protect military assets from the effects of penetrating conventional munition and nuclear strikes. China will likely continue to develop and expand its UGF program to support its expanding forces.

## DIA

The use of underground facilities for warfighting protection and concealment enhances China's military capacity, with particular emphasis on protecting C4I functions and missile assets. The PLA maintains a robust, technologically advanced underground facility (UGF) program. Given its NFU nuclear policy, China assumes it might have to absorb an initial nuclear strike while ensuring that leadership and strategic assets survive.

China determined in the mid-to-late 1980s that it needed to update and expand its military UGF program. This modernization effort took on a renewed urgency after China observed U.S. and coalition air operations during the 1991 Persian Gulf War and in the Balkans in 1999. The resultant emphasis on "winning high-tech battles" 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 we have detected throughout China for the past decade .

# Changing Bomber, SLBM, and Missile Strike Capability and Countervailing Power

# Changing Strike Capability and Countervailing Power

The previous section has already highlighted the advances that China is making in strategic nuclear missiles. China also, however, is developing a full spectrum of advanced precision guided conventional missiles to strike at land and naval targets and new air and missile defenses. These developments are outlined in the tables and maps in this section — along with some comparisons of the data for 2017-2019 that provides a picture of the speed of China's progress — progress that affects the capabilities of each of the military services described in following sections.

These developments in missile strike capability are closely linked to China's steadily improving IS&R and targeting capabilities and battle management systems and are key aspect of its capability to carry out "informationized" warfare and execute A2 D2 operations. As such they are also tools for China to use in executing "countervailing power" — What Andrew Marshall defined as the ability to exploit the limits of an opponent's military forces with less expensive systems that had sufficient effectiveness to have a major strategic impact.

As the previous sections on the South China Sea and Taiwan have shown, missiles give China a substitute for comparable naval and air forces and considerable ability to exert influence operations over its neighbors. For example, long range missiles can now threaten U.S. carrier forces at considerable range — extending to the edge of the second island chain.

The following charts and maps illustrate both the growing spectrum of Chinese precision strike capabilities at every level of warfare, and their growing strike range. They also again demonstrate China's capability to exploit the strategic ambiguity of systems that can carry both nuclear and conventional weapons.

One key caution. Like most such data, there are no credible open source data on the real world operational accuracy, lethality, and reliability of such data. The data that are available are generally based on nominal range-payload calculations and estimates of the potential CEP of the guidance platform or system — an accuracy that may well not be achievable in practice and that is defined in ways that make it the maximum accuracy for only half the missiles fired.

(Wikipedia notes that: CEP is defined as the radius of a circle, centered on the mean, whose boundary is expected to include the landing points of 50% of the rounds; said otherwise, it is the median error radius. That is, if a given bomb design has a CEP of 100 m, when 100 are targeted at the same point, 50 will fall within a 100 m circle around their average impact point. (The distance between the target point and the average impact point is referred to as [bias](#).)

# Chinese 2019 Defense White Paper: Missile and Rocket Forces

The PLA Rocket Force (PLARF) plays a critical role in maintaining China's national sovereignty and security. It comprises nuclear missile, conventional missile and support forces, and subordinate missile bases.

In line with the strategic requirements of having both nuclear and conventional capabilities and deterring wars in all battlespaces, the PLARF is enhancing its credible and reliable capabilities of nuclear deterrence and counterattack, strengthening intermediate and long-range precision strike forces, and enhancing strategic counter-balance capability, so as to build a strong and modernized rocket force.

...The PLA Rocket Force (PLARF) has organized force-on-force evaluation-oriented training and training based on operational plans at brigade and regiment levels, strengthened training for joint strikes, and completed regular exercises such as *Heavenly Sword*.

...Old equipment is being phased out, and a system created that mainly comprises new and high-tech weaponry and equipment. Type 15 tanks, type 052D destroyers, J-20 fighters, and DF-26 intermediate and long-range ballistic missiles have been commissioned.

... Since 2012, the increase in defense expenditure has been primarily spent for the following purposes:

1. Adapting to national economic and social development, improving the wellbeing of service personnel, ensuring regular increases in military salaries, and bettering the working, training and living conditions of the troops;
2. Increasing input in weaponry and equipment development, phasing out the outdated, upgrading the old, and developing and procuring the new, such as aircraft carriers, fighters, *missiles* and main battle tanks, to steadily modernize weaponry and equipment

...The PLA has significantly downsized the active force of the PLAA, maintained that of the PLAAF at a steady number, moderately increased that of the PLAN and PLARF, and optimized the force structures of all services and arms.

# OSD on Chinese SLBM and Bomber Force in 2019

- China has constructed six JIN-class SSBN, with four operational and two outfitting at Huludao Shipyard. China's JIN SSBNs, which are equipped to carry up to 12 CSS-N-14 (JL-2) SLBMs, are the country's first viable sea-based nuclear deterrent. China's next-generation Type 096 SSBN reportedly will be armed with the follow-on JL-3 SLBM, and it will likely begin construction in the early- 2020s. (p. 66) (The PLA Navy's Jin class nuclear powered ballistic missile submarines, armed with the JL-2 submarine launched ballistic missile, provide China its first viable sea-based nuclear deterrent and credible second-strike nuclear capability. The JL-2 submarine-launched ballistic missile (SLBM) has nearly three times the range of the Xia SSBN's JL-1 SLBM, which was able to reach targets only in China's immediate vicinity. The JL-2 SLBM underwent successful testing in 2012. The Jin/JL-2 weapon system will provide China with a capability to strike targets in the continental United States from some patrol areas. To maintain a continuous at-sea nuclear deterrent, the PLAN probably would require a minimum of five Jin SSBNs; four are in service. (DIA, pp. 41-42)
- China's bomber force is comprised of H-6 BADGER variants and it has worked to maintain and enhance the operational effectiveness of these aircraft. The latest H-6 variant, the H-6K, is being fielded in greater numbers and integrates standoff weapons and features more efficient, turbofan engines. This extended-range aircraft has the capability to carry six LACMs, giving the PLA a long-range standoff precision strike capability which can range Guam. Since at least 2016, Chinese media have been referring to the H-6K as a dual nuclear-conventional bomber. PLAN Aviation fields the H-6G with systems and four weapons pylons for ASCMs to support maritime missions. In addition, the PLAAF is seeking to extend its reach with the development of a new, stealth strategic bomber. Former PLAAF Commander General Ma Xiaotian publicly announced the program in 2016, and commentators anticipate the new platform will debut sometime around 2025. (p. 41)
- The PLAAF employs the medium-range H-6K bomber, which can carry up to six precision-guided CJ-20 ALCMs each, giving it the ability to engage U.S. forces as far away as Guam. Since 2016, the PLAAF has steadily increased H-6K operating areas into the western Pacific Ocean and the South China Sea. China's acquisition of three IL-78 MIDAS aerial refueling tankers from Ukraine probably allowed the PLAAF to extend the range of Su-30 fighter aircraft beyond the first island chain when supporting H-6K bombers. (p. 58)
- Following PLAAF Commander General Ma Xiaotian's 2016 public statement that China was developing a new generation of long-range bombers, a number of reports suggest the new bomber, likely named the H-20, could debut sometime in the next decade with the following features: a stealthy design, employing many fifth- generation technologies; a likely range of at least 8,500 km; a payload of at least 10 metric tons; and a capability to employ both conventional and nuclear weaponry. A photograph of a possible H-20 prototype depicted a flying wing airframe akin to the B-2 bomber and X-47B stealth (p. 61)
- Similarly, the acquisition and development of longer-range UAVs is increasing China's ability to conduct long-range ISR and strike operations. Multiple armed UAV types are under development, in testing, or in the initial phases of deployment. In addition, China successfully tested the AT-200, which it claims is the "world's first large cargo UAV." This drone can carry up to 1.5 tons of cargo and can operate from unimproved runways as short as 200 meters, and it may be especially suited to provide logistic support to PLA forces in the South China Sea. (p. 58)
- China displayed its largest ever suite of Unmanned Aerial Vehicles (UAVs) at the Zhuhai Air Show in November 2018. In addition to displays of armed-capable reconnaissance UAVs such as the YUNYING, CAIHONG CH-4 and CH-5, and YILONG (Wing Loong) series of aircraft, there were multiple of displays of low-observable flying- wing aircraft such as the CH-7, TIANYING, and YAOYING-III to complement earlier flying wing UAVs such as the ANJIAN and LIJIAN. The Tengden Company also displayed armed UAVs, such as the TW328... (p. 40)



# DIA on Chinese Submarines in 2019

China's modernizing force includes several types of submarines. For its diesel-electric force alone, between 2000 and 2005 China constructed Ming diesel attack submarines (SSs) and Song SSs and the first Yuan air-independent attack submarine (SSP), and purchased eight Kilo SSs from Russia. Although all of these classes remain in service, only the Yuan SSP is in production. Over time, reducing the number of classes in service helps streamline maintenance, training, and interoperability. The submarine force comprises 6 nuclear attack submarines, 4 nuclear-powered ballistic missile submarines, and 50 diesel attack submarines. By 2020 the submarine force probably will increase to about 70 submarines.

The Yuan SSP is China's most modern conventionally powered submarine. Seventeen are in service, with possibly three more slated for production. The Yuan SSP's combat capability is comparable to that of the Song; both can launch Chinese-built antiship cruise missiles, but the Yuan has the added benefit of an air-independent propulsion (AIP) system and may have incorporated quieting technology from the Russian-designed Kilo SS. The AIP system provides a submarine a source of power other than battery or diesel engines while still submerged, increasing its underwater endurance and reducing its vulnerability to detection.

The remainder of the conventional submarine force is a mix of Song, Ming, and Russian-built Kilo SSs. Of these, only the Ming and four of the older Kilos lack an ability to launch ASCMs. Eight of China's 12 Kilos are equipped with the SS-N-27 ASCM, which provides a long-range ASUW capability out to about 120 nautical miles. China's newest domestic submarine-launched ASCM, the CH-SS-N-13, extends a similar capability to the Song, Yuan, and Shang classes.

China also continues to modernize its nuclear-powered attack submarine force, although these make up a small percentage of the total number of submarines. Two Shang nuclear-powered attack submarines (SSNs) have been launched, one each in 2002 and 2003. After nearly 10 years, China is continuing production with four additional hulls of an improved Shang variant. These six submarines will replace the aging Han SSN on a nearly one-for-one basis during the next several years. After the completion of the improved Shang SSN, the PLAN is expected to begin production on another modified variant of the Shang SSN class, the Type 093B.207 Thereafter, the PLAN probably will progress to the Type 095 nuclear-powered cruise missile submarine (SSGN). This class of submarine may provide a generational improvement in many areas, such as quieting and weapons capacity.

The PLA Navy's Jin class nuclear powered ballistic missile submarines, armed with the JL-2 submarine launched ballistic missile, provide China its first viable sea-based nuclear deterrent and credible second-strike nuclear capability. The JL-2 submarine-launched ballistic missile (SLBM) has nearly three times the range of the Xia SSBN's JL-1 SLBM, which was able to reach targets only in China's immediate vicinity. The JL-2 SLBM underwent successful testing in 2012. The Jin/JL-2 weapon system will provide China with a capability to strike targets in the continental United States from some patrol areas. To maintain a continuous at-sea nuclear deterrent, the PLAN probably would require a minimum of five Jin SSBNs; four are in service.

## OSD on Chinese A2 D2 Capabilities in 2019

- PLA capabilities in development provide options for China to dissuade, deter, or, if ordered, defeat third-party intervention during a large-scale, theater campaign such as a Taiwan contingency. U.S. defense planners often term these collective capabilities as A2/AD.
- The PLA is additionally developing power projection capabilities and concepts of operation in order to conduct offensive operations within the second island chain, in the Pacific and Indian Oceans, and in some cases, globally.
- In addition to strike, air and missile defense, anti-surface, and anti-submarine capabilities improvements, China is focusing on information, cyber, and space and counterspace operations.
- PLA A2/AD capabilities are currently most robust within the first island chain, though China aims to strengthen its capabilities to extend farther into the Pacific Ocean.

China's military modernization plan includes the development of A2/AD capabilities to conduct long-range attacks against adversary forces who might deploy or operate within the western Pacific Ocean. PLA capabilities are currently most robust within the first island chain, though China aims to strengthen its capabilities to extend farther into the Pacific Ocean. These capabilities span the air, maritime, space, electromagnetic, and information domains.

# DIA on PLA Rocket Force (PLARF) in 2019

The Rocket Force 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 from China's shores out to the first island chain—the islands running from the Kurils, through Taiwan, to Borneo, roughly encompassing the Yellow Sea, East China Sea, and South China Sea.

The CSS-5 Mod-5/ DF-21D has a range exceeding 1,500 kilometers and has a maneuverable warhead. During the PLA's 90th anniversary parade in 2017, China displayed a new MRBM designated the DF-16G, which China claims features high accuracy, short preparation time, and an improved maneuverable terminal stage that can better infiltrate missile defense systems.

China unveiled the DF-26 intermediate-range ballistic missile (IRBM) during its September 2015 military parade in Beijing. The DF-26 is capable of conducting precision strikes against ground targets and contributes to China's counterintervention posture in the Asia-Pacific region. During the parade, official public statements also referenced a nuclear version of the DF-26, which, if it has the same guidance capabilities, would give China its first nuclear precision-strike capability against theater targets.

The PLARF also continues to enhance its nuclear deterrent, maintaining silo-based nuclear ICBMs and adding more survivable, mobile nuclear delivery systems. China currently has 75 to 100 ICBMs, including the silo-based CSS-4 Mod 2/DF-5A and MIRV-equipped CSS-4 Mod 3/DF-5B; the solid-fueled, road-mobile CSS-10 Mod 1/DF-31 and CSS-10 Mod 2/ DF-31A; and the shorter range CSS-3/DF-4. The CSS-10 Mod 2/DF-31A has a range of more than 11,200 kilometers and can reach most locations within the continental United States. China also is developing a new MIRV-capable road-mobile ICBM, the CSS-X-10/DF-41.

The CJ-10 ground-launched cruise missile (GLCM) has a range in excess of 1,500 kilometers and offers flight profiles different from ballistic missiles, enhancing targeting options. Because of overlap in the kinds of targets China is likely to engage with either ballistic missiles or cruise missiles, GLCMs and air-launched land-attack cruise missiles provide key operational and planning flexibility. These weapons are likely to reduce the burden on ballistic missile forces as well as create somewhat safer strike opportunities for Chinese aircrews, allowing them to engage from much greater distances and from more advantageous locations. This will complicate an adversary's air and missile defense problem.

## DIA on PLA Rocket Force (PLARF) in 2019

System	Type	Warheads	Propellant	Deployment Mode	Max Range km
CSS-3/DF-4	ICBM	Nuclear	Liquid	ROTL**	5,500+
CSS-4/DF-5	ICBM	Nuclear	Liquid	Silo	12,000-13,000
CSS-7/DF-11	SRBM	Conventional	Solid	Mobile	300-600
CSS-6/DF-15	SRBM	Conventional	Solid	Mobile	600-850+
CSS-11/DF-16	SRBM	Conventional	Solid	Mobile	800-1,000
CSS-5/DF-21	MRBM	Nuclear and Conventional Variants	Solid	Mobile	1,500-1,750+
CSS-5 Mod-5/DF-21D	ASBM	Conventional	Solid	Mobile	1,500+
DF-26	IRBM	Nuclear and Conventional Variants	Solid	Mobile	4,000
CSS-10/DF-31	ICBM	Nuclear	Solid	Mobile	7,200-11,200
CJ-10	GLCM	Conventional	Solid	Mobile	1500+

*\*This chart does not include systems in development.*

*\*\* Rollout to Launch*

The PLARF operates China's strategic land-based nuclear and conventional missiles and is a critical component of China's deterrence strategy and efforts to counter third-party intervention in regional conflicts. The PLARF also is charged with developing and testing several new classes and variants of long-range missiles, forming additional missile units, upgrading older missile systems, and developing methods to counter ballistic missile defenses.

### *Principal Weapon Systems*

The PLARF has about 1,200 short-range ballistic missiles (SRBMs), and China is increasing the lethality of its conventional missile force by fielding the CSS-11/DF-16 ballistic missile, with a range of 800 to 1,000 kilometers. The CSS-11/DF-16, coupled with the already deployed conventional land-attack and antiship variants of the CSS-5/DF-21 medium-range ballistic missile (MRBM), will improve China's ability to strike not only Taiwan but other regional targets.

## OSD on Chinese Missile and GLCM Force in 2019

- China's nuclear arsenal currently consists of approximately 90 ICBMs, including the silo-based CSS-4 Mod 2 (DF-5A) and Mod 3 (DF-5B); the solid-fueled, road-mobile CSS-10-class (DF-31, DF-31A and DF-31AG); and the more limited range roll-out-to-launch CSS-3 (DF-4). This strategic arsenal is complemented by road-mobile, solid-fueled CSS-5 Mod 2 and Mod 6 (DF-21) MRBMs and DF-26 IRBMs capable of ranging targets in the Indo-Pacific region. (pp. 66, 115, 117)
- The PLA Rocket Force also continues to enhance its fixed ICBMs and is adding more survivable, mobile delivery systems. China's ICBM arsenal to date consists of 90 ICBMs, including the silo-based CSS-4 Mod 2 (DF-5A) and multiple independently targetable reentry vehicle (MIRV)-equipped Mod 3 (DF-5B); the solid-fueled, road-mobile CSS-10 class missiles; and the shorter range CSS-3 (DF-4). The CSS-10 Mod 2, with a range in excess of 11,200 km, can reach most locations within the continental United States. Development of the CSS-X-20 considering additional DF-41 launch options, (DF-41), a new MIRV-capable, road-mobile including rail-mobile and silo basing. ICBM, continued in 2018. China appears to be considering additional DF-41 launch options, including rail-mobile and silo basing. (pp. 44-45, 117)

System	Launchers	Missiles	Estimated Range
ICBM	90	90	>5,500km
IRBM	80	80-160	3,000-5,500km
MRBM	150	150-450	1,000-3,000km
SRBM	250	750-1500	300-1,000km
GLCM	90	270-540	>1,500km

- The PLARF fields multiple missiles capable of conducting strikes beyond the first island chain. Among these are the CSS-5 Mod 5 ASBM with a range of 1,500 km and a MaRV to challenge ballistic missile defenses. China also deploys the land-attack CSS-5 Mod 4 and the ground-launched CJ-10 LACM, placing targets on Okinawa and the main Japanese islands at risk. The DF-26 IRBM has a maximum range of 4,000 km and is capable of conducting precision strikes against ground and ship targets, potentially threatening U.S. land and sea-based forces as far away as Guam. Dual capability is unclear. (p. 62)
- Military modernization has resulted in the rapid transformation of the PLA's missile force. U.S. bases in Japan are in range of a growing number of Chinese MRBMs and LACMs. H-6K bomber flights into the western Pacific Ocean demonstrate China's ability to range Guam with air-launched LACMs. The DF-26, which debuted publicly in 2015 and was paraded by China again in 2017, is capable of conducting precision conventional or nuclear strikes against ground targets, which could include U.S. bases on Guam. PLA writings see logistics and power projection assets as potential vulnerabilities in modern warfare – a judgement in accord with an expanding ability to target regional air bases, logistics and port facilities, communications, and other ground-based infrastructure. (p. 55)

# OSD on Conventional Precision Strike Capabilities: 2019

**Short-Range Ballistic Missiles (300-1,000 km).** The Rocket Force has approximately 750-1,500 SRBMs. These missile systems include advanced variants with improved ranges and accuracy as well as more sophisticated payloads; earlier generations are being phased out and replaced by variants with true precision strike capability.

**Medium-Range Ballistic Missiles (1,000-3,000 km).** The PLA is fielding approximately 150-450 conventional MRBMs to increase the range at which it can conduct precision strikes against land targets and naval ships operating out to the first island chain.

**Intermediate-Range Ballistic Missiles (3,000-5,500 km).** The PLA's DF-26 is a road-mobile, nuclear and conventional capable IRBM capable of near-precision strike capability as far away from China as the second island chain. The PLAN is also expanding its network of sky wave and surface wave OTH radars. In conjunction with reconnaissance satellites, these OTH systems provide targeting capabilities at extended distances from China to support long-range precision strikes, including employment of ASBMs.

**Land-Attack Cruise Missiles.** The PLA fields approximately 270-540 ground-launched LACMs for standoff precision strikes. The PLA continues to develop additional LACM-variants for deployment with the PLAN and PLAAF.

**Anti-Ship Cruise Missiles.** China deploys a wide range of advanced ASCMs with the YJ-83 series as the most numerous, and it is equipping the majority of China's ships as well as multiple aircraft. China has also outfitted several ships with YJ-62 ASCMs. The YJ-18 is a long-range, torpedo tube-launched ASCM with a supersonic terminal sprint. It has likely replaced the older YJ-82 on SONG, YUAN, and SHANG class submarines, and China claims the new LUYANG III-class DDG and RENHAI CG are outfitted with a vertically launched variant of the YJ-18. China has also developed the long-range supersonic YJ-12 ASCM for the H-6 bomber. At a 2018 exhibition, China displayed a ship-to-ship variant of the YJ-12 called the YJ-12A and the ground-launched anti-ship variant YJ-12B. China has deployed the YJ-12B to several outposts in the South China Sea. China also carries the Russian SS-N-22 SUNBURN on four Russian-built SOVREMENNY-class DDGs and the Russian SS-N-27b SIZZLER on eight Russian-built KILO-class submarines.

**Ground Attack Munitions.** The PLAAF has a small number of tactical air-to-surface missiles (ASM) as well as precision munitions; guidance options include satellite positioning, laser, electro-optic, and imaging infrared. China is developing or adapting a range of smaller ASMs and guided bombs for use on its increasing range of armed UAVs.

**Anti-Radiation Weapons.** The PLA imported Israeli-made HARPY UAVs and Russian-made anti-radiation missiles during the 1990s. China is integrating the YJ-91, an indigenous version of the Russian Kh-31P (AS-17), into its fighter-bomber force and advertising the ASN-301 anti-radiation drone, an improved domestic variant of the HARPY.

**Artillery-Delivered High Precision Munitions.** The PLA is fielding long-range rocket artillery systems with the range to strike targets within or even across the Taiwan Strait. The most common of these systems is the PHL-03 12x300 mm multiple-rocket launcher – similar to the Russian 9A52-2 SMERCH – with a 150 km range. Improved warheads for these rockets may include vertical penetrators and sensor-fuzed munitions.



# Rough Estimate of Increasing Accuracy of Guidance Systems in Chinese Missile Forces - 2018

Name	Type	Guidance	CEP (m)
DF-5A <sup>2</sup>	ICBM	INS	300
DF-5B <sup>3</sup>	ICBM	INS	800
DF-11 <sup>4</sup>	SRBM	INS	600
DF-15 <sup>5</sup>	SRBM	INS	300
DF-15A <sup>6</sup>	SRBM	INS, GPS, and terminal radar	30-45
DF-15B <sup>7</sup>	SRBM	INS, GPS, radar seeker, and laser range finder	5-10
DF-16 <sup>8</sup>	SRBM	INS and GPS	5
DF-21 <sup>9</sup>	MRBM	INS	700
DF-21A/C <sup>10</sup>	MRBM	INS	50
DF-21D <sup>11</sup>	MRBM	INS and terminal radar	20
DF-26 <sup>12</sup>	IRBM	Unknown	150-450
DF-31 <sup>13</sup>	ICBM	INS	300
DF-41 <sup>14</sup>	ICBM	Stellar-INS and GPS	100-500
JL-2 <sup>15</sup>	SLBM	INS and GPS	150-300
HN-3 <sup>16</sup>	CM	INS, SATNAV, TERCOM, and DSMAC	5

<sup>2</sup> Missile Defense Project, "Dong Feng 5 A/B/C (DF-5A/DF-5B/CSS-4 Mod 2/3)," *Missile Threat*, Center for Strategic and International Studies, August 12, 2016, last modified June 15, 2018, <https://missilethreat.csis.org/missile/df-5-ab/>.

<sup>3</sup> Ibid.

<sup>4</sup> Missile Defense Project, "Dong Feng 11 (DF-11)," *Missile Threat*, Center for Strategic and International Studies, January 29, 2018, last modified June 15, 2018, <https://missilethreat.csis.org/missile/dong-feng-11/>.

<sup>5</sup> Missile Defense Project, "Dong Feng 15 (CSS-6)," *Missile Threat*, Center for Strategic and International Studies, January 11, 2017, last modified June 15, 2018, <https://missilethreat.csis.org/missile/df-15-css-6/>.

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

<sup>8</sup> "Dong Feng-16 (CSS-11)." *Missile Defense Advocacy Alliance*. <https://missiledefenseadvocacy.org/missile-threat-and-proliferation/missile-proliferation/china/dong-feng-16/>.

<sup>9</sup> Missile Defense Project, "Dong Feng 21 (DF-21/CSS-5)," *Missile Threat*, Center for Strategic and International Studies, April 13, 2016, last modified April 23, 2019, <https://missilethreat.csis.org/missile/df-21/>.

<sup>10</sup> Ibid.

<sup>11</sup> Ibid.

<sup>12</sup> Missile Defense Project, "Dong Feng-26 (DF-26)," *Missile Threat*, Center for Strategic and International Studies, January 8, 2018, last modified January 15, 2019, <https://missilethreat.csis.org/missile/dong-feng-26-df-26/>.

<sup>13</sup> Missile Defense Project, "Dong Feng 31 (DF 31/DF 31A/CSS 10)," *Missile Threat*, Center for Strategic and International Studies, August 12, 2016, last modified June 15, 2018, <https://missilethreat.csis.org/missile/df-31/>; "Dong Feng-31 (CSS-10)" *Missile Defense Advocacy Alliance*. <https://missiledefenseadvocacy.org/missile-threat-and-proliferation/missile-proliferation/china/dong-feng-31-css-10/>.

<sup>14</sup> Missile Defense Project, "Dong Feng 41 (DF-41 / CSS-X-20)," *Missile Threat*, Center for Strategic and International Studies, August 12, 2016, last modified June 15, 2018, <https://missilethreat.csis.org/missile/df-41/>.

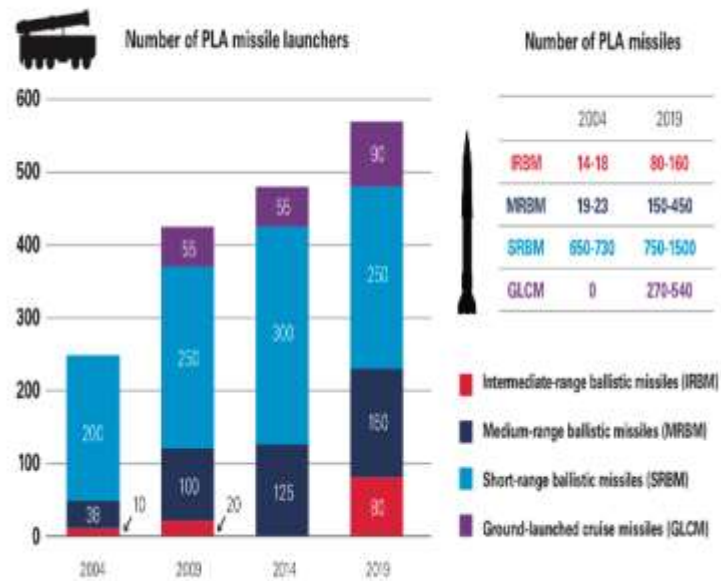
<sup>15</sup> Missile Defense Project, "Ju Lang-2 (JL-2/CSS-NX-14)," *Missile Threat*, Center for Strategic and International Studies, August 12, 2016, last modified June 15, 2018, <https://missilethreat.csis.org/missile/jl-2/>; "JL-2" *Missile Defense Advocacy Alliance*. <https://missiledefenseadvocacy.org/missile-threat-and-proliferation/missile-proliferation/china/jl-2/>.

<sup>16</sup> Gormley, Dennis M., Andrew S. Erikson, and Jingdong Yuan. "A Potent Vector: Assessing Chinese Cruise Missile Developments." *National Defense University Press*, September 30, 2014. <https://ndupress.ndu.edu/Media/News/News-Article-View/Article/577568/jfq-75-a-potent-vector-assessing-chinese-cruise-missile-developments/>.

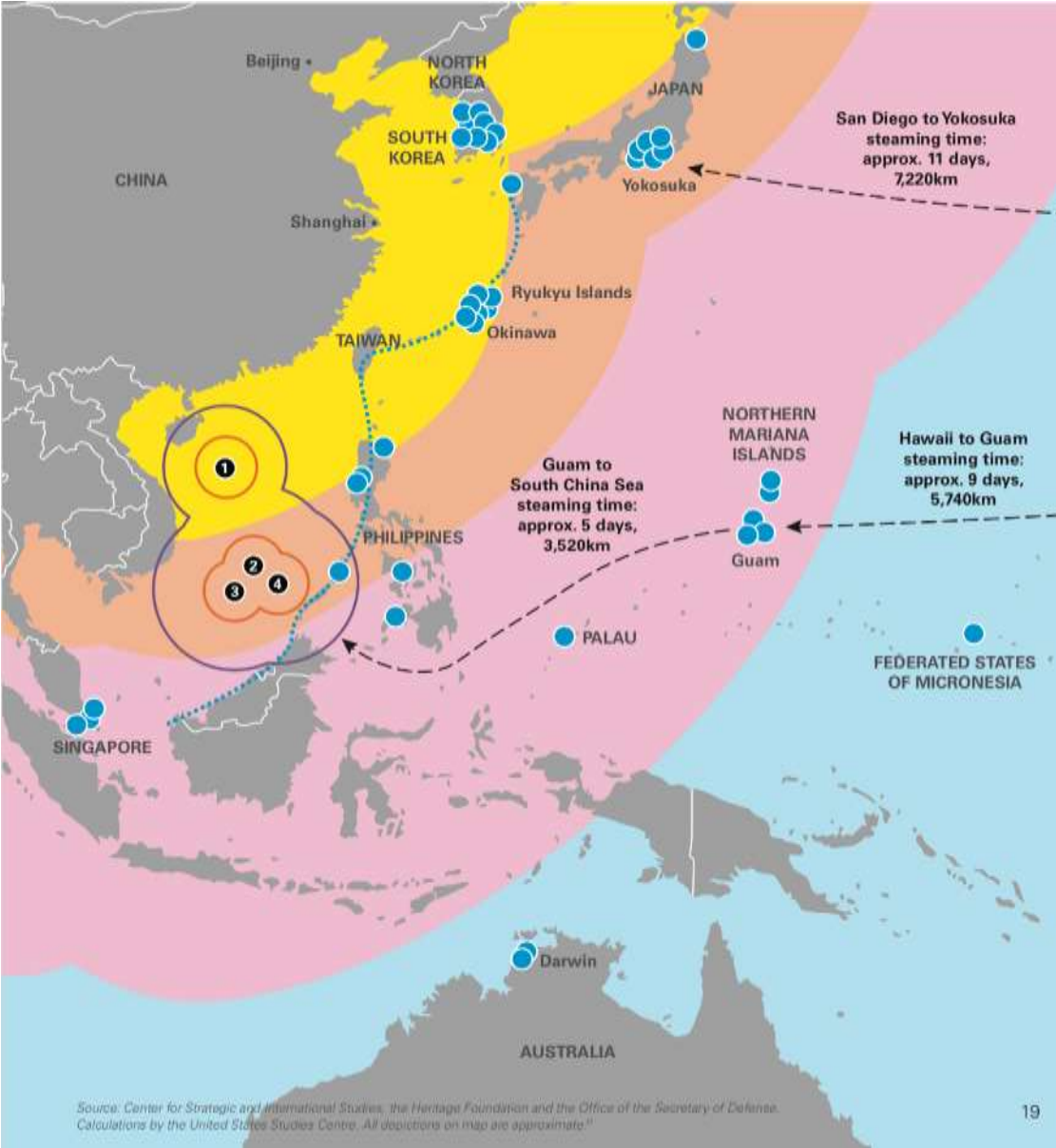
# University of Sydney Estimate of China's Growing Missile Threat to US bases and Regional Access Locations



Figure 3: China's missile inventory, 2004-2019



Source: Office of the Secretary of Defense, Calculations by the United States Studies Centre



Source: Center for Strategic and International Studies, the Heritage Foundation and the Office of the Secretary of Defense. Calculations by the United States Studies Centre. All depictions on map are approximate

Source: Ashley Townshend and Brendan Thomas-Noone and Matilda Steward with Matilda Steward, *Averting Crisis: American Strategy*, United States Studies Centre, University of Sydney, August 2019, pp. 17, 19



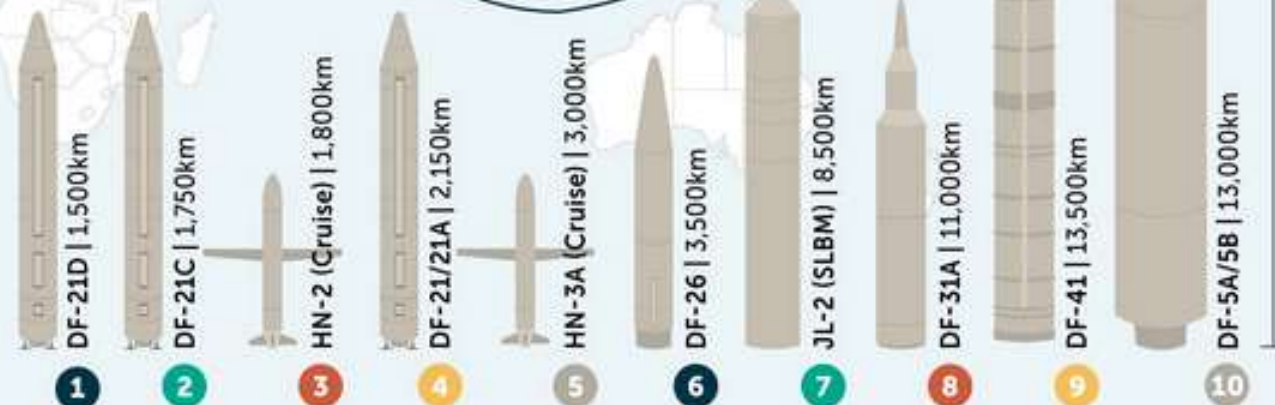


# CHINA'S BALLISTIC MISSILES



36m/118ft

China has the most active and diverse ballistic missile development program in the world, upgrading its missile forces in number, type, and capability. China is modernizing its ICBMs, developing multiple independently-targetable reentry vehicles and maneuvering boost-glide vehicles, and has begun deploying a new fleet of nuclear ballistic missile submarines. Short- and medium-range cruise and ballistic missiles form a critical part of its regional anti-access and area denial efforts.



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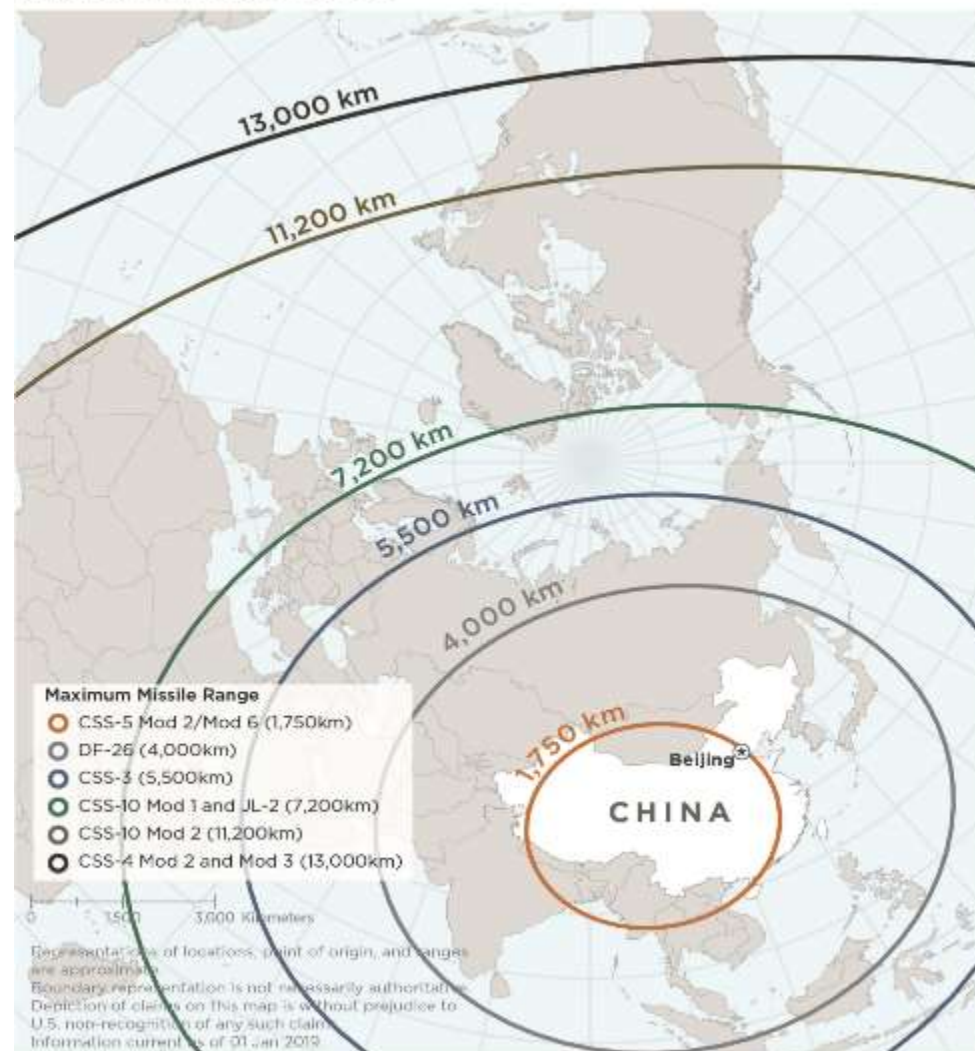
MISSILE DEFENSE PROJECT

# OSD Estimate of Chinese Nuclear and Conventional Strike Ranges in 2019

## Conventional Strike Capabilities



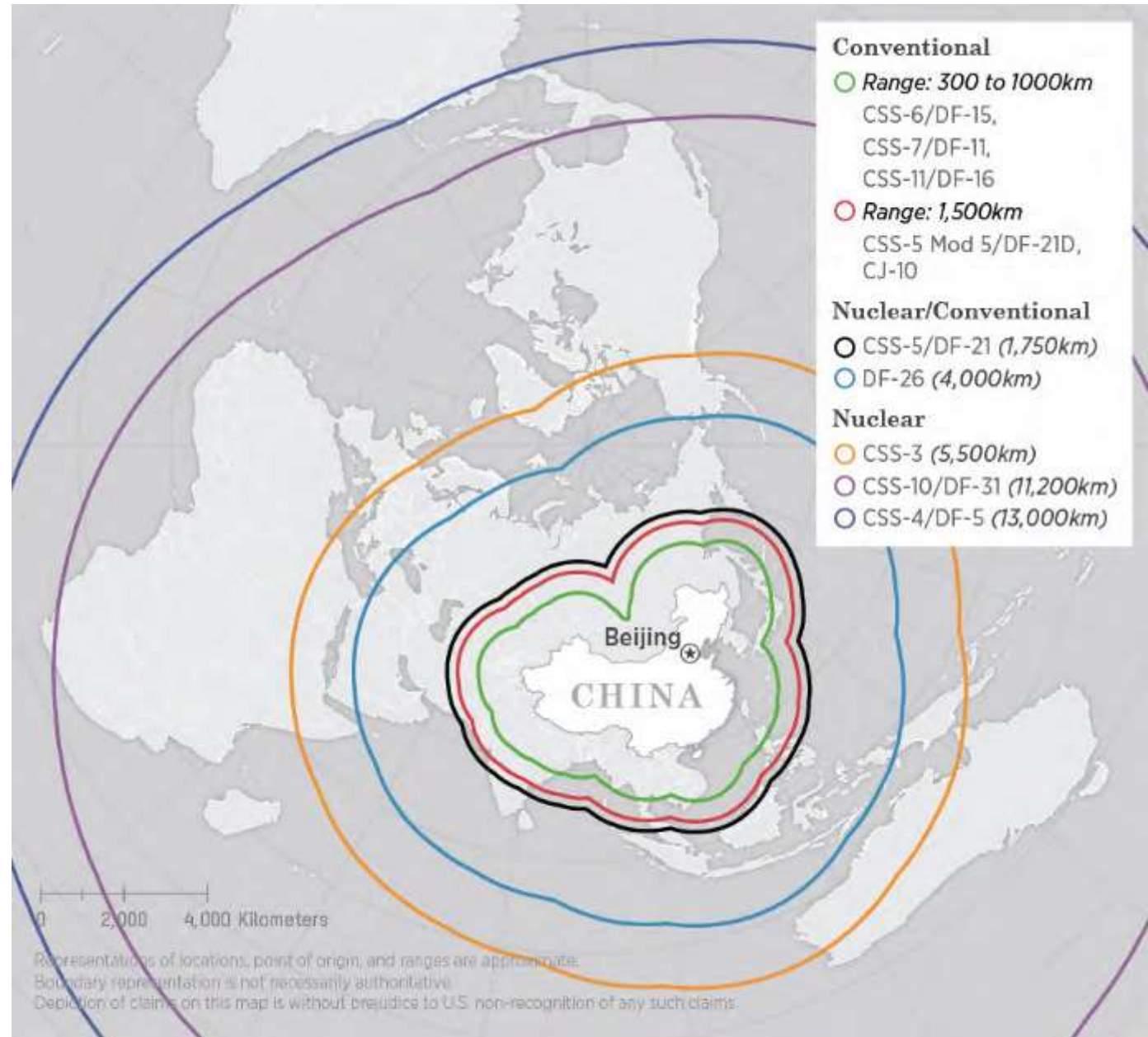
## Nuclear Ballistic Missiles



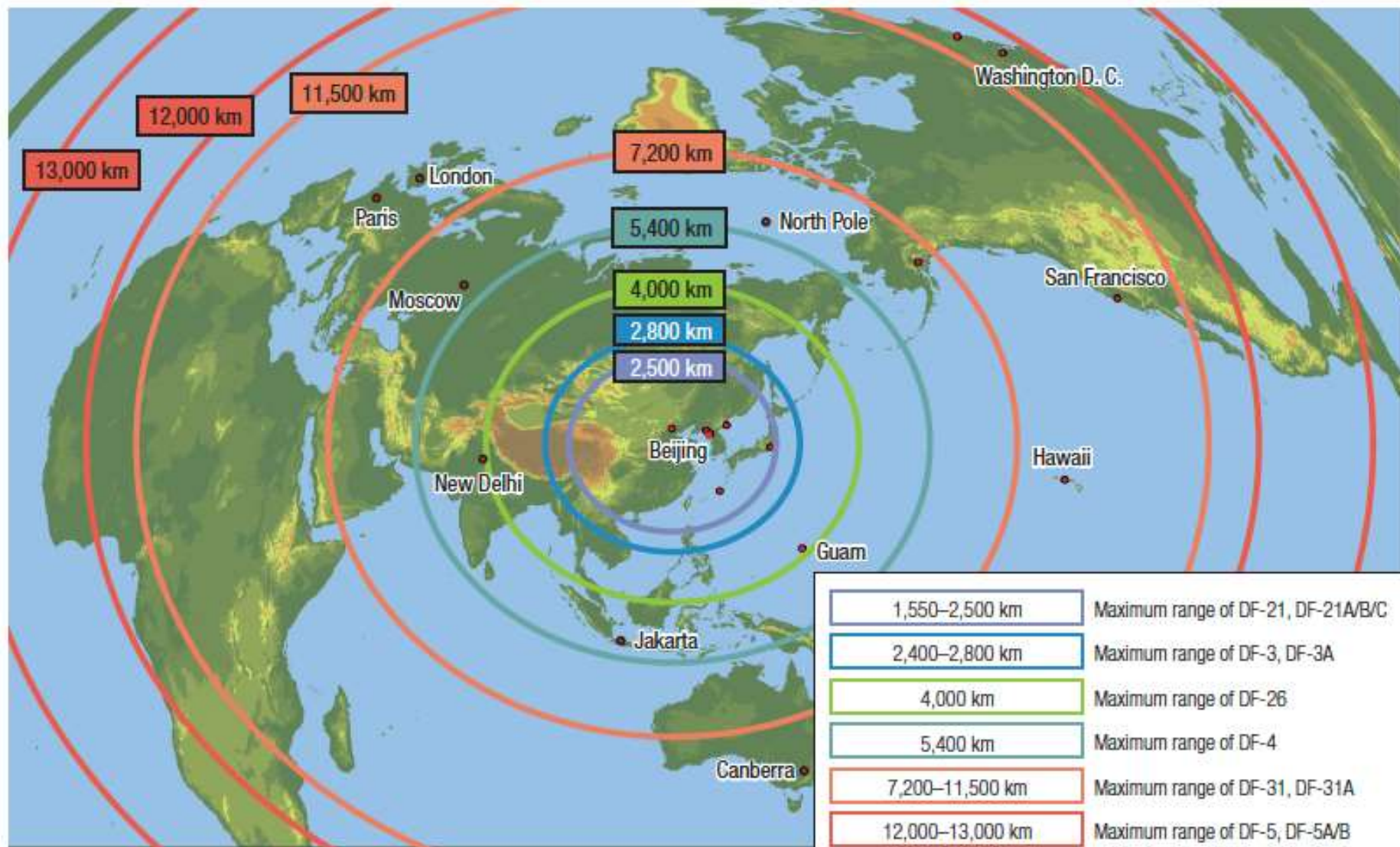
Source: OFFICE OF THE SECRETARY OF DEFENSE, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China, China Military Power, 2019*, May 2019, p. 67; and DIA, *China Military Power, Modernizing a Force to Win - 2019*, Department of Defense, 2019, p. 41; 35-36.



# DIA Estimate of PLA Rocket Force (PLARF) Types and Ranges in 2019



# Japanese Estimate of Chinese Missile Ranges - 2018



\* The figure above shows a rough image of the distance each missile can reach from Beijing for the sake of convenience.



# China's Nuclear-Armed Missile Forces and Strike Ranges: 2018

China's Rocket Force			
System	Launchers	Missiles	Estimated Range
ICBM	50-75	75-100	5,400-13,000+ km
IRBM	16-30	16-30	3,000+ km
MRBM	100-125	200-300	1,500+ km
SRBM	250-300	1,000-1,200	300-1,000 km
GLCM	40-55	200-300	1,500+ km

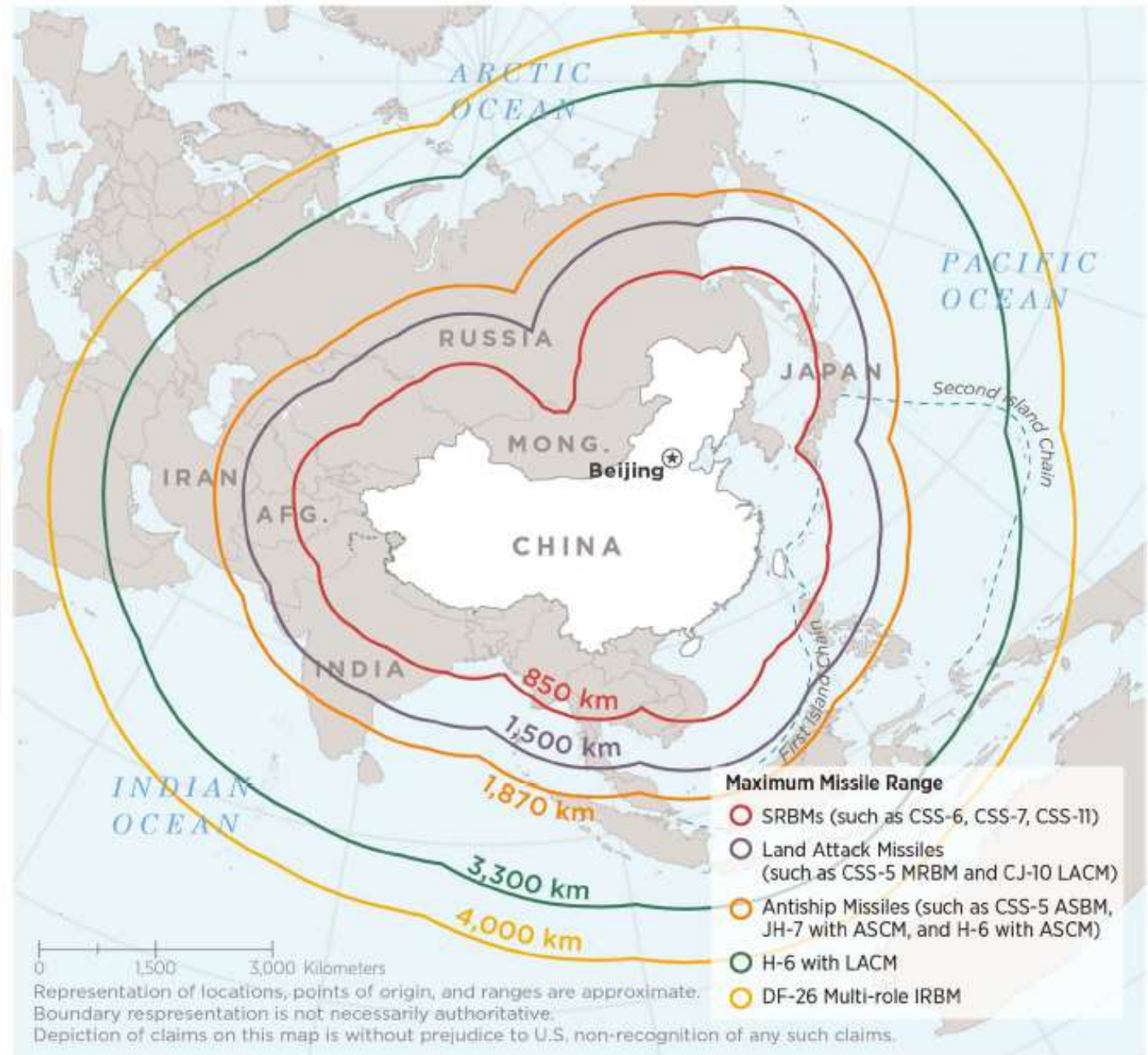
Source: Office of the Secretary of Defense, *Military and Security Developments Involving the Republic of China, Annual Report to Congress*, May 16, 2018, Department of Defense. China Military Power 2018, p. 37, 125.



## OSD Estimate of Missile Strike Capabilities - 2018

China's Rocket Force

System	Launchers	Missiles	Estimated Range
ICBM	50-75	75-100	5,400-13,000+ km
IRBM	16-30	16-30	3,000+ km
MRBM	100-125	200-300	1,500+ km
SRBM	250-300	1,000-1,200	300-1,000 km
GLCM	40-55	200-300	1,500+ km



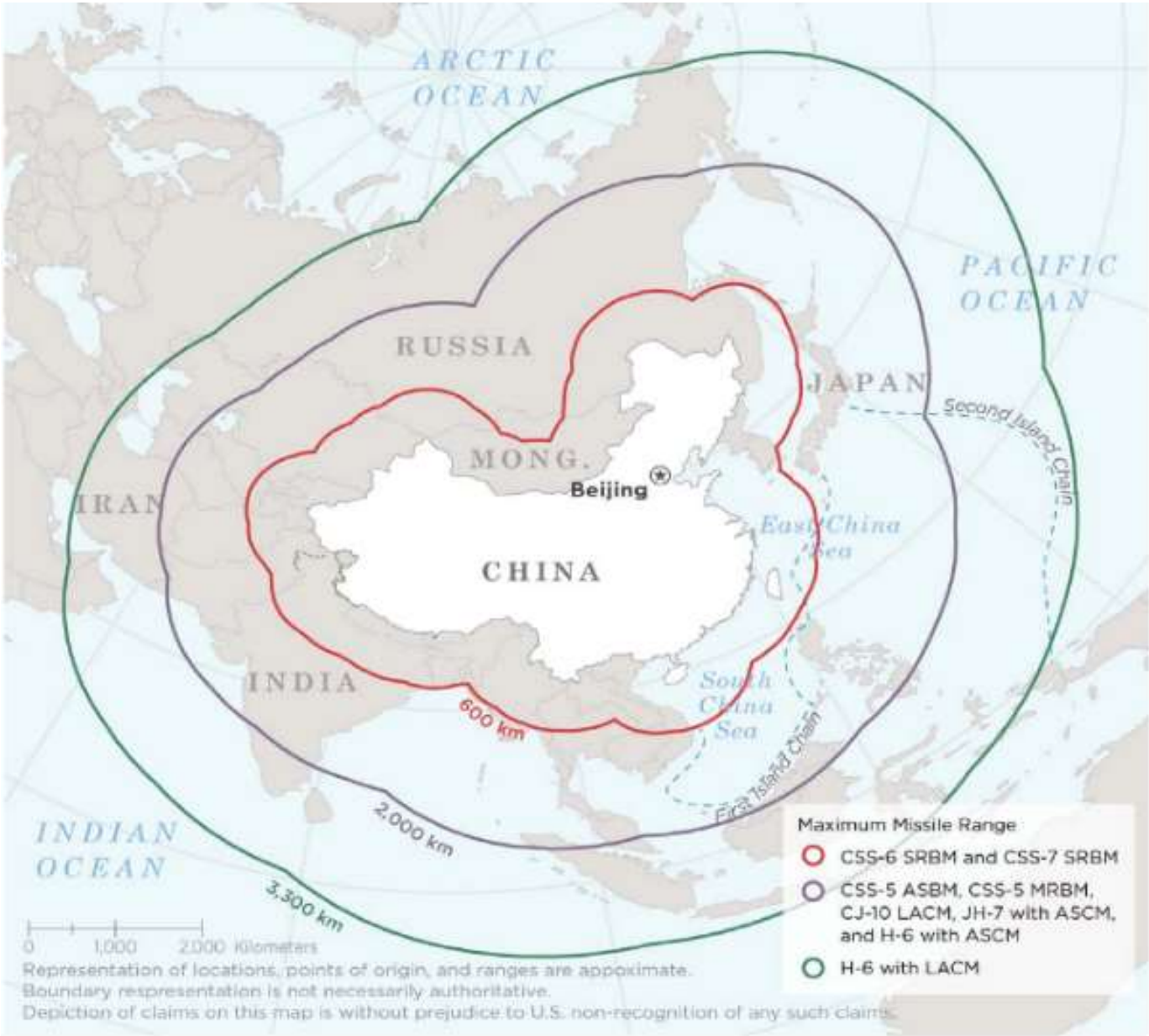
Source: Office of the Secretary of Defense, *Military and Security Developments Involving the Republic of China, Annual Report to Congress*, May 16, 2018, Department of Defense. China Military Power 2018, p.37.



# OSD Estimate China's Missile Strike Capabilities - 2017

China's Missile Forces			
System	Missiles	Launchers	Estimated Range
ICBM	75-100	50-75	5,400-13,000+ km
MRBM	200-300	100-125	1,500+ km
SRBM	1,000-1,200	250-300	300-1000 km
GLCM	200-300	40-55	1,500+ km
LACM	200-300	40-55	1,500+ km

Source: Office of the Secretary of Defense, *ANNUAL REPORT TO CONGRESS Military and Security Developments Involving the People's Republic of China* 2017, May 15, 2017, [https://www.defense.gov/Portals/1/Documents/pubs/2017\\_China\\_Military\\_Power\\_Report.PDF](https://www.defense.gov/Portals/1/Documents/pubs/2017_China_Military_Power_Report.PDF), p. 32, 95



# NTI Estimate of Chinese Missile Forces: 2014

Name	Other Names	Type	Length (m)	Diameter (m)	Payload (kg)	Range (km)	Circular Error Probable (CEP) (M)	Propellant	Status
DF-3/3A <sup>1</sup>	CSS-2	IRBM	21.2	2.25	2150	2800	2000	Liquid	Deployed
DF-4 <sup>2</sup>	CSS-3	ICBM	28.05	2.25	2200	5400	1500	Liquid	Deployed
DF-5/5A <sup>3*</sup>	CSS-4	ICBM	36.0	3.35	3900/3200 (MIRV)	1200/13000	800/500 (MIRV)	Liquid	Deployed
DF-21/21A <sup>4</sup>	CSS-5 Mod 1&2	MRBM	10.7/12.3	1.40	600	2150-2500	700/N/A	Solid	Deployed
DF-21C <sup>4</sup>	CSS-5 Mod 3	MRBM	12.3	1.40	600	1750	N/A	Solid	Deployed
DF-21D <sup>4</sup>	CSS-5 Mod 5	ASBM	12.3	1.40	600	1550	N/A	Solid	Deployed
DF-15 (M-9) <sup>5</sup>	CSS-6	SRBM	9.10	1.00	320-750	600	300	Solid	Deployed
DF-15A <sup>5</sup>		SRBM	10.0	1.00	320-750	900	45		Deployed
DF-15B <sup>5</sup>		SRBM	10.0	1.00	320-750	800	5		Deployed
DF-11 (M-11) <sup>6</sup>	CSS-7	SRBM	7.5	0.80	800	280	600	Solid	Deployed
DF-11A <sup>6</sup>		SRBM	8.50	0.80	500	350	200		Deployed
M-7/8610 <sup>7</sup>	CSS-8	SRBM	10.8	0.65	190-250	150	N/A	Solid	Deployed
DF-31	CSS-10 Mod 1	ICBM	13.0	2.00	1750	8000	300	Solid	Deployed
DF-31A <sup>8</sup>	CSS-10 Mod 2	ICBM	18.7	2.00	1750	12000	300	Solid	Deployed
DF-41 <sup>9</sup>		ICBM	21.0	2.25	2500 <sup>10</sup>	12000-15000	100-500	Solid	Development
JL-1/1A <sup>11</sup>	CSS-N-3	SLBM	10.7/12.3	1.40	600/500	2150-2500	700-50	Solid	Deployed
JL-2 <sup>12</sup>	CSS-N-5	SLBM	13.0	2.00	1050-2800	8000	300	Solid	Deployed
HN-1		CM	6.4	0.52	N/A	650	N/A	Turbojet <sup>13</sup>	Deployed
DH-10 (CI-10)		CM	N/A	N/A	N/A	1500-2200	5 <sup>15</sup>	N/A	Development
YJ-62 (C-602) <sup>16</sup>		CM	6.1	0.54	300	280	N/A	Turbojet	Deployed

Source and data on supporting footnotes: "Design Characteristics of China's Ballistic and Cruise Missile Inventory." Nuclear Threat Initiative. November 2014.  
[https://media.nti.org/pdfs/design\\_characteristics\\_of\\_chinas\\_ballistic\\_cruise\\_missiles\\_3.pdf](https://media.nti.org/pdfs/design_characteristics_of_chinas_ballistic_cruise_missiles_3.pdf).

## **OSD on U.S. Missile Defense Developments in 2019: No Plans for Deployments that Can Counter Chinese or Russian Strategic Systems**

The FY 2020 budget funds enhancements to U.S. missile defense capabilities to defend the homeland, deployed forces, allies, and partners against an increasingly complex adversarial missile threat. In accordance with direction from the 2019 Missile Defense Review (MDR), this budget request increases missile defense capacity and capability to keep pace with advancing threats, while investing in advanced technologies that go beyond traditional missile defense activities, to include, initiating multiple space-based interceptors/discrimination studies to develop a government reference architecture for a space-based kinetic interceptor layer for a boost-phase defense. The FY 2020 budget request includes \$13.6 billion for missile defense, which includes \$9.4 billion for the Missile Defense Agency (MDA).

The Department will develop an additional missile field in Alaska and increase the number of operational, deployed Ground-Based Interceptors (GBI) to 64 missiles as early as FY 2025. The Department is also investing in the infrastructure required to maintain an operational fleet of 64 GBIs into the future. The FY 2020 request would continue development of the Redesigned Kill Vehicle (RKV) to address the evolving threat and improve kill vehicle reliability, continue development of a 2-/3-stage booster selectable capability to expand battlespace for GBI engagements for homeland defense. The budget also uses available technology to improve existing sensors, battle management, fire control, and kill vehicle capabilities. The budget supports development and deployment of new sensors to improve Missile Defense System (MDS) discrimination capability and allow for more efficient use of the GBI inventory, to include a Long-Range Discrimination Radar in Alaska, a Homeland Defense Radar in Hawaii, and an additional Medium Range Discrimination Radar in the Pacific. The MDA will deliver an experimental space-based kill assessment capability for defense of the homeland as part of an integrated post intercept assessment solution.

The budget reflects the Department's commitment to building integrated regional missile defenses that are interoperable with systems deployed by international partners to protect deployed forces, allies and international partners against Short Range Ballistic Missiles (SRBM), Medium Range Ballistic Missiles (MRBM), and Intermediate Range Ballistic Missiles (IRBM).

For U.S. missile defense capabilities, the FY 2020 budget request:

- ...Provides the funding for the development of advanced missile defense technologies to counter future threats, including discrimination improvements, hypersonic threat missile defeat, and high-powered lasers.
- ...Begins exploratory studies and technology feasibility assessments towards the possible future deployment of a space based sensor layer and interceptor capability.

# Select Air Force Missile Defense Systems Entering Service and Under Development—November 2018

Equipment	Mission Area	Estimated Service Entry	Implications
S-400 surface-to-air missile (SAM) system	Air Defense; A2/AD	2018	Receiving its first regiment of S-400 SAM systems in April 2018 from Russia, China reportedly will receive four to six battalions as part of a 2014 deal. The S-400's 250-mi range expands China's air coverage over the South China Sea and Taiwan if deployed near either area.
HQ-19 SAM system	Air Defense; A2/AD; Ballistic Missile Defense	Unknown	DOD assesses the HQ-19 "may fill the mid-tier of China's [ballistic missile defense] network," and testing so far has focused on intercepting 3,000 km-ranged ballistic missiles. This system will increase China's ability to challenge an adversary's attempt to control airspace or conduct strike operations in China's periphery.



# OSD on Chinese Missile and Missile/Air Defense Developments in 2019

**PLA Rocket Force.** The PLARF fields multiple missiles capable of conducting strikes beyond the first island chain. Among these are the CSS-5 Mod 5 ASBM with a range of 1,500 km and a MaRV to challenge ballistic missile defenses. China also deploys the land-attack CSS-5 Mod 4 and the ground-launched CJ-10 LACM, placing targets on Okinawa and the main Japanese islands at risk. The DF-26 IRBM has a maximum range of 4,000 km and is capable of conducting precision strikes against ground and ship targets, potentially threatening U.S. land and sea-based forces as far away as Guam.

**Long-Range Precision Strike.** Military modernization has resulted in the rapid transformation of the PLA's missile force. U.S. bases in Japan are in range of a growing number of Chinese MRBMs and LACMs. H-6K bomber flights into the western Pacific Ocean demonstrate China's ability to range Guam with air-launched LACMs. The DF-26, which debuted publicly in 2015 and was paraded by China again in 2017, is capable of conducting precision conventional or nuclear strikes against ground targets, which could include U.S. bases on Guam. PLA writings see logistics and power projection assets as potential vulnerabilities in modern warfare – a judgement in accord with an expanding ability to target regional air bases, logistics and port facilities, communications, and other ground-based infrastructure.

**Ballistic Missile Defense (BMD).** China is working to develop ballistic missile defenses consisting of exo-atmospheric and endo-atmospheric kinetic-energy interceptors. In 2016, official media confirmed China's intent to move ahead with land- and sea-based mid-course missile defense capabilities. The HQ-19 mid-course interceptor has undergone tests to verify its capability against 3,000 km-class ballistic missiles, and an HQ-19 unit may have begun preliminary operations in western China. Indigenous radars including the JY-27A and JL-1A – the latter advertised as capable of precision tracking of multiple ballistic missiles – reportedly provide target detection for the system.

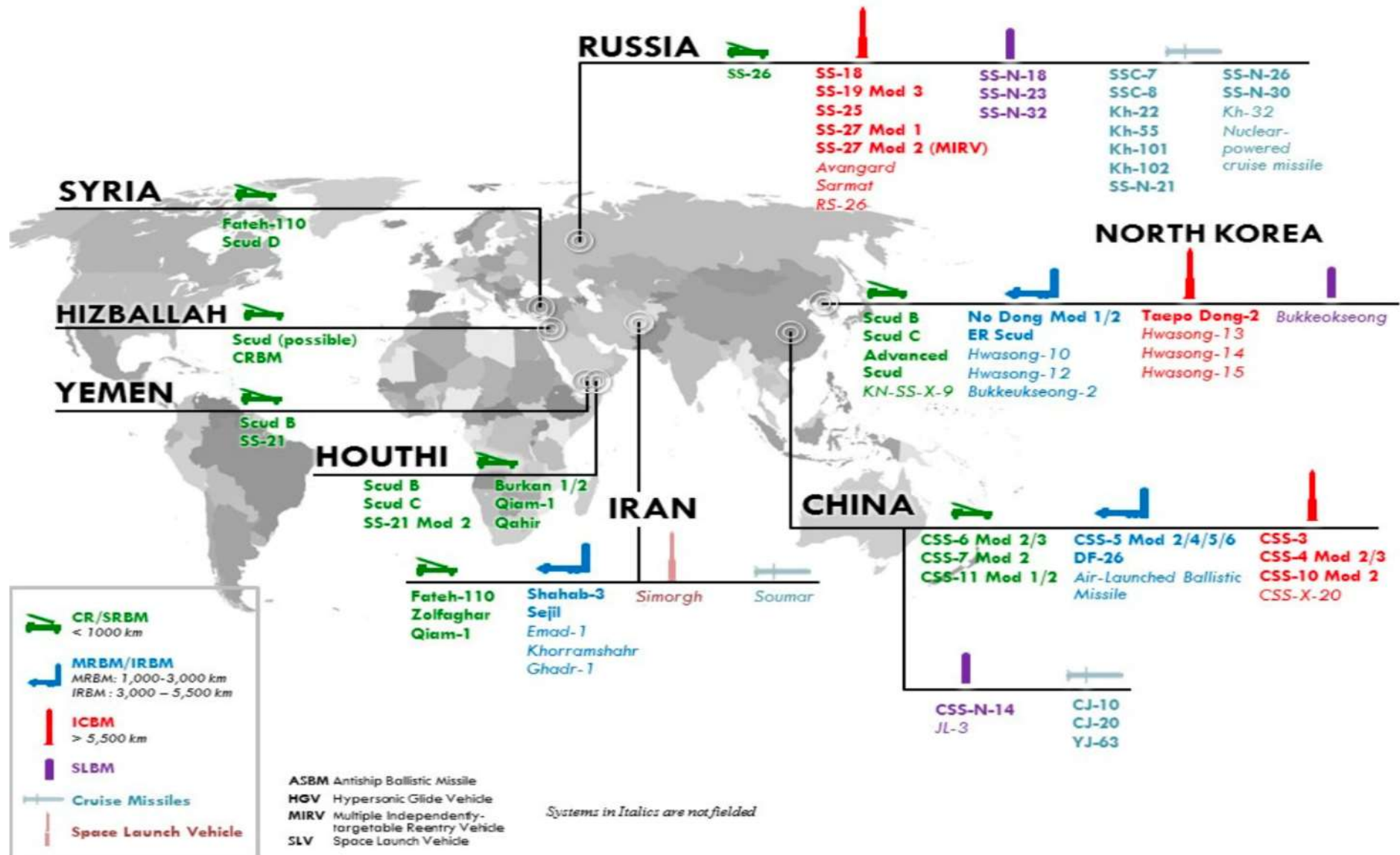
The PLA's long-range SAM inventory also offers a limited capability against ballistic missiles. China's domestic CSA-9 (HQ-9) long-range SAM system likely has a limited capability to provide point defense against tactical ballistic missiles. China has fielded SA-20 (S-300 PMU2) SAMs, and its SA-21 (S-400) SAMs may have some capability to engage ballistic missiles, depending on the interceptors and supporting infrastructure.

## **Integrated Air Defense System (IADS).**

China has a robust and redundant IADS architecture over land areas and within 300 nm (556 km) of its coast that relies on an extensive early warning radar network, fighter aircraft, and a variety of SAM systems. China is also placing radars and air defense weapons on outposts in the South China Sea, further extending its IADS. It also employs point defenses, primarily to defend strategic targets against adversary long-range cruise missiles and airborne strike platforms.

China has increasing numbers of advanced long-range SAMs, including its indigenous CSA-9, Russian SA-10 (S-300 PMU), and SA-20 (S-300 PMU1/PMU2), all of which have the advertised capability to protect against both aircraft and low-flying cruise missiles. To improve its strategic air defenses, China has taken initial delivery of the Russian-built S-400 Triumf SAM system as a follow-on to the SA-20. Compared to these other systems, the S-400s feature a longer maximum range, improved missile seekers, and more sophisticated radars. China manufactures a variety of long-range air surveillance radars, including models claiming to support ballistic missile defense and other models asserting the ability to detect stealth aircraft. Marketing materials also emphasize these systems' ability to counter long-range airborne strike and combat support aircraft. PLAAF airborne early warning and control (AEW&C) aircraft such as the KJ-2000 and KJ-500 can further extend China's radar coverage well past the range of its ground-based radars.

# US Missile Defense: China and the Widening Missile Threat: 2019 - I



# US Missile Defense: China and the Widening Missile Threat: 2019 - II



## China

China is also developing missile capabilities intended to deny the United States the capability and freedom of action to protect U.S. allies and partners in Asia. A key component of China's military modernization is its conventional ballistic missile arsenal designed to prevent U.S. military access to support regional allies and partners. China is augmenting its SRBM force as well as improving its ability to strike regional targets, such as U.S. bases and naval assets, at greater ranges with the addition of a growing number of medium- and intermediate-range ballistic missiles. This includes sophisticated anti-ship ballistic missiles that pose a direct threat to U.S. aircraft carriers.

China also has ground- and air-launched LACMs, and is developing HGVs and new MaRVs. These and other wide-ranging developments in China's expansive offensive missile arsenal pose a potential nuclear and non-nuclear threat to the U.S. forces deployed abroad, and are of acute concern to U.S. allies and partners in the Indo-Pacific region.

*"A simple comparison of missile ranges with geography suggests where Chinese missiles would most likely be targeted — SRBMs against Taiwan and U.S. carrier strike groups operating at sea, IRBMs against U.S. bases in Japan and Guam, and ICBMs against the continental U.S. China's pursuit of advanced hypersonic missile technologies portends even greater challenges over the next few years."*

— Then Commander, U.S. Pacific Command, Admiral Harry Harris  
Statement before the House Armed Services Committee, February 14, 2018



## Russia

Not only is Moscow expanding and modernizing its strategic offensive missile forces, it also is fielding an increasingly advanced and diverse range of nuclear-capable regional offensive missile systems that threaten deployed U.S. forces, allies, and partners. These missile systems are a critical enabler of Russia's coercive escalation strategy and nuclear threats to U.S. allies and partners.

Russian offensive missile modernization programs go well beyond traditional ballistic missiles, to include missiles with unprecedented characteristics of altitude, speed, propulsion type, and range. Russia is developing a new generation of advanced, regional ballistic and cruise missiles that support its anti-access/area denial (A2/AD) strategy intended to defeat U.S. and allied will and capability in regional crises or conflicts. Indeed, Russia has demonstrated its advanced cruise missile capability since 2015 by repeatedly conducting long-range precision strikes into Syria.

Russia has also fielded a ground-launched, intermediate-range cruise missile, the SSC-8, in violation of the Intermediate-Range Nuclear Forces (INF) Treaty. These highly effective LACMs fly at low altitudes below a radar's line of sight, which presents a potentially major threat to U.S. regional military operations and deterrence goals. While the majority of LACMs presently fly at subsonic speeds, in the future it appears that some will be able to reach hypersonic speeds.

## US Missile Defense: China and the Widening Missile Threat: 2019 - III



Figure 9. Short-Range Ballistic Missiles. Select missiles shown for illustrative purposes.



Figure 10. Medium- and Intermediate-Range Ballistic Missiles. Select missiles shown for illustrative purposes.

Source: OFFICE OF THE SECRETARY OF DEFENSE, *Missile Defense Review*, Department of Defense, 2019, pp. 14-15.



# US Missile Defense: China and the Widening Missile Threat: 2019 - IV

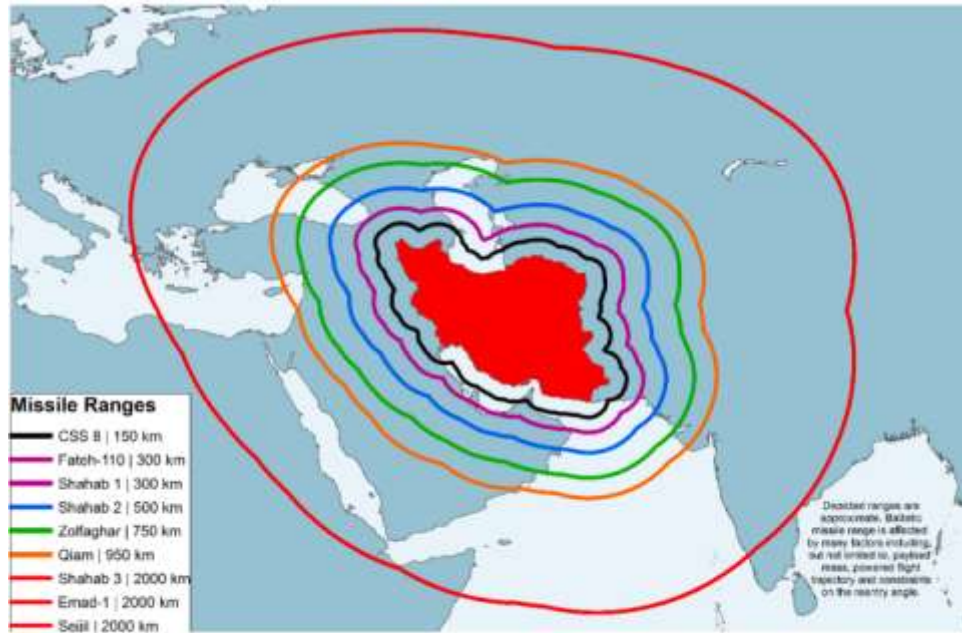


Figure 22. Iranian Offensive Missile Range Rings. Provided by the National Air and Space Intelligence Center.

IRAN

DPRK

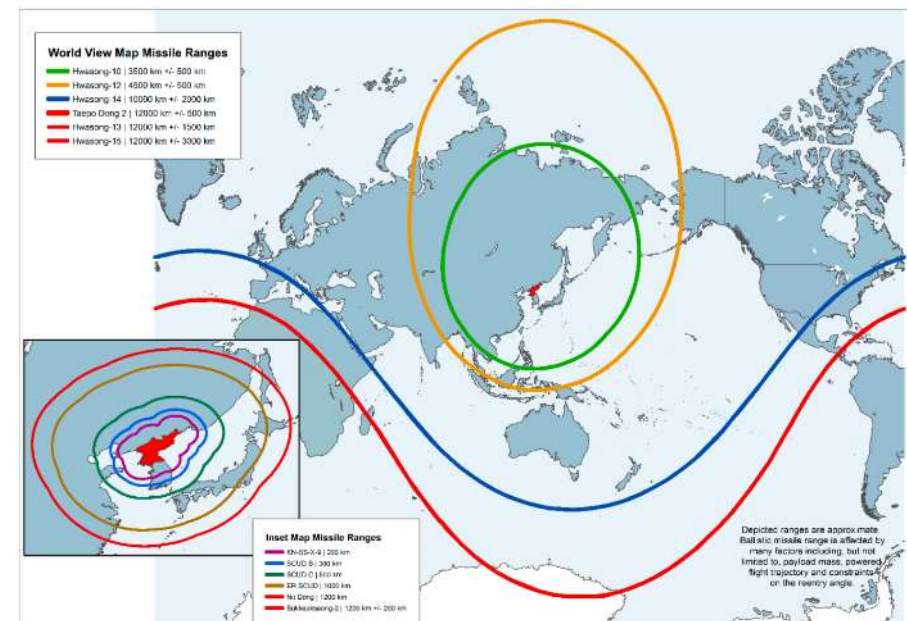


Figure 20. North Korean Offensive Missile Range Rings. Provided by the National Air and Space Intelligence Center.

**Advanced Modernization and  
Preparation for War:  
Informatized Warfare, New  
Force Elements, Cyber, Space,  
Logistics**



# Chinese 2019 Defense White Paper: Cyber and Space Warfare

*Promoting innovation in defense S&T and military theory.* China's armed forces are accelerating the implementation of the strategy to develop the military through S&T in a bid to maintain and enhance the strength of the areas where they lead, and intensify innovation in emerging areas. They have made great progress in independent innovation in some strategic, cutting-edge and disruptive technologies, and succeeded in developing strategic hi-tech products such as the Tianhe-2 supercomputer. Focusing on war and fighting wars, China's armed forces have innovated in military doctrines and delivered outcomes in military strategy, joint operations and informationization, which have provided a theoretical support to defense and military development.

Outer space is a critical domain in international strategic competition. Outer space security provides strategic assurance for national and social development. In the interest of the peaceful use of outer space, China actively participates in international space cooperation, develops relevant technologies and capabilities, advances holistic management of space-based information resources, strengthens space situation awareness, safeguards space assets, and enhances the capacity to safely enter, exit and openly use outer space.

Cyberspace is a key area for national security, economic growth and social development. Cyber security remains a global challenge and poses a severe threat to China. China's armed forces accelerate the building of their cyberspace capabilities, develop cyber security and defense means, and build cyber defense capabilities consistent with China's international standing and its status as a major cyber country. They reinforce national cyber border defense, and promptly detect and counter network intrusions. They safeguard information and cyber security, and resolutely maintain national cyber sovereignty, information security and social stability.

...The US has adjusted its national security and defense strategies, and adopted unilateral policies. It has provoked and intensified competition among major countries, significantly increased its defense expenditure, pushed for additional capacity in nuclear, outer space, cyber and missile defense, and undermined global strategic stability....The international non-proliferation regime is compromised by pragmatism and double standards, and hence faces new challenges. Extremism and terrorism keep spreading. Non-traditional security threats involving cyber security, bio-security and piracy are becoming more pronounced....Threats to outer space and cyber security loom large and the threat of non-traditional security issues posed by natural disasters and major epidemics is on the rise.

...China's armed forces will...make concerted efforts to respond to global challenges such as terrorism, cyber security and major natural disasters, thus making a positive contribution to building a community with a shared future for mankind.

...The PLA Strategic Support Force (PLASSF) is a new type of combat force for safeguarding national security and an important driver for the growth of new combat capabilities. It comprises supporting forces for battlefield environment, information, communications, information security, and new technology testing. In line with the strategic requirements of integrating existing systems and aligning civil and military endeavors, the PLASSF is seeking to achieve big development strides in key areas and accelerate the integrated development of new-type combat forces, so as to build a strong and modernized strategic support force.

...China has actively participated in multilateral dialogues and negotiations on cyberspace and outer space, and pushed for the formulation of widely accepted international rules that are fair and equitable.

# Advanced Modernization and Preparation for War

It is tempting to focus on the most advanced areas of Chinese modernization in technological terms – space and cyberwarfare. As the previous sections and the summary the analysis in this section show, however, these are only two elements of a far broader Chinese effort to modernize its forces and warfighting capabilities that include a far broader effort in electronic warfare, command and control, intelligence, informatized warfare, logistics and paramilitary forces.

China has emphasized a broad series of efforts in its military white papers, and the work by OSD and DIA in this section show that the U.S. military fully recognizes the importance of linking all of these reforms and innovations – as well as the changes being made in nuclear and missile capabilities described earlier, and in each military service described in the sections that follow.

Unlike some countries, China does not emphasize limited areas of military technology or reform, or focus on deterrence without placing an equal emphasis on sustainable warfighting. It will take a decade or more to determine how successful China is in fully implementing the reforms and changes outlined in this section, and some goals may well prove to be too demanding or only achieve partial success – particularly relative to the competing advances being made in U.S. forces.

China's goals should make it significantly more competitive with the U.S., while some Russian efforts are so narrowly focused or underfunded that they may create the image or shell of new capabilities instead of the reality. It is also striking that only three other Asia powers are attempting such a range of innovation – Australia, Japan, and South Korea (although Taiwan may be approaching such goals). All three also have far more limited forces and less ambitious efforts. No European power is attempting such modernization levels, and India and Pakistan lag far behind China as well.

These are key points for U.S. analysts, planners, and policymakers who tend to focus on technology rather than the full spectrum of deterrence and warfighting capabilities. Space and Cyber are critically important, but so is every other aspect of military capability.

# China's View of Preparations for War: 2015 Defense White Paper

Preparation for military struggle (PMS) is a basic military practice and an important guarantee for safeguarding peace, containing crises and winning wars. To expand and intensify PMS, China's armed forces must meet the requirement of being capable of fighting and winning, focus on solving major problems and difficulties, and do solid work and make relentless efforts in practical preparations, in order to enhance their overall capabilities for deterrence and warfighting.

Enhancing capabilities for system-vs-system operations based on information systems. China's armed forces will quicken their steps to transform the generating mode of combat effectiveness, work to use information systems to integrate a wide range of operational forces, modules and elements into overall operational capacity, and gradually establish an integrated joint operational system in which all elements are seamlessly linked and various operational platforms perform independently and in coordination.

China's armed forces will endeavor to address the pressing problems constraining the capabilities for system-vs-system operations. They will make further exploration and more efficient utilization of information resources, strengthen the building of the systems of reconnaissance, early-warning and command and control, develop medium- and long-range precision strike capabilities, and improve the comprehensive support systems. In accordance with the requirement of being authoritative, streamlined, agile and efficient, they will strive to establish and improve the CMC command organ and theater-level command systems for joint operations.

Pushing ahead with PMS in all directions and domains. Due to its complex geostrategic environment, China faces various threats and challenges in all its strategic directions and security domains. Therefore, PMS must be carried out in a well-planned, prioritized, comprehensive and coordinated way, so as to maintain the balance and stability of the overall strategic situation. China's armed forces will make overall planning for PMS in both traditional and new security domains, and get ready to safeguard national sovereignty and security, protect the country's maritime rights and interests, and deal with armed conflicts and emergencies. To adapt to the upgrading of weaponry and equipment as well as changes of operational patterns, China's armed forces will further optimize battlefield disposition and strengthen strategic prepositioning.

# China's View of Critical New Strategic Domains: 2015 Defense White Paper

The **seas and oceans** bear on the enduring peace, lasting stability and sustainable development of China. The traditional mentality that land outweighs sea must be abandoned, and great importance has to be attached to managing the seas and oceans and protecting maritime rights and interests. It is necessary for China to develop a modern maritime military force structure commensurate with its national security and development interests, safeguard its national sovereignty and maritime rights and interests, protect the security of strategic SLOCs and overseas interests, and participate in international maritime cooperation, so as to provide strategic support for building itself into a maritime power.

**Outer space** has become a commanding height in international strategic competition. Countries concerned are developing their space forces and instruments, and the first signs of weaponization of outer space have appeared. China has all along advocated the peaceful use of outer space, opposed the weaponization of and arms race in outer space, and taken an active part in international space cooperation. China will keep abreast of the dynamics of outer space, deal with security threats and challenges in that domain, and secure its space assets to serve its national economic and social development, and maintain outer space security.

**Cyberspace** has become a new pillar of economic and social development, and a new domain of national security. As international strategic competition in cyberspace has been turning increasingly fiercer, quite a few countries are developing their cyber military forces. Being one of the major victims of hacker attacks, China is confronted with grave security threats to its cyber infrastructure. As cyberspace weighs more in military security, China will expedite the development of a cyber force, and enhance its capabilities of cyberspace situation awareness, cyber defense, support for the country's endeavors in cyberspace and participation in international cyber cooperation, so as to stem major cyber crises, ensure national network and information security, and maintain national security and social stability.

# OSD on Military Reform and Changing Contingency Capability: 2018

## KEY TAKEAWAYS

- ✓ The PLA aims to increase its ability to conduct complex joint operations.
- ✓ Although ongoing reforms may decrease near-term readiness, in the long-term they should enable better planning and preparation for joint military operations across the Taiwan Strait.

One of the overarching goals of the structural reforms now reshaping the PLA is to construct a military capable of conducting complex joint operations, including those that would be involved in a Taiwan contingency. PLA reforms are aimed at clarifying command authorities, improving joint integration, and facilitating the transition from peace to war. The abolishment of military regions in favor of military theaters – in this case, the PLA's Eastern Theater – has also likely streamlined and improved the PLA's ability to conduct yearlong planning and preparation for joint military operations across the Taiwan Strait. In the near term, PLA combat units may experience decreased readiness and proficiency to conduct large-scale joint operations as they reorganize units, integrate new capabilities, and adjust to new command structures.

A significant addition to the overall structure of the PLA under current reforms is the establishment of the SSF and JLSF. During a Taiwan contingency, the JLSF, in conjunction with subordinate joint logistics support centers, would coordinate joint logistics and the delivery of materiel as well as oversee various civil-military support systems to sustain the campaign. The creation of the SSF probably improves the PLA's ability to execute and coordinate IO (especially cyber, EW, and counterspace) in a Taiwan contingency. It may also improve the PLA's ability to manage and provide space-based reconnaissance to the CMC and Eastern Theater, improving PLA command staffs' situational awareness of Taiwan military units and facilities. The PLA is likely still exploring how to reform its joint command processes to integrate IO and ISR capabilities more fully at the theater-level, but structural reforms have removed the biggest barriers to integrating these strategic capabilities at the theater-level.

Structural reforms within the military services also have implications on resources and operational capabilities available to the PLA for a future Taiwan contingency.

- > In 2017, the PLAN established a PLANMC headquarters and began expanding the PLANMC. However, the extent of PLANMC expansion and the roles that the PLANMC will be assigned remain unclear – the PLANMC may be assigned roles pertaining to overseas base defense or small island seizure, leaving large-scale amphibious operations under the purview of the PLAA's amphibious units.
- > The PLA Airborne Corps (formerly the PLAAF 15th Airborne Corps) also underwent major changes in 2017, reorganizing its previous units into airborne infantry brigades, a special operations brigade, an aviation brigade, and a support brigade. The goal of reorganization was to create a responsive and streamlined airborne corps capable of air-delivering modular combat units – including aerial drop of mechanized infantry forces.
- > The PLAA continues the expansion and transformation of rotary-wing aviation into its own combat arm capable of maneuver, precision strike, and three-dimensional transportation of forces. The PLAA intends to field at least one army aviation brigade per group army and military district as part of its on-going restructure and modernization. Furthermore, in 2017, the PLAA established its first two helicopter-based air assault infantry brigades, with subsequent plans to equip these brigades with both transport and assault helicopters.

# China and “Informatized Warfare”: 2019

- President Xi’s strategic vision calls for the PLA to create a highly informatized force capable of dominating all networks and expanding the country’s security and development interests.
- The PLA considers information operations (IO) as a means of achieving information dominance early in a conflict, and continues to expand the scope and regularity of IO in military exercises.

President Xi’s strategic vision calls for the PLA to create a highly informatized force capable of dominating all networks and expanding the country’s security and development interests. Chinese military writings describe informatized warfare as the use of information technology to create an operational system-of-systems, which would enable the PLA to acquire, transmit, process, and use information during a conflict to conduct joint military operations across the ground, maritime, air, space, cyberspace, and electromagnetic spectrum domains. Ongoing military reforms are accelerating the incorporation of command information systems enabling forces and commanders to carry out missions and tasks more effectively to win informatized local wars. The PLA continues to expand the scope and regularity of military exercises simulating informatized operations and likely views conventional and cyberspace operations as a means of achieving information dominance early in a contingency or conflict.

**Command, Control, Communications, Computers, and Intelligence Modernization (C4I).** China continues to prioritize C4I modernization as a response to trends in modern warfare that emphasize the importance of rapid information sharing, processing, and decision-making. The PLA seeks to modernize itself, both technologically and organizationally, to command complex, joint operations in near and distant battlefields with increasingly advanced C4ISR systems and sophisticated weapons.

The PLA sees networked, technologically advanced C4I systems as essential to provide reliable, secure communications to fixed and mobile command posts, thereby enabling rapid, effective, multi-echelon decision-making. These systems were designed to distribute data including intelligence, battlefield information, logistical information, and weather reports via redundant, resilient communications networks to improve commanders’ situational awareness. The PLA views making near-real-time ISR data available to field commanders as especially valuable in streamlining their decision processes. China is fielding the Integrated Command Platform (ICP) to units at multiple levels across the force to enable lateral and cross-service communications required for joint operations. Using digital databases and command automation tools allows commanders to simultaneously issue orders to multiple units while on the move and they allow units to quickly adapt their actions to shifting conditions in the battlespace.

These technical improvements are notably boosting PLA operational flexibility and responsiveness. As the PLA continues to focus on its ability to fight and win informatized wars, future information systems will likely implement emerging technologies such as big- data, the internet of things, artificial intelligence (AI), and cloud computing to provide reliable, automated platforms yielding further process efficiencies. The PLA has already begun this process by embracing big- data analytics that fuse together a variety of data to improve automation and to create a comprehensive, real-time picture.

**Information Operations (IO).** China assesses that controlling the information spectrum in the modern battlespace is a critical enabler, if not a fundamental prerequisite, of its ability to counter third-party intervention in a conflict. PLA authors often cite this capability – sometimes termed “information blockade” or “information dominance” – as necessary to seize the initiative and set the conditions necessary to gain air and sea superiority. This “information blockade” concept likely envisions combining military capabilities across space and cyber domains with non- military instruments of state power. China’s investment in advanced electronic warfare (EW) systems, counterspace capabilities, and cyber operations – combined with more traditional forms of information control, such as propaganda and denial via opacity – reflect the priority the PLA places on information advantage.

**Electronic Warfare.** The PLA considers electronic warfare (EW) an integral component of modern warfare. Its EW strategy emphasizes suppressing, degrading, disrupting, or deceiving enemy electronic equipment. Potential EW victims include adversary systems operating in radio, radar, microwave, infrared, and optical frequency ranges, as well as adversary computer and information systems. China fielded several types of UAVs with EW payloads and displayed several of these during the PLA 90th anniversary parade in July 2017. PLA EW units routinely train to conduct jamming and anti-jamming operations against multiple communication and radar systems or GPS satellite systems in force-on- force exercises. These exercises test operational units’ understanding of EW weapons, equipment, and performance but they also enable operators to improve confidence in their ability to operate effectively in a complex electromagnetic environment. In addition, the PLA reportedly tests and validates advances in EW weapons research and development during these exercises.



# Modernizing Joint Command and Control: 2019

*In the implementation of the military strategic guideline in the new situation, China's armed forces must closely center around the CPC's [Communist Party's] goal of building a strong military, respond to the state's core security needs, aim at building an informatized military and winning informatized wars, deepen the reform of national defense and the armed forces in an all-round way, build a modern system of military forces with Chinese characteristics, and constantly enhance their capabilities for addressing various security threats and accomplishing diversified military tasks.*

*—Excerpt from China's Military Strategy, May 2015*

China continues to place a high priority on modernizing the PLA's command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) system as a response to trends in modern warfare that emphasize the importance of rapid decision making and information sharing and processing. The PLA is seeking to improve its technological capabilities and organizational structure to command complex joint operations in near and distant battlefields with increasingly sophisticated weapons.

Supporting the reforms with technological improvements to C4ISR systems is essential to improving the speed and effectiveness of decision making while providing secure, reliable communications to fixed and mobile command posts. The PLA is fielding advanced automated command systems, such as its Integrated Command Platform, with units at lower echelons across the force. The adoption of the Integrated Command Platform enables multiservice communications necessary for joint operations.

New technologies which are being introduced into the PLA enable sharing of information— intelligence, battlefield information, logistic information, and weather reports—on robust, redundant communication networks to improve commanders' situational awareness. In particular, the transmission of intelligence, surveillance, and reconnaissance (ISR) data in near-real time to commanders in the field could facilitate the commanders' decision making processes and make operations more efficient.

As these technical improvements are brought on line, they greatly enhance the PLA's flexibility and responsiveness. Informatized operations no longer require in-person meetings for command decision making or labor-intensive processes for execution. Commanders can issue orders to multiple units at the same time while on the move, and units can rapidly adjust their actions through the use of digital databases and command automation tools.

The nature of these reform and modernization efforts in part resembles a Western-style joint C2 structure in which operational commanders develop force packages from units that are trained and equipped by the services. The creation of a permanent joint C2 structure that places more emphasis on naval and aerospace forces, along with a dedicated Strategic Support Force responsible for electronic warfare and operations in the space and cyberspace domains, reflects an emerging PLA capacity to more effectively execute joint operations.

# Chinese Intelligence Services in 2019

In June 2017, China passed a National Intelligence Law specifying that “state intelligence work” would fall under the “central national security leadership body,” and military intelligence work would fall under the Central Military Commission. The central national security leadership body may refer to an intelligence committee structure subordinate to China’s Central National Security Commission. The PLA’s national-level intelligence system is still undergoing changes as part of broader military reform efforts.

**Civilian Intelligence.** The Ministry of State Security (MSS) is China’s main civilian intelligence and counterintelligence service.<sup>264</sup> MSS missions include protecting China’s national security, securing political and social stability, implementing the updated State Security Law and related laws and regulations, protecting state secrets, and conducting counterintelligence.

**Domestic Security.** The Ministry of Public Security (MPS) is China’s principal domestic security agency and is responsible for overseeing the country’s domestic policing and public security activities. Although the MPS is not directly involved in domestic intelligence gathering, it has domestic intelligence functions, including investigating corruption cases, countering threats to political and social stability, countering terrorism, and policing the Internet.

**Political Work.** The General Political Department Liaison Department, which probably was renamed the Political Work Department Liaison Bureau (PWD/LB) during recent reforms, is the PLA’s principal organization responsible for political warfare and for collecting and analyzing intelligence information regarding senior-level officers from the United States, Taiwan, Japan, and other defense establishments of interest. The PWD/LB functions as an interlocking directorate that operates at the nexus of politics, finance, military operations, and intelligence. The PWD/LB has few analogous counterparts in modern democratic societies.

**Military Intelligence.** The former PLA Second Department (2PLA) was a subdepartment of the GSD. Postreform, the 2PLA has been identified as the Intelligence Bureau of the Joint Staff Department under the Central Military Commission. This bureau carries out the military’s overt reporting and clandestine human intelligence collection operations, provides indications and warning and other analysis to the CMC leadership, runs the defense attaches network, and manages intelligence produced by dedicated PLA reconnaissance assets.

**Signals Intelligence.** The former PLA Third Department (3PLA) was one of the GSD’s subdepartments but post reform has probably been renamed and subordinated under the SSF. This element controls a vast signals intelligence (SIGINT) and computer network operations infrastructure. The PLA’s SIGINT and cyber assets target foreign satellite, line of sight, and over-the-horizon communications, as well as computer networks.

**Electronic Intelligence.** The former PLA Fourth Department (4PLA) was a subdepartment of the GSD, but post reform has probably been renamed and subordinated to the SSF. This element is primarily responsible for offensive electronic warfare, but it is generally believed to maintain electronic intelligence capabilities

# Chinese Joint Logistics Support Force (JLSF): 2019

## Key Takeaways

- China's military leaders established the JLSF to streamline logistics support for the PLA.
- In 2018, the PLA elevated the JLSF's status to a theater-level organization.
- The PLA is integrating civilian-controlled support equipment, including ships and trucks, into military operations and exercises.

In 2018, the PLA elevated the JLSF's status to a theater-level organization, which gives the JLSF additional authority to deconflict support requirements with the services. In September 2016, as a part of the overall military structure reorganization, the PLA established the JLSF and five subordinate Joint Logistics Service Centers (JLSCs) under the CMC to streamline logistics support for the PLA.

Headquartered at the Wuhan Joint Logistics Support Base, the JLSF controls the peacetime activities of the JLSCs; in wartime, the theater commands assume control of the JLSC located within its respective geographic area. Since the establishment of the JLSF, the PLA has continued to adjust this organization to ensure greater integration with joint operations. The JLSF has assigned a representative to each of the theater joint command centers, thereby allowing support forces to operate in the same command network as combat forces during an exercise, which results in better coordination of various support missions. Allowing logistic units to deploy and maneuver directly with combat units during conflict has been a focus of annual exercises since the JLSF's inception in 2016.

The PLA is integrating civilian-controlled support equipment and components, including ships and trucks, into its military operations and exercises, and the military plans to increase this type of support during the next several years. In February 2018, the Wuxi JLSC practiced transporting ammunition on a civilian roll-on/roll-off ship that met military transportation standards, according to post-exercise press reporting.

Two recent logistics-focused exercises include JIDI BAOZHANG (Base Security) 2018 and JOINT LOGISTICS MISSION 2018B. The PLA Tibet Military District hosted JIDI BAOZHANG 2018 in June, during which its logistic support department worked closely with local civilian entities to construct temporary bridges, transport fuel, and deliver food to troops in the field. The PLA highlighted civil-military integration as a key component of the exercise. In August 2018, participants in JOINT LOGISTICS MISSION 2018B included logistic forces from the JLSF, Army units from the Western Theater Command, Air Force logistic forces, and civilian national defense mobilization forces from Gansu, Qinghai, and Sichuan Provinces.

# OSD - The Strategic Support Force (SSF) in 2019

- The SSF centralizes strategic space, cyber, electronic, and psychological warfare missions.
- In 2018, the SSF conducted joint communications and reconnaissance training with the PLAA and the PLAAF to improve operational support capabilities and joint operations in advanced electromagnetic environments.
- In 2018, China marked its largest space launch year to-date, successfully launching 38 of 39 space launch vehicles (SLVs) and orbiting approximately 100 spacecraft.

The PLA created the SSF in 2016 as a theater command-level organization to centralize strategic space, cyber, electronic, and psychological warfare missions. The creation of the SSF highlights China's understanding of information as a strategic resource in modern warfare. China's leadership believes that achieving information dominance in the electromagnetic spectrum and denying its use to adversaries is necessary to seize and maintain the strategic initiative in a conflict. The SSF was formed from organizations formerly subordinate to the PLA services and General Staff Departments (GSD) with the goal of creating operational synergies between formerly disparate information warfare capabilities to enable the information dominance that China believes will be decisive in future wars.

The SSF oversees two deputy theater command-level departments: the Space Systems Department responsible for military space operations, and the Network Systems Department responsible for information operations (IO). At the headquarters level, the SSF has a four-department administrative structure that includes the Staff, Equipment, Political Work, and Logistics Departments. As a strategic organization, the SSF reports directly to the Central Military Commission (CMC) and not to the Theater Commands.

The SSF Network Systems Department is responsible for information warfare with a mission set that includes cyberwarfare, technical reconnaissance, electronic warfare, and psychological warfare. By placing these missions under the same organizational umbrella, China seeks to remedy the operational coordination challenges that hindered information sharing under the pre-reform organizational structure.

The SSF's psychological warfare mission is performed by the former General Political Department's 311 Base. This base is the only organization in the PLA that is publicly known to perform psychological warfare operations.

In 2018, the Strategic Support Force increased joint communications and reconnaissance training with the PLAA and the PLAAF to improve operational support capabilities and joint operations in advanced electromagnetic environments. Included in this training was the LUOYANG-2018 series of force-on-force exercises in which an SSF base challenged a PLA group army brigade's communications with hostile jamming and interruptions to their operational electromagnetic environment.

The SSF Space Systems Department is responsible for nearly all PLA space operations, including space launch and support, space information support, space telemetry, tracking, and space warfare. The formation of the Space Systems Department seeks to resolve the bureaucratic power struggles that existed over the PLA space mission, as elements of the mission had been dispersed across several national and service-subordinate organizations. China officially designated space as a new domain of warfare in its 2015 defense white paper, highlighting the importance of the space domain in strategic military competition. Notably, China expects space to play an important role in enabling long-range precision strikes and in denying other militaries the use of overhead C4ISR systems. Among the Space System Department's core missions is the launch and operation of the satellites that are vital to China's overhead C4ISR architecture.

## DIA -The Strategic Support Force (SSF) in 2019

In December 2015, Beijing established the Strategic Support Force (SSF) to provide the PLA with cyber, aerospace, and electronic warfare capabilities.<sup>259</sup> The SSF forms the core of China's information warfare force, supports the entire PLA, and reports directly to the CMC. The force's formation appears to be the outcome of debate in the PLA since the 1980s regarding PLA needs in a potential conflict with peer nations. According to a Ministry of National Defense spokesman, "The SSF will integrate reconnaissance, early warning, communications, command, control, [and] navigation ... and will provide strong support for joint operations for each military service branch."

A key aspect of the SSF is that the new body unites previously dispersed elements, providing more centralized command and control of China's cyber, space, and electronic warfare capabilities. Before the 2015 structural reforms, for example, responsibility for space, cyber, and electronic warfare missions rested with offices across the former General Armaments Department and the General Staff Department (GSD), including the GSD Technical Department and GSD Electronic Countermeasures and Radar Department.

The SSF constitutes the first steps in the development of a cyberforce by combining cyber reconnaissance, cyberattack, and cyberdefense capabilities into one organization to reduce bureaucratic hurdles and centralize command and control. The SSF also appears to be in line with PLA efforts to support and execute modern informatized warfare.

The PLA's 90th anniversary parade in July 2017 included the participation of an SSF electronic reconnaissance formation, which reportedly provides highly mobile, integrated, flexible, multidomain information warfare capabilities. The unit's mission reportedly is seizing and maintaining battlefield information control. This focus on the SSF and one of its premier units suggests that the PLA is increasing the priority and prominence of the SSF and its assigned missions to tackle the military's deficiencies in controlling complex electromagnetic environments.

# China's Joint Strategic Support Force (Est. 2015)

***Space and Counterspace.*** PLA strategists regard the ability to use space-based systems—and to deny them to adversaries—as central to enabling modern informatized warfare. As a result, the PLA continues to strengthen its military space capabilities despite its public stance against the militarization of space. Although PLA doctrine does not appear to address space operations as a unique operational “campaign,” space operations will probably form an integral component of other PLA campaigns and serve a key role in enabling actions that counter third-party intervention. China is seeking to utilize space systems to establish a real-time and accurate surveillance, reconnaissance and warning system, and to enhance C2 in joint operations. These advancements include the Beidou navigation satellite system and space surveillance capabilities that can monitor objects across the globe and in space.

***Information Operations (IO).*** China assesses that an essential element, if not a fundamental prerequisite, of its ability to counter third-party intervention is the ability to control the information spectrum in the modern battlespace. PLA authors often cite this capability—sometimes termed “information blockade” or “information dominance”—as necessary to seize the initiative and set the conditions needed to achieve air and sea superiority. China’s “information blockade” concept likely envisions the employment of military and non-military instruments of state power across the battlespace, including in cyberspace and space. China’s investments in advanced EW systems, counterspace weapons, and cyber operations—combined with more traditional forms of control such as propaganda and denial through opacity—reflect the priority the PLA places on information advantage.

***Cyberoperations.*** Chinese cyberattack operations could support A2/AD by targeting critical nodes to disrupt adversary networks throughout the region. China believes its cyber capabilities and personnel lag behind the United States. To deal with these perceived deficiencies, China is improving training and domestic innovation to achieve its cyber capability development goals. PLA researchers advocate seizing “cyberspace superiority” by using offensive cyber operations to deter or degrade an adversary’s ability to conduct military operations against China.



# China and Cyberwarfare: 2019

**Cyberwarfare.** The development of cyberwarfare capabilities is consistent with PLA writings, which identify IO – comprising cyber, electronic, and psychological warfare – as integral to achieving information superiority and as an effective means for countering a stronger foe. China has publicly identified cyberspace as a critical domain for national security and declared its intent to expedite the development of its cyber forces.

PLA writings note the effectiveness of IO and cyberwarfare in recent conflicts and advocate targeting an adversary's C2 and logistics networks to affect its ability to operate during the early stages of conflict. They credit cyberattacks on an enemy's C2 system with the potential to “completely disrupt” these systems, paralyzing the victim and thus gaining battlefield superiority for the attacker. Accordingly, the PLA may seek to use its cyberwarfare capabilities to collect data for intelligence and cyberattack purposes; to constrain an adversary's actions by targeting network-based logistics, communications, and commercial activities; or to serve as a force- multiplier when coupled with kinetic attacks during armed conflict.

The PLA's ongoing structural reforms may further change how the PLA organizes and commands IO, particularly as the SSF evolves over time. In consolidating cyber and other level cyber reconnaissance, attack, and defense IO-related elements, the SSF is likely generating synergies by combining national- capabilities in its organization.

**Cyber Operations.** PLA researchers believe that building strong cyber capabilities are necessary to protect Chinese networks and advocate seizing “cyberspace superiority” by using offensive cyber operations to deter or degrade an adversary's ability to conduct military operations against China. Chinese writings suggest cyber operations allow China to manage the escalation of a conflict because cyber attacks are a low-cost deterrent. The writings also suggest that cyber attacks demonstrate capabilities and resolve to an adversary. To support A2/AD, Chinese cyber attack operations aim to target critical military and civilian nodes to deter or disrupt adversary intervention, and to retain the option to scale these attacks to achieve desired conditions with minimal strategic cost. China believes its cyber capabilities and cyber personnel lag behind the United States, and it is working to improve training and bolster domestic innovation to overcome these perceived deficiencies and advance cyberspace operations.

## **Cyber Activities Directed Against the Department of Defense**

Computer systems around the world, including those owned by the U.S. Government, continued to be targeted by China-based intrusions through 2018. These and past intrusions focus on accessing networks and extracting information. China uses its cyber capabilities to not only support intelligence collection against U.S. diplomatic, economic, academic, and defense industrial base (DIB) sectors, but also to exfiltrate sensitive information from the DIB to gain military advantage. The information targeted can benefit China's defense high-technology industries, support China's military modernization, provide the CCP insights into U.S. leadership perspectives, and enable diplomatic negotiations, such as those supporting OBOR. Additionally, targeted information could enable PLA cyber forces to build an operational picture of U.S. defense networks, military disposition, logistics, and related military capabilities that could be exploited prior to or during a crisis. The accesses and skills required for these intrusions are similar to those necessary to conduct cyber operations in an attempt to deter, delay, disrupt, and degrade DoD operations prior to or during a conflict. In aggregate, these cyber-enabled campaigns threaten to erode U.S. military advantages and imperil the infrastructure and prosperity on which those advantages rely.

## DIA on China's Role in Cyberspace in 2019

Authoritative PLA writings identify controlling the “information domain”—sometimes referred to as “information dominance”—as a prerequisite for achieving victory in a modern war and as essential for countering outside intervention in a conflict. The PLA’s broader concept of the information domain and of information operations encompasses the network, electromagnetic, psychological, and intelligence domains, with the “network domain” and corresponding “network warfare” roughly analogous to the current U.S. concept of the cyber domain and cyberwarfare.

The PLA Strategic Support Force (SSF) may be the first step in the development of a cyberforce by combining cyber reconnaissance, cyberattack, and cyberdefense capabilities into one organization to reduce bureaucratic hurdles and centralize command and control of PLA cyber units. Official pronouncements offer limited details on the organization’s makeup or mission.

President Xi simply said during the SSF founding ceremony on 31 December 2015 that the SSF is a “new-type combat force to maintain national security and [is] an important growth point for the PLA’s combat capabilities.” The SSF probably was formed to consolidate cyber elements of the former PLA General Staff Third (Technical Reconnaissance) and Fourth (Electronic Countermeasures and Radar) Departments and Informatization Department.

# OSD – China in Space in 2019 - I

**Space and Counterspace.** PLA strategists regard the ability to use space-based systems – and to deny them to adversaries – as central to modern warfare. The PLA continues to strengthen its military space capabilities, despite its public stance against the militarization of space. The PLA views space operations as a key enabler of PLA campaigns aimed at countering third-party intervention, although many PLA writings have not elevated these operations to the level of a separate “campaign.” China seeks to enhance C2 in joint operations and establish a real-time surveillance, reconnaissance, and warning system, and it is increasing the number and capabilities of its space systems, including various communications and intelligence satellites as well as the Beidou navigation satellite system. China also continues to develop counterspace capabilities and related technologies, including kinetic-kill missiles, ground-based lasers, and orbiting space robots, as well as expanding space surveillance capabilities, which can monitor objects across the globe and in space and enable counterspace actions.

## **Space and Counterspace Capabilities.**

China’s space program continues to mature rapidly. The PLA, which has historically managed the effort, continues to invest in improving its capabilities in space-based ISR, satellite communication, satellite navigation, and meteorology, as well as human spaceflight and robotic space exploration. China has built an expansive ground support infrastructure to support its growing on-orbit fleet and related functions including spacecraft and space launch vehicle (SLV) manufacture, launch, C2, and data downlink. Additionally, China continues development of multiple counterspace capabilities designed to degrade and deny adversary use of space-based assets during a crisis or conflict. Furthermore, China may seek to expand its overseas satellite tracking stations to support its space program analogous to the Neuquén Deep Space Facility in Argentina. The Neuquén Deep Space Facility, built and operated by China to support lunar exploration missions, is operated by China’s national space program, which is administered by the PLA.

In 2018, China launched 39 SLVs, of which 38 were successful, orbiting approximately 100 spacecraft that include navigation, ISR, and test/engineering satellites. Other activities in 2018 included:

- *Beidou Navigation Satellite Constellation:* Since the beginning of 2017, China has launched 19 new Beidou satellites for its worldwide satellite navigation constellation, bringing Beidou to initial operating capability in December 2018, with plans to reach full operating capability by the end of 2020. The new Beidou satellites are equipped with radiofrequency and laser inter-satellite links, new atomic clocks, and other new advanced technologies. Additionally, China plans to offer satellite-based augmentation services, a worldwide short-message service, and internationally recognized search and rescue capabilities.
- *Lunar Exploration Program:* In December 2018, China launched the Chang’e-4 lunar rover and lander, which will be the first- ever probe to soft land on the far side of the Moon. In May 2018, China launched the Queqiao lunar relay satellite as the first part of the mission to facilitate communications between China’s ground stations on Earth and the Chang’e-4 lander and rover while on the lunar far side. Building on the enabling capabilities such as lunar orbiting, soft landing, and sample return mastered through the legacy Chang’e program, China plans to assemble a lunar research station on the Moon around 2025 and a lunar research and development base around 2050.

## OSD – China in Space in 2019 - II

- *Commercial Space Launch:* China's Expace Technology, a commercial subsidiary of China Aerospace Science and Industry Corporation (CASIC), continued to launch its Kuaizhou-1A (KZ-1A) commercial SLV in 2018 with two additional launches, following its debut in January 2017. In 2018, nine Chinese state-backed launch companies indicated they were developing launch vehicles. At least five of these companies completed engine testing in 2018, while two companies achieved suborbital testing and one attempted an orbital launch. The presence of commercial launch companies and their progress grew substantially in 2018.

The PLA is acquiring a range of technologies to improve China's counterspace capabilities. In addition to the development of directed- energy weapons and satellite jammers, China is also developing anti-satellite capabilities and has probably made progress on the anti- satellite missile system it tested in July 2014.

China is employing more sophisticated satellite operations and is probably testing dual-use technologies in space that could be applied to counterspace missions.

Although China has not publicly acknowledged the existence of any new programs since it confirmed it used an anti-satellite missile to destroy a weather satellite in 2007, Chinese defense academics often publish on counterspace threat technologies. These scholars stress 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."

# Chinese Space Launch Sites 2019

China operates four space launch sites: Jiuquan, Taiyuan, Xichang, and Wenchang.



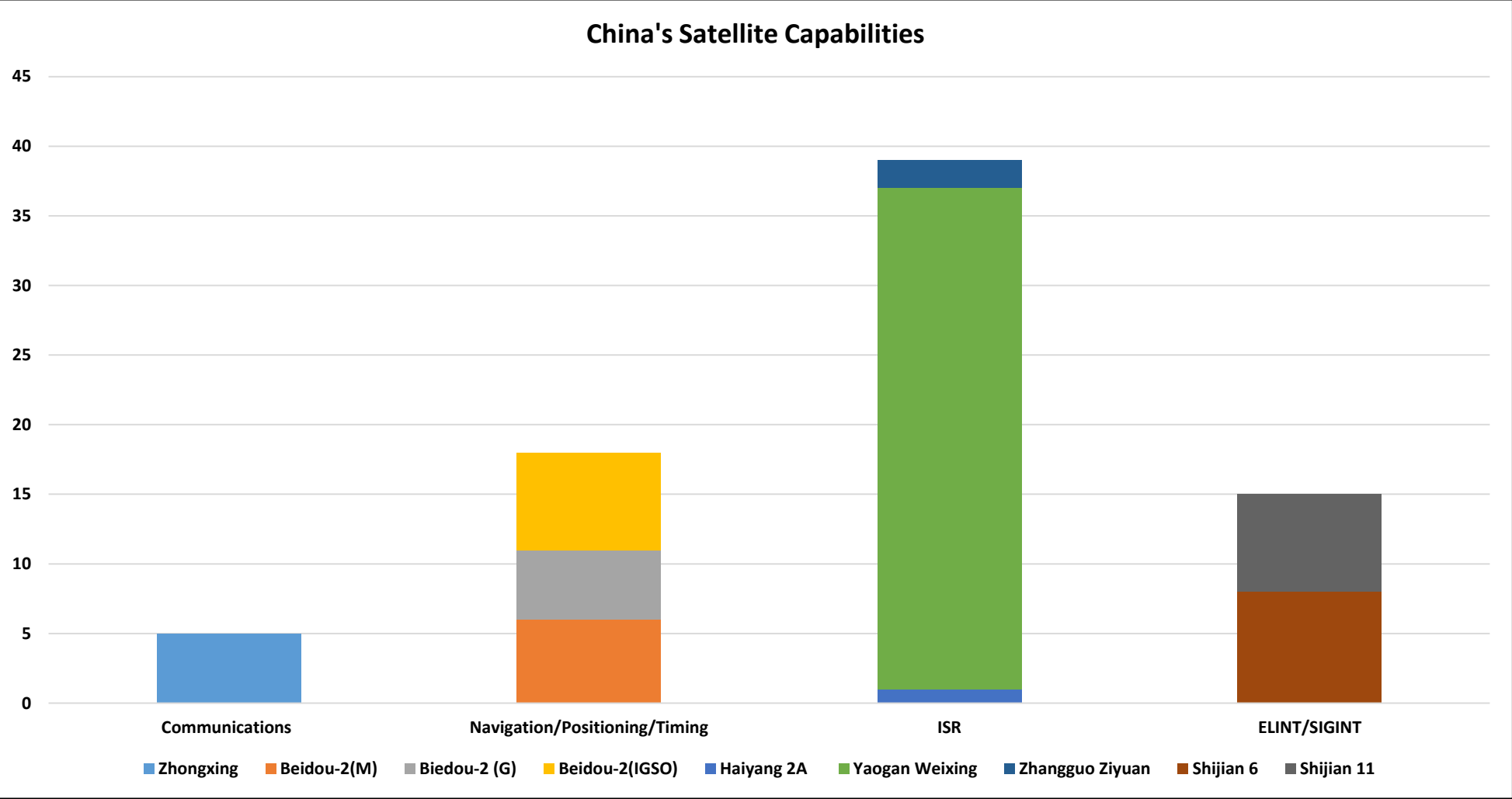
## Chinese Space Launch Fleet 2019

System	Propellant	Generation	Outlook
LM-2, LM-3, LM-4 series	Liquid	Legacy	Phase out by 2025
LM-5 series	Liquid	Next	Heavy-lift for the proposed space station and other payloads
LM-6	Liquid	Next	Light-lift for low Earth and sun-synchronous orbit
LM-7	Liquid	Next	Medium-lift for human spaceflight and resupply to the future space station
LM-11 and Kuaizhou series	Solid	Next	Lift for emergency response

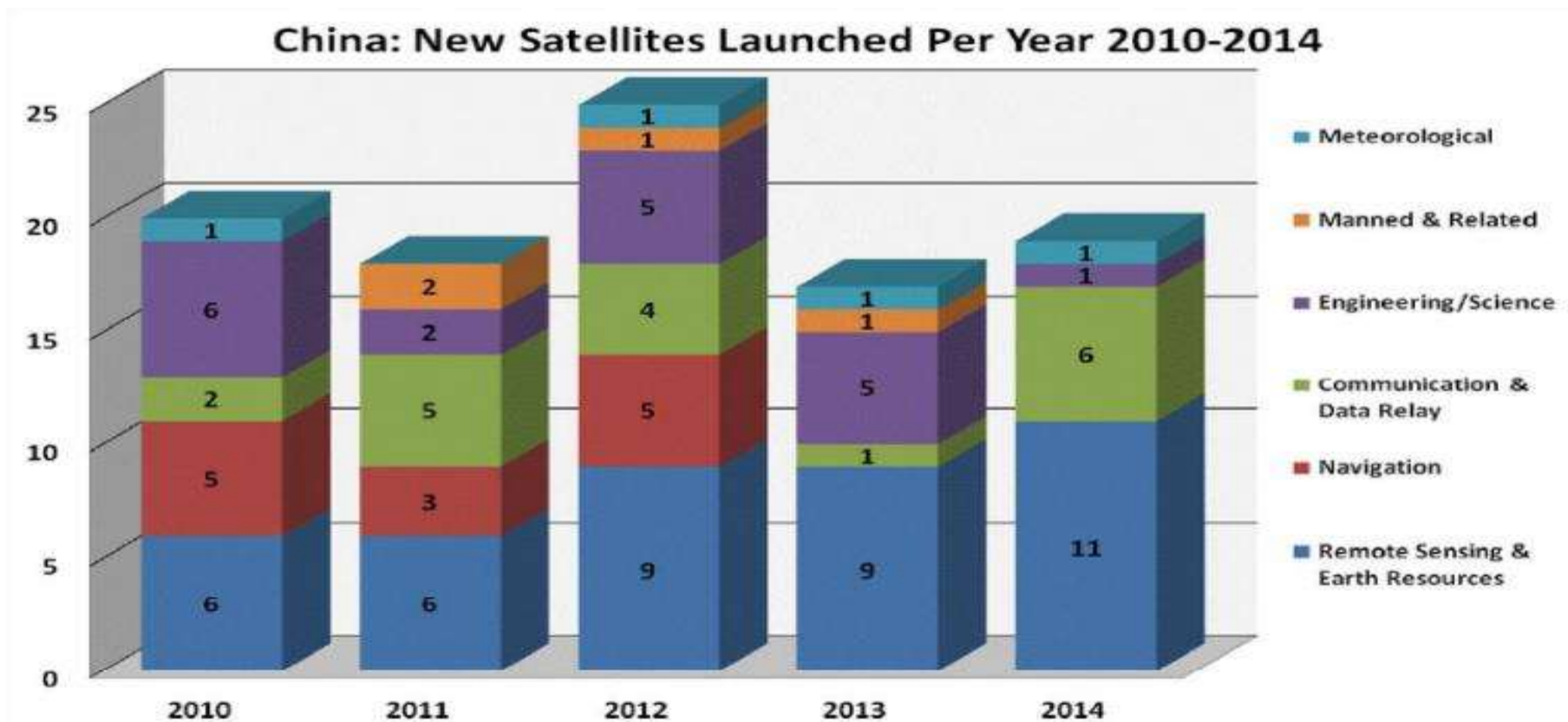
Source: Office of the Secretary of Defense, Military and Security Developments Involving the Republic of China, Annual Report to Congress, May 16, 2018, Department of Defense. China Military Power 2018, p. 45.



# China's Active Satellites



Source: IISS *Military Balance*, 2016. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies



**Table 2: Chinese versus U.S. Space Launches, 2010–2014**

	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>
Chinese Launches (Satellites Deployed)	15 (20)	19 (18)	19 (25)	14 (17)	16 (19)
U.S. Launches (Satellites Deployed)	15 (41)	19 (39)	16 (35)	20 (85)	23 (110)

Source: DoD Annual Report to Congress: Military and Security Developments Involving the People's Republic of China, April 2015; Source: "China's Space and Counterspace Programs", 2015 Report to Congress, US-China Economic and Security Review Commission, November 2015, p. 294, [http://origin.www.uscc.gov/sites/default/files/annual\\_reports/2015%20Annual%20Report%20to%20Congress.PDF](http://origin.www.uscc.gov/sites/default/files/annual_reports/2015%20Annual%20Report%20to%20Congress.PDF).

# China's Direct-Ascent ASAT Tests

Date	Orbital Debris	Missile	Notes
July 2005	No	SC-19	Rocket test
February 2006	No	SC-19	Failed intercept and destruction of an orbital target
January 2007	Yes	SC-19	Successful intercept and destruction of an orbital target
January 2010	No	SC-19	Successful intercept and destruction of a suborbital target
January 2013	No	SC-19	Successful intercept and destruction of a suborbital target
May 2013	No	DN-2	Rocket test
July 2014	No	SC-19	Successful intercept and destruction of a suborbital target

Source: "China's Space and Counterspace Programs", 2015 Report to Congress, US-China Economic and Security Review Commission, November 2015, p. 294, [http://origin.www.uscc.gov/sites/default/files/annual\\_reports/2015%20Annual%20Report%20to%20Congress.PDF](http://origin.www.uscc.gov/sites/default/files/annual_reports/2015%20Annual%20Report%20to%20Congress.PDF)

# China's Changing Land Power

# China Developing Ground Forces: 2015 Defense White Paper

In the implementation of the military strategic guideline in the new situation, China's armed forces must closely center around the CPC's goal of building a strong military, respond to the state's core security needs, aim at building an informationized military and winning informationized wars, deepen the reform of national defense and the armed forces in an all-round way, build a modern system of military forces with Chinese characteristics, and constantly enhance their capabilities for addressing various security threats and accomplishing diversified military tasks.

Development of the Services and Arms of the People's Liberation Army (PLA) and the People's Armed Police Force (PAPF): In line with the strategic requirement of mobile operations and multi-dimensional offense and defense, the PLA Army (PLAA) will continue to reorient from theater defense to trans-theater mobility. In the process of building small, multi-functional and modular units, the PLAA will adapt itself to tasks in different regions, develop the capacity of its combat forces for different purposes, and construct a combat force structure for joint operations. The PLAA will elevate its capabilities for precise, multi-dimensional, trans-theater, multi-functional and sustainable operations.

# Chinese 2019 Defense White Paper: PLA

Great progress has been made in the Revolution in Military Affairs (RMA) with Chinese characteristics. However, the People's Liberation Army (PLA) has yet to complete the task of mechanization, and is in urgent need of improving its informationization. China's military security is confronted by risks from technology surprise and growing technological generation gap. Greater efforts have to be invested in military modernization to meet national security demands. The PLA still lags far behind the world's leading militaries.

...Since the introduction of reform and opening-up, China has been committed to promoting world peace, and has voluntarily downsized the PLA by over 4 million troops.

...*Adjusting scale and proportion, and restructuring force composition.* 300,000 personnel have been cut to keep the total active force at 2 million. Reform measures have been taken to transfer more officer positions to non-commissioned officers and civilian staff, downsize the leading organs at all levels by reducing their subordinate sections, leadership hierarchies and staff, and streamline the institutions and personnel in arts, sports, press, publication, logistical support, medical facilities, depots, and educational and research institutes. Thus, the number of personnel in the leading organs at and above regiment level has been cut by about 25%, and that of non-combat units by almost 50%.

...The PLA and the People's Armed Police Force (PAP) give greater priority to combat readiness. Efforts are made to strictly act on relevant regulations and procedures, fulfill readiness duties, conduct targeted exercises and training, and maintain standardized order, with a view to staying ready to act when required and effectively carrying out readiness (combat) duties.

The PLA supports the civil authorities in maintaining social stability, provides security for major events, and responds to emergencies in accordance with the law. It is mainly tasked with missions such as counter-terrorism, NBCE detection and test, medical relief, and transport support. It disposes of potential safety hazards in the waters and protects security in the air over and around major event venues.

...Since 2012, the PLA and the PAP have deployed 950,000 soldiers, 1.41 million militia, 190,000 vehicles and items of equipment, and sortied 26,000 vessels and 820 aircraft in emergency response and disaster relief. They have participated in rescue and relief efforts such as the earthquake in Ludian County of Yunnan Province, the rainstorm and flood in the middle and lower reaches of the Yangtze River, and the removal of the barrier lake in the Yarlung Zangbo River. They have assisted local governments to rescue and transfer over 5 million people, treated over 210,000 patients, transported over 360,000 tons of goods, and reinforced over 3,600 km of levees. In 2017, the PLA Macao Garrison sent 2,631 soldiers and over 160 vehicles to assist the government of Macao Special Administrative Region in its relief efforts in the wake of Typhoon Hato.

.. the PLA has established a lean and efficient joint operations command system composed of permanent and specialized commanding establishments for both peacetime and wartime operations. The former Shenyang, Beijing, Lanzhou, Jinan, Nanjing, Guangzhou and Chengdu MACs have been reorganized into 5 TCs: Eastern Theater Command (ETC), Southern Theater Command (STC), Western Theater Command (WTC), Northern Theater Command (NTC), and Central Theater Command (CTC). Thus, a CMC-TCs-Troops operations command system has been established.

...the PLA is striving to transform from a quantity-and-scale model to that of quality and efficiency, as well as from being personnel-intensive to one that is S&T-intensive.



# Chinese 2019 Defense White Paper: PLA Army (PLAA)

...The PLAA plays an irreplaceable role in maintaining China's national sovereignty, security and development interests. It comprises maneuver operation, border and coastal defense, and garrison forces.

Under the PLAA, there are 5 TC army commands, the Xinjiang military command, and the Tibet military command. The ETC Army has under it the 71st, 72nd, and 73rd group armies; the STC Army has the 74th and 75th group armies; the WTC Army has the 76th and 77th group armies; the NTC Army has the 78th, 79th and 80th group armies; and the CTC Army has the 81st, 82nd and 83rd group armies.

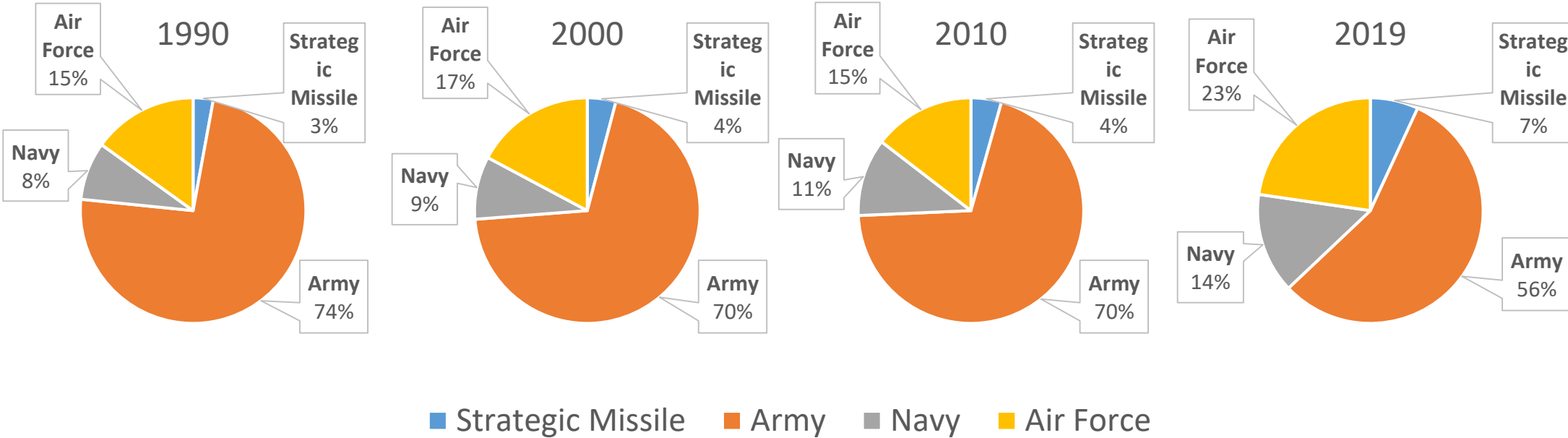
In line with the strategic requirements of maneuver operations as well as multi-dimensional offense and defense, the PLAA is speeding up the transition of its tasks from regional defense to trans-theater operations, and improving the capabilities for precise, multi-dimensional, trans-theater, multi-functional and sustained operations, so as to build a new type of strong and modernized land force.

*...Adjusting scale and proportion, and restructuring force composition....*The PLA has significantly downsized the active force of the PLAA, maintained that of the PLAAF at a steady number, moderately increased that of the PLAN and PLARF, and optimized the force structures of all all services and arms. The PLA has restructured the defense reserves. The deployment of combat forces has been adjusted for a strategic configuration that meets the demands of safeguarding China's national security in the new era.

*Reorganizing the troops and rebuilding new-type combat forces.* The previous 18 group armies have been reorganized into 13 new ones. All major combat units of the PLA follow a group army-brigade-battalion system. Reform measures have been taken to reinforce the combat capacity of the arms, reduce the command hierarchies and combine the troops at lower levels. New types of combat forces have been enhanced to conduct special operations, all-dimensional offense and defense, amphibious operations, far seas protection and strategic projection, aiming to make the force composition complete, combined, functional and flexible.

.. The PLA Army (PLAA) has organized training competitions and conducted live exercises codenamed *Stride* and *Firepower*.

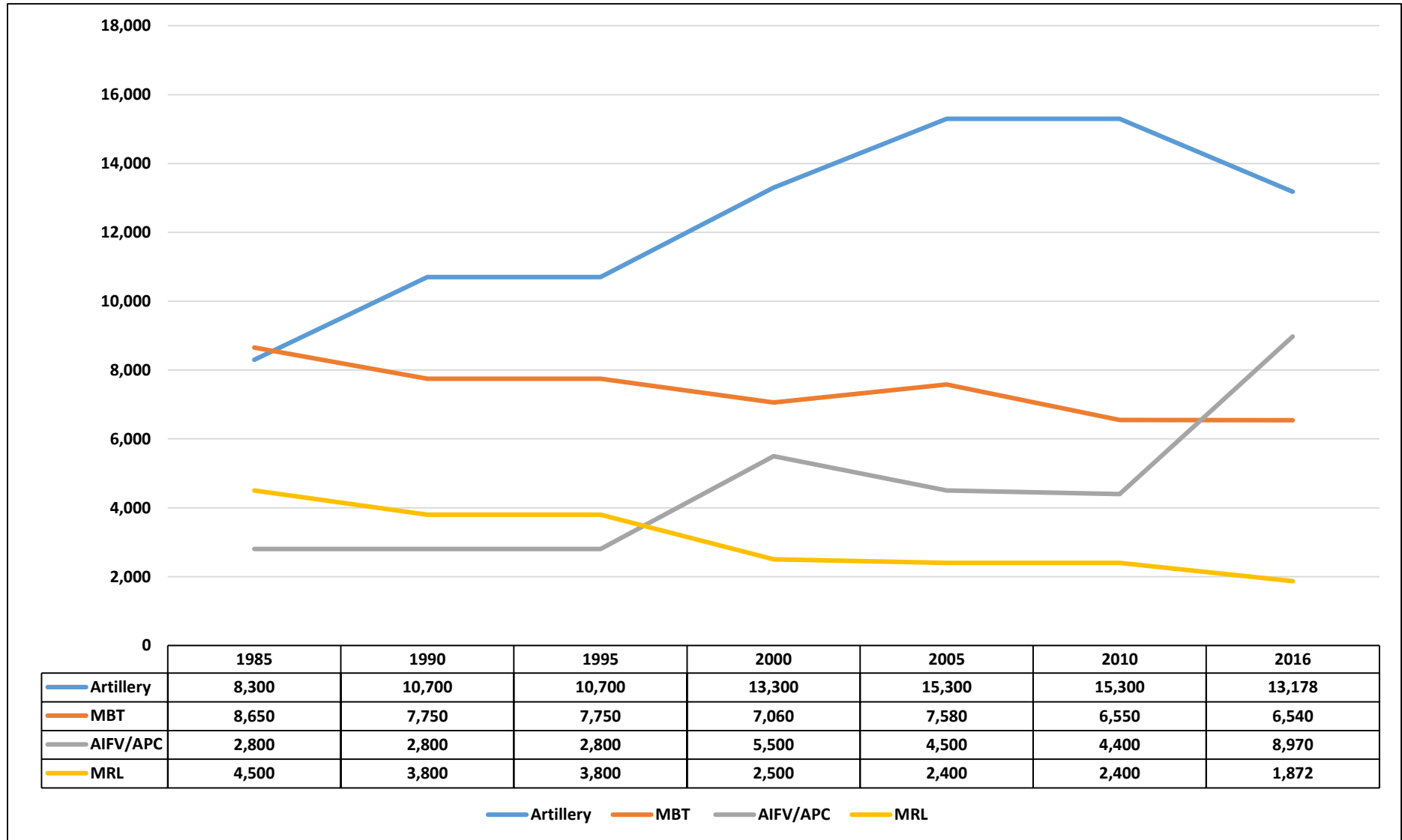
# China's Changing Military Personnel: 1990-2019



Category	Total	Strategic Missile	% of Total	Army	% of Total	Navy	% of Total	Air Force	% of Total	Paramilitary
1980	4,450,000	ND	ND	3,600,000	(80.9%)	360,000	(8.1%)	490,000	(11.0%)	ND
1990	3,030,000	90,000	(3.0%)	2,300,000	(75.9%)	260,000	(8.6%)	470,000	(15.5%)	12,000,000
2000	2,470,000	100,000	(4.0%)	1,700,000	(68.8%)	220,000	(8.9%)	420,000	(17.0%)	1,000,000
2010	2,285,000	100,000	(4.4%)	1,600,000	(70.0%)	255,000	(11.2%)	333,000	(14.6%)	660,000
2019	2,035,000	120,000	(5.9%)	975,000	(47.9%)	250,000	(12.3%)	395,000	(19.4%)	660,000

Source: World Bank, <https://data.worldbank.org/indicator/MS.MIL.TOTL.P1?end=2017&locations=CN&start=1985&view=chart>, and IISS, Military Balance.

# China's Changing Army: 1985-2016



# China's Mechanization Progress

...By 2020, the PLA is meant to have met the goals of achieving basic mechanization ... and making significant progress towards informationization ... This timeline was publicly laid out in the 2008 Defence White Paper, and was recently reiterated in Xi's speech at the 19th Party Congress in 2017.

...The PLA Army proper (i.e. the ground forces) remains the most likely point of failure for the 2020 objectives. Although the most recent reorganisation has reduced the army's overall size below 1,000,000 personnel, it still retains roughly twice as many active duty personnel as the US Army. Equipping such a force exclusively with modern equipment is an enormous undertaking. It is an even greater challenge given that the navy, air force and rocket forces are receiving priority over the army for their own ambitious programs.

While the army has ambitions to standardize its equipment across its newly restructured combined arms brigades, with heavy, medium and light roles redolent of the US brigade combat team structure, for now a significant number of formations are still dependent on legacy platforms and systems. This 'partial mechanization' of the army has long been seen as a major complicating factor in the PLA's pursuit of effective informationization.

- Of the 5,800 main battle tanks listed in service in the IISS Military Balance+ database, only about 60% could be classified as modern; around 2,000 are still based on the obsolescent ZTZ-59 (a licence-built version of the Soviet T-54).
- The Type-15 (ZTQ-15) light tank referenced by the white paper has indeed now entered service, but only with one, or maybe two, brigades so far.
- For other armoured vehicles, the picture is worse: of the approximately 50 heavy and medium combined arms brigades in the PLA (excluding amphibious formations), only around 20 are currently equipped with the latest tracked (ZBD-04/-04A) or wheeled (ZBL-08) infantry fighting vehicles.

In short, completely replacing the PLA Army's legacy platform inventory – presumably a key component of true mechanisation – would require the addition of thousands of new armored vehicles and artillery pieces over the next two years. This is highly unlikely to occur, even if army modernisation was to receive a higher prioritization than it has had in the past.

A more realistic outcome might be to expect at least 50% of all PLA Army armoured vehicles, artillery and air-defense systems to be modern by 2020.

## Ground Forces in End-2016

Taiwan Strait Military Balance, Ground Forces			
	China		Taiwan
	Total	Taiwan Strait Area	Total
<b>Personnel (Active in Combat Units)</b>	850,000	190,000	130,000
<b>Group Armies/Army Corps</b>	18	6	3
<i>Infantry Divisions</i>	12	3	0
<i>Infantry Brigades</i>	23	6	7
<i>Mechanized Infantry Divisions</i>	7	1	0
<i>Mechanized Infantry Brigades</i>	25	6	3
<i>Armor Divisions</i>	1	0	0
<i>Armor Brigades</i>	17	6	4
<i>Army Aviation Brigades and Regiments</i>	11	5	3
<i>Artillery Brigades</i>	22	8	5
<b>Airborne Corps</b>	1	1	0
<b>Amphibious Divisions</b>	2	2	0
<b>Amphibious Brigades</b>	3	3	2
<b>Tanks</b>	7,000	2,000	1,100
<b>Artillery Pieces</b>	8,000	2,600	1,600
<p><b>Note:</b> The 2016 chart focuses on PLA combat units and applies a changed methodology, resulting in significantly lower personnel numbers than shown in previous reports. This does not reflect a sudden drop in capability. This presentation is likely to change further as the PLA carries out its announced demobilization of 300,000 troops by 2017. This chart also changes how it presents amphibious units, which in the PLA are in both the PLAA and PLAN Marine Corps. The "Taiwan Strait Area" includes select national-level assets and units in the PLA's Eastern and Southern Theaters. The numbers of personnel and systems are approximate.</p>			



# China's Army Modernization in 2017

Theater commands appear to have assumed more operational control from the services, and probably commanded the PLA's responses to North Korea, India, and activities in the South China Sea.

After unveiling the PLA's newly established CMC Joint Operations Command Center (JOCC) in 2016, the PLA established theater JOCCs. Like the CMC JOCC, each theater JOCC is probably staffed by the Army, Navy, Air Force, and Rocket Force and equipped with a joint command system.

In April 2017, the PLA began restructuring its corps-level and below units, renaming and restructuring many units across the PLA.

Most notably, the PLAA's 18 group armies were reorganized into 13 renamed group armies, dissolving 5 group armies and transitioning most of the units subordinate to the group armies into brigades.

The PLAAF is also converting its fighter and ground attack divisions into brigades subordinate to air bases, and the PLAN is creating brigade-level frigate flotillas. The PLA probably expects that a more consistent brigade structure across the force will improve joint combat capabilities.

*Demobilizing Personnel.* In 2017, the PLA largely completed cuts to reduce its force by 300,000 personnel. These cuts probably focused on non-combat personnel, such as those in arts and culture, administrative duties, or academic work, rather than the demobilization of combat personnel from dissolved group armies.

China's official media also reported the cuts are rebalancing the proportion of forces among the services, increasing the relative size of the PLAN and PLAAF and reducing PLAA personnel to less than half of the PLA. The number of active-duty personnel in non-combat units was likely cut in half, and almost one-third of officers were also cut.

The PLA continues to build towards an expeditionary capability by increasing the number of army aviation and marine units.

These changes will require significant revisions to PLA doctrine in the coming years to meet the PLA's modernization goals for 2020.

The PLA trained to execute large-scale, complex joint operations by increasing realism and including dedicated opposition force training, maneuver, and mobility.

...Theater command exercises focused on multi-service command and control, while exercises tested brigade-level capabilities and readiness. The PLAA continued its two major \ exercise series in 2017 and introduced new, force multiplying systems that improve combat power.

The PLAA also continued to modernize in 2017, emphasizing systems that act as force multipliers and improve combat power. The year saw increases and improvements in air defense, artillery, sustainment support, engineers, and chemical defense systems at all echelon levels.

This selective modernization enables the shift to the brigade and battalion as the main operational echelons by giving their commanders critical organic force protection, firepower strike, reconnaissance, and sustainment capabilities.



# Select Army Systems Entering Service and Under Development

Equipment	Mission Area	Estimated Service Entry	Implications
Z-20 medium-lift helicopter	Transport	2018–2019	The Z-20 will provide the PLA Army and PLA Navy aviation added flexibility in conducting missions at a greater range, and will increase the PLA's expeditionary capabilities.
ZTQ-15 light battle tank	Homeland and border defense; amphibious warfare	2017	This tank is designed to operate in mountainous and high-altitude environments, which would help support PLA operations in China's western border region. <i>IHS Jane's</i> reported that an image appeared on the Chinese internet in July 2018 showing the tank painted in PLA Marine Corps camouflage, suggesting it could support amphibious operations.
Heavy-lift helicopter (joint China-Russia production)	Transport	2023	When this helicopter enters service, it will provide the PLA with a heavy-lift capability with a longer range and more lift capacity than current helicopters.

## Major Ground Units - 2018



Source: Office of the Secretary of Defense, *Military and Security Developments Involving the Republic of China*, Annual Report to Congress, May 16, 2018, Department of Defense. China Military Power 2018, p.27.

# Chinese Major Land Units in 2019

The PLA Army (PLAA) is the world's largest standing ground force, with approximately 915,000 active-duty personnel in combat units. 177 China's military reforms since 2015 have included creating a separate PLAA headquarters for the first time in the PLA's history.

In April 2017, the PLA announced the reduction of 5 of the PLAA's 18 group armies (corps-sized units), and the restructuring to a corps-brigade-battalion force structure. This new design implemented more mobile, modular units and integrated maneuver elements into combined-arms brigades. The PLAA is also modernizing C4I systems to enhance its forces' interoperability.

Source: DIA, *China Military Power: Modernizing a Force to Fight and Win*, 2019, DIA-02-1706-085, 2019, p. 56



# China's Changing Naval Power

# **China Developing Naval Forces: 2015 Defense White Paper**

**In line with the strategic requirement of offshore waters defense and open seas protection, the PLA Navy (PLAN) will gradually shift its focus from “offshore waters defense” to the combination of “offshore waters defense” with “open seas protection,” and build a combined, multi-functional and efficient marine combat force structure.**

**The PLAN will enhance its capabilities for strategic deterrence and counterattack, maritime maneuvers, joint operations at sea, comprehensive defense and comprehensive support.**

# Chinese 2019 Defense White Paper: PLAN (PLA Navy)

...The PLA Navy (PLAN) has extended training to the far seas and deployed the aircraft carrier task group for its first far seas combat exercise in the West Pacific. It has organized naval parades in the South China Sea and the waters and airspace near Qingdao, and conducted a series of live force-on-force exercises codenamed *Mobility* and systematic all-elements exercises.

...When the security situation in Yemen deteriorated in March 2015, a PLAN escort task group sailed to the Gulf of Aden, berthed for the first time directly in an engagement area, and evacuated 621 Chinese citizens and 279 foreign citizens from 15 countries including Pakistan, Ethiopia, Singapore, Italy, Poland, Germany, Canada, the UK, India and Japan.

...The PLA has significantly downsized the active force of the PLAA, maintained that of the PLAAF at a steady number, moderately increased that of the PLAN and PLARF, and optimized the force structures of all services and arms.

The PLAN has a very important standing in the overall configuration of China's national security and development. It comprises submarine, surface ship, aviation, marine, and coastal defense forces. Under the PLAN, there are the ETC Navy (Donghai Fleet), the STC Navy (Nanhai Fleet), the NTC Navy (Beihai Fleet), and the PLAN Marine Corps. Under the TC navies there are naval bases, submarine flotillas, surface ship flotillas and aviation brigades. In line with the strategic requirements of near seas defense and far seas protection, the PLAN is speeding up the transition of its tasks from defense on the near seas to protection missions on the far seas, and improving its capabilities for strategic deterrence and counterattack, maritime maneuver operations, maritime joint operations, comprehensive defense, and integrated support, so as to build a strong and modernized naval force.

In line with relevant UNSC resolutions, since December 2008, the Chinese government has dispatched naval ships to carry out regular vessel protection operations in the Gulf of Aden and the waters off the coast of Somalia. Chinese PLAN task groups cooperate with multiple naval forces in the area to safeguard international SLOCs. In the past decade, over 100 vessels and 26,000 officers and sailors have been regularly deployed in 31 convoys, each consisting of three to four ships, in vessel protection operations. They have provided security protection for over 6,600 Chinese and foreign ships, and rescued, protected or assisted over 70 ships in distress.



# Chinese Naval Build-Up - I

(Figures include both less-capable older units and more-capable newer units)

Year of DOD report	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2019 change from 2005
Ballistic missile submarines	1	1	1	1	2	2	2	2	3	3	4	4	4	4	4	+3
Nuclear-powered attack submarines	6	5	5	5	6	6	5	5	5	5	5	5	5	5	6	0
Diesel attack submarines	51	50	53	54	54	54	49	48	49	51	53	57	54	47	50	-1
Aircraft carriers	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	+1
Destroyers	21	25	25	29	27	25	26	26	23	24	21	23	31	28	33	+12
Frigates	43	45	47	45	48	49	53	53	52	49	52	52	56	51	54	+11
Corvettes	0	0	0	0	0	0	0	0	0	8	15	23	23	28	42	+42
Missile-armed coastal patrol craft	51	45	41	45	70	85	86	86	85	85	86	86	88	86	86	+35
Amphibious ships: LSTs and LPDs	20	25	25	26	27	27	27	28	29	29	29	30	34	33	37	+17
Amphibious ships: LSMs	23	25	25	28	28	28	28	23	26	28	28	22	21	23	22	-1
<b>Total of types above (does not include other types, such as auxiliary and support ships)</b>	<b>216</b>	<b>221</b>	<b>222</b>	<b>233</b>	<b>262</b>	<b>276</b>	<b>276</b>	<b>271</b>	<b>273</b>	<b>283</b>	<b>294</b>	<b>303</b>	<b>317</b>	<b>306</b>	<b>335</b>	<b>+119</b>
<i>China Coast Guard ships</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>185</i>	<i>240</i>	<i>248</i>	<i>n/a</i>
Total U.S. Navy battle force ships (which includes auxiliary and support ships but excludes patrol craft)	291	282	281	279	282	285	288	284	287	285	289	271	275	279	286	-5
U.S. Navy figure compared to above total for certain Chinese ship types	+75	+61	+59	+46	+20	+9	+12	+13	+14	+2	-5	-32	-42	-27	-49	-124

**Source:** Table prepared by CRS based on 2005-2019 editions of annual DOD report to Congress on military and security developments involving China (known for 2009 and prior editions as the report on China military power), and (for U.S. Navy ships) U.S. Navy data as presented in CRS Report RL32665, *Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress*, by Ronald O'Rourke.

**Notes:** n/a means data not available in report. **LST** means tank landing ship; **LPD** means transport dock ship; **LSM** means medium landing ship. The DOD report generally covers events of the prior calendar year. Thus, the 2019 edition covers events during 2018, and so on for earlier years. Similarly, for the U.S. Navy figures, the 2019 column shows the figure for the end of FY2018, and so on for earlier years.

# Chinese Naval Build-Up - II

(Numbers of PLA Navy Ships Presented in Annual DOD Reports to Congress)

(Figures include both older and less capable units—including some of questionable operational status—and newer and more capable units)

Year of DOD report	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Ballistic missile submarines	1	1	1	n/a	1	1	1	1	2	2	2	2	3	3	4	4	4
Nuclear-powered attack submarines	5	5	~60	n/a	6	5	5	5	6	6	5	5	5	5	5	5	5
Diesel attack submarines	~60	~ 50		n/a	51	50	53	54	54	54	49	48	49	51	53	57	54
Aircraft carriers	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
Destroyers	~20	~ 60	> 60	n/a	21	25	25	29	27	25	26	26	23	24	21	23	31
Frigates	~40			n/a	43	45	47	45	48	49	53	53	52	49	52	52	56
Corvettes	0	0	0	0	0	0	0	0	0	0	0	0	0	8	15	23	23
Missile-armed coastal patrol craft	n/a	~ 50	~ 50	n/a	51	45	41	45	70	85	86	86	85	85	86	86	88
Amphibious ships: LSTs and LPDs	almost 50	~ 40	> 40	n/a	20	25	25	26	27	27	27	28	29	29	29	30	34
Amphibious ships: LSMs				n/a	23	25	25	28	28	28	28	23	26	28	28	22	21

Source: Table prepared by CRS based on 2000-2016 editions of annual DOD report to Congress on military and security developments involving China (known for 2009 and prior editions as the report on China military power).

Notes: n/a means data not available in report. LST means tank landing ship; LPD means transport dock ship; LSM means medium landing ship. The DOD report generally covers events of the prior calendar year. Thus, the 2016 edition of the report covers events during 2015.

# Chinese Naval Build-Up – III

(Numbers of PLA Navy Ships and  
Aircraft Provided by ONI in 2009)

(Figures include both older and less capable units—including some of questionable operational status—  
and newer and more capable units)

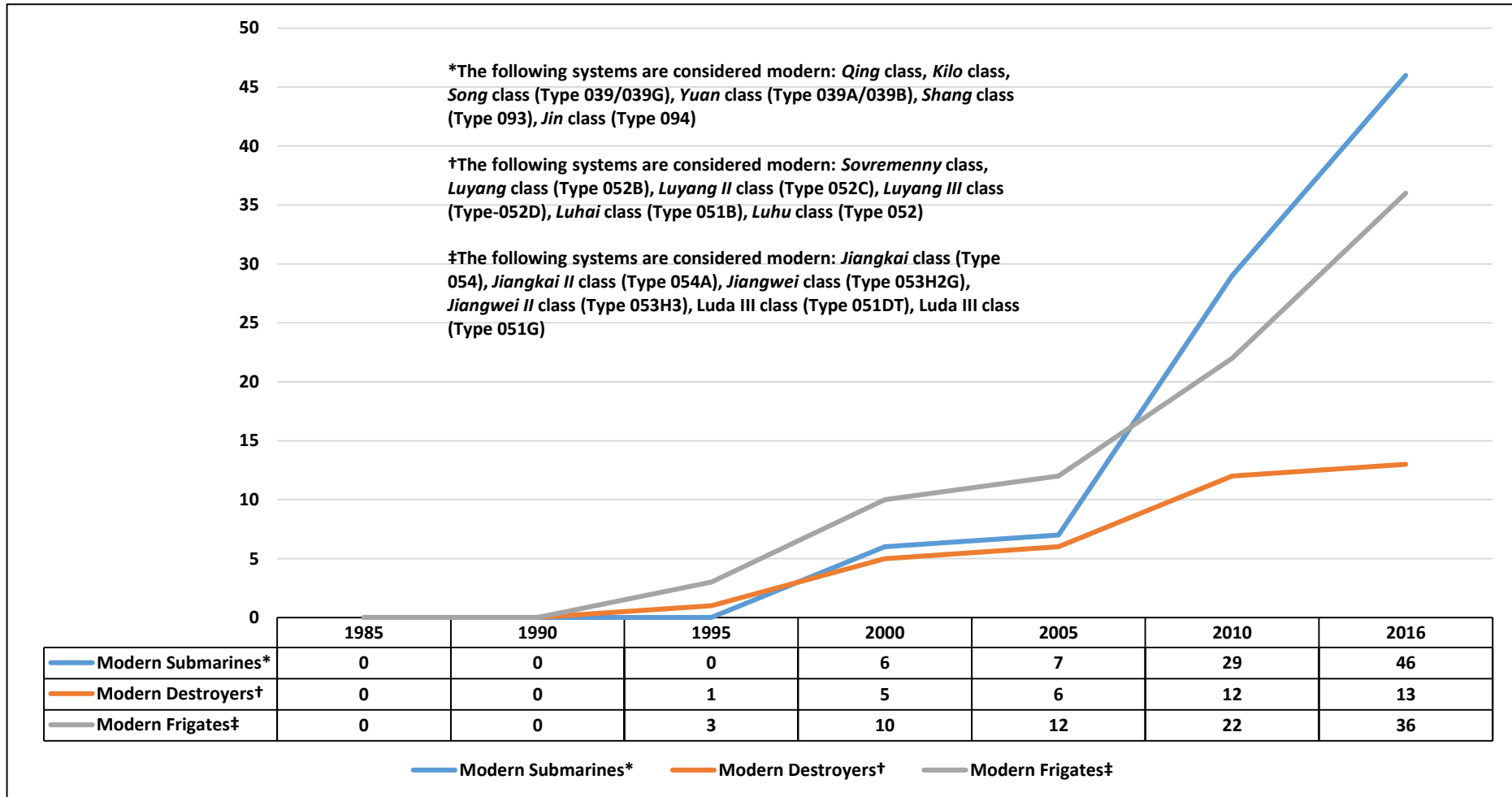
	1990	1995	2000	2005	2009	Projection for 2015	Projection for 2020
<i><b>Ships</b></i>							
Ballistic missile submarines	1	1	1	2	3	4 or 5?	4 or 5?
Attack submarines (SSNs and SSs)	80	82	65	58	59	~70	~72
SSNs	5	5	5	6	6	n/a	n/a
SSs	75	77	60	52	53	n/a	n/a
Aircraft carriers	0	0	0	0	0	1?	2?
Destroyers	14	18	21	25	26	~26	~26
Frigates	35	35	37	42	48	~45	~42
<i>Subtotal above ships</i>	<i>130</i>	<i>136</i>	<i>124</i>	<i>127</i>	<i>136</i>	<i>~146 or ~147?</i>	<i>~146 or ~147?</i>
Missile-armed attack craft	200	165	100	75	80+	n/a	n/a
Amphibious ships	65	70	60	56	58	n/a	n/a
Large ships (LPDs/LHDs)	0	0	0	0	1	~6?	~6?
Smaller ships	65	70	60	56	57	n/a	n/a
Mine warfare ships	n/a	n/a	n/a	n/a	40	n/a	n/a
Major auxiliary ships	n/a	n/a	n/a	n/a	50	n/a	n/a
Minor auxiliary ships and support craft	n/a	n/a	n/a	n/a	250+	n/a	n/a
<i><b>Aircraft</b></i>							
Land-based maritime strike aircraft	n/a	n/a	n/a	n/a	~145	~255	~258
Carrier-based fighters	0	0	0	0	0	~60	~90
Helicopters	n/a	n/a	n/a	n/a	~34	~153	~157
<i>Subtotal above aircraft</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>~179</i>	<i>~468</i>	<i>~505</i>

Source: Prepared by CRS. Source for 2009, 2015, and 2020: 2009 ONI report, page 18 (text and table), page 21 (text), and (for figures not available on pages 18 or 21), page 45 (CRS estimates based on visual inspection of ONI graph entitled “Estimated PLA[N] Force Levels”). Source for 1990, 1995, 2000, and 2005: Navy data provided to CRS by Navy Office of Legislative Affairs, July 9, 2010.

Notes: n/a is not available. The use of question marks for the projected figures for ballistic missile submarines, aircraft, carriers, and major amphibious ships (LPDs and LHDs) for 2015 and 2020 reflects the difficulty of resolving these numbers visually from the graph on page 45 of the ONI report. The graph shows more major amphibious ships than ballistic missile submarines, and more ballistic missile submarines than aircraft carriers. Figures in this table for aircraft carriers include the *Liaoning*. The ONI report states on page 19 that China “will

Source: Ronald O'Rourke, China Naval  
Modernization: Implications for U.S. Navy  
Capabilities—Background and Issues for  
Congress, CRS RL33153, August 1, 2018, p.71.

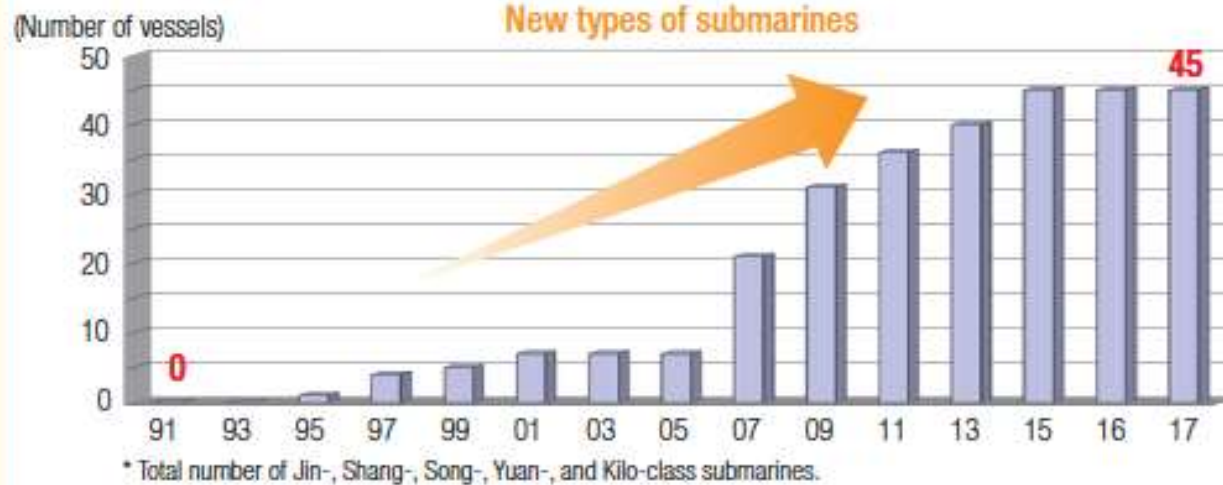
# China's Naval Modernization: Increase in Modern Major Combat Ships: 1985-2016



Source: Source: IISS, *Military Balance* 1985-2016. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies

# Japanese Estimate of Chinese Naval Modernization

## Naval Force



Jin-class SSBN



Yuan-class submarine

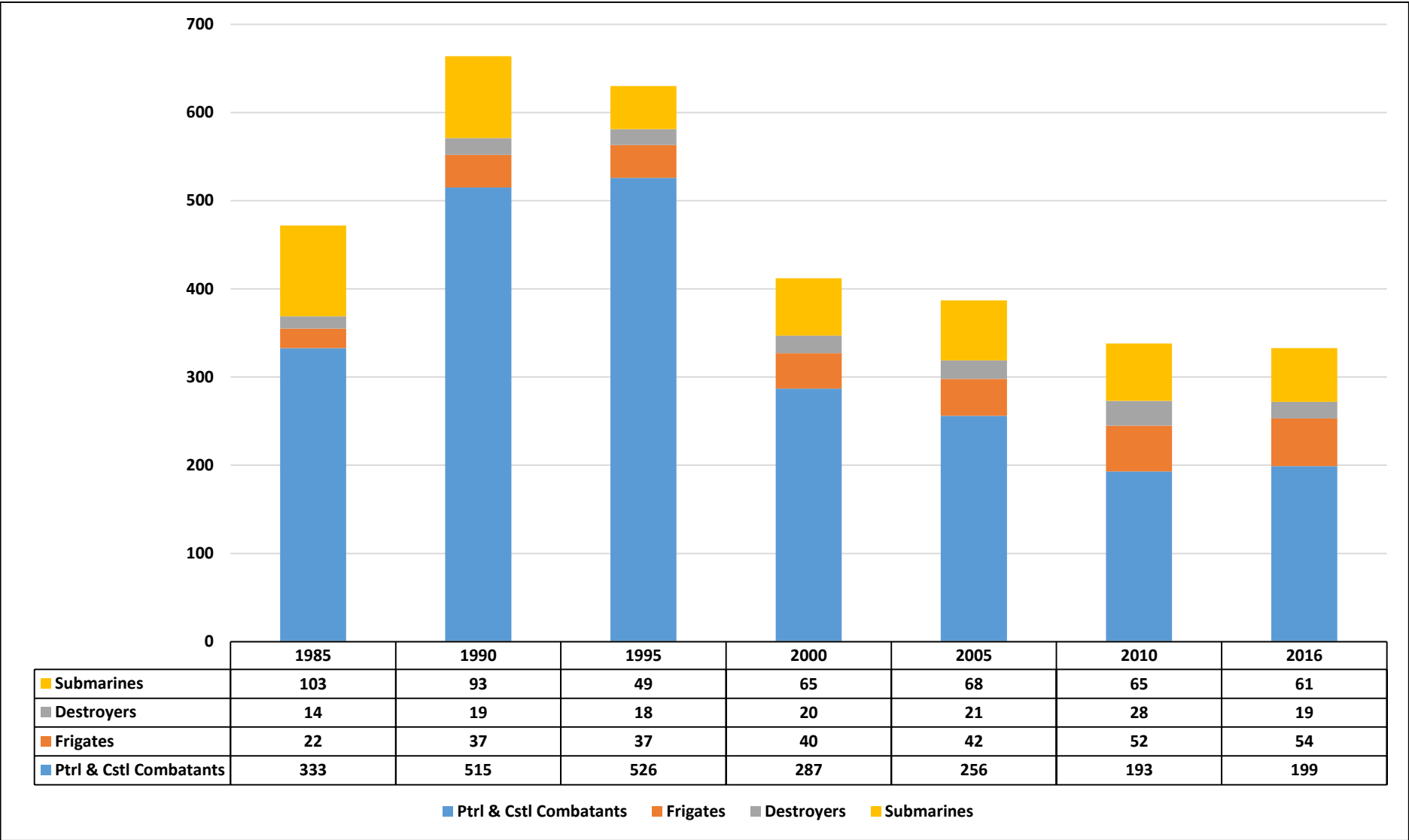


Luyang III-class destroyer



Jiangkai II-class frigate  
[Jane's by IHS Markit]

# China's Naval Modernization: Quality versus Quantity



Source: IISS, *Military Balance* 1985-2016. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies.



# Naval Forces in End-2016

Taiwan Strait Military Balance, Naval Forces			
	China		Taiwan
	Total	Eastern and Southern Theater Navies	Total
<i>Aircraft Carriers</i>	1	0	0
<i>Destroyers</i>	31	24	4
<i>Frigates</i>	56	42	22
<i>Corvettes</i>	23	14	1
<i>Tank Landing Ships/ Amphibious Transport Dock</i>	34	32	12
<i>Medium Landing Ships</i>	21	15	4
<i>Diesel Attack Submarines</i>	54	34	4
<i>Nuclear Attack Submarines</i>	5	2	0
<i>Ballistic Missile Submarines</i>	4	4	0
<i>Coastal Patrol (Missile)</i>	88	70	45
<i>Coast Guard Ships</i>	185	N / A	25
<b>Note:</b> The PLAN has the largest force of principal combatants, submarines, and amphibious warfare ships in Asia. In the event of a major Taiwan conflict, the Eastern and Southern Theater Navies would participate in direct action against the Taiwan Navy. The Northern Theater Navy (not shown) would be responsible primarily for protecting the sea approaches to China, but could provide mission-critical assets to support other fleets. In conflict, China may also employ CCG ships to support military operations.			

# Major Naval Units -2018



Source: Office of the Secretary of Defense, *Military and Security Developments Involving the Republic of China, Annual Report to Congress*, May 16, 2018, Department of Defense. China Military Power 2018, p.32.

# Chinese Major Naval Units in 2019

The PLA Navy (PLAN) is Asia's largest navy, with an inventory of more than 300 surface combatants, submarines, amphibious ships, patrol craft, and specialized units. The PLAN is rapidly replacing obsolescent, generally single-purpose ships in favor of larger, multirole combatants with advanced antiship, anti-air, and antisubmarine weapons and sensors. This modernization aligns with China's growing emphasis on the maritime domain, with increasing demands on the PLAN to conduct operational tasks at increasing distances from the Chinese mainland using multimission, long-range, sustainable naval platforms with robust self-defense.

By 1987, PLAN Commander Adm Liu Huaqing had established a strategy referred to as "offshore defense." ...Although Liu characterized offshore areas as east of Taiwan and the northern part of the Pacific Ocean, stretching beyond the first island chain, offshore defense was often associated with operations in the Yellow Sea, East China Sea, and South China Sea—China's "near seas." Development of offshore defense paralleled the CMC's adoption of a new military strategy that focused on local wars on China's periphery rather than a major confrontation with the Soviet Union, and it focused on achieving regional goals and deterring a modern adversary from intervening in a regional conflict.

Source: DIA, *China Military Power: Modernizing a Force to Fight and Win*, 2019, DIA-02-1706-085, 2019, p. 63.



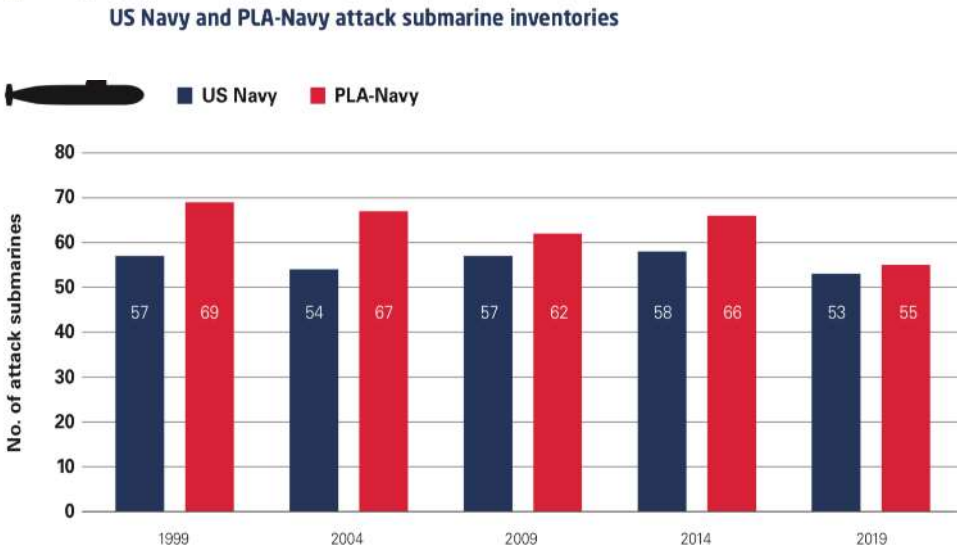
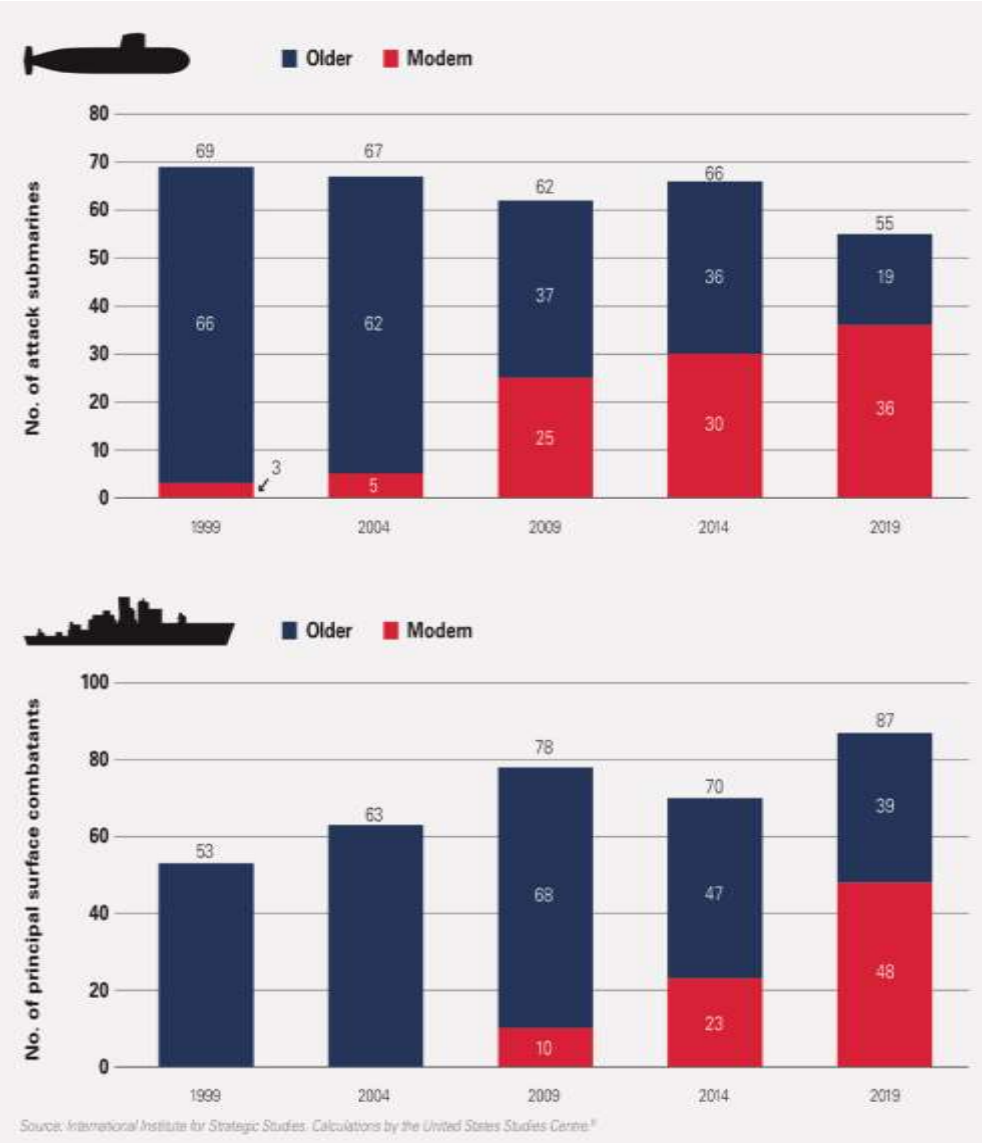


# Select Advanced PLN Naval Systems Entering Service and under Development

Equipment	Mission Area	Estimated Service Entry	Implications
Type 055 REN-HAI-class cruiser	Anti-Air Warfare (AAW); Anti-Surface Warfare (ASUW); Anti-Submarine Warfare (ASW)	2018–2019	China has produced four Type 055 cruisers that are undergoing sea trials. The cruisers reportedly will be equipped with phased-array radars and a multipurpose vertical launch system for surface-to-air antiship cruise missiles and anti-submarine missiles. They will increase China's anti-surface, force projection, and expeditionary capabilities.
CV-17, Type 001A aircraft carrier	AAW; ASW	2019–2020	Slightly larger than its first aircraft carrier, <i>Liaoning</i> , and expected to accommodate up to eight more aircraft than <i>Liaoning</i> 's 36, CV-17 will boost China's ability to project force.
Railgun mounted on Type 072 III-class tank landing ship	ASUW	Unknown	In January 2018, images appeared on Chinese social media appearing to show a prototype electromagnetic railgun mounted on a Type 072 tank landing ship. When a railgun is in service on Chinese ships, it will increase the PLA's anti-surface warfare capabilities with the ability to fire projectiles at high speeds and low costs compared to missiles.

Equipment	Mission Area	Estimated Service Entry	Implications
J-31 (FC-31) fifth-generation stealth fighter	Air Superiority	2022	The J-31 (and its export variant, the FC-31) will be equipped with modern systems and stealth features that could rival the U.S. F-35 fighter and challenge U.S. aircraft in the Western Pacific. Some Chinese commentators have speculated that China could use the fighters for carrier operations.
Type 075 landing helicopter dock	Transport; Amphibious Assault; Humanitarian Assistance and Disaster Relief (HA/DR)	2020	The Type 075 will reportedly be larger than China's YUZHAO-class amphibious transport dock and have a greater capacity to carry helicopters, providing the PLA increased expeditionary capability.
Heavy-lift helicopter (joint China-Russia production)	Transport; HA/DR; ASW	2023	When this helicopter enters service, it will provide the PLA with a heavy-lift capability with a longer range and more lift capacity than current helicopters. For the PLA Navy, it could eventually operate from the Type 075 helicopter landing dock, Type 055 destroyer, and aircraft carriers.
AG-600 seaplane	Transport; HA/DR; Search and Rescue; ASW; Maritime Surveillance	2022	With a reported maximum payload of 60 tons, the AG-600 is the world's largest seaplane. It will increase China's ability to resupply the land features it controls in the South China Sea and boost its ability to conduct military operations other than war.

# University of Sydney Estimate of Key Elements of Chinese Military Modernization



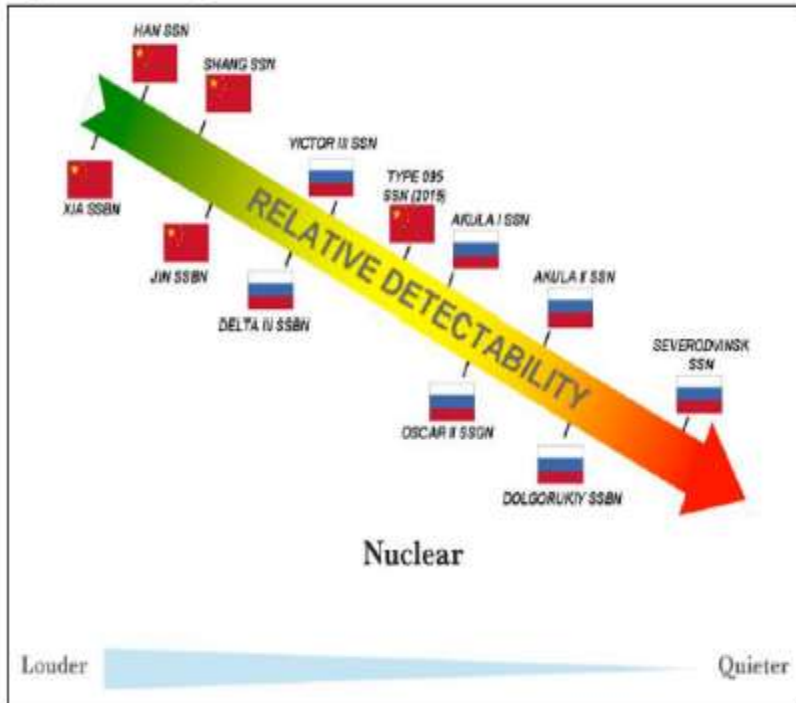
Source: International Institute for Strategic Studies. Calculations by the United States Studies Centre.<sup>52</sup>

Source: Ashley Townshend and Brendan Thomas-Noone and Matilda Steward with Matilda Steward, *Averting Crisis: American Strategy*, United States Studies Centre, University of Sydney, August 2019, p. 14, 52

# Chinese and Russian Submarine Silencing

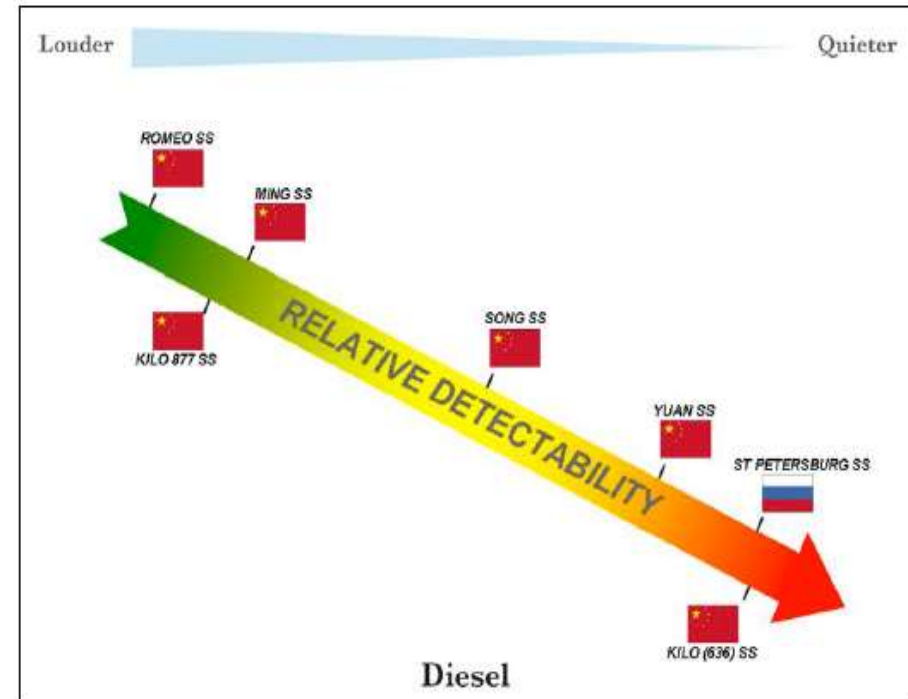
(Numbers of PLA Navy Ships and Aircraft Provided by ONI in 2009)

Figure 3. Acoustic Quietness of Chinese and Russian Nuclear-Powered Submarines



Source: 2009 ONI Report, p. 22.

(Non-nuclear-powered submarines are commonly referred to as diesel or diesel-electric submarines)

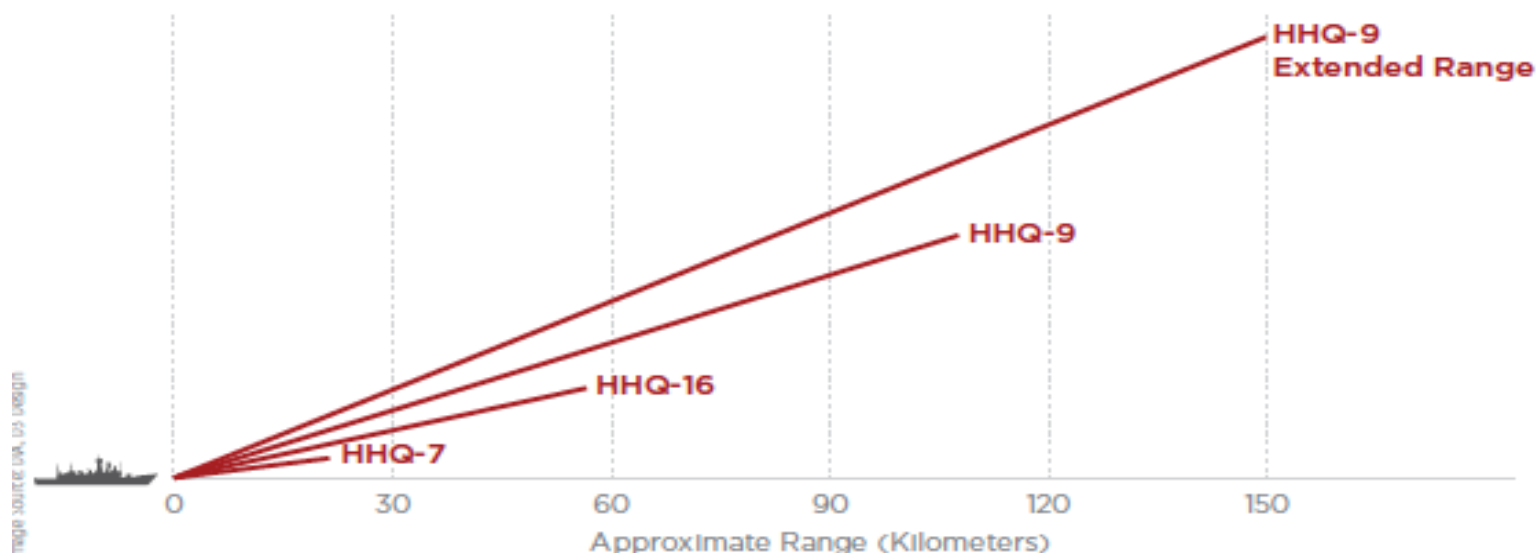


Source: 2009 ONI Report, p. 22.



# Chinese Naval Emphasis on Air Defense

## *The PLA Navy: Naval SAM Ranges*



Shipboard air defense and antisurface warfare capabilities are arguably the most notable areas of improvement on PLAN surface ships. China has retired several older destroyers and frigates that had at most a point air defense capability and a range of just several nautical miles. Newer ships entering the force are equipped with medium- to long-range area air defense missiles, including the Renhai, which has 112 vertical-launch cells for mixed munitions.

The PLAN received a total of six Luyang II (Type 052C) class guided-missile destroyers with the HHQ-9 SAM (55-NM range) and YJ-62 antiship cruise missiles (ASCMs) (150-NM range), and six Luyang III (Type 052D) class guided-missile destroyers are now operational, with several more under construction. The Luyang III carries an extended-range variant of the HHQ-9 SAM and YJ-18 ASCM (290-NM range). In addition, more than 25 Jiangkai II (Type 054A) class guided-missile frigates are now operational, with the vertically launched HHQ-16 (20- to 40-NM range), and more are under construction.

These newer ships use modern combat management systems and air surveillance sensors, such as the Sea Eagle and Dragon Eye phased-array radars. These new units allow the PLAN surface force to operate outside shore-based air defense systems because one or two ships are equipped to provide air defense for the entire task group.



Length	304.5 meters (999.0 ft)
Beam	70 meters (229.7 ft)
Draft	10.5 meters (34.4 ft)
Flight deck length	304.5 meters (999.0 ft)
Flight deck width	70 meters (229.7 ft)
Flight deck angle	7 degrees
Aircraft launch mechanism	Ski jump
Ski jump angle	14 degrees
Top speed	30 kn (55.6 km/h) (34.5 mph)
Range	3,850 NM (7,130.2 km) (4,430.5 miles) at 29 kn (53.7 km/h) (33.4 mph) 8,500 NM (15,742.0 km) (9,781.6 miles) at 18 kn (33.3 km/h) (20.7 mph)
Crew	1,960
Machinery	8 boilers; 4 turbines; 200,000 shp; 4 shafts
Aircraft	Up to 24 J-15 fighters 6 Z-8 helicopters and 4 Ka-31 helicopters

## Chinese Development of Carriers

In September 2012, China commissioned the *Liaoning*, joining the small group of countries that have an aircraft carrier. Beijing acquired the Soviet ship, formerly the *Varyag*, from Ukraine in 2002. Since that time, the PLAN has followed the long and difficult path of learning to operate fixed-wing aircraft from a carrier. The first launches and recoveries of J-15 fighter aircraft occurred in November 2012, with additional testing and training in early July 2013. With the first landing complete, China became only the fifth country in the world to have conventional takeoff and landing fighters aboard an aircraft carrier.

China's first carrier air regiment will comprise the Shenyang J-15 Flying Shark. The J-15 is externally similar to the Russian Su-33 Flanker D but has many of the domestic avionics and armament capabilities of the Chinese J-11B Flanker. The J-15 has folding wings, strengthened landing gear, a tailhook under a shortened tail stinger, two-piece slotted flaps, canards, and a retractable inflight-refueling probe on the left side of the nose.

In 2017, China launched its first domestic aircraft carrier, which was a modified version of the *Liaoning* and is expected to enter into service by 2019. Like the *Liaoning*, the ship lacks catapult capabilities and has a smaller flight deck than U.S. carriers. The PLAN is expected to begin construction in 2018 on its first catapult-capable carrier, which will enable additional fighter aircraft, fixed-wing early warning aircraft, and more rapid flight operations.

Source: Office of the Secretary of Defense, Military and Security Developments Involving the Republic of China, Annual Report to Congress, May 16, 2018, Department of Defense. China Military Power 2018, p. 63.

## Carriers

vs.

## Islands?

## 001A Test

## Bed vs.

## Gerald R. Ford

Source: China, Global Times, 2018/5/13 8:35,, <http://www.globaltimes.cn/content/1101935.shtml>.



Expected to be:  
315 meters long, 75 meters wide

50,000 tonnes level

Expected to be:  
31 knots

Conventional power

Expected to have:  
32 to 36 J-15 fighter jets  
and a number of other planes

About 60 meters long



SIZE



DISPLACEMENT



SPEED



PROPELLER



AIRCRAFT



ISLAND

304 meters long, 70 meters wide

50,000 tonnes level

29 knots

Conventional power

Currently 24 J-15 fighter jets  
and 12 other planes

Over 70 meters long

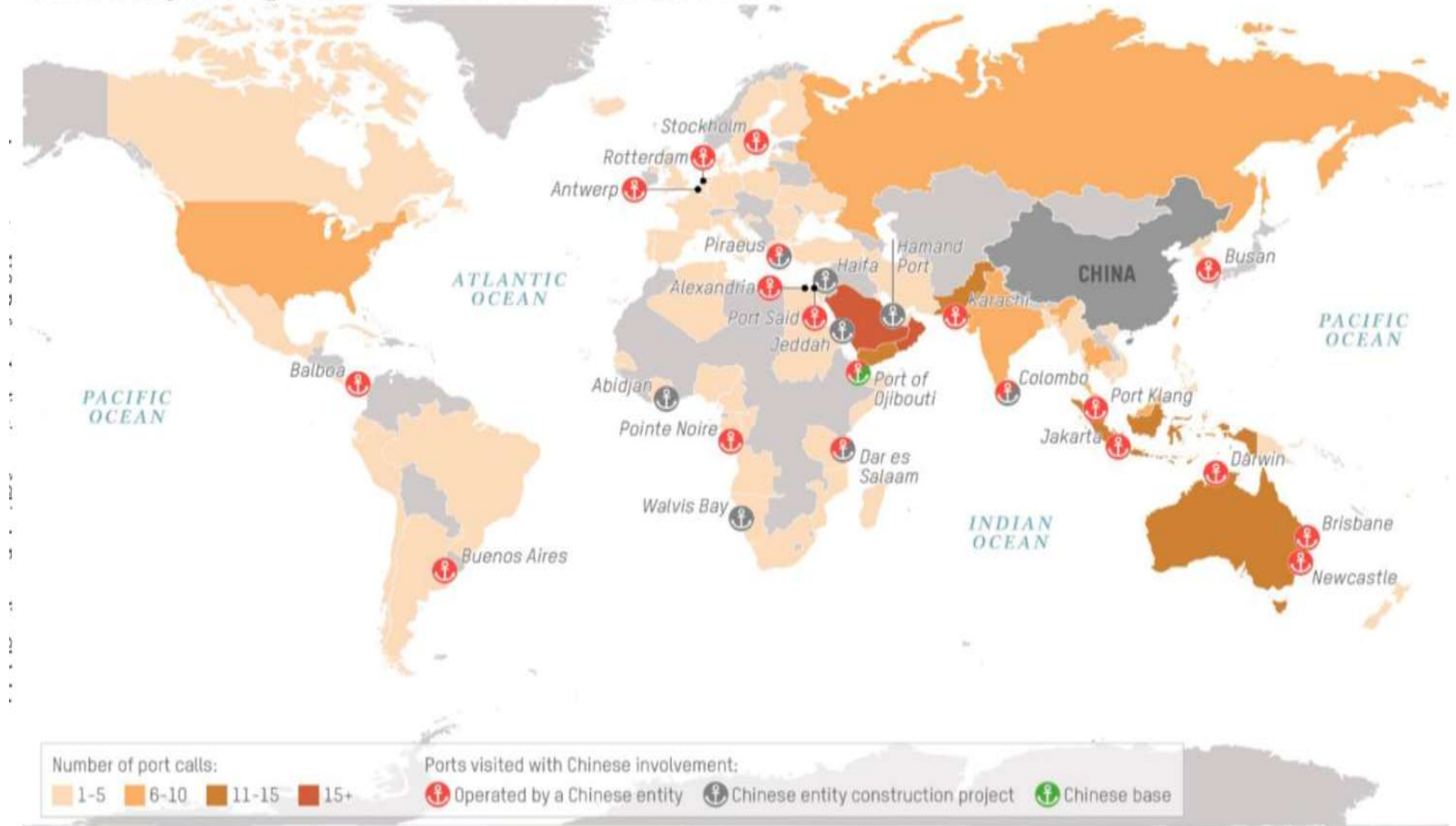
## Gerald R. Ford

- Nuclear Power (new nuclear reactor design (2 X [A1B reactor](#)) for greater power generation.)
- 337 meters long
- 100,000 tons
- 75 vs. 36 aircraft
- 40+ Knots
- Advanced [arresting gear](#).
- updated [RIM-162 Evolved Sea Sparrow](#) missile.
- [AN/SPY-3 X Band](#) multifunction radar and an AN/SPY-4 [S Band](#) volume search radar.
- [Electromagnetic Aircraft Launch System](#)
- [Stealth features](#) to reduce [radar cross-section](#).
- Ability to carry up to 90 aircraft + drones

# Trends in Naval Port Calls: 2008-2017

(In \$US Billions)

## China's Expanding Global Access: Port Calls 2008-2017



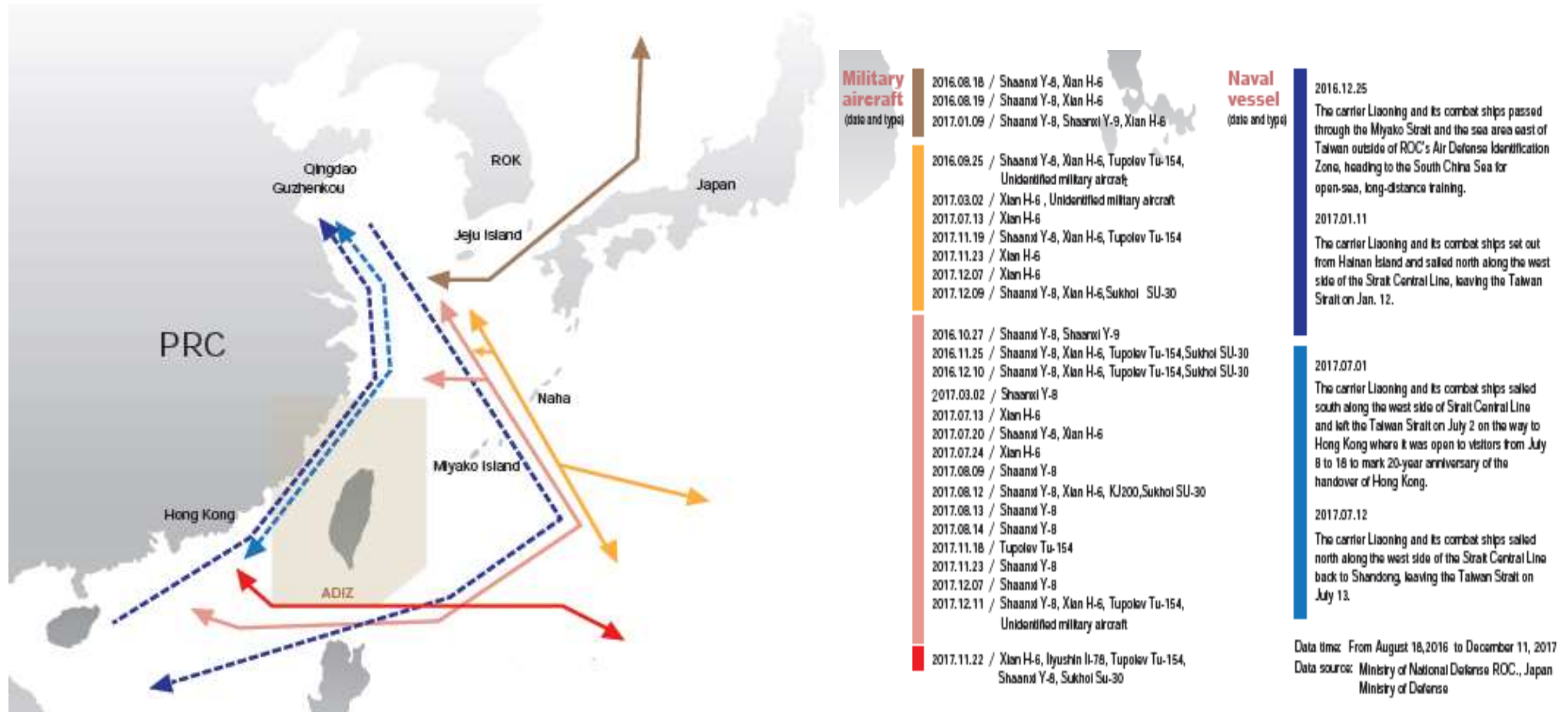


# Liaoning Carrier Deployments 2014-2017



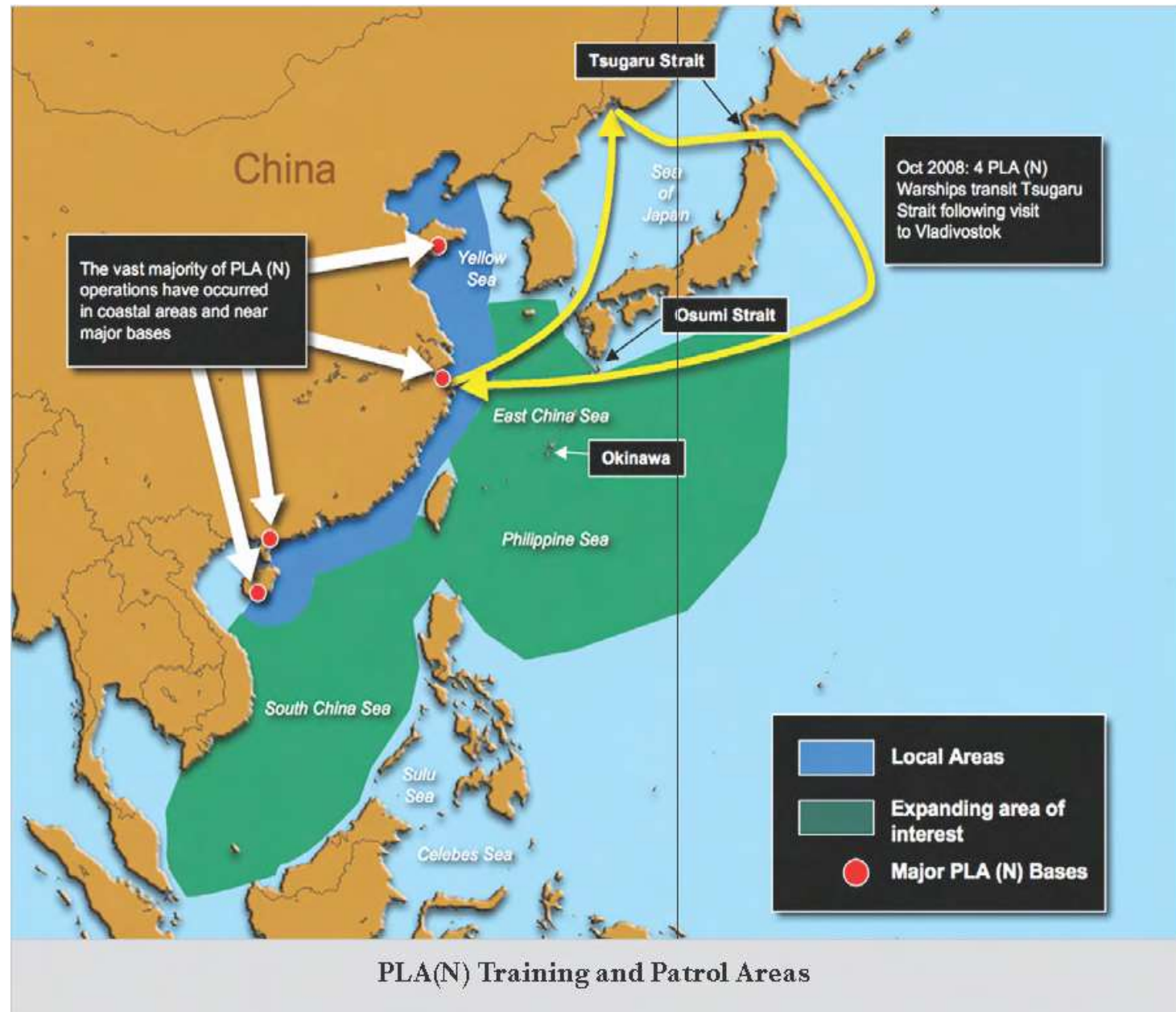
Source: Office of the Secretary of Defense, *Military and Security Developments Involving the Republic of China*, Annual Report to Congress, May 16, 2018, Department of Defense. China Military Power 2018, p.31.

# Taiwan Diagram of Chinese Cross Region Naval and Air Training Routes





# China's Naval Modernization: Expanding in PLAN Exercise Locations



Source: Office of Naval Intelligence, *People's Liberation Army Navy: A Modern Navy with Chinese Characteristics*, 38.

## China's Amphibious Capabilities

Source: Office of the Secretary of Defense, *Military and Security Developments Involving the Republic of China, Annual Report to Congress*, May 16, 2018, Department of Defense. China Military Power 2018, p. 103.

### KEY TAKEAWAYS

- ✓ The PLAA and PLANMC continue to equip, plan, and train for sustained amphibious operations.
- ✓ The PLAN did not make significant additions to its amphibious fleet in 2017 but launched a YUZHAO LPD that could enter service in 2018.

The PLA continues to make modest gains in amphibious warfare by developing additional capabilities to conduct amphibious landings and seize and defend small islands. The PLA has 12 units organized and equipped to conduct amphibious operations. Over the last five years, the PLAA and the PLANMC have fielded new equipment designed specifically for amphibious operations such as the ZBD-05 amphibious infantry fighting vehicle and the PLZ-07B amphibious self-propelled howitzer. Both PLAA and PLANMC units equipped for amphibious operations conduct regular company- to battalion-level amphibious training exercises. However, the PLA rarely conducts amphibious exercises involving echelons above a battalion, though both PLAA and PLANMC units have emphasized the development of combined arms battalion formations since 2012.

In 2017, the PLA reorganized amphibious infantry divisions of the former 1st Group Army and 42nd Group Army as well as the former 31st Group Army amphibious armor brigade, into a total of five amphibious combined arms brigades now under the new 72nd Group Army and 74th Group Army. Amphibious training throughout 2017 continued to focus upon the ability to conduct and sustain amphibious operations while incorporating real-time ISR, precision targeting for close air support assets, integrated command and control, and nighttime reconnaissance and attack training.

The PLANMC continues to make modest gains in its proficiency to conduct amphibious operations. Despite the tripling of the number of PLANMC brigades, there are no indications that any of the new units are conducting – or are even equipped to conduct – amphibious warfare training. In 2017, the PLANMC may have reduced some of its annual training due to restructuring from PLA reforms. At least one squad of operational PLAN marines from the South Sea Fleet conducted coral reef/small island seizure training in the Paracel Islands in March 2017.

The PLAN did not make significant additions to its amphibious fleet in 2017, but launched a YUZHAO LPD that could enter service in 2018.



# Civilian and Paramilitary Maritime Forces

## CHINA'S GROWING CIVILIAN AND PARAMILITARY MARITIME CAPABILITY

### KEY TAKEAWAYS

- ✓ The CCG is the world's largest; the PAFMM is the only government-sanctioned maritime militia in the world.
- ✓ The PAFMM has organizational ties to, and is sometimes directed by, China's armed forces, and is active in the South and East China Seas.
- ✓ PAFMM units enable low-intensity coercion activities to advance territorial and maritime claims, including a patrol with the PLAN and CCG in August 2017.

**China Coast Guard (CCG).** The CCG is responsible for a wide range of missions, including enforcement of China's sovereignty claims, surveillance, protection of fisheries, anti-smuggling, and general law enforcement. China primarily uses civilian maritime law enforcement agencies in maritime disputes, selectively using the PLAN to provide overwatch in case of escalation.

The CCG's rapid expansion and modernization has improved China's ability to enforce its maritime claims. Since 2010, the CCG's fleet of large patrol ships (more than 1,000 tons) has more than doubled from approximately 60 to more than 130 ships, making it by far the largest coast guard force in the world and increasing its capacity to conduct simultaneous, extended offshore operations in multiple disputed areas. Furthermore, the newer ships are substantially larger and more capable than the older ships, and the majority are equipped with helicopter facilities, high-capacity water cannons, and guns ranging from 30mm to 76mm. A number of these ships are capable of long-endurance out-of-area

In addition, the CCG operates more than 70 fast patrol combatants (more than 500 tons), which can be used for limited offshore operations, more than 400 coastal patrol craft, and approximately 1000 inshore and riverine patrol boats. The CCG is likely to add another 25-30 patrol ships and patrol combatants by the end of the decade before the construction program levels off.

**People's Armed Forces Maritime Militia (PAFMM).** The PAFMM is a subset of China's national militia, an armed reserve force of civilians available for mobilization. The PAFMM is the only government-sanctioned maritime militia in the world. Militia units organize around towns, villages, urban sub-districts, and enterprises, and vary widely in composition and mission. In the South China Sea, the PAFMM plays a major role in coercive activities to achieve China's political goals without fighting, part of broader PRC military doctrine stating confrontational operations short of war can be an effective means of accomplishing political objectives. The militia has played significant roles in a number of military campaigns and coercive incidents over the years, including the 2009 harassment of the USNS IMPECCABLE conducting normal operations, the 2012 Scarborough Reef standoff, the 2014 *Haiyang Shiyou*-981 oil rig standoff, and a large surge of ships in waters near the Senkakus in 2016.

A large number of PAFMM vessels train with and assist the PLAN and CCG in tasks such as safeguarding maritime claims, surveillance and reconnaissance, fishery protection, logistics support, and search and rescue. The government subsidizes various local and provincial commercial organizations to operate militia vessels to perform "official" missions on an ad hoc basis outside of their regular civilian commercial activities. In August 2017, China used PLAN, CCG, and PAFMM ships to patrol around Thitu Island and planted a flag on Sandy Cay, a sandbar within 12 nm of Subi Reef and Thitu Island, possibly in response to the Philippines' reported plans to upgrade the runway on Thitu Island.

In the past, the PAFMM rented fishing vessels from companies or individual fishermen, but China has built a state-owned fishing fleet for at least part of its maritime militia force in the South China Sea. The Hainan provincial government, adjacent to the South China Sea, ordered the building of 84 large militia fishing vessels with reinforced hulls and ammunition storage, which the militia received by the end of 2016, along with extensive subsidies to encourage frequent operations in the Spratly Islands. This particular PAFMM unit is also China's most professional, paid salaries independent of any clear commercial fishing responsibilities, and recruited from recently separated veterans.

# China's Changing Airpower

# **China Developing Air Forces: 2015 Defense White Paper**

**In line with the strategic requirement of building air-space capabilities and conducting offensive and defensive operations, the PLA Air Force (PLAAF) will endeavor to shift its focus from territorial air defense to both defense and offense, and build an air-space defense force structure that can meet the requirements of informationized operations.**

**The PLAAF will boost its capabilities for strategic early warning, air strike, air and missile defense, information countermeasures, airborne operations, strategic projection and comprehensive support.**

# Chinese 2019 Defense White Paper: PLAAF (PLA Air Force)

...The PLA Air Force (PLAAF) has strengthened systematic and all-airspace training based on operational plans. It has conducted combat patrols in the South China Sea and security patrols in the East China Sea, and operated in the West Pacific. It has completed a series of regular system-vs.-system exercises such as *Red Sword*.

The PLA has significantly downsized the active force of the PLAA, maintained that of the PLAAF at a steady number, moderately increased that of the PLAN and PLARF, and optimized the force structures of all services and arms. The PLA has restructured the defense reserves. The deployment of combat forces has been adjusted for a strategic configuration that meets the demands of safeguarding China's national security in the new era.

The PLAAF plays a crucial role in overall national security and military strategy. It comprises aviation, airborne, ground-to-air missile, radar, ECM, and communications forces. Under the PLAAF, there are 5 TC air force commands and one airborne corps. Under the TC air forces, there are air bases, aviation brigades (divisions), ground-to-air missile brigades (divisions) and radar brigades. In line with the strategic requirements of integrating air and space capabilities as well as coordinating offensive and defensive operations, the PLAAF is accelerating the transition of its tasks from territorial air defense to both offensive and defensive operations, and improving its capabilities for strategic early warning, air strikes, air and missile defense, information countermeasures, airborne operations, strategic projection, and integrated support, so as to build a strong and modernized air force.



# Chinese Air Forces in End-2016

Taiwan Strait Military Balance, Air Forces			
	China		Taiwan
	Total	Within range of Taiwan	Total
<b>Fighters</b>	1,700	130	384
<b>Bombers/Attack</b>	400	200	0
<b>Transport</b>	475	150	19
<b>Special Mission Aircraft</b>	115	75	25
<p><b>Note:</b> The chart displays military aircraft only, but the PLAAF may supplement its military transports with civilian aircraft in a combat scenario. The chart categorizes aircraft as "within range of Taiwan" if they are able to conduct combat operations against Taiwan without refueling from their current location; however, the number of aircraft "within range" may be significantly increased through any combination of aircraft forward deployment, decreased ordnance loads, or altered mission profiles.</p>			

## Chinese Major Air Units - 2018



Source: Office of the Secretary of Defense, *Military and Security Developments Involving the Republic of China, Annual Report to Congress*, May 16, 2018, Department of Defense. China Military Power 2018, p.35.

# Chinese Major Air Units in 2019

The PLAAF is the largest air force in the region and the third largest in the world, with more than 2,500 total aircraft (not including UAVs or trainers) and 1,700 combat aircraft (including fighters, strategic bombers, tactical bombers, and multimission tactical and attack aircraft). The PLAAF is closing the gap with Western air forces across a broad spectrum of capabilities, such as aircraft performance, C2, and electronic warfare.

In 2017, the PLAAF reorganized its force structure as part of broader PLA reforms. Changes included establishing at least six new airbases and restructuring the force's previously subordinate regiments into brigades under these newly established bases by disbanding fighter and fighter-bomber divisions. The PLAAF also relocated or resubordinated some units to different theater commands and redesignated the 15th Airborne Corps as the PLA Airborne Corps.

"In line with the strategic requirement of building air-space capabilities and conducting offensive and defensive operations, the PLA Air Force (PLAAF) will endeavor to shift its focus from territorial air defense to both defense and offense and build an air-space defense force structure that can meet the requirements of informatized operations. The PLAAF will boost its capabilities for strategic early warning, air strike, air and missile defense, information countermeasures, airborne operations, strategic projection, and comprehensive support."

—Excerpt from *China's Military Strategy*, May 2015



## Select Air Force Tactical and Strategic Systems Entering Service and under Development

Equipment	Mission Area	Estimated Service Entry	Implications
J-20 fifth-generation fighter	Air Superiority	2017	Having officially entered service in September 2017, the J-20 is China's most advanced indigenously produced fighter, with similar capabilities as the J-31 in terms of stealth features and advanced radar. The J-20 will pose challenges to U.S. aircraft in the Western Pacific.
Su-35 4.5-generation fighter	Air Superiority	2017–2018	Purchased from Russia (24 in total, receiving the last batch of 10 by the end of 2018), the Su-35 provides the PLA improved counter-air and strike capabilities with its advanced avionics and radar. It will boost the PLA's ability to conduct air operations in the Western Pacific.
J-31 (FC-31) fifth-generation stealth fighter	Air Superiority	2022	The J-31 (and its export variant, the FC-31) will be equipped with modern systems and stealth features that could rival the U.S. F-35 fighter and challenge U.S. aircraft in the Western Pacific. Some Chinese commentators have speculated that China could use the fighters for carrier operations.

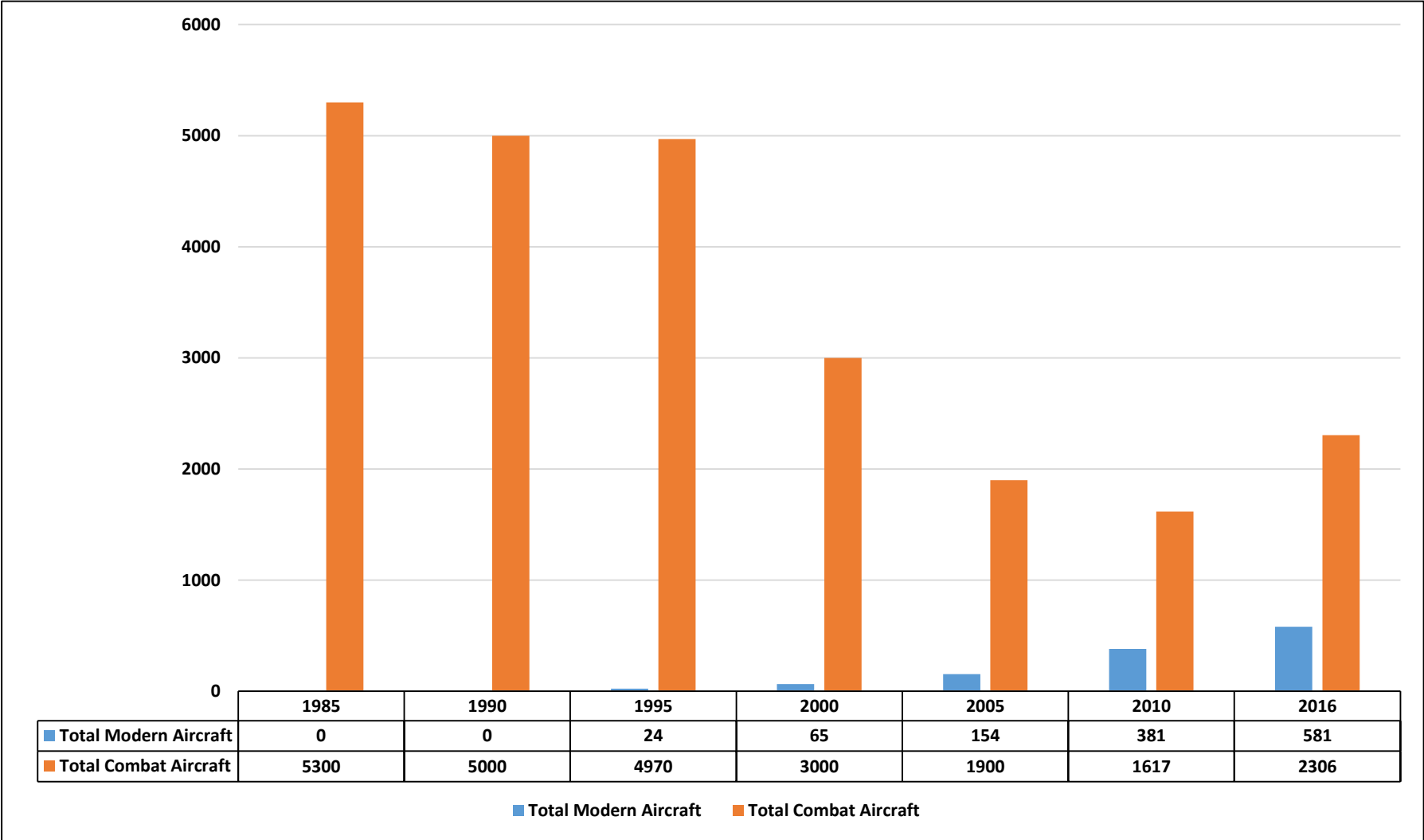
Equipment	Mission Area	Estimated Service Entry	Implications
H-20 long-range stealth bomber	Strike; Nuclear Deterrence; A2/AD	2025	China's next-generation bomber will integrate fifth-generation technologies and be capable of carrying nuclear weapons, according to DOD. Replacing the H-6, the H-20 will have an increased range of at least 5,000 miles (mi), boosting China's ability to operate farther from its shores and putting Hawaii at risk.
Y-20 strategic heavy-lift aircraft	Transport	2016	The Y-20 reportedly has a maximum payload of 66 tons, and is in the same category as the Russian IL-76 and U.S. C-17. As China produces more of these aircraft, they will extend the PLA's expeditionary capabilities.
AN-225 strategic heavy-lift aircraft	Transport	2019–2020	As part of a China-Ukraine agreement, a Ukrainian aircraft firm is restarting production on the AN-225 and transferring the technology to China. As the largest transport aircraft in the world, the AN-225 has a maximum payload of 280 tons. It will be the PLA's largest strategic lift aircraft, increasing its expeditionary capabilities.



# Select Air Force Missile Defense Systems Entering Service and Under Development—November 2018

Equipment	Mission Area	Estimated Service Entry	Implications
S-400 surface-to-air missile (SAM) system	Air Defense; A2/AD	2018	Receiving its first regiment of S-400 SAM systems in April 2018 from Russia, China reportedly will receive four to six battalions as part of a 2014 deal. The S-400's 250-mi range expands China's air coverage over the South China Sea and Taiwan if deployed near either area.
HQ-19 SAM system	Air Defense; A2/AD; Ballistic Missile Defense	Unknown	DOD assesses the HQ-19 "may fill the mid-tier of China's [ballistic missile defense] network," and testing so far has focused on intercepting 3,000 km-ranged ballistic missiles. This system will increase China's ability to challenge an adversary's attempt to control airspace or conduct strike operations in China's periphery.

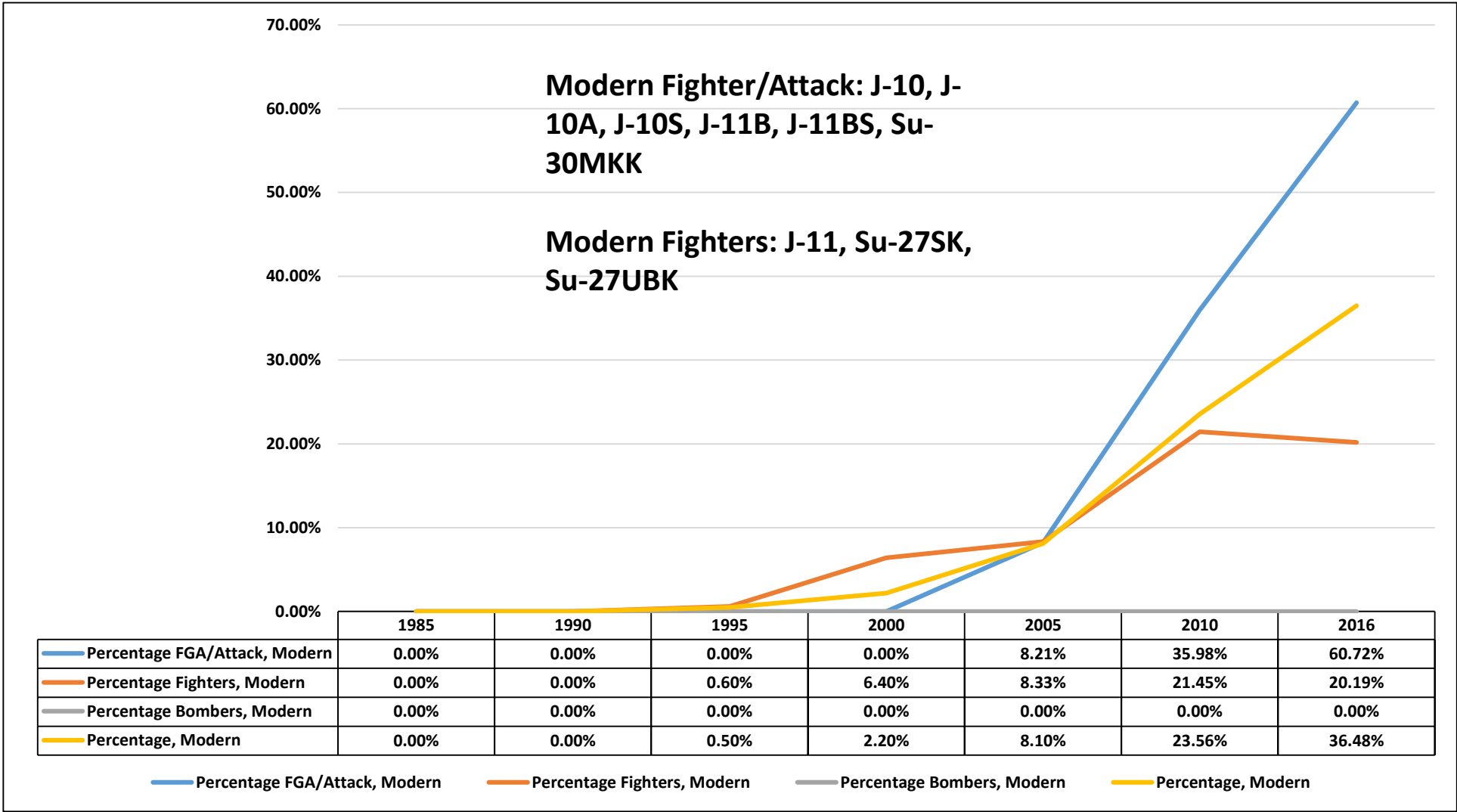
# China's Air Modernization: Total versus Modern Combat Aircraft, 1985-2016



\*The following systems are considered modern: J-10, J-10A, J-10B, J-10S, J-11, J-11B, J-11BS, Su-27SK, Su-27UBK, Su-30MKK  
Source: IISS, *Military Balance* 1985-2016.

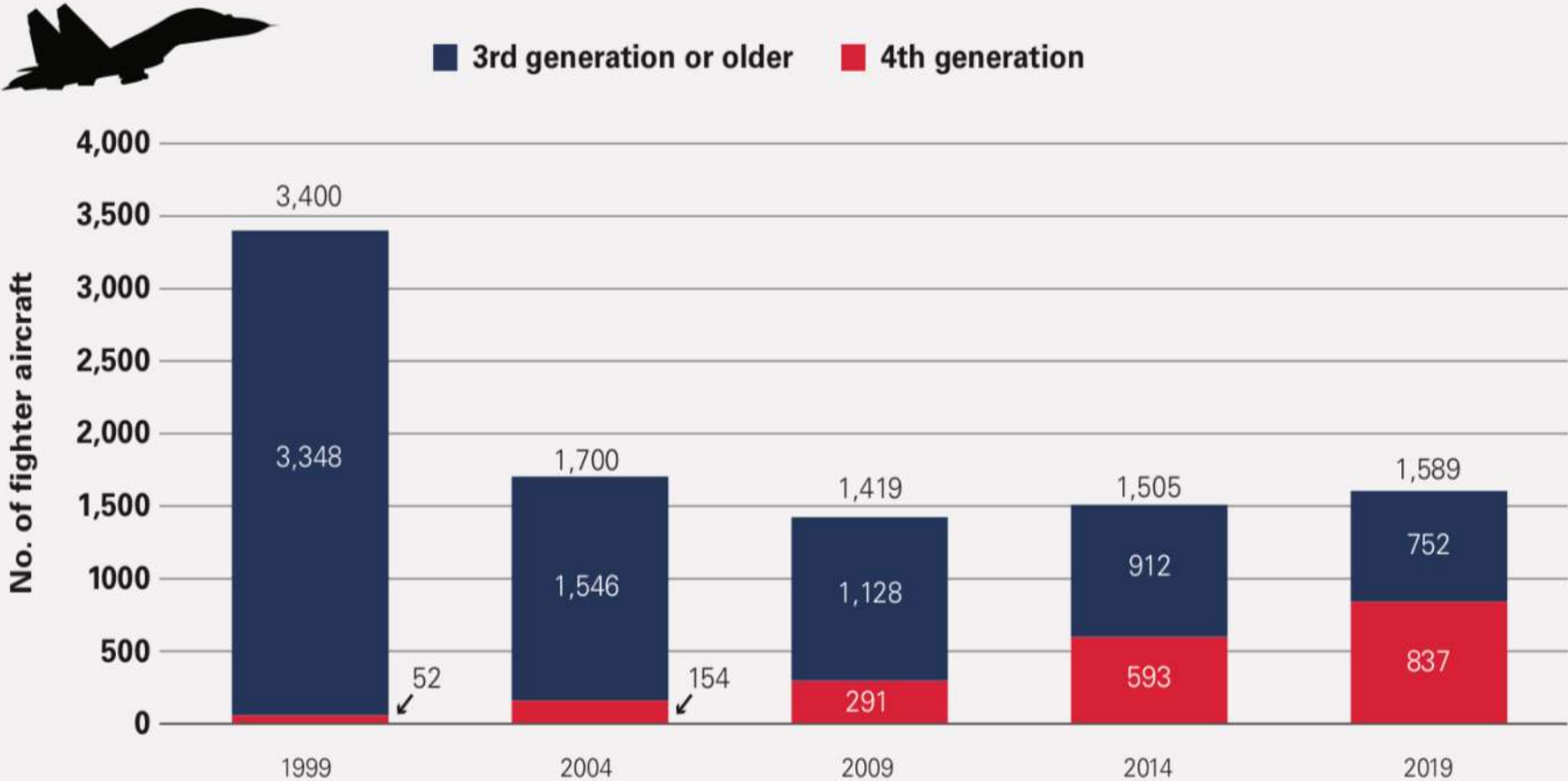


# China's Air Modernization: Percent of Modern Combat Aircraft, 1985-2016



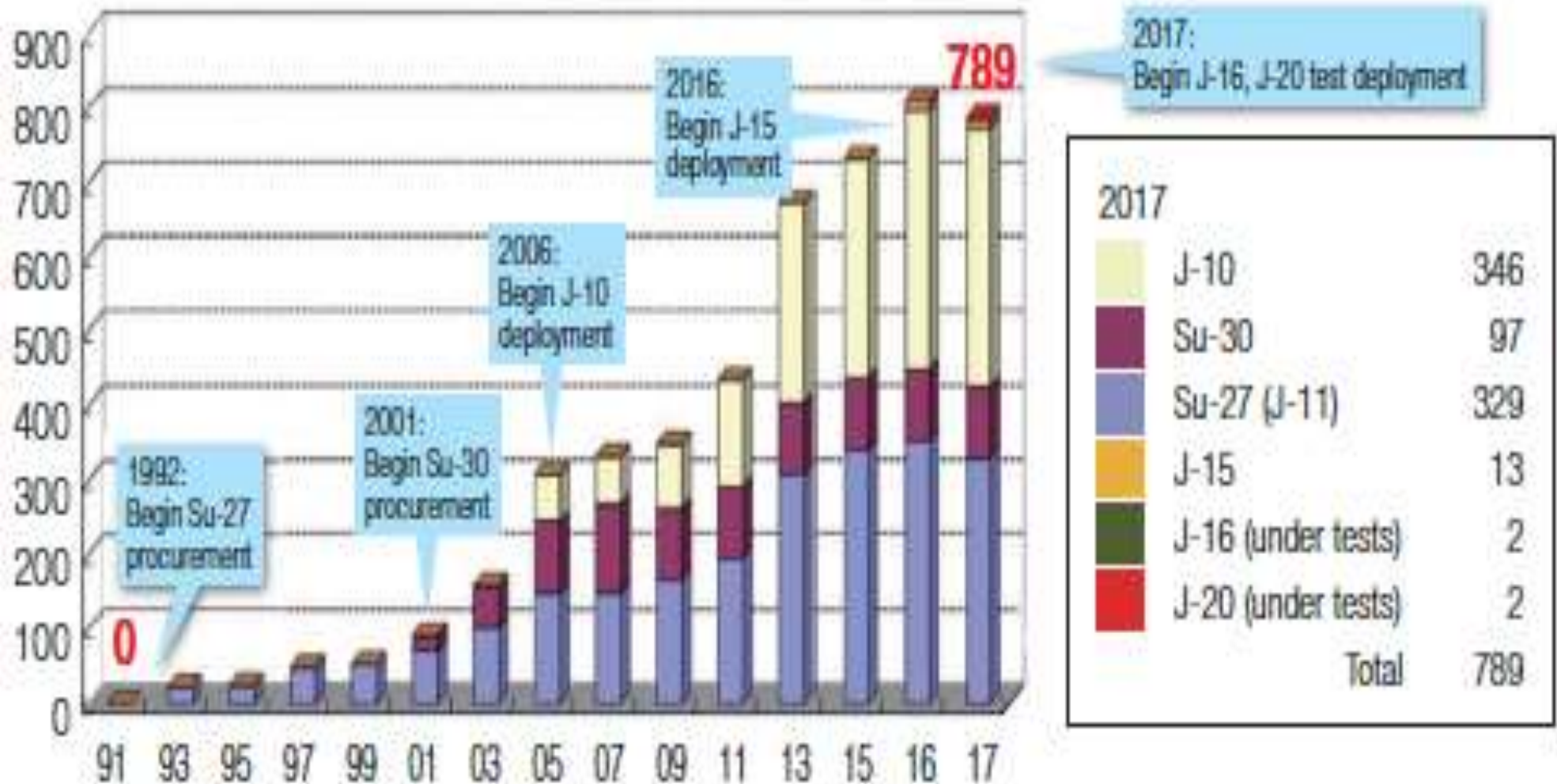
Note: "Percentage Modern" assesses only combat capable aircraft.  
Source: IISS, *Military Balance* 1985-2015. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies.

# University of Sydney Estimate of Key Elements of Chinese Air Modernization: 1999-2019



Source: Ashley Townshend and Brendan Thomas-Noone and Matilda Steward with Matilda Steward, *Averting Crisis: American Strategy*, United States Studies Centre, University of Sydney, August 2019, p. 14

## Japanese Estimate of Chinese 4<sup>th</sup> and 5<sup>th</sup> Generation Fighters: 1991-2017



# Japanese Estimate of Key Chinese 4<sup>th</sup> and 5<sup>th</sup> Generation Aircraft

J-10 fighter



[Jane's By IHS Markit]

<Specifications, performance>

Maximum speed: Mach 1.8

Main armament: Air-to-air missiles (maximum firing range 70 km), air-to-ship missiles (maximum firing range 120 km)

<Description>

China's first main fighter produced domestically. First deployed in 2003, it is reportedly in mass production.

J-20 fighter



[Jane's By IHS Markit]

<Specifications, performance>

Details unknown

<Description>

Fifth-generation fighter with stealth capabilities. First demonstration flight of two J-20 fighters at air show in 2016. Its test deployment has reportedly been started already.

KJ-2000 AWACS



[Jane's By IHS Markit]

<Specifications, performance>

Details unknown

<Description>

Airborne early warning and control (AWAC) aircraft. A Russian IL-76 strategic airlifter mounted with a radar dome.

Y-20 large cargo aircraft



[Jane's By IHS Markit]

<Specifications, performance>

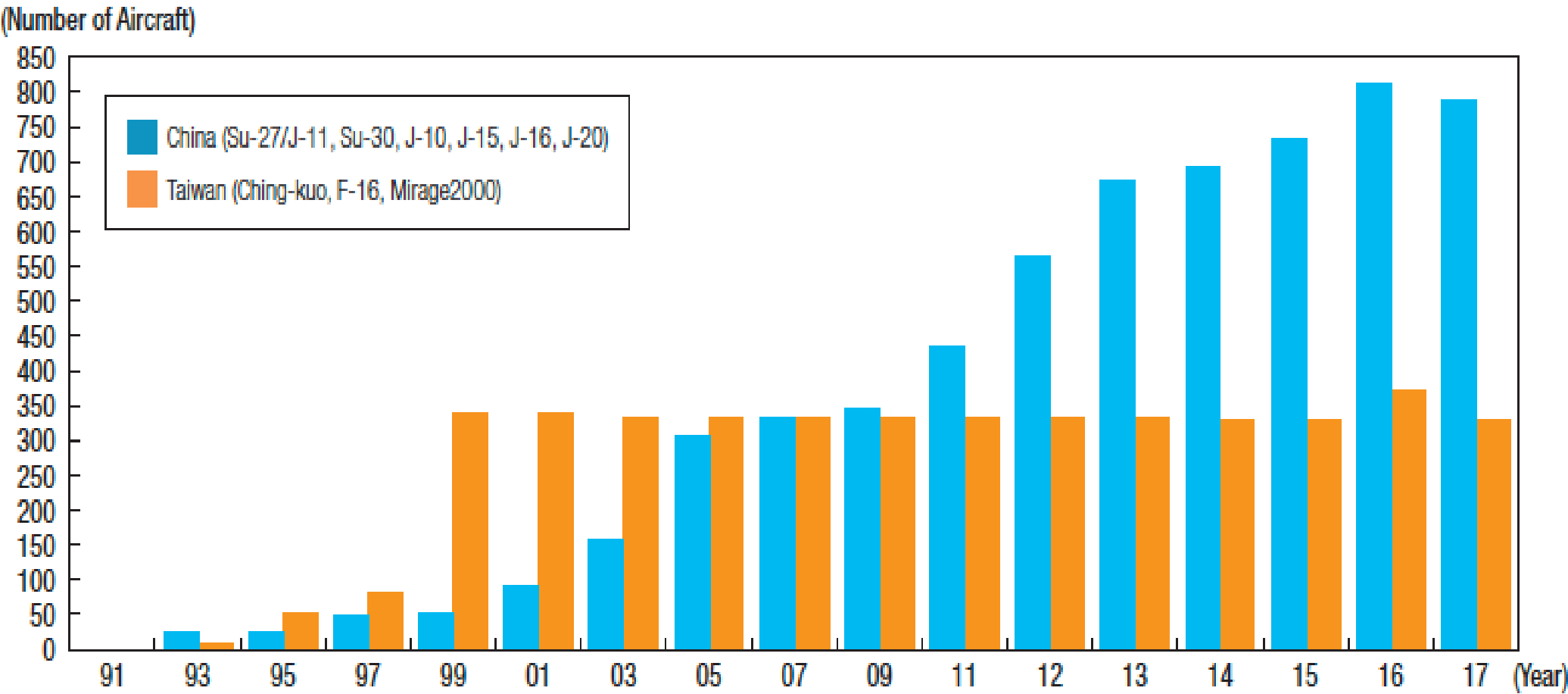
Maximum cruising speed: 796 km/h

Maximum payload: 66,000 kg (estimate)

<Description>

Large multipurpose cargo aircraft independently developed by China. Deployed to military units in July 2016.

# Japanese Estimate of Chinese vs. Taiwan Air Modernization: 1991-2017



Source: "The Military Balance" (of respective years)



# U.S. - Defined Fourth and Fifth Generation Fighter Aircraft in China

DIA in 2019

**Fourth-generation fighter aircraft\***—which include the Chinese J-10B/C, J-11B, and J-16—are generally characterized by the following:

- Electronically or mechanically scanned multimode radars, passive infrared search and track systems.
- “Glass” cockpits with multifunction displays (MFDs), improved heads-up display (HUD), and helmet-mounted sight (HMS).
- High-bandwidth communications and datalinks and identification, friend or foe (IFF).
- Advanced electronic warfare (EW) avionics, including digital jamming system, radar warning receiver, chaff/flare dispensers, and adaptive countermeasures.
- Engines with increased thrust and service life; advanced weapons, including long-range air-to-air missiles (AAMs), off-boresight short-range AAMs, LACMs, ASCMs, and precision-guided munitions (PGMs).
- Passive electronically scanned array or active electronically scanned array (AESA) radars. These radars provide long-range radar detection and electronically scanned radar beams that enable automatic target acquisition, tracking of multiple targets, and highly accurate targeting data for air-to-air and precision air-to-ground engagements.
- Digital radiofrequency memory (DRFM) jammers enabling instantaneous smart jamming responses by automatically selecting jamming waveforms to counter a specific radar threat—significantly improving fighter aircraft survivability.

**Fifth-generation fighter aircraft\***, including the developmental Chinese J-20 and FC-31/J-31, are commonly defined by the following state-of-the-art technologies:

- Stealthy aircraft designs with significantly reduced radar and infrared signatures.
- AESA radars.
- Long-range, multiband EO targeting systems.
- Sensor fusion.
- Advanced glass cockpits with large MFDs and HMSs.
- Advanced datalinks fusing data from air and ground networks.
- Internal carriage of off-boresight and long-range AAMs, LACMs, ASCMs, and PGMs.
- Sophisticated EW suites with advanced DRFM jammers and EO defensive systems.
- Super maneuverability and/or super cruise capability (ability to fly above Mach 1 without use of afterburner).
- Designed with network-centric warfare technology; will have potent air-to-air lethality and standoff attack capabilities in sensor-to-shooter operations.



# China's Over-Water Bomber Operations

The PLA has long been developing air strike capabilities to engage targets as far away from China as possible. Over the last three years, the PLA has rapidly expanded its overwater bomber operating areas, gaining experience in critical maritime regions and likely training for strikes against U.S. and allied targets. The PLA may continue to extend its operations beyond the first island chain, demonstrating the capability to strike U.S. and allied forces and military bases in the western Pacific Ocean, including Guam. Such flights could potentially be used as a strategic signal to regional states, although the PLA has thus far has not been clear what messages such flights communicate beyond a demonstration of improved capabilities.

*Western Pacific.* PLA aircraft first operated beyond the first island chain in 2013, when a PLAN ASCM-capable H-6G bomber transited through the Bashi Channel; however, the H-6G bomber lacks the range and endurance to patrol the western Pacific Ocean effectively and strike key U.S. and allied facilities. China began to field the longer-range H-6K bomber in 2013, incorporating cruise missile pylons to turn the bomber into a stand-off strike platform. The H-6K's capabilities provided the PLAAF an offensive strike capability against Guam with LACMs.

The PLAAF began flying the H-6K past the First Island Chain into the western Pacific Ocean in 2015, alternating transits through the Miyako Strait and the Bashi Channel and flying within LACM range of Guam. In 2016, the PLAAF improved its capabilities by adding AWACS and fighter aircraft to its bomber flight packages to provide defensive counter-air protection of the bombers beyond the first island chain.

In 2016, the PLAAF also circumnavigated Taiwan for the first time by passing through both the Miyako Strait and Bashi Channel in the same mission, and significantly increased the number of circumnavigation missions in 2017. In addition to long-range flight plans, future H-6 missions may also target Taiwan. Depending on the weapons load, potential future H-6 missions could include anti-ship or shorter-range strikes targeting eastern Taiwan from all directions or supporting a blockade. Currently, such missions are vulnerable without defense counter-air support provided by fighters traveling along the route with the bombers.

*South China Sea.* In 2016, China began flying H-6K missions in the South China Sea, probably as far as Scarborough Reef, conducting maritime patrols and ISR. H-6s could, if deployed to airfields in the Spratly Islands, extend their range through the Balabac Strait into the Celebes Sea or through the Sunda or Malacca Strait to fly into the Indian Ocean.

*Sea of Japan.* In August 2016, two PLAN H-6 bombers accompanied by a Y-8 AEW&C aircraft conducted the first PLA flights into the Sea of Japan. In January 2017, they flew the same route, this time with six bombers supported by two reconnaissance aircraft. In August 2017, the PLAAF further expanded the PLA's operating area by sending six PLAAF H-6K bombers through the Miyako Strait, and for the first time, turned north to fly east of Okinawa and as far north as the Kii Peninsula. These

Date	Service	Operating Area	Notes
Sep 2013	PLAN	Western Pacific	1st PLA flight ever beyond first island chain; occurred on anniversary of Japan nationalizing Senkakus
Dec 2014	PLAN	Western Pacific	1st ever PLAAF flight beyond first island chain
Mar 2015	PLAAF	Western Pacific	
May 2015	PLAAF	Western Pacific	
Aug 2015	PLAAF	Western Pacific	
Nov 2015	PLAAF	Western Pacific	
Aug 2016	PLAN	Sea of Japan	1st PLA flight into Sea of Japan
Sep 2016	PLAAF	Western Pacific	Probably 1st flight to include fighters and AWACS with the bombers beyond the first island chain
Nov 2016	PLAAF	Western Pacific	1st circumnavigation of Taiwan
Dec 2016	PLAAF	Western Pacific	2nd circumnavigation of Taiwan
Jan 2017	PLAN	Sea of Japan	2nd mission to Sea of Japan, this time with six H-6G bombers
Jul 2017	PLAAF	Western Pacific	Circumnavigation of Taiwan, concurrent missions in each direction
Aug 2017	PLAAF	Western Pacific	Circumnavigation of Taiwan
Aug 2017	PLAAF	Western Pacific, east of Japan north of the Miyako Strait	First flights along eastern Japan
Nov 2017	PLAAF	Western Pacific	
Nov 2017	PLAAF	Western Pacific	Notably included EW and tanker aircraft in addition to fighters
Nov 2017	PLAAF	Western Pacific	Separate missions through both Miyako and Luzon Straits in one day
Dec 2017	PLAN	Western Pacific	Separate missions through both Miyako and Luzon Straits
Dec 2017	PLAAF	Western Pacific	
Dec 2017	PLAAF	Western Pacific	Circumnavigation of Taiwan; PLAAF spokesman described as a "circling-the-island patrol"
Dec 2017	PLAAF	Sea of Japan	1st PLAAF flight into Sea of Japan and entered the Korean ADIZ
Dec 2017	PLAAF	Western Pacific	Supported by a Y-8 that continued on to circumnavigate Taiwan

flights demonstrated a maturing capability for H-6K bombers to conduct off-axis strikes against U.S. and allied facilities. Previously demonstrated flight endurance of the PLAAF H-6K suggest future missions could fly around Japan, along the Philippines' coast, and use a wider area of operations throughout the Philippine Sea than current operations by Chinese aircraft.

## China's Over-Water Bomber Capabilities

Office of the Secretary of Defense,  
*Military and Security Developments  
 Involving the Republic of China, Annual  
 Report to Congress*, May 16, 2018,  
 Department of Defense. China Military  
 Power 2018, p. 118.



# China's Paramilitary Forces and Counterterrorism

# Chinese 2019 Defense White Paper: Peoples Army Police and Paramilitary Forces

The PAP fulfills missions such as guarding key targets, on-site security protection, setting check points on key passages, and armed urban patrols. In accordance with the law, the PAP supports civil authorities in law enforcement operations to combat criminal gangs and terrorist activities, actively participates in the maintenance of public order, and prevents and responds to potential threats to China's political security and social order, thus making a significant contribution to the Peaceful China initiative. Since 2012, the PAP has deployed large numbers of troops annually in security duties, counter-terrorism, emergency response, and maritime rights protection and law enforcement. It has completed around 10,000 security assignments during major events such as the G20 Summit, the APEC Economic Leaders' Meeting, the Belt and Road Forum for International Cooperation, the BRICS Leaders Meeting, and the SCO Qingdao Summit, and participated in the response to 671 hostage situations, incidents of severe violence, and terrorist attacks. Since 2014, the PAP has assisted the government of Xinjiang Uygur Autonomous Region in taking out 1,588 violent terrorist gangs and capturing 12,995 terrorists.

...Since 2012, the PLA and the PAP have deployed 950,000 soldiers, 1.41 million militia, 190,000 vehicles and items of equipment, and sortied 26,000 vessels and 820 aircraft in emergency response and disaster relief. They have participated in rescue and relief efforts such as the earthquake in Ludian County of Yunnan Province, the rainstorm and flood in the middle and lower reaches of the Yangtze River, and the removal of the barrier lake in the Yarlung Zangbo River. They have assisted local governments to rescue and transfer over 5 million people, treated over 210,000 patients, transported over 360,000 tons of goods, and reinforced over 3,600 km of levees

...The PAP shoulders important responsibilities in safeguarding national security, social stability and public wellbeing. China has adopted a CMC-PAP-Troops leadership and command system with the basic duties and nature of the PAP unchanged. The PAP is not in the force structure of the PLA. The PAP border defense, firefighting and security guard forces have been decommissioned. The coast guard under the leadership of State Oceanic Administration has been transferred to the PAP. PAP goldmine, forest and hydroelectricity forces have been reorganized into specialized forces of non-active service under corresponding state authorities. Meanwhile, the PAP customs guard forces have been withdrawn. In this way, the leadership, management, command and employment of the PAP has become more coherent. Following adjustment and reorganization, the PAP is mainly composed of the internal security corps, the mobile corps, and the coast guard. In line with the strategic requirements of performing multiple functions and effectively maintaining social stability, the PAP is enhancing capacity in guard duties, emergency response, counter-terrorism, maritime rights protection, administrative enforcement and disaster relief, so as to build a strong and modernized armed police force.

...The PLA and the People's Armed Police Force (PAP) give greater priority to combat readiness. Efforts are made to strictly act on relevant regulations and procedures, fulfill readiness duties, conduct targeted exercises and training, and maintain standardized order, with a view to staying ready to act when required and effectively carrying out readiness (combat) duties.

...The PAP has developed to meet the requirements of nationwide coverage, effective connectivity, all-area response and integrated functions, and conducted a series of exercises including *Guard*.

# Chinese 2019 Defense White Paper: Terrorism

Extremism and terrorism keep spreading. Non-traditional security threats involving cyber security, bio-security and piracy are becoming more pronounced.

...China firmly opposes all forms of terrorism and extremism. As mandated by law, China's armed forces participate in operations for maintaining social order, prevent and combat violence and terrorism, safeguard political security and social stability, and secure the public's right to live and work in peace.

..China is active in international and regional counter-terrorism cooperation. It has strengthened such cooperation within the framework of the SCO. China hosts and participates in joint counter-terrorism exercises, cracks down on illegal trafficking of weapons, ammunition and explosives, cooperates with SCO members to identify and cut off channels for terrorist infiltration, and promotes international counter-terrorism intelligence exchange and information sharing. It hosts the Great Wall International Forum on Counter-Terrorism, and actively participates in multilateral counter-terrorism mechanisms such as the APEC Counter-Terrorism Working Group and the Global Counter-Terrorism Forum. Bilateral counter-terrorism consultations have been held with certain countries. China initiated the establishment of the Quadrilateral Cooperation and Coordination Mechanism (QCCM), a counter-terrorism cooperation and coordination mechanism by the militaries of Afghanistan, China, Pakistan and Tajikistan. The QCCM has convened two military leaders' meetings and conducted counter-terrorism exchange and cooperation, actively safeguarding regional security.

...Meeting and the ASEAN Defense Ministers' Meeting Plus (ADMM-Plus) play positive roles in enhancing trust among regional countries through military exchanges and cooperation. ...Steady progress has been made in building a coordinated counter-terrorism mechanism among the militaries of the regional countries.

...China's armed forces...make concerted efforts to respond to global challenges such as terrorism, cyber security and major natural disasters, thus making a positive contribution to building a community with a shared future for mankind....the PAP is enhancing capacity in guard duties, emergency response, counter-terrorism, maritime rights protection, administrative enforcement and disaster relief, so as to build a strong and modernized armed police force.

China has regularly held serial joint exercises and training on counter-terrorism, peacekeeping, search and rescue, and tactical skills with its neighboring countries, and carried out extensive exchanges and practical cooperation on border and coastal defense .

...The PAP fulfills missions such as guarding key targets, on-site security protection, setting check points on key passages, and armed urban patrols It has completed around 10,000 security assignments during major events such as the G20 Summit, the APEC Economic Leaders' Meeting, the Belt and Road Forum for International Cooperation, the BRICS Leaders Meeting, and the SCO Qingdao Summit, and participated in the response to 671 hostage situations, incidents of severe violence, and terrorist attacks. Since 2014, the PAP has assisted the government of Xinjiang Uygur Autonomous Region in taking out 1,588 violent terrorist gangs and capturing 12,995 terrorists.

...The PLA supports the civil authorities in maintaining social stability, provides security for major events, and responds to emergencies in accordance with the law. It is mainly tasked with missions such as counter-terrorism, NBCE detection and test, medical relief, and transport support. It disposes of potential safety hazards in the waters and protects security in the air over and around major event venues.



# U.S. State Department Country Report on China and Terrorism: 2018 - I

CHINA (HONG KONG AND MACAU) Overview: Referring to “terrorism, separatism, and extremism” as “three evil forces” that threaten domestic stability, China continued enhancing domestic counterterrorism efforts and called for greater regional cooperation to combat terrorism. During March-April, China initiated a major security campaign in the Xinjiang Uighur Autonomous Region (XUAR) that targeted Uighur and other Muslim ethnic groups and was reportedly aimed at rooting out what officials describe as “separatist, extremist, and terrorist activity.” The campaign included detentions widely reported to number in the thousands, along with intensified use of traditional policing measures, the deployment of high-tech surveillance and monitoring systems, the involuntary collection of DNA and other biometric data, and the closure of mosques.

China’s primary counterterrorism focus remained on ethnic Uighur extremists Beijing ascribes to the East Turkistan Islamic Movement (ETIM). (ETIM). China maintains that ETIM is responsible for much of the violence in the XUAR, despite a lack of independent information that ETIM is active in China. China’s response to the threat of terrorism remained difficult to distinguish from its suppression of activities its leadership deems separatist in nature or politically subversive to the Chinese Communist Party. In response to alleged separatist or subversive concerns, China intensified its security and surveillance in the XUAR, including the implementation of stricter security controls, restrictions on travel, and curbs on religious practice.

There were signs that ISIS posed a threat to China and its interests abroad, and the Chinese government reported that some Chinese citizens have joined ISIS and other terrorist organizations in the Middle East. China also issued public statements warning of growing threats to Chinese nationals abroad. In March, ISIS released a half-hour video in which it pledged to attack unspecified Chinese targets.

**...Legislation, Law Enforcement, and Border Security:** China continued to enhance surveillance and security throughout the country, sometimes citing the Counterterrorism, National Security, Counter-Espionage, and Cyber-Security laws. The 2017 Supreme People’s Court report departed from past practice by not reporting the number of individuals convicted in 2016 on terrorism-related charges. Nevertheless, publicly available verdicts related to terrorism prosecutions in 2016 indicate that efforts to implement the Counterterrorism Law have focused on punishing the possession or distribution of materials that authorities deemed “fake terrorism information” or “terrorist” or “extremist” in nature. Specifically, the individuals in these cases were convicted of possessing, accessing, and distributing terrorism-related video or audio material. The implementation of the Counterterrorism Law has also focused on punishing hotels and courier services for failing to comply with “real name registration” requirements.

Lawmakers in XUAR passed a regional Anti-Religious Extremism Law in March. The law prohibits advocating or propagating what it considers “extremist” thoughts and publishing, downloading, sharing, or reading articles and audio-video material containing “extremist” content. The law also criminalizes the wearing of long beards and other practices. There were also reports that authorities compelled Uighurs and other



# U.S. State Department Country Report on China and Terrorism: 2018 - II

minorities to return to the locality listed on their identification documents and that authorities confiscated the passports of members of ethnic minorities and restricted them from leaving the country. Citing terrorism concerns, authorities required some vehicles in the XUAR to install mandatory satellite tracking and required all residents there to install a surveillance “app” that automatically detects “terrorist and illegal” religious videos, images, e-books, and electronic documents on smart phones. The app reportedly has the capability to remotely delete this content. The government’s broad definitions of “terrorism” and “extremism” and its unclear definition of “fake terrorism information” continued to raise human rights concerns. We refer you to the State Department’s Country Reports on Human Rights Practices for further information.

Beyond China’s borders, China pursued security and counterterrorism cooperation with countries that drew a similarly broad definition of “extremism” and raised human rights concerns. For example, Egyptian authorities arrested and deported at least 34 Chinese-nationality Uighurs in July, reportedly following a Chinese government order that Uighur students in Egypt return to China. Those Uighurs who returned were reportedly sent to re-education camps, where at least two have died. Also, Chinese authorities confirmed in December they were monitoring some international Twitter accounts allegedly linked to ETIM. In another incident, Italian authorities detained a Uighur activist with German citizenship, preventing him from delivering a scheduled speech about human rights in the XUAR. This detention was allegedly responding to an INTERPOL Red Notice.

**Countering the Financing of Terrorism:** China is a member of the Financial Action Task Force, the Asia/Pacific Group on Money Laundering, and the Eurasian Group on Combating Money Laundering and Terrorist Financing. Based on current law enforcement investigations, the United States is concerned that China does not adequately control terrorist financing. Chinese law enforcement claims to have limited ability to freeze funds and investigate banking transactions. Additional concerns include a lack of guidance for designated non-financial businesses and professions, underdeveloped procedures for individuals and groups who seek to be delisted from domestic sanctions, and inadequate regulations defining the rights of bona fide third parties in seizure and confiscation actions. For further information on money laundering and financial crimes, see the 2018 International Narcotics Control Strategy Report (INCSR), Volume II, Money Laundering and Financial Crimes

**Countering Violent Extremism (CVE):** China continued to implement broad campaigns in the XUAR under the rubric of countering what the Chinese government considered “extremism.” The XUAR government also mandated “re-education” programs for members of ethnic minority communities and students who study overseas. The government implemented a number of other programs aimed at “stability maintenance,” many of which promote cultural assimilation in the XUAR and place restrictions on the practice of Islam. For further information, please see the Department of State’s Report on International Religious Freedom for 2017.

# U.S. State Department Country Report on China and Terrorism: 2018 - III

**Regional and International Cooperation:** China continued to promote the United Nations as the primary international fora for counterterrorism while increasing its engagement in other multilateral, regional, and bilateral fora. In June, China and other members of the Shanghai Cooperation Organization (SCO) signed the SCO Convention on Combating Extremism. In August, China participated in the 2nd High-level Military Leaders' Meeting on Quadrilateral Cooperation and Coordination Mechanism in Counterterrorism with Afghanistan, Pakistan, and Tajikistan in Dushanbe, and the four parties signed agreements to coordinate counterterrorism efforts. More than 80 countries sent representatives to attend China's Forum on International Cooperation in Countering the Use of Cyberspace for Criminal and Terrorist Purposes in December. Beijing pursued the return of ethnic Uighurs and others in Malaysia and other countries to China in the name of counterterrorism cooperation, although evidence of these individuals' connection to terrorism was not made public.

...**Hong Kong** continued its effective security and law enforcement partnership with the United States through the Hong Kong Customs and Excise Department's joint implementation of the Container Security Initiative and participation in U.S.-sponsored training in port and border security. Counterterrorism remained an operational priority for the Hong Kong Police Force. The Police Security Wing coordinates potential terrorist threat information with relevant counterterrorism units. The Police Counterterrorism Response Unit provides a strong deterrent presence. It assists police districts with counterterrorism strategy implementation and complements the tactical and professional support of existing police specialist units, such as the Explosive Ordnance Disposal Bureau, the Special Duties Unit, the Airport Security Unit, and the VIP Protection Unit.

Hong Kong is a member of the Financial Action Task Force (FATF) and the Asia/Pacific Group on Money Laundering, a FATF-style regional body. Hong Kong's Joint Financial Intelligence Unit is a member of the Egmont Group. Terrorist financing is a criminal offense in Hong Kong, and financial institutions are required to search continuously for terrorist financing networks. They must also screen accounts using designations lists provided by the United States under relevant authorities, as well as the UNSC ISIL (Da'esh) and al-Qa'ida and 1988 (Afghanistan/Taliban) Sanctions Committees' lists. .

...**Macau's** counterterrorism cooperation with the United States included information sharing. The Police Intervention Tactical Unit (UTIP), which falls under the Macau Public Security Police Force, is responsible for protecting important installations and dignitaries and conducting high-risk missions, such as improvised explosive device deactivation. UTIP's Special Operations Group's mission is counterterrorism operations. Macau cooperated internationally on counterterrorism efforts through INTERPOL and other security-focused organizations. Macau law enforcement officers attended U.S. government-sponsored capacity-building training at the International Law Enforcement Academy on personnel and facility security, financial and crime scene investigations, computer investigations, and evidence protection.

Macau is a member of the Asia/Pacific Group on Money Laundering, a FATF-style regional body. Macau's Financial Intelligence Office is a member of the Egmont Group...

## Major Multilateral Counter-Terrorism Treaties Signed by China

Treaty	Date of Signature	Effective Date	Participation or Statement by China
Agreement on Quadrilateral Cooperation and Coordination Mechanism in Counter Terrorism by the Ministry of Defense/ Armed Forces/ Military of Afghanistan, China, Pakistan, and	Aug. 2017	Aug. 2017	Signed in Aug. 2017, effective in China
Tajikistan			
Convention of the Shanghai Cooperation Organization Against Terrorism	Jun. 2009	Jan. 2012	Signed in Jun. 2009, ratified in Dec. 2014
Agreement on Cooperation in Combating Illicit Trafficking in Arms, Ammunition and Explosives between the Governments of the Member States of the Shanghai Cooperation Organization	Aug. 2008	May 2010	Approved by the State Council in May 2012, instrument of approval deposited in Jul. 2012, effective in China
Agreement on the Procedure for Organizing and Conducting Joint Anti-Terrorism Exercise within Territories of Member States of the Shanghai Cooperation Organization	Aug. 2008	Nov. 2013	Approved in Jun. 2013, effective in China since Nov. 2013
Cooperation Agreement in the Sphere of Identifying and Cutting off the Channels Used by the Individuals Involved in Terrorist, Separatist and Extremist Activities to Enter the Shanghai Cooperation Organization Member States	Jun. 2006	Nov. 2008	Approved by the State Council in May 2012, instrument of approval deposited in Jul. 2012, effective in China

## Chinese Internal Security Forces - 2019

China's internal security forces consist primarily of the Ministry of Public Security (MPS), the Ministry of State Security (MSS), the People's Armed Police (PAP), and the PLA. In 2018, the Central Military Commission (CMC) assumed direct control of the PAP after the Party ended the PAP's previous CMC-State Council dual-command system, and the China Coast Guard (CCG) was subordinated to the PAP, codifying the PLA's enduring role in internal security and possibly increasing the PLA's oversight and interoperability with the paramilitary forces. China's leaders rely on these forces to address challenges ranging from protests over political, social, environmental, or economic problems to suspected terrorist attacks. In recent years, China has focused increasingly on protests perceived as being linked to foreign influences and, separately, the Turkestan Islamic Party, which China's leaders characterize as a terrorist group connected to ethnic Uighur nationalists in the Xinjiang Uighur Autonomous Region. China blames Uighur "separatists" for terrorist attacks in China, and has imposed strict security in Xinjiang, ostensibly to curb potential attacks.

**Ministry of Public Security (MPS).** The MPS leads China's civilian national police, which serves as the first-line force for public order. The key mission of the MPS is domestic law enforcement and the "maintenance of social security and order" with duties including anti-rioting and anti-terrorism.

**Ministry of State Security (MSS).** The MSS is China's main civilian intelligence/counterintelligence service. The missions of the MSS are: to protect China's national security; to secure political and social stability; to implement the recently updated *State Security Law* and related laws and regulations; to protect state secrets; to conduct counterintelligence; and to investigate organizations or people inside China who carry out or direct, support, or aid other people whom China perceives harm its national security.

**People's Armed Police (PAP).** The PAP is a paramilitary component of China's armed forces whose primary mission is internal security and domestic stability. As of 2018, the PAP now falls solely under the authority of the CMC and has authority over the CCG. The PAP is the primary force responsible for internal security.

**People's Liberation Army (PLA).** As the armed wing of the CCP, the PLA is the ultimate guarantor of the CCP's rule, giving it a role in domestic security in addition to its national defense mission. For example, the PLA may provide transportation, logistics, and intelligence to assist local public security forces with internal security, and is authorized under the 1997 *National Defense Law* to directly "assist in maintaining public order" when CCP leaders consider it necessary.

# Chinese Increasing Interoperability with Paramilitary Forces: 2019 - I

## Key Takeaways

- As of 2018, the CMC assumed direct control of the PAP. As part of this reform, the PAP also assumed control of the China Coast Guard (CCG) from China's State Oceanic Administration.
- Paramilitary reforms could improve paramilitary forces' ability to provide support to PLA operations under the command of the joint theater commands.
- In 2018, examples of interoperability between the PLA and paramilitary forces included coordination between the PLAN, the CCG, and the People's Armed Forces Maritime Militia (PAFMM).

**People's Armed Police (PAP).** The PAP is a paramilitary component of China's armed forces whose primary mission is internal security and domestic stability. In early 2018, the CMC assumed direct control of the PAP after the CCP ended the previous CMC-State Council dual-command system. As part of this reform, the PAP also assumed control of the CCG in July 2018 from China's State Oceanic Administration. Although the PAP has specialized units for a variety of functions, the most numerous are for internal security. Additionally, the PAP is undergoing its most extensive organizational transformation to date as part of broader military reforms. Previously, PAP internal security units were organized into contingents for each province, autonomous region, and centrally administered city, as well as a smaller number of mobile divisions available to deploy anywhere in the country in response to escalating internal crises. In 2018, the mobile divisions were disbanded. Some units went to the 31 provincial contingents, and other units were assigned to two new mobile contingents which do not have a fixed geographic area of responsibility. PAP reform could lead to further interoperability between the PLA and the PAP, but in 2018, examples of interoperability were more apparent in coordination between the PLAN, the CCG, and the PAFMM than between the PAP and the PLA.

**China Coast Guard (CCG).** The CCG is responsible for a wide range of missions under the umbrella of maritime rights protection, including enforcement of China's sovereignty claims, surveillance, protection of fisheries' resources, anti-smuggling, and general law enforcement. As of July 2018, the CCG completed its merger into the military command structure through its subordination to the PAP, which could facilitate closer coordination between the CCG and the PLAN. China primarily uses paramilitary maritime law enforcement agencies in maritime disputes, selectively using the PLAN to provide overwatch in case of escalation. Days after the administrative transfer of the CCG to the PAP, the CCG conducted a patrol mission near the contested Senkaku Islands in the East China Sea.

The CCG's rapid expansion and modernization has improved China's ability to enforce its maritime claims. Since 2010, the CCG's fleet of large patrol ships (more than 1,000 tons) has more than doubled from approximately 60 to more than 130 ships, making it by far the largest coast guard force in the world and increasing its capacity to conduct simultaneous, extended offshore operations in multiple disputed areas.

## Chinese Increasing Interoperability with Paramilitary Forces: 2019 - II

Furthermore, the newer ships are substantially larger and more capable than the older ships, and the majority are equipped with helicopter facilities, high-capacity water cannons, and guns ranging from 30 mm to 76 mm. A number of these ships are capable of long-endurance out-of-area operations. These characteristics give CCG vessels the ability to intimidate local, non-Chinese fishing boats, as occurred in an October 2016 incident near Scarborough Reef.

In addition, the CCG operates more than 70 fast patrol combatants (more than 500 tons), which can be used for limited offshore operations, more than 400 coastal patrol craft, and approximately 1,000 inshore and riverine patrol boats. The CCG is likely to add another 25-30 patrol ships and patrol combatants by the end of the decade before the construction program levels off.

**People's Armed Forces Maritime Militia (PAFMM).** The PAFMM is a subset of China's national militia, an armed reserve force of civilians available for mobilization. Militia units organize around towns, villages, urban sub-districts, and enterprises and vary widely in composition and mission. In the South China Sea, the PAFMM plays a major role in coercive activities to achieve China's political goals without fighting, part of broader Chinese military theory that sees confrontational operations short of war as an effective means of accomplishing political objectives. The militia has played significant roles in a number of military campaigns and coercive incidents over the years, including the 2009 harassment of the *USNS Impeccable* conducting normal operations, the 2012 Scarborough Reef standoff, the 2014 Haiyang Shiyou-981 oil rig standoff, and a large incursion in waters near the Senkakus in 2016.

A large number of PAFMM vessels train with and assist the PLAN and CCG in tasks such as safeguarding maritime claims, surveillance and reconnaissance, fisheries protection, logistic support, and search and rescue. The government subsidizes various local and provincial commercial organizations to operate militia vessels to perform "official" missions on an ad hoc basis outside of their regular civilian commercial activities.

In the past, the PAFMM rented fishing vessels from companies or individual fishermen, but China has built a state-owned fishing fleet for at least part of its maritime militia force in the South China Sea. The Hainan provincial government, adjacent to the South China Sea, ordered the building of 84 large militia fishing vessels with reinforced hulls and ammunition storage, which the militia received by the end of 2016, along with extensive subsidies to encourage frequent operations in the Spratly Islands. This particular PAFMM unit is also China's most professional. Its forces are paid salaries independent of any clear commercial fishing responsibilities and recruited from recently separated veterans.