CHINA: THE GROWING MILITARY CHALLENGE
Volume Two of A Graphic Net Assessment

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Photo: ANTHONY WALLACE/AFP via Getty Images
Introduction

There is no simple way to address the complex changes that China’s growing strategic presence and military capabilities pose in competing with the United States and other states. It is clear, however, that China’s capabilities to compete have increased radically in virtually every civil and military area since 1980 and that China has set broad goals for achieving strategic parity and superiority in the future – although its timeframes and definitions of such goals are vague.

The end result is that the United States adopted a new National Security Strategy in 2017 and a new National Defense Strategy in 2018 that both focused on China as an emerging peer threat to the U.S. and as a central focus of its strategy. Then Biden administration has not issued revised versions of these documents, but its FY2021 budget submission as well as the testimony of senior U.S. officials to Congress on U.S. strategy and force plans make it clear that China is now a central focus of the Biden administration’s national security planning efforts.

This report is Volume Two of a two-part e-book that helps to explain these shifts in China’s strategic position and the reasons why major changes are needed in U.S. strategy. Volume One focuses on the civil-military dimensions of the changes in China’s capabilities and the fact that China – unlike the U.S. and most other states – integrates its civil and military strategy and development plans. It shows how China’s civil development has greatly increased its capability to compete on a global level in both civil and military terms and to conduct what might be called “white area warfare”: China’s ability to achieve major strategic gains through purely civil means and without the use of force.

The Focus of the Analysis

This Volume serves as a more conventional analysis of China’s military development. It draws on excerpts from official U.S. and strategic partner studies to provide a broad overview of China’s military strategy; defense policy; military organization and leadership; military spending; and impact on the military balance between U.S., Chinese, and Russian military forces.

It then addresses China’s strategic goals and military progress by region and country. It covers the overall trends in Asia; the balance between the China and the United States in the Pacific, China and India, and China and the Middle East and Africa; China’s dependence on petroleum imports; China’s role in the South China Sea and Taiwan; China’s capabilities relative to Taiwan; China’s forces near the Koreas; China’s military pressure on Japan; and China’s growing ties to Russia.

The final section addresses China’s rapidly evolving military capabilities by military element: ground forces, naval, forces, air forces, nuclear and chemical and biological weapons (CBW) forces, missile and precision strike forces, space capabilities, “intelligentized” and cyber warfare capabilities, and reserve and paramilitary forces.

It should be stressed that such an analysis can only flag the key trends in China’s growing civil-military capabilities to compete with the United States and other powers. At the same time, such an overview provides a warning against the tendency to focus on one aspect of China’s growing capabilities, on a key aspect of China’s changing weapons and military technology, or on a single region and scenario for warfighting. It also illustrates the fact that China focuses on military development to achieve its strategic goals without a major conflict and without the direct use of military force if possible. There is a tendency in some studies of China’s growing military capability to focus on a single aspect of China’s progress. Some wargames also focus on intensive levels of conflict without examining China’s strategic focus on avoiding such levels of warfare.
Like Volume One, Volume Two provides a wide range of summary data on the trends in China’s development and future plans, which show how China’s growing capabilities reflect the impact of an integrated civil-military strategy as well as political and economic efforts that go far beyond U.S. and allied efforts. Unlike the U.S. and most of its strategic partners – whose concepts of strategy focus on combat in Clausewitzian terms, China focuses on Sun Tzu’s emphasis of winning without fighting where possible and on “battles” where civil maneuvers and the use of military forces with limited or no combat produce a lasting form of victory.

Equally important, both Volume One and Volume Two show just how complex the trends in China’s evolving civil-military challenge are. They show how difficult it is to compare them with the trends in the U.S. and other states on a global level, how many different ways these trends can be estimated and compared, and how many conflicting views and uncertainties exist in virtually every key area.

Relying on Official Sources and the Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2021

The goals behind developing these volumes are different from most unclassified research efforts. One key goal is to provide some key elements of a net assessment that focuses on official U.S. views. Where possible, the graphics, maps, and trends in each Volume rely on official U.S. and Chinese reporting and official reporting by international sources – including the UN, World Bank, and IMF. At the same time, they draw upon sources like the Congressional Research Service; official reporting by other countries like China, Japan, Taiwan, and South Korea; and work by RAND, other think tanks, and expert sources to illustrate the range of different official and expert estimates.

It should be stressed that the narrative text in both Volumes does not represent the authors’ views. It instead highlights official U.S. unclassified reporting as of late 2021. It is designed to give the reader as clear of an unclassified picture as possible of how the U.S. government assesses developments in China. Most excerpts come from the narratives in the declassified U.S. studies and intelligence data provided in the Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2021 that was issued in early November 2021.

This annual report is now issued by the U.S. Secretary of Defense as a report to Congress, but it began as an annual report on Chinese Military Power issued by the U.S. Defense Intelligence Agency. It has evolved into a document that comes as close to an authoritative set of judgments by the U.S. intelligence community as an unclassified report can. It provides the user with exceptional insights into how the U.S. judged developments in China from sources with all of the resources and special access of the U.S. intelligence community.

Other Key Goals

Another key goal has been to illustrate the sheer complexity of the various ways in which China and the U.S. compete. The maps and graphics in this volume show that China’s military activity is becoming increasingly global, and it is not centered in the area of Taiwan or the South China Sea. China increasingly emphasizes military capabilities in all of Asia and the capability to project political, economic, and military power on a global level. At the same time, radical changes are taking place in military technology, in all domain warfare, tactics, strike range and precision strike capabilities, reaction times, and the use of artificial intelligence and autonomous systems. The strategic competition between the U.S. and China has become so complex that it is the equivalent of a game of three-dimensional chess where there are no
fixed rules, no limit to the number of boards where the game is played, and no clear limits to the number of state and non-state actors that can join the game and move independently.

A third goal is to show that the competition to build-up the forces of each side has become competition where there are strong incentives to limit the level of actual conflict if actual fighting does begin. China and the U.S. compete in a world where there they have strong economic, political, and strategic incentives to cooperate as well as to confront each other. U.S. official sources make this clear. Even “winning” a war over an objective as limited as Taiwan can mean human and economic costs for both sides that exceed any military benefits. The end result of such a war is also unlikely to be any form of real peace. It may well make Chinese and U.S. military competition even more costly and intense and could increase the risk that a future war will escalate to catastrophic levels. To paraphrase War Games, the only way that China and the U.S. can “win” at theater levels of conflict and above is to not to fight.

A fourth goal has been to present a range of metrics that illustrate the many uncertainties involved in estimates of how China is competing and its relative level of success. The graphics show just how rapid the rate of change has become in many key areas of China’s military forces. They also show how different some estimates of the trends and rate of change are. They show that experts are often forced to speculate as to how China will progress over the coming years and decades.

It should be stressed that the data presented often differ even when they come from the same country and source. Accordingly, the original source must be carefully consulted to fully understand the definition and source of the data presented or – as is all too common – the lack of any clear explanation of the data. The reader should also be aware that many of the summary graphics and other data drawn from official sources and the work of other experts and think tanks, can only highlight given aspects of competition. Most have to be presented out of context or without the narratives in the original source that show both the uncertainties in such data as well as the effort to put them in context, which is presented in the full text of the document from which they are drawn. This is why sources are shown in detail, and excerpts are provided within the constraints imposed by the need to limit its length.

Cautions in Interpreting the Data

Five other cautions need to be kept in mind in interpreting these estimates and data.

• First, China emphasizes the integrated use of political, economic, and military power as well as the use of both civil and military power in ways that achieve its goals without fighting a serious war, particularly with major powers like the United States. China also has a potential advantage in integrating its civil and military efforts because a unified authoritarian state can use centralized state planning to commit resources and compete at the civil as well as at the military level. The U.S. and other Western states have attempted to respond by using measures like sanctions and trade barriers, but they do not have political and economic systems that allow the state to directly integrate civil and military operations. This may explain why much of the U.S. and Western analytic effort that addresses Chinese military dynamics and warfighting capability does not fully address the diplomatic, civil, and economic aspects of Chinese competition – issues addressed in the other e-book in this series, which is entitled, China: The Civil-Military Challenge: Volume One of a Graphic Net, available for download here.

• Second, the nature of warfare is changing rapidly in key aspects of the technology and tactics used in every aspect of a major conflict. Many of the changes involve high levels of uncertainty and are taking place at highly classified levels. Cyber conflict, space, “informatization,” joint all-domain operations, precision conventional strike,
use of artificial intelligence, and use of third-party state and non-state actors. There are no clear metrics that measure many of these changes, and others do not lend themselves easily to the broad force comparisons or trend data used in this analysis.

At the same time, they have already sharply shaped each side’s ability to influence, intimidate, deter, and fight. China’s comparative success in these areas – many of which involve cutting edge aspects of civil technology and manufacturing – may dominate the future of military competition over the coming decades and do so in ways that no one can now credibly predict and assess.

• Third, parts of this analysis reflect the fact that the U.S. has shifted its strategy to emphasize competition in the Pacific, and particularly in the South China Sea; in dealing with Taiwan; and in China’s growing pressure on South Korea, Japan, and in the Indian Ocean region. This shift is still very much in progress, however, and the U.S. has only begun to shift its forces to react to each region. So far, the U.S. has also tended to understate the importance of China’s ability to use its economic power on a global basis to conduct the equivalent of gray and white area warfare, its growing capability to put pressure on Central Asian and Indian Ocean states, its growing links to Russia, and its role as a truly global power where its economic strength may compensate for its current lack of military power projection capability.

• Fourth, it is still too early to predict the ways in which China will improve its nuclear and dual nuclear/conventional warfighting forces and defenses over time, and the President’s proposed FY2022 budget will show that the U.S. is still in the process of forming a coherent strategy and force posture as well. It now seems likely that China will develop a far more advanced capability for mutual assured destruction at high levels of conflict, but it will also focus on economic and civil competition – as well as gray area, irregular, and conventional wars at low theater levels. China’s emergence as a direct rival to the United States – and the uncertain role of Russia – means that the spectrum of conflict from “white area competition” to gray area warfare, limited direct war, theater conflicts, major long-range precision conventional strikes, and nuclear war is growing steadily more uncertain – as are the options for cooperation, deterrence, arms control, negotiated agreements, confrontation, and de-escalation.

Finally, the data in both Volumes show that China and the U.S. are now competing in ways which could lead to serious conflicts. These same data also, however, warn that both states have strong economic and political incentives to place serious limits on any level of actual conflict. The rising levels of forces, advanced weapons, and potential scale of any conflict warns both sides that “winning” even a relatively limited war can mean human and economic costs to both sides that vastly exceed any military benefits, and it may simply end in making future military competition more costly and intense. It is also all too clear from the rising levels of strike forces and nuclear forces in Volume Two that any major war presents the risk that a future war will escalate to catastrophic levels.

Success means avoiding conflicts that can weaken or destroy key elements of the economy; relying on diplomatic maneuver, economic influence, and use of force that pressures the other side rather than directly defeats it in battle; and strengthening deterrence and the control of escalation. Fortunately, at least so far, both China and the U.S. seem to realize that this means they need to play with all the caution advocated by Sun Tzu’s rules and to avoid any actions that could ignore Clausewitz’s warning that “ideal” war should remain a “logical fantasy” – understanding that the purpose of war is not to defeat the enemy but to achieve a victory that produces lasting strategic gains.
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China’s Military Strategy
DIA on China’s Pre-2015 Strategy

• A “period of strategic opportunity” in the international environment that allows China to focus on building “comprehensive national power.”

• The CCP’s contemporary strategic objectives are to:
  o Perpetuate CCP rule.
  o Maintain domestic stability.
  o Sustain economic growth and development.
  o Defend national sovereignty and territorial integrity.
  o Secure China’s status as a great power.

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 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.
- 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.
The PRC has long viewed the United States as a competitor and has characterized its view of strategic competition in terms of a rivalry among powerful nation states, as well as a clash of opposing systems. As expressed in the Interim National Security Strategic Guidance, the PRC is the only competitor capable of combining its economic, diplomatic, military, and technological power to mount a sustained challenge to a stable and open international system. The PRC is increasingly clear in its ambitions and intentions. Beijing seeks to reshape the international order to better align with its authoritarian system and national interests, as a vital component of its strategy to achieve the “great rejuvenation of the Chinese nation.” According to this worldview, the accrual of the PRC’s comprehensive national power, including military power, is necessary to set the conditions for Beijing to assert its preferences on a global scale.

…The PRC’s national strategy to achieve “the great rejuvenation of the Chinese nation” by 2049 is deeply integrated with its ambitions to strengthen the PLA. In 2017, General Secretary Xi Jinping laid out two PLA modernization goals during his speech to the 19th Party Congress: to “basically complete” PLA modernization by 2035 and to transform the PLA into a “world class” military by 2049. Throughout 2020, the PLA continued to pursue its ambitious modernization objectives, refine major organizational reforms, and improve its combat readiness in line with those goals. This includes the PLA developing the capabilities to conduct joint long-range precision strikes across domains, increasingly sophisticated space, counterspace, and cyber capabilities, and accelerating the large-scale expansion of its nuclear forces. In 2020, the Chinese Communist Party (CCP) announced a new milestone for PLA modernization in 2027 broadly understood as the modernization of the PLA’s capabilities to be networked into a system of systems for “intelligentized” warfare. If realized, the PLA’s 2027 modernization goals could provide Beijing with more credible military options in a Taiwan contingency.

…As the PRC continues to marshal all elements of its national power toward its centenary goals in 2049, DoD’s annual report strives to provide an authoritative assessment of the PRC’s strategic objectives. …The PLA’s modernization serves as a crucial component of a national system galvanized to achieve the PRC’s national strategy. The PRC’s strategy to achieve “national rejuvenation” is not limited to domestic efforts. This strategy entails efforts to change international conditions to suit the CCP’s concept of a “community of common destiny.” This report illustrates the importance of meeting the pacing challenge presented by the PRC’s increasingly capable military and its global ambitions…

… China’s National Strategy
• The PRC’s strategy aims to achieve “the great rejuvenation of the Chinese nation” by 2049 to match or surpass U.S. global influence and power, displace U.S. alliances and security partnerships in the Indo-Pacific region, and revise the international order to be more advantageous to Beijing’s authoritarian system and national interests. This strategy can be characterized as a determined pursuit of far-ranging efforts to expand the PRC’s national power.

• Despite challenges posed by the COVID-19 pandemic, Beijing continued its efforts to advance its overall development including steadying its economic growth, strengthening its armed forces, and taking a more assertive role in global affairs. In response to both long and short-term economic trends, the CCP unveiled a new economic strategic task, or a new “development pattern,” called “dual circulation (双循环).”

• The PRC has characterized China’s view of strategic competition in terms of a rivalry among powerful nation states, as well as a clash of opposing ideological systems. Beijing views the United States as increasingly determined to contain the PRC, creating potential obstacles to its strategy. Additionally, the PRC’s leaders are increasingly willing to confront the United States and other countries in areas where interest diverge.

Foreign Policy
• The PRC’s foreign policy seeks to build a “community of common destiny” that supports its strategy to realize “the great rejuvenation of the Chinese nation.” Beijing’s revisionist ambition for the international order derives from the objectives of its national strategy and the Party’s political and governing systems.
• In 2019, the PRC recognized that its armed forces should take a more active role in advancing its foreign policy, highlighting the increasingly global character that Beijing ascribes to its military power.
• In 2020, the COVID-19 pandemic was a driving force behind the PRC’s foreign policy efforts, as Beijing sought to deflect any culpability for the virus and its initial spread, and to capitalize on its narrative of domestic success and foreign assistance.

Economic Policy
• The PRC’s military modernization objectives are commensurate with, and part of, Beijing’s broader national development aspirations. The PRC’s economic, technological, political, social, and security development efforts are mutually reinforcing and support Beijing’s strategy to shape international and regional environments that accept and facilitate Beijing’s interests.
• The PRC’s economic development supports its military modernization not only by providing the means for larger defense budgets, but through deliberate Party-led initiatives such as Made in China 2025 and China Standards 2035, as well as the systemic benefits of the PRC’s growing national industrial and technological base.
• In the rollout of the PRC’s 14th Five Year Plan (2021-2025), the Party announced a shift to a new “development pattern” of “dual circulation (双循环).” Dual circulation is focused on accelerating domestic consumption as a driver of economic growth, shifting to higher-end manufacturing, and creating “breakthroughs” in key technologies along critical high-end global supply chains, all while emphasizing “mutually reinforcing” foreign investment in these key technologies to provide the capital and technology necessary to advance domestic technological innovation in support of the PRC’s security and development objectives.

Military-Civil Fusion Development Strategy

• The PRC pursues its Military-Civil Fusion (MCF; 军民融合) Development Strategy to fuse its economic, social, and security development strategies to build an integrated national strategic system and capabilities in support of the PRC’s national rejuvenation goals.

• Beijing’s MCF strategy includes objectives to develop and acquire advanced dual-use technology for military purposes and deepen reform of the national defense science and technology industries, and serves a broader purpose to strengthen all of the PRC’s instruments of national power.

• The PRC’s MCF development strategy encompasses six interrelated efforts: (1) fusing China’s defense industrial base and its civilian technology and industrial base; (2) integrating and leveraging science and technology innovations across military and civilian sectors; (3) cultivating talent and blending military and civilian expertise and knowledge; (4) building military requirements into civilian infrastructure and leveraging civilian construction for military purposes; (5) leveraging civilian service and logistics capabilities for military purposes; and, (6) expanding and deepening China’s national defense mobilization system to include all relevant aspects of its society and economy for use in competition and war.

Defense Policy and Military Strategy

• The PRC has stated its defense policy aims to safeguard its sovereignty, security, and development interests. The PRC’s military strategy remains based on the concept of “active defense.”

• The PRC’s leaders stress the imperative of strengthening the PLA into a “world-class” military by the end of 2049 as an essential element of its strategy to rejuvenate the PRC into a “great modern socialist country.” In 2020, the PLA added a new milestone for modernization in 2027, to accelerate the integrated development of mechanization, informatization, and intelligentization of the PRC’s armed forces, which if realized would provide Beijing with more credible military options in a Taiwan contingency.

• In November 2020, the CMC issued the “Chinese People’s Liberation Army Joint Operations Outline (trial) (中国人民解放军联合作战纲要(试行))” described as the “top-level law” of the PLA’s combat doctrine system in the “new era” that would strengthen the requirements and procedures for joint operations, combat support, national defense mobilization, and political work, among others.

• In 2020, the PLA remained primarily oriented toward “safeguarding” its perceived “sovereignty and security” interests in the region, while emphasizing a greater global role for itself, such as through delivering COVID-19 aid abroad and the pursuit of overseas military facilities, in accordance with the PRC’s defense policy and military strategy.

# Figure 1.2 Evolution of China’s Military Strategy

<table>
<thead>
<tr>
<th>Era</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mao Zedong era</td>
<td>Readiness for war based on theory of unavoidable final war</td>
</tr>
<tr>
<td>Deng Xiaoping era</td>
<td>Break from the theory of unavoidable final war. Nation building and military buildup in a peaceful environment</td>
</tr>
<tr>
<td>Jiang Zemin era</td>
<td>Break from Cold War structure. Nation building and military buildup in peacetime</td>
</tr>
<tr>
<td>Hu Jintao era</td>
<td>Nation building and military buildup in the process of turning China into an economic power</td>
</tr>
<tr>
<td>Xi Jinping era</td>
<td>Nation building and military buildup as an economic power</td>
</tr>
</tbody>
</table>

## Nature of warfare: people’s war (content changed with the times)

- **Active defense strategy (content changed with the times)**
  - From “striking only after the enemy has struck” to “striking before the enemy strikes”
  - From “lure the enemy troops in deep” operations to “deny enemy penetration” operations

## Evolution of Ground, Sea, Air, and Space Warfare

- **Ground, sea, air**
  - United States and Soviet Union

- **Ground, sea, air + space**
  - Army, Navy, Air Force

- **Ground, sea, air + space, cyber, electromagnetic**
  - Army, Navy, Air Force, Second Artillery Force

Japanese NIDS on Evolution of China’s Military Strategy – II

Table 1.1: Past and Present Leaders, the Science and Technologies Emphasized by the PLA, and Military Strategy

<table>
<thead>
<tr>
<th>Leader</th>
<th>Science, technologies, and weapons emphasized by the PLA</th>
<th>Military strategy that was adopted (besides active defense which has been adopted throughout)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mao Zedong</td>
<td>Atomic bomb, hydrogen bomb</td>
<td>People’s war (while its content has changed, the term itself has survived in succeeding eras)</td>
</tr>
<tr>
<td>Deng Xiaoping</td>
<td>Advanced conventional weapons</td>
<td>Local wars under modern conditions</td>
</tr>
<tr>
<td>Jiang Zemin</td>
<td>High tech, high-tech weapons</td>
<td>Local wars under high-tech conditions</td>
</tr>
<tr>
<td>Hu Jintao</td>
<td>Information and weapons operated based on information</td>
<td>Local wars under the conditions of informatization</td>
</tr>
<tr>
<td>Xi Jinping</td>
<td>Information, intelligence, and weapons operated on their basis</td>
<td>Informatized warfare (shift to intelligentized warfare)</td>
</tr>
</tbody>
</table>

Japanese NIDS on Evolution of China’s Military Strategy – III

Unrestricted warfare

Military
- Nuclear warfare
- Conventional warfare
- Biochemical warfare
- Ecological warfare
- Space warfare
- Electronic warfare
- Guerrilla warfare
- Terror warfare

Trans-military
- Diplomatic warfare
- Cyber warfare
- Information warfare
- Psychological warfare
- Technical warfare
- Smuggling warfare
- Drug warfare
- Virtual warfare
  (Intimidation)

Non-military
- Financial warfare
- Trade warfare
- Resource warfare
- Economic assistance warfare
- Legal warfare
- Sanctions warfare
- Media warfare
- Ideological warfare

# Taiwan: PRC Military Strategic Guidance in Different Eras

<table>
<thead>
<tr>
<th>Era</th>
<th>People’s War</th>
<th>People’s War under Modernized Conditions</th>
<th>To Win a Local War under High-tech Conditions</th>
<th>To Win a Local War under Informatized Conditions</th>
<th>To Win an Informatized Local War</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mao Zedong</td>
<td>Active defense and all-out war</td>
<td>Active defense and littoral operations</td>
<td>Active defense and original near-seas defense transitioned to far seas protection</td>
<td>Focusing on scientific development and information tech led by informatization efforts</td>
<td>Army: Maneuver operations and multidimensional offense and defense</td>
</tr>
<tr>
<td></td>
<td>Punch early, strike in large scale, and prepare for nuclear war</td>
<td>Revolutionized, modernized, and regularized forces</td>
<td>Revolutionized, modernized, and regularized forces</td>
<td></td>
<td>Navy: Near seas defense and far seas protection</td>
</tr>
<tr>
<td>Deng Xiaoping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Air Force: Integrating air and space capabilities and coordinating offensive and defensive ops</td>
</tr>
<tr>
<td>Jiang Zemin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Rocket Force: Possessing nuclear and conventional missiles and deterring wars in all dimensions</td>
</tr>
<tr>
<td>Hu Jintao</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Strategic Support Force: Integrating existing systems and aligning civil-military endeavors</td>
</tr>
<tr>
<td>Xi Jinping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Joint Logistic Support Force: Joint operations, joint training, and joint logistics</td>
</tr>
</tbody>
</table>

Taiwan: Xi Jinping’s Defense and Military Reforms

2014
- March / The Central Military Commission (CMC) was inaugurated to deepen the progress of defense and military.

2015
- September / Xi announced to cutdown military by 300,000.
- November / CMC reform meeting activated military reform.
- December / Rocket force, strategic support forces, and ground force headquarters were established.

2016
- January / Four command headquarters were re-organized as 15 functional departments.
- February / 7 Military Regions were re-organized as 5 Theater Commands.
- September / Joint Logistic Support Forces was commissioned.

2017
- April / PLACF’s 18 Group Armies were re-organized as 13 Group Armies.
- June / Central Commission for Civil-Military Integration was inaugurated.

2018
- January / The Armed Police Force was reassigned to the CMC, and the new Military Training Guidelines took effect.

2019
- October / The 19th Central Committee of the Chinese Communist Party was convened, and required the PLA “speed up integration of mechanized, informatized, intelligent technologies, comprehensively strengthen training and readiness, and improve strategic capabilities to uphold the nation’s sovereignty, security and development of interests, so as to realize PLA’s goal of centennial struggle in 2027.”

2020
- November / The Joint Operations Guidelines was presented and was undergoing a test run for realignment.

## RAND Estimate of China’s Dream International End State by 2050

<table>
<thead>
<tr>
<th>Domain</th>
<th>Sample Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major powers</td>
<td>China is the global leader with the largest network of client states and predominant international influence; major powers maintain stable, cooperative ties with China under a permeable spheres-of-influence–type arrangement. Major powers manage their differences according to norms established by China, but all respect the primacy of China’s interests and authority worldwide.</td>
</tr>
<tr>
<td>Periphery</td>
<td>China has become the predominant economic, political, and security power in the Indo-Pacific while coexisting with major powers, such as Japan and India. China leads a network of client states based primarily among developing countries in South, Southeast, and Central Asia.</td>
</tr>
<tr>
<td>Developing world</td>
<td>China has developed a political and security constituency of developing countries around the world, based mainly along the BRI routes in Eurasia, the Middle East, and Africa. Most of the developing world is integrated into BRI-related trade, investment, and infrastructure architecture led by China. China maintains clients, primarily along the BRI routes and into Latin America, that help protect Chinese interests and promote its authority.</td>
</tr>
<tr>
<td>Multilateral</td>
<td>The United Nations remains a key institution, but it has been renovated to uphold principles, norms, and values favored by China; established and newer Chinese-led regional and global multilateral relationships generally reflect Beijing’s preferred norms, values, and clients.</td>
</tr>
<tr>
<td>Global governance/</td>
<td>Chinese discourse is dominant in Asia and widely understood globally; Chinese norms, values, and preferences are predominant in the global management of space, cyber, law, and maritime domains. China acts as a provider of global goods, principally in collaboration with its clients.</td>
</tr>
<tr>
<td>domains</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States and China avoid war</td>
<td>China and the United States maintain peaceful, stable relations despite the persistence of friction points and disputes. This does not preclude crises, proxy conflicts, and confrontations of a more limited scope, however, so long as these are deescalated effectively.</td>
</tr>
<tr>
<td>United States accepts Chinese international leadership</td>
<td>The United States defers to Chinese international leadership and behaves in a manner consistent with a position of inferiority. The United States agrees to support the norms and values upheld by China as the informal basis for international relations. The United States largely accepts China’s leadership role in multilateral organizations.</td>
</tr>
<tr>
<td>United States refrains from harming Chinese interests</td>
<td>The United States agrees to revise policies to accommodate Chinese preferences on Taiwan and other core interests. The United States refrains from interfering in China’s internal affairs, U.S. involvement in confrontations between China and U.S. allies and partners in Asia is limited at most to symbolic gestures. The United States respects the interests of China’s client states and generally refrains from policies that antagonize Beijing.</td>
</tr>
<tr>
<td>China has gained primacy in Eurasia, Middle East, and Africa</td>
<td>China’s network of client states predominates in Eurasia, the Middle East, and Africa. The United States participates in the economic and political life of those areas on terms acceptable to China. Chinese success in leading integration along BRI routes leaves the United States in a position of disadvantage, which Washington has little ability to reverse.</td>
</tr>
<tr>
<td>U.S. primacy reduced to Americas</td>
<td>China defers to the United States in its leadership in the Americas, although it expects the United States to respect Chinese interests and authority and avoid harming the interests of Chinese client states in that region.</td>
</tr>
<tr>
<td>Differences managed according to Chinese norms</td>
<td>The United States and China manage their differences in bilateral and multilateral institutions and venues in accordance with norms of diplomatic relations upheld by China.</td>
</tr>
<tr>
<td>Cooperation on shared concerns</td>
<td>Despite differences and disagreements, the two countries cooperate on shared concerns and coordinate with one another in bilateral and multilateral institutions and venues approved by China.</td>
</tr>
</tbody>
</table>

Key Chinese Documents and Sources for Understanding Chinese Military Strategy

Unlike the United States, China does not publicize a single document that might be referred to as a national military strategy. China’s most important strategic military document is the military strategic guideline, which is not publicly available, although major contours of these guidelines can be identified from other documents and speeches. The CMC has updated the military strategic guideline nine times since 1949, most recently in 2014.

Publicly-available documents that explain China’s military strategy, organization, and activities include:

**Defense white papers**: Published by China’s State Council Information Office and largely intended for international audiences, defense white papers contain information about China’s national security interests and military activities. They do not follow a particular format or consistently cover the same themes or topics. The most recent defense white papers were published in 2015 and 2019.

**Science of Military Strategy**: This product is authored by the Academy of Military Science, a PLA-affiliated research center. It is not an official PRC government or PLA document, but it “represents the apex of the PLA’s professional military literature on the study of war” and “highlights the views of many of the PLA’s leading strategists, some of whom are involved in the formulation of strategy or operational doctrine,” according to one U.S. scholar of the PLA. PLA scholars consider the Science of Military Strategy to be authoritative. The most recent Science of Military Strategy is from 2013 (with previous editions in 1987 and 2001), so its insights may be dated. China’s National Defense University, a PLA academic organization, also publishes its own Science of Military Strategy (with editions or revisions issued in 1999, 2015, 2017, and 2020). References in this report are to the Academy of Military Science’s Science of Military Strategy.

**Science of Campaigns**: According to the U.S. Air University’s China Aerospace Studies Institute, the Science of Campaigns is “a core document for Chinese military officer education” and describes the “thoughts, principles, and fighting methods” for 17 different military campaigns, among other things. It was last published in 2006 by China’s National Defense University. Like the Science of Military Strategy, it is considered authoritative but is not published by the Chinese government or PLA.

**Plans, speeches, and other documents**: In addition to these core documents, details of China’s military strategy and activities can be found in five-year plans and other plans, major speeches (such as by leaders to Party Congresses), as well as statements by PLA and Ministry of National Defense officials.

**Comprehensive National Security Concept**: Introduced by Xi in 2014 and issued internally in 2015, this document refers to China’s national security strategy, broadly defined (rather than military strategy). It is viewed by some as China’s first national security strategy, and indicative of a new grand strategy for China, as envisioned by Xi.
DoD Summary of China’s Defense Policy and Military Strategy in 2021

Key Takeaways

- The PRC has stated its defense policy aims to safeguard its sovereignty, security, and development interests. The PRC’s military strategy remains based on the concept of “active defense.”

- The PRC’s leaders stress the imperative of strengthening the PLA into a “world-class” military by the end of 2049 as an essential element of its strategy to rejuvenate the PRC into a “great modern socialist country.” In 2020, the PLA added a new milestone for modernization in 2027, to accelerate the integrated development of mechanization, informatization, and intelligence of the PRC’s armed forces, which if realized would provide Beijing with more credible military options in a Taiwan contingency.

- In November 2020, the CMC issued the “Chinese People’s Liberation Army Joint Operations Outline (trial) (中国人民解放军联合作战纲要(试行))” described as the “top-level law” of the PLA’s combat doctrine system in the “new era” that would strengthen the requirements and procedures for joint operations, combat support, national defense mobilization, and political work, among others.

- In 2020, the PLA remained primarily oriented toward “safeguarding” its perceived “sovereignty and security” interests in the region, while emphasizing a greater global role for itself, such as through delivering COVID-19 aid abroad and the pursuit of overseas military facilities, in accordance with the PRC’s defense policy and military strategy.

The PRC has stated its defense policy aims to safeguard its national sovereignty, security, and development interests. China’s leaders view these interests as foundational to their national strategy. In 2020, the PRC’s defense policy and military strategy primarily oriented the PLA towards “safeguarding” its perceived “sovereignty and security” interests in the region counter the United States. At the same time, China’s leaders increasingly cast the armed forces as a practical instrument to defend Beijing’s expanding global interests and to advance its foreign policy goals within the framework of “Major Power Diplomacy with Chinese Characteristics.” The PRC’s military strategy is based on “active defense,” a concept that adopts the principles of strategic defense in combination with offensive action at the operational and tactical levels. To adapt the PRC’s armed forces to long-term trends in global military affairs and meet the country’s evolving national security needs, China’s leaders stress the imperative of meeting key military transformation targets set in 2020 and 2035. These milestones seek to align the PLA’s transformation with the PRC’s overall national modernization so that by the end of 2049, the PRC will field a “world-class” military. Throughout 2020, the PLA continued to pursue these ambitious modernization efforts, probably completing or finalizing most reforms announced in 2015.

Strategic Assessment. A key driver of the PRC’s defense policy is how China’s leaders perceive the relative threats and opportunities facing the country’s comprehensive development. In 2019, the PRC published a new defense white paper, China’s National Defense in the New Era, which outlined the PRC’s view of the international and “Asia-Pacific” security landscape and offered insights into its defense policy and military strategy. According to the paper, Beijing views the international environment as undergoing “profound changes unseen in a century.” The PRC presents the assessment that, “… 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.”

The PRC also concludes that “international strategic competition is on the rise” and expresses deep concerns at what it sees as growing sources of instability in the near-term. Offering no introspection on Beijing’s own role in stirring geopolitical tensions through its economic practices, military activities and modernization, excessive maritime territorial claims, “wolf warrior” diplomacy, or efforts to revise aspects of global governance, the PRC describes the international system as being “…undermined by growing hegemonism, power politics, unilateralism and constant regional conflicts and wars.” Similarly, the PRC contends that global military competition is intensifying and that “major countries” are adjusting their security and military strategies, reorganizing their militaries, and are developing new types of combat forces to “seize the strategic commanding heights in military competition.”

Defense Policy and Military Strategy: 2021 – II

Defense Policy: The PRC’s stated defense policy is to “resolutely safeguard” its sovereignty, security, and development interests, according to its 2019 defense white paper—offering continuity with past statements by PRC senior leaders and other official documents. In practice, the PRC’s military power is increasingly a central feature of its regional and global ambitions. The 2019 defense white paper also identifies the PRC’s national defense aims that support these interests, likely offered in order of importance:

• 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 the PRC’s maritime rights and interests;
• to safeguard the PRC’s security interests in outer space, the electromagnetic spectrum and cyberspace;
• to safeguard the PRC’s overseas interests; and,
• to support the sustainable development of the country.

Key changes in the “New Era” include efforts to improve coordination across the party-state to leverage all organs of national power in a unified approach to support the CCP’s ambitions of a global military capability. Unlike previous defense white papers, China’s National Defense in the New Era explicitly stresses the PRC’s armed forces’ alignment and support to the Party’s broader societal, and foreign policy objectives. The paper specifically aligns the PRC’s armed forces with the national objectives set by General Secretary Xi at the 19th Party Congress in 2017. For example, the white paper states that the PRC’s armed forces must be ready to “provide strong strategic support for the realization of the Chinese Dream of national rejuvenation, and to make new and greater contributions to the building of a shared future for mankind.” Also notable is the growing explicit alignment between the PRC’s defense and foreign policies, particularly in the armed forces’ role in protecting the PRC’s overseas interests and furthering the CCP’s concept of “strategic partnerships” with other countries.

Party-Army Relations: The PLA is the principal armed wing of the CCP and, as a party-army, does not directly serve the state. The CCP Central Military Commission (CMC), currently chaired by Xi Jinping, is the highest military decision-making body in China. As a party-army, the PLA is a political actor. As a constituency within the Party, it participates in the PRC’s political and governance systems. As the ultimate guarantor of the Party’s rule and political and governance systems, the PLA’s missions include formal and informal domestic security missions in addition to its national defense missions. Although visible differences between the CCP and the PLA are extremely rare, in recent years outside observers have pointed out that Party leaders and official propaganda have increasingly emphasized the principles of the Party’s absolute control over the PLA and the PLA’s loyalty to the Party, despite the fact that the officer corps is composed almost entirely of Party members. Military Strategic Guidelines. The Chairman of the CMC issues military strategic guidelines to the PLA that provide the foundation of the PRC’s military strategy. The military strategic guidelines set the general principles and concepts for the use of force in support of the CCP’s strategic objectives, provide guidance on the threats and conditions the armed forces should be prepared to face, and set priorities for planning, modernization, force structure, and readiness. The CCP leadership issues new military strategic guidelines, or adjusts existing guidelines, whenever they perceive it necessary to shift the PLA’s priorities based on the Party’s perceptions of China’s security environment or changes in the character of warfare.
Recent trends suggest the PRC may have recently reviewed and adjusted its military strategic guidelines. In early 2019, PRC state media indicated that Beijing held senior-level meetings to “establish the military strategy of the ‘New Era.’” The PRC’s 2019 defense white paper states that the PLA is implementing guidelines for the “New Era” that “…actively adapt to the new landscape of strategic competition, the new demands of national security, and new developments in modern warfare…” PRC official media in the latter half of 2019 echoed these themes and described the guidelines as constituting a notable change. The PRC’s defense white paper may reflect changes in the guidelines given the white paper’s emphasis on the intensification of global military competition, the increase in the pace of technological change, and the military modernization themes introduced by General Secretary Xi at the 19th Party Congress. Documents released following the Fifth Plenum of the 19th Central Committee in October 2020 hailed progress in the “comprehensive and in-depth” implementation of the “New Era military strategic guidelines.”

These developments are notable because the CCP leadership has issued new military strategic guidelines or adjusted its guidelines only a few times since the end of the Cold War. In 1993, the CMC under Jiang Zemin directed the PLA to prepare to win “local wars” under “high-tech conditions” after observing U.S. military operations in the Gulf War. In 2004, the CMC under Hu Jintao ordered the military to focus on winning “local wars under informationized conditions.” In 2014, the CMC under Chairman Xi Jinping placed greater focus on conflicts in the maritime domain and fighting “informatized local wars.”

**Military Strategy: Active Defense.** The PRC’s military strategy is based on what it describes as “active defense,” a concept that adopts the principles of strategic defense in combination with offensive action at the operational and tactical levels. Active defense is neither a purely defensive strategy nor limited to territorial defense. Active defense encompasses offensive and preemptive aspects. It can apply to the PRC acting externally to defend its interests. Active defense is rooted in the principle of avoiding initiating armed conflict, but responding forcefully if challenged. The PRC’s 2019 defense white paper reaffirmed active defense as the basis for its military strategy. Minister of National Defense General Wei Fenghe reiterated this principle of active defense in his speech at the Ninth Beijing Xiangshan Forum in 2019, stating that the PRC “will not attack unless we are attacked, but will surely counterattack if attacked.”

First adopted by the CCP in the 1930s, active defense has served as the basis for the PRC’s military strategy since its founding in 1949. Although the PRC has adjusted and tailored the specifics of active defense over time based on changes in strategic circumstances, its general principles have remained consistent. Contemporary PRC writings describe the tenets of active defense as:

- **Adhere to a position of self-defense and stay with striking back.** This describes the basic principle for the use of military force under active defense. The PRC’s 2019 defense white paper describes this principle as, “We will not attack unless we are attacked, but we will surely counterattack if attacked.” Active defense may entail defensive counterattacks in response to an attack or preemptively striking an adversary that the PRC judges is preparing to attack.

- **Combine strategic defense with operational and tactical offense.** This aspect offers two approaches to warfare influenced by Mao Zedong’s notion of using defense and offense in turns. First, active defense may involve offensive campaigns, operations, and tactical actions in support of the strategic defense. These may occur rapidly and along “external lines.” Second, it uses active defense involves the use of strategic defense to weaken the enemy and set the conditions to transition into strategic offense in order to secure victory.

- **Taking the operational initiative.** This aspect emphasizes the effective use of offensives at the operational and tactical levels, avoiding enemy strengths, and concentrating on building asymmetric advantages against enemy weaknesses to “change what is inferior into what is superior.”

- **Strive for the best possibilities.** This calls for thorough peacetime military preparations and planning based on fighting the most challenging threat under the most complicated circumstances “in order to get the best results.” This aspect stresses the importance of setting conditions in advance and suggests it is preferable to be prepared and not fight, than to fight unprepared.

- The dialectical unity of restraining war and winning war. This tenet seeks to resolve the dilemma that using too little force may protract a war instead of stopping it while the unconstrained use of force may worsen a war and make it harder to stop. Calling for the “effective restraint of warfare,” this tenet seeks to avoid war first through sufficient military preparations and powerful conventional and strategic forces that act in concert with political and diplomatic efforts to “subdue the enemy’s troops without fighting.” If war is unavoidable, however, this aspect calls for restraining war by taking the “opening move” and “using war to stop war.”

- Soldiers and the people are the source of victory. This tenet integrates the concept of active defense with the concept of “people’s war.” People’s war comprises subordinate military strategies, “guerrilla war” and “protracted war” that Mao saw as a means to harness the capacity of China’s populace as a source of political legitimacy and mobilization to generate military power. Contemporary PRC writings link the people’s war to national mobilization and participation in wartime as a whole-of-nation concept of warfare.

Military Missions & Tasks. The CMC directs the PLA to be ready and able to perform specific missions and tasks to support the Party’s strategy and defend the PRC’s sovereignty, security, and development interests. The PLA’s missions and tasks in the “New Era” include: safeguarding China’s territorial sovereignty and maritime rights and interests; maintaining combat readiness; conducting military training under real combat conditions; safeguarding China’s nuclear weapons and its interests in the space and cyber domains; countering terrorism and maintaining stability; protecting the PRC’s overseas interests; and participating in emergency response and disaster relief.

Modernization Objectives & Targets. Within the context of the Party’s strategy, the modernization of the PRC’s armed forces is not merely a policy preference or a momentary endeavor that may fade over time in importance. Rather, modernization of the armed forces is an indispensable element of the Party’s national strategy to modernize the country. As the CCP declared at the Fifth Plenum in October 2020, the PRC’s ambitions for becoming a rich country are closely integrated with its ambitions to develop a powerful military. Throughout 2020, the PLA continued to pursue ambitious modernization objectives, implement major organizational reforms, and improve its combat readiness in line with the goals and timelines announced by General Secretary Xi Jinping at the 19th Party Congress in 2017. As stated in the 2019 defense white paper, and updated in a 2020 communique following the 5th Plenum of the 19th Central Committee, the PRC’s goals for modernizing its armed forces in the “New Era” are:

- By 2020: “To generally achieve mechanization….with significantly enhanced informationization and greatly improved strategic capabilities;”
- By 2035: “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…”; and,
- In 2049: “To fully transform the people’s armed forces into world-class forces.”

The communique released after the 5th Plenum of the 19th Central Committee in October 2020 added a new milestone for PLA modernization in 2027, the 100th anniversary of the PLA’s founding. While the new 2027 goals did not clearly shift forward any of the PLA’s declared modernization for 2035 and 2049 objectives, it did likely shift the PLA’s development of certain capabilities within the categories of the integrated development of mechanization, informatization, and intelligentization. Following the PLA generally achieving mechanization, its 2020 goal, a new interim target was necessary for the CCP to keep the PLA on track towards its longer-term 2035 and 2049 goals—paralleling the CCP’s broader approach towards military development occurring in three steps. PLA spokespeople have stressed that the 2027 goal means that the Chinese military should comprehensively push forward the modernization of military theories, military organizational form, military personnel, and weapons and equipment.” If realized, this would provide Beijing with more credible military options in a Taiwan contingency. PRC media, citing a military source, connected the PLA’s 2027 goals to developing the capabilities to counter the U.S. military in the Indo-Pacific region, and compel Taiwan’s leadership to the negotiation table on Beijing’s terms. The communique stressed the need to “spur on synchronous improvements in national defense and economic power,” (presumably under Military-Civil Fusion), a PLA spokesman added that “China's national defense strength does not match its economic growth, and is not compatible with China's international standing and its strategic security needs.”
After the Outline was issued, PLA writings noted that PLA joint operations tended to be limited to the strategic level due to the challenges of commanding and communicating with disparate forces from different services and combat arms. These writings also include observations that coordinating forces from different services were overly reliant on the command authority of senior leaders or the use of administrative means to ensure compliance. PLA writers viewed this level of joint integration as insufficient for success in future wars and emphasized that implementing the Outline would establish the rules, systems, and compliance mechanisms to strengthen the PLA’s joint command, operations, and support.

Readiness. As with other aspects of the PRC’s growing strength, the Party views the PLA’s long-term development as useful to the extent that the party-state can wield it. Alongside modernizing the PLA’s capabilities and organizational reform, the PRC’s leaders have identified enhancing the combat readiness of the armed forces as an important element of developing the PRC’s military strength. In recent years, Chairman Xi Jinping and senior military leaders have continued to emphasize the need to build the PLA’s combat readiness so it can “fight and win.” This emphasis has not only entailed the PLA conducting more training, but making its training more rigorous and realistic as well as addressing issues in the PLA’s training and education systems related to conducting complex joint operations and adapting to other aspects of modern warfare. The emphasis on enhancement the PLA’s combat readiness probably has also led to a standardization of a combat readiness system across the PLA to enable the PRC to quickly transition to a wartime footing.

Along with the CCP leadership’s focus on improving the PLA’s combat readiness, in recent years PLA media outlets have noted shortcomings in the military’s training and education systems that reportedly left some commanders—particularly at the operational level—inadequately prepared for modern warfare. In recent years, PLA media outlets have identified the need for the military to address the “Five Incapables” problem: that some commanders cannot (1) judge situations; (2) understand higher authorities’ intentions; (3) make operational decisions; (4) deploy forces; and (5) manage unexpected situations. Although PLA writings do not specify how widespread the “Five Incapables” are, PLA media outlets have consistently raised them. One outside expert has noted this may indicate the PLA lacks confidence in its proficiency to execute its own operational concepts. Additionally, senior Party and PLA leaders are keenly aware that the military has not experienced combat in decades nor fought with its current suite of capabilities and organizational structures. PLA leaders and state media frequently call on the force to remedy the “peacetime disease” that manifests in the form of what it characterizes as lax training attitudes and practices that are viewed as hindering combat readiness.

The COVID-19 pandemic degraded PLA readiness during early 2020, but mitigation measures probably allowed it to return to near-normal states of readiness levels by mid-summer. The PLA attempted to project an image of full operational capability through highly publicized exercises and HA/DR deployments to Wuhan, China and other countries during that time. Through the latter half of the year, the PLA returned to its years-long effort to rectify command personnel shortcomings and strengthen readiness—a goal that was emphasized as a component of the PLA’s new 2027 modernization milestone. In September, the PLA conducted simultaneous drills in the South China, East China, and Yellow Seas, as well as the Bo Hai—probably to exercise the PLA’s command and control systems across multiple theaters—and in November it issued a new trial outline for joint operations. The outline is intended to inform development of new doctrine, orienting the PLA to be ready for combat, and serve as the basis for joint training. Chapter 2 discusses the PLA’s 2020 training and exercises in detail.

Anticorruption Campaign. Anticorruption investigations in the PLA are a component of a Party-wide effort that General Secretary Xi strengthened and accelerated shortly after taking office. The stated goal of these campaigns is to safeguard the legitimacy of the CCP, root out corruption, improve governance, and centralize Xi and the Party’s authority. Military discipline inspectors led by the CMC Discipline Inspection Commission have targeted individual power networks and occupational specialties historically prone to corruption, such as officers connected to disgraced former CMC Vice Chairmen Xu Caihou and Guo Boxiong and, former Chief of Joint Staff General Fang Fenghui.


Gray zone exists in an ambiguous realm between peace and war, and is characterized by having a mix of indirect force application and paramilitary or low-intensity military means to harass, coerce, and attempt to ignite conflicts to undermine national security and regional stability. In recent years, the PRC has been frequently using gray zone tactics, such as cognitive warfare, IW, and incursion by aircraft and vessels, aiming at weakening morale, depleting the resources of the ROC Armed Forces, and eroding the national security, which urgently require precautions and responds.

Countering Cognitive Warfare of the PRC

- Cognitive warfare, which is not confined by time and space, is aimed at influencing the mentality and will of the opponents. Over the years, the PRC has been using the “three warfare” tactics: psychological warfare, public opinion warfare, and legal warfare, to disseminate confusing disinformation and hurl verbal attacks and saber-rattling threats across the board to create divisions among the people. In order to counter PRC’s cognitive warfare tactics, the ROC Armed Forces has established a prompt reaction mechanism by using diversified media channels to clarify false information, clear doubts or apprehension in the society and solidify mental defense of the people and service members. Meanwhile, strategic communication is also conducted to make timely clarification and win the understanding and support from the international community.

1. Cognitive Warfare Conducted by the PRC

The purposes of PRC’s cognitive warfare

- Politically, it is used to suppress Taiwan’s international space, and compel to accept PRC’s political demands. Economically, it is used to make the most of commerce and trade advantages of China to solicit the approval of the people and business circles in Taiwan. Militarily, it is used to expand the effects of military coercion by media and internet propaganda through a show of force and ever-growing numbers of intrusions and provocations along our surrounding waters and airspace.

The means of PRC’s cognitive warfare

- The cognitive warfare is an extension of the PRC’s “three warfare” and united front tactics, stressing that the propaganda has to permeate “into the island (Taiwan), every household, everyone’s head, and ultimately individual’s mind.” It is combined with modern media and internet hacking, trying to sway public opinions, manipulate public perceptions, create fear and suspicion among the people, and eventually destroy their trust to Taiwan government. Currently, it primarily uses social media to spread disinformation that is massively and quickly produced, carefully packaged, and mixed with real information to be believable, and funneled through diversified circulation channels.
2. Building Countermeasures

- Making the best of technological toolkits

The MND makes use of new technological toolkits such as big data systems to predict the patterns of PRC threats and possible means of cognitive warfare, filter and sift out controversial messages, verify and report the results, trace the sources, provide clarifications and evaluations, and make the best of diversified means to amplify countermeasure effects. In addition, the MND maintains awareness of domestic public opinions and draw up publicity strategies by timely utilizing video clips or printed media to harden the psychological defense of the people.

Availing of diversified media to win support

- Following people’s preferences and habits to absorb information, the MND takes actions actively by expanding its broader use of the internet and social media for publicity purposes, so as to multiply its effects, improve people’s comprehension of public information and recognition to national defense, and support the force buildup efforts of the ROC Armed Forces.

Appealing to the international community for a concerted effort

- Taiwan continue to communicate with regional countries to improve their understanding, broaden the friendly sphere in the international community, and win over international support and cooperation, so as to collectively counter the threat of PRC’s cognitive warfare.
Effective Control and Escalation Management
Effective Control

Effective Control. PLA strategists describe “effective control (有效控制)” as a multi-faceted effort to set a favorable strategic posture and to guide military operations with precise control across the full peace-to-war continuum. They argue the international system is increasingly defined by crises rather than war and that despite the inherent uncertainty and complexity of crisis and conflict, decision makers can ultimately ascertain their internal logic and guide them to a satisfactory outcome.

• Since the mid-2000s, PRC leaders have placed greater emphasis on crisis management and peacetime use of military forces, diversifying key PLA tasks to include non-war military activities (NWMA) in addition to deterrence and wartime operations. Historically, PLA texts focused on deterrence and combat operations, often ignoring peacetime activities.

• Developed during the past decade, the PLA concept of effective control calls for PRC leaders to create a favorable posture during peacetime, prevent and control crises, and control and win wars. Comprehensive planning is critical to this approach, including for a wide array of contingencies during peacetime and using military and nonmilitary tools to establish a “strategic situation” conducive to internal stability and external expansion.

• If a crisis occurs, the effective control concept attempts to minimize risk and achieve limited strategic aims by leveraging all elements of national power, including deterrence and non-war military activities. Effective control during crisis is meant to prevent war, exploit opportunities, and prepare the PLA for potential escalation.

In the event of war, PLA commanders should have the capability to set a favorable strategic posture across domains to “control” the war’s objectives; targets; operational parameters; warfighting techniques; pace, rhythm, and intensity; and conclusion, according to PLA writings. Wartime effective control entails seizing the initiative, paralyzing the adversary’s operational system, and laying the groundwork for war termination.

**Escalation Management.** PRC views of conflict escalation suggest a confidence in the controllability of conventional conflict and willingness to conduct offensive operations to demonstrate Beijing’s resolve, seize the initiative, and exploit adversary weaknesses. Similar to their Western counterparts, PLA strategists broadly define escalation as an increase in the intensity or scope of military activities to achieve explicit goals. Escalation can include an increase in actual military operations against an adversary or preparations for military operations, such as an increase in the readiness of one’s nuclear forces.

- The PLA judges that aggressive, asymmetric actions against perceived U.S. political, military, and psychological weaknesses are effective counterbalances to U.S. military superiority in traditional domains.
- PLA views on escalation are informed by the notion that contemporary “informationized” conflict, enabled by modern C4ISR capabilities, provides leaders with sufficient battlefield awareness to calibrate military effects and elicit a desired adversary response. PLA strategists view warfare as a science, discounting the possibility of inadvertent escalation and the effects of the “fog of war.”

PRC strategists are particularly concerned with horizontal escalation, or “chain-reaction” warfare, during a major conflict, such as a Taiwan contingency, during which Beijing worries that regional powers or the United States could instigate conflicts around China while the PLA is preoccupied in the Taiwan Strait.
Japanese NIDS on Unrestricted Warfare’s High Compatibility with Informatized Warfare and Intelligentized Warfare

In recent years, analysts have noted that the concepts of security and warfare have expanded noticeably. In China, President Xi Jinping presented the “comprehensive security concept,” which places importance on external security, internal security, traditional security, and non-traditional security and is said to cover 11 areas of security, namely, politics, national territory, military, economy, culture, society, science and technology, information, ecology, natural resources, and nuclear. In warfare, the distinction between military and non-military is eroding, and the integrated use of military and non-military means is increasingly becoming the norm.

These developments have drawn attention to the concept of unrestricted warfare. Unrestricted warfare is a term coined by PLA senior colonels Qiao Liang and Wang Xiangsui in 1999 to refer to a new model of warfare and is also the title of their book. …the outbreak of the Gulf War eight years before the publication of Unrestricted Warfare had an enormous impact on China. In the Gulf War, bombings and concentration of assets, employing information-based precise enemy searches and high-tech weapons, defeated Iraqi forces relatively quickly. The war was a wakeup call that China, if it was in Iraq’s position, was no match for the U.S. forces.

…China set out the concept of “local wars under high-tech conditions” in order to develop the PLA into an armed force that can be a match for the U.S. forces, and sought to adapt the PLA to new forms of warfare. At the same time, Qiao and Wang, who taught at the PLA National Defense University, conceived that their idea of normal warfare can be replaced with other means of warfare. This notion was borne out by seeing U.S. aircraft carriers sent to waters around the Taiwan Strait and Lee Teng-hui, President of Taiwan, avoid a collapse of the Taiwanese stock market during the Taiwan Strait crisis in 1996. Qiao and Wang proposed ways of fighting that combined military and other fighting methods and collectively called them unrestricted warfare.

Unrestricted warfare refers to ways of fighting advocated by Chinese military personnel and is not considered an official strategic or tactical concept of the PLA. Nevertheless, many similarities with unrestricted warfare-type schemes can be found in China’s actual actions, including the “Three Warfares (public opinion, psychological, legal)” and the active use of the naval militia in the South China Sea. Therefore, it can be construed that such actions are based on ideas of unrestricted warfare. In this sense, unrestricted warfare has importance to this day as one of the discourses that have shaped the current trend of China’s strategic thought.

According to senior colonels Qiao and Wang, struggles of unrestricted warfare can be divided broadly into military means, trans-military means, and non-military means. Their primary examples are shown in Figure 1.3. Military means are ways of fighting contingencies.

The combined means make up military actions. Under the conceptual categories of unrestricted warfare, “decapitation operation” corresponds to terror warfare.

Structure and Force
Development of China’s People’s Liberation Army (PLA)
DIA Overview of PLA

The People’s Liberation Army at a Glance


Personnel: Approximately 2 million in regular forces.

Recruit base: Conscription, some volunteer.

Equipment profile: Primarily domestic systems heavily influenced by technology derived from other countries; modern weaponry in each service; some advanced weaponry.

Core strength: Long-range precision strike, information warfare, nuclear retaliatory capability.

Developing strengths: Maritime power projection, special operations.

Key vulnerabilities: Logistics, rigid command structure, joint warfare.

China’s Military Leadership 2021

Key Elements of the People’s Liberation Army in 2021


Changing Role of Key Force Elements in PLA – I

China has already achieved parity with—or even exceeded—the United States in several military modernization areas, including:

- **Shipbuilding**: The PRC has the largest navy in the world, with an overall battle force of approximately 350 ships and submarines including over 130 major surface combatants. In comparison, the U.S. Navy’s battle force is approximately 293 ships as of early 2020. China is the top ship-producing nation in the world by tonnage and is increasing its shipbuilding capacity and capability for all naval classes.

- **Land-based conventional ballistic and cruise missiles**: The PRC has developed its conventional missile forces unrestrained by any international agreements. The PRC has more than 1,250 ground-launched ballistic missiles (GLBMs) and ground-launched cruise missiles (GLCMs) with ranges between 500 and 5,500 kilometers. The United States currently fields one type of conventional GLBM with a range of 70 to 300 kilometers and no GLCMs.

- **Integrated air defense systems**: The PRC has one of the world’s largest forces of advanced long-range surface-to-air systems—including Russian-built S-400s, S-300s, and domestically produced systems—that constitute part of its robust and redundant integrated air defense system (IADS) architecture.

Changes by PLA Force Element

- **The People’s Liberation Army Army (PLAA)** is the largest standing ground force in the world. In 2019, the PLAA continued to transition into a modern, mobile, and lethal ground force by fielding upgraded combat systems and communications equipment and enhancing its ability to conduct and manage complex combined-arms and joint operations.

- **The People’s Liberation Army Navy (PLAN)**—the largest navy in the world—is an increasingly modern and flexible force that has focused on replacing previous generations of platforms with limited capabilities in favor of larger, modern multi-role combatants. As of 2019, the PLAN is largely composed of modern multi-role platforms featuring advanced anti-ship, anti-air, and anti-submarine weapons and sensors.

- **Naval Shipbuilding and Modernization**: The PLAN remains engaged in a robust shipbuilding and modernization program that includes submarines, surface combatants, amphibious warfare ships, aircraft carriers, and auxiliary ships as well as developing and fielding advanced weapons, sensors, and command and control capabilities.

- **The People’s Liberation Army Air Force (PLAAF)** and PLAN Aviation together constitute the largest aviation forces in the region and the third largest in the world, with over 2,500 total aircraft and approximately 2,000 combat aircraft. The PLAAF is rapidly catching up to Western air forces across a broad range of capabilities and competencies.

- **The People’s Liberation Army Rocket Force (PLARF)** is responsible for the PRC’s strategic land-based nuclear and conventional missile forces. The PLARF develops and fields a wide variety of conventional mobile ground-launched ballistic missiles and cruise missiles. The PRC is developing new intercontinental ballistic missiles (ICBMs) that will significantly improve its nuclear-capable missile forces. The number of warheads on the PRC’s land-based ICBMs capable of threatening the United States is expected to grow to roughly 200 in the next five years.

- The PRC is expanding its inventory of the multi-role DF-26, a mobile, ground-launched intermediate-range ballistic missile system capable of rapidly swapping conventional and nuclear warheads.

- The PRC’s robust ground-based conventional missile forces compliment the growing size and capabilities of its air- and sea-based precision strike capabilities.

The PLA Strategic Support Force (SSF) is a theater command-level organization established to centralize the PLA’s strategic space, cyber, electronic, and psychological warfare missions and capabilities. The SSF Network Systems Department is responsible for cyberwarfare, technical reconnaissance, electronic warfare, and psychological warfare. Its current major target is the United States.

- **The PRC’s Space Enterprise.** The PRC’s space enterprise continues to mature rapidly. Beijing has devoted significant resources to growing all aspects of its space program, from military space applications to civil applications such as profit-generating launches, scientific endeavors, and space exploration.
- The PLA has historically managed the PRC’s space program. The SSF Space Systems Department is responsible for nearly all PLA space operations.
- In 2019, the PRC described space as a “critical domain in international strategic competition” and stated the security of space provided strategic assurance to the country’s national and social development.

**Military Readiness:** In recent years, CCP leaders have directed the PLA to improve its combat readiness. This guidance is increasingly evident in the intensity of the PLA’s training and the complexity and scale of its exercises.

**Capabilities for Counter Intervention and Power Projection**

- The PLA is developing capabilities to provide options for the PRC to dissuade, deter, or, if ordered, defeat third-party intervention during a large-scale, theater campaign such as a Taiwan contingency.
- The PLA’s anti-access/area-denial (A2/AD) capabilities are currently the most robust within the First Island Chain, although the PRC aims to strengthen its capabilities to reach farther into the Pacific Ocean.
- The PRC also continues to increase its military capabilities to achieve regional and global security objectives beyond a Taiwan contingency.
- The PLA is developing the capabilities and operational concepts 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.

**Nuclear Deterrence**

- China’s strategic ambitions, evolving view of the security landscape, and concerns over survivability are driving significant changes to the size, capabilities, and readiness of its nuclear forces.
- China’s nuclear forces will significantly evolve over the next decade as it modernizes, diversifies, and increases the number of its land-, sea-, and air-based nuclear delivery platforms.
- Over the next decade, China’s nuclear warhead stockpile—currently estimated to be in the low-200s—is projected to at least double in size as China expands and modernizes its nuclear forces.
- China is pursuing a “nuclear triad” with the development of a nuclear capable air-launched ballistic missile (ALBM) and improving its ground and sea-based nuclear capabilities.
- New developments in 2019 further suggest that China intends to increase the peacetime readiness of its nuclear forces by moving to a launch-on-warning (LOW) posture with an expanded silo-based force.

Paramilitary and Internal Security Forces

The PRC’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), the PLA, and the militia. The Party relies on these forces to address challenges ranging from protests over political, social, environmental, or economic problems, to terrorism and natural disasters. For example, in 2019, the PRC’s internal security forces in Xinjiang oversaw extensive detentions of Uyghurs at detention camps, mass surveillance, suppression of religious activities, and searches of personal property. In 2019, the PRC deployed the PAP in Shenzhen and probably in Hong Kong to bolster PLA Hong Kong Garrison elements positioned to respond to protests. The PRC’s 2019 defense white paper claimed that since 2012 it has deployed 950,000 PLA and PAP soldiers and 1.41 million militia personnel for domestic emergency response and disaster relief.

**Ministry of Public Security (MPS).** The MPS leads the PRC’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 the PRC’s main civilian intelligence and counterintelligence service. The missions of the MSS are to protect the PRC’s national security; secure political and social stability; implement the State Security Law and related laws and regulations; protect state secrets; conduct counterintelligence; and investigate organizations or people inside China who carry out or direct, support, or aid other people perceived to harm national security.

**People’s Armed Police (PAP).** The PAP is a paramilitary component of the PRC’s armed forces. Its primary missions include internal security, maintaining public order, maritime security, and assisting the PLA in times of war. As part of a reorganization of China’s security structures, in 2018, the CMC assumed direct control of the PAP. The same reform also subordinated the China Coast Guard (CCG) to the PAP.

**People’s Liberation Army (PLA).** In addition to its national defense mission, the PLA has formal and informal roles in the PRC’s internal security. As the principal armed wing of the CCP, the PLA is the ultimate guarantor of the CCP’s survival and supports other internal security forces as necessary. For example, the PLA may provide transportation, logistics, and intelligence to assist local public security forces with internal security. The PLA’s active and reserve forces are authorized under the 1997 National Defense Law to directly “assist in maintaining public order” when CCP leaders consider it necessary.

**Militia.** The militia is an armed reserve force of civilians available for mobilization. It is distinct from the PLA’s reserve forces. Militia units organize around towns, villages, urban sub-districts, and enterprises and vary widely in composition and mission. The PRC’s 1997 National Defense Law authorizes the militia to assist in maintaining public order. The People’s Armed Forces Maritime Militia (PAFMM) is a component of the militia and its tasks include safeguarding maritime claims, which it often performs in conjunction with the PLAN and the CCG.

DoD on PLA Force Development: 2000-2020

DoD’s first annual report to Congress in 2000 assessed the PRC’s armed forces at that time to be a sizable but mostly archaic military that was poorly suited to the CCP’s long-term ambitions. The report recognized the CCP’s objective was for the PRC to become a “strong, modernized, unified, and wealthy nation.” Despite these great power aspirations, the PLA lacked the capabilities, organization, and readiness for modern warfare. Yet the CCP understood these deficiencies and set long-term goals to strengthen and transform its armed forces in a manner commensurate with its aspirations to strengthen and transform China.

DoD’s 2000 report assessed that the PLA was slowly and unevenly adapting to the trends in modern warfare. The PLA’s force structure and capabilities focused largely on waging large-scale land warfare along China’s borders. The PLA’s ground, air, and naval forces were sizable but mostly obsolete. Its conventional missiles were generally of short range and modest accuracy. The PLA’s emergent cyber capabilities were rudimentary; its use of information technology was well behind the curve; and its nominal space capabilities were based on outdated technologies for the day. Further, China’s defense industry struggled to produce high-quality systems. Even if the PRC could produce or acquire modern weapons, the PLA lacked the joint organizations and training needed to field them effectively. The report assessed that the PLA’s organizational obstacles were severe enough that if left unaddressed they would “inhibit the PLA’s maturation into a world-class military force.”

Two decades later, the PLA’s objective is to become a “world-class” military by the end of 2049—a goal first announced by General Secretary Xi Jinping in 2017. Although the CCP has not defined what a “world-class” military means, within the context of the PRC’s national strategy it is likely that Beijing will seek to develop a military by mid-century that is equal to—or in some cases superior to—the U.S. military, or that of any other great power that the PRC views as a threat. As this year’s report details, the PRC has marshalled the resources, technology, and political will over the past two decades to strengthen and modernize the PLA in nearly every respect. Indeed, as this report shows, China is already ahead of the United States in certain areas such as:

- Shipbuilding: The PRC has the largest navy in the world, with an overall battle force of approximately 350 ships and submarines including over 130 major surface combatants. In comparison, the U.S. Navy’s battle force is approximately 293 ships as of early 2020.
- Land-based conventional ballistic and cruise missiles: The PRC has more than 1,250 ground-launched ballistic missiles (GLBMs) and ground-launched cruise missiles (GLCMs) with ranges between 500 and 5,500 kilometers. The United States currently fields one type of conventional GLBM with a range of 70 to 300 kilometers and no GLCMs.
- Integrated air defense systems: The PRC has one of the world’s largest forces of advanced long-range surface-to-air systems—including Russian-built S-400s, S-300s, and domestically produced systems—that constitute part of its robust and redundant integrated air defense system architecture.

More striking than the PLA’s staggering amounts of new military hardware are the recent sweeping efforts taken by CCP leaders that include completely restructuring the PLA into a force better suited for joint operations, improving the PLA’s overall combat readiness, encouraging the PLA to embrace new operational concepts, and expanding the PRC’s overseas military footprint.

Despite the PLA’s progress over the past 20 years, major gaps and shortcomings remain. The PRC’s leaders are aware of these problems, and their strategy envisions the PLA undergoing almost 30 more years of modernization and reform. Of course, the CCP does not intend for the PLA to be merely a showpiece of China’s modernity or to keep it focused solely on regional threats. As this report shows, the CCP desires the PLA to become a practical instrument of its statecraft with an active role in advancing the PRC’s foreign policy, particularly with respect to the PRC’s increasingly global interests and its aims to revise aspects of the international order.

Given the continuity in the PRC’s strategic objectives, the past 20 years offer a harbinger for the future course of the PRC’s national strategy and military aspirations. Certainly, many factors will determine how this course unfolds. What is certain is that the CCP has a strategic end state that it is working towards, which if achieved and its accompanying military modernization left unaddressed, will have serious implications for U.S. national interests and the security of the international rules-based order.
MISSIONS, TASKS, & MODERNIZATION OF CHINA’S ARMED FORCES IN THE “NEW ERA”

• The PRC’s strategy includes advancing a comprehensive military modernization program that aims to “basically” complete military modernization by 2035 and transform the PLA into a “world-class” military by the end of 2049.

• The PLA’s evolving capabilities and concepts continue to strengthen the PRC’s ability to counter an intervention by an adversary in the Indo-Pacific region and project power globally.

THE PLA’S GROWING GLOBAL PRESENCE

• CCP leaders believe that the PRC’s global activities, including the PLA’s growing global presence, are necessary to create a “favorable” international environment for China’s national rejuvenation.

• The CCP has tasked the PLA to develop the capability to project power outside China’s borders and immediate periphery to secure the PRC’s growing overseas interests and advance its foreign policy goals.

China’s Global Military Activities

• The PRC has increasingly recognized that its armed forces should take a more active role in advancing its foreign policy goals.

• As the PRC’s overseas interests have grown over the past two decades, the Party’s leaders have increasingly pushed the PLA to think about how it will operate beyond China’s borders and its immediate periphery to advance and defend these interests.

• In 2019, the PLA continued to expand its participation in bilateral and multilateral military exercises, normalize its presence overseas, and build closer ties to foreign militaries.

PLA Overseas Basing and Access

• The PRC is seeking to establish a more robust overseas logistics and basing infrastructure to allow the PLA to project and sustain military power at greater distances.

• Beyond its current base in Djibouti, the PRC is very likely already considering and planning for additional overseas military logistics facilities to support naval, air, and ground forces. The PRC has likely considered locations for PLA military logistics facilities in Myanmar, Thailand, Singapore, Indonesia, Pakistan, Sri Lanka, United Arab Emirates, Kenya, Seychelles, Tanzania, Angola, and Tajikistan. The PRC and Cambodia have publicly denied having signed an agreement to provide the PLAN with access to Cambodia’s Ream Naval Base.

• A global PLA military logistics network could interfere with U.S. military operations and provide flexibility to support offensive operations against the United States.
The PRC’s Influence Operations

- The PRC conducts influence operations to achieve outcomes favorable to its strategic objectives by targeting cultural institutions, media organizations, business, academic, and policy communities in the United States, other countries, and international institutions.
- The CCP seeks to condition domestic, foreign, and multilateral political establishments and public opinion to accept Beijing’s narratives.
- CCP leaders probably consider open democracies, including the United States, as more susceptible to influence operations than other types of governments.

RESOURCES AND TECHNOLOGY FOR FORCE MODERNIZATION

- The PRC’s long-term goal is to create an entirely self-reliant defense-industrial sector—fused with a strong civilian industrial and technology sector—that can meet the PLA’s needs for modern military capabilities.
- The PRC has mobilized vast resources in support of its defense modernization, including the implementation of its MCF Development Strategy, as well as espionage activities to acquire sensitive, dual-use, and military-grade equipment.
- In 2019, the PRC announced its annual military budget would increase by 6.2 percent, continuing more than 20 years of annual defense spending increases and sustaining its position as the second-largest military spender in the world. The PRC’s published military budget omits several major categories of expenditures and its actual military-related spending is higher than what it states in its official budget.

Science and Technology Goals Supporting Military Modernization

- China seeks to become a leader in key technologies with military potential, such as AI, autonomous systems, advanced computing, quantum information sciences, biotechnology, and advanced materials and manufacturing.
- China has invested significant 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 continues to undermine the integrity of the U.S. science and technology research enterprise through a variety of actions such as hidden diversions of research, resources, and intellectual property.

Foreign Technology Acquisition

- The PRC pursues many vectors to acquire foreign technologies, including both licit and illicit means. The PRC’s efforts include a range of practices and methods to acquire sensitive and dual-use technologies and military-grade equipment to advance its military modernization goals.
- The PRC leverages foreign investments, commercial joint ventures, mergers and acquisitions, and state-sponsored industrial and technical espionage, and the manipulation of export controls for the illicit diversion of dual-use technologies to increase the level of technologies and expertise available to support military research, development, and acquisition.
- In 2019, the PRC’s efforts included efforts to acquire dynamic random access memory, aviation, and anti-submarine warfare technologies.

The People’s Liberation Army (PLA) sees emerging technologies as driving a shift to “intelligentized” warfare from today’s “informatized” way of war. PLA strategists broadly describe intelligentized warfare as the operationalization of artificial intelligence (AI) and its enabling technologies, such as cloud computing, big data analytics, quantum information, and unmanned systems, for military applications. These technologies, according to PRC leaders—including Chairman Xi Jinping—represent a “Revolution in Military Affairs” for which China must undertake a whole-of-government approach to secure critical economic and military advantages against advanced militaries.

China seeks to lead the shift to “intelligentized warfare” through its Military-Civil Fusion (MCF) Development Strategy and by reforming both its research and development (R&D) as well as strategy and doctrine organizations. In 2015, the PRC elevated MCF to a national strategy, and it continues to establish new organizations and promulgate policies to drive development of dual-use technologies and further integrate civilian and military administration. In 2017, the PLA reorganized its military research and education institutes to synchronize advances in emerging technologies with the development of new operational concepts. The Academy of Military Science (AMS), which has traditionally been responsible for writing new doctrine, now oversees several PLA science and technology institutes.

The PLA argues that the implementation of “intelligentized” capabilities will increase the speed of future combat, necessitating more rapid processing and fusing of information to support quick and efficient command decision making. Victory in future warfare, according to PLA strategists, will depend upon which side can more quickly and effectively observe, orient, decide, and act in an increasingly dynamic operating environment. As a result, China is pursuing new technologies like AI to support future military capabilities, such as autonomous command and control (C2) systems, more sophisticated and predictive operational planning, and intelligence, surveillance, and reconnaissance (ISR) fusion. In addition, the PLA is developing more capable command information systems and decision aids for battlefield commanders. Future command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems will seek to use AI to collect, fuse, and transmit big data for more effective battlespace management and to generate optimal courses of action.

PLA strategists recognize the importance of information superiority during a conflict. The PLA has emphasized the need for the capabilities to target and degrade adversary command and control systems and future AI systems. As such, the PLA plans to employ technologies associated with intelligentized warfare to support the deployment of autonomous unmanned systems and conduct information operations (IO). PRC weapons developers are researching new unmanned aerial, surface, sub-surface, and ground vehicles that will enable new operational concepts and require new C2 models. The PLA is pursuing greater autonomy for unmanned platforms, to include swarm intelligence manned-unmanned teaming capabilities, to provide more lethal kinetic that and nonkinetic strike options that can saturate adversary defenses as well as more survivable and longDistance ISR capabilities, among other applications. The PLA also intends to improve its cyber and electronic warfare (EW) capabilities through AI-assisted network vulnerability analysis, countermeasure identification, and electromagnetic spectrum management.

PLA discussions of “intelligentized warfare” also acknowledge the difficulties of developing future technologies and implementing new capabilities. The delegation of decision-making authorities to lower echelons may run counter to the PLA’s traditionally hierarchical and centralized C2 structure. The PLA’s ability to leverage big data will depend upon its ability to obtain large quantities of high-quality data on foreign militaries. Additionally, the complexity of future conflict probably will challenge the PLA to recruit, train, and retain the highly competent and technically proficient personnel necessary to understand and operate future “intelligentized” systems.

Since 1978, China has engaged in a sustained and broad effort to transform the PLA from an infantry-heavy, low-technology, ground forces-centric force into a leaner, more networked, high-technology force with an emphasis on joint operations and power projection. In 2015 and 2016, Xi publicly launched the most ambitious reform and reorganization of the PLA since the 1950s. The reforms have two overarching objectives: reshaping and improving the PLA’s command and control structure to enable joint operations among the services and ensuring the PLA is loyal and responsive to the Party and Xi. Although the reforms were originally slated to conclude by 2020, officials have more recently suggested they will be ongoing through 2021-2022. Institutionalizing the reforms’ sweeping changes will likely take even longer.

In 2017, Xi set goals for the PLA to “generally achieve mechanization” by 2020, to “basically complete” military modernization by 2035, and to “transform” the PLA into a “world-class” force by 2049—the same year by which Xi envisions China achieving “the great rejuvenation of the Chinese nation.” According to Xi, “To achieve the great revival of the Chinese nation, we must ensure there is unison between a prosperous country and strong military.”

The PLA is expanding its operational reach, strengthening its ability to conduct joint operations, and fielding increasingly modern weapons systems. Key features of PLA modernization include:

- **PLA Navy**: An approximately 350-ship navy that includes advanced platforms such as submarines, aircraft carriers, and large multi-mission surface vessels, giving China blue-water capabilities and the ability to conduct sustained operations and project power increasingly far from China’s periphery;
- **PLA Air Force**: An air force increasingly capable of conducting joint and over-water missions, featuring deployments of large numbers of fourth-generation fighters, and fifth-generation fighters becoming operational or in late stages of development;
- **PLA Rocket Force**: A conventional missile force designed to enable China to deter or defeat possible third-party intervention in a regional military conflict and featuring around 100 intercontinental ballistic missiles and hundreds of theater-range conventional missiles, including anti-ship ballistic missiles designed to target adversary aircraft carriers and a nuclear force intended to be small but survivable (DOD estimates China’s nuclear stockpile is in the “low-200s” and likely to at least double in the coming decade), with progress toward a “nuclear triad” (including land-, submarine-, and aircraft-launched nuclear weapons);
- **PLA Strategic Support Force**: A force that centralizes cyber and space capabilities (referred to by the PRC as the “new commanding heights in strategic competition”) as well as electronic and psychological warfare; and
- **PLA Joint Logistics Support Force**: A force that facilitates joint logistics across the PLA to enable large-scale military operations.
China’s Military Spending
CRS Estimate of Comparative Global Military Spending

### Regional Comparison of Official 2021 Defense Budgets

<table>
<thead>
<tr>
<th>Country</th>
<th>Defense Budget (In Billions, USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRC (Official Defense Budget)</td>
<td>$209</td>
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<tr>
<td>India</td>
<td>$64.8</td>
</tr>
<tr>
<td>Japan</td>
<td>$55</td>
</tr>
<tr>
<td>Russia (National Defense Budget)</td>
<td>$66.8</td>
</tr>
<tr>
<td>South Korea</td>
<td>$48</td>
</tr>
<tr>
<td>Taiwan</td>
<td>$15.4</td>
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</tbody>
</table>

In 2021, the PRC announced a 6.8 percent annual military budget increase to $209 billion, which is approximately 1.3 percent of gross domestic product. This year’s budget continues more than 20 years of annual defense spending increases and sustains the PRC’s position as the second-largest military spender in the world after the United States. The PRC’s defense budget has nearly doubled during the past 10 years—data from 2012 through 2021 indicates the PRC’s official military budget grew 7 percent annually. Based on its official defense spending figures, which omit several major categories of expenditures, the PRC can support continued growth in defense spending for at least the next five to ten years, based on economic data and growth projections.

The PRC’s Estimated Military Expenditures. The PRC’s published military budget omits several major categories of expenditures, including R&D and foreign weapons procurement. In 2021, according to public research institutions, the PRC’s actual military-related spending could be 1.1 to 2 times higher than stated in its official budget. However, actual military expenses are difficult to calculate, largely because of the PRC’s lack of transparency.

The PRC’s Estimated Defense Budget Growth. If the PRC’s official defense budget increases annually by an average of 7 percent, growing as high as $270 billion by 2023, the PLA can dedicate more money for training, operations, and modernization considering the reduction of the PLA's size by 300,000 people. Economic forecasters project that the PRC economic growth will slow during the next 10 years, which could slow future defense spending growth. However, this presumes the PRC maintains current interests to balance national development with defense spending. Assuming accurate economic projections and a steady defense burden, the PRC will remain the second-largest spender after the United States.
China vs. IISS and SIPRI Estimates of Military Spending


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 initial 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, FY 2018, FY 2019 and FY2020, 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.

Taiwanese Estimates of Chinese Military Spending

PRC’s 2021 defense budget, remaining the highest in Asia and the second in the world, of RMB¥ 1 trillion and 355.343 billion (approx. US$ 208.47 billion) has increased 6.8% from RMB¥ 1 trillion and 268 billion (approx. US$ 178.16 billion) in 2020, roughly occupied 1.33% of PRC’s GDP. The defense budget is mainly spent on sustaining defense and military modernization, pushing for deeper civil-mil integration, optimizing preferential treatments for military personnel, providing veteran services and personnel salaries.

Total Chinese, U.S., and Russian Military Forces
## Comparative Size of U.S., Chinese, and Russian Conventional Military Forces in 2020

<table>
<thead>
<tr>
<th>Category</th>
<th>U.S.</th>
<th>China</th>
<th>Russia</th>
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</thead>
<tbody>
<tr>
<td>Defense Expenditures (SUS billions)</td>
<td>730</td>
<td>225+</td>
<td>61.6</td>
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<tr>
<td>Defense Budget (SUS billions)</td>
<td>685</td>
<td>181</td>
<td>48.2</td>
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<td>Active Military Personnel</td>
<td>1,379,800</td>
<td>2,035,000</td>
<td>900,000</td>
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<tr>
<td>Reserve Military Personnel</td>
<td>849,850</td>
<td>510,000</td>
<td>2,000,000</td>
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<tr>
<td>SSBN</td>
<td>16</td>
<td>4</td>
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<tr>
<td>ICBMs</td>
<td>400</td>
<td>98</td>
<td>340</td>
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<td>IRBM</td>
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<td>72</td>
<td>-</td>
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<td>MRBM</td>
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<td>Nuclear Bombers</td>
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<td>Army Active Personnel</td>
<td>481,750</td>
<td>975,000</td>
<td>280,000</td>
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<td>Main Battle Tanks</td>
<td>2,389</td>
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<td>2,800</td>
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<tr>
<td>Other Armored Fighting Vehicles (AFVs)</td>
<td>4,810</td>
<td>6,950</td>
<td>6,860</td>
</tr>
<tr>
<td>Armor Personnel Carriers</td>
<td>10,547</td>
<td>3,950</td>
<td>6,100+</td>
</tr>
<tr>
<td>Artillery (Towed, SP, MRL)</td>
<td>5,444</td>
<td>6,194+</td>
<td>2,802+</td>
</tr>
<tr>
<td>Surface-to-Surface Missiles (MLRS)</td>
<td>140?</td>
<td>?</td>
<td>140?</td>
</tr>
<tr>
<td>Attack Helicopters</td>
<td>714</td>
<td>270+</td>
<td>393+</td>
</tr>
<tr>
<td>Navy Active Personnel</td>
<td>337,100</td>
<td>250,000</td>
<td>150,000</td>
</tr>
<tr>
<td>Tactical Nuclear Submarines (SSGN.SSN)</td>
<td>53</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Tactical Conventional Submarines</td>
<td>0</td>
<td>48</td>
<td>22</td>
</tr>
<tr>
<td>Principal Surface Combatants</td>
<td>121</td>
<td>82</td>
<td>33</td>
</tr>
<tr>
<td>Aircraft Carriers</td>
<td>11</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Combat Capable Aircraft</td>
<td>981</td>
<td>404</td>
<td>217</td>
</tr>
<tr>
<td>ASW Helicopters</td>
<td>269</td>
<td>28</td>
<td>83</td>
</tr>
<tr>
<td>Cruisers</td>
<td>24</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Destroyers &amp; Frigates</td>
<td>86</td>
<td>80</td>
<td>28</td>
</tr>
<tr>
<td>Patrol and Coastal Combatants</td>
<td>84</td>
<td>209</td>
<td>118</td>
</tr>
<tr>
<td>Principal Amphibious Ships &amp; Landing Ships</td>
<td>40</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Mine Warfare</td>
<td>11</td>
<td>54</td>
<td>43</td>
</tr>
</tbody>
</table>


Taiwan Estimate of Total Chinese, Military Forces in 2017


Source: Adapted from a major RAND Study, see, Andrew Radin and others, *China-Russia Cooperation: Determining Factors, Future Trajectories, Implications for the United States*, RAND, pp. 178, [www.rand.org/t/RR3067](http://www.rand.org/t/RR3067). The full study should be referenced for an explanation of the methodology and trends involved.
RAND

Source: Adapted from a major RAND Study, see, Andrew Radin and others, *China-Russia Cooperation: Determining Factors, Future Trajectories, Implications for the United States*, RAND, pp. 178, [www.rand.org/t/RR3067](http://www.rand.org/t/RR3067). The full study should be referenced for an explanation of the methodology and trends involved.
The key takeaway from these figures is that although the United States over time has remained the predominant military power across the majority of indicators—especially in indicators connected to global power projection—China and Russia hold advantages conducive to A2/AD while also starting to grow their capabilities for power projection.

What is most notable is the growth of Chinese military capabilities in comparison with Russia’s, with China holding an advantage over Russia in four indicators in 2017 (diesel submarines, theater and tactical ballistic or cruise missiles, fourth- and fifth-generation tactical aircraft, and major surface combatants). Each of the five distributions could be summarized as follows:

1. Pre-1997: U.S. dominant in power projection, Russia has numbers, China has few capabilities.

To develop a single measure of military capabilities, we also measured the proportion of these capabilities that each country possessed in each of these years.

Source: Adapted from a major RAND Study, see, Andrew Radin and others, China-Russia Cooperation: Determining Factors, Future Trajectories, Implications for the United States, RAND, pp. 178, www.rand.org/t/RR3067. The full study should be referenced for an explanation of the methodology and trends involved.
China’s Strategic Geography and Military Activity in Asia and the Pacific
China’s Military Theaters of Operation


Source: Created by CRS. Map generated by CRS Visual Information Specialist Amber Wilhelm.

Note: China reorganized the seven military regions into five theater commands in 2016.
Selected Chinese Territorial Claims
Overseas Basing and Access

The PRC is seeking to establish a more robust overseas logistics and basing infrastructure to allow the PLA to project and sustain military power at greater distances. Beijing may assess that a mixture of military logistics models, including preferred access to commercial infrastructure abroad, exclusive PLA logistics facilities with prepositioned supplies co-located with commercial infrastructure, and bases with stationed forces, most closely aligns with the PRC’s overseas military logistics needs. Currently, the PRC uses commercial infrastructure to support all of its military operations abroad, including the PLA’s presence in other countries’ territories, including its base in Djibouti. Some of the PRC’s OBOR projects could create potential military advantages, such as PLA 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.

PRC official sources assert that military logistics facilities, to include its Djibouti base, will be used to provide international public goods like support to U.N. operations and HA/DR, and to secure China’s lines of communication, citizens and assets abroad. Regardless, a global PLA military logistics network could both interfere with U.S. military operations and support offensive operations against the United States as the PRC’s global military objectives evolve. Host nations can perform an essential role in regulating the PRC’s military operations, as PRC officials very likely recognize that a stable long-term relationship with the host nation is critical to the success of their military logistics facilities.

- PRC military academics assert that bases abroad can enable forward deployment of PLA forces and support military conflict, diplomatic signaling, political change, bilateral and multilateral cooperation, and training. They also suggest that a military logistics network could enable intelligence monitoring of the U.S. military.
- In August 2017, the PRC officially opened its first PLA base in Djibouti. PLA Navy Marines are stationed at the base with wheeled armored vehicles and artillery but are currently dependent on nearby commercial ports due to the lack of a pier on base. PLA personnel at the facility have interfered with U.S. flights by lasering pilots and flying drones, and the PRC has sought to restrict Djiboutian sovereign airspace over the base.

Beyond its base in Djibouti, the PRC is very likely already considering and planning for additional military logistics facilities to support naval, air, and ground forces projection. The PLA’s approach likely includes consideration of many different sites and outreach to many countries, but only some will advance to negotiations for an infrastructure agreement, status of forces or visiting forces agreement, and/or basing agreement. Critical organizations involved in planning and negotiating for military logistics facilities are the Central Military Commission (CMC) Joint Staff Department, CMC Logistic Support Department, and service headquarters. China’s overseas military basing will be constrained by the willingness of potential host nations to support a PLA presence.

- The PRC has likely considered Myanmar, Thailand, Singapore, Indonesia, Pakistan, Sri Lanka, United Arab Emirates, Kenya, Seychelles, Tanzania, Angola, and Tajikistan as locations for PLA military logistics facilities. The PRC has probably already made overtures to Namibia, Vanuatu, and the Solomon Islands. Known focus areas of PLA planning are along the SLOCs from China to the Strait of Hormuz, Africa, and the Pacific Islands.
- Cambodia declined a U.S. offer to pay to renovate a U.S.-donated building on Ream Naval Base in Cambodia. Cambodia may have instead accepted assistance from China or another country to develop Ream Naval Base. If China is able to leverage such assistance into a presence at Ream Naval Base, it suggests that China’s overseas basing strategy has diversified to include military capacity-building efforts. Both the PRC and Cambodia have publicly denied having signed an agreement to provide the PLAN access to Ream Naval Base.

As the PRC’s overseas interests have grown over the past two decades, the Party’s leaders have increasingly pushed the PLA to think about how it will operate beyond China’s borders and its immediate periphery to advance and defend these interests. More recently, the PRC has recognized that its armed forces should take a more active role in advancing its foreign policy goals. The PRC’s 2019 defense white paper notably described its armed forces as responding, “faithfully to the call for a community with a shared future for mankind” and called on its military to “actively participate in the reform of global security governance system.” In line with this direction, the PLA in 2019 continued to expand its participation in bilateral and multilateral military exercises, normalize its presence overseas, and build closer ties to foreign militaries. The PLA is increasingly likely to couch the purpose of its external activities in terms of providing direct support to the PRC’s foreign policy goals, such as advancing China’s strategic partnerships through greater military cooperation.

The PLA’s Evolving Missions and Tasks. In 2004, one of the “new historic missions” given to the PLA by then-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 PLAN’s interest in a wider operational reach. The PLAAF’s missions and tasks have similarly evolved towards conducting operations beyond China and its immediate periphery and supporting the PRC’s interests by becoming a “strategic” air force. Additionally, the PLA has embraced its concept of non-war military activities (NWMA) as an effective way for it lend support to and safeguard China’s development, expand the PRC’s global interests, and gain valuable operational experience.

The PLAN, PLAAF, PLAA, and SSF have deployed abroad for counterpiracy, humanitarian assistance and disaster relief (HA/DR), peacekeeping, training exercises, and space support operations. Within the PLA, the PLAN may have the most experience operating abroad due to its far seas deployments and counterpiracy missions, the PLAAF likely has the most experience conducting rapid response HA/DR operations abroad, and the PLAA has the most experience conducting PKO. The SSF runs tracking, telemetry, and command stations in Namibia, Pakistan, and Argentina. The SSF also has a handful of Yuan Wang space support ships to track satellite and intercontinental ballistic missile (ICBM) launches.

- Since 2008, PLAN ships have visited the Middle East, Europe, Africa, South Asia, Southeast Asia, Oceania, and Latin America. The PLAN has also conducted submarine deployments to the Indian Ocean, demonstrating its increasing familiarity with operating in that region and underscoring China’s interest in protecting sea lines of communication (SLOCs) beyond the South China Sea. In 2015, three PLAN ships from a Gulf of Aden naval escort task force evacuated 629 PRC citizens from Yemen to Djibouti and Oman.
- Since 2002, the PLAAF has delivered aid after natural disasters throughout Southeast Asia and South Asia, assisted with evacuation from Libya in 2015, and searched for Malaysian aircraft MH370 in 2014.

Counterpiracy Efforts. In 2019, China continued to conduct counterpiracy operations in the Gulf of Aden by deploying its 31st, 32nd, and 33rd naval escort task forces to the area since 2008. The 32nd Task Force escorted 42 Chinese and foreign ships during its deployment and participated in the China-France military exchange and the Russian Navy Day festival celebrations. At the conclusion of deployments, these task groups conduct port calls and held bilateral engagements with host country militaries and local Chinese communities, providing additional opportunities for PLA military diplomacy. The 32nd Task Force conducted port calls to Mozambique and Malaysia.

Peacekeeping Operations. In 2019, China remained the largest troop contributor to UN peacekeeping missions among the permanent members of the UN Security Council. China uses it participation in UN PKO to highlight its role as a “responsible” global actor and to obtain operational experience for the PLA. The PLA uses its participation in PKO to refine its ability to operate beyond the PRC’s borders. The PLA highlighted its peacekeeping contributions in the PRC’s 70th anniversary parade in October 2019.

- China provides personnel to UN operations in Sudan, South Sudan, Mali, the Democratic Republic of the Congo, Western Sahara, Cyprus, Lebanon and elsewhere in the Middle East. PRC personnel deployed to PKO consist of troops, police, staff officers, and experts including engineers, medical professionals, and logisticians. In August 2019, the PLAA sent its third helicopter detachment to Sudan, transported by PLAAF heavy-lift transport aircraft, and in November 2019, sent its sixth peacekeeping infantry battalion to South Sudan.

• As of December 2019, China was the tenth-largest contributor to UN PKOs with approximately 2,545 personnel among eight UN PKO missions in Africa, Europe and the Middle East. China’s personnel contributions have decreased slightly since 2018 from 2,634 personnel in January 2018 to 2,545 personnel in December 2019. China is the second largest contributor to UN PKO and funded 15.21 percent of the total $6.5 billion annual UN peacekeeping budget in 2019, an increase from 10.24 percent in 2018.

**Military Cooperation.** Recognizing the PLA’s role in defending China’s overseas interests and supporting its foreign policy, the PRC’s 2019 defense white paper noted that the PLA “promotes international security and military cooperation and refines relevant mechanisms for protecting China’s overseas interests.” As the PRC’s regional and international interests grow more complex, the PLA’s international engagements will likely continue to expand. For example, senior-level military visits and exchanges provide the PLA with opportunities to increase its officers’ international exposure, advance the PRC’s foreign policy goals through military assistance programs, and develop professional relationships. Expanding travel abroad for PLA officers enables the PLA to better observe and study foreign military command structures, unit formations, and operational training and shape approaches to shared security concerns. In 2019, PRC Defense Minister General Wei Fenghe attended the Shangri-La Dialogue for the first time since 2011 and spoke on the PRC’s role in the Indo-Pacific region.

The PRC continues to expand the PLA’s participation in bilateral and multilateral military exercises, normalizing the PLA’s presence overseas and establishing ties to foreign militaries. For example, in 2019 the PLA participated in Russia's national-level exercise TSENTR-19 along with forces from India, Pakistan, Kyrgyzstan, Kazakhstan, Tajikistan, and Uzbekistan. To participate in the exercise, the PLA deployed 1,600 personnel from the Western Theater Command and nearly 30 fixed-wing aircraft and helicopters.

…In addition to providing PLA forces and other personnel to several UN PKOs in Africa, the PRC provides support to AU-sanctioned operations including the African Union Mission in Somalia (AMISOM) to which it has provided equipment and $1.2 million in annual funding. China also provided $100 million dollars of military equipment to the AU-supported African Standby Force’s strategic stockpile at the Continental Logistics Base in Douala, Cameroon. In July 2019, the PRC Ministry of National Defense hosted the first China-Africa Peace and Security Forum in Beijing. Attended by defense and military representatives from 50 African countries, the forum sought to deepen China’s role in African security issues and more broadly promote the PRC’s foreign policy objectives to strengthen its strategic partnerships with African countries and further its concept of building a “community with a shared future for mankind.”

In 2011, China and Tajikistan settled their border dispute in this region by Tajikistan ceding more than 300 sq. miles of land to China. Since 2016, China has also agreed to build guard outposts and a training facility in the tri-border region, with some reports suggesting the new outposts could number as high as 40.

PRC technology companies may also be collecting facial recognition data on Tajikistanis with the citywide facial recognition supplied since at least 2013, similar to the surveillance equipment installed in Xinjiang.

U.S. Indo Pacific Command

The 36 nations 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 ten of the fourteen 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, including the smallest republic in the world and the smallest nation in Asia.

Approximately 375,000 U.S. military and civilian personnel are assigned to the USINDOPACOM area of responsibility. U.S. Pacific Fleet consists of approximately 200 ships (to include five aircraft carrier strike groups), nearly 1,100 aircraft, and more than 130,000 Sailors and civilians dedicated to protecting our mutual security interests. Marine Corps Forces, Pacific includes two Marine Expeditionary Forces and about 86,000 personnel and 640 aircraft assigned.

U.S. Pacific Air Forces comprises of 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 and five watercraft assigned throughout the AOR from Japan and Korea to Alaska and Hawaii. Of note, component command personnel numbers include more than 1,200 Special Operations personnel. Department of Defense civilian employees in the Indo-Pacific Command AOR number about 38,000.

U.S. Pacific Bases – I

Chinese Forces and Area of Influence in 1999


Note: U.S. forces only include forces normally assigned to Indo-Pacific Command, not Total U.S Forces and Power Projection Capabilities.
Chinese and U.S. Forces and Areas of Influence in 2020


Note: U.S. forces only include forces normally assigned to Indo-Pacific Command, not Total U.S Forces and Power Projection Capabilities.
Chinese and U.S. Forces and Areas of Influence in 2025

Note: U.S. forces only include forces normally assigned to Indo-Pacific Command, not Total U.S Forces and Power Projection Capabilities

U.S. Bases, Facilities, and Commands in the Pacific and Indian Ocean

China’s Western Theater and Role in the Indian Ocean and the Gulf
China’s Western Theater Forces in 2021

China’s Western Theater Forces in 2020

The Western Theater Command is geographically the largest theater command within China and is likely responsible for responding to conflict with India and terrorist and insurgent threats to and within western China. PLA units located within the Western Theater Command include two group armies, other Army units under the region’s two military districts (Xinjiang and Tibet), three Air Force bases, and one Rocket Force base. PAP units responsible for Xinjiang operations are also likely under the control of the Western Theater Command.

Within China, the Western Theater Command focuses on the Xinjiang and Tibet Autonomous Regions where the CPP perceives a high threat of separatism and terrorism, particularly among Uyghur populations.

According to the U.S. Department of State’s 2019 Country Reports on Human Rights Practices, the PRC in 2019 “continued its campaign of mass detention of members of Muslim minority groups in the Xinjiang Uyghur Autonomous Region (Xinjiang). Authorities were reportedly to have arbitrarily detained more than one million Uyghurs, ethnic Kazakhs, Kyrgyz, and other Muslims in extrajudicial internment camps designed to erase religious and ethnic identities. Chinese government officials justified the camps under the pretense of combatting terrorism, separatism, and extremism.”

The Shanghai Cooperation Organization (SCO), or Shanghai Pact, is a Eurasian political, economic, and security alliance, the creation of which was announced on 15 June 2001 in Shanghai, China by the leaders of China, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, and Uzbekistan; the Shanghai Cooperation Organization Charter, formally establishing the organization, was signed in June 2002 and entered into force on 19 September 2003. The original five members, with the exclusion of Uzbekistan, were previously members of the Shanghai Five group, founded on 26 April 1996. Since then, the organization has expanded its membership to eight states when India and Pakistan joined SCO as full members on 9 June 2017 at a summit in Astana, Kazakhstan.

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. Military exercises are also regularly conducted among members to promote cooperation and coordination against terrorism and other external threats, and to maintain regional peace and stability. The SCO is the largest regional organization in the world in terms of geographical coverage and population, covering three-fifths of the Eurasian continent and nearly half of the human population.

Shanghai Cooperation Organization

The Shanghai Cooperation Organization (SCO) is an intergovernmental organization founded in Shanghai on 15 June 2001. The SCO currently comprises eight Member States (China, India, Kazakhstan, Kyrgyzstan, Russia, Pakistan, Tajikistan and Uzbekistan), four Observer States interested in acceding to full membership (Afghanistan, Belarus, Iran, and Mongolia) and six “Dialogue Partners” (Armenia, Azerbaijan, Cambodia, Nepal, Sri Lanka and Turkey).

Since its inception in 2001, the SCO has mainly focused on regional security issues, its fight against regional terrorism, ethnic separatism and religious extremism. To date, the SCO’s priorities also include regional development.

The SCO has been an observer in the UN General Assembly since 2005. In April 2010, the UN and SCO Secretariats signed a Joint Declaration on Cooperation. SCO Secretariat has also established partnerships with the UN Educational, Scientific and Cultural Organization (UNESCO), the World Tourism Organization (UNWTO), and the International Organization for Migration (IOM), in addition to its ongoing cooperation with the UN Office on Drugs and Crime (UNODC), United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and the UN Office on Counter-Terrorism (UNCT).

The Department of Political and Peacebuilding Affairs (DPPA), as well as UNRCCA (United Nations Centre for Preventive Diplomacy for Central Asia) maintain regular contacts with the SCO officials. The cooperation activities focus on security developments in the region and key issues related to counterterrorism and prevention of violent extremism.

In July 2017, DPPA deployed a Liaison Officer to the SCO in Beijing.

The Current State of Play. As of June 2021, the PRC and India continue to maintain large-scale deployments along the LAC and make preparations to sustain these forces while disengagement negotiations have made limited progress. Beginning in May 2020, the PLA launched incursions into customarily Indian-controlled territory across the border and has concentrated troops at several standoff locations along the LAC. In addition, a substantial reserve force from the Tibet and Xinjiang Military Districts were deployed to the interior of Western China to provide a rapid response. The June 2020 skirmish in Galwan Valley, which led to the deaths of 20 Indian soldiers, marked the first loss of life on the LAC since 1975. In February 2021, the Central Military Commission (CMC) announced posthumous awards for four PLA soldiers, though the total number of PRC casualties remains unknown.

Corps Commander Negotiations and Limited Disengagement. As of April 2021, PLA and Indian Army (IA) representatives have held eleven rounds of Corps-level negotiations since the beginning of the standoff in May 2020, consisting of meetings between the commanders of the PLA’s South Xinjiang (Nanjiang) Military District and the Indian Army’s 14th Corps. The negotiations have yielded limited disengagement at specific areas along the LAC. In addition to military negotiations, on 10 September, the PRC’s Minister of Foreign Affairs, Wang Yi, met with India’s Minister of External Affairs, Subrahmanyam Jaishankar, on the sidelines of the Shanghai Cooperation Organization Foreign Ministers’ meeting in Moscow. The two ministers released a plan, which has yet to be carried out, for resolving the dispute and expressed a desire to resolving the standoff peacefully while maintaining dialogue.

Competing Perceptions of the Crisis. Despite the ongoing diplomatic and military dialogues to reduce border tensions, the PRC has continued taking incremental and tactical actions to press its claims at the LAC. Sometime in 2020, the PRC built a large 100-home civilian village inside disputed territory between the PRC’s Tibet Autonomous Region and India’s Arunachal Pradesh state in the eastern sector of the LAC. These and other infrastructure development efforts along the India-China have been a source of consternation in the Indian government and media. In contrast, PRC has attempted to blame India for provoking the standoff through India’s increased infrastructure development near the LAC. Asserting that its deployments to the LAC were in response to Indian provocation, Beijing has refused to withdraw any forces until India’s forces have withdrawn behind the PRC’s version of the LAC and ceased infrastructure improvements in the area.

China-India Border: Key Takeaways

• The current standoff between the two nations resulted in the first deaths in the last 45 years.
• Diplomatic efforts are making slow progress as both sides resist losing perceived advantages on the border. Beginning in early May 2020, PRC and Indian forces faced off in unarmed clashes at multiple locations along the LAC. The resulting standoff triggered the buildup of forces on both sides of the disputed border. Each country demanded the withdrawal of the other’s forces and a return to pre-standoff conditions, though neither the PRC nor India agreed on those conditions. The PRC blamed the standoff on Indian infrastructure construction, which it perceived to encroach on PRC territory, while India accused the PRC of launching aggressive incursions into India’s territory.
• This incident was the deadliest clash between the two nations in the past 45 years. On June 15, 2020, patrols violently clashed in Galwan Valley resulting in approximately 20 Indian soldiers and, according to PRC officials, the death of 4 PLA soldiers. In addition, on September 8, 2020, a PLA patrol fired warning shots at an Indian patrol near Pangong Lake—the first shots fired along the LAC in decades.
• Throughout the standoff, PRC officials sought to downplay the severity of the crisis, emphasizing Beijing’s intent to preserve border stability and prevent the standoff from harming other areas of its bilateral relationship with India. The PRC seeks to prevent border tensions from causing India to partner more closely with the United States. PRC officials have warned U.S. officials to not interfere with the PRC’s relationship with India.

Chinese and Indian Border Claims

Source: State/INR, 6-2006.
China and Disputed Kashmir Region

The Naval “Belt and Road” in the Indian Ocean Area

Table 1.1. Chinese sea port ownership in the South China Sea and Indian Ocean Region since October 2013

<table>
<thead>
<tr>
<th>Year</th>
<th>Region</th>
<th>Host state</th>
<th>Port</th>
<th>Lease period</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>Indian Ocean</td>
<td>Pakistan</td>
<td>Gwadar</td>
<td>40 years</td>
</tr>
<tr>
<td>2015</td>
<td>Indian Ocean</td>
<td>Myanmar</td>
<td>Kyaukpyu</td>
<td>50 years</td>
</tr>
<tr>
<td>2015</td>
<td>South China Sea</td>
<td>Malaysia</td>
<td>Kuantan</td>
<td>60 years</td>
</tr>
<tr>
<td>2016</td>
<td>Indian Ocean</td>
<td>Djibouti</td>
<td>Obock</td>
<td>10 years</td>
</tr>
<tr>
<td>2016</td>
<td>South China Sea</td>
<td>Malaysia</td>
<td>Melaka Gateway</td>
<td>99 years</td>
</tr>
<tr>
<td>2017</td>
<td>Indian Ocean</td>
<td>Sri Lanka</td>
<td>Hambantota</td>
<td>99 years</td>
</tr>
<tr>
<td>2017</td>
<td>South China Sea</td>
<td>Brunei</td>
<td>Musara</td>
<td>60 years</td>
</tr>
<tr>
<td>2017</td>
<td>Indian Ocean</td>
<td>Maldives</td>
<td>Feydhoo Finolhu</td>
<td>50 years</td>
</tr>
</tbody>
</table>

Note: Transparency issues mean that data on the year of agreement and lease period may be inaccurate.

Chinese Strategic Partnerships in the Middle East

Chinese Port Access and Bases in Indian Ocean/Red Sea

Chinese Investment and Construction in Africa 2005-2018 as Percent of Recipient GDP

Source: Thomas Lynch, Strategic Assessment 2020, NDU, 2020, pp. 278.
Chinese Strategic Partnerships in Africa – I

Chinese Strategic Partnerships in Africa – II

PLA Power Projection in the Atlantic Ocean and Western Hemisphere—Continued

China's Economic and Security Activities in Africa

Note: Port calls, bilateral exercises, and high-level contacts between militaries included in the map are from 2010–2020. Only the countries and territories in the darker shade are analyzed for the purpose of this map.

Source: Created for the U.S.-China Economic and Security Review Commission; Various.849

Note: Investment includes projects that are built, planned, and in negotiation.

Source: Various.856

China’s (and Asia’s) Growing Strategic Dependence on Petroleum Imports Through the Indian Ocean and Strait of Malacca From the MENA Region
China’s Vulnerable Hydrocarbon Strategy

Key Takeaway

• The PRC’s interest in ensuring reliable, cost-effective, and diverse hydrocarbon sources to support its economic growth drives its overseas energy investments. The PRC relies on maritime routes that transit the South China Sea and Strait of Malacca for most of its hydrocarbon deliveries.

The PRC’s interest in ensuring reliable, cost-effective, and diverse fuel sources to support and sustain its economic development has led it to import oil and gas from more than 40 countries. In 2020, China imported 10.9 million barrels per day of crude oil, which met approximately 73 percent of its needs. As of late 2019, the PRC held about 80 days’ worth of crude oil imports in its strategic petroleum reserves (SPR) and continued to build its reserves in 2020 when global oil demand and prices dropped. Historic import levels in 2020 led China to stockpile crude and work towards its goal of building a 90-day supply in its SPR. The PRC met about 42 percent of its natural gas demand with imports in 2020, and industry analysis estimates the PRC’s natural gas imports will increase about 18 percent in 2021. In 2020, most of the PRC’s oil and natural gas imports came from the Persian Gulf, Africa, Russia, and Central Asia. The PRC’s investments in transport networks for oil and gas could help diversify its supply and reduce dependency on strategic chokepoints such as the Strait of Malacca.

The PRC relies on maritime routes that transit the South China Sea and Strait of Malacca for most of its hydrocarbon deliveries. Approximately 84 percent of the PRC’s oil imports and 61 percent of its total natural gas imports transited the South China Sea and Strait of Malacca. Despite the PRC’s efforts to diversify energy suppliers, the sheer volume of oil and natural gas imported from the Middle East and Africa will make securing strategic maritime routes a priority for Beijing for at least the next 15 years.

Crude oil pipelines from Russia and Kazakhstan to China demonstrate the PRC’s interest in increasing overland fuel supply. In 2019, the PRC imported 600,000 barrels per day of Russian crude oil via the East Siberia-Pacific Ocean pipeline, which has total designed capacity of 1.6 million barrels per day. The PRC also imports crude oil from Middle Eastern—primarily Saudi Arabia—and African suppliers via a crude oil pipeline across Burma. This 440,000-barrels-per-day pipeline bypasses the Strait of Malacca by transporting crude oil from Kyaukpyu, Burma, to Yunnan Province in China and reduces shipping time by more than a third.

In 2020, approximately 20 percent of the PRC’s natural gas imports came from Turkmenistan via a pipeline that runs through Kazakhstan and Uzbekistan. This pipeline can transport 55 billion cubic meters per year, with Turkmenistan and the PRC planning to expand it to 80 billion cubic meters per year. A natural gas pipeline connecting the PRC to Burma can deliver 12 billion cubic meters per year, but only 4.1 billion cubic meters of gas were shipped in 2019.

In December 2019, the north section of the Power of Siberia pipeline came online, delivering nearly 4 billion cubic meters of natural gas from Russia to the PRC in its first year. In early December 2020, the middle section of the China-Russia East natural gas pipeline—which is connected to the Power of Siberia pipeline—began operations, which will increase gas supply to 27 million cubic meters per day. The pipeline is projected to reach an annual capacity of 38 billion cubic meters per year by 2025.

China’s Strategic Dependence on Gulf and Other Crude Imports in 2019

### China’s Top Crude Suppliers 2019

<table>
<thead>
<tr>
<th>Country</th>
<th>Volume (1,000 barrels/day)</th>
<th>Percentage of Imported Crude Oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saudi Arabia</td>
<td>1,669</td>
<td>16</td>
</tr>
<tr>
<td>Russia</td>
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Numbers may not equal 100, as figures have been rounded.

The regions with the fastest-growing economies in the IEO2021 Reference case are non-OECD countries in Asia. India’s growth is greatest, but the WEPS regions of Other non-OECD Asia, Africa, China, and Other non-OECD Europe and Eurasia remain leaders in economic growth as well. Although China continues to grow at an average rate equal to Africa and Other non-OECD Europe and Eurasia, its growth notably slows throughout the projection period. Together, these top five growth regions were home to 70% of the world’s population in 2020 and 44% of GDP. By 2050, these shares grow to 73% and 59%, respectively.

Economic growth varies widely among Asian regions in the IEO2021 Reference case. Most notably, the projected GDP growth rate in China slows considerably compared with its growth rate from 2000 to 2010, when GDP increased by an average of over 10% per year. We also project slower economic growth for Japan and South Korea, illustrating the interconnectedness of Asian economies, as the decline in Chinese demand and trade for intermediate and finished goods, in addition to other structural and demographic factors, affects economic growth in these neighboring countries.

Oil and natural gas production will continue to grow, mainly to support increasing energy consumption in developing Asian economies.

Driven by increasing populations and fast-growing economies, consumption of liquid fuels will grow the most in non-OECD Asia, where total consumption nearly doubles by 2050 from 2020 levels in the Reference case.

Because these countries will consume more liquid fuels than they produce in the Reference case, we project that non-OECD Asia will supplement local production with increased imports of crude oil and finished petroleum products. The increased imports will primarily be supported by increased production in the Middle East. In the Reference case, by 2050, non-OECD Asia will become the largest importer of natural gas, and Russia will become the largest net exporter of natural gas.

China and Asia’s Growing Strategic Dependence on MENA and Russian Crude Imports Through 2050

Rising Chinese and Asian Crude Imports Must Come from Gulf and MENA – I

OPEC crude oil and lease condensate production by select regions

million barrels per day

Rising Asian Crude Imports Must Come from Gulf and MENA – II

Non-OPEC crude oil and lease condensate production by select regions
millions of barrels per day

China’s Southern Theater and Role in the South China Sea and Pacific
China’s Southern Theater Forces in 2021 – I

China’s Southern Theater Forces in 2021 – II

- 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 covers mainland and maritime Southeast Asia, including the South China Sea. This geographic area implies that the Southern Theater Command is responsible for securing the South China Sea, supporting the Eastern Theater Command in any operation against Taiwan, and assuring the security of sea lines of communication (SLOCs) Beijing sees as vital to China’s global ambitions. PLA units located within the Southern Theater Command include two group armies, a naval fleet, three marine brigades, two air force bases, and two rocket force bases. The Southern Theater Command is responsible for responding to U.S. freedom of navigation operations in the South China Sea, and can assume command as needed over all CCG and maritime militia ships conducting operations within the PRC’s claimed “nine-dash line.”

- The Southern Theater Command is responsible for training, force disposition, and operations in the South China Sea. In 2019 and 2020, Southern Theater Command units conducted multiple live-fire drills and amphibious training events near PRC-occupied features in the South China Sea. The Southern Theater Command also plays a significant role in the PLA’s bilateral and multilateral exercises with countries in Southeast Asia, participating in a counterterrorism exercise with Cambodia, a U.S. co-led multilateral exercise in Thailand, and a coast guard exercise with the Philippines in 2020.

- The Southern Theater Command commands the PLA Hong Kong and Macao garrisons. In August 2020, the PLA Hong Kong and Macao garrisons conducted an annual rotation of forces. In 2019, PLA and probable People’s Armed Police (PAP) forces deployed into Hong Kong by land, air, and sea from Shenzhen at night, nominally as part of the usual annual rotation, however, no forces were observed rotating out of Hong Kong in 2020. In 2020, PAP and PLA units continued to publicly highlight their anti-riot, counterterrorism, and disaster prevention training.

- All the PLA’s 24 Su-35s purchased from Russia are assigned to the Southern Theater Command Air Force, and have flown patrols in the South China Sea and into the Western Pacific. The Southern Theater Command was also the first command to receive the PLAN’s H-6J maritime strike bombers. In December 2019, the PRC commissioned its first-domestically produced aircraft carrier, Shandong into service at Yulin Naval Base in the Southern Theater Command. Shortly after, the carrier returned to its shipyard in the Northern Theater to complete testing and flight certifications with J-15 fighter aircraft before returning to its homeport on Hainan Island sometime in 2020.
China’s Southern Theater Forces in 2020

Disputed Claims in South China Sea

Figure A-1. Maritime Territorial Disputes Involving China

Island groups involved in principal disputes

Source: Map prepared by CRS using U.S. Department of State boundaries.

Figure A-2. Locations of 2001, 2002, and 2009 U.S.-Chinese Incidents at Sea and In Air

Bowditch incidents (2001 and 2002) and Victorious incident (2009)


First and Second Island Chains in Perspective

China’s First and Second Island Chain

China’s Forces in the South China Sea: 2021

Key Takeaways

• In 2020, the PRC did not resume land reclamation or major military infrastructure construction at its seven Spratly Islands outposts.

• The PRC’s Spratly outposts are capable of supporting military operations, include advanced weapon systems, and have supported non-combat aircraft; however, no large-scale presence of combat aircraft has been yet observed there.

• In 2020, the PRC continued to deploy PLAN, CCG, and civilian ships in response to Vietnamese and Malaysian drilling operations within the PRC’s claimed “nine-dash-line” and Philippines’ construction at Thitu Island.

Developments in the Security Situation. In July 2016, pursuant to provisions in the 1982 UN Convention on the Law of the Sea (UNCLOS), an arbitral tribunal convened at the Philippines’ behest ruled that the PRC’s claims to “historic rights” in the SCS, within the area depicted by the “nine-dash line,” were not compatible with UNCLOS. Since December 2019, four SCS claimants (Indonesia, Malaysia, the Philippines, and Vietnam) have explicitly referenced the arbitral ruling in notes verbales to the UN denying the validity of the PRC’s “historic rights” and nine-dash line claims. Beijing, however, categorically rejects the tribunal decision, and the PRC continues to use coercive tactics, including the employment of PLA naval, coast guard, and paramilitary vessels, to enforce its claims and advance its interests. The PRC does so in ways calculated to remain below the threshold of provoking conflict.

• The PRC states that international military presence within the SCS is a challenge to its sovereignty. The PRC continues to employ coercive tactics to enforce its claims. Throughout 2020, the PRC deployed PLAN, CCG, and civilian ships to maintain a presence in disputed areas, such as near Scarborough Reef and Thitu Island, as well as in response to oil and gas exploration operations by rival claimants within the PRC’s claimed “nine-dash line.” Separately, the CCG rammed and sank two Vietnamese fishing boats in separate incidents near the Paracel Islands over the course of the year. In both incidents, all the Vietnamese sailors were rescued without loss of life.

• In April 2020, Beijing announced the creation of two new administrative districts in the SCS, one covering the Paracels and other encompassing the Spratly Islands. This action likely intends to further solidify Chinese claims on these areas—especially in terms of domestic law—and justify its actions in the region.

• In July 2019, China and Association of Southeast Asian Nations (ASEAN) members completed the first reading of the China-ASEAN Code of Conduct (CoC), with a second and third reading remaining before China and ASEAN members finalize the agreement. The PRC and ASEAN member states had sought to complete CoC negotiations by 2021; however, the COVID-19 pandemic forced the cancellation of scheduled joint working group meetings in 2020. When negotiations resume, they are unlikely to produce substantive outcomes because the PRC and some SCS claimants are probably sensitive to language in the CoC that limits their activities. Given the delay, the complexity of the issues, and a mandate for ASEAN consensus—on an issue that members disagree on

China’s Posture in the South China Sea

The South China Sea and Key Strategic Routes in Southeast Asia

Note: Dotted lines indicate an exclusive economic zone (EEZ), the blue line represents the Road.

Credit: Map by Christian Dietrich.

Military Capabilities for Anti-Access/Area Denial (A2/AD) within the Second Island Chain

• In addition to strike, air and missile defense, anti-surface and anti-submarine capabilities improvements, the PRC is focusing on information, cyber, and space and counterspace operations.

• The PLA’s A2/AD capabilities are to date the most robust within the First Island Chain, although the PRC is beginning to field significant capabilities capable of conducting operations out to the Second Island Chain, and seeks to strengthen its capabilities to reach farther into the Pacific Ocean and globally.

• The PLA highlights big data analysis as useful for monitoring and early warning and artificial intelligence as a tool for more realistic exercises and the ability to respond quickly in the case of a conflict in cyberspace. The PLA’s focus on an integrated approach to cyber defense using advanced technologies likely will lead to the PLA improving its cyber defense capabilities over the next several years.

The PRC’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. The PLA’s A2/AD capabilities are, to date, the most robust within the First Island Chain, although the PRC seeks to strengthen its capabilities to reach farther into the Pacific Ocean. These capabilities span the air, maritime, space, electromagnetic, and information domains.

Long-Range Precision Strike. The PRC’s military modernization efforts have rapidly transformed the PLA’s missile force. PLA writings frame logistics and power projection assets as potential vulnerabilities in modern warfare, which aligns with the PLA’s expanding ability to conduct strikes against regional air bases, logistics and port facilities communications, and other ground-based infrastructure. U.S. bases in Japan are in range of a growing number of the PLA’s MRBMs and LACMs. LACMs will also likely be deployable on surface platforms like the Renhai class guided-missile cruisers. H-6K bomber flights into the Western Pacific demonstrate the PRC’s ability to range Guam with air-launched LACMs. The DF-26 is capable of conducting precision conventional or nuclear strikes against ground targets, such as U.S. military bases on Guam, as well as against maritime targets. The PLA is investing in reconnaissance, surveillance, command, control, and communications systems at the strategic, operational, and tactical levels to provide high-fidelity OTH targeting information for its strike platforms.
China’s Outposts in the South China Sea: 2021

Since early 2018, PRC-occupied Spratly Island outposts have been equipped with advanced anti-ship and anti-aircraft missile systems and military jamming equipment, marking the most capable land-based weapons systems deployed by any claimant in the disputed South China Sea to date.

In addition, in early 2020, the PLA deployed KJ-200 anti-submarine warfare and KJ-500 airborne early warning aircraft to Fiery Cross Reef. From early 2018 through 2020, the PRC regularly utilized its Spratly Islands outposts to support naval and coast guard operations in the South China Sea.

No substantial land has been reclaimed at any of the outposts since the PRC completed its extensive artificial manipulation in the Spratly Islands in late 2015, after adding more than 3,200 acres of land to the seven features it occupies in the Spratlys.

The PRC 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 allow the PRC to maintain a more flexible and persistent military and paramilitary presence in the area. This improves the PRC’s ability to detect and challenge activities by rival claimants or third parties and widens the range of response options available to Beijing.
Militarization of the South China Sea in Perspective

Japanese View of Chinese Militarization of South China Sea


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4 According to the statement by U.S. Chief of Naval Operation John Richardson in March 2016.
Reported Chinese Aircraft, Missile, and Radar Ranges From Chinese-occupied sites in SCS

China’s Spratly and Other Outposts in 2021

Military Facilities at SCS Sites Occupied by China


China: The Eastern Theater Command and East China Sea
China’s Eastern Theater Command 2021

- The Eastern Theater Command is oriented toward Taiwan and the East China Sea.

The Eastern Theater Command has responsibility for the East China Sea and likely executes operational control over national defense matters related to Taiwan and Japan, including contingencies in and around the Taiwan Strait and the Senkaku Islands. In 2020, the Eastern Theater Command focused on a series of training and exercises to improve joint operations and combat readiness, organizing exercises and drills consisting of long-distance training and mobilization, aerial combat, and live-fire training.

PLA units located within the Eastern Theater Command include three group armies, a naval fleet, a naval aviation division, two marine brigades, two Air Force divisions, two operational Air Force bases, and one Rocket Force base. The Eastern Theater Command also likely commands all China Coast Guard (CCG) and maritime militia ships while they are conducting Senkakus-related operations. During a contingency, the Eastern Theater Command likely also exercises command over some Strategic Support Force (SSF) units in theater and receives strategic intelligence support from the SSF to improve battlefield awareness and facilitate joint operations within the theater.

In August and September 2020, the Eastern Theater Command conducted a series of military exercises in the vicinity of Taiwan that featured large-scale naval and air maneuvers, amphibious operations, and multiple instances of PLA aircraft crossing the median line of the Taiwan Strait. An Eastern Theater Command spokesperson stated that these drills were meant to further test and improve multi-service joint operations capabilities, as well as to deter “Taiwan independence” forces and foreign actors from threatening the peace and stability of the Taiwan Strait region.

Key Takeaway

- The Eastern Theater Command is oriented toward Taiwan and the East China Sea.

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China and Taiwan
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 PLA Navy Marine Corps (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 seize key terrain and interdict Taiwan counterattacks.

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, to include dropping airborne troops from the Y-20 heavy-lift aircraft for the first time. The PLA rarely conducts amphibious exercises involving echelons above a battalion, although both PLAA and PLANMC units have emphasized the development of combined-arms battalion formations since 2012.
DoD: Developments in the Taiwan Straits: 2021

Key Takeaways

• PRC diplomatic, political, and military pressure against Taiwan intensified in 2020.

• Throughout 2020, the PLA increased provocative and destabilizing actions in and around the Taiwan Strait, to include repeated flights into Taiwan’s Air Defense Identification Zone and conducting combat drills such as island seizure operations.

Tensions between the PRC and Taiwan heightened in 2020, as the PRC intensified political and military pressure aimed at Taiwan. In January 2020, despite the PRC’s election interference, President Tsai Ing-wen won reelection for a second term. The PRC continues its suspension of formal communication with Taiwan, which it did in 2016, and remains steadfast that Taiwan must accept Beijing’s view of the “1992 Consensus” to restart formal engagement. China’s leaders have directly equated the “1992 Consensus” to Beijing’s “one China Principle” which was reaffirmed by General Secretary Xi in a January 2019 address to “compatriots” in Taiwan. President Tsai has continually pledged to maintain the status quo in cross-Strait relations and called for the PRC to respect Taiwan’s democracy and agree to negotiations without preconditions. In her May 2020 inauguration speech, Tsai reiterated that her China policy would be based on the Republic of China’s constitution and the law governing cross-Strait relations, with a willingness to engage in dialogue on the principles of “peace, parity, democracy, and dialogue” to the PRC’s displeasure.

The PRC also maintained its diplomatic pressure on Taiwan, thwarting Taiwan’s efforts to participate in international organizations such as the World Health Organization, International Civil Aviation Organization, and the International Criminal Policy Organization (INTERPOL). Despite the stalled consultations with the ruling Democratic Progressive Party (DPP), the Chinese Communist Party (CCP) continues to engage with Taiwan’s Kuomintang (KMT) party, and the PRC continues to hold lower-level cross-Strait exchanges such as the municipal Shanghai-Taipei Twin City Forum, held virtually in August 2020, due to the pandemic.

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 PRC by force, while simultaneously deterring, delaying, or denying any third-party intervention, such as the United States and/or other like-minded partners, on Taiwan’s behalf. As part of a comprehensive campaign to pressure Taiwan and the Tsai administration, and signal its displeasure at warming Washington-Taipei ties, China has persistently conducted military operations near Taiwan and military training for a Taiwan contingency. Throughout 2020, China’s military increased provocative actions in and around the Taiwan Strait, to include repeated flights into Taiwan’s Air Defense Identification Zone and conducting combat drills such as island seizure operations. In 2020, Beijing also publicly refuted the existence of the Taiwan Strait ‘median line,’ a decades-long tacit agreement between the two sides intended to reduce miscalculation and avoid sparking accidental crises.

Key Takeaways

• Although the PRC publicly advocates for peaceful unification with Taiwan, the PRC has never renounced the use of military force; the circumstances under which the PRC has historically indicated it would consider using force remain ambiguous and have evolved over time.

• The PRC has a range of options for military campaigns against Taiwan, 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.

The PRC appears willing to defer the use of military force as long as it considers that unification with Taiwan could be negotiated over the long-term and the costs of conflict outweigh the benefits. The PRC argues that the credible threat of force is essential to maintaining the conditions for political progress on its terms and preventing Taiwan from making moves toward independence. In January 2019, General Secretary Xi Jinping publicly reiterated the PRC’s long-standing refusal to renounce the use of force to resolve the Taiwan issue, and staked the PRC’s position for peaceful unification under the model of “one country, two systems.” Based on the 2019 speech, “once country, two systems” entails the “protection” of Taiwan’s social system, way of life, private property, religious beliefs, and “lawful rights and interests,” provided the PRC’s “sovereignty, security, and development interests,” are ensured. In 2020, senior PRC leaders and government spokespersons continued to call for cross-Strait discussions on the foundation of adhering to Beijing’s interpretation of the “1992 Consensus” and opposing Taiwan independence, and reiterated contents of Xi’s 2019 speech.

Based on changing public sentiment in Taiwan, according to recent polling data, PRC leaders may perceive a closing window of opportunity to subjugate Taiwan under the pretenses of Beijing’s “one country, two systems” framework. The PRC has increasingly resorted to an aggressive pressure campaign against Taiwan and the Tsai administration to curtail Washington-Taipei ties and deter “Taiwan independence.” The PRC conducting persistent military operations near Taiwan—and training for a Taiwan contingency—likely signals a greater urgency for the PLA to continue to develop and perfect its strategy and capabilities should PRC leaders look to a military option to achieve their objectives.

The circumstances under which the PRC has historically indicated it would consider the use force have evolved over time. These circumstances have included:

− Formal declaration of Taiwan independence;
− Undefined moves toward Taiwan independence;
− Internal unrest in Taiwan;
− Taiwan’s acquisition of nuclear weapons;
− Indefinite delays in the resumption of cross-Strait dialogue on unification; and
− Foreign military intervention in Taiwan’s internal affairs.

DoD: China’s Threat to Taiwan: 2021 – II

Article 8 of the PRC’s March 2005 Anti-Secession Law states that the PRC 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 PRC’s use of such non-specific conditions increases their policy flexibility through deliberate strategic ambiguity.

PRC COURSES OF ACTION AGAINST TAIWAN

The PRC continues to signal its willingness to use military force against Taiwan. The PLA has a range of options to coerce Taipei based on its increasing capabilities in multiple domains. The PRC 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 compel Taiwan’s leadership to the negotiation table under Beĳing’s terms. Notably, the PRC would seek to deter potential U.S. intervention in any Taiwan contingency campaign – capabilities relevant to deterring or countering potential U.S. intervention were among those that the PRC highlighted during its October 2019 military parade celebrating its 70th anniversary. Failing that, the PRC would attempt to delay and defeat intervention in an asymmetric, limited war of short duration. In the event of a protracted conflict, the PLA might choose to escalate cyberspace, space, or nuclear activities in an attempt to end the conflict, or it might choose to fight to a stalemate 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 the PRC would employ kinetic blockades of maritime and air traffic, including a cut-off of Taiwan’s vital imports, to force Taiwan’s capitulation. Large-scale missile strikes and possible 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. The PRC will also likely complement its air and maritime blockade operations with concurrent electronic warfare (EW), network attacks, and information operations (IO) to further isolate Taiwan’s authorities and populace and to control the international narrative of the conflict.

Limited Force or Coercive Options. The PRC 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 (SOF) could infiltrate Taiwan and conduct attacks against infrastructure or leadership targets.

Air and Missile Campaign. The PRC 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 PRC 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 EW. The objective would be to break through or circumvent shore defenses, establish and build a beachhead, transport personnel and materiel to designated landing sites in the north or south of Taiwan’s western coastline, and launch attacks to seize and occupy key targets or the entire island. In 2020, the PLA conducted joint amphibious assault exercises near Taiwan. Furthermore, the PRC continues to build capabilities that would contribute to a full-scale invasion; in 2019, the PLA completed construction of its first helicopter dock amphibious assault ship (LHA).

Large-scale amphibious invasion is one of the most complicated and difficult military operations, requiring air and maritime superiority, the rapid buildup and sustainment of supplies onshore, and uninterrupted support. An attempt to invade Taiwan would likely strain PRC’s armed forces and invite international intervention. These stresses, combined with the PRCs 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 for Xi Jinping and the Chinese Communist Party.

The PLA is capable of attempting various amphibious operations short of a full-scale invasion of Taiwan. With few overt military preparations beyond routine training, the PRC could launch an invasion of small Taiwan-occupied 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 the PLA’s capabilities. Such an invasion would demonstrate military capability, political resolve, and achieve tangible territorial gain while 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 powerful international opposition.

Effect of PLA Reform on a Taiwan Contingency. One of the overarching goals of the 2015 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 seek to clarify command authorities, improving joint integration, and facilitating the transition from peace to war. The abolition of military regions in favor of military theaters—in this case, the PLA’s Eastern Theater Command—has also likely streamlined and improved the PLA’s ability to conduct yearlong planning and preparation for joint military operations across the Taiwan Strait. At least some PLA combat units are likely experiencing temporary decreases in 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 was the establishment of both the Strategic Support Force (SSF) and the Joint Logistic Support Force (JLSF) in 2016. 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 logistics and sustainment effort of a PLA amphibious and air assault on Taiwan probably remain one of the key components for the operation. The creation of the SSF likely improves the PLA’s ability to execute and coordinate IO (particularly 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 the Eastern Theater Command, 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.
### China’s Cross-Strait Balance in 2011 and 2020

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<td>1,100</td>
<td>N/A</td>
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</tr>
<tr>
<td>Aircraft Carriers</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Destroyers</td>
<td>4</td>
<td>23</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Frigates</td>
<td>22</td>
<td>37</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>Tank Landing Ships</td>
<td>14</td>
<td>35</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Medium Landing Ships</td>
<td>0</td>
<td>16</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Attack Submarines</td>
<td>2</td>
<td>34</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>Coastal Patrol Vessels</td>
<td>44</td>
<td>68</td>
<td>86</td>
<td></td>
</tr>
<tr>
<td>Fighter Aircraft</td>
<td>400</td>
<td>600</td>
<td>1,500</td>
<td></td>
</tr>
<tr>
<td>Bomber Aircraft</td>
<td>250</td>
<td>450</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport Aircraft</td>
<td>30</td>
<td>20</td>
<td>400</td>
<td></td>
</tr>
</tbody>
</table>

# DIA Estimate of China-Taiwan Balance: 2019

## Taiwan Strait Military Balance, Ground Forces

<table>
<thead>
<tr>
<th></th>
<th>China</th>
<th>Taiwan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Eastern and Southern Theater</td>
</tr>
<tr>
<td><strong>Total Ground Force Personnel</strong></td>
<td>1,030,000</td>
<td>412,000</td>
</tr>
<tr>
<td>Group Armies</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>Combined Arms Brigades</td>
<td>78</td>
<td>30 (6 amphibious)</td>
</tr>
<tr>
<td>Mechanized Infantry Brigades</td>
<td>N/A</td>
<td>3</td>
</tr>
<tr>
<td>Motorized Infantry Brigades</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Armor Brigades</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Air Assault/Army Aviation Brigades</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Artillery Brigades</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Airborne Brigades</td>
<td>7*</td>
<td>7</td>
</tr>
<tr>
<td>Marine Brigades</td>
<td>8*</td>
<td>4</td>
</tr>
<tr>
<td>Tanks</td>
<td>6,300</td>
<td></td>
</tr>
<tr>
<td>Artillery Pieces</td>
<td>6,300</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** For the purposes of this document, the “Taiwan Strait Area” includes the PLA’s Eastern and Southern Theater Commands.

*Although counted as ground forces for the purposes of this chart, China’s airbase brigades belong to the PLA Air Force (PLAAF) Airborne Corps and the marine brigades to the PLA Navy Marine Corps (PLANMC).

**Counts only active-duty Army personnel.**

## Taiwan Strait Military Balance, Naval Forces

<table>
<thead>
<tr>
<th></th>
<th>China</th>
<th>Taiwan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Eastern and Southern Theater</td>
</tr>
<tr>
<td><strong>Aircraft Carriers</strong></td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>Cruisers</strong></td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Destroyers</strong></td>
<td>32</td>
<td>23</td>
</tr>
<tr>
<td><strong>Frigates</strong></td>
<td>49</td>
<td>37</td>
</tr>
<tr>
<td><strong>Corvettes</strong></td>
<td>49</td>
<td>39</td>
</tr>
<tr>
<td><strong>Tank Landing Ships/ Amphibious Transport Dock</strong></td>
<td>37</td>
<td>35</td>
</tr>
<tr>
<td><strong>Medium Landing Ships</strong></td>
<td>21</td>
<td>16</td>
</tr>
<tr>
<td><strong>Diesel Attack Submarines</strong></td>
<td>46</td>
<td>32</td>
</tr>
<tr>
<td><strong>Nuclear Attack Submarines</strong></td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td><strong>Ballistic Missile Submarines</strong></td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td><strong>Coastal Patrol (Missile)</strong></td>
<td>86</td>
<td>68</td>
</tr>
<tr>
<td><strong>Coast Guard Ships</strong></td>
<td>255*</td>
<td>N / A</td>
</tr>
</tbody>
</table>

**Note:** In the event of a major Taiwan conflict, the PLA’s 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 the other fleets. In conflict, China may also employ China Coast Guard (CCG) and People’s Armed Forces Maritime Militia (PAFMM) ships to support military operations.

*China’s coast guard ships belong to the China Coast Guard (CCG), which is subordinate to the People’s Armed Police (PAP).**

## Taiwan Strait Military Balance, Air Forces

<table>
<thead>
<tr>
<th></th>
<th>China</th>
<th>Taiwan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Eastern and Southern Theater</td>
</tr>
<tr>
<td><strong>Fighters</strong></td>
<td>1,500 (2,700*)</td>
<td>600 (750*)</td>
</tr>
<tr>
<td><strong>Bombers/Attack</strong></td>
<td>450</td>
<td>250</td>
</tr>
<tr>
<td><strong>Transport</strong></td>
<td>400</td>
<td>20</td>
</tr>
<tr>
<td><strong>Special Mission Aircraft</strong></td>
<td>150</td>
<td>100</td>
</tr>
</tbody>
</table>

**Note:** 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. Note that approximately 80% of the PLAAF/PLAN Aviation’s total fighters are at least modern fourth-generation aircraft.

*The totals in parentheses include fighter trainers.

## China’s Rocket Force

<table>
<thead>
<tr>
<th>System</th>
<th>Launchers</th>
<th>Missiles</th>
<th>Estimated Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICBM</td>
<td>100</td>
<td>100</td>
<td>&gt;5,500km</td>
</tr>
<tr>
<td>IRBM</td>
<td>200</td>
<td>200+</td>
<td>3,000-5,500km</td>
</tr>
<tr>
<td>MRBM</td>
<td>150</td>
<td>150+</td>
<td>1,000-3,000km</td>
</tr>
<tr>
<td>SRBM</td>
<td>250</td>
<td>600+</td>
<td>300-1,000km</td>
</tr>
<tr>
<td>GLCM</td>
<td>100</td>
<td>300+</td>
<td>&gt;1,500km</td>
</tr>
</tbody>
</table>


PLA Army (PLAA). The PLAA continues to enhance its readiness to prevent Taiwan independence and execute an invasion. Significant reorganizations and cross-sea amphibious assault training in recent years likely indicate supporting a Taiwan operation is a high priority for the Army. Major PLAA contributions to a Taiwan invasion scenario likely include extensive amphibious, army aviation, and air assault operations.

The PLAA fields six amphibious combined arms brigades—four in the Eastern Theater Command (nearest Taiwan) and two in the Southern Theater Command. Despite COVID-19 mitigation efforts, extensive flooding in southern China, and conflict on the Indian border, PLAA units continued amphibious assault training as a single service and with joint service counterparts in 2020.

Training events included nighttime loading, concealed landing, simulated sea crossing operations, and joint landing operations integrating PLAA aviation, Special Forces, EW, armor, and mechanized infantry. Press reports also claim extensive use of sea, air, and ground UAS in support of the amphibious assault operation. PLAA amphibious brigades reportedly conduct realistic, large-scale amphibious operations that are almost certainly aimed at supporting a Taiwan invasion scenario.

In addition to amphibious assault, PLAA aviation and air assault brigades will likely play a role in a large-scale amphibious assault. PLAA aviation and air assault brigades conducted significant training throughout 2020—some directly supporting a Taiwan scenario and others that improve skill sets necessary for a cross-sea invasion.

Exercises included single-service operations and joint operations with the PLAN and PLAAF. In August 2020, PLAA helicopters left their land base, landed on PLAN ships, and then conducted an air assault mission. PLAA aviation units also conducted “cross-sea [aerial] assault drills,” using UAVs to target opposing forces for air strikes in support of ground forces. PLAA aviation assets also conducted an exercise attacking air and maritime assets in an open-sea environment. Army aviation and air assault units extensively trained on scenarios in a maritime environment that support joint force operations similar to those necessary for a Taiwan invasion.

DoD: Taiwan Strait Military Balance, China’s Ground Forces: 2021

<table>
<thead>
<tr>
<th></th>
<th>China</th>
<th>Taiwan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Taiwan Area</td>
</tr>
<tr>
<td>Total Ground Force Personnel</td>
<td>1,040,000</td>
<td>416,000</td>
</tr>
<tr>
<td>Group Armies/Army Corps</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>Combined Arms Brigades</td>
<td>78</td>
<td>30 (6 Amphibious)</td>
</tr>
<tr>
<td>Mechanized Infantry Brigades</td>
<td>N/A</td>
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<tr>
<td>Motorized Infantry Brigades</td>
<td></td>
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<tr>
<td>Armor Brigades</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Army Aviation/Air Assault Brigades</td>
<td>15</td>
<td>5</td>
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<tr>
<td>Artillery Brigades</td>
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<td>5</td>
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<tr>
<td>Airborne Brigades</td>
<td>7</td>
<td>7</td>
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<tr>
<td>Marine Brigades</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Tanks</td>
<td>6,300</td>
<td></td>
</tr>
<tr>
<td>Artillery Pieces</td>
<td>7,000</td>
<td></td>
</tr>
</tbody>
</table>

Note: For the purposes of this document, the “Taiwan Strait Area” includes the PLA’s Eastern and Southern Theaters.
DoD: Taiwan Strait Military Balance, China’s Naval Forces: 2021

The PLAN is improving its anti-air, anti-surface, and anti-submarine warfare capabilities, developing an at-sea nuclear deterrent, and introducing new multi-mission platforms capable of striking Taiwan’s naval forces in a cross-Strait conflict as well as conducting diverse missions in other contingency operations. New attack submarines and modern surface combatants with anti-air capabilities and fourth-generation naval aircraft entering the force are designed to achieve maritime superiority within the First Island Chain as well as to deter and counter any potential third-party intervention in a Taiwan conflict.

The PRC’s amphibious ship fleet, however, has in recent years focused on acquiring a modest number of ocean-going amphibious platform docks (LPDs) and flat deck landing helicopter assault (LHAs) ships, indicating a near term focus on regional and eventually global expeditionary missions rather than the large number of landing ship transports and medium landing craft that would be necessary for a large-scale direct beach assault.

There is also no indication the PRC is significantly expanding its force of tank landing ships (LSTs) and medium sized landing craft at this time—suggesting a traditional large-scale direct beach—assault operation requiring extensive lift remains aspirational.

Although the PLAN has not invested in the large number of landing ships and medium landing craft that outsiders believe the PLA would need for a large-scale assault on Taiwan, it is possible the PLA assess it has sufficient amphibious capacity and mitigated shortfalls through investments in other operational modalities able to bring forces onto Taiwan such as the PLA’s rapidly expanding fleet of rotary-wing assets. The PLA may also have confidence in the PRC’s shipbuilding industry’s massive capacity to produce the necessary ship-to-shore connectors relatively quickly.
DoD: Taiwan Strait Military Balance, Air and Missile Forces: 2021

PLA Air Force (PLAAF). The PLAAF has maintained a force posture that provides a variety of capabilities for a Taiwan contingency. It has acquired a large number of advanced aircraft capable of conducting operations against Taiwan without requiring refueling, providing it with a significant capability to conduct air and ground-attack operations. A number of long-range air defense systems provide a strong layer of defense against attacks on key military installations or population centers on China’s mainland. In addition, the PRC’s development of support aircraft provides the PLAAF with improved ISR capability to support PLA operations in a contingency.

PLA Rocket Force (PLARF). The PLARF is prepared to conduct missile attacks against high-value targets, including Taiwan’s C2 facilities, air bases, and radar sites, in an attempt to degrade Taiwan’s defenses, neutralize Taiwan’s leadership, or break the public’s will to fight. PLARF nuclear units will likely be postured to conduct deterrence operations and in heightened readiness in preparation for rapid nuclear counterstrikes if called on.

Strategic Support Force (SSF). PLA doctrinal writings emphasize the importance of space and cyberspace domains in joint operations. The PRC’s 2019 defense white paper states that its armed forces are accelerating the build-up of its cyberspace capabilities, specifically its cyber defenses and its ability to detect and counter network intrusions. PLA writings suggest that the SSF would be responsible for the use of EW and cyber operations during a Taiwan contingency, as one of the missions of the force is to seize and maintain battlefield information control in contemporary informatized warfare. The SSF 311 Base would also be responsible for political and psychological warfare, such as disseminating propaganda against Taiwan to influence public opinion and promote the PRC’s interests. The SSF would also play a strategic information and communications support role, centralizing technical intelligence collection and management and providing strategic intelligence support to theater commands involved in a Taiwan contingency.

Joint Logistic Support Force (JLSF). The JLSF’s primary goal is to provide joint logistics support to the PLA’s strategic and campaign-level operations, such as a Taiwan contingency, by conducting C2 of joint logistics, delivering materiel, and overseeing various support mechanisms.

The data in this year’s report apply a new methodology that may result in significantly different numbers than shown in previous reports, but do not necessarily reflect a sudden change in capability.

DoD: Taiwan’s Defense Capabilities: 2021

Key Takeaways

- The PRC’s multi-decade military modernization effort continues to widen the capability gap between the PLA and Taiwan’s military.
- To counter the PRC’s improving capabilities, Taiwan is developing new concepts and capabilities for asymmetric warfare.

Taiwan is taking important steps to compensate for the growing disparities it has compared to the PLA, including 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. However, these improvements only partially address Taiwan’s defense challenges. Taiwan’s 2021 Quadrennial Defense Review reaffirms recent adjustments to the military’s strategy for defending the island, placing emphasis on protecting its littorals and near-shore coastal areas in a multi-layered defense in depth. The modified strategy stresses enhanced asymmetric and joint capabilities, as well as suggesting greater reliance on Taiwan’s Air Force and Navy through multi-domain deterrence measures.

Taiwan’s armed forces are authorized to fill approximately 215,000 billets, including 188,000 active duty billets. Reservists and civil defense volunteers support the active duty forces. As of the end of 2020, the Ministry of National Defense accomplished its goal of filling 90 percent of the active duty billets, totaling approximately 169,000 personnel, with volunteers. 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 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. Taiwan continues to increase its defense budget in order to support defense acquisition and reforms. In August 2019, Taiwan said it would increase the island’s defense budget by 5.2 percent to NT $358 billion ($11.6 billion). In August 2020, the Tsai administration announced an additional 10% increase to the defense budget, increasing overall defense spending to more than 2% of gross domestic product and the highest level since the 1990’s. Meanwhile, the PRC’s official defense budget continues to grow, with much of it focused on developing military joint operations capability that could be used to unify Taiwan with the PRC 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 Electronic Warfare, cyber and information operations, fast attack maritime vessels, coastal defense missiles, rapid naval mining, unmanned aerial systems, and critical infrastructure protection.

The United States maintains its one-China policy, which is guided by the Taiwan Relations Act (TRA), the three Joint Communiques, and the Six Assurances. The United States is committed to deepening ties with Taiwan, which is a leading democracy and a critical economic and security partner. The United States will continue to support a peaceful resolution of cross-Strait issues, consistent with the wishes and best interests of the people on Taiwan.

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 October 2019, Taiwan announced the purchase of F-16V fighter aircraft for $8 billion. In 2020, the frequency of arms sales to Taiwan increased with authorizations totaling more than $5 billion. Authorized weapons sales included advanced unmanned aerial systems, long range missiles and artillery, and the Harpoon Coastal Defense System. Since 2010, the United States has announced more than $23 billion in arms sales to Taiwan. In support of these efforts, the U.S. continues to maintain the capacity to resist any resort to force or other forms of coercion that would jeopardize the security, or the social or economic system, of the people of Taiwan.

The data in this year’s report apply a new methodology that may result in significantly different numbers than shown in previous reports, but do not necessarily reflect a sudden change in capability.

Taiwan’s Defense Budget: 2010-2021

Taiwan’s Arms Buys from the U.S.: 2007-2021

<table>
<thead>
<tr>
<th>Year</th>
<th>Purchased Arms</th>
<th>Approximate Cost (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>Upgrades to electronic warfare systems supporting four KEELUNG-class destroyers</td>
<td>$80 million</td>
</tr>
<tr>
<td>2017</td>
<td>56 AGM-154C JSOW air-to-ground missiles</td>
<td>$186 million</td>
</tr>
<tr>
<td>2017</td>
<td>Converting 168 MK-46 Mod 5 aerial anti-submarine torpedoes to MK-54 lightweight torpedoes</td>
<td>$175 million</td>
</tr>
<tr>
<td>2017</td>
<td>46 MK 48 Mod 6AT submarine-launched torpedoes</td>
<td>$250 million</td>
</tr>
<tr>
<td>2017</td>
<td>16 SM-2 missiles</td>
<td>$125 million</td>
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<tr>
<td>2017</td>
<td>60 AGM-88B high-speed antiradiation missiles</td>
<td>$148 million</td>
</tr>
<tr>
<td>2017</td>
<td>Logistics support</td>
<td>$400 million</td>
</tr>
<tr>
<td>2018</td>
<td>Spare parts and repair for F-16, C-130, F-5, and other aircraft systems</td>
<td>$330 million</td>
</tr>
<tr>
<td>2019</td>
<td>F-16 pilot training, maintenance, and logistics support</td>
<td>$500 million</td>
</tr>
<tr>
<td>2019</td>
<td>250 Block I-92F man-portable air-defense system Stinger missiles</td>
<td>$224 million</td>
</tr>
<tr>
<td>2019</td>
<td>108 M1A2T Abrams tanks, 122 M2 machine guns, 216 M240 machine guns, transport vehicles, and tank rounds</td>
<td>$2 billion</td>
</tr>
<tr>
<td>2019</td>
<td>66 F-16C/D aircraft</td>
<td>$8 billion</td>
</tr>
<tr>
<td>2020</td>
<td>18 MK 48 Mod 6 submarine-launched torpedoes</td>
<td>$180 million</td>
</tr>
<tr>
<td>2020</td>
<td>Recertification, test, and repair of Patriot missiles</td>
<td>$620 million</td>
</tr>
<tr>
<td>2020</td>
<td>11 HIMARS launchers and 64 Army Tactical Missile Systems missiles</td>
<td>$436 million</td>
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<tr>
<td>2020</td>
<td>135 AGM-84H Standoff Land Attack Missile Expanded Response missiles</td>
<td>$1.008 billion</td>
</tr>
<tr>
<td>2020</td>
<td>6 MS-110 reconnaissance pod aircraft attachments</td>
<td>$367 million</td>
</tr>
<tr>
<td>2020</td>
<td>100 Harpoon coastal defense cruise missiles, 400 RGM-84L-4 Harpoon antiship missiles</td>
<td>$2.37 billion</td>
</tr>
<tr>
<td>2020</td>
<td>4 MQ-9B drones</td>
<td>$800 million</td>
</tr>
<tr>
<td>2020</td>
<td>Field Information Communication System</td>
<td>$280 million</td>
</tr>
<tr>
<td>2021</td>
<td>40 M109A6 Paladin Medium Self-Propelled Howitzer Systems</td>
<td>$750 million</td>
</tr>
</tbody>
</table>

DoD Assessment of Taiwan’s Defensive Capabilities in 2020

Key Takeaways

• China’s multi-decade military modernization effort has eroded or negated many of the military advantages that Taiwan has historically enjoyed the context of a cross-Strait conflict.

• To counter China’s improving capabilities, Taiwan is developing new concepts and capabilities for asymmetric warfare.

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 2019 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. Reservists and civil defense volunteers support the active duty forces. The Ministry of National Defense has stated that its goal is to fill 90 percent of the billets (or approximately 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 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.

In addition, Taiwan’s military spending remains at approximately two percent of its gross domestic product. In August 2019, Taiwan said it would increase the island’s defense budget by 5.2 percent to NT $358 billion ($11.6 billion). Meanwhile, China’s official defense budget continues to grow, and for 2019, is roughly 15 times that of Taiwan, with much of it focused on developing the capability to unify Taiwan with the PRC 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 EW, 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 May 2020, the White House publicly released a report to Congress entitled, United States Strategic Approach to the People’s Republic of China. The report states, “Beijing’s failure to honor its commitments under the communiques, as demonstrated by its massive military buildup, compels the United States to continue to assist the Taiwan military in maintaining a credible self-defense, which deters aggression and helps to ensure peace and stability in the region. In a 1982 memorandum, President Ronald Reagan insisted ‘that the quantity and quality of the arms provided Taiwan be conditioned entirely on the threat posed by the PRC.’” In October 2019, Taiwan announced the purchase of F-16V fighter aircraft for $8 billion. Since 2010, the United States has announced more than $23 billion in arms sales to Taiwan.

With the expansion of its comprehensive national power, the military might of the PRC has been growing rapidly. Its strategy and means towards Taiwan are becoming diversified. Aside from the aforementioned cognitive warfare and IW, it has been using various military intrusion and provocation activities to probe our early warning capabilities and reactions and continues with its military coercive actions. With a rock-solid preparedness, the ROC Armed Forces integrates comprehensive capabilities and maintains constant vigilance to deal with any possible contingencies.

PRC's Harassment Means

• The PRC imposes gray zone harassments and coercive effects across the Taiwan Strait via various activities such as repeatedly assigning aircraft and vessels, conduct drills and exercises. These activities are categorized as follows:

• Air intrusion to Taiwan Air Defense Identification Zone (ADIZ)

• The PRC has been assigning various kinds of aircraft and UAVs to intrude the southwest area of our ADIZ in a regular base. It attempts to intensify PLA's surveillance and reconnaissance activities, probe and disturb ROC’s air defense measures, squeeze reaction ability in time and airspace, and threaten the aerial security of the Taiwan Strait.

• Air and maritime long-distance training over the sea

• A long-distance training task force of the PLAN and the PLA Air Force (PLAAF) has been conducting exercise for joint operations in our surrounding waters and airspace as well as the Western Pacific, in order to strengthen their maritime maneuvering and replenishment, air refueling, chain of command, and the performance of joint operations.

• Carrier cross-regional cruise training

• In order to establish an area denial capability and impose threats towards Taiwan, the PLAN has assigned a carrier group transiting through the Taiwan Strait to the Western Pacific. The cross-regional cruise training aims to sharpen the carrier’s abilities of prolonged maritime deployment and the carrier-based fighters’ capabilities for all-weather operations.

• Maritime activities around our waters

• The PRC has been intensifying its maritime patrol activities on the waters confronting Taiwan. It has been assigning spy boats and survey vessels to collect intelligence and hydrological information, conduct seabed terrain survey, enhance battlefield management, and strengthen its capability of sea control.
Enhancing Response

- Facing various intrusions and provocations initiated by the PRC, the ROC Armed Forces follows the guidance of “Absolutely No Concession on Sovereignty; No Backing Away from Democracy and Freedom” to steadfastly demonstrate our determination and competency to defend the homeland and vigorously strengthen all necessary responses.

- Tightly monitoring situations across the Taiwan Strait

- The ROC Armed Forces uses joint ISR systems and exchange intelligence with allies and friendly countries to tightly monitor potential hostile activities, so as to ensure the capability of early warning and take initiatives by timely response.

- Cautiously reacting to contingencies

- The ROC Armed Forces regularly deploy air and maritime forces to patrol airspace and waters around Taiwan, and maintain ground forces on offshore islands and Taiwan for proper operational preparedness and timely reaction to contingencies. When facing contingencies, the ROC Armed Forces shall rapidly assign sufficient forces to secure our territorial waters and airspace by following the principles of “no evasion or provocation”, "avoid triggering and escalating conflict", and "the nearer the enemy is, the tougher response from ROC would be ".

- Working with the CGA to deal with emergencies

- The ROC Armed Forces continues to coordinate with the CGA closely, share information, and conduct joint ISR missions to strengthen mutual reactive capabilities to handle maritime contingencies. In peacetime, the ROC Navy maintains interoperability with the CGA. In a wartime situation, all CGA vessels are to be incorporated into the order of battle to take part in joint operations, as stipulated in the ROC Armed Forces Regulations for the Defensive Operational System during Transitioning between Peace and War

- Revising regulations to address adversarial situation

- Based on regional situations and changes of adversarial threats, the MND continues to evolve and update the scenarios and reactive actions as stipulated in the ROC Armed Forces Regulations on Peacetime Contingencies Responses, so as to effectively react to any provocations from the PRC.

# Japanese Estimate of China-Taiwan Balance: 2020

<table>
<thead>
<tr>
<th></th>
<th>China</th>
<th>Taiwan (Reference)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total military forces</strong></td>
<td>Approx. 2.04 million troops</td>
<td>Approx. 0.16 million troops</td>
</tr>
<tr>
<td><strong>Ground forces</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ground troops</td>
<td>Approx. 0.98 million troops</td>
<td>Approx. 90,000 troops</td>
</tr>
<tr>
<td>Tanks, etc.</td>
<td>Type-99/A, Type-96/A, Type-88A/B and others</td>
<td>M-60A, M-48A/H and others</td>
</tr>
<tr>
<td>Approx. 6,200 vehicles</td>
<td>Approx. 700 vehicles</td>
<td></td>
</tr>
<tr>
<td><strong>Maritime forces</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warships</td>
<td>Approx. 750 vessels, 1,970,000 tons</td>
<td>Approx. 230 vessels, 200,000 tons</td>
</tr>
<tr>
<td>Aircraft carriers, destroyers, and frigates</td>
<td>Approx. 90 vessels</td>
<td>Approx. 30 vessels</td>
</tr>
<tr>
<td>Submarines</td>
<td>Approx. 70 vessels</td>
<td>4 vessels</td>
</tr>
<tr>
<td>Marines</td>
<td>Approx. 30,000 troops</td>
<td>Approx. 10,000 troops</td>
</tr>
<tr>
<td>Combat aircraft</td>
<td>Approx. 3,020 aircraft</td>
<td>Approx. 520 aircraft</td>
</tr>
<tr>
<td><strong>Air forces</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modern fighter aircraft</td>
<td>J-10 × 468</td>
<td>Mirage 2000 × 55</td>
</tr>
<tr>
<td></td>
<td>Su-27/J-11 × 349</td>
<td>F-16 × 143</td>
</tr>
<tr>
<td></td>
<td>Su-30 × 97</td>
<td>Ching-kuo × 127</td>
</tr>
<tr>
<td></td>
<td>Su-35 × 24</td>
<td>(Fourth generation fighters (total): 325)</td>
</tr>
<tr>
<td></td>
<td>J-15 × 20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>J-16 × 60</td>
<td></td>
</tr>
<tr>
<td></td>
<td>J-20 × 22</td>
<td></td>
</tr>
<tr>
<td>(Fourth and fifth generation fighters (total): 1,080)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reference</strong></td>
<td>Approx. 1.397 billion</td>
<td>Approx. 24 million</td>
</tr>
<tr>
<td>Term of service</td>
<td>2 years</td>
<td>The last conscripts were enlisted before the end of 2018. However, the obligation to undergo four months of military training is being maintained for those born in or after 1994.</td>
</tr>
</tbody>
</table>

Note: Data from “The Military Balance 2020,” etc.

Japanese View of Chinese vs. Taiwanese Military Build-Up

As for the military balance between the Taiwanese forces and the People’s Liberation Army (PLA), which face off across the Taiwan Strait, the Taiwanese forces were previously said to possess military superiority in accordance with Taiwan’s superiority in such areas as technological prowess. However, the military balance is considered to have been changing in recent years. China has continuously increased its national defense spending at a high pace against the backdrop of its rapid economic growth in recent years, and based on that, it has rapidly and extensively strengthened its military power in terms of quality and quantity. As a result, since the 2000s, the military balance between the PLA and Taiwan has changed in favor of the PLA on the whole, with its lead widening year after year as a trend. For example, “Annual Report to Congress—Military and Security Developments Involving the People’s Republic of China 2019 (May 2019),” published by the U.S. Department of Defense, offered an analysis indicating that in addition to naval and air powers vastly numerically superior to those of Taiwan, the PLA possesses a missile arsenal including 750 to 1,500 short-range missiles, whose range is presumed to cover all or parts of Taiwan.

Under these circumstances, Taiwan is also making efforts to strengthen its self-defense capability while increasing its national defense spending. However, as Taiwan apparently recognizes a gap with China in terms of deployable resources, it intends to develop the “asymmetric” warfare concept and capabilities. It has been pointed out that as part of those efforts, Taiwan is strengthening offensive and defensive electronic warfare capability and capabilities to promptly deploy and sweep mines, and is introducing high-speed stealth vessels. Meanwhile, the United States, an important actor in the military balance between China and Taiwan, has opposed any unilateral actions intended to change the status quo over the Taiwan Strait, and based on this policy, it has provided hardware (including equipment) and software (including training) under the Taiwan Relations Act, enacted in 1979, in order to help Taiwan maintain sufficient self-defense capability. In August 2019, the U.S. government notified Congress of a plan to sell weapons (including F-16C/D Block 70 fighter aircraft) to Taiwan, the fifth sale of weapons to Taiwan under the Trump administration. This sale is expected to be the largest U.S. sale of weapons to Taiwan. In particular, the sale of fighter aircraft will be the first in 27 years since 1992. In addition, in December 2018, the Asia Reassurance Initiative Act, which includes a clause calling for the U.S. government to periodically sell weapons to Taiwan, was enacted, indicating that interest in efforts to maintain Taiwan’s self-defense capability is growing in the United States, including in Congress. These trends in the United States are attracting attention as an example of the country’s strengthening of its commitment to the Indo-Pacific region.

In one view, the “status quo” is being maintained in that the “political discord” continues to exist between the two sides facing off across the Taiwan Strait. From a different point of view, it is also said that the “status quo” is already changing due to historic developments over the Taiwan Strait situation occurring in the form of the abovementioned changes in the military balance. In this situation, future developments are due attention.

### China’s Amphibious Capabilities

#### Table 1: China’s Amphibious Capacity in 2021

<table>
<thead>
<tr>
<th>Class</th>
<th>NATO Designator</th>
<th>Vehicle Type</th>
<th>Count</th>
<th>Troops and Vehicle Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 067A</td>
<td>YUNNAN</td>
<td>Landing craft, utility</td>
<td>~30</td>
<td>1 tank or 2 infantry fighting vehicles or 1 infantry unit</td>
</tr>
<tr>
<td>Type 071</td>
<td>YUZHAO</td>
<td>Amphibious transport dock</td>
<td>6</td>
<td>800 troops; 60 armored vehicles; 4 helicopters</td>
</tr>
<tr>
<td>Type 072-II</td>
<td>YUKAN</td>
<td>Landing ship, tank</td>
<td>4</td>
<td>200 troops; 10 tanks</td>
</tr>
<tr>
<td>Type 072-II/III</td>
<td>YUTING I</td>
<td>Landing ship, tank</td>
<td>9</td>
<td>250 troops; 10 tanks; 2 helicopters</td>
</tr>
<tr>
<td>Type 072AB</td>
<td>YUTING II</td>
<td>Landing ship, tank</td>
<td>15</td>
<td>250 troops; 10 tanks</td>
</tr>
</tbody>
</table>

*Using a force of this size to invade Taiwan would likely restrict PLA planners to limited circumstances in which the force could survive in the face of Taiwan’s defenses and accomplish its mission. These circumstances almost certainly include a prerequisite condition that the PLA is able to attrite or otherwise make irrelevant to the initial conflict large parts of Taiwan’s military, including through blockade, bombardment, and cyberattacks. Another prerequisite condition would almost certainly be that the PLA is able to prevent, delay, or deter military intervention from the United States or any other intervening country.*


*The PLA has enough medium- and heavy-lift aircraft to transport more than 5,000 troops, but not all of these aircraft would likely be dedicated to transporting an invasion force, nor will all of the PLA’s transport aircraft be configured to maximum troop capacity.*

#### Table 1: China’s Amphibious Capacity in 2021—Continued

<table>
<thead>
<tr>
<th>Class</th>
<th>NATO Designator</th>
<th>Vehicle Type</th>
<th>Count</th>
<th>Troops and Vehicle Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 073 II</td>
<td>YUDENG</td>
<td>Landing ship, medium</td>
<td>1</td>
<td>500 troops or 5 tanks</td>
</tr>
<tr>
<td>Type 073A</td>
<td>YUNSHU</td>
<td>Landing ship, medium</td>
<td>10</td>
<td>6 tanks</td>
</tr>
<tr>
<td>Type 074</td>
<td>YUHAI</td>
<td>Landing ship, medium</td>
<td>10</td>
<td>250 troops; 2 tanks</td>
</tr>
<tr>
<td>Type 074A</td>
<td>YUBEI</td>
<td>Landing ship, medium</td>
<td>11</td>
<td>150 troops or 1 tank</td>
</tr>
<tr>
<td>Type 075</td>
<td>YUSHEN</td>
<td>Landing helicopter dock</td>
<td>3</td>
<td>900 troops with armored vehicles; 30 helicopters</td>
</tr>
<tr>
<td>Type 726</td>
<td>YUYI</td>
<td>Air-cushioned landing craft</td>
<td>10+</td>
<td>1 tank or 2 infantry fighting vehicles</td>
</tr>
<tr>
<td>Zubr</td>
<td>POMORNIK</td>
<td>Air-cushioned landing craft</td>
<td>4</td>
<td>360 troops or 3 tanks or 8 infantry fighting vehicles</td>
</tr>
</tbody>
</table>

**AMPHIBIOUS TOTAL**

~20,000 troops with armored vehicles; 105 helicopters


Taiwan: Estimate of Evolution of Chinese Threats: 1949-2021 – II

Taiwanese View of PRC’s “Three-Step Modernization of Defense and Military”: 1990-2050

Taiwanese View of PRC’s Modernization of Defense and Military in 2021

Despite the impacts caused by COVID-19 epidemic, floods, and torrential rains, PRC’s defense budgets for 2020 and 2021 have kept a steady growth respectively. Following its “14th Five-year Plan,” the PRC continues developing and procuring new weapons and equipment, as well as promoting defense and military modernization.

1. PRC’s Defense Budget: PRC’s 2021 defense budget, remaining the highest in Asia and the second in the world, of RMB¥ 1 trillion and 355.343 billion (approx. US$ 208.47 billion) has increased 6.8% from RMB¥ 1 trillion and 268 billion (approx. US$ 178.16 billion) in 2020, roughly occupied 1.33% of PRC’s GDP. The defense budget is mainly spent on sustaining defense and military modernization, pushing for deeper civil-mil integration, optimizing preferential treatments for military personnel, providing veteran services and personnel salaries.

2. PRC’s Weapons R&D: As guided by the new National Defense Law in 2021, the PRC will be committed to R&D for advanced technologies in terms of developing weapons and equipment for defense purposes, and continues upgrading or replacing weapons and equipment for each service branch, commissioning new missiles, and employing UAVs, to improve its strategic deterrent, standoff strike, homeland defense, and information warfare capabilities.

(1) PLAA: Each group army continues to receive new helicopters, like Z-20s, and PHL16 long-range multiple launch rocket launchers (MLRSs). The PLAA will merge satellites and UAVs as its assets to perform maneuverable precision strike operations and comprehensively strengthen its overall combat power.

(2) PLAN: The PLAN is commissioning Type 075 landing helicopter dock, YJ-18C land-attack missile, YJ-18A antiship missile, YJ-12 supersonic anti-ship missile, and continues a retrofitting program for carrier-based Z-20F helicopter and R&D programs for new catapult-launched carrier-based aircraft and new UAVs. In addition, the tests for JL-3 intercontinental submarine-launched ballistic missile (SLBM) and shipborne electromagnetic railgun are underway.

(3) PLAAF: The PLAAF is upgrading its fighters, bombers, airborne early warning (AEW) platforms, cargo planes, and UAVs, and continues to procure Sukhoi fighters from Russia to improve its air combat capabilities. Its air defense missile systems include self-made HQ-9, HQ-22, Russia-made S-300, and S-400 missiles, and they are deployed in critical locations to form a complete air defense net. Moreover, the PLAAF continues constructing surveillance radars and radar intelligence processing and dissemination systems, and refining its C2 efficiency.

(4) PLARF: The PLARF has developed a new generation of missiles, such as DF-17, DF-41, and DF-100. These new missiles can carry multiple warheads and fly in hypersonic speed, so as to greatly enhance their penetration capability against missile interception systems. In addition, with Beidou Navigation Satellite System fully operational, the PLARF’s capabilities to deliver precision firepower and strike mobile targets are greatly improved.

(5) PLASSF: After the Beidou-3 Navigation Satellite System is completed, the PLASSF is now capable of supporting other service branches to perform far seas and precision strikes by missiles, air defense, and anti-missile operations. It is speeding up deployment of JB series and Tiantong series reconnaissance and communications satellites to strengthen its supremacy in space and electromagnetic domains.

Taiwanese View of PRC’s Military Preparedness in 2021

As instructed by the strategic guideline laid out in the China’s National Defense in the New Era published in 2019, the development strategy of “three-step modernization of defense and military,” and its annual “mobilization order for the training of the armed forces,” the PLA is focused on its preparedness for war, formulating a new military training system, ensuring the merge of operations and training, and transforming its force-on-force drills into realistic ones, so as to attain the goal of “being on alert at all times, and combat-ready as always.”

1. PLAA: The PLAA continues receiving a variety of new tanks, MLRSs, and helicopters, and upgrading its battlefield command and information management systems. As guided by its annual “military training outline (MTO),” the PLAA continues holding various routine drills and exercises, and sharpening its capabilities of long-range maneuvering, in-depth strikes, rapid assault, and special operations through the “trans-theater” (Kua Yue) series and “firepower strike” (Qian Feng) series exercises, to make use of its effectiveness of joint operations and transform itself as a force capable of three-dimensional offenses and defenses and maneuver operations.

2. PLAN: The PLAN continues holding a series of drills and exercises, such as “joint air and maritime drills,” “live firing exercises,” and “long-distance training” to verify its capabilities of performing joint operations, strategic deterrence and counterattack, and far seas operations. In addition, its flotilla of long-distance training has reached beyond the second island chain, to further expand its defensive strategic depth for maritime operations, and it begins to conduct deterring foreign forces and far seas maneuvering operations, in an attempt to develop itself as a regional and global navy.

3. PLAAF: The PLAAF routinely conducts combat air patrols (CAPs) and long-distance training over the East and South China Seas to strengthen its all-dimensional combat capabilities. It holds competitions, such as “free air combat” and “penetration of air defenses and assault,” to examine training performance of its forces. Furthermore, it carries out drills and exercises of “base-on-base offenses and defenses,” “air defense and anti-missile,” and “electronic warfare (EW) confrontation” to refine its joint operational capabilities.

4. PLARF: The PLARF continues R&D endeavors on DF-17, DF-26A, DF-26B, and DF-41 missiles to improve their counter-interception and precision strike capabilities. Furthermore, it continues conducting tests on hypersonic glider warheads, realistic and live-firing drills and exercises, and joint operations, to enhance its strategic deterrent and operational power.

PLA Air Activity Near Taiwan, 2015-2020

Chinese Air Incursions in the Taiwan Strait: 2021

Incursions into Taiwan's Air Defence Identification Zone are on the rise
Chinese military aircraft sorties reported this year

Taiwan: Estimate of Chinese Air Activity Near Taiwan in 2021 – I

Taiwan: Estimate of Chinese Air Activity Near Taiwan in 2021 – II

【(Major Types of PRC’s Aircraft Constantly Seen Harassing the Southwestern Corner of ROC’s ADIZ】

Taiwanese Ministry of Defense: The MND has requested NT$ 361.8 billion as the FY 2021 defense budget, an increase of NT$ 10.6 billion from appropriated defense budget for FY2020 of NT$ 351.2 billion.
Structural Transformation of Taiwanese Forces: 1993-2021

Total number of personnel was reduced from 490,000 and more to 450,000 and more. The force structure of three services was rationally adjusted, and a balanced ratio between planned and actual manning at rank-and-file level was achieved.

**Jing-shi Streamlining Program** (1997 – 2001)
Total number of personnel was reduced to 380,000 and more. Streamlining efforts were made from top down. All missions were revised accordingly and comprehensively. Responsibilities were defined to meet actual needs. Efforts were done justifiably to maintain morale. Discharging processes were done properly.

Total number of personnel was reduced to 290,000 and more. Commanding authorities were unified and controlled by civilians. The military was restructured. Individual authority was adjusted to meet equal accountability. Streamlining was made in order to merge horizontally and integrate vertically in an organization.

   ▼▼ the 2nd Phase (2006 – 2010)
Total number of personnel was reduced to 270,000 and more. Commanding hierarchy was reduced. Accelerating command speed. Logistic supports were provided swiftly. Joint operational efficiency was enhanced. Downscaling cap was effectively met.

**Jing-cui Refining Program** (2011 – 2014)
Total number of personnel was reduced to 210,000 and more. Six general headquarters were merged into 3 command headquarters for the army, navy and air force. Refining focuses were placed on armament acquisition and logistic readiness. Disaster prevention and relief were listed as one of core missions of the ROC Armed Forces.

**Restructuring** 2015 – NOW
- Total number of personnel remains unchanged.
- The ICE Force Command was inaugurated on 1st July 2017.
- The Air Defense and Missile Command of the ROCAF was inaugurated on 1st September 2017.
- From 1st August 2019 to 1st June 2020, multiple Combined Arms Battalions had been commissioned.
- The All-out Defense Mobilization Agency is planned to be inaugurated on 1st January 2022, and the Reserve Command was reassigned to attach it.

Taiwanese Force Build-Up in 2021 – I

Facing a rapid military growth and intensifying threats from the PRC, the Armed Forces have to employ an innovative and asymmetric thinking without intentions to compete in an arms race to actively plan and acquire weapons and equipment that meet our demands for defensive operations, and build up our forces based on our military strategy of “resolute defense and multi-domain deterrence.”

I. Asymmetric Warfare

Asymmetric warfare aims at attacking or capitalizing on the adversary’s vulnerabilities and disrupting its operational center of gravity rather than attacking its principal strength. It leverages areas where the adversary has not adequately prepared for the threat or cannot fully defend given technological or quantitative constraints and, in wartime, use the natural barriers provided by the Taiwan Straits and our resilient capabilities to strike the enemy’s critical nodes of operations, so as to thwart its war plans, disrupt its operational tempo, and paralyze its combat power. By maximizing our asymmetric advantages, we can frustrate the enemy’s desire for a quick endgame.

1. To achieve deterrence, Taiwan must demonstrate an effective ability to target PLA vulnerabilities in ways that can overcome the PLA’s advantages. The PLA’s weakness is in the phase of sea transit. The Armed Forces must take full advantage of the natural barrier of the Taiwan Strait and fight in a resilient manner. We should not limit ourselves to waiting for the enemy’s landing groups to sail through the Strait, but should also use measures to force the enemy to assemble forces at airfields or ports further away from areas opposite Taiwan.

2. Given the likely enemy course of action, an asymmetric strategy should be based on dissimilar responses to PLA capabilities. For example:countering hostile fixed-wing aircraft or airborne operations with mobile surface-to-air missiles; countering large surface ships with small, fast, mobile, and seaworthy resilient platforms, and, in wartime, incorporating Coast Guard assets equipped with anti-ship missiles; and countering the enemy’s triphibious landing operations with mobile coastal defense cruise missiles, defensive naval mines, and landmines.

II. Major Endeavors of Force Buildup

Current capability buildup highlights 6 categories: 1) standoff strike; 2) counter-air operations; 3) sea control operations; 4) homeland defense; 5) information, electronic, and cyber warfare, and 6) joint C2ISR. Accordingly, we are reviewing and managing the development of our acquisition and R&D programs. The focus of the programs is as follows:

Standoff Strike

(1) To procure long-range and precision fire launcher, the High Mobility Artillery Rocket System (HIMARS) to enhance our long-range fire support capability.

(2) To procure the AGM-84H land-attack missiles, the AGM-88B high-speed anti-radiation missiles, the AGM-154C joint standoff weapon (JSOW) missiles, the Chien Hsiang anti-radiation UAVs, the Hsiung Sheng and the Wan Jian standoff precision missiles, which can be used to strike enemy’s center of gravity and critical weaknesses, and obstruct its application of naval and air power.

2. Counter-air Operations

(1) To procure the F-16V (Block 70) fighters and retrofit current the F-16A/B fighters to the same standard, so as to strengthen our overall air power.

(2) To acquire the Sky Bow II (upgraded) missiles, the Sky Bow III land-based air defense missiles, the Patriot Advanced Capability (PAC)-2 (modified) missiles, and the PAC-3 missiles, to enhance our protection for HVTs.
Taiwanese Force Build-Up in 2021 – II

(3) To acquire mobile surface-to-air missile (SAM) systems to counter the threats of the enemy’s fixed-wing aircraft or airborne operations.
(4) To increase rapid runway (taxiway) repair (RRR) capacities in airfields, so as to sustain the operations of our airpower.

**Sea Control Operations**

(1) To build a vessel which is compact, fast, mobile, and resilient in terms of seaworthiness, and can carry antiship missiles in wartime to join up with the Coast Guard and carry out maritime surprise attacks.
(2) To acquire mobile launcher versions of Hsiung Feng (HF) -2 and HF-3 missiles, and the RGM-84L Harpoon coastal defense system, so as to construct a joint sea control capability.
(3) To continue upgrading the combat systems for major surface combatants to strengthen our naval power.
(4) To acquire new generation of submarines and upgrade the combat systems for the Chien Lung-class submarines, to strengthen our underwater capability.
(5) To produce the naval version Sky Sword II surface-to-air missiles to effectively improve the area air defense of our surface combatants.

**4. Homeland Defense**

(1) To acquire defensive naval mines and landmines to counter the enemy’s 3-dimensional landing operations.
(2) To acquire the M1A2T main battle tanks (MBTs) and the M109A6 self-propelled howitzers through FMS to enhance our ground strike and firepower support capabilities.
(3) To acquire additional TOW-2B and Javelin anti-tank missiles to strengthen our ground troops’ mobile strike capability.
(4) To acquire new surface-launched Sky Sword II field air defense missile system and additional Stinger manportable air-defense system (MANPADS) missiles, and upgrade field air defense radar systems, to effectively weaken enemy’s threats of air attack.
(5) To procure light and heavy firearms, personnel combat gears, and facilities for training sites, to enhance reservists’ overall combat power.

**5. Information, Electronic, and Cyber Operations**

(1) To acquire the field information and communications system (FICS) to integrate various information and electronic warfare approaches to maximize their effectiveness.
(2) To acquire mobile digital microwaves system to improve overall communications and information efficiency to support combat missions.
(3) To acquire new electronic warfare (EW) pods for the F-16s, and upgrade associated systems on the EW platforms to strengthen our EW capacities.

**6. Joint C2ISR**

(1) To finetune our ground command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems and improve their protection, jamming, countermeasures, and backup capabilities.
(2) To acquire MQ-9B UAVs to extend our ISR coverage strengthen our long-range surveillance and early warning efficiency.
(3) To procure the new MS-110 reconnaissance (recce) pods for the F-16s, to monitor movements on the battlefield accurately and enhance our joint ISR efficiency.
(4) To develop short-range tactical UAVs to improve our monitoring over battlefield and ISR capabilities.
(5) To upgrade all maritime surveillance radars to extend their range and coverage, so as to effectively control all maritime movements.

Taiwanese View of U.S., Military Forces in the Pacific

Yearly U.S. Navy Transits through the Taiwan Strait, 2007–2020

Taiwanese View of Other Major Military Forces in the Indo-Pacific Region

# RAND Assessment of State of Taiwan’s Deterrence

<table>
<thead>
<tr>
<th>Category</th>
<th>Variable</th>
<th>Level of Deterrence</th>
<th>1996</th>
<th>2004</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motivation:</strong> How motivated is the potential aggressor?</td>
<td>1. General level of dissatisfaction with the status quo and determination to create a new strategic situation</td>
<td>Mixed</td>
<td>Strong</td>
<td>Strong</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Degree of fear that the strategic situation is about to turn against the aggressor in decisive ways</td>
<td>Weak</td>
<td>Mixed</td>
<td>Strong</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Level of national interest involved in the territory of concern</td>
<td>Weak</td>
<td>Weak</td>
<td>Weak</td>
<td>Weak</td>
</tr>
<tr>
<td></td>
<td>4. Urgent sense of desperation and a need to act</td>
<td>Weak</td>
<td>Mixed</td>
<td>Strong</td>
<td></td>
</tr>
<tr>
<td><strong>Clarity of message:</strong> Is the defender clear and explicit regarding what it seeks to prevent and what actions it will take in response?</td>
<td>1. Precision and consistency in the type of aggression the defender seeks to prevent</td>
<td>Mixed</td>
<td>Weak</td>
<td>Weak</td>
<td>Weak</td>
</tr>
<tr>
<td></td>
<td>2. Clarity and consistency in the actions that will be taken in the event of aggression</td>
<td>Mixed</td>
<td>Mixed</td>
<td>Weak</td>
<td>Weak</td>
</tr>
<tr>
<td></td>
<td>3. Forceful communication of messages to outside audiences, especially potential aggressors</td>
<td>Strong</td>
<td>Weak</td>
<td>Weak</td>
<td>Weak</td>
</tr>
<tr>
<td></td>
<td>4. Timely response to warning with clarification of interests and threats</td>
<td>Strong</td>
<td>Mixed</td>
<td>Weak</td>
<td>Weak</td>
</tr>
<tr>
<td><strong>Credibility of message:</strong> Does the aggressor view the defender’s threats as credible and intimidating?</td>
<td>1. Actual and perceived strength of the local military capability to deny the presumed objectives of the aggression</td>
<td>Strong</td>
<td>Strong</td>
<td>Weak</td>
<td>Weak</td>
</tr>
<tr>
<td></td>
<td>2. Degree of automaticity of the defender’s response, including escalation to larger conflict</td>
<td>Mixed</td>
<td>Weak</td>
<td>Weak</td>
<td>Weak</td>
</tr>
<tr>
<td></td>
<td>3. Degree of actual and perceived credibility of the political commitment to fulfill deterrent threats</td>
<td>Strong</td>
<td>Strong</td>
<td>Mixed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Degree of the defender’s national interest engaged in the state to be protected</td>
<td>Mixed</td>
<td>Mixed</td>
<td>Mixed</td>
<td></td>
</tr>
</tbody>
</table>
### Variables Related to the Clarity of the U.S. Deterrence Message for Taiwan

<table>
<thead>
<tr>
<th>Variable</th>
<th>Level of Deterrence</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarity on the types of aggression to be deterred</td>
<td>Mixed</td>
<td>U.S. officials have maintained an ambiguous stance, urging &quot;peaceful&quot; resolution.</td>
</tr>
<tr>
<td>Clarity on the actions that will follow attack</td>
<td>Mixed</td>
<td>U.S. policy has conditioned a potential response to Chinese aggression while renouncing U.S. backing for Taiwan independence activities.</td>
</tr>
<tr>
<td>Forceful communication</td>
<td>Weak</td>
<td>U.S. officials have generally adopted a restrained response to Chinese saber-rattling at Taiwan.</td>
</tr>
<tr>
<td>Timeliness of warnings</td>
<td>Mixed</td>
<td>There have been no recent large-scale military crises; in general, U.S. officials rarely comment on Chinese-Taiwanese developments.</td>
</tr>
<tr>
<td>Overall assessment</td>
<td>Mixed</td>
<td>The U.S. deterrent posture is not as unqualified as in cases of formal alliance; communication is uneven.</td>
</tr>
</tbody>
</table>

### Variables Related to the Credibility of the U.S. Deterrence Message for Taiwan

<table>
<thead>
<tr>
<th>Variable</th>
<th>Level of Deterrence</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength of the local military capability</td>
<td>Weak</td>
<td>The PLA's anti-access/area denial capabilities raise the cost and risk of U.S. intervention.</td>
</tr>
<tr>
<td>Degree of automaticity of a U.S. response</td>
<td>Weak</td>
<td>U.S. officials have avoided statements implying an automatic response.</td>
</tr>
<tr>
<td>Credibility of the U.S. political commitment</td>
<td>Mixed</td>
<td>China perceives the U.S. commitment to be credible but is skeptical.</td>
</tr>
<tr>
<td>Degree of U.S. national interest in Taiwan</td>
<td>Mixed</td>
<td>Taiwan represents U.S. commitment and support for democratic values.</td>
</tr>
<tr>
<td>Overall assessment</td>
<td>Mixed</td>
<td>Chinese regional military advantages are growing.</td>
</tr>
</tbody>
</table>

China’s Central and Northern Theaters and Japan, Korea, and Russia
China’s Central Theater Forces in 2021

The Central Theater Command is oriented toward capital defense and providing surge support to other theaters.

The Central Theater Command is responsible for the defense of the capital, providing security for CCP leadership, and serving as a strategic reserve to the other theater commands.

The Central Theater Command’s area of responsibility stretches from the Bohai Gulf to the interior of China, connecting the other four theater commands.

Units within the Central Theater Command include three group armies, two air force bases, and one rocket force base. Although the Central Theater Command has coastal responsibilities, it lacks a subordinate naval fleet.

In July 2020, the Central Theater Command deployed troops to Hubei and Henan Provinces to support relief efforts following flooding from the Yangtze and Huai Rivers. The Central Theater Command also deployed 83rd Group Army troops throughout Henan to reinforce sections of dikes that were damaged.

China’s Central Theater Forces in 2020

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China and North Korea 2021

Key Takeaways

• The PRC’s warming relationship with North Korea in 2019 appeared to stagnate in 2020 following Pyongyang’s self-isolation due to the COVID-19 pandemic.

• The PLA conducts military exercises in preparation for a contingency on the Korean Peninsula.

Following a period of tensions in 2017, Beijing and Pyongyang began to resume high-level political and military diplomacy in 2019, but that was abruptly stalled by the COVID-19 pandemic. North Korea’s forced self-isolation ceased almost all trade and people-to-people exchanges across the border, and the North Korean regime’s paranoia about the risks of COVID-19 has prevented China-North Korea diplomatic exchanges. The PRC does not fully implement the UN Security Council’s sanctions imposed on North Korea in 2017. Additionally, Beijing did not regularly act against illicit ship-to-ship transfers in the PRC’s territorial seas and China-based North Korean banking and weapons trade representatives and their activities. The PRC also continued to import coal—albeit at lower volumes—via Chinese barges from North Korea’s Nampo Port and ship-to-ship transfers.

The PRC’s objectives for the Korean Peninsula include stability, denuclearization, and the absence of U.S. forces near China’s border. The PRC’s focus on maintaining stability on the Korean Peninsula involves preventing North Korea’s collapse and military conflict on the Peninsula. Toward these ends, the PRC continues to advocate for an approach towards North Korea that prioritizes dialogue, to include the resumption of U.S.-North Korea talks. Beijing has urged Washington to acknowledge Pyongyang’s “legitimate concerns” and argues that Pyongyang has taken denuclearization measures that merit a commensurate U.S. response, such as sanctions relief.

The PLA conducts military exercises in preparation for a contingency on the Korean Peninsula including air, land, sea, and chemical defense training events. China’s leaders could order the Northern Theater Command to engage in a range of operations in the event of a crisis. These could include securing the China-North Korea border to control the flow of refugees, or a military intervention into North Korea to secure weapons of mass destruction or preserve a North Korean buffer state.

China’s Northern Theater Forces in 2021

The Northern Theater Command is oriented toward the Korean Peninsula and Russian border security. The Northern Theater Command’s area of responsibility includes the majority of the PRC’s borders with Mongolia and Russia, North Korea, and the Yellow Sea. The Northern Theater is responsible for operations along China’s northern periphery and conducting border stability operations associated with North Korean contingency and northern border contingencies involving Mongolia or Russia. PLA units located within the Northern Theater Command include three group armies, a naval fleet, two marine brigades, one special mission aircraft division, two operational air bases, and one PLARF base. During a contingency, the Northern Theater Command likely also exercises command over some Strategic Support Force (SSF) units in theater and receives strategic intelligence support from the SSF to improve battlefield awareness and facilitate joint operations within the theater. The Northern Theater Navy would be responsible primarily for protecting the sea approaches to northern China, but it could provide mission-critical assets to support other fleets. In 2020, Northern Theater Command forces conducted various training activities, including integration training among a submarine, surface ships and aircraft, as well as long-range navigation and ground attack training by fighter-bomber aircraft.

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The PRC’s relationship with North Korea appeared to warm somewhat following a period tensions after China increased implementation of UN Security Council resolutions in 2017. China largely continues to enforce a number of the UN Security Council’s resolution sanctions against North Korea, but Beijing regularly fails to act against illicit ship-to-ship transfers in China’s territorial seas, take action against China-based North Korean banking and weapons trade representatives and their activities, and continues to import coal—albeit at lower volumes—via Chinese barges and ship-to-ship transfers. In 2019, President Xi Jinping met twice with Kim Jong-un, complementing numerous lower-level official exchanges in both North Korea and China. China and North Korea restarted high-level military diplomacy, which included North Korean participation in the PLA Navy’s (PLAN’s) international fleet review and several meetings between military officials. These engagements include a high-level visit by the director of the General Political Bureau of the Korean People’s Army Kim Su-gil with CMC.

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Key Takeaway

- The PRC continues to use maritime law enforcement ships and aircraft to patrol near the Japan-administered Senkaku Islands. In 2020, the PRC stepped up efforts to challenge Japan’s control over the islands by increasing the duration and assertiveness of its patrols.

The PRC claims sovereignty over the Japanese-administered Senkaku Islands in the East China Sea, which Taiwan also claims. It also continues to uphold the importance of abiding by the four-point consensus signed in 2014, which states Japan and the PRC will acknowledge divergent positions over the East China Sea but will prevent escalation through dialogue, consultation, and crisis management mechanisms. 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. In addition, the United States opposes any unilateral actions that seek to undermine Japan’s administration of the islands.

The PRC uses maritime law enforcement ships and aircraft to patrol near the islands, not only as a visible representation of the PRC’s sovereignty claims, but also in an effort to improve readiness and respond quickly to potential contingencies. During 2020, the PRC continued to conduct regular patrols into the contiguous and territorial waters of the Senkaku Islands, and stepped up efforts to challenge Japan’s control over the islands by increasing the duration and assertiveness of its patrols. In July, two PRC coast guard vessels conducted a record-setting patrol within the 12nm territorial waters that lasted 39 hours and 23 minutes, following a similar patrol just two days prior. These two patrols represented the longest time PRC vessels have ever spent continuously operating inside the Senkakus’ territorial waters since 2012. By the end of the year, PRC vessels had been observed in the contiguous waters of the islands for 333 days, breaking 2019’s record of 282 days.

PRC coast guard vessels also acted more assertively during their patrols in 2020, shadowing Japanese fishing vessels operating within the Senkakus’ territorial waters and ordering them to leave on multiple occasions. Japan’s government protested in late November 2020 when PRC ships entered Japan’s contiguous zone for the 306th time this year, further straining the relations between the PRC and Japan in relation to the Senkakus and complicating plans to reschedule a planned visit to Japan by President Xi Jinping.
Japanese Assessment of Chinese and Regional Threats in 2020

Recent Chinese Military Activity Near Japan: 9/21

Summary: PLA Activities around Japan

- China has broadly and rapidly reinforced its forces, based on high-level increase of its national defense budget.
- It is believed that China aims to build up capabilities to conduct operations in more distant waters and airspace.
- China has rapidly expanded maritime activities both in qualitative and quantitative ways.

Source: China’s Activities in East China Sea, Pacific Ocean, and Sea of Japan, Japan Ministry of Defense, September 2021.
China’s Advancement into the Pacific Ocean

Naval Forces

- Advancement of Chinese naval fleets to the Pacific Ocean with high frequency
- More diverse routes
  - 1. Tsugaru Strait, 2. Waters between the Okinawa Main Island and Miyakojima Island, 3. Osumi Strait, 4. Waters between Yonaguni Island and Nakanokami Island, 5. Soya Strait, 6. Waters between Amami Oshima Island and Yokoatsumi Island

Air Forces

- Flights to/from the Pacific Ocean through the main island of Okinawa and Miyakojima Island
  - More diverse types of aircraft
    - Y-8 AEW, H-5 bombers, Y-8 SIGINT, Y-9 SIGINT, Tu-154 SIGINT, Su-30 fighter, Y-8 EW
  - More diverse routes

[SDF’s Response]
- SDF aircraft conduct scrambles in accordance with international law and the SDF Law

Source: China’s Activities in East China Sea, Pacific Ocean, and Sea of Japan, Japan Ministry of Defense, September 2021.

Recent Chinese Military Activity Near Japan: 2013-2020 – II

Changes in the Number of Scrambles against Chinese Aircraft

Number of Announcements of Chinese Military Aircraft’s Passage through the Tsushima Strait

Changes in number of days on which Chinese government vessels intruded into the Japanese territorial waters

Identification in the contiguous zone

Throughout the COVID-19 pandemic, Russia and the PRC maintained frequent high-level communication and stressed close strategic cooperation on global security and health issues. For the third year in a row, the PLA participated in a Russian strategic command and staff exercise, KAVKAZ-2020, held in the Russian Southern Military District. The PRC and Russia likely perceive further cooperation between the two militaries, including joint defense technology development, exercises, and other military modernization initiatives, as advantageous to their respective interests. Despite continued military cooperation, the PRC and Russia have denied any intent to enter into a formal alliance, apparently viewing the strategic effects of their current cooperation (such as joint bomber patrols) as sufficient to accomplish their goals.
China and Russia: 2020

China has steadily increased its cooperation with Russia in recent years in a wide range of exercises, IS&R activities, in regional activities like the Shanghai Cooperation Council, and selected aspects of technology. A broadly up-to-date and accurate open-source estimate of the size and frequency does not seem to be readily available, and the Department of Defense repeats DIA’s 2019 text:

In June 2019, Russia and China upgraded their relations to a ‘comprehensive strategic partnership of coordination in a new era,” pledging closer coordination on global security issues and mutual support. This was followed by the PLAAF and the Russian Aerospace Force conducting their first combined air patrol in the Asia-Pacific region. For the second year in a row, China participated in a Russian strategic command and staff exercise, TSENTR-2019, held this year in the Russian Central Military District. Additionally, cooperation between the two militaries includes joint defense technology development, exercises, and cooperation on other military modernization initiatives. Despite continued military cooperation, the PRC and Russia have denied the creation of a military alliance or their intent to enter into an alliance.

TSENTR-2019. From mid-late September, China participated in Russia's strategic command-staff exercise, TSENTR-2019, along with armed forces elements from India, Pakistan, Kyrgyzstan, Kazakhstan, Tajikistan, and Uzbekistan. The aim of the exercise was to test readiness levels of the Russian military and interoperability among regional partners, while simulating a response to terrorist threats in Central Asia. China represented the largest foreign contingent, deploying about 1,600 ground and air troops from the PLA's Western Theater Command and nearly 30 fixed-wing aircraft and helicopters, including H-6 bombers. During the exercise, China and Russia conducted ground maneuvers and Chinese and Russian aircraft may have conducted missile and bombing strikes on mock enemy targets. The PRC’s Minister of Defense Wei observed part of the exercise alongside the Russian defense minister and President Vladimir Putin, commenting on the increased level of China-Russia cooperation. Following last year's VOSTOK exercise, TSENTR marked the second consecutive year that China has participated in Russia's command-staff capstone exercise series.

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China’s Ground Forces
China’s Evolving Ground Forces: 2021

PLA Army (PLAA) Modernization.

The PLAA is rapidly developing a limited capability to project ground power as an expeditionary force. In addition to protecting national sovereignty and security, the 2019 PLAA defense white paper charges the PLAA with defending the PRC’s development interests—a vague term commonly understood to include anything that impacts the PRC’s security and economy internationally. PRC leadership also ordered the PLAA to speed up its transition from regional defense to trans-theater operations, as well as improve its capabilities for precise, multi-dimensional, trans-theater, multi-functional, and sustained operations. A ground force with these capabilities would likely be able to project at least limited ground power regionally. The PLAA's primary power projection initiatives are mobile, modular combined arms formations, Special Forces, and PLAA Aviation and Air Assault units.

After years of substantial reform, the combined-arms battalion of the combined arms brigade is the foundational tactical unit of the PLAA. PLAA officers tell PRC media that the formations comprise 10 different arms, are plug-and-play, and can be adjusted based on the terrain and mission requirements. Recently developed PLAA equipment appears focused on mobility and ease of transport, including the PLC-171 assault-vehicle based 122mm howitzer, the PCL-181 wheeled howitzer, 3rd-generation Dongfeng Mengshi assault vehicles, and the Z-8L wide-body transport helicopter.

The PLAAA 15 Special Operations Brigades provide commanders with the capability of expeditionary direct action and infiltration. Special Operations units maintained robust training throughout 2020. Reporting focused on direct action, infiltration, island-landing, and the use of UASs in a myriad of environments (maritime, desert, jungle, etc.). Specialty training included airfield seizure and diving. PLAA Special Operations units likely provide the PLA the ability to conduct small-scale, expeditionary direct action and reconnaissance operations.

PLAA Aviation and Air Assault units remained a focus of development in 2020. PLAA training events and reports in PRC media show that air-ground integration and multi-dimensional assaults are a core military capability and now a normal part of training. PLAA Aviation work directly with ground units to enhance its ability to support air assault operations and conduct air strikes. Army Aviation joint training with the PLAN in 2020 highlighted the capability of ground force units to operate off of Navy ships. The two PLAA Air Assault brigades continued extensive training on helicopter insertion, air reconnaissance, and coordinating air strikes with other PLAA units and joint service partners. The Z-8L transport helicopter was publicly announced in 2020; PRC media noted that, once fielded, three Z-8 transport aircraft battalions could airdrop a battalion-level highly mobile operation team in one lift. Ongoing development of PLAA Aviation and Air Assault units will lead to a highly-mobile, modular ground force unit capable of supporting expeditionary operations.
China’s Evolving Ground Forces: 2020

Key Takeaways

• The PLAA is the world’s largest standing ground force, with approximately 915,000 active-duty personnel in combat units.

• In 2019, the PLAA continued to transition into a more modern, mobile, and lethal ground force through the fielding of upgraded combat systems and the integration of communications equipment and other technologies. The PLAA’s modernization seeks to improve its ability to conduct joint operations in a high-intensity conflict and project power abroad.

• In 2019, the PLAA continued to create and mature formations at lower echelons that are more operationally flexible and better suited to conducting and managing complex combined-arms and joint operations.

• In 2019, the PLAA demonstrated a significant increase in training at both the service-level and joint-level and it continued to implement more realistic training methods.

The People’s Liberation Army Army (PLAA) is the world’s largest standing ground force, with approximately 915,000 active-duty personnel in combat units. The PLAA is the primary ground fighting force for the PLA. The PRC’s 2019 defense white paper described the PLAA’s tasks as transitioning from “regional defense” to trans-theater operations with an emphasis on improving its capabilities to conduct multi-domain, trans-theater, and sustained operations “so as to build a new type of strong and modernized land force.” In 2019, the PLAA continued efforts to transition into a more modern, mobile, and lethal ground force through the fielding of upgraded combat systems and the integration of communications equipment and other technologies, to improve its ability to project power and conduct joint operations in a high-intensity conflict in line with the CCP’s modernization goals. Throughout 2019, the PLAA also continued to implement the major PLA-wide structural reforms that began in late 2015 and improving its combat readiness.

…The PLAA’s forces are organized into five Theater Army Commands, the Xinjiang military command, and the Tibet military command. The PLAA has now standardized its 13 group armies (roughly a U.S. corps-level equivalent), which were reduced in number from 18 in 2017 as part of an effort to downsize and streamline the PLAA’s force structure. Each group army now includes multiple combined-arms brigades. In total, these 78 combined-arms brigades serve as the PLAA’s primary maneuver force.

…The PLAA’s modernization continues to emphasize vehicle and weapon upgrades in line with the PLA’s overall modernization priorities and CMC guidance. The PRC’s 2019 defense white paper, however, noted that the PLA “has yet to complete the task of mechanization,” implying that completing mechanization by the end of 2020 was unlikely. Western observers have noted that the CCP’s mechanization goal pertains primarily to the PLA’s ground forces and point to the challenges of modernizing the PLAA given its sheer size. For example, equipment in PLAA infantry units varies and may include a mix of obsolete platforms from the 1960s up to some of the region’s most modern and capable platforms. Similarly, PLAA armored units are comprised of a wide range of legacy tanks and modernized third-generation main battle tanks. Despite the PLA’s modernization ambitions and its demonstrated ability to develop highly modern equipment for ground forces, the PLAA has faced challenges acquiring and fielding new equipment in sufficient quantities to retire its legacy equipment, although it continues to make progress in this regard.

China’s Evolving Ground Forces: 2019

In line with the strategic requirement of mobile operations and multidimensional offense and defense, the PLAA will continue to reorient from theater defense to transtheater mobility. In the process of building small, multifunctional 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, multidimensional, transtheater, multifunctional, and sustainable operations.

—Excerpt from China’s Military Strategy, May 2015

The PLA Army (PLAA) is the world’s largest standing ground force, with approximately 915,000 active-duty personnel in combat units. 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.

PLAA-produced publications consistently discuss “new-type operations,” which are operations that emphasize an effects-based application of combat power to neutralize key nodes, diminish the enemy’s capability to effectively fight (systems confrontation), and achieve operational objectives quickly. At the tactical level, PLAA battalion training most likely includes use of precise, long-range fire to maximize protection and surprise; dispersion of formations of weapon platforms while relying on advanced communications technologies; and increasingly lethal munitions to enable PLAA commanders to produce mass effects on an enemy.

Units

The development of the PLAA’s “new-type” operational forces reflects China’s desire to plan and construct a force that is multifaceted, with capabilities for operations ranging from high-intensity conflict to security-stability operations. These forces stress the importance of ISR and leveraging information to enable future combat; they can conduct three-dimensional operations (Army aviation, air mobility, and airborne forces) and can operate in a severely degraded communications environment.

Operations emphasize engaging the enemy from much longer distances, place greater importance on protection and survivability, and emphasize the employment of cyberoperations. Future PLAA units will be smaller, more modular, and less dependent on headquarters for resources. This new construct envisions generating combat power and effectiveness across warfighting functions, from smaller, more flexible units.

China’s Major Ground Forces -2020

<table>
<thead>
<tr>
<th>Type and Echelon</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Army Groups</td>
<td>13</td>
</tr>
<tr>
<td>Combined-Arms Brigades</td>
<td>78</td>
</tr>
<tr>
<td>Artillery Brigades</td>
<td>15</td>
</tr>
<tr>
<td>Army Aviation/Air Assault Brigades</td>
<td>13</td>
</tr>
<tr>
<td>Mechanized Infantry Division</td>
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</tr>
</tbody>
</table>

China’s Major Ground Units 2021

Army Structure and Missions

The PLA Army (PLAA) is the largest ground force in the world, even after a 55% troop reduction between the years of 1997 and 2018.

The PLAA is the primary ground force of the PLA. Its missions include safeguarding China’s sovereignty and other security interests at home and abroad, engaging in multinational security cooperation, ensuring China’s political and social stability, and responding to emergencies through rescue and disaster relief operations.

The ground forces would be essential to a Taiwan invasion operation should amphibious forces secure initial access to the island.

China’s leaders have called on the PLAA to become a “new-type army,” characterized as a thorough transformation into a fully modern, networked force capable of flexibly leveraging advanced technologies and capabilities in order to prosecute a larger range of missions over greater distances and in unfamiliar settings.

The service seeks to improve its ability to “deploy in different terrain environments while bringing ample firepower in combat scenarios beyond China’s borders,” according to DOD

Source: Caitlin Campbell, China’s Military: The People’s Liberation Army, CRS, R46808, September 8, 2021, pp. 33-35.
Army Capabilities and Modernization

Capabilities:

The sophistication of the ground forces’ armaments has advanced to among the best in the world, and the PLAA’s capabilities are increasing. One U.S. observer of the PLAA writes:

“New weapons and technologies allow army units to move faster over more difficult terrain, including bodies of water; shoot farther and faster; and integrate their capabilities with those found in the other services more than ever before. Army commanders now have a variety of means to attack opponents out to 150 kilometers beyond their frontlines, including long-range multiple rocket launchers and artillery, attack helicopters, [special operations forces] teams, nonlethal electronic warfare and possibly cyber weapons, and supporting PLA Air Force aircraft and armed UAVs.”

• **Tanks:** The Type 15 light battle tank, fielded in 2018, is capable of traversing mountainous terrain and likely will enhance the PLAA’s ability to conduct operations along the disputed China-India border.193 The PLAA’s most capable tanks are the Type 96A and Type 99.

• **Army Aviation:** Most of the PLA’s helicopters are assigned to the PLAA, and are advancing the service’s ability to project power.195 DOD anticipates the Z-20 medium lift helicopter, which made its first public appearance in 2019 and resembles the U.S. Black Hawk helicopter, “will enhance aviation and air assault brigades’ ability to perform rapid air insertion operations, light infantry force projection, and expedited logistics.”

• **Amphibious forces:** PLAA amphibious forces prepare, sometimes alongside PLAN amphibious forces, for amphibious assault operations, with an emphasis on a Taiwan conflict scenario. DOD believes the PLAA “will likely increase its ability to establish, defend, and exploit a beachhead lodgment” in a Taiwan invasion mission.

Army Readiness

COVID-19 temporarily degraded the PRC’s military readiness and halted production of commercial and domestic military equipment; however, by spring 2020, both military readiness and defense production returned to normal readiness levels. For instance, the PLAN commissioned the PRC’s first Type 055 guided-missile destroyer and launched its second Type 075 amphibious helicopter assault ship. Additionally, the PLAN’s fifth and sixth Type 094 Jin-class nuclear-powered ballistic missile submarines entered service, and the PRC’s first domestically produced aircraft carrier, the Shandong, started its first sea trials all amid COVID-19.

PLA joint training and exercises reportedly were delayed or altered due to safety concerns during the early stages of COVID-19, but service-level training continued with minimal disruption. The PLA has taken mitigation measures, such as modifying training schedules and monitoring the number of training participants, which has contributed to the minimal impact to overall readiness. The PRC’s stance on issues like Taiwan has not deviated due to COVID-19 and participation in regional exercises like Cobra-Gold and Golden Dragon display the PLA’s ability to conduct shows of force in the South China Sea.

In 2020, the worldwide spread of COVID-19 delayed and reduced in size the majority of PLAA training exercises, although units continued to train at theater, brigade, or battalion levels with a continued focus on enhanced and realistic training scenarios. In September, Western Theater troops participated in Kavkaz 2020, Russia’s annual command post exercises, and in March, Golden Dragon, a combined tactical military exercise with the Cambodian military. However, these exercises appear to be the only major international exercises the PRC participated in this year.

An earlier planned “Peace Mission” exercise in Russia scheduled for August 2020, to which the PRC had planned to send nearly 10,000 troops, was suspended likely due to the pandemic. In 2020, acute tensions and clashes along the border with India resulted in significant PLAA force buildup and establishment or enforcement of forward positions along the Line of Actual Control. These tensions likely provided the PLAA with valuable real-world operational and tactical experience.

Single-service exercises, largely at the individual brigade or theater level, replaced the majority of joint-service exercises for this year and were largely focused on force-on-force activities as well as implementing new or improved tactics, techniques, and procedures. Units also worked to incorporate the PRC’s goals for modernization into training by incorporating updated denial and deception as well as familiarization with new and updated equipment and weapon systems.

China’s Naval Forces
China’s Major Naval Units 2021

China’s Major Naval Forces 2020

Key Takeaways

- The PRC has numerically the largest navy in the world with an overall battle force of approximately 350 ships and submarines, including more than 130 major surface combatants.
- As of 2019, the PLAN is largely composed of modern multi-role platforms featuring advanced anti-ship, anti-air, and anti-submarine weapons and sensors.
- The PRC commissioned its first domestically built aircraft carrier in late 2019. China expects its second domestically built aircraft carrier to enter service by 2023.
- In 2019, the PRC launched its first Yushen class amphibious assault ship (Type 075 LHA), its first class of large deck amphibious warship.
- In the near-term, the PLAN will have the capability to conduct long-range precision strikes against land targets from its submarine and surface combatants using land-attack cruise missiles, notably enhancing the PRC’s global power projection capabilities.

The People’s Liberation Army Navy (PLAN) is the largest navy in the world with a battle force of approximately 350 platforms, including major surface combatants, submarines, ocean-going amphibious ships, mine warfare ships, aircraft carriers, and fleet auxiliaries. The PRC’s 2019 defense white paper described the PLAN as speeding up the transition of its tasks from “defense on the near seas” to “protection missions on the far seas.” The PLAN is an increasingly modern and flexible force that has focused on replacing its previous generations of platforms with limited capabilities in favor of larger, modern multi-role combatants. As of 2019, the PLAN is largely composed of modern multi-role platforms featuring advanced anti-ship, anti-air, and anti-submarine weapons and sensors. This modernization aligns with the PRC’s growing emphasis on the maritime domain and increasing demands for the PLAN to operate at greater distances from mainland China.

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<td>Amphibious ships: LSTs and LPDs</td>
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<td>25</td>
<td>26</td>
<td>27</td>
<td>27</td>
<td>27</td>
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<td>34</td>
<td>33</td>
<td>37</td>
<td>37</td>
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<td>Total of types above (does not include other types, such as auxiliary and support ships)</td>
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<td>221</td>
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<td>233</td>
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<td>276</td>
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<td>185</td>
<td>240</td>
<td>248</td>
<td>255</td>
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<td>Total U.S. Navy battle force ships (which includes auxiliary and support ships but excludes patrol craft)</td>
<td>291</td>
<td>282</td>
<td>281</td>
<td>279</td>
<td>282</td>
<td>285</td>
<td>288</td>
<td>284</td>
<td>287</td>
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<td>275</td>
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<td>286</td>
<td>296</td>
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<tr>
<td>Total U.S. Navy battle force ships compared to above total for certain Chinese ship types</td>
<td>+75</td>
<td>+61</td>
<td>+59</td>
<td>+46</td>
<td>+20</td>
<td>+9</td>
<td>+12</td>
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# ONI and US Navy Estimate of Build-up in China’s Naval Ship Strength vs. US: 2020-2040

## Table 2. Numbers of Chinese and U.S. Navy Battle Force Ships, 2000-2030

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<tr>
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<tr>
<td>Nuclear-powered attack submarines</td>
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<td>5</td>
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<td>13</td>
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<tr>
<td>Diesel attack submarines</td>
<td>56</td>
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<td>48</td>
<td>53</td>
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<tr>
<td>Aircraft carriers, cruisers, destroyers</td>
<td>19</td>
<td>25</td>
<td>25</td>
<td>26</td>
<td>43</td>
<td>55</td>
<td>65</td>
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<tr>
<td>Frigates, corvettes</td>
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<td>43</td>
<td>50</td>
<td>74</td>
<td>102</td>
<td>120</td>
<td>135</td>
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<tr>
<td><strong>Total China navy battle force ships, including types not shown above</strong></td>
<td><strong>110</strong></td>
<td><strong>220</strong></td>
<td><strong>220</strong></td>
<td><strong>255</strong></td>
<td><strong>360</strong></td>
<td><strong>400</strong></td>
<td><strong>425</strong></td>
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</table>

## Table 3. Numbers of Chinese and U.S. Navy Ships, 2020-2040

<table>
<thead>
<tr>
<th></th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
<th>2040 change from 2020</th>
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<tbody>
<tr>
<td>Ballistic missile submarines</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>10 (+6)</td>
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<tr>
<td>Nuclear-powered attack submarines</td>
<td>6</td>
<td>10</td>
<td>14</td>
<td>16 (+10)</td>
</tr>
<tr>
<td>Diesel attack submarines</td>
<td>47</td>
<td>47</td>
<td>46</td>
<td>46 (-1)</td>
</tr>
<tr>
<td>Aircraft carriers</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>6 (+4)</td>
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<tr>
<td>Cruisers and destroyers</td>
<td>41</td>
<td>52</td>
<td>60</td>
<td>80 (+39)</td>
</tr>
<tr>
<td>Frigates and corvettes</td>
<td>102</td>
<td>120</td>
<td>135</td>
<td>140 (+38)</td>
</tr>
<tr>
<td>LHA-type amphibious assault ships</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>6 (+6)</td>
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<tr>
<td>LPD-type amphibious ships</td>
<td>7</td>
<td>10</td>
<td>14</td>
<td>14 (+7)</td>
</tr>
<tr>
<td>LST-type amphibious tank landing ships</td>
<td>30</td>
<td>24</td>
<td>24</td>
<td>15 (-15)</td>
</tr>
<tr>
<td><strong>TOTAL of types shown above</strong></td>
<td><strong>239</strong></td>
<td><strong>276</strong></td>
<td><strong>310</strong></td>
<td><strong>333 (+94)</strong></td>
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<tr>
<td><strong>TOTAL number of U.S. Navy battle force ships</strong></td>
<td><strong>297</strong></td>
<td><strong>n/a</strong></td>
<td><strong>n/a</strong></td>
<td><strong>n/a</strong></td>
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</table>

**Source:** Table prepared by CRS. Source for China’s navy: Unclassified ONI information paper prepared for Senate Armed Services Committee, subject “UPDATED China: Naval Construction Trends vis-à-vis U.S. Navy Shipbuilding Plans, 2020-2030,” February 2020, 4 pp. Provided by Senate Armed Services Committee to CRS and CBO on March 4, 2020, and used in this CRS report with the committee’s permission. Figures are for end of calendar year. Source for figures for U.S. Navy: U.S. Navy data; figures are for end of fiscal year.

**Notes:** n/a means not available.

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Navy Structure, Missions, and Capability

The PLA Navy (PLAN) is the world’s largest naval force by number of ships, with approximately 350 battle force ships. (The U.S. Navy, by comparison, has 293 battle force ships.) The PLAN also includes a Naval Aviation branch with airpower assets. In recent years, Xi and PLA officials have called on the PLAN to become a “world-class navy,” able to operate globally and to achieve “command of the seas.”

Missions and tasks:

Previously focused on coastal defense and “offshore defense” of China’s maritime periphery, China’s navy has taken on new roles as China’s interests have expanded geographically. As noted above, this shift has been ongoing since the mid-2000s. China’s 2015 defense white paper formalized it for an international audience, asserting that the PLAN “will gradually shift its focus from ‘offshore waters defense’ to the combination of ‘offshore waters defense’ with ‘open-seas protection.’” As such, PLAN missions focus not only on scenarios involving coastal defense, Taiwan, and China’s immediate maritime periphery, but also on tasks farther afield, such as sea lane protection in places like the Indian Ocean, naval diplomacy, and nontraditional security missions such as search and rescue and humanitarian assistance/disaster relief. Perhaps the most illustrative example of the PLAN’s expanding mission set is its activity in the Gulf of Aden, where it has been conducting continuous anti-piracy patrols since 2008, and where the PLA established its first-ever overseas military base, in Djibouti, in 2017.

PLA Naval Aviation missions include maritime strike, maritime patrol, antisubmarine warfare, airborne early warning, and logistics. The PLAN Marine Corps, a branch under the PLAN, is responsible for amphibious assault, with a primary focus on island chains in the South China Sea. It also is tasked with rights protection and humanitarian assistance/disaster relief missions, and is taking on an expeditionary role, as demonstrated by the PLAN Marine Corps' deployment of troops to the base in Djibouti.

Capabilities:

PLAN modernization is bringing China closer to its goal, stated by then-CCP leader Hu Jintao in 2012, of becoming a “maritime power.” PLAN forces are becoming increasingly sophisticated and capable as the PLAN retires older ships and replaces them with advanced, multi-mission combatants. The PLAN’s technological sophistication is, in some areas, on par with that of other modern navies, according to DIA. A February 2020 assessment by the U.S. Office of Naval Intelligence projects China's naval force will reach 425 battle force ships by 2030.

According to DOD, “The PLAN’s ability to perform missions beyond the First Island Chain is modest but growing as it gains more experience operating in distant waters and acquires larger and more advanced platforms.” A 2019 report by the U.S.-China Economic and Security Review Commission assesses China will have a blue water force projection capability as early as 2025, and one analyst notes, “If current trends continue, it may not be long before the PLAN, working in concert with the other services, can operate unmolested in any likely scenario.” DIA assesses the PLAN Marine Corps is the “most capable amphibious force of any South China Sea claimant” and “can simultaneously seize multiple islands in the Spratlys.” The PLAN’s amphibious capabilities likely are sufficient to launch an invasion of some Taiwan-held islands, though mounting a full amphibious assault of Taiwan would involve significant geopolitical and military risks.

Source: Caitlin Campbell, China’s Military: The People’s Liberation Army, CRS, R46808, September 8, 2021, pp. 29-30.
China’s Evolving Naval Forces: 2021 – I

PLN Modernization.

PLA Navy (PLAN). The PLAN continues to develop into a global force, gradually extending its operational reach beyond East Asia into a sustained ability to operate at increasingly longer ranges, including a continuous presence in the Gulf of Aden. The PLAN’s latest surface and subsurface platforms enable combat operations beyond the reach of the PRC’s land-based defenses. In particular, the PRC’s aircraft carriers and planned follow-on carriers, once operational, will extend air defense coverage beyond the range of coastal and shipboard missile systems and will enable task group operations at increasingly longer ranges. The PLAN’s emerging requirement for sea-based land-attack systems will also enhance the PRC’s ability to project power. Furthermore, the PLAN now has a sizable force of highly capable logistical replenishment ships to support long-distance, long-duration deployments, including two new Fuyu class fast combat support ships (AOEs) built specifically to support aircraft carrier operations. The PLAN’s expanding fleet of large modern amphibious warships will enable it to conduct in a wide range of expeditionary operations wherever PRC interests are threatened or in support of PRC participation in international assistance operations. The expansion of naval operations beyond China’s immediate region will also facilitate its non-war military activities and further legitimize the PRC’s growing global military posture, including its base in Djibouti.

– The PLAN’s force structure continues to evolve, incorporating more platforms with the versatility for both offshore and long-distance power projection. China is engaged in series production of the Renhai class CG, the Luyang III MOD class DDG, and the Jiangdao class FFL. Additionally, production of the Jiangkai II FFGs continues with 30 units currently in service. The Renhai CG displaces more than 10,000 tons and can carry an array of long-range ASCMs and SAMs. It will likely be able to launch ASBMs and LACMs once these weapons are available. The Renhai CG will be China’s premier carrier escort for blue-water operations. At least one unit became operational in 2020, with several more outfitting and under construction.

– The PLAN continues to extend its strike range with more and increasingly sophisticated domestically produced ship, submarine, and aircraft-deployed ASCMs, with the exception of a few legacy missiles imported from Russia in the 1990s and early 2000s.

– The PLAN continues to learn lessons from operating its first aircraft carrier, Liaoning. Its first domestically built aircraft carrier, Shandong, was launched in 2017 and commissioned in December 2019—the beginning of what the PLA states will be a multi-carrier force. The PRC’s next generation of carriers, including one that began construction in 2018, will have greater endurance and a catapult launch system capable of launching various types of special mission fixed-wing aircraft for missions such as early warning, EW, and ASW. These improvements would increase the striking power of a potential carrier battle group when deployed to areas beyond China’s immediate periphery.

– The PLAN continues to build multiple new, large ships that can support force projection operations, including LHAs, LPDs, large logistic support ships, and specialized blue-water auxiliary ships—including high-capability intelligence collection ships (AGI/AGOS).

China’s Evolving Naval Forces: 2021 – II

The PLAN’s ability to perform missions beyond the First Island Chain is modest but growing as it gains more experience operating in distant waters and acquires larger and more advanced platforms. The PRC’s experience in extended range operations primarily comes from extended task group deployments and its ongoing counterpiracy mission in the Gulf of Aden.

– In April 2020, Liaoning, accompanied by at least five additional ships transited the Miyako Strait in the First Island Chain and operated in the Western Pacific for a routine training exercise. The presence of an AOE increases the PLAN’s capability and intent to conduct extended carrier operations.

– In January-February 2020, a PLAN naval task group conducted a 41-day training mission in the Pacific that operated near Hawaii and crossed the International Date Line.

– The PLAN sustained its counter-piracy task groups in the Gulf of Aden in 2020, a 12 year effort that is the PRC’s first enduring naval operation beyond the Indo-Pacific region.

The PRC has long challenged foreign military activities in its exclusive economic zone in a manner that is inconsistent with the rules of customary international law as reflected in the Law of the Sea Convention. However, in recent years, the PLA has begun conducting the very same types of military activities inside and outside the First Island Chain in the exclusive economic zones of other countries including the United States. This activity highlights the PRC’s double standard in the application of its interpretation of international law. Examples include sending AGIs to collect on military exercises such as the Rim of the Pacific (RIMPAC) exercise off Hawaii in 2014 and 2018, TALISMAN SABER off Australia in 2019, and a U.S. missile defense test off Alaska in 2017.

Naval Modernization

- **Aircraft carriers:** The PLAN has two operational aircraft carriers, is constructing a third, and almost certainly will build at least one more. China’s first carrier (Liaoning), refurbished from a Ukrainian hull, entered service in 2012. Its second—and first domestically-developed—carrier (Shandong) entered service in 2019. Construction on China’s second domestically-developed carrier, which is to be larger and equipped with a catapult launch system, began in 2018; the U.S. Office of Naval Intelligence projected in 2020 that it would be commissioned by 2024… DIA projects this carrier will facilitate PLA power projection in the South China Sea and possibly the Indian Ocean.

- **Amphibious ships:** Facilitating the PLAN’s expeditionary capabilities are large-deck amphibious ships such as the new Yushen-class (Type 075) landing helicopter assault ships (one launched in 2019 and two more under construction) and at eight Yuzhao-class (Type 071) amphibious transport docks. These large vessels are capable of embarking several Yuyi-class air-cushion landing craft, helicopters, tanks and other vehicles, as well as large numbers of marines.

- **Submarines:** According to DOD, the PLAN’s submarine force in 2019 comprised 4 Jin-class nuclear-powered ballistic missile submarines, 6 nuclear-powered attack submarines, and 46 diesel-powered attack submarines… (2 more Jin-class submarines entered service in 2020, according to media reports, bringing the total number of Jin-class submarines to 6)… The Jin-class nuclear-powered ballistic missile submarine, paired with the JL-2 submarine-launched ballistic missile, is China’s first credible sea-based deterrent. DOD expects China’s submarine force to number 65-70 total for the next decade, “replacing older units with more capable units on a near one-to-one basis.”

- **Multi-role surface combatants:** The modern Luyang III-class (Type 052D) guided missile destroyer and Jiangkai II-class (Type 054A) guided missile frigate have advanced anti-ship and anti-air weapons and sensors, boosting the PLAN’s area air defense and anti-surface warfare capabilities. Smaller combatants, in particular the Jiangdao-class (Type 056) corvette, also pose a threat to adversary surface vessels near China’s coast. In 2019, DIA reported that “every major PLAN surface combatant under construction” can carry at least one helicopter, enhancing the fleet’s ability to conduct over-the-horizon targeting, anti-submarine warfare, and search and rescue.

- **Naval aviation:**
  - **Carrier aviation:** The PLAN Naval Aviation branch’s aircraft carrier-based aircraft, including up to 24 J-15 fourth-generation fighters embarked on China’s first carrier, and possibly more than 24 J-15s on its second carrier, as well as several helicopters, will extend PLA power projection capabilities. A variant of the developmental fifth-generation FC-31 stealth fighter… is expected to operate from future aircraft carriers… The developmental carrier-borne KJ-6000 airborne early warning and control aircraft is expected to enhance carrier fleet situational awareness.
  - **Bombers:** PLAN Naval Aviation operates H-6 bombers, the latest variant of which (the land-based H-6J) has a combat radius extending to the second island chain and can carry a larger number of YJ-12 anti-ship cruise missiles.

Key Trends in Chinese Naval Missile Build Up

**Anti-Ship Ballistic Missiles (ASBMs):** China is fielding two types of land-based ballistic missiles with a capability of hitting ships at sea—the DF-21D..a road-mobile anti-ship ballistic missile (ASBM) with a range of more than 1,500 kilometers (i.e., more than 910 nautical miles), and the DF-26...a road-mobile, multi-role intermediate range ballistic missile (IRBM) with a maximum range of about 4,000 kilometers (i.e., about 2,160 nautical miles) that DOD says “is capable of conducting both conventional and nuclear precision strikes against ground targets as well as conventional strikes against naval targets.”

Until recently, reported test flights of DF-21s and SDF-26s have not involved attempts to hit moving ships at sea. A November 14, 2020, press report, however, stated that an August 2020 test firing of DF-21 and DF-26 ASBMs into the South China resulted in the missiles successfully hitting a moving target ship south of the Paracel Islands.31 A December 3, 2020, press report stated that Admiral Philip Davidson, the commander of U.S. Indo-Pacific Command, “confirmed, for the first time from the U.S. government side, that China’s People’s Liberation Army has successfully tested an anti-ship ballistic missile against a moving ship.”...China reportedly is also developing hypersonic glide vehicles that, if incorporated into Chinese ASBMs, could make Chinese ASBMs more difficult to intercept...

Observers have expressed strong concerns about China’s ASBMs, because such missiles, in combination with broad-area maritime surveillance and targeting systems, would permit China to attack aircraft carriers, other U.S. Navy ships, or ships of allied or partner navies operating in the Western Pacific. The U.S. Navy has not previously faced a threat from highly accurate ballistic missiles capable of hitting moving ships at sea. For this reason, some observers have referred to ASBMs as a “game-changing” weapon.

**Anti-Ship Cruise Missiles (ASCMs)**

China’s extensive inventory of anti-ship cruise missiles (ASCMs) ...includes both Russian- and Chinese-made designs, including some advanced and highly capable ones, such as the Chinese-made YJ-18.3...Although China’s ASCMs do not always receive as much press attention as China’s ASBMs (perhaps because ASBMs are a more recent development), observers are nevertheless concerned about them. As discussed later in this report, the relatively long ranges of certain Chinese ASCMs have led to concerns among some observers that the U.S. Navy is not moving quickly enough to arm U.S. Navy surface ships with similarly ranged ASCMs.
Key Trends in Chinese Carrier Build Up

China’s first aircraft carrier, Liaoning (Type 001) …entered service in 2012. China’s second aircraft carrier (and its first fully indigenously built carrier), Shandong (Type 002) …entered service on December 17, 2019. …Liaoning and Shandong launch fixed-wing aircraft using a “ski ramp” at the ship’s bow.

Compared with Liaoning and Shandong, U.S. Navy aircraft carriers are larger (about 100,000 tons full load displacement), nuclear powered (giving them greater cruising endurance than a conventionally powered ship), able to embark and operate a larger number of aircraft (60 or more), and launch fixed-wing aircraft using catapults, which can give those aircraft a range/payload capability greater than that of aircraft launched with a ski ramp.

China’s third carrier, the Type 003 …is under construction; ONI expects it to enter service by 2024… It is expected to be conventionally powered, closer in size to U.S. Navy aircraft carriers, and equipped with catapults rather than a ski ramp for launching aircraft. China’s fourth carrier reportedly may begin construction as early as 2021…In late November 2019, it was reported that the Chinese government, while deciding to proceed with the construction of the fourth carrier, had put on hold plans to build a fifth carrier, known as the Type 004, which was to be nuclear-powered, due to budgetary and technical considerations. Observers expect that it will be some time before China masters carrier-based aircraft operations on a substantial scale.

…China reportedly plans to develop a carrier-capable variant of its J-20 fifth-generation stealth fighter and/or a carrier-capable variant of its FC-31 fifth-generation stealth fighter (reportedly now designated J-35) to complement or succeed the J-15 on catapult-equipped Chinese carriers.58 China reportedly is also developing a carrier-based airborne early warning (AEW) aircraft, called the KJ-600, that is similar to the U.S. Navy’s carrier-based E-2 Hawkeye AEW aircraft,59 and stealth drone aircraft…

On September 25, 2019, China launched (i.e., put into the water for the final stages of its construction) the first of a new type of amphibious assault ship… called the Yushen or Type 075 that has an estimated displacement of 30,000 to 40,000 tons, compared to 41,000 to 45,000 tons for U.S. Navy LHA/LHD-type amphibious assault ships…The ship was commissioned into service in April 2021…

…In July 2020, it was reported that China might be planning to build the first of a new class of amphibious assault ships, called the Type 076 by observers…that would be equipped with electromagnetic catapults, which would enhance its ability to support operations by fixed-wing aircraft and make it somewhat more like an aircraft carrier…

China’s Three Naval Forces

The major PRC maritime entities operating in China’s maritime periphery are the PLAN, the China Coast Guard, and the People’s Armed Forces Maritime Militia. Since 2018, both the coast guard and the maritime militia have been under military command, reporting to the Central Military Commission, although they are not part of the PLA. The three actors sometimes train and patrol together and are showing signs of increasing interoperability…

China primarily has used the coast guard and maritime militia to enforce its claims in the South and East China Seas. In many cases where these actors engage with foreign vessels, PLA Navy ships deploy nearby to provide overwatch, deter escalation, and, if necessary, intervene. This approach, in which the military takes a back seat to the coast guard and maritime militia, allows China to deploy forces flexibly and use “gray zone” coercion against other claimants, while putting the onus of escalation on these claimants—most of which have far less powerful coast guards and militaries. In the case of the maritime militia, which often operates under the cover of civilian fishing flotillas, it can also provide plausible deniability of PLA or PRC government direction…

PLA Navy: Although the PLA Navy has rarely been involved in confrontations with other claimants, PLA Navy ships frequently “show the flag” in disputed areas through patrols, presence operations, and military exercises, sometimes jointly with other PLA services, such as the PLA Air Force, or with foreign counterparts such as Russian Navy…

China Coast Guard: The China Coast Guard is the world’s largest coast guard, with 130 large patrol ships, more than 70 fast patrol combatants, more than 400 coastal patrol craft, and approximately 1,000 inshore and riverine vessels… Many of the fleet’s large patrol ships are well-armed and capable of conducting operations in distant waters. With a mission to enforce China’s sovereignty claims, the China Coast Guard regularly patrols disputed waters…

People’s Armed Forces Maritime Militia: Part of China’s national militia, the People’s Armed Forces Maritime Militia is a reserve civilian force of mariners trained to enforce China’s maritime claims and to support the PLA Navy when called to do so. It is the world’s largest such force. According to the RAND Corporation, China’s maritime militia has been involved in “nearly every [PLA Navy and China Coast Guard] operation to harass maritime counter-claimants at disputed features or to seize the features from them.”

Source: Caitlin Campbell, China’s Military: The People’s Liberation Army, CRS, R46808, June 4, 2021, p. 33.
China’s Evolving Marine Forces : 2021

PLAN Marine Corps (PLANMC). The PLANMC’s roles and missions principally include global expeditionary operations, conducting amphibious operations to seize and defend small reef and island outposts, and conducting non-war military activities (NWMA). Although the PLANMC has traditionally focused on its task to assault and defense of small islands in the South China Sea, more recently its focus has grown to include expeditionary operations beyond the First Island Chain. The PLANMC’s roles under NWMA support the PRC’s efforts to protect its overseas interests including resources, infrastructure, and citizens abroad.

The PLANMC maintains a presence at the PRC’s first overseas military base in Djibouti that extends Beijing’s military reach and strategic influence in Africa and the Middle East. In 2020, the PRC highlighted a PLANMC SOF unit that had joined the previously assigned PLANMC unit in Djibouti. The PLANMC’s presence in Djibouti provides the PRC with the ability to support a military response to contingencies affecting the PRC’s investments and infrastructure in the region and the approximately 1 million PRC citizens in Africa and 500,000 in the Middle East. The PLANMC also embarks a contingent of marines with the PLAN’s Gulf of Aden counterpiracy-focused naval escort task force that supports China’s trade interests. Additionally, the PLANMC supports the PRC’s military diplomacy. For example, they have trained with Thai, Pakistani, Saudi, South African, and Djiboutian forces.
The PLAN conducted significant training events throughout 2020, appearing to successfully balance training requirements with COVID-19 related restrictions. In 2020, the PRC’s first domestically-built aircraft carrier, the Shandong, conducted planned sea trials and training, including aviation support, damage control, and weapons and equipment performance testing.

The PLA Navy also continued to emphasize realistic combat training, highlighted in late 2020 by three concurrent naval exercises in the Bo Hai, South China, and Yellow Seas, which included anti-ship, air defense, and landing operations.

The PLA Navy also exercised distant-sea operations, with the Southern Theater Command Navy formation completing a 41-day training iteration that covered over 14,000 nautical miles and included counterterrorism, anti-piracy, wartime replenishment, and live-fire operations.

In October 2020, President Xi Jinping visited the PLANMC Headquarters at Chaoan where he observed a recently recorded video of marines conducting amphibious assault and underwater infiltration training.

China’s Coastguard

**China Coast Guard (CCG).** The CCG is subordinate to the PAP and is responsible for a wide range of missions under the umbrella of maritime rights protection, including enforcement of the PRC’s sovereignty claims, surveillance, protection of fisheries’ resources, anti-smuggling, and general law enforcement. In November 2020, a draft law defining the CCG’s authorities and jurisdiction was published by the National People’s Congress for public comment.

The law in its draft form listed the CCG’s missions and the procedures to carry out the missions, to include the use of law enforcement equipment and weapons. The Standing Committee of China’s National People’s Congress passed the Coast Guard Law on January 22, 2021, and was met with concern by countries in the region due to the Law’s vague language on use of force and jurisdiction. The PRC primarily uses paramilitary maritime law enforcement agencies in maritime disputes, selectively using the PLAN to provide over watch in case of escalation.

The CCG’s rapid expansion and modernization has improved the PRC’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 30 mm to 76 mm. A number of these ships are capable of long-endurance and out-of-area operations.

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.
China’s People’s Armed Maritime Militias (PAFMM)

The PAFMM is a subset of the PRC’s national militia, an armed reserve force of civilians available for mobilization. There is no national level PAFMM organization; rather militia units organize around towns, villages, urban sub-districts, and enterprises and vary widely in composition and mission. The PAFMM has played a major role in coercive activities to achieve the PRC’s political goals below the threshold of armed conflict, part of broader PRC military theory that sees confrontational operations short of war as an effective means of accomplishing political objectives.

A large number of PAFMM vessels train with and assist the PLAN and CCG in tasks such as safeguarding maritime claims, surveillance and reconnaissance, 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. These traditional maritime militia units contrast with Sansha City maritime militia, which is more professional, better equipped, and staffed by full time, salaried personnel. Nevertheless, traditional maritime militia units continue to play a central role advancing the PRC’s claims in the South China Sea, including through escorted fishing operations in areas at the farthest extent of the Nine-Dash Line.

The PAFMM has played significant roles in a number of military campaigns and coercive incidents over the years, and also supported PRC fishing fleets operating in disputed waters. From late December 2019 to mid-January 2020, a large fleet of over 50 PRC fishing vessels operated under the escort of multiple China Coast Guard patrol ships in Indonesian claimed waters northeast of the Natuna Islands. At least a portion of the PRC ships in this fishing fleet were affiliated with known traditional maritime militia units, including a maritime militia unit based out of Beihai city in Guangxi province. While most traditional maritime militia units operating in the South China Sea continue to originate from townships and ports on Hainan Island, Beihai is one of a number of increasingly prominent maritime militia units based out of provinces in mainland China. These mainland based maritime militia units routinely operate in the Spratly Islands and in the southern South China Sea, and their operations in these areas are enabled by increased funding from the PRC government to improve their maritime capabilities and grow their ranks of personnel.


China’s Air Forces
China’s Major Air Forces - 2020

Key Takeaways

- The PLAAF and PLAN Aviation together constitute the largest aviation force in the Indo-Pacific region.
- The PLAAF is rapidly catching up to Western air forces. The PLAAF continues to modernize with the delivery of domestically built aircraft and a wide range of UAVs.
- In October 2019, China signaled the return of the airborne leg of its nuclear triad after the PLAAF publicly revealed the H-6N as its first nuclear-capable air-to-air refuelable bomber.

The People’s Liberation Army Air Force (PLAAF) and PLAN Aviation together constitute the largest aviation forces in the region and the third largest in the world, with over 2,500 total aircraft (not including trainer variants or UAVs) of which approximately 2,000 are combat aircraft (including fighters, strategic bombers, tactical bombers, multi-mission tactical, and attack aircraft). The PLAAF’s role is to serve as a comprehensive strategic air force capable of long-range airpower projection.

The PRC’s 2019 defense white paper described the PLAAF’s missions and tasks as transitioning from territorial air defense to “offensive and defensive operations.” In 2017, Lieutenant General Ding Laihang assumed the post of PLAAF commander and exhorted the service to build a truly “strategic” air force capable of projecting airpower at a long range. The PLAAF is rapidly catching up to Western air forces. This trend is gradually eroding longstanding and significant U.S. military technical advantages vis-à-vis the PRC in the air domain.

China’s Major Aviation Units 2021

China’s air power resides primarily in the PLA Air Force (PLAAF). Including the Naval Aviation branch of the PLA Navy (discussed in the next section), China’s air forces constitute the third-largest in the world, and the largest in the region.

*Missions and tasks:*

As China’s national interests and defense requirements have expanded, China’s air forces have evolved from their traditional role providing territorial air defense to the ground forces to a more expansive role encompassing both defensive and offensive air operations at greater distances from China’s land borders. PRC strategists and leaders frequently refer to the PLAAF’s transformation into a “strategic air force,” reflecting the rise of the PLAAF’s status among the PLA services, the expansion of its capabilities, and growing expectations for its contributions to China’s overall national defense. According to the 2019 defense white paper,

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.

According to the 2013 *Science of Military Strategy*, missions assigned to the PLAAF include conducting defensive and offensive operations against the threats emanating from the maritime southeast (primarily Taiwan); conducting homeland air defense; safeguarding China’s maritime interests; conducting humanitarian, disaster relief, domestic stability, and other emergency operations; and participating in international operations such as peacekeeping, international rescue, escorts and evacuations, and military exercises with foreign militaries. According to the U.S. Defense Intelligence Agency (DIA), the PLAAF was assigned a nuclear mission in 2017 (see discussion of the H-6N and H-20 in next slide).
China’s Evolving Air Force and Naval Aviation Forces: 2021

PLA Air Force (PLAAF) and PLA Navy Aviation. The PLAAF and PLAN Aviation continued to improve their capabilities to conduct offensive and defensive offshore operations such as strike, air and missile defense, strategic mobility, and early warning and reconnaissance missions. Although they currently have limited power projection capability, both the PLAAF and PLAN Aviation are seeking to extend their reach. The PLAAF, in particular, has received repeated calls from its leadership to become a truly “strategic” air force, able to project power at long distances and advance and defend the PRC’s global interests.

– The PLAAF is expanding its inventory of refuelable fighters, developing refuelable variants of the H-6 bomber and KJ-500 AEW&C aircraft, and testing a tanker variant of its Y-20 heavy lift transport. Together, these new aircraft will noticeably expand China’s ability to conduct long-range offensive air operations.

– Following former 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.

– The PRC’s outposts in the South China Sea extends the possible operating areas of PLA aviation forces. Future deployments of PLA combat aircraft operating from Spratly Island outposts could feature extended range and/or loiter time over the South China Sea or even reach into the Indian Ocean. The PRC could also replicate its success establishing a naval base in Djibouti to establish overseas logistics facilities that would further extend and sustain regional and global air operations.
Air Force Capabilities and Modernization

Whereas as recently as the early 2000s, the PLAAF was assessed to be a “weak link” in China’s armed forces, today it is increasingly capable of conducting operations in China’s immediate periphery. In particular, China’s air forces are improving their ability to conduct offshore strike, air and missile defense, strategic mobility, and early warning and reconnaissance missions.135 DOD assesses that the PLAAF’s modernization strides are “eroding longstanding and significant U.S. military technical advantages vis-à-vis the PRC in the air domain.”136 Further, one U.S. aerospace analyst concludes China’s air forces are “having a real and dramatic affect today” on balances of power between militaries in Asia, including those belonging to U.S. allies and partners.

- **Fighters:** In 2020 DOD reported the PLAAF “probably will become a majority fourth-generation force within the next several years,” having already fielded more than 800 fourth-generation fighter aircraft (including the J-10, J-11, and J-16 and their variants). Some of the PLAAF’s fifth-generation J-20 stealth fighters are operational.

- **Bombers:** Of the PLAAF’s approximately 450 bombers/attack aircraft, the most advanced—the H-6K—are “extended-range aircraft [that] can carry six [land-attack cruise missiles], providing the PLA a long-range, standoff, precision-strike capability that can reach Guam,” according to DIA.142 A long-range strategic bomber revealed in 2019, the H-6N, appears to be nuclear-capable, according to DOD and others. Observers expect the H-6N and another developmental long-range stealth bomber dubbed the H-20 to complete China’s nuclear triad of land-, air-, and sea-based nuclear weapons delivery systems.

- **Early warning aircraft:** PLAAF airborne early warning and control aircraft (including the KJ-2000, KJ-200, and KJ-500) are “force multipliers,” “with the ability to stare at a target or track thousands of targets simultaneously,” providing “faster target acquisition time, more accurate target position data, and increased ability to detect low-observable targets,” according to DIA.

- **Transport and aerial refueling:** Transport aircraft (including the Y-20 strategic heavy lift aircraft) and aerial refueling aircraft (including the IL-78 tanker imported from Russia) are expanding the PLAAF’s operational reach and extending expeditionary capabilities.

- **Air and missile defense:** China has received two of an unknown number of S-400 surface-to-air missile (SAM) systems it is procuring from Russia, which expand the range and accuracy of China’s long-range air defenses and may be able to intercept some short-range ballistic missiles. (In September 2018, the U.S. Treasury Department sanctioned the PLA’s Equipment Development Department for this purchase under the Countering America’s Adversaries through Sanctions Act (P.L. 115-44)). Depending on how many batteries the PLAAF procures and where they are deployed, they could complicate air operations by the United States and other countries in the East and South China Seas, and near Taiwan. China’s HQ-19 mid-course interceptor, currently in testing or possibly operational, likely offers ballistic missile defense capability and is designed to target ballistic missiles with ranges out to 3,000 km.

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.

PLA Air Force Readiness

In 2020, The PLAAF has worked to improve its combat effectiveness while overcoming the impact of the COVID-19 pandemic, including carrying out foreign exchanges and joint training exercises as well as sending aircraft to multiple countries to deliver pandemic prevention materials.

A video released in March called “2020, Flying Courageously in the Spring Skies” depicted PLAAF units conducting combat-realistic training using J-20, Y-20, J-16, and H-6K aircraft. Separately, three Y-20 aircraft were deployed to transport Western Theater Command troops to the Kavkaz 2020 exercise in Russia, marking the first Y-20 transnational airlift for heavy equipment.

The PRC also conducted military exercises and record-breaking numbers of flights across the Taiwan Strait centerline, probably in response to a perceived warming of ties between Washington and Taipei.


China’s Nuclear Forces and Chemical and Biological Research
China’s Evolving Nuclear Forces: 2021 – I

Key Takeaways

- Over the next decade, the PRC aims to modernize, diversify, and expand its nuclear forces.
- The PRC is investing in, and expanding, the number of its land-, sea-, and air-based nuclear delivery platforms and constructing the infrastructure necessary to support this major expansion of its nuclear forces.
- The PRC is also supporting this expansion by increasing its capacity to produce and separate plutonium by constructing fast breeder reactors and reprocessing facilities.
- The accelerating pace of the PRC’s nuclear expansion may enable the PRC to have up to 700 deliverable nuclear warheads by 2027. The PRC likely intends to have at least 1,000 warheads by 2030, exceeding the pace and size the DoD projected in 2020.
- The PRC has possibly already established a nascent “nuclear triad” with the development of a nuclear capable air-launched ballistic missile (ALBM) and improvement of its ground and sea-based nuclear capabilities.
- New developments in 2020 further suggest that the PRC intends to increase the peacetime readiness of its nuclear forces by moving to a launch-on-warning (LOW) posture with an expanded silo-based force.

Strategy. The PRC’s nuclear weapons policy currently prioritizes the maintenance of a nuclear force able to survive a first strike and respond with sufficient strength to conduct multiple rounds of counterstrike, deterring an adversary with the threat of unacceptable damage to its military capability, population, and economy. The PLA probably currently selects its nuclear strike targets to achieve conflict de-escalation and return to a conventional conflict with a remaining force sufficient to deter its adversary. PLA planners would probably avoid a protracted series of nuclear exchanges against a superior adversary, and state that the scale and intensity of retaliatory force needs to be carefully controlled.

The PRC’s current approach to nuclear force includes a public declaratory “no first use” (NFU) policy. That policy states the PRC will never use nuclear weapons first at any time nor under any circumstances, and the PRC unconditionally undertakes not to use or threaten to use nuclear weapons against any non-nuclear-weapon state or in nuclear-weapon-free zones. There is some ambiguity about conditions where Beijing’s NFU policy would no longer apply; there has also been no indication that national leaders are willing to publicly attach such additions, nuances, or caveats. The PRC’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. Some PLA officers have discussed the PRC using nuclear weapons first in cases like when a conventional attack threatens the survival of the PLA’s nuclear force or the CCP itself.

Readiness. Although the PRC almost certainly keeps the majority of its nuclear force on a peacetime status—with separated launchers, missiles, and warheads—nuclear and conventional PLARF brigades conduct “combat readiness duty” and “high alert duty,” which apparently includes assigning a missile battalion to be ready to launch, and rotating to standby positions as much as a monthly basis for unspecified periods of time.

China’s Evolving Nuclear Forces: 2021 – II

Authoritative PLA text books on strategy state “high alert duty” is valuable for the defender in a nuclear war, recommending the PLARF adopt a high alert posture conceptually comparable to the claimed high alert posture kept by portions of U.S. and Russian nuclear forces, and that such a posture is compatible with the PRC’s active defense concept, NFU policy, and post-strike response approach.

Nuclear Forces. The PRC is working to develop a viable nuclear triad of delivery systems dispersed across land, sea, and air forces.

Land-Based Platforms. The PRC’s land-based nuclear forces primarily consists of ICBMs with different basing modes complimented by several theater-range road-mobile MRBM and IRBM. The PRC has approximately 100 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 CSS-20 (DF-41); and the more limited range roll-out-to-launch CSS-3 (DF-4). The PRC appears to be doubling the numbers of launchers in some ICBM units. This strategic arsenal is complemented by road-mobile, solid-fueled CSS-5 Mod 2 and Mod 6 (DF-21) MRBM and DF-26 IRBM capable of ranging targets in the Indo-Pacific region. The PLA is developing a DF-5C and may be developing a DF-31B ICBM.

Sea-based Platforms. The PRC’s six operational 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. The PRC’s next-generation Type 096 SSBN reportedly will be armed with a follow-on SLBM, and it will likely begin construction in the early-2020s. Based on the 40-plus-year service life of the PRCs first generation SSNs, the PRC will operate its JIN and Type 096 SSBN fleets concurrently. The current range limitations of the JL-2 will require the JIN to operate in areas north and east of Hawaii if the PRC seeks to target the east coast of the United States. As the PRC fields newer, more capable, and longer ranged SLBMs such as the JL-3, the PLAN will gain the ability to target the continental United States from littoral waters, and thus may consider bastion operations to enhance the survivability of its sea-based deterrent. The South China Sea and Bohai Gulf are probably the PRC’s preferred options for employing this concept.

Air Platforms. The PLAAF has operationally fielded the H-6N bomber, providing a platform for the air component of the PRC’s nascent nuclear triad. In 2021, the H-6N-equipped unit very likely will be developing tactics and procedures to conduct the PLAAF nuclear mission. The H-6N, compared to other H-6 bombers, adds an air-to-air refueling probe, as well as its recessed fuselage modifications that would allow for external carriage of an ALBM believed to be nuclear capable.

Future Developments. Over the next decade, the PRC will expand and diversify its nuclear forces. The PRC probably intends to develop new nuclear warheads and delivery platforms that at least equal the effectiveness, reliability, and/or survivability of some of the warheads and delivery platforms currently under development by the United States and/or Russia.

Evolving Nuclear Posture. The PRC evolving posture is presently more consistent with what PLA writings describe as a “limited deterrent”—a posture that the PLA describes as the very wide space between a minimum and maximum deterrent. The PRC claims to adhere to a minimum deterrent which it defines as “…keeping its nuclear capabilities at the minimum level required for national security.” The PRC perceived national security requirements will grow as it transitions from a “large country” to a “powerful country” and its minimum number of military forces – to include nuclear –needed to defend those greater interests is also likely to grow.

China’s Evolving Nuclear Forces: 2021 – III

Stockpile Size. Last year, DoD estimated that the PRC had a nuclear warhead stockpile in the low-200s and projected it to at least double over the next decade. Since then, Beijing has accelerated its nuclear expansion, which may enable the PRC to have up to 700 deliverable nuclear warheads by 2027 and likely intends to have at least 1,000 warheads by 2030. The PRC is constructing the infrastructure necessary to support this force expansion, including increasing its capacity to produce and separate plutonium by constructing fast breeder reactors and reprocessing facilities. Though this is consistent with the PRC goal of closing the nuclear fuel cycle, the PRC likely intends to use some of this infrastructure to produce plutonium for its expanding nuclear weapons program.

The PRC’s long-term nuclear requirements—and the relationship between the PRC’s nuclear requirements and its national strategy and goal to field a “world-class” military by mid-century—remain unclear from public sources. Hawkish PRC state media outlets have asserted that the PRC needs 1,000 warheads, while retired PLA officers have suggested that the PRC should possess a “mutually assured destruction” capability. While neither of those claims are official, anticipated changes to the capacity, capability, and readiness of the PRC’s nuclear forces in the coming years seem likely to outpace potential developments by the nuclear forces of any adversary that could plausibly threaten the PRC ability to retaliate against a first strike. A Western think tank publication indicated that the PRC could field more than 1,000 nuclear warheads by the end of the decade, judging from the amount of plutonium that could be produced from reactors under construction. Regardless of the ultimate number of nuclear weapons it makes, the PRC will probably continue to claim it is, like other nuclear powers, adhering to the minimum of nuclear weapons needed to protect its security interests.

The PRC maintained a high level of activity at its Lop Nur nuclear weapons test site throughout 2019, according to the U.S. Department of State’s April 2020 Executive Summary of Findings on Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments. The executive summary states, “China’s possible preparation to operate its Lop Nur test site year-round, its use of explosive containment chambers, extensive excavation activities at Lop Nur, and lack of transparency on its nuclear testing activities – which has included frequently blocking the flow of data from its International Monitoring System (IMS) stations to the International Data Center operated by the Preparatory Commission for the Comprehensive Nuclear Test-Ban Treaty Organization – raise concerns regarding its adherence to the ‘zero yield’ standard adhered to by the United States, United Kingdom, and France in their respective nuclear weapons testing moratoria.”

Lower-yield Nuclear Weapons. PRC strategists have highlighted the need for lower-yield nuclear weapons in order to increase the deterrence value of the PRC’s nuclear force, though they have not defined specific nuclear yield values. A 2017 defense industry publication indicated a lower-yield weapon had been developed for use against campaign and tactical targets that would reduce collateral damage. By late 2018, PRC concerns began to emerge that the United States would use low-yield weapons against a Taiwan invasion fleet, with related commentary in official media calling for proportionate response capabilities. The DF-26 is the PRC’s first nuclear-capable missile system that can conduct precision strikes, and therefore, is the most likely weapon system to field a lower-yield warhead in the near-term.

PRC military writings in 2012 noted that the introduction of new precise small-yield nuclear weapons could possibly allow for the controlled use of nuclear weapons, in the warzone, for warning and deterrence. Such discussions provide the doctrinal basis for limited nuclear employment on the battlefield, suggesting
PRC nuclear thinkers could be reconsidering their long-standing view that nuclear war is uncontrollable.

**Launch on Warning (LOW).** The PLA is implementing a launch-on warning posture, called “early warning counterstrike” (预警反击), where warning of a missile strike leads to a counterstrike before an enemy first strike can detonate. PLA writings suggest multiple manned C2 organs are involved in this process, warned by space and ground based sensors, and that this posture is broadly similar to the U.S. and Russian LOW posture. The PRC probably seeks to keep at least a portion of its force on a LOW posture, and since 2017, the PLARF has conducted exercises involving early warning of a nuclear strike and launch on warning responses.

The PRC has also made advances in early warning needed to support a LOW posture. China already has several ground-based large phase array radars – similar in appearance to U.S. PAVE PAWS radars – that could support a missile early warning role. In 2013, foreign media sources claimed to be in possession of PLA documents indicating expedited plans to field three geostationary satellites capable of detecting ballistic missile launches. Then, in 2015, the PRC’s defense white paper identified “improve strategic early warning” as specific nuclear force modernization goals with the PRC’s 13th Five-Year Plan (2016-2020) reported including requirements to place early warning satellites in space. As of 2021, the PRC has at least one early warning satellite in orbit. In 2019, Russia offered to assist China in developing a missile early warning system.

The PRC probably believes a LOW posture is consistent with its no first use policy. In the 1970s and 1980s, the PRC considered using its land-based ballistic missile early warning radar to support a LOW posture for its silo-based CSS-4 ICBMs, but apparently this early warning system was unreliable.

Despite these developments, the PRC has called upon other states to abandon similar launch-on-warning postures to enhance strategic stability while taking little action of its own. PRC military writings note that command and control systems – which would include early warning systems – can be a source of accidental nuclear war. In 2020, the PRC renewed its missile and space launch notification agreement with Russia, but has refused to join the Hague Code of Conduct or participate in other bilateral confidence building measures designed to reduce the risk of accidental nuclear war. In 2020, the PRC launched more than 250 ballistic missiles exceeding its launch numbers for 2018 and 2019 despite COVID-19.

**New Silo-based Nuclear Missiles.** The PRC is building hundreds of new ICBM silos, and is on the cusp of a large silo-based ICBM force expansion comparable to those undertaken by other major powers. In 2017, PRC state media indicated rail-mobile and silo-options were being considered as basing modes for the DF-41 ICBM. In 2019, commercial imagery from a non-governmental organization revealed that the PRC had constructed an ICBM silo at one of the PLARF’s Western training ranges that is smaller than China’s existing CSS-4 (DF-5) silos and was believed to be used to evaluate silo-basing for the DF-41 or smaller ICBMs like the DF-31. Since then, the PRC appears to be building several of these silos, suggesting the PRC has moved beyond concept evaluation and is preparing for large scale construction of this new solid-fueled silo-based ICBM. There are also some indications that the PRC may be building new CSS-4 (DF-5) ICBM silos. When taken with the PRC’s past concerns about silo survivability and ongoing strategic early warning progression, these new silos provide further evidence China is moving to a LOW posture.

China’s ICBMs

Figure 1: China’s Silo-Based ICBMs

Table 2: China’s Inventory of Ballistic Missile Launchers, 2018–2020

<table>
<thead>
<tr>
<th>Type</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-range launchers</td>
<td>300</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Medium-range launchers</td>
<td>125</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>Intermediate-range launchers</td>
<td>30</td>
<td>80</td>
<td>200</td>
</tr>
</tbody>
</table>


China’s Chemical and Biological Research: 2021

Key Takeaways

• The PRC has engaged in biological activities with potential dual-use applications, which raise concerns regarding its compliance with the Biological and Toxins Weapons Convention (BWC) and the Chemical Weapons Convention (CWC).

• Studies conducted at PRC military medical institutions discussed identifying, testing, and characterizing diverse families of potent toxins with dual-use applications.

• Based on available information, the United States cannot certify that the PRC has met its obligations under the Chemical Weapons Convention (CWC) due to concerns regarding the PRC’s research of pharmaceutical-based agents (PBAs) and toxins with potential dual-use applications.

The PRC has engaged in biological activities with dual-use applications, which raise concerns regarding its compliance with the Biological and Toxins Weapons Convention (BWC), to which the PRC became a party in 1984. According to the U.S. Department of State’s April 2021 report “2021 Adherence to and Compliance With Arms Control, Nonproliferation, and Disarmament Agreements and Commitments,” available information shows the PRC engaged in activities that raise concerns with regard to its obligations under Article I of the BWC, which requires States Party “never in any circumstances to develop, produce, stockpile, or otherwise acquire or retain …[m]icrobial or other biological agents, or toxins whatever their origin or method of production, of types and in quantities that have no justification for prophylactic, protective, or other peaceful purposes,” as well as “weapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict.” In addition, the United States does not have sufficient information to determine whether the PRC eliminated its assessed historical biological warfare (BW) program, as required under Article II of the Convention.

The United States assesses that the PRC possessed an offensive biological warfare program from 1950s to at least the late 1980s. Although the PRC has submitted BWC Confidence-Building Measures (CBMs) each year since 1989, the PRC’s CBM reporting has never otherwise disclosed it ever pursued an offensive BW program, and the PRC has never acknowledged publicly or in diplomatic channels its past offensive program. As part of its historical BW program, the PRC had probably weaponized ricin, botulinum toxins, and the causative agents of anthrax, cholera, plague, and tularemia.

The PRC continues to develop its biotechnology infrastructure and pursue scientific cooperation with countries of concern. Available information on studies conducted at PRC military medical institutions has included information that discusses identifying, testing and characterizing diverse families of potent toxins— which raises questions about the intended purposes of the work conducted by the researchers.

Estimated Global Nuclear Warhead Inventories 1945 - 2021

Hans M. Kristensen, Matt Korda, and Robert Norris, Federation of American Scientists, 2021

China vs. Other Nuclear Forces: 2021

<table>
<thead>
<tr>
<th>Country</th>
<th>Deployed Strategic</th>
<th>Deployed Nonstrategic</th>
<th>Reserve/Nondeployed</th>
<th>Military Stockpile</th>
<th>Total Inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia</td>
<td>1,600</td>
<td>0</td>
<td>2,889</td>
<td>4,487</td>
<td>6,257</td>
</tr>
<tr>
<td>United States</td>
<td>1,700</td>
<td>100</td>
<td>2,000</td>
<td>3,800</td>
<td>5,550</td>
</tr>
<tr>
<td>France</td>
<td>280</td>
<td>n.a.</td>
<td>10</td>
<td>290</td>
<td>290</td>
</tr>
<tr>
<td>China</td>
<td>0</td>
<td>?</td>
<td>350</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>120</td>
<td>n.a.</td>
<td>105</td>
<td>225</td>
<td>225</td>
</tr>
<tr>
<td>Israel</td>
<td>0</td>
<td>n.a.</td>
<td>90</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>Pakistan</td>
<td>0</td>
<td>n.a.</td>
<td>165</td>
<td>165</td>
<td>165</td>
</tr>
<tr>
<td>India</td>
<td>0</td>
<td>n.a.</td>
<td>160</td>
<td>160</td>
<td>160</td>
</tr>
<tr>
<td>North Korea</td>
<td>0</td>
<td>n.a.</td>
<td>(45)</td>
<td>(45)</td>
<td>(45)</td>
</tr>
<tr>
<td>Total</td>
<td>-3,700</td>
<td>-100</td>
<td>-5,820</td>
<td>-9,600</td>
<td>-13,100</td>
</tr>
</tbody>
</table>

May not include weapons in new missile silos found in fall of 2021. “Deployed strategic warheads” are those deployed on intercontinental missiles and at heavy bomber bases. “Deployed nonstrategic warheads” are those deployed on bases with operational short-range delivery systems. “Reserve/Nondeployed” warheads are those not deployed on launchers and in storage (weapons at bomber bases are considered deployed). The “military stockpile” includes active and inactive warheads that are in the custody of the military and earmarked for use by commissioned deliver vehicles. The “total inventory” includes warheads in the military stockpile as well as retired, but still intact, warheads in the queue for dismantlement. For additional guidance, see endnotes below.

Comparative Nuclear Modernization Since 2010

Figure 1. Nuclear Delivery Systems Since 2010

Key Nuclear Modernization Efforts

- China’s current estimated nuclear arsenal, capabilities, and stated policies amount to a much smaller and less diverse nuclear posture than that of the United States or Russia. Nevertheless, China’s nuclear modernization is yielding a larger and more capable nuclear force, and the United States has argued that China’s lack of transparency surrounding its nuclear modernization efforts generates uncertainty about its intentions.

- China does not publicize the size of its nuclear arsenal, but DOD reported in 2020 that China’s estimated operational nuclear warhead stockpile was “in the low-200s.” DIA estimated in 2019 that China may at least double its stockpile “over the next decade.” Some analysts expressed skepticism about DIA’s estimate (which has since been repeated by DOD), and others caution against expectations that China could seek to “sprint to parity” with the United States, citing China’s limited stock of fissile material, among other things. One nongovernmental estimate suggests the PLA’s stockpile numbers around 350 nuclear warheads. The same source estimates delivery vehicles for China’s nuclear warheads include about 240 land-based ballistic missiles, 48 missiles on 4 ballistic missile submarines, and 20 gravity bombs assigned to bomber aircraft. Further, this source estimates China fields approximately 150 land-based missiles that can strike the United States with approximately 190 warheads (with 90 missiles/130 warheads capable of striking the continental United States). DOD estimates that by around 2025, the PLA will field approximately 200 intercontinental ballistic missiles capable of threatening the United States.

- China also has made qualitative advances to its nuclear forces. These include a shift from liquid- fueled and silo-based missiles to solid-fueled and increasingly mobile missiles; progress toward what DOD calls a “viable nuclear triad” of land-, air-, and sea-based nuclear weapons delivery systems; the development of strategic early warning systems; improvements in nuclear command and control; and improvements in warhead penetration (including the deployment of multiple independently targetable re-entry vehicles).

- These developments appear to reflect PRC concerns about advances in U.S. missile defense and long-range precision conventional weapons. PRC strategists argue that U.S. capabilities could undermine the ability of China’s nuclear forces to survive an attack and to launch a nuclear counterattack. Others, however, argue that China may be pursuing a more coercive approach to its nuclear policy by developing capabilities that could threaten U.S. forces in the region.

Source: Caitlin Campbell, China’s Military: The People’s Liberation Army, CRS, R46808, September 8, 2021, pp. 36-38.
China’s Nuclear Forces in 2020 – I

China is continuing the nuclear weapons modernization program that it initiated in the 1980s and increased in the 1990s and 2000s, fielding more types and greater numbers of nuclear weapons than ever before. Since our previous Nuclear Notebook on China in June 2019, China has continued fielding the DF-26—a dual-capable, mobile, intermediate-range ballistic missile (IRBM)—and is replacing older road-mobile DF-31A intercontinental ballistic missile (ICBM) launchers with the more maneuverable DF-31AG launcher. China is also in the process of fielding the new DF-41, a road-mobile ICBM that is thought to be capable of carrying multiple independently targetable reentry vehicles (MIRVs) like the old DF-5B. At sea, China has completed construction and deployment of two more ballistic missile submarines and is developing a new type. Additionally, China has recently reassigned a nuclear mission to its bombers and is developing an air-launched ballistic missile that might have nuclear capability.

We estimate that China has a produced a stockpile of approximately 350 nuclear warheads, of which roughly 272 are for delivery by more than 240 operational land-based ballistic missiles, 48 sea-based ballistic missiles, and 20 nuclear gravity bombs assigned to bombers. The remaining 78 warheads are intended to arm additional land- and sea-based missiles that are in the process of being fielded (see Table 1). This estimate is higher than the “low-200” warheads reported by the Pentagon in its 2020 report to Congress; however, the Pentagon’s estimate only refers to “operational” Chinese nuclear warheads, and therefore presumably excludes warheads that are attributed to newer weapons still in development (US Defense Department 2020a). It is also possible that the Pentagon’s estimate does not include dormant bomber weapons. Taking those categories into account, the Pentagon’s estimate is roughly in line with our own.

Table 1: Chinese nuclear forces, 2020

By Hans M. Kristensen and Matt Korda

<table>
<thead>
<tr>
<th>Type</th>
<th>NATO designation</th>
<th>Number of launchers¹</th>
<th>Year deployed</th>
<th>Range (kilometers)</th>
<th>Warheads x yield² (kilotons)</th>
<th>Warheads</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Land-based ballistic missiles</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DF-4</td>
<td>CSS-3</td>
<td>6³</td>
<td>1980</td>
<td>5,500</td>
<td>1 x 3,300</td>
<td>6</td>
</tr>
<tr>
<td>DF-5A</td>
<td>CSS-4 Mod 2</td>
<td>10</td>
<td>1981</td>
<td>12,000</td>
<td>1 x 4,000–5,000</td>
<td>10</td>
</tr>
<tr>
<td>DF-5B</td>
<td>CSS-4 Mod 3</td>
<td>10</td>
<td>2015</td>
<td>13,000</td>
<td>5 x 200–300</td>
<td>50</td>
</tr>
<tr>
<td>DF-5C</td>
<td>(CSS-4 Mod 4)</td>
<td></td>
<td>(2020)</td>
<td>13,000</td>
<td>(MIRV)</td>
<td></td>
</tr>
<tr>
<td>DF-15</td>
<td>CSS-6</td>
<td></td>
<td>1990</td>
<td>600</td>
<td>1 x ?⁴</td>
<td></td>
</tr>
<tr>
<td>DF-17</td>
<td>?</td>
<td>(18)⁵</td>
<td>(2021)</td>
<td>1,800+</td>
<td>1 x HGV⁶</td>
<td></td>
</tr>
<tr>
<td>DF-21A/E</td>
<td>CSS-5 Mod 2, 6</td>
<td>40</td>
<td>2000, 2016</td>
<td>2,100+⁷</td>
<td>1 x 200–300</td>
<td>40⁸</td>
</tr>
<tr>
<td>DF-26</td>
<td></td>
<td>100⁹</td>
<td>2016</td>
<td>4,000</td>
<td>1 x 200–300</td>
<td>20¹⁰</td>
</tr>
<tr>
<td>DF-31</td>
<td>CSS-10 Mod 1</td>
<td>6</td>
<td>2006</td>
<td>7,200</td>
<td>1 x 200–300</td>
<td>6</td>
</tr>
<tr>
<td>DF-31A</td>
<td>CSS-10 Mod 2</td>
<td>36</td>
<td>2007</td>
<td>11,200</td>
<td>1 x 200–300</td>
<td>36</td>
</tr>
<tr>
<td>DF-31AG</td>
<td>CSS-10 Mod 2¹¹</td>
<td>36</td>
<td>2018</td>
<td>11,200</td>
<td>1 x 200–300</td>
<td>36</td>
</tr>
<tr>
<td>DF-41</td>
<td>CSS-X-20</td>
<td>(18)¹²</td>
<td>(2021)</td>
<td>12,000</td>
<td>(3 x 200–300)</td>
<td>(54)</td>
</tr>
<tr>
<td><strong>Subtotal:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>244 (280)</td>
<td></td>
<td></td>
<td>204 (258)</td>
<td></td>
</tr>
<tr>
<td><strong>Submarine-launched ballistic missiles</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JL-2</td>
<td>CSS-N-14</td>
<td>4/48 (2/24)¹³</td>
<td>2016</td>
<td>7,000+</td>
<td>1 x 200–300</td>
<td>48</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>7,000+</td>
<td>1 x 200–300</td>
<td>(24)</td>
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<tr>
<td><strong>Aircraft¹⁴</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H-6¹⁵</td>
<td>B-6</td>
<td>20</td>
<td>1965/2009</td>
<td>3,100+</td>
<td>1 x bomb</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1 x ALBM)</td>
<td>n.a.</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>312 (372)</td>
<td></td>
<td></td>
<td>272 (350)¹⁶</td>
<td></td>
</tr>
</tbody>
</table>

¹ Numbers in parenthesis indicate weapons in the process of entering service but not yet operational.
² 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.
³ The 2020 US Defense Department report still lists the old liquid-fuel DF-4. But with the fielding of greater numbers of solid-fuel DF-31AG and DF-26 missiles, it is possible that the DF-4 is in the process of being retired, if it hasn’t already happened.
⁴ 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.
⁵ Eighteen DF-17 launchers participated in the 2019 Beijing parade but only 16 were shown.
⁶ The DF-17 was presented as a conventional missile at the 2019 Beijing parade, but US Strategic Command has recently asserted the weapon is nuclear-capable. We’re awaiting more information before attributing warheads to the DF-17.
⁷ US Defense Department lists the range of the DF-21A/E as 1,750 km, but US Air Force has reported it as 2,150 km.

Different Estimates of China’s Nuclear Force Trends – I

The Defense Intelligence Agency’s projected increase is based on the expected deployment of additional nuclear-capable missiles. This includes 24 DF-41 ICBMs and up to 24 JL-2 submarine-launched ballistic missiles (SLBMs) on two additional submarines. Unlike previous projections, the fielding of a MIRV capability has the potential to significantly increase the size of the stockpile, but by how much depends on several unknown factors. While many non-official sources attribute very high numbers of warheads to MIRVed missiles (for example, 10 warheads per DF-41), we estimate that MIRVed missiles are assigned a low number of warheads (perhaps three each), and that part of the missile payload capability is intended for decoys and penetration aids. This is because we believe that the purpose of the MIRV program is to ensure penetration of US missile defenses, rather than to maximize the warhead loading of the Chinese missile force. As the United States strengthens its missile defenses, China will likely further modify its nuclear posture to ensure the credibility of its retaliatory strike force, including deploying hypersonic glide vehicles.

The projection has been widely repeated by other parts of the US government, including by the commander of US Strategic Command in February 2020 (Richard 2020a, 4) and by the Pentagon in its most recent annual report to Congress (US Defense Department 2020a, 87). It implies that China could have less than 500 nuclear warheads by the late 2020s, depending on how the count is made. This increase, according to the Defense Department report, can be achieved “without new fissile material production,” apparently confirming that China has not resumed production of fissile material for nuclear weapons (US Defense Department 2020a, 87).

The projected increase has also triggered a wide range of speculations about China’s nuclear intentions… But the Pentagon’s statement that China may only have a stockpile in the low-200s appears to have taken some of the wind out of those sails. Even if the Chinese stockpile did double in size, it would still only make up a fraction of the US and Russian stockpiles. This fact has enabled the Chinese government to reject it as “unrealistic to expect China to join the two countries in a negotiation aimed at nuclear arms reduction” (Ministry of National Defense of the People’s Republic of China 2020).

Different U.S. Estimates of China’s Nuclear Strength – II

China’s nuclear weapons program has been supported by a number of facilities that include production, processing, research and development, and testing.

China’s Evolving Integrated Air and Missile Defense (IADS)-A2/AD Forces
The PRC 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. The PRC has also placed radars and air defense weapons on outposts in the South China Sea, further extending the range of its IADS. It also employs point defenses, primarily to defend strategic targets against adversary long-range cruise missiles and airborne strike platforms.

The PLA has increasing numbers of advanced long-range SAMs, including its indigenous CSA-9 (HQ-9) and its follow-on HQ-9B, Russian SA-10 (S-300PMU), and SA-20 (S-300PMU1 / PMU2), all of which have the advertised capability to protect against both aircraft and low-flying cruise missiles. To improve its strategic air defenses, the PLA possesses Russian-built SA-21 (S-400) Triumph SAM systems as a follow-on to the SA-20. Compared to these other systems, the SA-21 systems possess a longer maximum range, improved missile seekers, and more sophisticated radars. The PRC manufactures a variety of long-range air surveillance radars, including models claiming to support BMD 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 AEW&C aircraft such as the KJ-2000 and KJ-500 can further extend the PRC’s radar coverage well past the range of its ground-based radars.

The PLA’s A2/AD capabilities are to date the most robust within the First Island Chain, although the PRC is beginning to field significant capabilities capable of conducting operations out to the Second Island Chain and seeks to strengthen its capabilities to reach farther into the Pacific Ocean and throughout the globe.

– **Ballistic Missile Defense (BMD)**. The PLA’s long-range SAM inventory also offers a limited capability against ballistic missiles. The PRC’s domestic CSA-9 (HQ-9) long-range SAM system likely has a limited capability to provide point defense against tactical ballistic missiles. The PLA has SA-20 (S-300 PMU2) SAMs and SA-21 (S-400) SAMs that may have some capability to engage ballistic missiles, depending on the interceptors and supporting infrastructure. The PRC is working to develop BMD systems consisting of exo-atmospheric and endo-atmospheric kinetic-energy interceptors. PRC state media confirmed the PLA’s intent to move ahead with land- and sea-based mid-course missile defense capabilities in 2016. The Type-055 Destroyer has been identified as a platform for such mid-course intercept capabilities suggesting the PRC will have forward deployed missile defense in the near future. Additionally, the HQ-19 interceptor has undergone tests to verify its capability against 3,000 km-class ballistic missiles. In addition, China is pursuing a mid-course interceptor that may have capabilities against IRBMs and possibly ICBMs.
China’s Evolving Precision Strike Capability and Rocket and Missile Forces
China’s Evolving Conventional Precision Strike Capability

**Short-Range Ballistic Missiles (300-1,000 km).** The PLARF has approximately 200 SRBM launchers and over 600 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 fields approximately 150 conventional MRBMs launchers and more than 150 missiles which 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 that is able to conduct near-precision strikes as far away from China as Guam in the Second Island Chain. The PLA has fielded approximately 200 IRBM launchers and more than 200 missiles. In conjunction with reconnaissance satellites, the PLAN’s expanding network of sky wave and surface wave over-the-horizon (OTH) systems provide warning and 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 100 ground-launched LACMs launchers and more than 300 missiles 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 family of missiles the most numerous, and 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. China claims its new Luyang III class DDGs and Renhai CGs have 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 carries the Russian SS-N-22 SUNBURN on two Russian-built Sovremenny class DDGs. Upgrades to two of the Sovremenny DDGs (Hulls 136 and 137) allow them to fire the YJ-12A. China also employs 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 (ASMs) 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 expanding fleet 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.

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China’s Current PLA Rocket Force (PLARF):2021 – I

- In 2020, the PLARF advanced its long-term modernization plans to enhance its “strategic deterrence” capabilities.
- In 2020, the PLARF launched more than 250 ballistic missiles for testing and training. This was more than the rest of the world combined.
- In 2020, the PLARF began to field its first operational hypersonic weapons system, the DF-17 hypersonic glide vehicle (HGV) capable medium-range ballistic missile (MRBM).
- The PLARF continues to grow its inventory of DF-26 intermediate-range ballistic missiles (IRBMs), which are capable of conducting both conventional and nuclear precision strikes against ground targets as well as conventional nuclear strikes against naval targets.
- The PRC is developing new intercontinental ballistic missiles (ICBMs) that will significantly improve its nuclear-capable missile forces and will require increased nuclear warhead production, partially due to the introduction of multiple independently targetable reentry vehicle (MIRV) capabilities. China has commenced building three solid-fueled ICBM silo fields, which will cumulatively contain hundreds of new ICBM silos.
- The number of warheads on the PRC’s land-based ICBMs capable of threatening the United States is expected to grow to roughly 200 in the next five years.

The PLA Rocket Force (PLARF) organizes, mans, trains, and equips the PRC’s strategic land-based nuclear and conventional missile forces and associated support forces and missile bases. The PLARF is a critical component of the PRC’s nuclear deterrence strategy and its strategy to deter and counter third-party intervention in regional conflicts. The PLARF, previously known as the PLA Second Artillery Force, was elevated to the status of a full service alongside the PLAA, PLAN, and PLAAF and renamed as part of the sweeping PLA reforms initiated in late 2015. According to the PRC’s 2019 defense white paper, the PLARF is working towards “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.” In 2019, the PLARF’s participation in the PRC’s 70th anniversary military parade was designed to show its progress towards goals first publicized by Chairman Xi Jinping in 2016 and 2017 to “achieve a great rise in strategic capabilities,” accelerate the PLARF’s pace of development, and make enhanced “breakthroughs...in strategic deterrence capability.” The PLARF fields a variety of conventional mobile ground-launched short-, medium-, and intermediate-range ballistic missiles and ground-launched cruise missiles. The PLARF’s ground-based missile forces complement the air and sea-based precision strike capabilities of the PLAAF and PLAN. The PLARF’s conventional missile forces include the CSS-6 (DF-15) short-range ballistic missile (SRBM) (range 725-850 km); the CSS-7 (DF-11) SRBM (600 km); the CSS-11 (DF-16) SRBM (more than 700 km); land-attack and anti-ship variants of the CSS-5 (DF-21) medium-range ballistic missile (MRBM) (approximately 1,500 km); the hypersonic glide vehicle capable DF-17 MRBM; the DF-26 IRBM (approximately 3,000 km); the CJ-10 (DH-10) ground-launched cruise missile (GLCM) (approximately 1,500 km); and the CJ-100 (DF-100) GLCM (approximately 2,000 km).

China’s Current PLA Rocket Force (PLARF): 2021 – II

The PLARF’s conventionally armed CSS-5 Mod 5 (DF-21D) ASBM variant gives the PLA the capability to conduct long-range precision strikes against ships, including aircraft carriers, out to the Western Pacific from mainland China. The DF-21D has a range exceeding 1,500 km, is fitted with a maneuverable reentry vehicle (MaRV), and is reportedly capable of rapidly reloading in the field. The PLARF continues to grow its inventory of DF-26 IRBMs, which it first revealed in 2015 and fielded in 2016.

The multi-role DF-26 is designed to rapidly swap conventional and nuclear warheads and is capable of conducting precision land-attack and anti-ship strikes in the Western Pacific, the Indian Ocean, and the South China Sea from mainland China. In 2020, the PRC fired anti-ship ballistic missiles against a moving target in the South China Sea, but has not acknowledged doing so. In 2020, the PRC had begun operational fielding of the DF-17 hypersonic glide vehicle capable MRBM, with fielding possibly intended to replace some older SRBM units, according to PRC media.

The PLARF is developing and testing several new variants of theater-range missiles and developing capabilities and methods to counter adversary BMD systems. This was more than the rest of the world combined excluding ballistic missile employment in conflict zones. The DF-17 passed several tests successfully and is deployed operationally. While the DF-17 is primarily a conventional platform, it may be equipped with nuclear warheads. In 2020, a PRC-based military expert described the primary purpose of the DF-17 as striking foreign military bases and fleets in the Western Pacific.

The PLARF is developing intercontinental ballistic missiles (ICBMs) that will significantly improve its nuclear-capable missile forces with more survivable delivery systems and will require increased nuclear warhead production, partially due to the introduction of multiple independently targetable reentry vehicle (MIRV) capabilities. Already, the PRC appears to be doubling the numbers of launchers in some ICBM units.

The PRC’s ICBM arsenal consists of approximately 100 ICBMs, including fixed and mobile launchers capable of launching unitary and multiple reentry vehicles. China’s fixed ICBMs consist of the shorter range CSS-3 (DF-4), as well as the silo-based CSS-4 Mod 2 (DF-5A) and MIRV-equipped Mod 3 (DF-5B), which is capable of carrying up to five MIRVs. PRC media indicates a follow-on DF-5C may be in development. The solid-fueled, road-mobile CSS-10 class and CSS-20 (DF-41) ICBMs complement this force. The CSS-10 Mod 2 (DF-31A), with a range in excess of 11,000 km, can reach most locations within the continental United States. PRC media reports suggest a DF-31B might also be in development.

The DF-41 ICBM has been operationally deployed with commentary during the 2019 parade noting that two brigades existed for the system. The PRC appears to be considering additional DF-41 launch options, including rail-mobile and silo basing. The PRC is building multiple ICBM silos intended to support the land-based component of the PRC’s nuclear triad. Additionally, sources indicate a “long-range” DF-27 ballistic missile is in development. Official PRC military writings indicate this range-class spans 5,000-8,000 km, which means the DF-27 could be a new IRBM or ICBM.

China’s Current PLA Rocket Forces: 2019

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.

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.

PLA Rocket Force Developments

The PLA Rocket Force (PLARF) is responsible for China’s strategic land-based nuclear and conventional missiles. The PLAN and PLAAF are responsible for operating sea- and air-launched missiles, respectively. The PLARF likely is responsible for warhead management for all of the services.

*Missions and tasks:*

The PLARF’s missile forces are central to China’s efforts to deter and counter third-party intervention in a regional conflict. Previously an independent branch of the military called the Second Artillery, China’s missile forces were elevated in 2015 to a full service (on par with the PLAA, PLAN, and PLAAF), and renamed the Rocket Force. In addition to its longstanding, and central, mission of nuclear deterrence and counterattack, the Rocket Force today is responsible for conducting conventional precision strikes. Xi has referred to the Rocket Force as the “core of strategic deterrence, a buttress to the country’s position as a major power, and an important aspect of national security.” DOD’s 2019 *Missile Defense Review* assesses, “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.”

*Capabilities:*

The PLA is working to improve the range, accuracy, survivability, and lethality of its missiles, enhance its deterrence and counterstrike capabilities, and incorporate technologies to enhance targeting options and evade missile defenses. Since the mid-1990s, China’s missile inventory has grown from a small number of ballistic missiles to what the 2019 *Missile Defense Review* called “one of the most active and diverse ballistic missile development programs in the world.”

The U.S. defense establishment generally assesses that China’s missile forces have undergone rapid and impressive progress in recent years. The PLARF is improving its ability to conduct more precise strikes against targets increasingly far from the PRC homeland, including U.S. and allied bases in the region.

In 2018 testimony to the House Armed Services Committee then-Commander of Pacific Command (now Indo-Pacific Command) Admiral Harry B. Harris argued, “Perhaps nowhere is the PLA making more dramatic progress than in ballistic missiles.” Describing which PLA missiles would likely be employed against the United States in the event of a conflict, he listed “[short range ballistic missiles] against Taiwan and U.S. carrier strike groups operating at sea, [intermediate-range ballistic missiles] against U.S. bases in Japan and Guam, and [intercontinental ballistic missiles] against the continental U.S.”

Key Missile Modernization Efforts

- **Conventional missile inventory:** According to DOD, the PLA’s ballistic missile inventory includes 600 or more short-range ballistic missiles (SRBMs, with ranges of 300-1,000 km) paired with 250 launchers, 150 or more medium-range ballistic missiles (MRBMs, with ranges of 1,000-3,000 km) paired with 150 launchers, 200 or more intermediate-range ballistic missiles (IRBMs, with ranges of 3,000-5,500 km) paired with 200 launchers, and 100 intercontinental-range ballistic missiles (ICBMs, with ranges greater than 5,500 km) paired with 100 launchers, as well as submarine-launched ballistic missiles. The PLA fields hundreds of cruise missiles as well.

- **DF-26 IRBM:** According to DOD, this missile, which entered service in 2015, is a road-mobile IRBM that can conduct nuclear and conventional precision strikes against ground targets and conventional strikes at naval targets in the Western Pacific, South China Sea, and Indian Ocean. Some analysts argue that the apparent ability to swap out conventional and nuclear warheads quickly could create ambiguity and create opportunities for dangerous inadvertent escalation. DOD revised its estimate of DF-26 launchers from 80 in 2019 to 200 in 2020.

- **DF-41 ICBM:** DOD and others estimate that this intercontinental ballistic missile, which is “currently in various stages of development and deployment” according to the International Institute for Strategic Studies, could have a range of 12,000-15,000 km. DOD notes it is road-mobile and suggests it could be launched from silos and transported via rail. It is capable of carrying multiple independently targetable reentry vehicles. Other ICBMs the PLARF currently fields include the road-mobile DF-31 and the DF-5, the PLA’s oldest and longest-range ICBM, variants of which can carry up to five multiple independently targetable reentry vehicles, according to DOD.

- **Hypersonic glide vehicles:** China has invested heavily in and is testing a hypersonic glide vehicle, the DF-ZF, which, according to DOD and other observers, would be paired with the DF-17 medium-range missile system.228 The DF-17/DF-ZF likely is aimed at evading ballistic missile defenses, and could be the first intermediate-range hypersonic glide vehicle to be fielded (the United States is developing hypersonic glide vehicles as well, and Russia announced it had deployed its first such weapon in 2019). In 2020, a U.S. military commander appeared to suggest that the DF-41 also could carry a nuclear hypersonic glide vehicle.

- **CJ-100/DF-100 cruise missile:** Unveiled at the PLA’s October 2019 National Day military parade, the CJ-100 is a ground launched cruise missile that some observers expect to have a 6,000 km strike range if paired with the PLAAF’s H-6N bomber.

- **SRBMs:** China’s SRBM force, which is improving its range, accuracy, and payload sophistication, would have particular relevance at the outset of a Taiwan conflict. Among these is the DF-16 (which DOD refers to as an SRBM but others consider a MRBM). Many PLARF missile brigades are located across the Taiwan Strait from Taiwan. The SRBM force is becoming smaller over time as ground-launched cruise missiles and MRBMs have come online.

# China’s Current PLA Rocket Force Systems

<table>
<thead>
<tr>
<th>System</th>
<th>Type</th>
<th>Warheads</th>
<th>Propellant</th>
<th>Deployment Mode</th>
<th>Max Range km</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSS-3/DF-4</td>
<td>ICBM</td>
<td>Nuclear</td>
<td>Liquid</td>
<td>ROTL**</td>
<td>5,500+</td>
</tr>
<tr>
<td>CSS-4/DF-5</td>
<td>ICBM</td>
<td>Nuclear</td>
<td>Liquid</td>
<td>Silo</td>
<td>12,000-13,000</td>
</tr>
<tr>
<td>CSS-7/DF-11</td>
<td>SRBM</td>
<td>Conventional</td>
<td>Solid</td>
<td>Mobile</td>
<td>300-600</td>
</tr>
<tr>
<td>CSS-6/DF-15</td>
<td>SRBM</td>
<td>Conventional</td>
<td>Solid</td>
<td>Mobile</td>
<td>600-850+</td>
</tr>
<tr>
<td>CSS-11/DF-16</td>
<td>SRBM</td>
<td>Conventional</td>
<td>Solid</td>
<td>Mobile</td>
<td>800-1,000</td>
</tr>
<tr>
<td>CSS-5/DF-21</td>
<td>MRBM</td>
<td>Nuclear and Conventional Variants</td>
<td>Solid</td>
<td>Mobile</td>
<td>1,500-1,750+</td>
</tr>
<tr>
<td>CSS-5 Mod-5/DF-21D</td>
<td>ASBM</td>
<td>Conventional</td>
<td>Solid</td>
<td>Mobile</td>
<td>1,500+</td>
</tr>
<tr>
<td>DF-26</td>
<td>IRBM</td>
<td>Nuclear and Conventional Variants</td>
<td>Solid</td>
<td>Mobile</td>
<td>4,000</td>
</tr>
<tr>
<td>CSS-10/DF-31</td>
<td>ICBM</td>
<td>Nuclear</td>
<td>Solid</td>
<td>Mobile</td>
<td>7,200-11,200</td>
</tr>
<tr>
<td>CJ-10</td>
<td>GLCM</td>
<td>Conventional</td>
<td>Solid</td>
<td>Mobile</td>
<td>1500+</td>
</tr>
</tbody>
</table>

*This chart does not include systems in development.*

** Rollout to Launch

China has the most active and diverse missile development program in the world. China is modernizing its ICBMs, developing multiple independently targetable reentry vehicles and hypersonic boost-glide vehicles. China’s navy is also deploying a new fleet of nuclear ballistic missile submarines. China’s advances in ISR and maneuvering reentry vehicles have given it an emerging capability to attack large naval vessels with long-range ballistic missiles.
Nominal Range of China’s Current Conventional and Nuclear Missiles (in Kilometers)

China is Building Two New Missile Silo Sites

Source:

Satellite images reveal that China is building a second nuclear missile silo field. The discovery follows the report earlier this month that China appears to be constructing 120 missile silos near Yumen in Gansu province. The second missile silo field is located 380 kilometers (240 miles) northwest of the Yumen field near the prefecture-level city of Hami in Eastern Xinjiang.

The Hami missile silo field is in a much earlier stage of development than the Yumen site. Construction began at the start of March 2021 in the southeastern corner of the complex and continues at a rapid pace. Since then, dome shelters have been erected over at least 14 silos and soil cleared in preparation for construction of another 19 silos. The grid-like outline of the entire complex indicates that it may eventually include approximately 110 silos.
Maximum Nominal Range of China’s Conventional Strike Missiles 2021

(in Kilometers)

Maximum Nominal Range of China’s Nuclear Missiles 2021
(In Kilometers)


※ The numbers of launchers, missiles, and warheads of ballistic missiles possessed by China are not publicized.
※ This data classifies the number of launchers possessed by China into ICBM, IRBM, MRBM, and SRBM according to the general standard based on "The Military Balance" of each year.

China's numerous and diverse missile arsenal poses a significant threat to U.S. and allied forces in the Indo-Pacific region. In addition to selected ballistic, cruise, and hypersonic glide missiles operated by the People's Liberation Army Rocket Force, this graphic depicts anti-ship missiles fielded by China's other military services.
China’s Evolving Space Capability
China’s Evolving Space Capabilities – I

Space Systems Department. The SSF Space Systems Department is responsible for nearly all PLA space operations, including space launch and support; space surveillance; space information support; space telemetry, tracking, and control; and space warfare. The PRC officially designated space as a new domain of warfare in its 2015 defense white paper, and expects space to play an important role in future conflicts by enabling long-range precision strikes and in denying other militaries the use of overhead command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems. The Space System Department operates at least eight bases, including those whose core missions are the launch, tracking, R&D, and operation of the satellites vital to China’s overhead C4ISR architecture. The SSF operates tracking, telemetry, and command stations in Namibia, Pakistan, and Argentina. The SSF also operates Yuan Wang space support ships that track satellite and intercontinental ballistic missile (ICBM) launches.

SSF Research and Development. The SSF operates several academic and research institutions including the Information Engineering University, Space Engineering University, and the former GSD 56th and 57th Research Institutes. These institutions offer programs in space based surveillance, intelligence, weapon launch and early warning, communications and information engineering, cryptography, big data, and information attack and defense technology.

Space and Counterspace Capabilities. The PRC’s space enterprise continues to mature rapidly and Beijing has devoted significant economic and political resources to growing all aspects of its space program, from military space applications to civil applications such as profit-generating launches, scientific endeavors, and space exploration. The PRC’s space enterprise not only includes the SSF but also encompasses other military, government, and civilian organizations, including state-owned enterprises, academic institutions, and commercial entities. The PLA has historically managed the PRC’s space program and the SSF Space Systems Department is responsible for nearly all PLA space operations. The PRC continues to strengthen its military space capabilities, despite its public stance against the weaponization of space. The PLA continues to invest in improving its capabilities in space-based intelligence, surveillance, and reconnaissance (ISR), satellite communication, satellite navigation, and meteorology, as well as human spaceflight and robotic space exploration. The PRC plans to have a permanent operating space station by 2022 that will host its own and foreign payloads and astronauts. The PRC 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, the PRC continues to develop counterspace capabilities—including direct ascent, co-orbital, electronic warfare, and directed energy capabilities—that can contest or deny an adversary’s access to and operations in the space domain during a crisis or conflict.

In 2020, China launched 39 SLVs, of which all but 4 were successful, placing more than 70 spacecraft on orbit, including navigation, ISR, communications, and test/engineering satellites, as well as satellites for foreign customers. Key developments for 2020 included:

– Inaugural Launch of Reusable PRC Space Plane: In early September, the PRC became the third country to successfully launch and recover a space plane, after the United States and the Soviet Union. The space plane spent about two days in space before releasing a second object, de-orbiting, and landing at an airfield in Western China. The second object remains on orbit. Beijing has not released any information on the mission beyond calling it a “reusable experimental spacecraft.”

China’s Evolving Space Capabilities – II

– Worldwide Satellite Navigation Constellation Complete: In June, the PRC completed its longstanding goal of a BeiDou constellation with worldwide coverage. In addition to the Global BeiDou System, Beijing also operates satellites providing coverage to the Asia Pacific region. Both constellations provide satellite navigation and mass communication services to users, as well as command and control options to the PLA, reducing PRC dependence on U.S. GPS. New BeiDou satellites are equipped with radiofrequency inter-satellite links, new atomic clocks, and other advanced technologies. Additionally, the PRC plans to offer satellite-based augmentation services, a worldwide short message service, and internationally recognized search and rescue capabilities.

– Solidifying Gains in Space Launch: Throughout 2020, the PRC solidified gains to its national space lift capabilities with successful launches of its LM-5 and LM-5B heavy lift rockets, its sea launch capability, and the inaugural flights of its LM-8 medium lift rocket and a new commercial rocket. The PRC also launched its first LM-5B, which will enable the construction of their future space station. In September, Beijing successfully completed its second sea launch. In November, the PRC launched the Ceres-1, its fourth commercially developed rocket, following two commercial attempts in 2019 and one in 2018. The PRC space program suffered four failures this year, including the attempted inaugural flight of the LM-7A, which Beijing plans to use as its main geosynchronous Earth orbit (GEO) launch platform.

– Launched Second GEO Imager: On 12 October, China launched its second GEO imager—Gaofen-13—a 15-meter resolution electro-optical satellite positioned at 117.9 degrees East, providing persistent coverage of the western Pacific and Indian Oceans. Beijing claims the satellite will be used for land survey, agriculture, environmental monitoring, weather, and disaster response, but it may address military requirements such as maritime target tracking like other Gaofen satellites.

The PLA continues to acquire and develop a range of 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 in space within their field of view and enable counterspace actions. As of December 2020, the PRC’s reconnaissance and remote sensing fleet consisted of more than 200 satellites designed to collect data for civil, commercial, or military owners and operators. Reportedly, the PLA owns and operates approximately half of these systems, most of which could support situational awareness of regional rivals and potential flashpoints, while monitoring, tracking, and targeting an adversary’s forces. In concert with its marked improvements in satellite navigation, launch capabilities, and space object surveillance and identification, the PRC is developing electronic warfare capabilities such as satellite jammers; offensive cyber capabilities; and directed-energy weapons.

Moreover, the PRC has demonstrated sophisticated, potentially damaging on-orbit behavior with space-based technologies. The PRC has an operational ground-based Anti-Satellite (ASAT) missile intended to target low-Earth orbit satellites, and China probably intends to pursue additional ASAT weapons capable of destroying satellites up to geosynchronous Earth orbit. The PRC is employing more sophisticated satellite operations and is probably testing dual-use technologies in space that could be applied to counterspace missions.

China’s Evolving Space Capabilities – III

Although the PRC has not publicly acknowledged the existence of any new programs since it confirmed it used an ASAT missile to destroy a weather satellite in 2007, the PLA’s defense academics often publish on counterspace threat technologies. These scholars stress the necessity “to cripple or destroy the enemy’s information system would drastically degrade the enemy’s combat capabilities by making it blind, deaf or paralyzed” 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.”

Space and Counterspace Operations. PLA strategists regard the ability to use space-based systems—and to deny them to adversaries—as central to modern warfare. The PLA views space operations as a key enabler of PLA campaigns aimed at countering third-party intervention. The PRC seeks to enhance the PLA’s C2 for 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 communications and intelligence satellites, as well as the BeiDou navigation satellite system. These capabilities allow the PLA to maintain situational awareness of potential flashpoints as well as monitor, track, and target adversary forces. Additionally, the PRC continues to develop direct ascent, co-orbital, electronic warfare, and directed energy capabilities that can contest or deny an adversary’s access to and operations in the space domain during a crisis or conflict; PLA writings indicate the purpose of these capabilities is to deter and counter the intervention of a third party during a military conflict.

China’s Open Source Space Sites

Global Open-Source Space Launches and Payloads

Comparative Open-Source Civil and Military/Intelligence Satellite Numbers

Perhaps the most significant change in the post-Cold War era has been China’s growing importance as a space actor. Between 2010 and 2019, China conducted 207 launches, more than one-and-a-half times the number of launches it carried out in the previous four decades. More than one-fifth of China’s total launches took place in 2018 and 2019 alone. Moreover, China’s 38 launches in 2018 stand as the highest amount in a single year by any country in the 21st century.

Launches are not the only means of measuring space activity. Payloads – which can include satellites, space probes, and spacecraft – tell another part of the story… A total of 2,791 Soviet payloads were launched into space during the Cold War… This was more than double the 1,193 payloads of the US and more than 10 times the number of payloads from the rest of the world.

Improved technology has reduced the size of satellites, and rockets now often carry multiple payloads per launch. The US has been at the forefront of these innovations, accumulating 1,763 payloads launched between 1992 and 2019. Russia’s 840 payloads and China’s 480 payloads round out the top three. In 2017, an Indian PSLV rocket set a record for successfully launching 104 satellites at once.

Earth-orbiting satellites are, by far, the most common payloads launched into space. These satellites provide numerous capabilities such as communications, navigation, and Earth observation. As of March 2020, there were 2,666 known satellites in orbit. Of these, 13.6 percent (363 satellites) are owned or operated by Chinese entities… This is more than twice the number of Russian satellites (169) in operation. The US maintains an impressive 1,327 satellites, which is roughly half of all known satellites in orbit.

Many of the satellites operated by China are part of the BeiDou Navigation Satellite System, which has been designed as an alternative to the US Global Positioning System (GPS), the Russian GLONASS, and the European Galileo systems. In June 2020, China successfully deployed its final third-generation BeiDou satellite, completing the constellation. With a total of 35 satellites in orbit, the BeiDou constellation outnumbers the 31 operational GPS satellites that were in orbit as of May 2020…

BeiDou represents more than just a technological breakthrough for China. A 2016 government white paper on BeiDou highlights the satellite constellation’s importance in supporting the Belt and Road Initiative (BRI) by providing navigational services to developing countries. BeiDou already serves more than 30 BRI countries, including Pakistan, Laos, and Indonesia. China’s use of BeiDou in supporting the BRI demonstrates Beijing’s commitment to leveraging its space capabilities to help shape affairs back on Earth.

Japanese NIDS on Chinese Space Efforts – I

While China has not disclosed its space budget, it is estimated at around US$5.8 billion (2018) according to Euroconsult. This is the second largest after the United States’ approximately US$40.9 billion and is larger than Russia’s (approximately US$4.1 billion).

Against this backdrop, the number of China operated satellites has grown steadily. According to the UCS Satellite Database, China is estimated to operate 363 satellites as of the end of March 2020. Of the 2,666 satellites operating worldwide as of the same date, China has the second largest number of operating satellites after the United States’ 1,327. China already operates more satellites than Russia (169 satellites).

China operates an array of satellite types such as those used for earth observation (including weather observation); communications; and positioning, navigation, and timing (PNT). Of these satellites, MND or the PLA is believed to possess or operate the following satellites: 65 earth observation satellites (Gaofen, Ludikancha Weixing, Yaogan); 3 communications satellites (Zhongxing); and 49 PNT satellites (BeiDou for BDS).

…it appears China operated photo reconnaissance satellites from the mid-1970s, but their performance was said to be nowhere near that of the United States and the Soviet Union. Then came the 21st century, which saw dramatic advances in China’s operation of earth observation satellites. Gaofen is the space segment of the China High-resolution Earth Observation System (CHEOS) and is thought to be dual use. Started in 2010, the CHEOS project aims to build a system capable of all-weather, 24-hour global earth observations using a combination of satellites, stratosphere airships, and aircraft by around 2020. Launches of the Gaofen series commenced in 2013.

The PLA’s emphasis on space is reflected conspicuously in China’s military reforms. The Strategic Support Force (SSF) was established in late 2015 coinciding with the elevation of the Second Artillery Force to Rocket Force. The SSF is under the direct command of the CMC. Its purpose is to provide resources that can secure space security alongside cybersecurity. The SSF has the Space Systems Department, which integrates the space-related missions formerly overseen by the General Armament Department and the General Staff Department. These missions are thought to include space launch and support; space telemetry, tracking, and control (TT&C); space information support; space attack; and space defense. Analysts note that the Network Systems Department, which is also under the SSF, has a unit responsible for electronic countermeasures against satellites.

Thus, the PLA recognizes the role of space in modern warfare and has taken steps to integrate space capabilities into unit operations. As already noted, however, the PLA has not experienced a major war in 40 years. The U.S. forces, in contrast, has integrated space capabilities into unit operations while drawing lessons from actual warfare, such as the Gulf War, the air strikes against Yugoslavia, the War in Afghanistan, and the Iraq War. It is difficult to say how effectively the PLA can provide space-based information support for its units on the ground, at sea, and in the air in actual warfare.

…observers repeatedly point to the PLA’s ongoing development of early warning satellites. China is developing a missile defense system, and early warning satellites that can detect ballistic missile launches quicker than radars on mainland China will play a critical role in establishing an interception posture. According to the U.S. Department of Defense, China’s nuclear forces may aspire to secure a launch on warning posture (where China can immediately launch a ballistic missile upon receiving warning of an adversary’s ballistic missile launch), and if so, early warning satellites may support this posture in the future.

It is unclear which satellites China actually uses for military purposes and to what extent. Military use cannot be determined solely from whether or not a satellite was developed for military purposes. “Military use” applies not only to satellites that have been developed and launched at the military’s request but also to other satellites if they are used by the military. Military use of services provided by satellites possessed and operated by non-military actors (civil satellites and commercial satellites) has become common internationally. As discussed later, China places importance on military-civil fusion in the space domain. In this light, it needs to be kept in mind that an overall improvement in space activities could strengthen China’s military capabilities in the space domain.

In 2017, for instance, China announced that for the first time in the world it achieved intercontinental quantum key distribution using the Quantum Science Satellite Mozi, and that through this satellite China transmitted encrypted data and conducted a video communication. China plans to start operating satellite-based, global quantum-encrypted communications by 2030. The PLA’s use of such capability will make its communications far more secure. It has also been found that, entering the 2010s, China has conducted rendezvous and proximity operation (RPO) tests repeatedly. RPO constitutes the technical foundation of space-based anti-satellite (ASAT) weapons. Moreover, if satellites can be repaired with RPO capability in the future, this will translate into increased mission assurance...

…Using a variety of launch vehicles, China conducted more launches than any other country in the world in 2018 for the first time (39 launches, including one failure) and again in 2019 (34 launches, including two failures). China’s goal of approaching the level of global space powers by operating more than 200 spacecraft and carrying out around 30 launches annually, as indicated by CASC Chairman Lei Fanpei in 2017, was achieved earlier than the 2020 target year.
China’s Evolving “Intelligentized,” Cyber and Information Warfare Capability
Advanced Technology, Informatization, and Critical Security Domains

The Importance of Advanced Technology and “Informatization”

In 1993, China updated its official military strategic guidance to reflect the growing importance of advanced technology in warfare and national defense. This was informed in large part by the success of U.S. military operations against Iraq in Operation Desert Storm in 1991, which demonstrated to Chinese strategists the enormous advantage that a high-technology force has over less technologically-advanced adversaries. The PRC revised China’s military strategy again in 2004 and 2014 to focus specifically on “informatization,” the application of advanced information technology across all aspects of military operations, particularly in support of command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) capabilities. China’s 2015 defense white paper assesses

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.

According to two U.S. analysts of the PLA, “Informatization is the core of everything the [PLA] wants to accomplish. From high-tech missions in space and cyberspace, to long-range precision strike, ballistic missile defense, and naval deployments abroad, the ability to transmit, process, and receive information is a vital enabler. China’s efforts to informatize the PLA extend to cultivating and integrating emerging technologies such as quantum computing and artificial intelligence as well.

Maritime, Cyber, and Space as “Critical Security Domains”

Official statements and Chinese strategic writings emphasize the growing importance of the maritime, cyber, and space domains in warfare. China’s 2015 defense white paper cemented the primacy of the maritime realm in China’s strategic planning, asserting, “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.” Top Chinese military thinkers predict China’s most likely and most important prospective armed conflicts would take place in the maritime realm.

The 2015 defense white paper also highlights the growing importance of space and cyberspace in warfare, referring to them as “the new commanding heights” in strategic competition. The 2015 establishment of a Strategic Support Force to more comprehensively integrate space and cyberspace into PLA operations reflects Chinese military planners’ assessment that whoever occupies the strategic high ground of space and cyberspace will enjoy the advantage in a future armed conflict.

China’s JADO: “Intelligentized” Warfare: 2021

**Intelligentized Warfare.** In October 2020, the CCP announced that modern warfare is evolving to include intelligentization and incorporated the concept into its 14th Five-Year Plan. Beijing anticipates that AI and other advanced technologies, such as cloud computing and big data analytics, are changing the future of warfare faster than expected. As a result, it is adjusting the PRC’s defense modernization plans to focus on integrating “mechanized, informatized, and intelligentized development,” suggesting the PLA will field some intelligentized capabilities as it completes mechanization and informatization over the next decade.

PLA strategists have stated new technologies will increase the speed and tempo of future warfare, and that operationalization of AI will be necessary to improve the speed and quality of information processing by reducing battlefield uncertainty and providing decision making advantage over potential adversaries. The PLA is also exploring next-generation operational concepts for intelligentized warfare, such as attrition warfare by intelligent swarms, cross-domain mobile warfare, AI-based space confrontation, and cognitive control operations. The PLA considers unmanned systems to be critical intelligentized technologies, and is pursuing greater autonomy for unmanned aerial, surface, and underwater vehicles to enable manned and unmanned hybrid formations, swarm attacks, optimized logistic support, and disaggregated ISR, among other capabilities.
Japanese NIDS on Chinese Cyber/Information Warfare Capability – I

…the PLA is promoting informatization with the goal of “winning local wars under the conditions of informationization.”

First, the PLA's information operations that include cyber warfare could be conducted not only in wartime but also in peacetime. As the lines between war and peace are blurred in cyberspace, confrontational acts are taken irrespective of peacetime or wartime. In informatized warfare guidance theory, priority is placed on seizing the initiative in war. To this end, operations in the cyber domain at the war preparation stage, i.e. peacetime, require influencing public opinion in China and abroad by gaining the right to speak via the internet, media, and other mediums, along with weakening the enemy’s war command system through military intimidation in the cyber domain. For example, this appears to include cyberspace reconnaissance for gauging the enemy’s network vulnerabilities from peacetime, as well as sending false data to the adversary’s network to confuse its perceptions.

Secondly, cyber operations may be carried out in a first strike of informatized warfare. In informatized warfare, the basic operational mode is joint operations between military information systems that network the Army, Navy, Air Force, and other services (systems confrontation). In these cases, operations in cyberspace provide vital means of attacking the opponent’s command, control, communications, computers, intelligence, surveillance, reconnaissance (C4ISR). In particular, while the PLA sets forth “active defense” as its strategic thought, emphasis is put on preempting the enemy in informatized warfare. From this perspective, offensive cyber warfare has immense value for gaining information dominance. In other words, cyber attacks impede the opponent’s chain of command, cause the opponent to lose control of their operational capabilities and operational actions, deprive weapons and equipment of their capabilities and effectiveness, and enable one to seize the initiative in military confrontations. As a result, one can achieve the goals of military actions effectively and meet the conditions for achieving final victory in a war.

Thirdly, informatized warfare emphasizes strict control of the goals of war and prioritizes cyber warfare from the standpoint of controlling escalation. The cost of waging modern warfare is rising; once a war starts, it will likely impede economic growth significantly. Some limits will therefore be set on the goals of war, aimed at preventing the war front from expanding, avoiding the prolongation of war, and keeping the war from turning into an international conflict. The 2011 edition of SMS edited by the National Defense University notes that modern local wars are characterized by “low (medium) strength, high technology” and that many high technologies will be used in local wars. Cyber attacks, depending on their scale, can cause considerable destruction comparable to nuclear weapons. The PLA thus recognizes that, by attaining superiority through cyber warfare and seizing the initiative in war, it can achieve goals without fighting or only with a small conflict.

…In an April 2016 address, President (CCP General Secretary) Xi Jinping stated, “We will strengthen our cybersecurity capability and deterrence [weishe, capability]. The essence of cybersecurity lies in confrontation, and the essence of confrontation lies in the contest between offensive and defensive capabilities.” China's deterrence/weishe capability is similar to, but is a broader concept than deterrence capability in English. Dean Cheng notes that the concept of the Chinese term deterrence/weishe embodies both the English terms deterrence (keep an enemy from doing something) and compellence (make an enemy do something).
In reviewing the outlook for the PLA that aspires to improve cyber warfare capabilities, attention is given to at least the following three challenges and their countermeasures.

The first challenge is related to cyber warfare talent. While China produces 15,000 cyber specialists every year, it does not meet the demand for 700,000–1.4 million professionals, creating severe workforce shortages. In addition to personnel shortages, the PLA faces problems including an education-demand gap, unbalanced assignment of personnel, and outflow of talent to the private sector. These problems are said to be especially prominent in the nascent SSF. The Office of the CCP Central Cyberspace Affairs Commission has already announced that, for ten years starting from 2017, it will designate seven institutions including the SSF’s Information Engineering University as cybersecurity model institutions and put efforts into talent training. In response to the government’s intention, the private-sector information security firm 360 Enterprise Security Group has established educational and research institutes pertaining to cybersecurity in rapid succession in recent years. Nevertheless, it will likely not be easy to resolve problems such as talent outflow from the military.

The second challenge is related to the development of an “assassin’s mace [sha shou jian, in cyberspace. In short, assassin’s mace here refers to a strategic weapon to overcome one’s inferiority to the opponent’s superior overall assets. The development of an assassin’s mace is mentioned also in reference to missile assets and military use of space; however, in regard to cyber warfare in particular, there is recognition within the PLA that an assassin’s mace has the potential of enabling China to overcome its inferiority in conventional assets. From this perspective, China, which has inferior military capabilities vis-à-vis the United States, conceives that an assassin’s mace for cyber warfare must be developed. According to a biography of Zhang Wannian, former Vice-Chairman of the CMC, in the course of seeing the U.S. and U.K. forces conduct Operation Desert Fox against Iraq in 1998 and the North Atlantic Treaty Organization (NATO) forces utilize high-tech weapons in the Kosovo War in 1999, the PLA leadership shared the recognition that there was an urgent need to develop an assassin’s mace for resisting military powers. As this background shows, it appears that the assassin’s mace program is closely related to China’s deterrence strategy for the United States.

At the symposium on cybersecurity and informatization in April 2016, President Xi Jinping spoke about developing an assassin’s mace as a core technology that China should acquire in the cyber field, suggesting that assassin’s mace weapons are being developed under the leadership of the current administration. The Affairs Commission has already announced that, for ten years starting from 2017, it will designate seven institutions including the SSF’s Information Engineering University as cybersecurity model institutions and put efforts into talent training. In response to the government’s intention, the private-sector information security firm 360 Enterprise Security Group has established educational and research institutes pertaining to cybersecurity in rapid succession in recent years. Nevertheless, it will likely not be easy to resolve problems such as talent outflow from the military.
Japanese NIDS on Chinese Cyber/Information Warfare Capability – III

The third challenge is measures for indigenization of core cyber technologies. Having relied on foreign companies for cyber technologies, there is concern about the vulnerability of cybersecurity in China. Notably, as a result of installing foreign-made information devices at the PLA and local government bodies since the 1990s, China gradually became a “cyber colony,” which is said to have significantly undermined cybersecurity and led to foreign companies taking the lead in core informatization technologies. Within the PLA, while some advocated for introducing foreign forces’ advanced technologies in the informatization process to accelerate informatization of weapons and equipment, others noted that lack of independent innovation capabilities will undermine the PLA’s cybersecurity.

Globally, U.S. products currently make up a majority of the facilities and cyber-related software products that are key to internet and information industry supply chains. Furthermore, core technologies are considered to be in the hands of the United States. For example, with regard to core technologies in the disaster tolerance backup industry, China relies on foreign capital including IBM, Hewlett-Packard, and Symantec for over 98% of disaster tolerance backup and recovery systems even as of 2018, according to a report on China’s cybersecurity published by the China Center for Information Industry Development.

The lack of indigenization of core technologies in the cyber field is directly linked to the aforementioned challenges of developing an assassin’s mace, in addition to China’s security vulnerabilities. PLA experts and others fear that U.S. information technology products are installed with special software that gives an advantage to U.S. economic, political, security, and other interests. They are wary about China’s domestic critical information infrastructure being placed under U.S. control, especially electricity, financial, telecommunications, and energy networks, exposing China to severe security risks. The 2013 edition of SMS notes that core cyber technologies and authority over the internet are in the hands of other countries, making China inferior in cyber counterattacks…

In parallel with information technology development and prevalence of internet applications, hackers and malicious programs are quickly evolving and posing ever greater challenges to cybersecurity. The enemy can manipulate applicable IW means to infiltrate and sabotage major networking systems and influence daily routines and social orders. The ROC Armed Forces operates all cybersecurity management mechanisms in place, and strengthens protection capacities and raises a secure barrier against IW threats.

IW of the PRC

• Over the years, the PRC has completed military reorganization and has been aggressively improving its capability for cyber operations. At this stage, the PRC has placed its IW focus on gathering intelligence through its cyber force, grabbing information from the military, industrial, and commercial sectors, aiming to control Taiwan’s critical nodes, and compiling a target list for cyberattacks in its future operations.

• In a possible wartime situation, the PRC may initiate attacks on Taiwan’s critical information infrastructure and military-related information systems to disrupt Taiwan governmental operations, cause disabilities towards military and police force, and severely impact national security and social stability.

Optimizing Cybersecurity and Information Protection

• The ROC Armed Forces Cybersecurity and Information Protection Center is in charge of monitoring military networking activities in full-time, and continues to enhance system efficiency. The Center, with redundant backups, has been performing rigorous cybersecurity management works, such as network snooping, endpoint detection and response (EDR), and cyber auditing, so as to ward off hacking activities by PRC cyber force.

• As instructed by the policy of “cyber security represents national security,” the MND has established partnerships with governmental agencies and cybersecurity institutions. Through joint cybersecurity and communication mechanism, the MND routinely holds emergency reaction drills and shares cybersecurity information, so as to construct a joint civ-mil arrangement for cybersecurity. Furthermore, as requested by the EY, the MND executes cybersecurity checks and infiltration tests on our critical infrastructures and collects all hacking patterns to improve overall capacities of contingency response.

• The MND continues to nurture cybersecurity talents by enhancing cybersecurity courses in the military educational institutions, providing cybersecurity training for individual units, and introducing technological capacities from academic, research, and civilian sectors, so as to increase cyber operational capabilities of the ROC Armed Forces.
2. Building Countermeasures

Making the best of technological toolkits

- The MND makes use of new technological toolkits such as big data systems to predict the patterns of PRC threats and possible means of cognitive warfare, filter and sift out controversial messages, verify and report the results, trace the sources, provide clarifications and evaluations, and make the best of diversified means to amplify countermeasure effects. In addition, the MND maintains awareness of domestic public opinions and draw up publicity strategies by timely utilizing video clips or printed media to harden the psychological defense of the people.

Availing of diversified media to win support

- Following people’s preferences and habits to absorb information, the MND takes actions actively by expanding its broader use of the internet and social media for publicity purposes, so as to multiply its effects, improve people’s comprehension of public information and recognition to national defense, and support the force buildup efforts of the ROC Armed Forces.

Appealing to the international community for a concerted effort

- Taiwan continue to communicate with regional countries to improve their understanding, broaden the friendly sphere in the international community, and win over international support and cooperation, so as to collectively counter the threat of PRC’s cognitive warfare.
China’s Strategic Support Force
The Strategic Support Force (SSF) newly established in late 2015 as part of the military reforms. Shortly before the SSF was created, General Gao Jin, who was appointed its first commander, wrote about the transformation of the form of warfare and achieving information dominance in a PLA Daily editorial: The form of warfare is in a period of qualitative change from mechanization to informatization.

“Under conditions of nuclear deterrence, integrated joint operations (across the) land, sea, air, space, network, electromagnetic (domains) are gradually becoming a reality. The battlefield is expanding from traditional spaces to extremely high, extremely deep, far-reaching physical spaces and virtual spaces and transforming into asymmetric, contactless, and non-linear patterns of operations. Information dominance has become the core of seizing comprehensive control of the battlefield. The mechanism of winning in warfare has changed profoundly.”

The problem awareness elaborated here is closely linked to the missions of the SSF. Soon after the force was established, the spokesperson of the Ministry of National Defense of China described the SSF as “a new-type combat force to safeguard national security.” Furthermore, China’s National Defense White Paper 2019 (hereinafter referred to as “NDWP 2019”) states: the SSF is “an important driver for the growth of new combat capabilities”; and “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.”

This information suggests that the basic mission of the SSF is to win informatized warfare by: (1) providing strategic information support for joint operations, including in the new operational domains of space, cyber, and electromagnetic; (2) achieving information dominance; and (3) endeavoring to convert advanced technologies into military capabilities. Joe McReynolds, research fellow at the Jamestown Foundation, and John Costello at the U.S. Department of Homeland Security identify the following concrete missions of strategic information support: (1) centralizing technical intelligence collection and management; (2) providing strategic intelligence support to theater commands; (3) enabling PLA power projection; (4) supporting strategic defense in the space and nuclear domains; and (5) enabling joint operations. The addition of new missions in NDWP 2019, such as new technology testing, also hints that the missions of the SSF may continue to expand and that it will play a core role in future warfare including intelligentized warfare…

The SSF is characterized as a “force [budui]” and not a “service [jun].” It is under the direct command of the CMC and does not appear to have the status and size of the army, navy, air, and rocket services… the SSF seems to correspond to an independent military branch, similar to the Second Artillery Force prior to the military reforms.
Japanese NIDS on China’s Strategic Support Force (SSF) – II

Command Organization during Information Operations

Key Departments and Roles of the SSF

China’s Reserve Forces in 2021

Key Takeaway

• Interoperability and integration between the PLA, its reserve components, and the PRC’s paramilitary forces continues to grow in scale and sophistication, including the coordination between the PLAN, the CCG, and the People’s Armed Forces Maritime Militia (PAFMM).

People's Liberation Army Reserve Force. The People’s Liberation Army Reserve Force was founded in 1983 and professionalized throughout the 1990s and 2000s. The PLARF Reserve Force is comprised of approximately 510,000 personnel subordinate to the Army Reserve, Navy Reserve, Air Force Reserve, and Rocket Force Reserve. According to PLA documents, active duty personnel are the backbone of the Reserve Force, but reserve-duty officers and soldiers are its foundation. The primary mission of the reserves is to reinforce active-duty forces for national defense, with a secondary mission to aid in national disasters or maintaining social order. While originally founded to support the ground forces, reforms in recent years seek to reduce PLAA reserves and increase those for the PLAN, PLAAF, and the PLARF. However, PRC writings suggest that, as of 2018, the Reserve Force was still predominately ground force-centric, with less than 10% of reservists serving specialized technical functions in the PLAN, PLAAF, PLARF, or PLA SSF.

On July 1, 2020, the PRC amended laws, regulations, and policies to bring the Reserve Force under the command of the Central Committee of the CCP and the Central Military Commission (CMC). The previous arrangement split control of the Reserve Force between the PLA and local Party committees. Motivations for the change include improving combat capability, facilitating cooperation with active-duty units, and upholding the CCP’s absolute leadership over the military. PRC sources often stated specifically that the reform would enhance reserve performance in Tibet and Xinjiang.

Reserve personnel are likely predominantly demobilized soldiers and officers from recent military personnel reductions. Reserve officers are selected from veteran PLA officers, local officials, PAP or militia officers, and other technical personnel. Reserve soldiers are selected from eligible PLA veterans, trained grass-roots militias, and other local or military specialty personnel. Some reserve soldiers also failed to meet active duty entry requirements and conduct remedial training in the reserves until they are able to join the active duty force.

Anecdotal evidence suggests that significant issues remain in the mobilization of reserve forces, including which equipment should be used, what level of government pays for the mobilization, and resistance from enterprises at the sudden requisition of their employees. PRC documents state that Reserve Force equipment is predominately antiquated; one report stated that more than 70% of air defense artillery and artillery equipment is at or beyond its maximum service life. Some of the equipment is no longer manufactured and repair requires cannibalization.

The PLA Reserve Force also provides significant support to local areas after natural disasters. Reservists across the country also contributed to the PRC’s efforts in fighting COVID-19. The PLA Reserve Force does not include militias, the Civil Air Defense, or myriad other groups (e.g. the People’s Armed Police or the Xinjiang Production and Construction Corps (XPCC)).

China’s People’s Armed Police

People’s Armed Police (PAP). The PAP is a component of the PRC’s armed forces and an armed wing of the CCP with an estimated 660,000 personnel. Primary missions of the PAP include primary responsibility for PRC domestic security, enforcing PRC maritime law domestically (including in areas of disputed territorial claims, like the South China Sea), and providing rear area support to the PLA during wartime, and disaster response. The PAP is organized into three main parts: the Internal Security Corps, the Mobile Corps, and the China Coast Guard (CCG). The Internal Security Corps covers each of the PRC’s provinces, provincial-level cities, and “autonomous” regions. The PRC will likely continue to maintain a reported PAP presence in Hong Kong, until Beijing assesses the “security situation” has been stabilized. The Mobile Corps consists of two large mobile contingents at the national level without fixed geographic areas of responsibility. Each mobile contingent has multiple mobile detachments, along with other specialized detachments. Xinjiang is a particular focus of the PAP due to alleged “separatist” activity, as well as its proximity to areas of unrest in Central Asia. The China Coast Guard is covered in depth in the next section of this report.

On July 1, 2020, the standing committee of the PRC’s legislature, the National People’s Congress, approved a revision to the Law on the People’s Armed Police Force which officially recognized the Central Military Commission’s (CMC) singular command of the PAP, identified the PAP as an important part of the armed forces that fall under the leadership of the CCP, as well as affirming its primary mission set of handling security emergencies, conducting counter-terrorism operations, and executing maritime law enforcement and rescue. This legal amendment codified and deepened the substantial reforms of 2018, when command of the PAP was centralized under the CMC after decades of dual-leadership under the CMC and State Council (a PRC government body); the China Coast Guard was subordinated to the PAP; and myriad auxiliary duties (e.g. protecting gold mines, firefighting, etc.) were removed from the PAP’s purview to focus its mission on PRC domestic and international security. PRC media noted that the 2020 PAP reforms included an article that permitted the PAP to conduct certain operations, including counter-terrorism training, outside of the PRC.

Xi Jinping and the CCP leadership tasked the PAP with integrating themselves into the PLA’s joint operation system. The PAP is increasingly focused on internal security and joint operations with the PLA and is developing capabilities for rapid response, mobility, and counterterrorism operations. The PAP also conducts training with foreign partners, including at least Uzbekistan, Kyrgyzstan, and Russia. Since at least 2016, PAP forces have likely operated in Tajikistan, patrolling the tri-border region connecting Tajikistan, Afghanistan, and the PRC.

In 2020, the PAP supported the PRC’s response to COVID-19. Additionally, the PAP reportedly executed thousands of disaster response operations in response to heavy flooding in southern China during the summer.
China’s Internal Security Forces

The PRC’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), the PLA, and the militia. The Party relies on these forces to address challenges ranging from protests over political, social, environmental, or economic problems, to terrorism and natural disasters. In 2020, the PRC mobilized and deployed over 4,000 military medical personnel to Hubei Province for its coronavirus control efforts. PRC internal security forces also provided medical expertise and supplies globally to support international pandemic control efforts. Lastly, the PRC deployed more than 1.2 million PLA and PAP soldiers as well as more than 300,000 militia for domestic response and disaster relief.

Ministry of Public Security (MPS). The MPS leads the PRC’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 the PRC’s main civilian intelligence and counterintelligence service. The missions of the MSS are to protect the PRC’s national security; secure political and social stability; implement the National Security Law and related laws and regulations; protect state secrets; conduct counterintelligence; and investigate organizations or people inside the PRC who carry out or direct, support, or aid other people perceived to harm national security.

People’s Armed Police (PAP). The PAP is a paramilitary component of the PRC’s armed forces. Its primary missions include internal security, maintaining public order, maritime security, and assisting the PLA in times of war. As part of a reorganization of the PRC’s security structures in 2018, the CMC assumed direct control of the PAP. The same reform also subordinated the China Coast Guard (CCG) to the PAP.

People’s Liberation Army (PLA). In addition to its national defense mission, the PLA has formal and informal roles in the PRC’s internal security. As the principal armed wing of the CCP, the PLA is the ultimate guarantor of the CCP’s survival and supports other internal security forces as necessary. For example, the PLA may provide transportation, logistics, and intelligence to assist local public security forces with internal security. The PLA’s active and reserve forces are authorized under the National Defense Law to directly “assist in maintaining public order” when CCP leaders consider it necessary.

Militia. The militia is an armed reserve force of civilians available for mobilization. It is distinct from the PLA’s reserve forces. Militia units organize around towns, villages, urban subdistricts, and enterprises and vary widely in composition and mission. The PRC’s National Defense Law authorizes the militia to assist in maintaining public order. Local maritime militia forces commonly referred to as the People’s Armed Forces Maritime Militia (PAFMM) perform tasks including safeguarding maritime claims, often conducted in conjunction or coordination with the PLAN and the CCG. People’s Liberation Army (PLA). In addition to its national defense mission, the PLA has formal and informal roles in the PRC’s internal security. As the principal armed wing of the CCP, the PLA is the ultimate guarantor of the CCP’s survival and supports other internal security forces as necessary. For example, the PLA may provide transportation, logistics, and intelligence to assist local public security forces with internal security. The PLA’s active and reserve forces are authorized under the National Defense Law to directly “assist in maintaining public order” when CCP leaders consider it necessary.

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