ANNUAL REPORT TO CONGRESS

Military and Security Developments Involving the People's Republic of China 2019

Office of the Secretary of Defense

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Annual Report to Congress:

Military and Security Developments Involving the People's Republic of China 2019

A Report to Congress Pursuant to the National Defense Authorization Act for Fiscal Year 2000, as Amended

Section 1260, "Annual Report on Military and Security Developments Involving the People's Republic of China," of the National Defense Authorization Act for Fiscal Year 2019, Public Law 115-232, which amends the National Defense Authorization Act for Fiscal Year 2000, Section 1202, Public Law 106-65, provides that the Secretary of Defense shall submit a report "in both classified and unclassified form, on military and security developments involving the People's Republic of China. The report shall address the current and probable future course of military-technological development of the People's Liberation Army and the tenets and probable development of Chinese security strategy and military strategy, and of the military organizations and operational concepts supporting such development over the next 20 years. The report shall also address United States-China engagement and cooperation on security matters during the period covered by the report, including through United States-China military-to-military contacts, and the United States strategy for such engagement and cooperation in the future."

Executive Summary



WHAT IS CHINA'S STRATEGY?

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

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

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

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

A COMPREHENSIVE APPROACH TO MANAGING REGIONAL DISPUTES

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

BUILDING A MORE CAPABLE PEOPLE'S LIBERATION ARMY

In support of the goal to establish a powerful and prosperous China, China's leaders are committed to developing military power commensurate with that of a great power. Chinese military strategy documents highlight the requirement for a People's Liberation Army (PLA) able to fight and win wars, deter potential adversaries, and secure Chinese national interests overseas, including a growing emphasis on the importance of the maritime and information domains, offensive air operations, long-distance mobility operations, and space and cyber operations.

In 2018, the PLA published a new *Outline of Training and Evaluation* that emphasized realistic and joint training across all warfare domains and included missions and tasks aimed at "strong military opponents." Training focused on war preparedness and improving the PLA's capability to win wars through realistic combat training, featuring multi-service exercises, long-distance maneuvers and mobility operations, and the increasing use of professional "blue force" opponents. The CCP also continued vigorous efforts to root out corruption in the armed forces.

The PLA also continues to implement the most comprehensive restructure in its history to become a force capable of conducting complex joint operations. The PLA strives to be capable of fighting and winning "informatized local wars" – regional conflicts

defined by real-time, data-networked command and control (C2) and precision strike. PLA modernization includes command and force structure reforms to improve operational flexibility and readiness for future deployments. As China's global footprint and international interests have grown, its military modernization program has become more focused on investments and infrastructure to support a range of missions beyond China's periphery, including power projection, sea lane security, counterpiracy, peacekeeping, humanitarian assistance/disaster relief, and noncombatant evacuation operations.

China's military modernization also targets capabilities with the potential to degrade core U.S. operational and technological advantages. China uses a variety of methods to acquire foreign military and dual-use technologies, including targeted foreign direct investment, cyber theft, and exploitation of private Chinese nationals' access to these technologies, as well as harnessing its intelligence services, computer intrusions, and other illicit approaches. In 2018, Chinese efforts to acquire sensitive, dual-use, or military-grade equipment from the United States included dynamic random access memory, aviation technologies, and anti-submarine warfare technologies.

REORGANIZING FOR OPERATIONS ALONG CHINA'S PERIPHERY

China continues to implement reforms associated with the establishment of its five theater commands, each of which is responsible for developing command strategies and joint operational plans and capabilities relevant for specific threats, as well as responding to crises and safeguarding territorial sovereignty and stability. Taiwan persistently remains the PLA's main "strategic direction," one of the geographic areas the leadership identifies as having strategic importance. Other strategic directions include the East China Sea, the South China Sea, and China's borders with India and North Korea.

China's overall strategy toward Taiwan continues to incorporate elements of both persuasion and coercion to hinder the development of political attitudes in Taiwan favoring independence. Taiwan lost three additional diplomatic partners in 2018, and some international fora continued to deny the participation of representatives from Taiwan. Although China advocates for peaceful unification with Taiwan, China has never renounced the use of military force, and continues to develop and deploy advanced military capabilities needed for a potential military campaign.

THE U.S.-CHINA BILATERAL DEFENSE RELATIONSHIP IN CONTEXT

The 2017 *National Security Strategy*, the 2018 *National Defense Strategy*, the 2018 *Nuclear Posture Review*, and the 2019 *Missile Defense Review* recognize the growing trend of military competition in a dynamic security environment.

The United States will compete from a position of strength while encouraging China to cooperate with the United States on security issues where U.S. and Chinese interests align.

Maintaining a constructive, results-oriented relationship with China is an important part of U.S. strategy in the Indo-Pacific region. U.S. defense contacts and exchanges with China conducted in 2018 were designed to support the long-term goal of transparency and non-aggression. U.S. Department of Defense (DoD) engagements with China seek to reduce risk and prevent misunderstanding in times of increased tension. Engagements are conducted in accordance with the statutory limitations of the National Defense Authorization Act for Fiscal Year 2000, as amended.

Although DoD engages with the PLA, DoD will also continue to monitor and adapt to China's evolving military strategy, doctrine, and force development. The United States will adapt its forces, posture, investments, and operational concepts to ensure it retains the ability to defend the homeland, deter aggression, protect our allies and partners, and preserve regional peace, prosperity, and freedom.

NEW IN THE REPORT FOR 2018

The report's overall structure has been streamlined to focus on **China's strategy, force modernization, capabilities for operations along China's periphery, defense budget and resources, and U.S.-China military-to-military contacts.** Instead of an annual update chapter, key takeaways in each chapter summarize trends and provide snapshots of notable events in 2018.

Reflecting changes in the PLA's mission, priorities, and organizational structure, **"Capabilities for Operations along China's Periphery"** includes content not only on a Taiwan contingency, which remains the PLA's main "strategic direction," but also on military and security developments in each of the five theater commands. The chapter includes graphics for each theater command and information on each command's relevant strategic direction, including developments in the security situation in the East China Sea, South China Sea, the China-India border region, and China-North Korea relations.

Two **special topics**, located at the back of the report, address key developments that have military and security implications for the United States:

- In **"Special Topic: Influence Operations,"** the PLA has emphasized the development of its Three Warfares strategy in its operational planning since at least 2003, which is comprised of psychological warfare, public opinion warfare, and legal warfare. Consistent with this strategy, China conducts influence operations against cultural institutions, media organizations, and the business, academic, and policy communities of the United States, other countries, and international

institutions to achieve outcomes favorable to its security and military strategy objectives. A cornerstone of China's strategy includes appealing to overseas Chinese citizens or ethnic Chinese citizens of other countries to advance CCP objectives through soft power or, sometimes, coercion and blackmail. Furthermore, China harnesses academia and educational institutions, think tanks, and state-run media to advance China's security interests. China's foreign influence activities are predominately focused on establishing and maintaining power brokers within a foreign government to promote policies that China believes will facilitate China's rise, despite China's stated position of not interfering in foreign countries' internal affairs.

- In **"Special Topic: China in the Arctic,"** China has increased activities and engagement in the Arctic region since gaining observer status on the Arctic Council in 2013. China published an Arctic Strategy in January 2018 that promoted a "Polar Silk Road," self-declared China to be a "Near-Arctic State," and identified China's interests as access to natural resources and sea lines of communication (SLOCs), and promoting an image of a "responsible major country" in Arctic affairs. The strategy highlights China's icebreaker vessels and research stations in Iceland and Norway as integral to its implementation. Arctic border countries have raised concerns about China's expanding capabilities and interest in the region. Civilian research could support a strengthened Chinese military presence in the Arctic Ocean, which could include deploying submarines to the region as a deterrent against nuclear attacks.

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EXECUTIVE SUMMARY i

CHAPTER 1: UNDERSTANDING CHINA'S STRATEGY 1

CHAPTER 2: FORCE MODERNIZATION GOALS AND TRENDS 31

CHAPTER 3: CAPABILITIES FOR OPERATIONS ALONG CHINA'S PERIPHERY 69

CHAPTER 4: RESOURCES FOR FORCE MODERNIZATION 93

CHAPTER 5: U.S.-CHINA MILITARY-TO-MILITARY CONTACTS 107

SPECIAL TOPIC: INFLUENCE OPERATIONS 112

SPECIAL TOPIC: CHINA IN THE ARCTIC 114

APPENDIX I: CHINA AND TAIWAN FORCES DATA 115

APPENDIX II: MILITARY-TO-MILITARY EXCHANGES 118

APPENDIX III: CHINA'S TOP CRUDE SUPPLIERS IN 2018 120

APPENDIX IV: ACRONYMS 121

1

UNDERSTANDING CHINA'S STRATEGY

Key Takeaways

- In 2018, China's leaders continued to advance an ambitious agenda of military modernization while pursuing economic growth and improving technological strength.
- China's leaders increasingly see the United States as adopting a more confrontational approach in an attempt to contain China's rise.
- Recognizing that programs such as "Made in China 2025" and the "One Belt, One Road" Initiative (OBOR) have sparked concerns about China's intentions, China's leaders have softened their rhetoric when promoting these programs without altering the programs' fundamental strategic goals.

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

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

other countries to follow, claiming the international community should view China's methods as unthreatening and constructive.

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

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

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

STRATEGIC OBJECTIVES

Key Takeaways

- China's leaders have benefited from what they view as a "period of strategic opportunity" during the initial two decades of the 21st century to facilitate domestic development and expand China's "comprehensive national power."
- China increasingly seeks to leverage its growing economic, diplomatic, and military clout to establish regional preeminence and expand its international influence.

China's leaders have benefited from what they view as a "period of strategic opportunity" during the initial two decades of the 21st century for China to develop domestically and expand its "comprehensive national power." Over the coming three decades, they are

focused on realizing a powerful and prosperous China on the international stage that is equipped with a "world-class" military. Their pursuit of this vision will fulfill what outside observers assess to be the overriding strategic objectives of the CCP:

- Perpetuate CCP rule;
- Maintain domestic stability;
- Sustain economic growth and development;
- Defend national sovereignty and territorial integrity; and,
- Secure China's status as a great power and, ultimately, emerge as the preeminent power in the Indo-Pacific region.

These objectives are reflected in President Xi Jinping's "China Dream." The concept, first articulated by Xi shortly after the 2012 leadership transition at the 18th Party Congress, encapsulates a long-standing national aspiration of restoring China's status as a powerful and prosperous nation. President Xi and other leaders also link the China Dream to two high-profile centenary milestones: achieving a "moderately prosperous society" by the 100th anniversary of the CCP in 2021, and building a "prosperous, strong, democratic, civilized, harmonious, and beautiful modernized socialist strong country" by the 100th anniversary of the establishment of the PRC in 2049. At the 19th Party Congress in October 2017, President Xi also enumerated objectives for the "basic realization of socialist modernization" by 2035, which included China becoming one of the most "innovation-oriented" countries, significantly enhancing the country's soft power and improving its economic prosperity.

China's leaders increasingly seek ways to leverage China's growing economic, diplomatic, and military clout to establish regional preeminence and expand its international influence. For example, China's advancement of global economic projects will probably drive new PLA overseas basing through a perceived need to provide security for OBOR projects. President Xi's outlining of foreign engagement concepts also reflect the CCP's overriding goals. These are concepts such as the "new type of major power relations," which attempts to frame bilateral ties with the United States as more of a near-peer relationship, and the "new regional security concept" for the Indo-Pacific region, which attempts to establish security cooperation without alliances. However, China also seeks to secure these goals without jeopardizing the regional stability that remains critical to economic development; this stability has helped the CCP maintain the legitimacy that has kept it in power.

China's National Security Management

China's broad concept of national security spans both domestic stability and foreign threats, including areas where external influence affects internal stability, such as terrorism or the spread of pro-democratic ideas. China is modernizing the CCP, its military, and state institutions to ensure greater coherence in the coordination and development of China's national security policy and strengthen Party control of national security management. These efforts address long-standing concerns that China's legacy system of stove-piped organizations is ill-equipped to meet the growing, dynamic challenges that China faces as its interests and capabilities expand.

- Over the past four years, the National People's Congress passed a suite of laws meant to address complex national security concerns, including counterespionage, intelligence, counterterrorism, and cybersecurity. In addition, an expansive 2015 *National Security Law* appeared to group these issues and others under a broad concept of national security and strengthen the role of central authorities in its protection.

By 2015, the CCP adopted China's first national security strategy outline following the establishment of a new National Security Commission (NSC) in 2013. Official media noted the strategy intends to unify efforts by various departments under the central leadership's guidance. During the NSC's first meeting, President Xi tasked the NSC with establishing "a centralized, unified, highly-effective and authoritative national security leading system." The NSC advises the Politburo, oversees the coordination of national security issues across the government, and manages crises, according to academics. The Commission's purview appears to address security issues where foreign influence affects domestic stability, a much wider scope than the U.S. National Security Council. The Chinese NSC's mission, codification in law, sprawling definition of national security, and powerful leaders suggest the NSC may claim broad authority in Xi's second term.

- The NSC is currently led by Xi Jinping, Li Keqiang, and probably Li Zhanshu, China's top three Party leaders. The head of its general office is likely Politburo member and CCP General Office Director Ding Xuexiang, who probably had little experience with international affairs during his decades-long career in provincial-level government and Party positions. As of May 2018, Chen Wenqing, a Politburo member and the Minister of State Security, has also filled the role of Deputy Director for the NSC General Office, responsible for the commission's daily work. At least one Vice Chairman of the CMC may also be a member of the NSC.

China's Internal Security Forces

China's internal security forces consist primarily of the Ministry of Public Security (MPS), the Ministry of State Security (MSS), the People's Armed Police (PAP), and the PLA. In 2018, the Central Military Commission (CMC) assumed direct control of the PAP after the Party ended the PAP's previous CMC-State Council dual-command system, and the China Coast Guard (CCG) was subordinated to the PAP, codifying the PLA's enduring role in internal security and possibly increasing the PLA's oversight and interoperability with the paramilitary forces. China's leaders rely on these forces to address challenges ranging from protests over political, social, environmental, or economic problems to suspected terrorist attacks. In recent years, China has focused increasingly on protests perceived as being linked to foreign influences and, separately, the Turkestan Islamic Party, which China's leaders characterize as a terrorist group connected to ethnic Uighur nationalists in the Xinjiang Uighur Autonomous Region. China blames Uighur "separatists" for terrorist attacks in China, and has imposed strict security in Xinjiang, ostensibly to curb potential attacks.

Ministry of Public Security (MPS). The MPS leads China's civilian national police, which serves as the first-line force for public order. The key mission of the MPS is domestic law enforcement and the "maintenance of social security and order" with duties including anti-rioting and anti-terrorism.

Ministry of State Security (MSS). The MSS is China's main civilian intelligence/counterintelligence service. The missions of the MSS are: to protect China's national security; to secure political and social stability; to implement the recently updated *State Security Law* and related laws and regulations; to protect state secrets; to conduct counterintelligence; and to investigate organizations or people inside China who carry out or direct, support, or aid other people whom China perceives harm its national security.

People's Armed Police (PAP). The PAP is a paramilitary component of China's armed forces whose primary mission is internal security and domestic stability. As of 2018, the PAP now falls solely under the authority of the CMC and has authority over the CCG. The PAP is the primary force responsible for internal security.

People's Liberation Army (PLA). As the armed wing of the CCP, the PLA is the ultimate guarantor of the CCP's rule, giving it a role in domestic security in addition to its national defense mission. For example, the PLA may provide transportation, logistics, and intelligence to assist local public security forces with internal security, and is authorized under the 1997 *National Defense Law* to directly "assist in maintaining public order" when CCP leaders consider it necessary.

FOREIGN POLICY

Key Takeaways

- China seeks to enhance its profile in existing regional and global institutions while selectively pursuing the establishment of new multilateral mechanisms and institutions to further its interests.
- China continues to advocate for the construction of a "community of common human destiny" while stressing that it will defend core interests and is not afraid to respond to provocations.

As China's foreign interests have expanded, it has become a more prominent player in the international community. Since the CCP's 19th Party Congress in October 2017, President Xi Jinping has continued to advocate in international forums for the construction of a "community of common human destiny," highlighting China's willingness to work with the people of all countries, while stressing that China will defend its core interests and territorial sovereignty and is not afraid to respond to provocations.

In the Indo-Pacific region, China depicts itself as pursuing a peaceful development strategy and identifies the United States as the dominant regional actor that intends to contain China's rise. At the same time, China portrays itself as resolute in defending its territorial interests.

China's foreign policy seeks to enhance China's profile in existing regional and global institutions, while selectively pursuing the establishment of new multilateral mechanisms and institutions to support its interests. China is negotiating an Asian free-trade agreement, known as the Regional Comprehensive Economic Partnership (RCEP), with 16 nations in the region. China's leaders intend for RCEP to strengthen regional economic connectivity to China, with China as the largest economy in the organization. China launched the Asian Infrastructure Investment Bank (AIIB) in 2016, with 57 founding members, to promote infrastructure building in the region. China has used OBOR, Xi's signature program, to enhance its global role by financing hundreds of billions of dollars' worth of major infrastructure projects throughout Asia, Africa, Latin America, the Middle East, and parts of Europe.

China has partnered with other authoritarian states, such as Russia, to mitigate U.S. pressure tactics. China and Russia share a preference for a multipolar world order and frequently jointly oppose U.S.-sponsored measures at the United Nations Security Council (UNSC). In the wake of Western sanctions against Russia, China has increased investment in Russia's economy. The Chinese Minister of National Defense Wei Fenghe visited Moscow in April 2018 "to let the Americans know about close ties between the armed forces of China and Russia."

China's Territorial Disputes in Context

China's use of force in territorial disputes has varied widely since 1949. Some disputes led to war, as in border conflicts with India in 1962 and Vietnam in 1979. A contested border with the former Soviet Union during the 1960s raised the possibility of nuclear war. In recent cases involving land border disputes, China has sometimes been willing to compromise with and even offer concessions to its neighbors. Since 1998, China has settled 11 land-based territorial disputes with six of its neighbors. In recent years, China has employed a more coercive approach to deal with several disputes that continue over maritime features and ownership of potentially rich offshore oil and gas deposits.

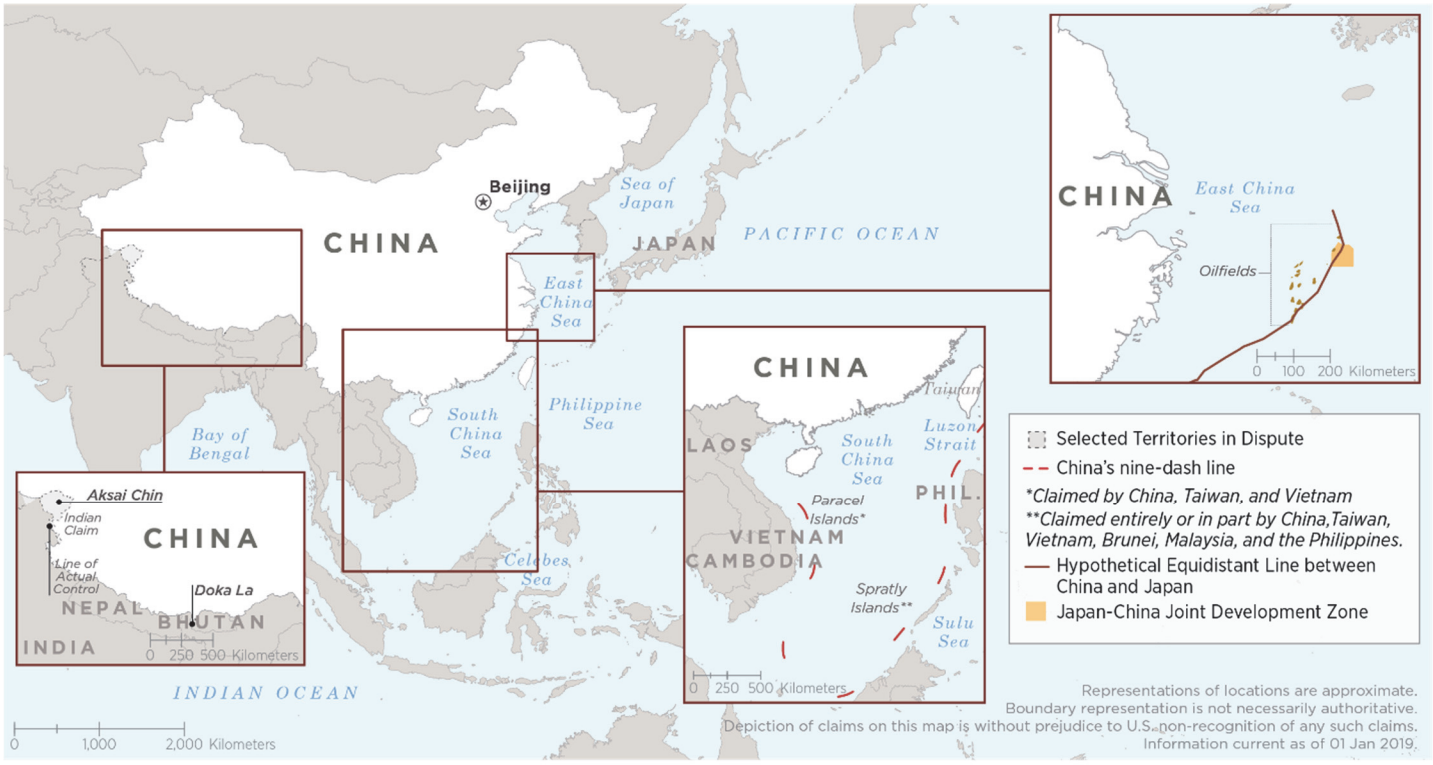
China and Japan have overlapping claims to both the continental shelves and the exclusive economic zones (EEZs) in the ***East China Sea***. The East China Sea contains natural gas and oil, though hydrocarbon reserves are difficult to estimate. Japan maintains that an equidistant line from each country involved should separate the EEZs, while China claims an extended continental shelf beyond the equidistant line to the Okinawa Trench. Japan has accused China of breaching a principled consensus reached in 2008 that both sides would respect an equidistant median line in the East China Sea for resource development while conducting joint development of oil and natural gas field in a delineated area spanning the line near the northern end. Japan is concerned that China has conducted oil and gas drilling on the Chinese side of the median line of the East China Sea since 2013. China continues to contest Japan's administration of the nearby Senkaku Islands.

The ***South China Sea*** plays an important role in security considerations across East Asia because Northeast Asia relies heavily on the flow of oil and commerce through South China Sea shipping lanes, including more than 80 percent of the crude oil to Japan, South Korea, and Taiwan. China claims sovereignty over the Spratly and Paracel Island groups and other land features within its self-proclaimed "nine-dash line" – claims disputed in whole or part by Brunei, the Philippines, Malaysia, and Vietnam. Taiwan, which occupies Itu Aba Island in the Spratly Islands, makes the same territorial assertions as China. In 2009, China protested extended continental shelf submissions in the South China Sea made by Malaysia and Vietnam. In its protest to the UN Commission on the Limits of the Continental Shelf, China included its ambiguous "nine-dash line" map. China also stated in a 2009 *note verbale* that it has "indisputable sovereignty over the islands in the South China Sea and the adjacent waters, and enjoys sovereign rights and jurisdiction over the relevant waters as well as the seabed and subsoil thereof." In July 2016, a tribunal established pursuant to the Law of the Sea Convention ruled that China's claims to "historic rights" over the South China Sea encompassed by the "nine-dash line" could not exceed its maritime rights under the Law of the Sea Convention. China did not participate

in the arbitration, and Chinese officials publicly voiced opposition to the ruling. By the terms of the Convention, the ruling is binding on China.

Tensions remain with India along the shared border over ***Arunachal Pradesh***, which China asserts is part of Tibet and therefore part of China, and over the ***Aksai Chin*** region at the western end of the Tibetan Plateau. Chinese and Indian patrols regularly encounter one another along the disputed border, and both sides often accuse one another of border incursions. In 2017, Indian forces intercepted a PLA road construction unit on the Doklam Plateau near the Doka La Pass, near the tri-border region of China, Bhutan, and India. The encounter led to a 73-day standoff before both sides agreed to mutually disengage from the site.

Selected Chinese Territorial Claims



DEVELOPMENTS IN ECONOMIC POLICY

Key Takeaways

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

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

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

Some recent Chinese laws seek further restrictions on foreign firms:

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

As China restricts inbound investment and limits other countries' exports to China, it also pursues state-directed investment overseas. Along with heavy investments in infrastructure and commodities to support its economic growth, China is investing in technologies that will be foundational for future innovations with both commercial and military applications. China obtains foreign technology through imports, foreign direct investment, the establishment of foreign research and development (R&D) centers, joint ventures, research and academic partnerships, talent recruitment, and industrial and cyberespionage. In December 2018, two Chinese nationals were indicted for conspiracy to commit computer intrusions, conspiracy to commit wire fraud, and aggravated identity theft. The Chinese nationals worked for a company in China called Huaying Haitai Science and Technology Development Company and acted in association with the Chinese Ministry of State Security's Tianjin State Security Bureau. Through their involvement with a hacking group operating in China known as Advanced Persistent Threat 10 (APT10), the Chinese nationals conducted global campaigns of computer intrusions targeting intellectual property and confidential business and technological information at managed service providers. The APT10 group stole hundreds of gigabytes of sensitive data and targeted the computers of victim companies involved in aviation, space and satellite technology, manufacturing technology, pharmaceutical technology, oil and gas exploration and production technology, communications technology, computer processor technology, and maritime technology.

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

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

- *"Made in China 2025"*: China has become aware of acute concerns that advanced industrial countries have regarding "Made in China 2025," and in June 2018, Chinese media outlets were ordered to downplay use of the term. Announced in May 2015, the "Made in China 2025" plan sets targets for higher levels of domestic manufacturing in strategic industries by 2020 and 2025 with the goal of increasing indigenous innovation. China plans to award subsidies and strengthened protection of domestic industries, while increasing pressure on foreign firms to transfer technology in order to do business in China. The plan also seeks to favor domestic enterprises at the expense of foreign participants in China's markets.

- *OBOR*: OBOR is intended to develop strong economic ties with other countries, shape their interests to align with China's, and deter confrontation or criticism of China's approach to sensitive issues. Countries participating in OBOR could develop economic dependence on Chinese capital, which China could leverage to achieve its interests. The growth of China's global economic footprint also makes its interests increasingly vulnerable to international and regional turmoil, terrorism, piracy, and serious natural disasters and epidemics, which places new requirements on the PLA to address these threats. Some OBOR investments could create potential military advantages for China, should China require access to selected foreign ports to pre-position the necessary logistics support to sustain naval deployments in waters as distant as the Indian Ocean, Mediterranean Sea, and Atlantic Ocean to protect its growing interests.

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

CHINA'S HYDROCARBON STRATEGY

Key Takeaways

- China's interest in ensuring reliable, cost-effective, and diverse energy sources to support its economic growth drives its overseas investments.
- China hopes to diversify energy suppliers and transport options.

China's interest in ensuring reliable, cost-effective, and diverse fuel sources to support and sustain its economic development has led it to participate in oil and natural gas projects in more than 40 countries. In 2018, China imported oil to meet approximately 71 percent of its needs. This figure is projected to grow to approximately 80 percent by 2035 according to the International Energy Agency (IEA). In 2018, China met 44 percent of its natural gas demand with imports, which is projected to grow to 46 percent by 2035 according to the IEA. China looks primarily to the Persian Gulf, Africa, Russia, and Central Asia to satisfy its growing oil and gas demand.

China relies on SLOCs such as the South China Sea and Strait of Malacca for the majority of its hydrocarbon deliveries. In 2018, approximately 78 percent of China's oil imports and 16 percent of natural gas imports transited the South China Sea and Strait of Malacca. Despite China's efforts to diversify energy suppliers, the sheer volume of oil and liquefied natural gas imported from the Middle East and Africa will make securing strategic SLOCs a priority for China for many years.

New or upgraded crude oil pipelines from Russia to China and Kazakhstan to China demonstrate China's interest in increasing overland supply. In early 2018, China doubled the capacity of its pipeline to Russia from 300,000 to 600,000 barrels per day. In April 2017, the Burma-China crude oil pipeline was commissioned. This 440,000-barrels per day pipeline bypasses the Strait of Malacca by transporting crude oil from Kyaukpyu, Burma, to Kunming, China. The pipeline is completed; however, it will be operating at partial capacity for 1-2 years while the Kunming Refinery still operates in a testing capacity. Saudi Arabia and other Middle Eastern and African countries supply the crude oil for the pipeline.

In 2018, approximately 28 percent of China's natural gas imports (46.7 billion cubic meters) came from Turkmenistan by pipeline via Kazakhstan and Uzbekistan. This pipeline is designed to carry 55 billion cubic meters per year with Turkmenistan and China planning to expand it to 80 billion cubic meters per year in 2020. A natural gas pipeline connecting China to Burma can deliver 12 billion cubic meters per year, but only 3.04 billion cubic meters of gas were shipped in 2018. As of September 2018, Russia completed about 93 percent of the Power of Siberia pipeline that will deliver Russian natural gas to China by December 2019. The contract for this pipeline is for 30

years and provides that 38 billion cubic meters of natural gas be delivered to China each year.

Several Chinese companies, often in pursuit of China's economic development goals, are also interested in gaining access to advanced technologies to try to improve efficiency, obtain and deploy clean energy technologies, and increase profits.

A list of China's top crude suppliers in 2018 is provided in Appendix III.

MILITARY STRATEGY AND DOCTRINE

Key Takeaways

- China's leaders continue to emphasize developing a military that can fight and win.
- In 2018, China published a new *Outline of Training and Evaluation* that emphasized realistic and joint training across all warfare domains, and covered missions and tasks aimed at "strong military opponents."
- China's growing overseas interests have increasingly propelled the PLA to think about how it will operate beyond China's borders and immediate periphery.
- China typically publishes a white paper on its military strategy every two years, but has not released one since 2015.

China's military strategy, as outlined in its 2015 defense white paper *China's Military Strategy* and further delineated in the latest iteration of the PLA National Defense University's *Science of Strategy*, is to build strong, combat-effective armed forces capable of winning regional conflicts and employing integrated, real-time C2 networks. Throughout 2018, China's leaders stressed these tenets with a particular emphasis on developing a military that can fight and win.

- The 2015 defense white paper also echoed themes from previous publications, reflecting a growing emphasis on the importance of the maritime domain, the PLA Air Force's shift towards offensive operations, the PLA Army's long-distance mobility operations, and the need for superiority in the information domain, including through space and cyber operations. Typically released every two years, China did not release a new defense white paper in 2017 or 2018.
- In 2018, the PLA promulgated a new *Outline of Military Training and Evaluation* that emphasized realistic and joint training across all warfare domains, addressed changes in the PLA following recent military reforms, incorporated a global perspective, and covered missions and tasks aimed at "strong military opponents." The new outline also implemented standards for training that rely on the

experiences of foreign militaries and absorbs the methods those militaries use.

The PLA is pursuing an ambitious modernization program that aligns with China's two centenary goals. China's military leaders want to achieve mechanization and make "major progress" toward informatization by 2020, ahead of the first centenary goal. The concept of "informatization" figures prominently in PLA writings and is roughly analogous to the U.S. military's concept of "net-centric" capability: a force's ability to use advanced information technology and communications systems to gain operational advantage over an adversary. PLA writings highlight the benefit of near real-time shared awareness of the battlefield in enabling quick, unified effort to seize tactical opportunities. They also seek to complete military modernization by 2035 and become a "world-class" military by the second centenary goal of 2049. Although China has not defined what that means, some observers have interpreted it as meaning developing capabilities on par with other global militaries, especially the United States.

Military Strategic Guidelines. In 2015, China's leadership directed the PLA to be capable of fighting and winning "informatized local wars" with an elevated emphasis on "maritime military struggle," adjusting its guidance on the type of war the PLA should be prepared to fight. China promulgated this revision through its "military strategic guidelines," the top-level directives derived from China's military strategy that prescribe concepts, assess threats, and set priorities for planning, force posture, and modernization. This update indicates China expects significant elements of a modern conflict to occur at sea.

- China's leadership has adjusted its national military strategic guidelines about how to fight local wars two other times since the fall of the Soviet Union. In 1993, Jiang Zemin directed the PLA to prepare for local war under modern, high-tech conditions after observing U.S. military operations in the Gulf War. In 2004, Hu Jintao ordered the military to focus on winning "local war under informatized conditions."

- Taiwan persistently remains the PLA's main "strategic direction," one of the geographic areas the leadership identifies as having strategic importance, in authoritative military publications. Other strategic directions include the East China Sea, the South China Sea, and China's borders with India and North Korea. PLA reforms have oriented each new theater command toward a specific strategic direction.

- In 2015, China's military strategy outlined eight "strategic tasks," or types of missions the PLA must be ready to execute: safeguard the sovereignty of China's territory; safeguard national unification; safeguard China's interests in new domains

such as space and cyberspace; maintain strategic deterrence; participate in international security cooperation; maintain China's political security and social stability; and conduct emergency rescue, disaster relief, and "rights and interest protection" missions.

Active Defense. China characterizes its military strategy as one of "active defense," a concept it describes as strategically defensive but operationally offensive. It is rooted in a commitment not to initiate armed conflict, but to respond robustly if an adversary challenges China's national unity, territorial sovereignty, or interests. According to this concept, China may conduct defensive counterattacks by responding to an attack or striking pre-emptively to disrupt an adversary's preparations to attack. The PLA interprets active defense to include both de-escalation and seizing the initiative. Active defense is enshrined in the 2015 *National Security Law* and is included in the PLA's major strategy documents. President Xi's speech during the PLA's 90th anniversary parade in 2017 further highlighted that China would never conduct "invasion and expansion," but also would never permit "any piece of Chinese territory" to separate from China.

Coercive Approach. As part of its "active defense" strategy, China's leaders use tactics short of armed conflict to pursue China's strategic objectives. Activities are calculated to fall below the threshold of provoking armed conflict with the United States, its allies and partners, or others in the Indo-Pacific region. These tactics are particularly evident in China's pursuit of its territorial and maritime claims in the South and East China Seas as well as along its border with India and Bhutan. In recent years, the PLA has also increased patrols around and near Taiwan using bomber, fighter, and surveillance aircraft to signal Taiwan. China additionally employs nonmilitary tools coercively, including economic tools during periods of political tensions with countries that China accuses of harming its national interests. After Australia's public debate on Chinese influence in Australian politics, China delayed customs approval for Australian beef and wine imports in early 2018. China's consulate in Sydney also warned Chinese students that studying in Australia was dangerous, and more than 20 Chinese school visits to Australia were cancelled.

Growing Global Presence. As China's overseas interests have grown over the past two decades, they have increasingly propelled the PLA to think about how it will operate beyond China's borders and its immediate periphery. In 2004, one of the new historic missions given to the PLA by then-Chinese President Hu Jintao was to support China's overseas interests and diplomacy. The PLAN's evolving focus – from "offshore waters defense" to a mix of "offshore waters defense" and "open seas protection" – reflects the high command's expanding interest in a wider operational reach. China's military strategy and

ongoing PLA reform reflect the abandonment of its historic focus on control of geography through the use of expanding defensive perimeters in favor of a maritime strategy to defend interests abroad. Similarly, doctrinal references to a "forward edge defense" that would move potential conflicts far from China's territory suggest PLA strategists envision an increasing role for the PLA overseas.

A more robust overseas logistics and basing infrastructure would allow China to project and sustain military power at greater distances. China's leaders may assess that a mixture of military logistics models, including preferred access to overseas commercial ports and a limited number of exclusive PLA logistics facilities, probably collocated with commercial ports, most closely aligns with China's overseas military logistics needs. In August 2017, China officially opened a military base in Djibouti, its first overseas military base. Chinese officials claim that the base – which they describe as a logistics facility – will support China's anti-piracy operations in the Horn of Africa and its UN peacekeeping deployments. China will seek to establish additional military bases in countries with which it has a longstanding friendly relationship and similar strategic interests, such as Pakistan, and in which there is a precedent for hosting foreign militaries. China's overseas military basing will be constrained by the willingness of potential host countries to support a PLA presence. International press reporting in 2018 indicated that China sought to expand its military basing and access in the Middle East, Southeast Asia, and the western Pacific.

Stability and Security Operations. The PLA continues to emphasize the importance of stability and security operations, stressing training and equipment enhancements to improve force capabilities for these missions. These operations encompass emergency response, counterterrorism, international rescue, humanitarian assistance/disaster relief (HA/DR), peacekeeping operations (PKO), and various other security tasks falling into the category of military operations other than war (MOOTW). In recent years, the PLA has embraced MOOTW by revising doctrine and teaching materials and incorporating MOOTW into its readiness and modernization plans. In 2018, the PLA focused on regional counterterrorism cooperation in the midst of China's mass detention in Xinjiang of more than one million Uighurs, Kazakhs, and other Muslims in government camps, where their daily activities are restricted and heavily monitored.

- In a speech during the 8th Beijing Xiangshan Forum, Minister of National Defense General Wei Fenghe highlighted China's promotion of the "China-Afghanistan-Pakistan-Tajikistan" four-country counterterrorism cooperation mechanism known as the Quadrilateral Cooperation and Coordination Mechanism. In 2018, China engaged in

counterterrorism exercises with Cambodia, Nepal, India, Pakistan, Kyrgyzstan, Tajikistan, Uzbekistan, Kazakhstan, and Russia.

- China also tasks the PAP with emergency response and counterterrorism operations, with PAP forces training for these missions through 2018.

Anticorruption Campaign. The CCP continued its effort to root out corruption in the armed forces in 2018. In March 2018, the National People's Congress, China's rubber-stamp legislature, endorsed the 19th Party Congress decision in fall 2017 to elevate the first secretary of the Discipline Inspection Commission, General Zhang Shengmin, to the CMC, the military's highest decision-making body and technically a department of the CCP Central Committee. At the same March meeting, the National People's Congress ratified the newly established National Supervisory Commission, which consolidates the various Chinese anticorruption agencies under a single entity. The National Supervisory Commission will bridge Party and state efforts to remove corruption, giving wider latitude to pursue non-Party government officials and drawing the PLA further under centralized civilian anticorruption control. In October 2018, two former CMC members detained in 2017 for corruption, Fang Fenghui and the deceased Zhang Yang, were expelled from the CCP.

Anticorruption investigations in the PLA are a component of a Party-wide effort that President Xi strengthened and accelerated shortly after taking office, with the stated goal of safeguarding the legitimacy of the CCP, rooting out corruption, improving governance, and strengthening central control. In the six years since the anticorruption campaign intensified under Xi Jinping, more than 13,000 PLA officers, including 100 generals, have been punished for corruption. Military discipline inspectors 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, more recently, to Fang Fenghui and Zhang Yang. On the anniversary of the PLA's founding in August 2018, the CMC issued two regulations codifying oversight responsibilities for Party committees and discipline inspection commissions to strengthen intra-Party supervision and accountability.

China's Military Leadership

CENTRAL MILITARY COMMISSION

Chairman	Xi Jinping			
Vice Chairmen	Gen Xu Qiliang	Gen Zhang Youxia		
Members	Gen Wei Fenghe	Gen Li Zuocheng	Adm Miao Hua	Gen Zhang Shengmin

DEPARTMENTS

- Joint Staff Department
- Political Work Department
- Logistics Support Department
- Equipment Development Department
- Training and Administration Department
- National Defense Mobilization Department

COMMISSIONS

- Discipline Inspection Commission
- Politics and Law Commission
- Science and Technology Commission

OFFICES

- Agency for Offices Administration
- Audit Office
- Office for International Military Cooperation
- Reform and Organization Office
- Strategic Planning Office

THEATER COMMANDS

- Eastern Theater
- Southern Theater
- Western Theater
- Northern Theater
- Central Theater

SERVICES AND SUPPORT FORCES

- PLA Army
- PLA Navy
- PLA Air Force
- PLA Rocket Force
- PLA Strategic Support Force
- PLA Joint Logistics Support Force

SCHOOLS

- Academy of Military Science
- National Defense University
- National University of Defense Technology

PARAMILITARY FORCES

- People's Armed Police
- China Coast Guard
- People's Armed Forces Maritime Militia*

**These forces can fall under both civilian and PLA command.*

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

China's Military Leadership

The military's highest decision-making body, the CMC, is technically a department of the CCP Central Committee. The CMC Chairman is a civilian, usually serving concurrently as the General Secretary of the CCP and President of China. Following the 19th Party Congress, the CMC consists of two vice chairs, the chiefs of the Joint Staff and Political Work Departments, the head of the Discipline Inspection Commission, and the Minister of National Defense.

Members of the CCP Central Military Commission

Chairman Xi Jinping's appointment as Party General Secretary and CMC Chairman in 2012 and his selection as President in the spring of 2013 represented the first simultaneous transfer of all three of China's top positions to an incoming leader in recent decades. Xi was reappointed to his Party positions at the 19th Party Congress and was reappointed president in spring 2018 at the National People's Congress. The same meeting also granted approval to remove presidential term limits, allowing Xi to potentially remain president beyond his second term. In 2016, Xi was announced as the commander-in-chief of the CMC's Joint Operations Command Center and was named "core" leader of the CCP Central Committee. Prior to becoming CMC Chairman, Xi served as the CMC's only civilian Vice Chairman under Hu Jintao. Xi's father was an important military figure during China's communist revolution and was a Politburo member in the 1980s. The younger Xi served as an aide to a defense minister early in his career and had regular interactions with the PLA as a provincial Party official. In meetings with U.S. officials, Xi has emphasized improving military-to-military relations between China and the United States.

Vice Chairman Xu Qiliang is the first career air force officer to be appointed China's top uniformed official. Xu is a public advocate for reform and guides the effort as a deputy secretary of the CMC's reform leading group. Xu previously served on the CMC as the PLAAF commander, where he oversaw rapid force modernization and expanded the air force's foreign engagement. He may have crossed paths with Xi Jinping early in his career, when both men served in Fujian Province. Xu was the first PLAAF officer to serve as deputy chief of the General Staff Department since the Cultural Revolution period, and – at 54 years of age at the time – the youngest in PLA history. Xu is serving a third term as a CMC member.

Vice Chairman Zhang Youxia is China's second-most senior officer and former head of the Equipment Development Department. Zhang gained rare experience as a combat commander during China's brief war with Vietnam in 1979. Zhang formerly commanded the Shenyang Military Region, which shared a border with North Korea and Russia. Zhang is one of China's military "princelings."

His father, a well-known military figure in China, served with Xi Jinping's father at the close of China's Civil War in 1949. Zhang is currently serving his second term on the CMC.

Minister of National Defense Wei Fenghe was appointed Minister of National Defense at the National People's Congress in March 2018. The Minister of National Defense is the PLA's third-most senior officer and manages its relationship with state bureaucracies and foreign militaries. Unlike the U.S. Secretary of Defense, he is not part of the chain of command and his primary policy influence is derived from membership in the CMC. Wei served in multiple missile bases across different military regions and held top posts in the headquarters of the former PLA Second Artillery Force, the PLA Rocket Force's predecessor, before being promoted in late 2010 to Deputy Chief of the General Staff – the first officer from the Second Artillery to do so. Wei most recently was the PLARF commander. Wei is serving a second term as a CMC member.

Joint Staff Department Chief Li Zuocheng oversees PLA operations, a narrowing of the wider responsibilities held by the former General Staff Department prior to reforms initiated in 2015. Li is one of few remaining active duty PLA officers with combat experience and is recognized as a combat hero for his service in China's border war with Vietnam. He was also the first Army commander after the PLA Army became a separate service in 2015. Li previously commanded the Chengdu Military Region, which was responsible for the sensitive area of Tibet.

Political Work Department Director Miao Hua oversees the PLA's political work, including propaganda, organization, and education. Miao is a former Army officer who switched services to the Navy in December 2014 when he became political commissar of the PLA Navy. Miao may have ties to Xi from his time serving in the 31st Group Army in Fujian Province, when his career overlapped with Xi's. Miao participated as the PLA Navy political commissar during the Navy's OBOR cruise conducted in mid-2017.

Discipline Inspection Commission Secretary Zhang Shengmin oversees the highest-level organization responsible for investigating military violations of Party discipline. Zhang is also a deputy secretary and third ranking member on the standing committee of the Party's Discipline Inspection Commission. Zhang's appointments indicate the anticorruption campaign will receive a higher profile in the military going forward. Shortly after his appointment to the CMC, Zhang was promoted to the rank of general, the highest rank in the Chinese military.

CIVIL-MILITARY INTEGRATION (CMI)

Key Takeaways

- In recent years, China's leaders have elevated CMI to a national strategy focused on aligning civil and defense technology development to achieve greater efficiency, innovation, and growth.
- China wants the successes of CMI to support completing military modernization by 2035 and developing a "world-class" military by 2049.

After existing in various forms since the beginning of the PRC, CMI, also known as military-civil fusion, became a military hardware modernization strategy in the 1990s, evolving as China moved from primarily acquiring foreign defense technologies to modernizing its industrial base and developing domestic defense technologies. In 2015, President Xi elevated CMI to a national strategy focused on aligning civil and defense technology development to achieve greater efficiency, innovation, and growth. President Xi called on CMI to support the "basic" completion of PLA modernization by 2035 and the status of China as a "world-class" military power by mid-century. China incentivized the civilian sector to enter the defense market through tax incentives and other financial subsidies, and set up a procurement website to enable public bids on defense contracts. Ineffective top-level coordination, corruption, and lack of understanding on how to implement CMI slowed progress. In 2017, China established a central committee for CMI development to centralize government control and oversight of CMI and to break down organizational barriers to implementation. The committee has issued guidance on public outsourcing of defense contracts and regulations to align technology standards in order to improve cooperation on joint projects. The committee has also promoted increased innovation in defense technology development with plans for provincial-level CMI demonstration zones where participants experiment with methods of decreasing organizational impediments and practicing innovation. While chairing the third meeting of the committee in 2018, President Xi called for more focused reforms of weapons procurement systems and other CMI efforts to generate breakthroughs in 2018. The national CMI strategy goes beyond hardware modernization to include initiatives in the education, personnel, investment, infrastructure, and logistics sectors. The PLA is downsizing the number of uniformed defense industry personnel and integrating civilian personnel into military research, training, and operations. The national CMI strategy also emphasizes harnessing emerging dual-use technologies such as AI, machine learning, big data, and unmanned systems to facilitate what PLA writings refer to as "intelligentized" warfare, or using multiple data streams and information flows to enable PLA operations.

MILITARY EXERCISES AND TRAINING

Key Takeaways

- China is training its force to win wars through realistic combat training, increasingly using a professional "blue force" opponent during training to improve realism.
- In 2018, training highlights included smaller force-on-force exercises, skills-based competitions, and strengthening training for military commanders.

In 2018, the PLA focused its training on war-preparedness and improving its capability to win wars through realistic combat training during numerous smaller force-on-force exercises and skills-based competition exercises. Another focus was to strengthen training for military commanders, especially on commanding joint operations. The PLAA took the unusual step of testing all 13 group army commanders and their staffs on their knowledge of their unit's missions and assigned tasks and required them to answer questions on operational scenarios.

The PLAA conducted the annual STRIDE and FIREPOWER exercises in 2018 but also introduced the "QIBING" ("Unconventional Troops") skills-based competition for intelligence, surveillance, reconnaissance (ISR), special operations forces, information support, electronic countermeasures, and Army Aviation forces. These competitions took place at various sites, one for each specialty, and used lessons learned from joint training and competitions with other countries to establish the grading criteria. The PLA also conducted a joint amphibious exercise in the Eastern Theater in the early fall as well as numerous smaller force-on-force exercises, including an exercise between two newly reformed amphibious mechanized infantry brigades in the Southern Theater.

- The STRIDE 2018 Zhurihe training exercise was conducted three times and tested heavy combined arms brigade operations against a dedicated opposing force. STRIDE 2018 focused on evaluating the offensive and defensive combat capabilities of the heavy combined arms brigade and developing tactics for all such brigades' employment.
- FIREPOWER 2018 continued the series' focus on air defense and artillery skills as one, or possibly two, air defense brigades trained against simulated opponents.

The PLA Navy conducted significant training events throughout the year, highlighted by its largest ever fleet review and a large-scale live-fire exercise. In April 2018, President Xi Jinping oversaw the PLAN's fleet review of approximately 50 ships and submarines, including the aircraft carrier *Liaoning*, and more than 75 aircraft, which took place just south of Hainan Island in the South China Sea. Following the fleet review, the *Liaoning* and its

escorts conducted exercises in the Philippine Sea, where *Liaoning* embarked J-15 fighters conducted flight operations for the first time outside the First Island Chain. In mid-July 2018, the PLAN conducted a large-scale, multi-fleet live-fire exercise in the East China Sea, north of Taiwan. The exercise likely was part of an effort to deter Taiwan independence sentiment and U.S. cooperation with Taiwan.

The PLAN Marine Corps conducted a long-distance maneuver exercise from March to June 2018, deploying approximately 10,000 personnel to training areas in Yunnan and the Shandong Peninsula. This exercise was likely aimed at improving the PLAN Marine Corps' expeditionary warfare capabilities.

The PLA Air Force continued its signature BLUE SHIELD and RED SWORD exercises in 2018, with an emphasis on the capabilities and functions of its reorganized air defense bases. In the BLUE SHIELD-2018 air defense exercise, the Air Force incorporated air defense units from the PLA Army, Navy, Air Force, and Rocket Force under the command of an air defense base for the first time, working to forge a multi-service, joint integrated air defense. The RED SWORD-2018 force-on-force exercise consisted of fighters, bombers, special mission aircraft, surface-to-air missiles (SAMs), and electronic warfare units in a base-versus-base scenario. RED SWORD-2018 was based on actual combat plans, featured an intervening third-party "orange force" for the first time, and included long-range raid and airborne operations for the first time as well. The PLAAF Airborne Corps conducted a series of exercises aimed at realistic combat training and improving its command and command staff capabilities.

The PLARF continued its annual HEAVEN'S SWORD series of exercises in 2018 and incorporated a new type of "blue force" unit, comprised of ISR, electronic warfare, and special operations units into its launch training and force-on-force exercises.

The Strategic Support Force (SSF) conducted the LUOYANG 2018 series of force-on-force exercises with a SSF base pitted against five PLA Army, Air Force, and Rocket Force units training in a complex electronic warfare environment.

The Joint Logistics Support Force (JLSF) conducted the JOINT LOGISTICS MISSION exercise in the plateau region of the Western Theater. The exercise incorporated a joint logistic support force unit, service-level logistics units, as well as PLA Army, Air Force, and civilian national defense mobilization forces from the Western Theater in the first comprehensive, logistics support exercise since the establishment of the JLSF. The exercise probably incorporated lessons learned following the 2017 standoff with India at Doka La Pass, near the tri-border region of China, Bhutan, and India.

MILITARY COOPERATION

Key Takeaways

- China conducted at least 12 bilateral and multilateral exercises in 2018, including deploying 3,200 military personnel to Russia to participate in VOSTOK 2018.
- PLA overseas travel and exchanges increase officers' international exposure and enable the PLA to support advancing relations with other countries.
- Arms sales, which support China's broader foreign policy goals, continued to grow in 2018, including sales of armed unmanned aerial vehicles (UAVs) and precision-strike weapons.

Senior-level visits and exchanges provide China with opportunities to increase military officers' international exposure, learn from their exchange partners, and advance foreign relationships through military assistance programs and the development of personal relationships. Expanded PLA travel abroad enables PLA officers to observe and study foreign military command structures, unit formations, and operational training and shape approaches to shared security concerns. In July 2018, for example, Minister of National Defense Wei Fenghe held the first China-Africa Defense Security Forum in Beijing, which included representatives from 49 African countries. On October 25, 2018, Wei also spoke at the Xiangshan Forum, an international security conference hosted by a PLA-affiliated organization and a state-directed think tank, which had the theme of building new security partnerships.

China has also expanded its participation in bilateral and multilateral military exercises, normalizing the PLA's presence overseas and establishing ties to foreign militaries. In October 2018, China hosted the first combined China-Association of Southeast Asian Nations (ASEAN) maritime exercise and participated in the trilateral PEACE AND FRIENDSHIP 2018 naval exercise with Malaysia and Thailand as part of China's effort to improve ties with Southeast Asian countries and calm tensions in the South China Sea.

Professional military education exchanges are another tool of Chinese military diplomacy. For example, some Latin American, Caribbean, Southeast Asian, and Pacific Island countries send officers to China, including to the strategic-level College of Defense Studies at the National Defense University. The PAP Academy also hosts counterparts from many countries in programs related to peacekeeping and counterterrorism operations.

VOSTOK 2018

In mid-September 2018, Russia held its annual strategic command and staff exercise in the Russian Eastern Military District, VOSTOK 2018. For the first time, Russia invited China and Mongolia to participate. During the active phase of VOSTOK 2018, approximately 25,000 Russian forces and 3,200 Chinese forces from units based in the Northern Theater Command conducted training at Russia's Tsugol Training Area. VOSTOK 2018 tactical training objectives at Tsugol included executing combined-arms brigade operations to defend against an aerial strike, conducting a maneuver defense, conducting artillery fires, transitioning to a counteroffensive with air assault support, and conducting an opposed water-obstacle crossing.

Selected Bilateral and Multilateral Exercises in 2018

Exercise Name	Type of Exercise	Participants
SAGARMARTHA FRIENDSHIP 2018	Special Operations	Nepal
GOLDEN DRAGON 2018	Counterterrorism / Humanitarian Assistance	Cambodia
International Army Games	Miscellaneous	Hosted by Russia, Kazakhstan, Belarus, China
China-ASEAN Joint Maritime Exercise	Maritime	Singapore, Thailand, Brunei, Vietnam, the Philippines, Cambodia, Indonesia, Malaysia, Burma
PEACE AND FRIENDSHIP 2018	Maritime	Malaysia, Thailand
FALCON STRIKE 2018	Air	Thailand
VOSTOK 2018	Strategic	Russia
PEACE MISSION 2018	Counterterrorism	Russia, Kazakhstan, Tajikistan, Kyrgyzstan, India, Pakistan
HUNTING FALCON 2018	Counterterrorism	Belarus
HAND IN HAND	Counterterrorism	India
SHAHEEN VII	Air	Pakistan
WARRIOR VI 2018	Counterterrorism	Pakistan

Peacekeeping Operations. China's participation in UN Peacekeeping Operations (PKO) supports China's core objectives by highlighting China's role as a global actor and obtaining operational experience for the PLA. China's PKO demonstrate the PLA's ability to operate outside of China's borders.

- China provides personnel to UN PKO operations in South Sudan, Lebanon, Mali, Sudan, and the Democratic Republic of the Congo. Chinese forces deployed for PKO consist of infantry, aviation, engineers, medical professionals, and logisticians.
- In 2018, China continued to contribute the largest number of forces among the permanent members of the UN Security Council. As of December 2018, China was the tenth largest contributor of forces to UN PKO with approximately 2,515 personnel among eight UN PKO missions in Africa and the Middle East. China's troop contributions slightly decreased throughout 2018 from approximately 2,634 personnel in January to 2,515 personnel in December. From July 2017 to June 2018, China funded 10.25 percent of the total $6.7 billion UN PKO budget, making it the second largest contributor after the United States.

Counterpiracy Efforts. In 2018, China continued to conduct counterpiracy operations in the Gulf of Aden by deploying its 28th, 29th, and 30th naval escort task forces to the area since 2008. The 29th task force escorted 40 Chinese and foreign ships during its six-month deployment and dispatched medical personnel to assist sailors on two Chinese merchant ships. At the conclusion of deployments, the task groups conduct port calls and hold bilateral engagements with host country militaries and local Chinese communities, providing another platform for PLA military diplomacy. The 29th naval escort task force focused on western Africa and Europe, making port calls in Cameroon, Gabon, South Africa, Germany, and Poland.

Military Attaché Presence

China manages its day-to-day overseas military diplomacy work using PLA officers assigned as military attachés in over 110 offices worldwide. China's military attaché presence has grown around the world, which reflects China's increasing global interests. China's military attachés serve as military advisors to the ambassador, support Ministry of Foreign Affairs and PLA foreign policy objectives, and perform a variety of duties tied to PLA military and security cooperation, including counterpart exchanges with host-nation and third-country personnel. Military attachés also conduct clandestine and overt intelligence collection on their countries or areas of assignment. Although the general function of an attaché office is the same worldwide, some attaché offices probably prioritize specific missions or diplomatic priorities due to close bilateral relations or other factors.

China's military attaché offices vary in size, generally ranging from two to ten PLA officers. Most offices consist of just a few accredited officers; however, offices in countries considered important to China's strategic interests are often considerably larger, potentially including multiple assistant attachés, dedicated naval or air force attachés, and support staff.

China's Arms Exports

In 2018, China's arms sales increased, continuing a trend that enabled China to become the world's fastest-growing arms supplier during the past 15 years. From 2013 through 2017, China was the world's fourth-largest arms supplier, completing more than $25 billion worth of arms sales. China sold military equipment worth more than $10 billion to the Middle East. Saudi Arabia, Iraq, and the United Arab Emirates accounted for most of China's arms sales in the region. The Indo-Pacific region was China's second-largest regional arms market, with more than $8 billion worth of arms sales, more than $5 billion of which was to Pakistan. Contracts signed within the past few years for guided rockets, ballistic missiles, armed UAVs, submarines, and surface warships sustained sales growth for Chinese arms exporters. The Aviation Industry of China (AVIC), an exporter of armed UAVs and fixed-wing aircraft, claimed in a rare public statement that it secured record profits in 2017, illustrating China's rising profile among the world's most prolific arms suppliers. China's ability to remain among the world's top five global arms suppliers largely hinges on continued strong sales to key Middle East and Indo-Pacific customers, as well as sustained demand for its armed UAVs and precision-strike weapons.

- **Armed UAVs.** China's market for armed UAVs continues to grow; China now sells CAIHONG series UAVs to at least Burma, Iraq, Pakistan, Saudi Arabia, and the United Arab Emirates. China faces little competition for these sales; most armed UAV exporters have signed the Missile Technology Control Regime and/or the Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies and face sales restrictions.

- **Precision-Strike Weapons.** Filling another niche in the global arms market, China has sold precision-guided rockets and ballistic missile systems, though it typically does not identify countries purchasing these types of arms. Industry reports in 2018 highlighted sales of Chinese-made WS-3A and WS-22 satellite-guided rockets, as well as several export variant ballistic missile systems (the M20, BP-12, and Joint Attack Rocket and Missile systems).

- **Naval Combatants.** China's naval warship sales have also surged since 2015, highlighted by Pakistan's purchase of eight YUAN variant submarines for more than $3 billion. Thailand also purchased one YUAN variant submarine in 2017 and has expressed interest in purchasing two more. To date, China has not delivered any YUAN variants, though it delivered two MING-class submarines to Bangladesh in 2016. Also, in 2017 and 2018, China sold frigates to Bangladesh (two Type 053H3s) and Pakistan (four Type 054As), and donated one unspecified frigate to Sri Lanka.

China's arms sales operate through state-run export organizations such as AVIC and North Industries Corporation (NORINCO) that primarily seek to generate profits. Arms transfers also are a component of China's foreign policy, used in conjunction with other types of military, economic aid, and development assistance to support broader foreign policy goals. These include securing access to natural resources and export markets, promoting political influence among host country elites, and building support in international forums.

Many of China's arms recipients are developing countries that tend to buy Chinese arms because they are less expensive than comparable systems sold by other arms manufactures. Although Chinese arms are considered by some potential customers to be of lower quality and reliability, many Chinese systems are offered with enticements such as gifts, donations, and flexible payment options. Some Chinese systems include advanced capabilities. Chinese arms also tend to carry fewer end-use restrictions and are monitored less rigorously than competitors' arms exports, a factor that attracts customers with less access to other sources of military equipment because of political or economic reasons.

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FORCE MODERNIZATION GOALS AND TRENDS

Key Takeaways

- In 2018, the PLA continued to implement structural reforms, make progress on fielding indigenous systems, and strengthen the ability of the Strategic Support Force and the Joint Logistics Support Force to enable operational support capabilities and joint operations.
- PLA capabilities and concepts in development are strengthening China's anti-access/area denial (A2/AD) and power projection capabilities.
- The CMC's acquisition of sole C2 over the PAP and the subordination of the China Coast Guard (CCG) to the PAP in 2018 could improve paramilitary forces' ability to provide support to PLA operations under the authority of the joint theater commands.

CURRENT CAPABILITIES OF THE PEOPLE'S LIBERATION ARMY

Key Takeaway

- China is advancing a comprehensive military modernization program aimed at completing modernization by 2035 and making the PLA into a "world-class" military by 2049.

China aims to complete military modernization by 2035 and make the PLA into a "world-class" military by 2049, through both modernization as well as structural and command changes. During the last decade, China has increased its capability to address a range of regional security objectives, beyond its continued emphasis on capabilities for Taiwan contingencies. Modernization includes improvements to military capabilities to conduct A2/AD against potential third-party intervention, as well as nuclear deterrence and power projection operations. The PLA continues to develop capabilities to conduct space, counterspace, electronic warfare, and cyberspace operations. The PLA seeks enhanced joint operations C2, joint logistics support, and a real-time surveillance, reconnaissance, and warning system to bolster its warfighting capability. PLA modernization includes command and force structure reforms to improve operational flexibility and readiness for future deployments.

PEOPLE'S LIBERATION ARMY ARMY (PLAA)

Key Takeaways

- The PLAA continued to adapt to structural and command changes in 2018.
- Each group army is standardized and includes six combined-arms brigades that serve as the PLAA's primary maneuver force, and controls six combat support and combat service support brigades.
- The PLAA has staffed and restructured the combined-arms brigades' subordinate combined-arms battalions to enable them to conduct independent operations. These battalions have become the PLAA's basic tactical unit for joint operations.

Throughout 2018, the PLAA continued to adapt to structural and command changes which occurred in 2017. Each group army (roughly a U.S. corps-level equivalent) is now standardized and includes six combined-arms brigades that serve as the PLAA's primary maneuver force. Each group army also controls six other brigades responsible for combat and combat support functions: an artillery brigade, an air defense brigade, an army aviation (or air assault) brigade, a special operations forces (SOF) brigade, an engineer and chemical defense brigade, and a service support brigade.

Combined-arms brigades' subordinate combined-arms battalions have become the PLAA's basic tactical unit for joint operations. The PLAA has also staffed and restructured these new battalions to enable them to conduct independent operations. Combined-arms battalion commanders now have staff officers who assist in the development and implementation of plans and orders in addition to new reconnaissance and service support assets. The PLAA delineates its combined-arms battalions into three types: heavy (tracked armored vehicles), medium (wheeled armored vehicles), and light (high-mobility, mountain/jungle, air assault and motorized battalions). This variety of combat units provides the PLAA flexibility to structure future force deployments without needing to task organize units that may not have sufficiently trained together.

Two air-assault brigades established in 2017 replaced their respective group army-subordinate army aviation brigades: one in the 83rd Group Army (Central Theater) and one in the 75th Group Army (Southern Theater). These "new-type" combat units received a large amount of press coverage in 2018 and have been described in Chinese news sources as a highly mobile force that can be used for "three-dimensional combat operations." The air assault brigades enable the PLAA to perform force projection and air insertion missions, and can be used to supplement the newly modularized People's Liberation Army Air Force (PLAAF) Airborne Corps' combined-arms airborne brigades.

Additional force restructuring and modularization has occurred across the remainder of the PLAA. Border and coastal defense regiments have been reorganized as brigades in most theaters, except the Western Theater. A new army-subordinate intelligence and reconnaissance brigade has been established in the Southern Theater. Lower level changes are also simultaneously occurring within the PLAA, including an ongoing increase in the size of tank platoons from three to four tanks and the reported doubling of the time PLAA recruits spend completing initial training.

For the second consecutive year, the PLAA participated in only a small number of named exercises during 2018. In July, one iteration of the annual STRIDE 2018 exercise occurred at

the Zhurihe Training Base, and it involved two heavy combined-arms brigades from the 81st Group Army, one of which served as the permanent opposing force (OPFOR). The PLAA "red force" portraying Chinese forces focused on operating in a realistic combat environment, though each brigade took turns portraying the aggressor and defender. At least one iteration of the annual FIREPOWER exercise series took place in 2018 at the Weibei Training Base in Shandong involving the air defense brigade of the 79th Group Army.

Although PLAA-led exercises were limited, the PLAA deployed two combined-arms battalions, supporting artillery elements, engineering assets, and C2 units from the Northern Theater Command to participate in VOSTOK 2018, Russia's annual strategic military exercise. While the PLAA has deployed forces to Russia for previous PEACE MISSION exercises conducted under the Shanghai Cooperation Organization, VOSTOK 2018 represented the PLAA's largest deployment of forces to a foreign exercise.

Major Ground Units



PEOPLE'S LIBERATION ARMY NAVY (PLAN)

Key Takeaways

- The PLAN is the largest navy in the region with more than 300 ships and continues to undergo rapid modernization to multi-role platforms.
- China's first domestically-built aircraft carrier will likely join the fleet in 2019, and China began construction of its second domestic aircraft carrier in 2018.

The PLAN is the region's largest navy, with more than 300 surface combatants, submarines, amphibious ships, patrol craft, and specialized types. It is also an increasingly modern and flexible force. The PLAN is rapidly replacing obsolescent, generally single-purpose platforms in favor of larger, multi-role combatants featuring advanced anti-ship, anti-air, and anti-submarine weapons and sensors. This modernization aligns with China's growing emphasis on the maritime domain and increasing demands on the PLAN to conduct operational tasks at expanding distances from the Chinese mainland using multi-mission, long-range, sustainable naval platforms possessing robust self-defense capabilities.

In 2018, the PLAN continued to implement structural reforms which began in late 2015 and early 2016. These new arrangements focus the service on organizing, manning, training, and equipping naval forces rather than conducting operations. The PLAN also appears to be converting some of its units to a base-operational unit structure, similar to the Air Force.

The PLAN has continued expanding the PLAN Marine Corps (PLANMC) force structure. The PLANMC previously consisted of two brigades and approximately 10,000 personnel, and it was limited in geography and mission to amphibious assault and defense of South China Sea outposts. By 2020, the PLANMC will consist of seven brigades, may have more than 30,000 personnel, and it will expand its mission to include expeditionary operations beyond China's borders. A newly established PLANMC headquarters is now responsible for manning, training, and equipping PLANMC forces. For the first time, the PLANMC also has its own commander, although it remains subordinate to the PLAN. The PLANMC may also establish an aviation brigade, which could provide an organic helicopter transport and attack capability, increasing its amphibious and expeditionary warfare capabilities.

Submarines. Modernization of China's submarine force remains a high priority for the PLAN. The PLAN currently operates four nuclear-powered ballistic missile submarines (SSBN), six nuclear-powered attack submarines (SSN), and 50 conventionally powered attack submarines (SS). The speed of growth of the submarine force has slowed and

will likely grow to between 65 and 70 submarines by 2020.

China continues to increase its inventory of advanced anti-ship cruise missile (ASCM)-capable conventional submarines. Since the mid-1990s, the PLAN has purchased 12 Russian-built KILO-class SS units, eight capable of launching ASCMs. During these years, Chinese shipyards have delivered 13 SONG-class SS units (Type 039) and 17 YUAN-class diesel-electric air-independent power attack submarines (SSP) (Type 039A) with a total of 20 YUANs projected for production by 2020.

Over the past 15 years, the PLAN has constructed twelve nuclear submarines – two SHANG I-class SSNs (Type 093), four SHANG II-class SSNs (Type 093A), and six JIN-class SSBNs (Type 094). Equipped with the CSS-N-14 (JL-2) submarine-launched ballistic missile (SLBM), China's four operational JIN-class SSBNs represent China's first credible, sea-based nuclear deterrent. China's next-generation Type 096 SSBN reportedly will be armed with the follow-on JL-3 SLBM, which will likely begin construction in the early-2020s.

By the mid-2020s, China will likely build the Type 093B guided-missile nuclear attack submarine. This new SHANG-class variant will enhance the PLAN's anti-surface warfare capability and could provide a more clandestine land-attack option.

Surface Combatants. The PLAN also remains engaged in a robust surface combatant construction program, producing new guided-missile cruisers (CG), guided-missile destroyers (DDG), and guided-missile frigates (FFG) which will significantly upgrade the PLAN's air defense, anti-ship, and anti-submarine capabilities. These assets will be critical as the PLAN expands operations into distant seas beyond the range of shore-based air defense systems. In 2017-2018, China launched its first four RENHAI-class (Type 055) CGs, with several more under construction. The RENHAI will enter operational service in 2019 and carry a large loadout of ASCMs, SAMs, and anti-submarine weapons. In 2018, at least three more LUYANG III-class DDGs (Type 052D) entered service, bringing the operational total to nine units with at least four more of this DDG and a new, enlarged variant in various stages of construction or outfitting. The LUYANG III-class DDG has a multipurpose vertical launch system capable of launching cruise missiles, SAMs, and anti-submarine missiles. China continues to produce the JIANGKAI II-class FFG (Type 054A) with 27 or more ships currently in the fleet and several more in various stages of construction. The PLAN is augmenting its littoral warfare capabilities, especially in the South China Sea and East China Sea, with high-rate production of the JIANGDAO-class corvettes (FFL) (Type 056). More than 40 of these corvettes entered service by the end of 2018, and more than a dozen more are currently under construction or outfitting. The

latest FFLs are ASW variants with a towed-array sonar. China also has 60 HOUBEI-class wave-piercing catamaran guided-missile patrol boats (Type 022) built for operations in China's "near seas."

The PLAN continues to emphasize anti-surface warfare. Frigates and corvettes, as well as modernized older combatants, carry variants of the YJ-83 ASCM (65 nm, 120 km), while newer surface combatants such as the LUYANG II-class DDGs are fitted with the YJ-62 (120 nm, 222 km). The LUYANG III-class DDG and the RENHAI-class CG will be fitted with a variant of China's newest ASCM, the YJ-18 (290 nm, 537 km). A few modernized destroyers have been retrofitted with the supersonic YJ-12 ASCM. Eight of China's 12 KILO-class SS are equipped with the Russian-built SS-N-27 ASCM (120-nm, 222-km). Chinese SONG-class SS, YUAN-class SSP, and SHANG-class SSN boats will field China's newest domestic submarine-launched YJ-18 and its variants, which constitute an improvement over the SS-N-27 ASCM.

The PLAN recognizes that long-range ASCMs require a robust, over-the-horizon (OTH) targeting capability to realize their full potential. China is investing in reconnaissance, surveillance, command, control, and communications systems at the strategic, operational, and tactical levels to provide high-fidelity targeting information to surface and subsurface launch platforms.

Amphibious Warfare Ships. China's investments in its amphibious ship force signal its intent to develop expeditionary warfare capabilities. The PLAN has five large YUZHAO-class (Type 071) amphibious transport docks (LPD), with three more under construction or outfitting during 2018. The YUZHAO LPD provides a greater and more flexible capability for long-range operations than the PLAN's older landing ships. It can carry several of the new YUYI-class air-cushion medium landing craft and four or more helicopters, as well as armored vehicles and PLAN Marines for long-distance deployments. The PLAN probably will continue constructing YUZHAO LPDs even as it pursues a follow-on amphibious assault ship that is not only larger but also incorporates a full flight deck for helicopters.

Aircraft Carriers. China's first domestically-built aircraft carrier was launched in 2017, completed multiple sea trials during 2018, and will likely join the fleet by the end of 2019. The new carrier is a modified version of the *Liaoning* but is similarly limited in its capabilities due to its lack of a catapult launch system and a smaller flight deck than the deck on U.S. carriers. China began construction of its second domestically built aircraft carrier in 2018, which will likely be larger and fitted with a catapult launch system. This design will enable it to support additional fighter aircraft, fixed-wing early-warning aircraft, and more rapid flight operations. China's second

domestically built carrier is projected to be operational by 2022.

Auxiliary Ships. The PLAN continues to build a large number of seagoing auxiliary and support ships, including intelligence collection ships (AGIs), acoustic collection ships (AGOS), fleet replenishment oilers, submarine rescue and salvage ships, and various other specialized units. Additionally China launched its first domestically built polar icebreaker *Xuelong 2* in 2018.

Major Naval Units



Northern Theater Navy

- 1 Aircraft Carrier
- 4 Nuclear-powered Attack Submarines
- 16 Diesel-powered Attack Submarines
- 10 Destroyers
- 11 Frigates
- 9 Corvettes
- 2 Tank Landing Ships
- 6 Medium Landing Ships
- 18 Missile Patrol Craft

Eastern Theater Navy

- 18 Diesel-powered Attack Submarines
- 11 Destroyers
- 25 Frigates
- 19 Corvettes
- 2 Amphibious Transport Docks
- 16 Tank Landing Ships
- 7 Medium Landing Ships
- 46 Missile Patrol Craft

Southern Theater Navy

- 4 Nuclear-powered Ballistic Missile Submarines
- 2 Nuclear-powered Attack Submarines
- 16 Diesel-powered Attack Submarines
- 12 Destroyers
- 18 Frigates
- 14 Corvettes
- 4 Amphibious Transport Docks
- 13 Tank Landing Ships
- 9 Medium Landing Ships
- 22 Missile Patrol Craft

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Representations of locations are approximate.
Boundary representation is not necessarily authoritative.
Information current as of 01 Jan 2019.

PEOPLE'S LIBERATION ARMY AIR FORCE (PLAAF) AND PLAN AVIATION

Key Takeaways

- The largest aviation forces in the region, the PLAAF and PLAN Aviation continue to work toward achieving long-range power projection capability.
- The PLAAF continues to modernize with the delivery of indigenous manned aircraft and a wide range of UAVs.
- China has begun test firing the Russia-produced S-400 long-range SAM system, and is developing the HQ-19, which will likely have a ballistic missile defense capability.

The PLAAF and PLAN Aviation are the largest aviation forces in the region and the third largest in the world, with more than 2,700 total aircraft (not including trainer variants or UAVs) and approximately 2,000 combat aircraft (including fighters, strategic bombers, tactical bombers, multi-mission tactical, and attack aircraft). 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 continues to modernize and is rapidly closing the gap with Western air forces across a broad spectrum of capabilities. This trend is gradually eroding U.S. longstanding, significant technical advantages against China in the air domain.

PLA reorganization significantly affected the force structure of the PLAAF. Changes included establishing at least six new air bases, and restructuring previously subordinate regiments into brigades under the newly established bases by disbanding its fighter and fighter-bomber divisions. Reform may have similarly affected PLAN Aviation, as at least one PLAN Aviation fighter regiment was restructured into a brigade like its PLAAF counterparts.

Airborne. In 2018, reorganization in the 15th Airborne Corps divided the Corps into five combined arms brigades that receive support from an air assault brigade. Prior to the reorganization, the 15th Airborne Corps was a traditional motorized force that primarily focused on parachuting operations. After the reforms, its air assault brigade is now one of three air assault units PLA-wide and the only assault brigade in the PLAAF. This unit is acquiring additional skills, such as conducting air landing assaults (air assaults) from helicopters and transport aircraft with an emphasis on rapid reaction. The Airborne Corps is equivalent to one PLA group army in the overall structure.

Fighters. The PLAAF continues to field fourth-generation aircraft (now about 600) and probably will become a majority fourth-generation force within the next several years. The PLAAF is still developing fifth-generation

fighters, including the J-20 and FC-31, and, in late 2016, began importing 24 Su-35 advanced fourth-generation fighters from Russia. During the PLA's 90th anniversary parade in July 2017, the PLAAF publicly conducted high-profile flybys of its J-20 fifth-generation fighters and debuted its J-16 and J-10C advanced fourth-generation fighters armed with the latest weapons. At the Zhuhai Air Show in November 2018, the PLAAF's J-10C demonstration featured thrust vectoring technology, and the PLAAF also conducted a demonstration with the J-20.

Bombers. China's bomber force is comprised of H-6 BADGER variants and it has worked to maintain and enhance the operational effectiveness of these aircraft. The latest H-6 variant, the H-6K, is being fielded in greater numbers and integrates standoff weapons and features more efficient, turbofan engines. This extended-range aircraft has the capability to carry six LACMs, giving the PLA a long-range standoff precision strike capability which can range Guam. Since at least 2016, Chinese media have been referring to the H-6K as a dual nuclear-conventional bomber. PLAN Aviation fields the H-6G with systems and four weapons pylons for ASCMs to support maritime missions. In addition, the PLAAF is seeking to extend its reach with the development of a new, stealth strategic bomber. Former PLAAF Commander General Ma Xiaotian publicly announced the program in 2016, and commentators anticipate the new platform will debut sometime around 2025.

Special Mission Aircraft. China uses a modified version of the H-6, known as the H-6U, as well as a small number of IL-78 MIDAS purchased from Ukraine to conduct aerial refueling operations for some of its indigenous fighter aircraft, thereby increasing their operational ranges.

The service is also integrating airborne early warning and control aircraft – such as KJ-2000 MAINRING, KJ-200 MOTH, and KJ-500 – amplifying PLAAF capabilities to detect, track, and target threats in varying conditions, in larger volumes, and at greater distances. These aircraft help to extend the range of China's integrated air defense system (IADS) network.

China's aviation industry continues to advance with initial deliveries of its domestic Y-20 large transport aircraft and completion of the world's largest seaplane, the AG600. Both aircraft made debut appearances at the Zhuhai Air Show in November 2016. These new transports will supplement and eventually replace China's small fleet of strategic airlift assets, which currently consists of a limited number of Russian-made IL-76 aircraft. These large transports are intended to support airborne C2, logistics, paradrop, aerial refueling, and strategic reconnaissance operations as well as humanitarian assistance/disaster relief (HA/DR) missions.

Unmanned Aerial Vehicles (UAVs). China displayed its largest ever suite of UAV aircraft at the Zhuhai Air Show in November 2018. In addition to displays of armed-capable

reconnaissance UAVs such as the YUNYING, CAIHONG CH-4 and CH-5, and YILONG (Wing Loong) series of aircraft, there were multiple of displays of low-observable flying-wing aircraft such as the CH-7, TIANYING, and YAOYING-III to complement earlier flying wing UAVs such as the ANJIAN and LIJIAN. The Tengden Company also displayed armed UAVs, such as the TW328, as well as a large dual-engine TW356 transport UAV that suspends a large cargo pod between the two large engine nacelles. China has begun deploying its XIANGLONG joined-wing high altitude reconnaissance UAV to airfields in western China and to Hainan Island. China is continuing to develop the SHENDIAO and upgrade the BZK-005 CHANGYING to a larger and longer enduring aircraft.

Air and Missile Defense. The PLAAF possesses one of the largest forces of advanced long-range SAM systems in the world, consisting of a combination of Russian-sourced SA-20 (S-300 PMU1/2) battalions and domestically produced CSA-9 battalions. China has contracted with Russia for the S-400/Triumf SAM system, as a follow-on to the SA-20 and CSA-9, to improve strategic long-range air defenses; China conducted its first S-400 test fires in December 2018. China is also developing its indigenous HQ-19, which will likely have a ballistic missile defense capability.

Major Aviation Units



PEOPLE'S LIBERATION ARMY ROCKET FORCE (PLARF)

Key Takeaways

- In 2018, the PLARF advanced long-term modernization plans to enhance its "strategic deterrence."
- The PLARF continues to grow its IRBM inventories, including that of the DF-26, which it first fielded in 2016.
- ICBMs under development represent a significant improvement in China's nuclear-capable missile forces.

The PLARF trains, equips, and operates China's land-based nuclear and conventional missiles. In 2018, it advanced long-term modernization plans to enhance its "strategic deterrence capability," a theme President Xi Jinping echoed during a visit to PLARF headquarters in September 2016 where he called for accelerating the PLARF's pace of development and "breakthroughs . . . in strategic deterrence capability."

The PLARF is developing and testing several new variants of missiles and developing methods to counter ballistic missile defenses. China's conventional missile force includes the CSS-6 SRBM (range 725-850 km); the CSS-7 SRBM (600 km); the CSS-11 SRBM (over 700 km); land-attack and anti-ship variants of the CSS-5 MRBM (approximately 1,500 km); the DF-26 IRBM (approximately 4,000 km); and the CJ-10 ground-launched cruise missile (GLCM) (approximately 1,500 km). China's conventionally armed CSS-5 Mod 5 (DF-21D) anti-ship ballistic missile (ASBM) variant gives the PLA the capability to attack ships, including aircraft carriers, in the western Pacific Ocean. The DF-21D has a range exceeding 1,500 km, is fitted with a maneuverable reentry vehicle (MaRV) warhead, and is claimed to be capable of rapidly reloading in the field. The PLARF continues to grow its IRBM inventories, including that of the DF-26, which it first fielded in 2016. The DF-26 is capable of conducting conventional and nuclear precision strikes against ground targets as well as conventional strikes against naval targets in the western Pacific and Indian Oceans and the South China Sea.

China has tested hypersonic glide vehicles. In August 2018, China successfully tested the XINGKONG-2 (Starry Sky-2), which it publicly described as a hypersonic waverider vehicle.

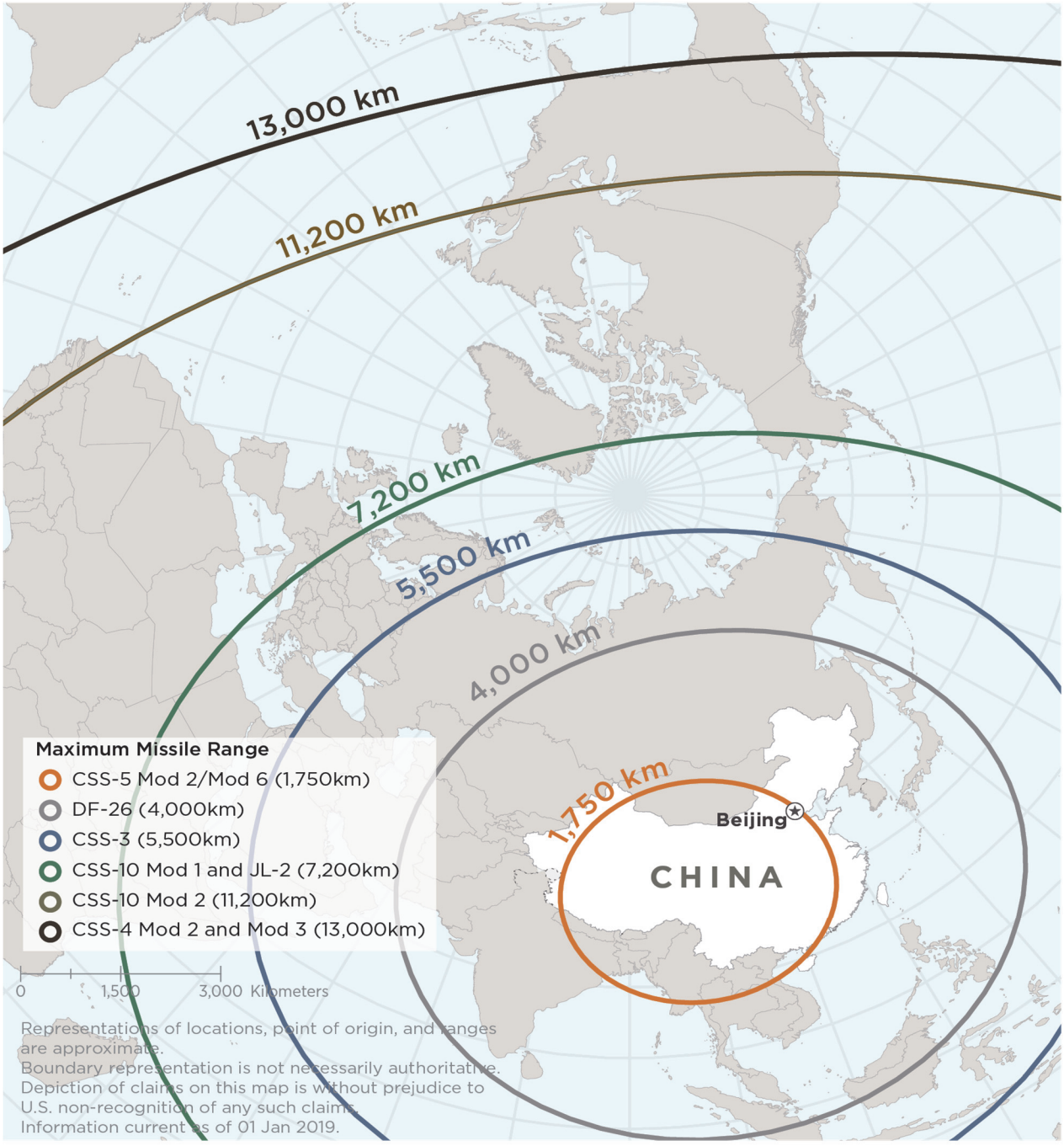
The PLA Rocket Force also continues to enhance its fixed ICBMs and is adding more survivable, mobile delivery systems. China's ICBM arsenal to date consists of 90 ICBMs, including the silo-based CSS-4 Mod 2 (DF-5A) and multiple independently targetable reentry vehicle (MIRV)-equipped Mod 3 (DF-5B); the solid-fueled, road-mobile CSS-10 class missiles; and the shorter range CSS-3 (DF-4). The CSS-10 Mod 2, with a range in excess of 11,200 km, can reach most locations within the continental

United States. Development of the CSS-X-20 (DF-41), a new MIRV-capable, road-mobile ICBM, continued in 2018. China appears to be considering additional DF-41 launch options, including rail-mobile and silo basing.

Conventional Strike Capabilities



Nuclear Ballistic Missiles



Conventional Precision Strike

Short-Range Ballistic Missiles (300-1,000 km). The Rocket Force has approximately 750-1,500 SRBMs. These missile systems include advanced variants with improved ranges and accuracy as well as more sophisticated payloads; earlier generations are being phased out and replaced by variants with true precision strike capability.

Medium-Range Ballistic Missiles (1,000-3,000 km). The PLA is fielding approximately 150-450 conventional MRBMs to increase the range at which it can conduct precision strikes against land targets and naval ships operating out to the first island chain.

Intermediate-Range Ballistic Missiles (3,000-5,500 km). The PLA's DF-26 is a road-mobile, nuclear and conventional capable IRBM capable of near-precision strike capability as far away from China as the second island chain. The PLAN is also expanding its network of sky wave and surface wave OTH radars. In conjunction with reconnaissance satellites, these OTH systems provide targeting capabilities at extended distances from China to support long-range precision strikes, including employment of ASBMs.

Land-Attack Cruise Missiles. The PLA fields approximately 270-540 ground-launched LACMs for standoff precision strikes. The PLA continues to develop additional LACM-variants for deployment with the PLAN and PLAAF.

Anti-Ship Cruise Missiles. China deploys a wide range of advanced ASCMs with the YJ-83 series as the most numerous, and it is equipping the majority of China's ships as well as multiple aircraft. China has also outfitted several ships with YJ-62 ASCMs. The YJ-18 is a long-range, torpedo tube-launched ASCM with a supersonic terminal sprint. It has likely replaced the older YJ-82 on SONG, YUAN, and SHANG class submarines, and China claims the new LUYANG III-class DDG and RENHAI CG are outfitted with a vertically launched variant of the YJ-18. China has also developed the long-range supersonic YJ-12 ASCM for the H-6 bomber. At a 2018 exhibition, China displayed a ship-to-ship variant of the YJ-12 called the YJ-12A and the ground-launched anti-ship variant YJ-12B. China has deployed the YJ-12B to several outposts in the South China Sea. China also carries the Russian SS-N-22 SUNBURN on four Russian-built SOVREMENNYY-class DDGs and the Russian SS-N-27b SIZZLER on eight Russian-built KILO-class submarines.

Ground Attack Munitions. The PLAAF has a small number of tactical air-to-surface missiles (ASM) as well as precision munitions; guidance options include satellite positioning, laser, electro-optic, and imaging infrared. China is developing or adapting a range of smaller ASMs and guided bombs for use on its increasing range of armed UAVs.

Anti-Radiation Weapons. The PLA imported Israeli-made HARPY UAVs and Russian-made anti-radiation missiles during the 1990s. China is integrating the YJ-91, an indigenous version of the Russian Kh-31P (AS-17), into its fighter-bomber force and advertising the ASN-301 anti-radiation drone, an improved domestic variant of the HARPY.

Artillery-Delivered High Precision Munitions. The PLA is fielding long-range rocket artillery systems with the range to strike targets within or even across the Taiwan Strait. The most common of these systems is the PHL-03 12x300 mm multiple-rocket launcher – similar to the Russian 9A52-2 SMERCH – with a 150 km range. Improved warheads for these rockets may include vertical penetrators and sensor-fuzed munitions.

STRATEGIC SUPPORT FORCE (SSF)

Key Takeaways

- The SSF centralizes strategic space, cyber, electronic, and psychological warfare missions.
- In 2018, the SSF conducted joint communications and reconnaissance training with the PLAA and the PLAAF to improve operational support capabilities and joint operations in advanced electromagnetic environments.
- In 2018, China marked its largest space launch year to-date, successfully launching 38 of 39 space launch vehicles (SLVs) and orbiting approximately 100 spacecraft.

The PLA created the SSF in 2016 as a theater command-level organization to centralize strategic space, cyber, electronic, and psychological warfare missions. The creation of the SSF highlights China's understanding of information as a strategic resource in modern warfare. China's leadership believes that achieving information dominance in the electromagnetic spectrum and denying its use to adversaries is necessary to seize and maintain the strategic initiative in a conflict. The SSF was formed from organizations formerly subordinate to the PLA services and General Staff Departments (GSD) with the goal of creating operational synergies between formerly disparate information warfare capabilities to enable the information dominance that China believes will be decisive in future wars.

The SSF oversees two deputy theater command-level departments: the Space Systems Department responsible for military space operations, and the Network Systems Department responsible for information operations (IO). At the headquarters level, the SSF has a four-department administrative structure that includes the Staff, Equipment,

Political Work, and Logistics Departments. As a strategic organization, the SSF reports directly to the Central Military Commission (CMC) and not to the Theater Commands.

The SSF Network Systems Department is responsible for information warfare with a mission set that includes cyberwarfare, technical reconnaissance, electronic warfare, and psychological warfare. By placing these missions under the same organizational umbrella, China seeks to remedy the operational coordination challenges that hindered information sharing under the pre-reform organizational structure.

The SSF's psychological warfare mission is performed by the former General Political Department's 311 Base. This base is the only organization in the PLA that is publicly known to perform psychological warfare operations.

In 2018, the Strategic Support Force increased joint communications and reconnaissance training with the PLAA and the PLAAF to improve operational support capabilities and joint operations in advanced electromagnetic environments. Included in this training was the LUOYANG-2018 series of force-on-force exercises in which an SSF base challenged a PLA group army brigade's communications with hostile jamming and interruptions to their operational electromagnetic environment.

The SSF Space Systems Department is responsible for nearly all PLA space operations, including space launch and support, space information support, space telemetry, tracking, and space warfare. The formation of the Space Systems Department seeks to resolve the bureaucratic power struggles that existed over the PLA space mission, as elements of the mission had been dispersed across several national and service-subordinate organizations. China officially designated space as a new domain of warfare in its 2015 defense white paper, highlighting the importance of the space domain in strategic military competition. Notably, China expects space to play an important role in enabling long-range precision strikes and in denying other militaries the use of overhead C4ISR systems. Among the Space System Department's core missions is the launch and operation of the satellites that are vital to China's overhead C4ISR architecture.

Space and Counterspace Capabilities. China's space program continues to mature rapidly. The PLA, which has historically managed the effort, continues to invest in improving its capabilities in space-based ISR, satellite communication, satellite navigation, and meteorology, as well as human spaceflight and robotic space exploration. China has built an expansive ground support infrastructure to support its growing on-orbit fleet and related functions including spacecraft and space launch vehicle (SLV) manufacture, launch, C2, and data downlink. Additionally, China continues development of multiple counterspace capabilities designed to degrade and deny adversary use of space-based assets during a crisis or conflict. Furthermore, China

may seek to expand its overseas satellite tracking stations to support its space program analogous to the Neuquén Deep Space Facility in Argentina. The Neuquén Deep Space Facility, built and operated by China to support lunar exploration missions, is operated by China's national space program, which is administered by the PLA.

In 2018, China launched 39 SLVs, of which 38 were successful, orbiting approximately 100 spacecraft that include navigation, ISR, and test/engineering satellites. Other activities in 2018 included:

- *Beidou Navigation Satellite Constellation:* Since the beginning of 2017, China has launched 19 new Beidou satellites for its worldwide satellite navigation constellation, bringing Beidou to initial operating capability in December 2018, with plans to reach full operating capability by the end of 2020. The new Beidou satellites are equipped with radiofrequency and laser inter-satellite links, new atomic clocks, and other new advanced technologies. Additionally, China plans to offer satellite-based augmentation services, a worldwide short-message service, and internationally recognized search and rescue capabilities.
- *Lunar Exploration Program:* In December 2018, China launched the Chang'e-4 lunar rover and lander, which will be the first-ever probe to soft land on the far side of the Moon. In May 2018, China launched the Queqiao lunar relay satellite as the first part of the mission to facilitate communications between China's ground stations on Earth and the Chang'e-4 lander and rover while on the lunar far side. Building on the enabling capabilities such as lunar orbiting, soft landing, and sample return mastered through the legacy Chang'e program, China plans to assemble a lunar research station on the Moon around 2025 and a lunar research and development base around 2050.
- *Commercial Space Launch:* China's Expace Technology, a commercial subsidiary of China Aerospace Science and Industry Corporation (CASIC), continued to launch its Kuaizhou-1A (KZ-1A) commercial SLV in 2018 with two additional launches, following its debut in January 2017. In 2018, nine Chinese state-backed launch companies indicated they were developing launch vehicles. At least five of these companies completed engine testing in 2018, while two companies achieved suborbital testing and one attempted an orbital launch. The presence of commercial launch companies and their progress grew substantially in 2018.

The PLA is acquiring a range of technologies to improve China's counterspace capabilities. In addition to the development of directed-energy weapons and satellite jammers, China is also developing anti-satellite capabilities and has probably made progress on the anti-satellite missile system it tested in July 2014.

China is employing more sophisticated satellite operations and is probably testing dual-use technologies in space that could be applied to counterspace missions.

Although China has not publicly acknowledged the existence of any new programs since it confirmed it used an anti-satellite missile to destroy a weather satellite in 2007, Chinese defense academics often publish on counterspace threat technologies. These scholars stress the necessity of "destroying, damaging, and interfering with the enemy's reconnaissance . . . and communications satellites," suggesting that such systems, as well as navigation and early warning satellites, could be among the targets of attacks designed to "blind and deafen the enemy."

JOINT LOGISTICS SUPPORT FORCE (JLSF)

Key Takeaways

- China's military leaders established the JLSF to streamline logistics support for the PLA.
- In 2018, the PLA elevated the JLSF's status to a theater-level organization.
- The PLA is integrating civilian-controlled support equipment, including ships and trucks, into military operations and exercises.

In 2018, the PLA elevated the JLSF's status to a theater-level organization, which gives the JLSF additional authority to deconflict support requirements with the services. In September 2016, as a part of the overall military structure reorganization, the PLA established the JLSF and five subordinate Joint Logistics Service Centers (JLSCs) under the CMC to streamline logistics support for the PLA. Headquartered at the Wuhan Joint Logistics Support Base, the JLSF controls the peacetime activities of the JLSCs; in wartime, the theater commands assume control of the JLSC located within its respective geographic area. Since the establishment of the JLSF, the PLA has continued to adjust this organization to ensure greater integration with joint operations. The JLSF has assigned a representative to each of the theater joint command centers, thereby allowing support forces to operate in the same command network as combat forces during an exercise, which results in better coordination of various support missions. Allowing logistic units to deploy and maneuver directly with combat units during conflict has been a focus of annual exercises since the JLSF's inception in 2016.

The PLA is integrating civilian-controlled support equipment and components, including ships and trucks, into its military operations and exercises, and the military plans to increase this type of support during the next several years. In February 2018, the Wuxi JLSC practiced transporting ammunition on a civilian roll-on/roll-off ship that met military

transportation standards, according to post-exercise press reporting. Two recent logistics-focused exercises include JIDI BAOZHANG (Base Security) 2018 and JOINT LOGISTICS MISSION 2018B. The PLA Tibet Military District hosted JIDI BAOZHANG 2018 in June, during which its logistic support department worked closely with local civilian entities to construct temporary bridges, transport fuel, and deliver food to troops in the field. The PLA highlighted civil-military integration as a key component of the exercise. In August 2018, participants in JOINT LOGISTICS MISSION 2018B included logistic forces from the JLSF, Army units from the Western Theater Command, Air Force logistic forces, and civilian national defense mobilization forces from Gansu, Qinghai, and Sichuan Provinces.

INCREASING INTEROPERABILITY WITH PARAMILITARY AND MILITIA

Key Takeaways

- As of 2018, the CMC assumed direct control of the PAP. As part of this reform, the PAP also assumed control of the China Coast Guard (CCG) from China's State Oceanic Administration.
- Paramilitary reforms could improve paramilitary forces' ability to provide support to PLA operations under the command of the joint theater commands.
- In 2018, examples of interoperability between the PLA and paramilitary forces included coordination between the PLAN, the CCG, and the People's Armed Forces Maritime Militia (PAFMM).

People's Armed Police (PAP). The PAP is a paramilitary component of China's armed forces whose primary mission is internal security and domestic stability. In early 2018, the CMC assumed direct control of the PAP after the CCP ended the previous CMC-State Council dual-command system. As part of this reform, the PAP also assumed control of the CCG in July 2018 from China's State Oceanic Administration. Although the PAP has specialized units for a variety of functions, the most numerous are for internal security. Additionally, the PAP is undergoing its most extensive organizational transformation to date as part of broader military reforms. Previously, PAP internal security units were organized into contingents for each province, autonomous region, and centrally administered city, as well as a smaller number of mobile divisions available to deploy anywhere in the country in response to escalating internal crises. In 2018, the mobile divisions were disbanded. Some units went to the 31 provincial contingents, and other units were assigned to two new mobile contingents which do not have a fixed geographic area of responsibility. PAP reform could lead to further interoperability between the PLA and the PAP, but in 2018, examples of interoperability were more apparent in coordination between the PLAN, the CCG,

and the PAFMM than between the PAP and the PLA.

China Coast Guard (CCG). The CCG is responsible for a wide range of missions under the umbrella of maritime rights protection, including enforcement of China's sovereignty claims, surveillance, protection of fisheries' resources, anti-smuggling, and general law enforcement. As of July 2018, the CCG completed its merger into the military command structure through its subordination to the PAP, which could facilitate closer coordination between the CCG and the PLAN. China primarily uses paramilitary maritime law enforcement agencies in maritime disputes, selectively using the PLAN to provide overwatch in case of escalation. Days after the administrative transfer of the CCG to the PAP, the CCG conducted a patrol mission near the contested Senkaku Islands in the East China Sea.

The CCG's rapid expansion and modernization has improved China's ability to enforce its maritime claims. Since 2010, the CCG's fleet of large patrol ships (more than 1,000 tons) has more than doubled from approximately 60 to more than 130 ships, making it by far the largest coast guard force in the world and increasing its capacity to conduct simultaneous, extended offshore operations in multiple disputed areas. Furthermore, the newer ships are substantially larger and more capable than the older ships, and the majority are equipped with helicopter facilities, high-capacity water cannons, and guns ranging from 30 mm to 76 mm. A number of these ships are capable of long-endurance out-of-area operations. These characteristics give CCG vessels the ability to intimidate local, non-Chinese fishing boats, as occurred in an October 2016 incident near Scarborough Reef.

In addition, the CCG operates more than 70 fast patrol combatants (more than 500 tons), which can be used for limited offshore operations, more than 400 coastal patrol craft, and approximately 1,000 inshore and riverine patrol boats. The CCG is likely to add another 25-30 patrol ships and patrol combatants by the end of the decade before the construction program levels off.

People's Armed Forces Maritime Militia (PAFMM). The PAFMM is a subset of China's national militia, an armed reserve force of civilians available for mobilization. Militia units organize around towns, villages, urban sub-districts, and enterprises and vary widely in composition and mission. In the South China Sea, the PAFMM plays a major role in coercive activities to achieve China's political goals without fighting, part of broader Chinese military theory that sees confrontational operations short of war as an effective means of accomplishing political objectives. The militia has played significant roles in a number of military campaigns and coercive incidents over the years, including the 2009 harassment of the *USNS Impeccable* conducting normal operations, the 2012 Scarborough Reef

standoff, the 2014 Haiyang Shiyou-981 oil rig standoff, and a large incursion in waters near the Senkakus in 2016.

A large number of PAFMM vessels train with and assist the PLAN and CCG in tasks such as safeguarding maritime claims, surveillance and reconnaissance, fisheries protection, logistic support, and search and rescue. The government subsidizes various local and provincial commercial organizations to operate militia vessels to perform "official" missions on an ad hoc basis outside of their regular civilian commercial activities.

In the past, the PAFMM rented fishing vessels from companies or individual fishermen, but China has built a state-owned fishing fleet for at least part of its maritime militia force in the South China Sea. The Hainan provincial government, adjacent to the South China Sea, ordered the building of 84 large militia fishing vessels with reinforced hulls and ammunition storage, which the militia received by the end of 2016, along with extensive subsidies to encourage frequent operations in the Spratly Islands. This particular PAFMM unit is also China's most professional. Its forces are paid salaries independent of any clear commercial fishing responsibilities and recruited from recently separated veterans.

PLA CAPABILITIES IN DEVELOPMENT

Key Takeaways

> PLA capabilities in development provide options for China to dissuade, deter, or, if ordered, defeat third-party intervention during a large-scale, theater campaign such as a Taiwan contingency. U.S. defense planners often term these collective capabilities as A2/AD.

> The PLA is additionally developing power projection capabilities and concepts of operation in order to conduct offensive operations within the second island chain, in the Pacific and Indian Oceans, and in some cases, globally.

ANTI-ACCESS/AREA DENIAL (A2/AD)

Key Takeaways

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

> PLA A2/AD capabilities are currently most robust within the first island chain, though China aims to strengthen its capabilities to extend farther into the Pacific Ocean.

China's military modernization plan includes the development of A2/AD capabilities to conduct long-range attacks against adversary forces who might deploy or operate within the western Pacific Ocean. PLA capabilities are currently most robust within the first island chain, though China aims to strengthen its capabilities to extend farther into the Pacific Ocean. These capabilities span the air, maritime, space, electromagnetic, and information domains.

Long-Range Precision Strike. Military modernization has resulted in the rapid transformation of the PLA's missile force. U.S. bases in Japan are in range of a growing number of Chinese MRBMs and LACMs. H-6K bomber flights into the western Pacific Ocean demonstrate China's ability to range Guam with air-launched LACMs. The DF-26, which debuted publicly in 2015 and was paraded by China again in 2017, is capable of conducting precision conventional or nuclear strikes against ground targets, which could include U.S. bases on Guam. PLA writings see logistics and power projection assets as potential vulnerabilities in modern warfare – a judgement in accord with an expanding ability to target regional air bases, logistics and port facilities, communications, and other ground-based infrastructure.

Ballistic Missile Defense (BMD). China is working to develop ballistic missile defenses consisting of exo-atmospheric and endo-atmospheric kinetic-energy interceptors. In 2016, official media confirmed China's intent to move ahead with land- and sea-based mid-course missile defense capabilities. The HQ-19 mid-course interceptor has undergone tests to verify its capability against 3,000 km-class ballistic missiles, and an HQ-19 unit may have begun preliminary operations in western China. Indigenous radars including the JY-27A and JL-1A – the latter advertised as capable of precision tracking of multiple ballistic missiles – reportedly provide target detection for the system.

The PLA's long-range SAM inventory also offers a limited capability against ballistic missiles. China's domestic CSA-9 (HQ-9) long-range SAM system likely has a limited capability to provide point defense against tactical ballistic missiles. China has fielded SA-20 (S-300 PMU2) SAMs, and its SA-21 (S-400) SAMs may have some capability to engage ballistic missiles, depending on the interceptors and supporting infrastructure.

Surface and Undersea Operations. China continues to construct an array of offensive and defensive capabilities to enable the PLA to gain maritime superiority within 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 – and grow toward projecting limited combat power at longer ranges. China's broad range of ASCMs and launch platforms as well as submarine-launched torpedoes and naval mines allow the

PLAN to create an increasingly lethal, multi-access threat against an adversary approaching Chinese waters and operating areas. Additionally, the PLA has fielded CSS-5 ASBMs specifically designed to hold adversary aircraft carriers at risk when located 1,500 km off China's coast, and it has an ASBM variant of the longer range DF-26 IRBM. The PLA's undersea domain capabilities are gradually progressing as well, but it continues to lack a robust deep-water anti-submarine warfare capability. China is installing undersea monitoring systems, which could improve China's knowledge of the undersea environment. Whether the PLA can collect accurate targeting information and pass it to launch platforms in time for successful strikes in sea areas beyond the first island chain is unclear.

Information Operations (IO). China assesses that controlling the information spectrum in the modern battlespace is a critical enabler, if not a fundamental prerequisite, of its ability to counter third-party intervention in a conflict. PLA authors often cite this capability – sometimes termed "information blockade" or "information dominance" – as necessary to seize the initiative and set the conditions necessary to gain air and sea superiority. This "information blockade" concept likely envisions combining military capabilities across space and cyber domains with non-military instruments of state power. China's investment in advanced electronic warfare (EW) systems, counterspace capabilities, and cyber operations – combined with more traditional forms of information control, such as propaganda and denial via opacity – reflect the priority the PLA places on information advantage.

Space and Counterspace. PLA strategists regard the ability to use space-based systems – and to deny them to adversaries – as central to modern warfare. The PLA continues to strengthen its military space capabilities, despite its public stance against the militarization of space. The PLA views space operations as a key enabler of PLA campaigns aimed at countering third-party intervention, although many PLA writings have not elevated these operations to the level of a separate "campaign." China seeks to enhance C2 in joint operations and establish a real-time surveillance, reconnaissance, and warning system, and it is increasing the number and capabilities of its space systems, including various communications and intelligence satellites as well as the Beidou navigation satellite system. China also continues to develop counterspace capabilities and related technologies, including kinetic-kill missiles, ground-based lasers, and orbiting space robots, as well as expanding space surveillance capabilities, which can monitor objects across the globe and in space and enable counterspace actions.

Cyber Operations. PLA researchers believe that building strong cyber capabilities are necessary to protect Chinese networks and

advocate seizing "cyberspace superiority" by using offensive cyber operations to deter or degrade an adversary's ability to conduct military operations against China. Chinese writings suggest cyber operations allow China to manage the escalation of a conflict because cyber attacks are a low-cost deterrent. The writings also suggest that cyber attacks demonstrate capabilities and resolve to an adversary. To support A2/AD, Chinese cyber attack operations aim to target critical military and civilian nodes to deter or disrupt adversary intervention, and to retain the option to scale these attacks to achieve desired conditions with minimal strategic cost. China believes its cyber capabilities and cyber personnel lag behind the United States, and it is working to improve training and bolster domestic innovation to overcome these perceived deficiencies and advance cyberspace operations.

Integrated Air Defense System (IADS). China has a robust and redundant IADS architecture over land areas and within 300 nm (556 km) of its coast that relies on an extensive early warning radar network, fighter aircraft, and a variety of SAM systems. China is also placing radars and air defense weapons on outposts in the South China Sea, further extending its IADS. It also employs point defenses, primarily to defend strategic targets against adversary long-range cruise missiles and airborne strike platforms.

China has increasing numbers of advanced long-range SAMs, including its indigenous CSA-9, Russian SA-10 (S-300 PMU), and SA-20 (S-300 PMU1/PMU2), all of which have the advertised capability to protect against both aircraft and low-flying cruise missiles. To improve its strategic air defenses, China has taken initial delivery of the Russian-built S-400 Triumf SAM system as a follow-on to the SA-20. Compared to these other systems, the S-400s feature a longer maximum range, improved missile seekers, and more sophisticated radars. China manufactures a variety of long-range air surveillance radars, including models claiming to support ballistic missile defense and other models asserting the ability to detect stealth aircraft. Marketing materials also emphasize these systems' ability to counter long-range airborne strike and combat support aircraft. PLAAF airborne early warning and control (AEW&C) aircraft such as the KJ-2000 and KJ-500 can further extend China's radar coverage well past the range of its ground-based radars.

Air Operations. The PLA's planned fielding of a fifth-generation fighter force will bolster its air-to-air capability, adding to the airpower of China's fourth-generation Russian-built Su-27/Su-30 and J-11A, and the indigenous J-10A/B/C, J-11B, and more advanced J-16 fighters. The J-20 and FC-31 feature high maneuverability, stealth characteristics, and an internal weapons bay, as well as advanced avionics and sensors providing enhanced situational awareness, advanced radar tracking and targeting capabilities, and integrated EW systems. A flight of J-20s performed a flyby at

the PLA 90th anniversary parade in July 2017, and the J-20 may have begun active service in small numbers, possibly with a testing and training unit. A modified FC-31 prototype made its first flight in late December 2016, although production is unlikely to begin until at least 2019. China is having difficulty with the engines and radars for these aircraft.

- Chinese engineers report successful testing of a solid-fuel ramjet missile engine, and they suggest this will enable the J-20 to carry future Mach 5, 300 km-range air-to-air missiles. China's continuing upgrades to its bomber fleet will give it the capability to carry new, longer-range cruise missiles. China may add an aerial refueling capability to at least some H-6s, extending their range and/or loiter time.
- The PLAAF employs the medium-range H-6K bomber, which can carry up to six precision-guided CJ-20 ALCMs each, giving it the ability to engage U.S. forces as far away as Guam. Since 2016, the PLAAF has steadily increased H-6K operating areas into the western Pacific Ocean and the South China Sea. China's acquisition of three IL-78 MIDAS aerial refueling tankers from Ukraine probably allowed the PLAAF to extend the range of Su-30 fighter aircraft beyond the first island chain when supporting H-6K bombers.
- Similarly, the acquisition and development of longer-range UAVs is increasing China's ability to conduct long-range ISR and strike operations. Multiple armed UAV types are under development, in testing, or in the initial phases of deployment. In addition, China successfully tested the AT-200, which it claims is the "world's first large cargo UAV." This drone can carry up to 1.5 tons of cargo and can operate from unimproved runways as short as 200 meters, and it may be especially suited to provide logistic support to PLA forces in the South China Sea.

POWER PROJECTION

Key Takeaways

- China has increased its capability to address regional and global security objectives.
- China's continuing improvements of air and ground-based missile strike capabilities within and, increasingly, beyond the first island chain enable other military assets to operate farther from China.
- China will realize its goal of a multi-carrier force in 2019 when China's first domestically produced carrier will likely be commissioned. China's next generation of carriers, including one that began construction in 2018, will have greater endurance and a catapult launch system.

During the last decade, China has increased its capability to address regional and global security objectives beyond its continued emphasis on capabilities for Taiwan

contingencies. PLA ground, naval, air, and missile forces are increasingly able to project power through peacetime operations, increasing the operating duration and/or distance from China, and they are expanding the PLA's capacity to contest U.S. military superiority in the event of a regional conflict.

China's continuing improvements of air- and ground-based missile strike capabilities within and, increasingly, beyond the first island chain enable other military assets to operate farther from China. These assets can conduct a variety of missions including presence and sovereignty enforcement, as well as offensive missions such as blockades. China also focuses on enhancing the PLA's ISR capabilities, extending the reach of the PLA's situational awareness, as well as enabling improved targeting and timely responses to perceived threats.

PLA Navy. 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. The PLAN's latest surface and subsurface platforms enable combat operations beyond the reach of China's land-based defenses. In particular, China's aircraft carrier 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 China's ability to project power. Furthermore, the PLAN now has a sizable force of high-capability logistical replenishment ships to support long-distance, long-duration deployments, including two new ships being built specifically to support aircraft carrier operations. The expansion of naval operations beyond China's immediate region will also facilitate non-war uses of military force.

- 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-class DDG, the JIANGKAI II-class FFG, and the JIANGDAO-class FFL. The RENHAI CG is a 10,000-ton vessel that 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. Four units are currently outfitting with several more under construction.
- The PLAN continues to extend its strike range with more 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.

- China continues to learn lessons from operating its first aircraft carrier, *Liaoning*. Its first domestically built aircraft carrier was launched in 2017 and will likely be commissioned in 2019 – the beginning of what the PLA states will be a multi-carrier force. China'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 fixed-wing aircraft, including early warning and anti-submarine warfare (ASW) aircraft. 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 LPDs, large logistical support ships, and specialized blue-water auxiliary ships – including high-capability intelligence collection ships (AGIs/AGOS).

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. China's experience in extended range operations primarily comes from extended task group deployments and its ongoing counterpiracy mission in the Gulf of Aden.

- China sustained its counter piracy task groups in the Gulf of Aden in 2018, a ten-year effort that is the first enduring Chinese naval operation beyond the Indo-Pacific region. The PLAN also continued submarine deployments to the Indian Ocean, demonstrating its increasing familiarity with operating in that region and underscoring China's interest in protecting SLOCs beyond the South China Sea.
- Chinese AGIs operated well beyond the first island chain in 2018; one Type 815 DONGDIAO-class AGI deployed to Hawaii to collect against the U.S.-led biannual naval exercise, RIM OF THE PACIFIC (RIMPAC).

China has long challenged foreign military activities in its maritime zones in a manner that is inconsistent with the rules of customary international law as reflected in the Law of the Sea Convention (LOSC). 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 maritime zones of other countries. This activity highlights China's double-standard in the application of international law.

PLAN Marine Corps. Ultimately, the PLANMC will be capable of operating from land, sea, and air as the PLA's global military force, but this goal will likely not be realized by China's stated goal to complete PLA reforms by 2020. Four new brigades have been established, bringing the total number of

combat brigades to six, but only the original two brigades are fully mission-capable. There is no evidence to indicate the new brigades are manned, trained, and equipped to perform expeditionary missions yet. Additionally, the PLANMC may establish an aviation brigade, but there is no evidence this unit exists yet.

The PLANMC is employing new equipment to perform an expeditionary mission, but the equipment is not arriving in sufficient numbers to meet the 2020 goal. Fifteen wheeled armored combat vehicles, more effective for land-based operations than amphibious operations, have been deployed with the PLANMC unit currently in Djibouti; they are the first-observed wheeled armored vehicles in the PLANMC. China lacks a sufficient inventory of wheeled armored vehicles to support multiple PLANMC expeditionary deployments adequately. Fully operational brigades are equipped exclusively with amphibious armored vehicles. The PLANMC has not received the helicopters required for an air assault capability, and it will likely need a minimum of 120 attack and medium-lift helicopters to be fully mission capable. Achieving this level of capability would include basing helicopters overseas to support PLANMC units and operating from amphibious ships.

In 2018, PLANMC out-of-garrison exercises increased in frequency and size. In one exercise, likely the largest PLANMC exercise on record, more than 10,000 marines participated in a series of very simplistic training. This surge in training likely served to indoctrinate new PLAN marines into the service, but it lacked the complexity needed to allow these units to become proficient in expeditionary warfare.

PLA Air Force 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 support Chinese national interests wherever they extend.

- Following PLAAF Commander General Ma Xiaotian's 2016 public statement that China was developing a new generation of long-range bombers, a number of reports suggest the new bomber, likely named the H-20, could debut sometime in the next decade with the following features: a stealthy design, employing many fifth-generation technologies; a likely range of at least 8,500 km; a payload of at least 10 metric tons; and a capability to employ both conventional and nuclear weaponry. A photograph of a possible H-20 prototype depicted a flying wing airframe akin to the B-2 bomber and X-47B stealth

unmanned combat aerial vehicle. China may also be developing a refuelable bomber that could reach initial operating capability before the long-range bomber, which could expand long-range offensive bomber capability beyond the second island chain.

- The construction of new airfields and hangars on outposts in the South China Sea extends the possible operating areas of PLA aviation forces. Future deployed Chinese combat aircraft operating from Spratly Island outposts could extend their range and/or loiter time over the South China Sea or even reach into the Indian Ocean. China 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.
- In 2018, major training events for PLAAF airborne units included the first drop of personnel and heavy equipment from the PLAAF's newest transport aircraft, the Y-20, in June, and participation in the AVIADARTS International Games-2018, an event that is part of the International Army Games, in Russia in August. During the event, PLAAF IL-76 and Y-9 transport aircraft airdropped forces and equipment from low altitudes.

China continues to produce the Y-20 heavy lift transport aircraft to correct a strategic airlift deficiency that limits its force projection capabilities. The Y-20s will augment China's current strategic lift units in the PLAAF's 13th Transport Division, which fly IL-76s. The Y-20 could also acquire additional missions, such as serving as an airborne early warning and control system (AEW&C) and as an aerial refueling tanker. China also continues to develop the AG-600 large amphibious seaplane with an anticipated range of 4,500 km and the ability to take off from water to support operations far from the mainland. The AG-600 completed its first flight in December 2017 and its first water-based test flight in October 2018. The Chinese government has already ordered 17 aircraft.

PLA Rocket Force. The PLARF fields multiple missiles capable of conducting strikes beyond the first island chain. Among these are the CSS-5 Mod 5 ASBM with a range of 1,500 km and a MaRV to challenge ballistic missile defenses. China also deploys the land-attack CSS-5 Mod 4 and the ground-launched CJ-10 LACM, placing targets on Okinawa and the main Japanese islands at risk. The DF-26 IRBM has a maximum range of 4,000 km and is capable of conducting precision strikes against ground and ship targets, potentially threatening U.S. land and sea-based forces as far away as Guam.

ADVANCING TOWARD AN INFORMATIZED MILITARY

Key Takeaways

- President Xi's strategic vision calls for the PLA to create a highly informatized force capable of dominating all networks and expanding the country's security and development interests.
- The PLA considers information operations (IO) as a means of achieving information dominance early in a conflict, and continues to expand the scope and regularity of IO in military exercises.

President Xi's strategic vision calls for the PLA to create a highly informatized force capable of dominating all networks and expanding the country's security and development interests. Chinese military writings describe informatized warfare as the use of information technology to create an operational system-of-systems, which would enable the PLA to acquire, transmit, process, and use information during a conflict to conduct joint military operations across the ground, maritime, air, space, cyberspace, and electromagnetic spectrum domains. Ongoing military reforms are accelerating the incorporation of command information systems enabling forces and commanders to carry out missions and tasks more effectively to win informatized local wars. The PLA continues to expand the scope and regularity of military exercises simulating informatized operations and likely views conventional and cyberspace operations as a means of achieving information dominance early in a contingency or conflict.

Command, Control, Communications, Computers, and Intelligence Modernization (C4I). China continues to prioritize C4I modernization as a response to trends in modern warfare that emphasize the importance of rapid information sharing, processing, and decision-making. The PLA seeks to modernize itself, both technologically and organizationally, to command complex, joint operations in near and distant battlefields with increasingly advanced C4ISR systems and sophisticated weapons.

The PLA sees networked, technologically advanced C4I systems as essential to provide reliable, secure communications to fixed and mobile command posts, thereby enabling rapid, effective, multi-echelon decision-making. These systems were designed to distribute data including intelligence, battlefield information, logistical information, and weather reports via redundant, resilient communications networks to improve commanders' situational awareness. The PLA views making near-real-time ISR data available to field commanders as especially valuable in streamlining their decision processes. China is fielding the Integrated Command Platform (ICP) to units at multiple levels across the force to enable lateral and cross-service communications required for joint operations. Using digital databases and command automation tools allows commanders to simultaneously issue orders to multiple units while on the move and they

allow units to quickly adapt their actions to shifting conditions in the battlespace.

These technical improvements are notably boosting PLA operational flexibility and responsiveness. As the PLA continues to focus on its ability to fight and win informatized wars, future information systems will likely implement emerging technologies such as big-data, the internet of things, artificial intelligence (AI), and cloud computing to provide reliable, automated platforms yielding further process efficiencies. The PLA has already begun this process by embracing big-data analytics that fuse together a variety of data to improve automation and to create a comprehensive, real-time picture.

Electronic Warfare. The PLA considers electronic warfare (EW) an integral component of modern warfare. Its EW strategy emphasizes suppressing, degrading, disrupting, or deceiving enemy electronic equipment. Potential EW victims include adversary systems operating in radio, radar, microwave, infrared, and optical frequency ranges, as well as adversary computer and information systems. China fielded several types of UAVs with EW payloads and displayed several of these during the PLA 90th anniversary parade in July 2017. PLA EW units routinely train to conduct jamming and anti-jamming operations against multiple communication and radar systems or GPS satellite systems in force-on-force exercises. These exercises test operational units' understanding of EW weapons, equipment, and performance but they also enable operators to improve confidence in their ability to operate effectively in a complex electromagnetic environment. In addition, the PLA reportedly tests and validates advances in EW weapons research and development during these exercises.

Cyberwarfare. The development of cyberwarfare capabilities is consistent with PLA writings, which identify IO – comprising cyber, electronic, and psychological warfare – as integral to achieving information superiority and as an effective means for countering a stronger foe. China has publicly identified cyberspace as a critical domain for national security and declared its intent to expedite the development of its cyber forces.

PLA writings note the effectiveness of IO and cyberwarfare in recent conflicts and advocate targeting an adversary's C2 and logistics networks to affect its ability to operate during the early stages of conflict. They credit cyberattacks on an enemy's C2 system with the potential to "completely disrupt" these systems, paralyzing the victim and thus gaining battlefield superiority for the attacker. Accordingly, the PLA may seek to use its cyberwarfare capabilities to collect data for intelligence and cyberattack purposes; to constrain an adversary's actions by targeting network-based logistics, communications, and commercial activities; or to serve as a force-multiplier when coupled with kinetic attacks during armed conflict.

The PLA's ongoing structural reforms may further change how the PLA organizes and commands IO, particularly as the SSF evolves

over time. In consolidating cyber and other IO-related elements, the SSF is likely generating synergies by combining national-level cyber reconnaissance, attack, and defense capabilities in its organization.

Cyber Activities Directed Against the Department of Defense

Computer systems around the world, including those owned by the U.S. Government, continued to be targeted by China-based intrusions through 2018. These and past intrusions focus on accessing networks and extracting information. China uses its cyber capabilities to not only support intelligence collection against U.S. diplomatic, economic, academic, and defense industrial base (DIB) sectors, but also to exfiltrate sensitive information from the DIB to gain military advantage. The information targeted can benefit China's defense high-technology industries, support China's military modernization, provide the CCP insights into U.S. leadership perspectives, and enable diplomatic negotiations, such as those supporting OBOR. Additionally, targeted information could enable PLA cyber forces to build an operational picture of U.S. defense networks, military disposition, logistics, and related military capabilities that could be exploited prior to or during a crisis. The accesses and skills required for these intrusions are similar to those necessary to conduct cyber operations in an attempt to deter, delay, disrupt, and degrade DoD operations prior to or during a conflict. In aggregate, these cyber-enabled campaigns threaten to erode U.S. military advantages and imperil the infrastructure and prosperity on which those advantages rely.

NUCLEAR DETERRENCE

Key Takeaways

- China's nuclear weapons policy prioritizes the maintenance of a limited but survivable nuclear force.
- China has long maintained a "no first use" (NFU) policy, though ambiguity remains over the conditions under which China's NFU policy would no longer apply.
- China continues to improve its ground and submarine-based nuclear capability and is pursuing a viable nuclear "triad" with the development of a nuclear capable air-launched ballistic missile.

China's nuclear weapons policy prioritizes the maintenance of a nuclear force able to survive a first strike and respond with sufficient strength to inflict unacceptable damage on an enemy. China invests considerable resources to maintain a limited, but survivable, nuclear force. China is enhancing peacetime readiness levels for these nuclear forces to ensure their responsiveness. In addition, China insists its new generation of mobile missiles, with warheads consisting of MIRVs and penetration aids, are intended to ensure the viability of its strategic nuclear forces in the face of continued advances in U.S. and, to a lesser extent, Russian strategic ISR, precision strike, and missile defense capabilities.

China has long maintained a NFU policy, stating it would use nuclear forces only in response to a nuclear strike against China. China's NFU pledge consists of two stated commitments: China will never use nuclear weapons first at any time and under any circumstances, and will unconditionally refrain from using or threatening to use nuclear weapons against any non-nuclear-weapon state or in nuclear-weapon-free zones.

There is some ambiguity, however, in the narrative in China over the conditions under which China's NFU policy would apply. Some PLA officers have written publicly of the need to spell out conditions under which China might need to use nuclear weapons first; for example, if an enemy's conventional attack threatened the survival of China's nuclear force or of the regime itself. There has been no indication that national leaders are willing to attach such nuances and caveats to China's existing NFU policy. China's lack of transparency regarding the scope and scale of its nuclear modernization program, however, raises questions regarding its future intent as it fields larger, more-capable nuclear forces.

China's commingling of some of its conventional and nuclear missile forces, and ambiguities in China's NFU conditions, could complicate deterrence and escalation management during a conflict. Potential adversary attacks against Chinese conventional missile force-associated C2 centers could inadvertently degrade Chinese nuclear C2 and generate nuclear use-or-lose pressures among China's leadership. Once a conflict has begun, China's dispersal of mobile missile systems to hide sites could further complicate the task of distinguishing between nuclear and conventional forces and, thus, increase the potential for inadvertent attacks on the latter. China's leadership calculus for responding to conventional attacks on nuclear forces remains a key unknown.

Land-Based Platforms. China's nuclear arsenal currently consists of approximately 90 ICBMs, including the silo-based CSS-4 Mod 2 (DF-5A) and Mod 3 (DF-5B); the solid-fueled, road-mobile CSS-10-class (DF-31, DF-31A and DF-31AG); and the more limited range roll-out-to-launch CSS-3 (DF-4). This strategic arsenal is complemented by road-mobile, solid-fueled CSS-5 Mod 2 and Mod 6 (DF-21) MRBMs and DF-26 IRBMs capable of ranging targets in the Indo-Pacific region.

Sea-Based Platforms. China has constructed six JIN-class SSBN, with four operational and two outfitting at Huludao Shipyard. China's JIN SSBNs, which are equipped to carry up to 12 CSS-N-14 (JL-2) SLBMs, are the country's first viable sea-based nuclear deterrent. China's next-generation Type 096 SSBN reportedly will be armed with the follow-on JL-3 SLBM, and it will likely begin construction in the early-2020s. Based on the 40-plus-year service life of China's first generation SSNs, China will operate its JIN and Type 096 SSBN fleets concurrently.

Future Developments. The PLA is upgrading its aircraft with two new air-launched ballistic missiles, one of which may include a nuclear payload. Its deployment and integration would, for the first time, provide China with a viable nuclear "triad" of delivery systems dispersed across land, sea, and air forces.

- The PLA justifies developing a range of technologies China perceives are necessary to counter U.S. and other countries' ballistic missile defense systems, including MaRV, MIRVs, decoys, chaff, jamming, thermal shielding, and hypersonic glide vehicles.
- The PLA will likely continue deploying sophisticated C2 systems and refining C2 processes as growing numbers of mobile ICBMs and future SSBN deterrence patrols require the PLA to safeguard the integrity of nuclear release authority for a larger, more dispersed force.

PLA writings express the value of a "launch on warning" nuclear posture, an approach to deterrence that uses heightened readiness, improved surveillance, and streamlined decision-making processes to enable a more rapid response to enemy attack. These writings highlight the posture's consistency with China's nuclear NFU policy, suggesting it may be an aspiration for China's nuclear forces. China is working to develop a space-based early warning capability that could support this posture in the future.

PLA Underground Facilities

The PLA continues to maintain a robust and technologically advanced underground facility (UGF) program to protect all aspects of its military forces, including C2, logistics, missile systems, and naval forces. China has thousands of UGFs and it continues to construct more each year. The PLA utilizes these UGFs to protect valuable assets from the effects of missile strikes and to conceal military operations from adversaries. China's NFU policy also contributed to the construction of UGFs for the country's nuclear forces, which may have planned to survive an initial nuclear first strike by an adversary.

China began to update and expand its military UGF program in the mid- to late-1980s. This modernization effort took on renewed urgency following China's observation of U.S. and Coalition air operations during the 1991 Gulf War and their use in OPERATION ALLIED FORCE. These military campaigns convinced China it needs to build more survivable, deeply buried facilities to protect military assets from the effects of penetrating conventional munition and nuclear strikes. China will likely continue to develop and expand its UGF program to support its expanding forces.

3

CAPABILITIES FOR OPERATIONS ALONG CHINA'S PERIPHERY

Key Takeaways

- China continues to implement reforms associated with the establishment of the Eastern, Southern, Western, Northern, and Central Theater Commands, which are organized based on China's perception of peripheral threats.
- Under the direction of the Central Military Commission (CMC), each Theater Command has authority over the services and conventional forces within the theater.

China continues to implement reforms associated with the establishment of its five theater commands in early 2016. The Eastern, Southern, Western, Northern and Central Theater Commands replaced seven army-based military regions and are now the highest-ranking "joint operations command" organizations within their respective geographical areas. Each theater command receives direction from the CMC and has authority over the services within its theater. The Theater Command is also responsible for all non-nuclear combat and non-combat operations within their area of responsibility. Theater commands are responsible for developing theater-specific command strategies aimed at preparing to fight and win against an adversary, developing joint operational plans and military capabilities, responding to crises, and safeguarding the sovereignty and stability of territories.

EASTERN THEATER COMMAND

Key Takeaway

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

The Eastern Theater Command (ETC) likely executes operational control over national defense matters related to Japan and Taiwan, including contingencies in and around the Taiwan Strait and the Senkaku Islands. In 2018, the ETC focused on a series of training and exercises to improve joint operations and combat readiness, organizing almost 20 exercises and drills consisting of long-distance sea training, aerial combat, and live-fire training. Located within the ETC are three group armies, a naval fleet, two marine brigades, two Air Force bases, and one missile base.

- In May 2018, the ETC Joint Operations Command Center (JOCC) organized a closely coordinated PLAAF exercise between the Eastern Theater and Southern Theater Commands. In addition, the PLAAF flew fighter aircraft and long-range cruise missile capable bombers around Taiwan. The PLAAF also employed a KJ-2000 early warning aircraft for command, control, and escort to support Su-35 fighters and J-11 fighter flights to the Miyako Strait and the Bashi Channel.
- In the East China Sea, the ETC conducted combat drills throughout the year focused on naval operations. In October 2018, a

PLAN flotilla conducted a series of drills, including anti-submarine warfare training by employing destroyers and frigates in formations simulating encirclement of underwater targets. They further completed more than ten training objectives in auxiliary gun firing, visit-board-search-and-seizure drills, and nuclear and chemical defense drills.

DEVELOPMENTS IN THE SECURITY SITUATION IN THE TAIWAN STRAIT

Key Takeaways

- Relations between China and Taiwan remained cool through 2018.
- Bowing to Chinese pressure, the Dominican Republic, Burkina Faso, and El Salvador switched diplomatic relations from Taipei to Beijing.
- The PLA continued Taiwan Strait contingency preparations.

Relations between China and Taiwan remained at an impasse through 2018. Since the 2016 election of Tsai Ing-wen as Taiwan's president, China halted formal communication with Taiwan and has repeatedly stressed that Taiwan must accept the "1992 Consensus" to restart formal engagement. Since November 2016, China's leaders have directly equated the "1992 Consensus" to "one China," which was reaffirmed by President Xi in the 19th Party Congress work report. Taiwan President Tsai Ing-wen has continually pledged to maintain the status quo in cross-Strait relations and called for talks with China without using the "1992 Consensus" as a precondition for negotiations.

In May 2016, China suspended consultations between its Taiwan Affairs Office and Taiwan's Mainland Affairs Council that had begun in 2014. China continues to thwart Taiwan's efforts to participate in international organizations such as the World Health Organization and INTERPOL. China has also maintained its diplomatic pressure on Taiwan, convincing the Dominican Republic, Burkina Faso, and El Salvador to switch diplomatic relations from Taipei to Beijing in 2018. Despite the stalled government-to-government consultations, the CCP continues to engage with the opposition Kuomintang (KMT) party, and China continues to hold lower-level cross-Strait exchanges such as the municipal Shanghai-Taipei Twin City Forum.

The PLA continues to prepare for contingencies in the Taiwan Strait to deter, and if necessary, compel Taiwan to abandon moves toward independence. The PLA also is likely preparing for a contingency to unify Taiwan with the mainland by force, while simultaneously deterring, delaying, or denying any third-party intervention on Taiwan's behalf. As part of a comprehensive campaign to pressure Taiwan and the Tsai Administration, China has increased military exercises in the vicinity of Taiwan, including circumnavigation flights by the PLAAF and naval exercises in the East China Sea.

Taiwan's national defense report released in 2017 cited concerns that increased PLA military activity near Taiwan poses an "enormous threat to security in the Taiwan Strait," and that Taiwan requires a "multiple deterrence strategy," including an emphasis on developing asymmetric warfare to counter PLA advances. In 2018, Taiwan has continued to expand its indigenous defense systems program.

EAST CHINA SEA

Key Takeaways

- China continues to use maritime law enforcement ships and aircraft to patrol near the Japan-administered Senkaku Islands.
- In May 2018, China and Japan signed the Maritime and Aerial Communication Mechanism.

China claims sovereignty over the Japan-administered Senkaku Islands in the East China Sea, which are also claimed by Taiwan. The United States does not take a position on sovereignty of the Senkaku Islands but recognizes Japan's administration of the islands and continues to reaffirm that the islands fall within the scope of Article 5 of the U.S.-Japan Mutual Security Treaty. China uses maritime law enforcement ships and aircraft to patrol near the islands.

During 2018, China maintained a presence in the Senkaku Islands with typically four China Coast Guard ships in the territorial waters (within 12 nm) around the islands. In January 2018, a PLAN Shang-class nuclear-powered attack submarine (SSN) sailed underwater in the vicinity of the Senkaku Islands. Separately, the PLAN frequently advances into the Pacific Ocean by passing between Japan's Okinawa and Miyako Islands. The PLAN East Sea Fleet regularly conducts military exercises in the Sea of Japan to prepare for potential conflicts. However, during Premier Li Keqiang's visit to Japan in May 2018, China and Japan signed the Maritime and Aerial Communication Mechanism, designed to avoid accidental encounters.

Eastern Theater



SOUTHERN THEATER COMMAND

Key Takeaway

- The Southern Theater Command is oriented toward the South China Sea, Southeast Asia border security, and territorial and maritime disputes.

The area of responsibility of the Southern Theater Command (STC) covers mainland and maritime Southeast Asia, including the South China Sea. This geographic area implies that the STC is responsible for securing the South China Sea, supporting the ETC in any invasion of Taiwan, responding to territorial disputes, and assuring the security of SLOCs vital to China's global ambitions. Located within the STC are two group armies, a naval fleet, two marine brigades, one Air Force base, and two Rocket Force bases.

SOUTH CHINA SEA

Key Takeaways

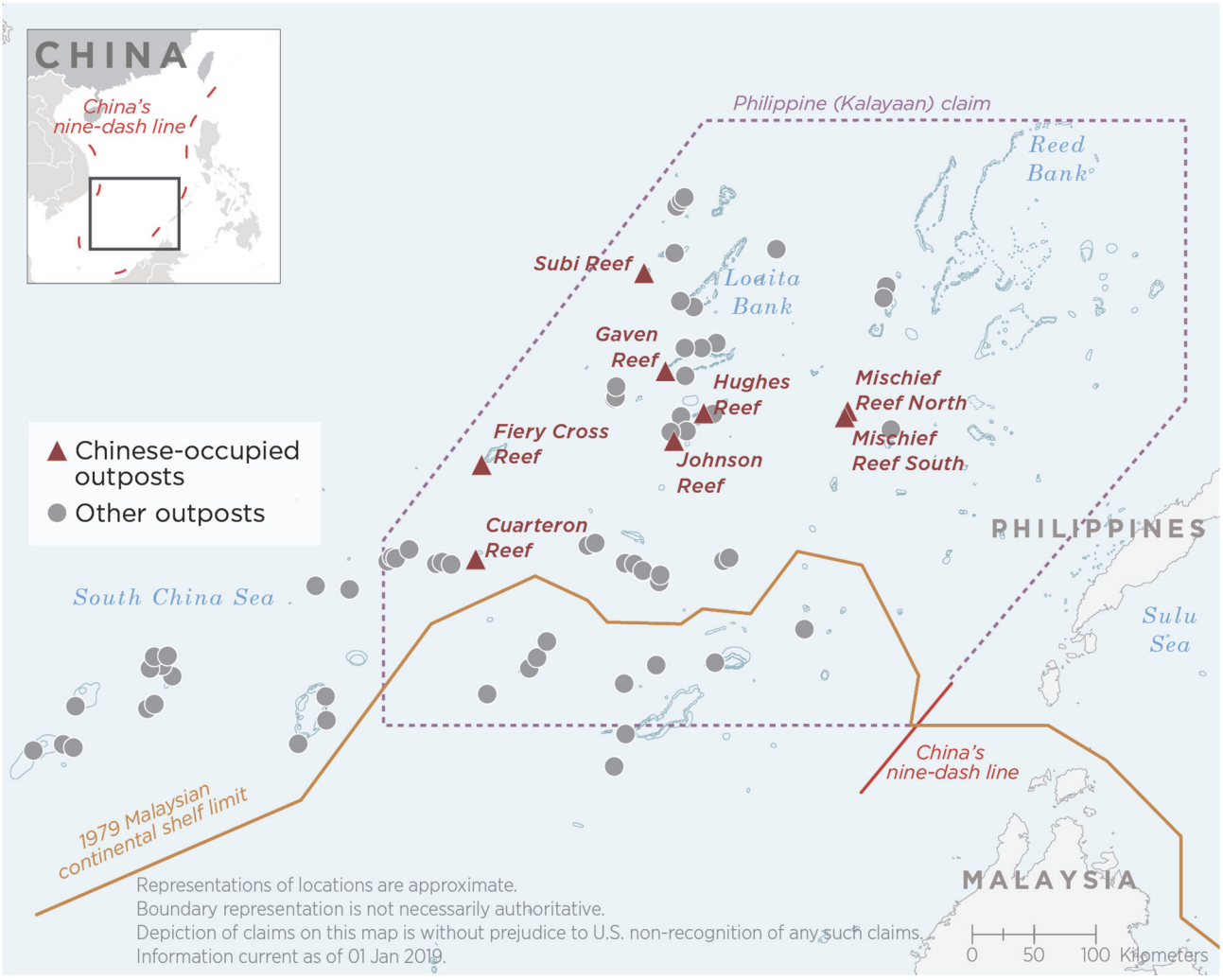
- Though China has ceased South China Sea land reclamation and completed major military infrastructure at three outposts, it has continued militarization by deploying anti-ship and anti-aircraft missile systems to its Spratly Islands outposts.
- Outposts are capable of supporting military operations since China deployed advanced weapon systems to its outposts in early 2018; however, no large-scale air presence has been observed in the Spratly Islands.

Developments in the Security Situation. In July 2016, a tribunal under the Law of the Sea Convention ruled in the case brought by the Philippines that China's claims to "historic rights" over the South China Sea encompassed by the "nine-dash line" could not exceed its maritime rights under the Law of the Sea Convention. Despite the decision, China continues to use coercive tactics, including the employment of PLA naval and paramilitary vessels, to enforce its claims and advance its interests. China does so in ways calculated to be below the threshold of provoking conflict. In the South China Sea, China has continued militarization. Anti-ship cruise missiles and long-range surface-to-air missiles have been deployed to Spratly Islands outposts, and China's strategic bombers have conducted take-off and landing drills on Woody Island in the Paracel Islands.

- China states that international military presence within the South China Sea is a challenge to its sovereignty. China has continued to escalate coercive tactics to enforce its claims within the South China Sea. This escalation culminated in an unsafe encounter with the *USS Decatur* in September 2018 that led to criticism against China from some U.S. international partners.

> Tensions have continued during negotiations between ASEAN countries and China on a code of conduct agreement. China has reportedly proposed that the code of conduct require unanimous approval by all parties for military exercises involving countries outside of China or ASEAN in the South China Sea. In August 2018, China mounted wave-monitoring devices on Woody Island and conducted scientific surveys in contested regions despite negative reactions from Vietnam.

Outposts in the Spratly Islands



Outposts Capable of Supporting Military Operations. In early 2018, China continued its gradual deployment of military jamming equipment as well as advanced anti-ship and anti-aircraft missile systems to its Spratly Islands outposts. The missile systems are the most capable land-based weapons systems deployed by China in the disputed South China Sea. China completed shore-based infrastructure on four small outposts in the Spratly Islands in early 2016. Facilities on Johnson, Gaven, Hughes, and Cuarteron Reefs include administrative buildings, weapons stations, and sensor emplacements.

By early 2018, China had completed more extensive military infrastructure on three larger outposts in the Spratly Islands at Fiery Cross, Subi, and Mischief Reefs. These installations now include aviation facilities, port facilities, fixed-weapons positions, barracks, administration buildings, and communications facilities.

No substantial land has been reclaimed at any of the outposts since China completed its artificial island creation in the Spratly Islands in late 2015, after adding over 3,200 acres of land to the seven features it occupies in the Spratlys.

China has stated these projects are mainly to improve marine research, safety of navigation, and the living and working conditions of personnel stationed on the outposts. However, the outposts provide airfields, berthing areas, and resupply facilities that will allow China to maintain a more flexible and persistent military and paramilitary presence in the area. This improves China's ability to detect and challenge activities by rival claimants or third parties, widen the range of capabilities available to China, and reduce the time required to deploy them.

Southern Theater



WESTERN THEATER COMMAND

Key Takeaway

> The Western Theater Command is oriented toward India and counterterrorism missions.

The Western Theater Command (WTC) is geographically the largest theater command within China and is likely responsible for responding to conflict with India and managing terrorism in western China. Located within the WTC are two group armies, three Air Force bases, one Rocket Force base, and PAP units that conduct internal security operations.

Counterterrorism is a key issue within the WTC, which includes the Xinjiang and Tibet Autonomous Regions where China is focused on perceived threats of separatism and terrorism. China's campaign is characterized as combating terror and separatist forces before they enter China, particularly from Afghanistan, while employing an internal "re-education" campaign for any individuals suspected of having sympathies for anti-government elements.

CHINA-INDIA BORDER

Key Takeaway

> Despite a summer 2018 low-level standoff in Demchok, China and India have thus far prevented these disagreements from escalating to a level similar to the 73-day border standoff at the Doklam Plateau in 2017.

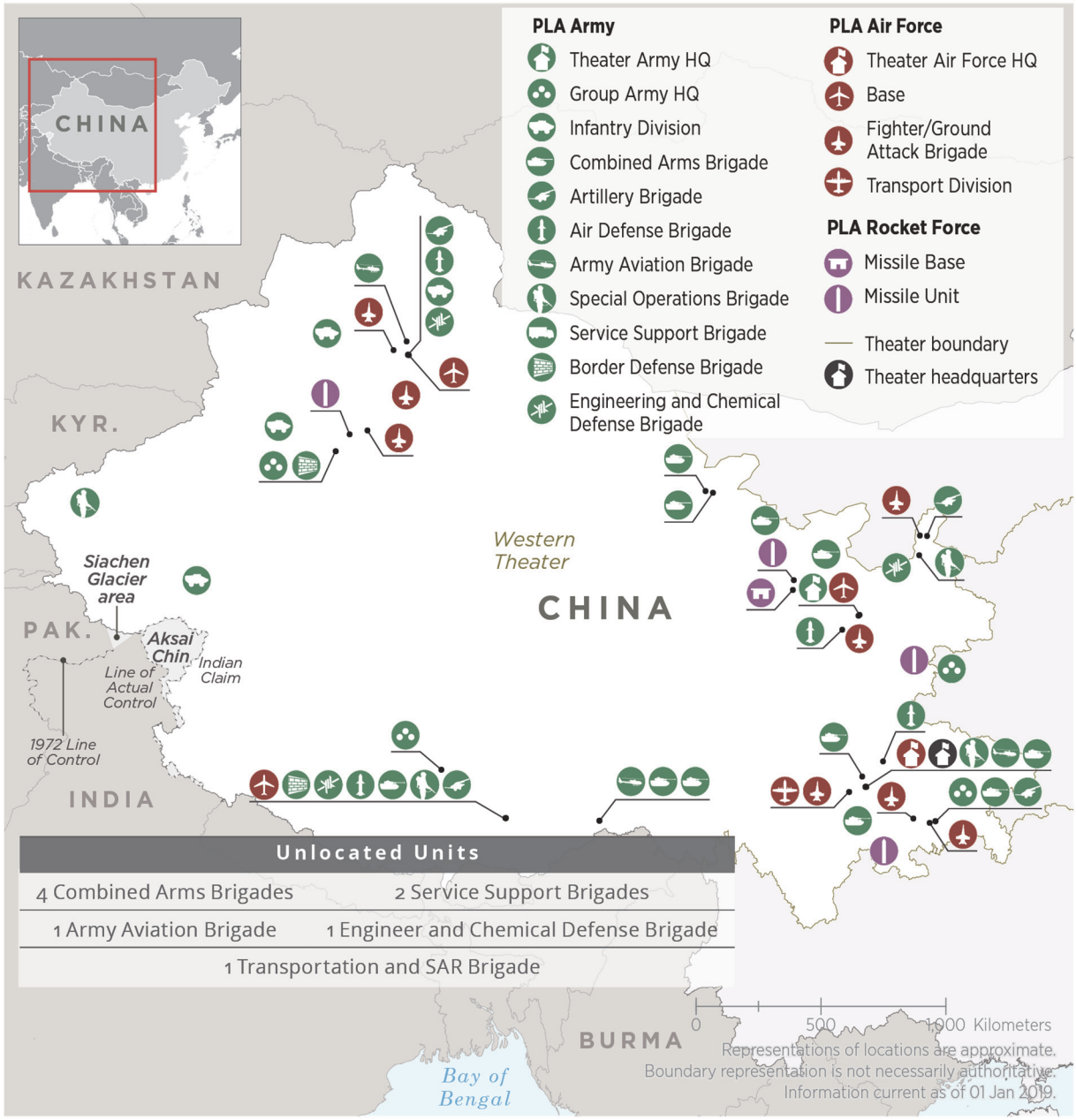
Tensions between China and India persist along the western and eastern sections of their disputed border. Chinese and Indian patrols regularly encounter one another along the disputed border, and both sides often accuse one another of border incursions. Despite a summer 2018 low-level standoff in Demchok, China and India have thus far prevented these disagreements from escalating to a level similar to the 73-day border standoff at the Doklam Plateau. Chinese and Indian forces engage in regular border meetings to discuss disputes and are generally able to resolve misunderstandings to prevent the escalation of minor confrontations. However, an enduring settlement of the 2017 border dispute remains elusive.

> Chinese and Indian military and civilian leaders continue discussions on the development of mechanisms to defuse tensions, at both the immediate border areas as well as the national level, through military exchanges and a proposed direct crisis hotline.

> In April 2018, President Xi and Prime Minister Modi held an informal meeting and expressed support for a resolution on the border.

In November 2018, India and China resumed their annual defense dialogue, which was followed by a special representative meeting on the border co-chaired by Indian National Security Advisor Ajit Doval and Chinese State Councilor Wang Yi.

Western Theater



NORTHERN THEATER COMMAND

Key Takeaway

- The Northern Theater Command is oriented toward the Korean Peninsula and Russian border security.

The area of responsibility of the Northern Theater Command (NTC) covers the majority of its Mongolian and Russian border areas, North Korea, and the Yellow Sea. It is responsible for operations along China's northern periphery, as well as counterterrorism operations. Located within the NTC are three group armies, a naval fleet, two marine brigades, two Air Force bases, one Rocket Force base, and PAP units that conduct internal security operations.

RELATIONS WITH NORTH KOREA

Key Takeaways

- China's relationship with North Korea has taken a positive turn from a strained period during 2017.
- The PLA continues to conduct military exercises in preparation for a contingency on the Korean Peninsula.

China's relationship with North Korea has taken a positive turn from a strained period after China increased implementation of UN Security Council (UNSC) resolutions in 2017. China has largely enforced the UNSC resolution sanctions against North Korea. Xi had three meetings with Kim Jong Un in 2018, along with numerous lower-level official exchanges in both North Korea and China. China's objectives for the Korean Peninsula include stability, denuclearization, and the absence of U.S. forces near China's border. China's focus on maintaining stability on the Korean Peninsula includes preventing North Korea's collapse and preventing a military conflict on the Peninsula. China continues to advocate for a dual-track approach towards North Korea that embraces both dialogue and pressure, and has claimed credit for the suspension of U.S.-South Korean military exercises in exchange for the suspension of North Korean nuclear and missile activity.

China has long been concerned about stability along its border with North Korea. The PLA conducts military exercises in preparation for a contingency on the Korean Peninsula including air, land, sea, and chemical defense training events. Should a crisis or conflict occur on the Peninsula, China's leaders could order the NTC to engage in a range of operations. These could include securing the China-North Korea border to prevent the flow of refugees or a military intervention into North Korea. China could also cite the *Treaty of Friendship, Co-operation and Mutual Assistance* it signed with North Korea in July 1961 as a justification to cross the border into North Korea.

Northern Theater



CENTRAL THEATER COMMAND

Key Takeaway

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

The area of responsibility of the Central Theater Command (CTC) stretches from the Bohai Gulf into the interior of China, connecting the other four theater commands. The CTC is responsible for the defense of the Beijing capital region, providing security for the leadership, and serving as a strategic reserve to the other theater commands. Units within the CTC area of responsibility are three group armies, two Air Force bases, and one Rocket Force base. Although the theater command has coastal responsibilities, it does not have a subordinate naval fleet.

Central Theater



CHINA'S STRATEGY AND CAPABILITIES DEVELOPMENT IN THE TAIWAN STRAIT

Key Takeaways

- Although China advocates for peaceful unification with Taiwan, China has never renounced the use of military force; the circumstances under which China has historically warned it would use force remain ambiguous and have evolved over time.
- China has an array of options for a Taiwan campaign, ranging from an air and maritime blockade to a full-scale amphibious invasion to seize and occupy some or all of Taiwan or its offshore islands.
- PLA services and support forces continue to improve training and acquire new capabilities for a Taiwan contingency, but there is no indication China is significantly expanding its landing ship force necessary for an amphibious assault on Taiwan.

China appears prepared to defer the use of military force as long as it believes that unification with Taiwan over the long-term remains possible and the costs of conflict outweigh the benefits. China argues the credible threat of force is essential to maintain the conditions for political progress and prevent Taiwan from making moves toward independence. For decades, China has refused to renounce the use of force to resolve the Taiwan issue. Simultaneously, China's leaders proclaim their desire for peaceful unification under the principle of "one country, two systems," as emphasized in President Xi Jinping's address opening the CCP's 19th Party Congress.

The circumstances under which the mainland has historically warned it would 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;
- Foreign intervention in Taiwan's internal affairs; and,
- Foreign forces stationed on Taiwan.

Article 8 of China's March 2005 *Anti-Secession Law* states China may use "non-peaceful means" if "secessionist forces . . . cause the fact of Taiwan's secession from China," if "major incidents entailing Taiwan's secession" occur, or if "possibilities for peaceful reunification" are exhausted. China's use of such non-specific

conditions increases their policy flexibility through deliberate strategic ambiguity.

China continues to view the Taiwan issue as the most important and sensitive issue between the United States and China.

CHINA'S COURSES OF ACTION AGAINST TAIWAN

China has a range of options based on the PLA's increasing capabilities in multiple domains. China could pursue a measured approach by signaling its readiness to use force or conduct punitive actions against Taiwan. The PLA could also conduct a more comprehensive campaign designed to force Taiwan to capitulate to unification, or unification dialogue, under China's terms. China would seek to deter potential U.S. intervention in any Taiwan contingency campaign. Failing that, China would attempt to delay intervention and seek victory in an asymmetric, limited war of short duration. In the event of a protracted conflict, China might choose to escalate cyberspace, space, or nuclear activities in an attempt to end the conflict, or it might choose to fight to a standstill and pursue a political settlement. The PLA could initiate the military options listed below individually or in combination.

Air and Maritime Blockade. PLA writings describe a Joint Blockade Campaign in which China would employ kinetic blockades of maritime and air traffic, including a cut-off of Taiwan's vital imports, to force Taiwan's capitulation. According to these writings, large-scale missile strikes and possibly seizures of Taiwan's offshore islands would accompany a Joint Blockade in an attempt to achieve a rapid Taiwan surrender, while at the same time, posturing air and naval forces to conduct weeks or months of blockade operations if necessary. China's air and maritime blockade operations will also likely be complemented by concurrent EW, network attacks, and IO to further isolate Taiwan's authorities and populace.

Limited Force or Coercive Options. China could use a variety of disruptive, punitive, or lethal military actions in a limited campaign against Taiwan, probably in conjunction with overt and clandestine economic and political activities supported by a variety of IO to shape perceptions or undercut the effectiveness or legitimacy of the Taiwan authorities. Such a campaign could include computer network or limited kinetic attacks against Taiwan's political, military, and economic infrastructure to induce fear in Taiwan and degrade the Taiwan population's confidence in their leaders. Similarly, PLA special operations forces could infiltrate Taiwan and conduct attacks against infrastructure or leadership targets.

Air and Missile Campaign. China could use missile attacks and precision air strikes against air defense systems, including air bases, radar sites, missiles, space assets, and communications facilities to degrade Taiwan's defenses, neutralize Taiwan's leadership, or break the Taiwan people's resolve.

Invasion of Taiwan. Publicly available Chinese writings describe different operational concepts for an amphibious invasion of Taiwan. The most prominent of these, the Joint Island Landing Campaign, envisions a complex operation relying on coordinated, interlocking campaigns for logistics, air, and naval support, and electronic warfare. The objective would be to break through or circumvent shore defenses, establish and build a beachhead, transport personnel and materiel to designated landing sites in the north or south of Taiwan's western coastline, and launch attacks to seize and occupy key targets or the entire island.

Large-scale amphibious invasion is one of the most complicated and difficult military operations. Success depends upon air and maritime superiority, the rapid buildup and sustainment of supplies onshore, and uninterrupted support. An attempt to invade Taiwan would likely strain China's armed forces and invite international intervention. These stresses, combined with China's combat force attrition and the complexity of urban warfare and counterinsurgency, even assuming a successful landing and breakout, make an amphibious invasion of Taiwan a significant political and military risk.

The PLA is capable of accomplishing various amphibious operations short of a full-scale invasion of Taiwan. With few overt military preparations beyond routine training, China could launch an invasion of small Taiwan-held islands in the South China Sea such as Pratas or Itu Aba. A PLA invasion of a medium-sized, better-defended island such as Matsu or Jinmen is within China's capabilities. Such an invasion would demonstrate military capability and political resolve while achieving tangible territorial gain and simultaneously showing some measure of restraint. However, this kind of operation involves significant, and possibly prohibitive, political risk because it could galvanize pro-independence sentiment on Taiwan and generate international opposition.

Effect of PLA Reform on a Taiwan Contingency

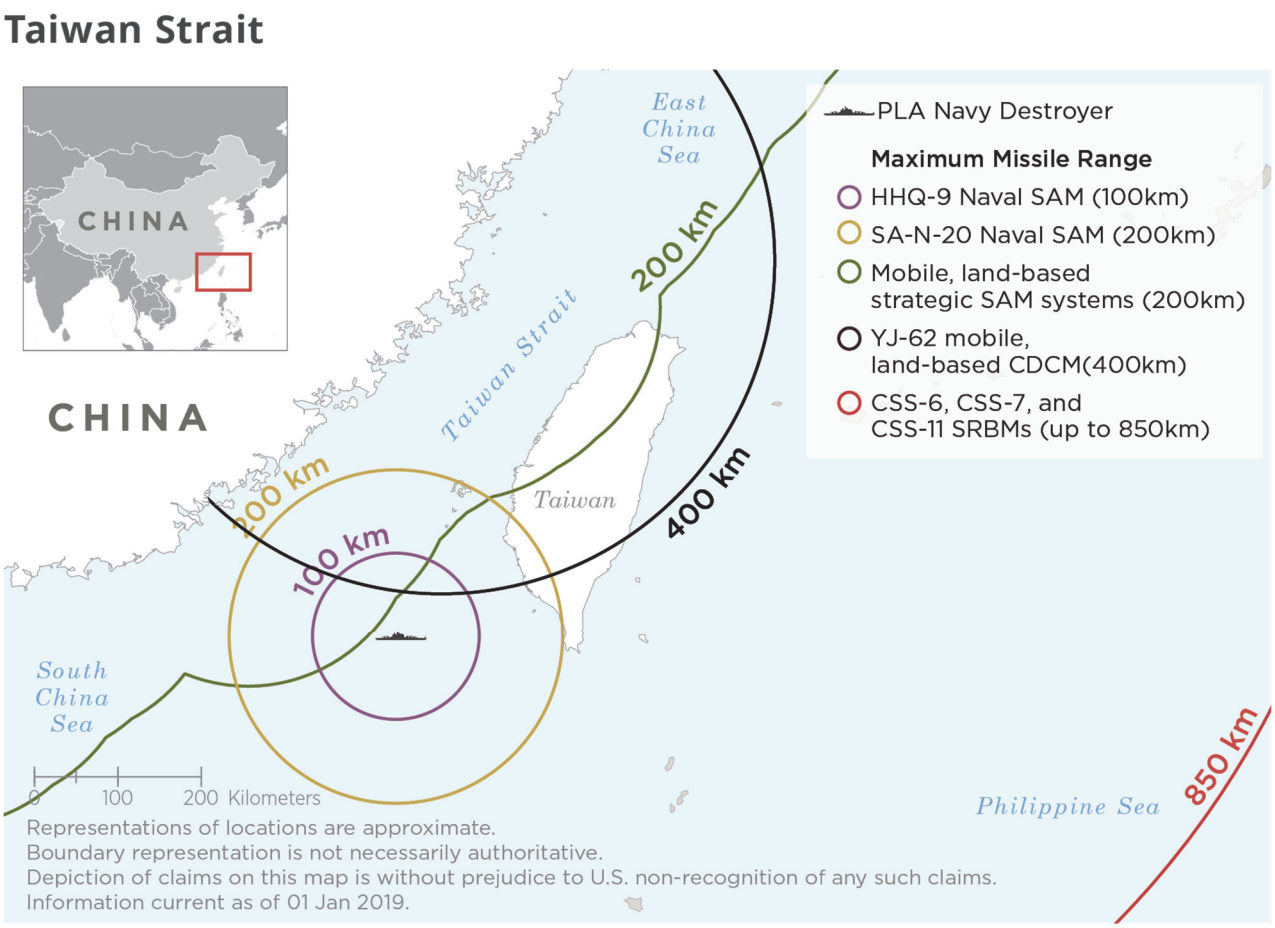
One of the overarching goals of the structural reforms to reshape the PLA was to construct a military capable of conducting complex joint operations, including those that would be involved in a Taiwan contingency. PLA reforms are aimed at clarifying command authorities, improving joint integration, and facilitating the transition from peace to war. The abolishment of military regions in favor of military theaters – in this case, the PLA's Eastern Theater Command (ETC) – has also likely streamlined and improved the PLA's ability to conduct yearlong planning and preparation for joint military operations across the Taiwan Strait. PLA combat units are likely experiencing decreased readiness and proficiency to conduct large-scale joint operations as they reorganize units, integrate new capabilities, and adjust to new command structures.

A significant addition to the overall structure of the PLA is the establishment of the SSF and the JLSF. During a Taiwan contingency, the JLSF, in conjunction with subordinate joint logistics support centers, would coordinate joint logistics and the delivery of materiel as well as oversee various civil-military support systems to sustain the campaign. The creation of the SSF likely improves the PLA's ability to execute and coordinate IO (particularly cyber, electronic warfare, and counterspace) in a Taiwan contingency. It may also improve the PLA's ability to manage and provide space-based reconnaissance to the CMC and the ETC, improving PLA command staffs' situational awareness of Taiwan's military units and facilities. The PLA is likely still exploring how to reform its joint command processes to integrate IO and ISR capabilities more fully at the theater-level, but structural reforms have removed the biggest barriers to integrating these strategic capabilities at the theater-level.

Structural reforms within the military and paramilitary forces also have implications on resources and operational capabilities available to the PLA for a future Taiwan contingency.

> In 2018, the PLAAF Airborne Corps conducted training exercises involving long-range raid and airborne operations based on actual warplans. The airborne corps underwent major changes in 2017, reorganizing its previous units into airborne infantry brigades, a special operations brigade, an aviation brigade, and a support brigade. Since 2017, ongoing PLA Army reforms have reduced the number of group armies from 18 to 13, retired or downsized army divisions into combined arms brigades, and reorganized the Army's two amphibious mechanized infantry divisions into amphibious brigades.

The PLANMC in 2018 continued to expand from two to six brigades, but the newly created units lack required equipment and operational training.



THE PLA'S CURRENT POSTURE FOR A TAIWAN CONFLICT

PLA Army (PLAA). The PLAA is improving and increasing its options for a Taiwan invasion. It is converting the bulk of its maneuver units to combined arms brigades, including the former amphibious divisions and amphibious armor brigades. As part of this change, the PLAA has increased the types of arms and combat support functions organic to these brigades, which should eventually create more capable, modular brigades and battalions. The expansion of army aviation and the creation of two new air assault brigades also provides more attack, air assault and close air support options for a Taiwan invasion. Additionally, the PLAA's ongoing fielding of advanced air defense, electronic warfare, and C2 systems enhances the combat power, force protection, and sustainment capabilities of its brigades. Improved communications networks

provide real-time data transmissions within and between units, enabling better C2 during operations, including between services. The PLAA continues to conduct company-level amphibious landing training, including during difficult weather and at night, but will need increased training at larger echelons to fully integrate their new structure and three-dimensional capabilities. As these new systems proliferate, the PLAA will increase its ability to establish, defend, and exploit a beachhead lodgment.

PLA Navy (PLAN). The PLAN is improving anti-air and anti-surface warfare capabilities, developing an at-sea nuclear deterrent, and introducing new multi-mission platforms capable of striking Taiwan in a cross-Strait conflict as well as conducting diverse missions in other contingency operations. New attack submarines, modern surface combatants with anti-air capability, 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. China's amphibious ship fleet, however, has in recent years focused on acquiring a small number of LPDs, indicating a near term focus on smaller scale expeditionary missions rather than a large number of LSTs and medium landing craft that would be necessary for a large-scale direct beach assault. There is also no indication China is significantly expanding its landing ship force at this time – suggesting a direct beach-assault operation requiring extensive lift is less likely in planning.

PLA Air Force (PLAAF). The PLAAF has maintained a force posture that provides a variety of capabilities for a Taiwan contingency. It has stationed a large number of advanced aircraft capable of conducting operations against Taiwan without requiring refueling, providing it with a significant capability to conduct air-superiority and ground-attack operations. A number of long-range air defense systems provide a strong layer of defense of China's mainland against counterattack. In addition, China'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 command and control facilities, air bases, radar sites, and others in an attempt to degrade Taiwan's defenses, neutralize Taiwan's leadership, or break the public's will to fight.

Strategic Support Force (SSF). PLA doctrinal writings emphasize the importance of space and cyberspace domains in joint operations. PLA writings suggest that the SSF would be responsible for the use of electronic warfare and cyber operations during a Taiwan contingency, as one of the missions of the force is "seizing and maintaining battlefield information control in contemporary informatized warfare."

Joint Logistics Support Force (JLSF). The PLA's JLSF, established in late 2016, has the primary goal of supporting a strategic campaign such as a Taiwan invasion by conducting C2 of joint logistics, delivering materiel, and overseeing various civil-military integration support mechanisms.

China's Amphibious Capabilities

The PLA continues to make modest gains in amphibious warfare by developing additional capabilities to conduct amphibious landings and seize and defend small islands. The PLA has 12 units organized and equipped to conduct amphibious operations. During the last five years, the PLAA and the PLANMC have fielded new equipment designed specifically for amphibious operations such as the ZBD-05 amphibious infantry fighting vehicle and the PLZ-07B amphibious self-propelled howitzer. The PLA has also made efforts to improve its ability to insert forces by air, restructuring the Airborne Corps and establishing Army Air assault units, which would which would be charged with aerial insertion and seizing key terrain. Both PLAA and PLANMC units equipped for amphibious operations conduct regular company- to battalion-level amphibious training exercises, and the PLA continues to integrate aerial insertion training into larger exercises, including dropping airborne forces from the Y-20 heavy-lift aircraft for the first time. However, the PLA rarely conducts amphibious exercises involving echelons above a battalion, though both PLAA and PLANMC units have emphasized the development of combined arms battalion formations since 2012.

In 2018, the PLANMC writ large made minimal gains in its proficiency to conduct amphibious operations. Only its original two brigades continued to demonstrate the capacity to conduct this mission set. Although the scale and tempo of PLANMC training increased in an effort to indoctrinate the new brigades, they have not received their full complement of required equipment and are not fully mission capable. Consequently, the scope of training was rudimentary and the new brigades remain unequipped to perform amphibious assault operations.

TAIWAN'S DEFENSIVE CAPABILITIES

Key Takeaways

- Taiwan's advantages continue to decline as China's modernization efforts continue.
- 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 2017 *National Defense Report* reflects adjustments to the military's strategy for defending the island, placing greater emphasis on protecting its littorals and near-shore coastal areas. The modified strategy stresses enhanced asymmetric capabilities, as well as suggesting greater reliance on Taiwan's Air Force and Navy.

Taiwan's armed forces are authorized to fill approximately 215,000 billets, including 188,000 active duty billets. Active duty forces are supported by reservists and civil defense volunteers. The Ministry of National Defense has stated that its goal is to fill 90 percent of the billets (or about 169,000) by 2020. Taiwan's military modernization program envisions a continued decrease in Taiwan's active duty force to approximately 175,000 personnel as part of a transition to an all-volunteer force. This transition has slowed due to severe difficulties recruiting enough volunteers. The cost savings from manpower reductions provides some margin to improve individual pay and benefits, housing, and incentive pay; however, these savings have been insufficient to cover the full increase in manpower-related costs needed to attract and retain personnel under the new system. The unanticipated magnitude of transition costs has led Taiwan to divert funds from foreign and indigenous defense acquisition programs, as well as near-term training and readiness. Taiwan also faces considerable equipment and readiness challenges.

In addition, Taiwan's military spending remains at approximately two percent of its gross domestic product. In October 2018, the MND said it would increase the island's defense budget by 5.6 percent to NT $346 billion ($11.3 billion). Meanwhile, China's official defense budget continues to grow, and for 2018, is roughly 14.5 times that of Taiwan, with much of it focused on developing the

capability to unify Taiwan with the mainland by force. Recognizing the growing disparity between their respective defense expenditures, Taiwan has stated that it is working to develop new concepts and capabilities for asymmetric warfare. Some specific areas of emphasis include offensive and defensive information and electronic warfare, high-speed stealth vessels, shore-based mobile missiles, rapid mining and minesweeping, unmanned aerial systems, and critical infrastructure protection. The United States maintains a "one-China" policy that is based on the Taiwan Relations Act (TRA) and the three Joint Communiqués. The United States opposes unilateral actions aimed at altering the status quo. The United States continues to support the peaceful resolution of cross-Strait issues in a manner, scope, and pace acceptable to both sides.

Consistent with the TRA, the United States contributes to peace, security, and stability in the Taiwan Strait by providing defense articles and services to enable Taiwan to maintain a sufficient self-defense capability. In September 2018, the United States announced the sale of $330 million in military equipment, comprised mostly of spare parts for various military aircraft including F-16, C-130, F-5, Indigenous Defense Fighter, all other aircraft systems and subsystems, and other related elements of logistics and program support. Since 2010, the United States has announced more than $15 billion in arms sales to Taiwan.

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RESOURCES FOR FORCE MODERNIZATION

Key Takeaways

- China's announced annual military budget increase continues more than 20 years of annual defense spending increases, sustaining China's position as the second-largest military spender in the world.
- China has mobilized vast resources in support of defense modernization, including "Made in China 2025" and other industrial development plans, as well as espionage activities to acquire sensitive, dual-use, or military-grade equipment.

China has the political will and fiscal strength to sustain a steady increase in defense spending during the next decade, which will help support PLA modernization, develop an integrated military-civilian defense industry, and explore new technologies with defense applications. China draws from diverse sources to support PLA modernization, including domestic defense investments, domestic defense-industrial development, a growing R&D and science and technology (S&T) base, dual-use technologies conveyed in part through civil-military integration, and the acquisition of foreign technology and expertise.

China's long-term goal is creating a wholly domestic defense-industrial sector, augmented by a strong commercial sector, to meet the needs of PLA modernization and compete as a top-tier supplier in the global arms trade. However, the PLA still looks to foreign capabilities to fill some critical, near-term capability gaps and accelerate the rate of advancement. China leverages foreign investments, commercial joint ventures, mergers and acquisitions (M&A), academic exchanges, the experience that Chinese students and researchers gain from studying in foreign nations, 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.

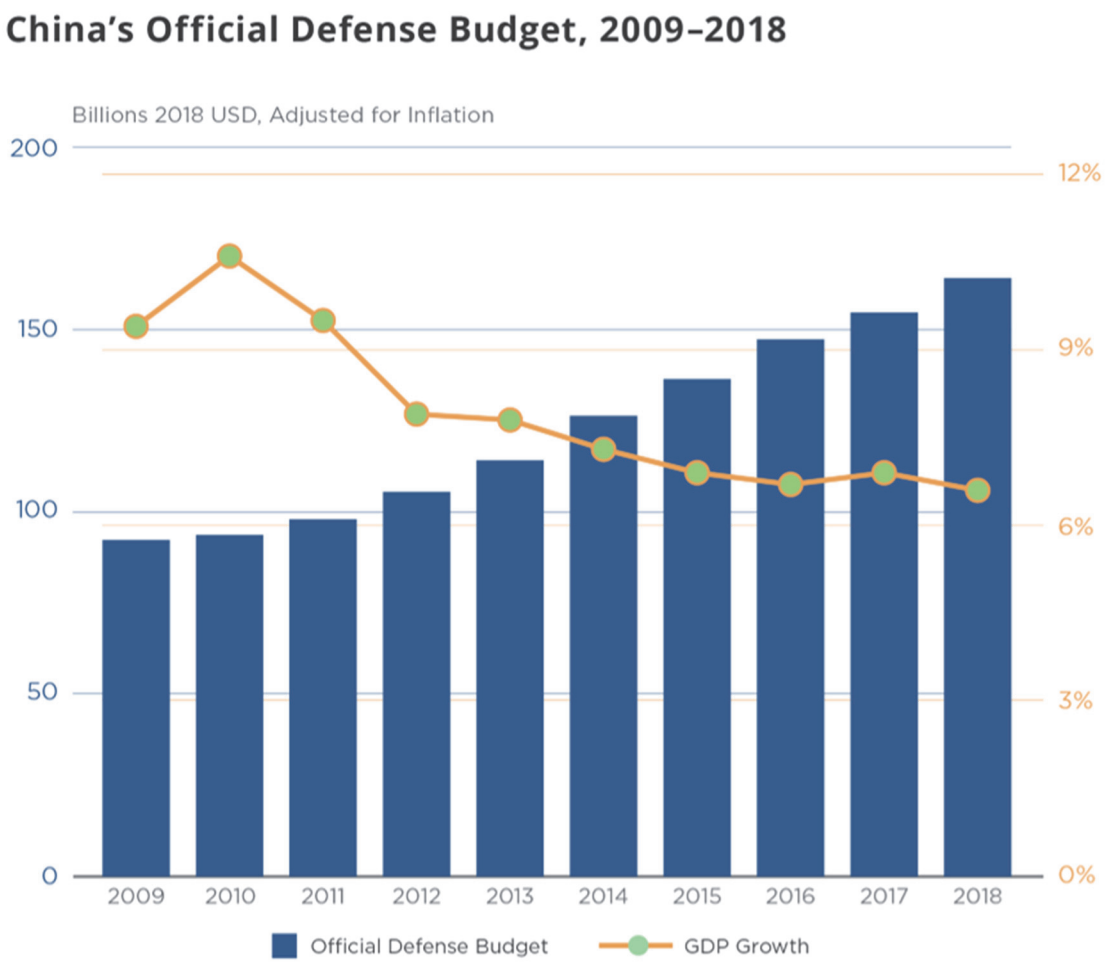
MILITARY EXPENDITURES TRENDS

Key Takeaways

- China's announced annual military budget increase sustains China's position as the second-largest military spender in the world.
- China's published military budget omits several major categories of expenditure; actual military-related spending is higher than its official budget.

In early 2018, China announced a 6.1-percent inflation-adjusted increase in its annual military budget, increasing it to $170.4 billion, approximately 1.3 percent of GDP. This budget continues more than 20 years of annual defense spending increases and sustains China's position as the second-largest military spender in the world after the United States. China's defense budget has nearly doubled during the past 10 years – data from 2009 through 2018 indicates that China's official

military budget grew at an annual average of 8 percent in inflation-adjusted terms during that period. China is positioned to support continued defense spending growth for at least the next 5 to 10 years, judging from economic data and growth projections.



China's Estimated Military Expenditures. China's published military budget omits several major categories of expenditures, including R&D and foreign weapons procurement. Actual military-related spending is higher than stated in the official budget, estimated at more than $200 billion in 2018. It is difficult to calculate actual military expenses, largely because of China's poor accounting transparency.

China's Estimated Defense Budget Growth. Over the next few years, China's official defense budget will likely increase by an annual average of 6 percent, growing to $260 billion by 2022. This will allow the PLA to dedicate more money for training, operations, and modernization following China's 2015 reforms, which reduced the PLA's size by 300,000 personnel. Economic forecasters project that China's economic growth will slow during the next 10 years, falling from 6.6 percent in 2018 to 3 percent in 2030, which could slow future defense spending growth. Assuming accurate economic projections and a steady defense burden, China will remain the largest spender in the Indo-Pacific region besides the United States.

2018 Official Defense Budget Comparison (adjusted for inflation to 2018 USD)

	Billion (USD)
China (official budget)	$170.4
India	$60.8
Japan	$47.4
Russia (national defense budget)	$43.8
South Korea	$36.6
Taiwan	$10.6

DEVELOPMENTS AND TRENDS IN CHINA'S DEFENSE INDUSTRY

Key Takeaways

- China's defense-industrial complex continues to adapt and reorganize to improve weapon system research, development, acquisition, test, evaluation, and production.
- China has realigned its S&T decision-making apparatus by establishing two advisory groups that promote a strategic approach to military modernization and enhance collaboration.

Defense Sector Reform. China's defense-industrial complex continues to adapt and reorganize to improve weapon system research, development, acquisition, test, evaluation, and production (RDATE&P). Inherent to this effort is a realignment of China's S&T decision-making apparatus and the establishment of two advisory groups at the highest levels of government. One group is focused on promoting a strategic approach to military modernization, and the other encourages innovation through a doctrine of increased collaboration between China's military- and state-owned (defense) industrial sector and its private and commercial industrial enterprises. During the past four years, the CMC and the State Council implemented organizational and policy changes to advance the PLA's defense research and increase its capacity for innovation through market sector cooperation.

- One of the most influential reforms to help improve RDATE&P occurred in 2015 with the establishment of the Strategic Committee of Science, Technology, and Industry Development for National Defense, a high-level advisory group chaired by the State Administration for Science, Technology, and Industry for National Defense. The committee, comprising military and civilian industrial, government, and technical leaders and experts, advises China's military and defense-industrial leaders on military modernization issues and on opportunities to develop emerging technologies.
- The CMC, in 2016, established the S&T Commission, a high-level defense research body, as an independent organization under the high command. It also emphasized Civil-Military Integration (CMI), a phrase used in part to refer to the defense and commercial industrial sectors sharing or combining resources to develop dual-use technologies, policies, and organizations for mutual benefit but with a particular emphasis on assimilating private sector innovation into the defense industrial base. The 2017 establishment of a Central Commission for Integrated Military and Civilian Development, responsible for overseeing CMI efforts, underscores the importance China assigns to this initiative.

- In early 2017, the PLA set up a Scientific Research Steering Committee, which falls directly under the CMC, consisting of scientists and engineers that have experience with cutting-edge technologies. Along with the CMC S&T Commission, the committee will spearhead S&T innovation by advising the CMC on early-stage research projects.
- In July 2017, China reorganized the three top PLA academic institutes – the PLA Academy of Military Science (AMS), the National Defense University, and the National University of Defense Technology – as part of its PLA reform initiative. With the new structure, the AMS will focus on scientific research related to military affairs, facilitating closer ties between military theory and S&T development.

In 2016, China adopted its 13th Five-Year Plan (2016–2020) which, among other things, sets focus areas for R&D and innovation. Many of the focus areas featured have defense implications, such as aerospace engines – including turbofan technology – and gas turbines; quantum communications and computing; innovative electronics and software; automation and robotics; special materials and applications; nanotechnology; neuroscience, neural research, and AI; and deep space exploration and on-orbit servicing and maintenance systems. China also is concentrating substantial R&D resources on nuclear fusion, hypersonic technology, and the deployment and hardening of an expanding constellation of multipurpose satellites.

Two of the most influential proponents in promoting and enforcing China's RDATE&P, S&T, and CMI initiatives are the State Administration for Science, Technology and Industry for National Defense and the CMC's Equipment Development Department (EDD), which work together to monitor and guide the state and military sides of China's defense-industrial apparatus, respectively. The EDD and its military service counterparts cooperate with China's 10 state-owned defense industrial corporations through a network of military representative bureaus and offices to supervise quality control and defense contract compliance. In 2018, the United States announced sanctions against the EDD related to purchases of military equipment from Russia and imposed pursuant to the Countering America's Adversaries Through Sanctions Act (CAATSA).

The National Science Foundation of China (NSFC), the China Academy of Sciences (CAS), and the Ministry of Science and Technology (MOST) are key to S&T decision-making, funding and promoting basic and applied research, scientific innovation, and high-tech integration throughout China's scientific, engineering, and civil-military industrial complex. CAS, working closely with NSFC, is the highest academic institution for comprehensive R&D in the natural and applied sciences in China and reports directly to the State Council in an advisory capacity, with

much of its work contributing to products for military use. The NSFC and CMC S&T Commission, key advisors on emerging and disruptive technologies, signed a five-year strategic cooperation agreement in August 2016 to collaborate on civil-military co-innovation and basic research for national defense.

MILITARY EQUIPMENT MODERNIZATION TRENDS

Key Takeaways

- Many of China's missile programs are comparable to other top-tier producers, and China can use aspects of the S-400 SAM system it began receiving from Russia in 2018 to reverse-engineer capabilities it lacks.
- China is the top ship-producing nation in the world by tonnage, with the capability to domestically produce naval gas turbine and diesel engines as well as shipboard weapons and electronic systems, making it nearly self-sufficient for all shipbuilding components.

Missile and Space Industry. Most of China's missile programs, including its ballistic and cruise missile systems, are comparable in quality to other international top-tier producers. China produces a wide range of ballistic, cruise, air-to-air, and surface-to-air missiles (SAMs) for the PLA and for export, which has enhanced its primary assembly and solid-propellant rocket motor production facilities. China received the first S-400 SAM system it purchased from Russia in April 2018. China can use aspects of the S-400 to reverse-engineer capabilities it lacks. China's space industry is rapidly expanding its ISR, navigation, and communication satellite constellations and making substantial strides in its space lift capabilities, human spaceflight, and lunar exploration programs. China is looking to expand its space launch vehicle industry to support commercial launches and make rapid satellite launch services available to foreign customers. China is planning to launch, assemble in-orbit, and operate a crewed Chinese space station before 2025.

Naval and Shipbuilding Industry. China is the top ship-producing nation in the world by tonnage, increasing its shipbuilding capacity and capability for all naval classes, including submarines and surface combatants as well as lift and amphibious ships. China's two largest state-owned shipbuilders – the China State Shipbuilding Corporation and the China Shipbuilding Industry Corporation – collaborate on ship designs and construction to increase shipbuilding efficiency. China produces its naval gas turbine and diesel engines domestically – as well as almost all shipboard weapons and electronic systems – making it nearly self-sufficient for all shipbuilding components.

Armaments Industry. China's production capacity is advancing in nearly every category of PLA ground systems, including armored personnel carriers, assault vehicles, air defense

artillery systems, artillery systems and pieces, and main and light battle tanks. Notably, China began testing unmanned Type-59 tanks in November 2018. China can produce ground weapon systems at or near world-class standards; however, quality deficiencies persist with some exported equipment, which is limiting China's ability to broadly expand export markets.

Aviation Industry. China's aviation industry has produced large transport aircraft, modern fourth- and fifth-generation fighters incorporating low-observable technologies, modern reconnaissance and attack UAVs, and attack helicopters. China's commercial aircraft industry has invested in high-tech machine tooling and production processes to develop avionics and other components needed to produce military aircraft. However, even with heavy investment in its aero-engine industry, China's military and commercial aircraft industry remains reliant on foreign-sourced components for dependable, proven, and high-performance aircraft engines as exemplified in China's decision in May 2018 to build its commercial C919 airliner with France's CFM International Leap 1C engine. China is developing the CJ-1000AX high-bypass turbofan to power the C919 and aims to have it enter service in 2021. China's ability to produce commercial and military aircraft is improving because of China's ongoing investment in the domestic ARJ21, C919, and CR929 wide-body commercial airliners and the Y-20 large transport program.

SCIENCE AND TECHNOLOGY GOALS IN SUPPORT OF MILITARY MODERNIZATION

Key Takeaways

- China's 13th Five-Year Plan calls for accelerating research on "majorly influential disruptive technologies" and the pursuit of "leapfrog" S&T developments in order to win "a competitive advantage in the new round of industry transformation."
- China has mobilized vast resources to fund research and subsidize companies involved in strategic S&T fields while pressing private firms, universities, and provincial governments to cooperate with the military in developing advanced technologies.
- China is pursuing a number of advanced military capabilities with disruptive potential such as hypersonic weapons, electromagnetic railguns, directed energy weapons, and counterspace capabilities.

State Plans. China has issued an array of major national plans over the last decade that stress indigenous innovation and the rapid development of strategic S&T sectors, such as information and communications technology, high-end manufacturing, alternative energy, and biotechnology. China's 13th Five-Year Plan calls for accelerating research on "majorly influential disruptive technologies" and the pursuit of "leapfrog" S&T developments in

order to win "a competitive advantage in the new round of industry transformation." China has increasingly funded basic research and made comprehensive efforts to grow the country's inventive capabilities over the last decade.

- The 2017 National Artificial Intelligence Plan describes steps for China to become the "world's major AI innovation center" by 2030 and calls for the country to accelerate the integration of AI with the economy, society, and national defense. The plan foresees a great expansion in the "breadth and depth of AI applications in… national defense construction."

- Other plans address the development of various sectors of China's robust Internet ecosystem to include cloud computing, the big data industry, e-commerce, and next-generation broadband wireless communications networks, including fifth-generation (5G) wireless networks. Due to information-sharing requirements with Chinese security services as stipulated in Chinese laws, worldwide expansion of Chinese-made equipment in 5G networks will challenge the security and resiliency of other countries' networks.

China continues to execute "Made in China 2025," an ambitious industrial masterplan centered around "smart manufacturing," that aims to create a vanguard of Chinese corporations that are global leaders in these 10 strategic industries: new generation information technology, high-grade machine tooling and robotics; aerospace equipment; marine engineering equipment and high-tech ships; advanced rail transportation equipment; new-energy automobiles; electric power equipment; agricultural equipment; new materials; and biomedicine and high-tech medical devices. The plan stresses the need to replace imported technology with domestically produced technology, a goal that corresponds with China's desire to reduce its reliance on other nations and develop a fully indigenous defense sector. In addition to presenting an economic challenge to nations that export high-tech products, the plan directly supports China's military modernization goals by stressing proprietary mastery of advanced dual-use technologies. China's leaders have softened their rhetoric regarding "Made in China 2025" in response to concerns that advanced industrial countries have regarding Chinese licit and illicit acquisition of sensitive intellectual property pursuant to that policy.

Heavy Government and Corporate Sector Investment. China has mobilized vast resources to fund research and subsidize companies involved in strategic S&T fields while pressing private firms, universities, and provincial governments to cooperate with the military in developing advanced technologies. Although China remains reliant on certain types of foreign technology, the country's decades-long execution of a strategy of advancing domestic S&T R&D through large-scale technology transfer has deepened the

expertise of Chinese scientists and engineers and placed them at, or near, the forefront of many scientific fields.

- Chinese state investment funds established to support priority industries have marshalled an estimated hundreds of billions of dollars in capital.
- China expects to field an exascale computer based on domestically produced technology by 2020, ahead of the United States, the European Union, and Japan.
- China conducted the first quantum-secured intercontinental videoconference in September 2017 and plans to have a satellite-enabled, global quantum-encrypted communications capability operational by 2030. China is also reportedly building the world's largest quantum research facility slated to open in the city of Hefei in 2020.
- In January 2018, scientists from CAS reported they had broken a technological barrier by successfully cloning primates.

China's private sector, led by Internet companies Baidu, Alibaba, and Tencent (BATs) and telecommunications equipment manufacturers Huawei and ZTE, is driving the development of emerging technologies, such as facial recognition and 5G, by establishing innovation centers and funding technology startups, or in the case of 5G, competing to build the world's next-generation networks. Chinese technology companies are also expanding into overseas markets, in some cases, by offering smart-city technologies, a development that could increase their access to foreign talent and data.

- In 2018, Tencent and Alibaba made intensive investments in the Chinese robotics start-up UBTech and the AI startup Sensetime, respectively.
- In November 2017, the Chinese start-up Yitu won a U.S. government-sponsored competition involving facial recognition technology. Yitu, along with other Chinese AI and facial recognition firms like SenseTime, Megvii, and Deepglint, reportedly received hundreds of millions of dollars in investments in 2017. China is the world's largest market for video surveillance technologies.
- The 2017 *National Intelligence Law* requires Chinese companies, such as Huawei and ZTE, to support, provide assistance, and cooperate in China's national intelligence work, wherever they operate.

Potential Military Applications. China is pursuing a number of advanced military capabilities with disruptive potential such as hypersonic weapons, electromagnetic railguns, directed energy weapons, and counterspace capabilities. The country's effort to build national corporate champions that achieve rapid market dominance across a range of frontier technologies directly complements the PLA's modernization efforts and carries

serious military implications. Given China's willingness to deploy emerging technologies rapidly and at massive scale as well as China's focus on CMI, the PLA would likely quickly benefit from any Chinese scientific breakthroughs with military utility. Potential military applications of some emerging technologies include:

- *AI and Advanced Robotics*: enhanced forecasting, manufacturing, C4ISR, and surveillance technology, unmanned systems, human-machine teaming, swarming technology, and lethal autonomous weapons.
- *Semiconductors and Advanced Computing*: enhanced cyber operations and weapons design, and shortened R&D cycles.
- *Quantum Technologies*: secure global communications, enhanced computing and decryption capabilities, detection of stealth platforms, and enhanced submarine navigation.
- *Hypersonic and Directed Energy Weapons*: global strike and defeat of missile defense systems, and anti-satellite, anti-missile, and anti-unmanned aircraft system capabilities.
- *Advanced Materials and Alternative Energy*: improved military equipment and weapon systems.

FOREIGN TECHNOLOGY ACQUISITION

Key Takeaways

- China is investing in the critical technologies that will be foundational for future innovations, both for commercial and military applications.
- In 2018, Chinese espionage efforts to acquire sensitive, dual-use, or military-grade equipment included dynamic random access memory, aviation technologies, and anti-submarine warfare technologies.

In 2018, China continued to supplement indigenous military modernization efforts through the acquisition of foreign technologies and know-how. China is actively pursuing an intensive campaign to obtain foreign technology through imports, foreign direct investment, industrial and cyberespionage, and establishment of foreign R&D centers. China is investing in the critical technologies that will be foundational for future innovations both for commercial and military applications: AI, robotics, autonomous vehicles, quantum information sciences, augmented and virtual reality, financial technology, and gene editing. The line demarcating products designed for commercial versus military purposes is blurring with these new technologies. China's legal acquisition efforts supplement its military-industrial base through methods and practices, which include:

- *Imports*: China acquires dual-use, export controlled technology by applying for licenses through the U.S. Department of Commerce. The majority of China's imports have traditionally been electronic and materials processing and test, inspection, and production equipment.
- *Foreign Direct Investment*: China actively invests in or outright purchases foreign companies that have technology, facilities, and people working in key technology areas.
- *Talent Recruitment*: China uses various incentive strategies to attract foreign personnel to work on and manage strategic programs and fill technical knowledge gaps, including the "Thousand Talents Program," which prioritizes recruiting people of Chinese descent or recent Chinese emigrants whose recruitment the Chinese government views as necessary to Chinese scientific and technical modernization, especially with regard to defense technology.
- *Research and Development Centers*: China actively seeks partnerships with private, government, and academic research labs to gain exposure to cutting-edge technology and researchers. These partnerships also provide the technical know-how to run, manage, and organize such facilities.

ESPIONAGE ACTIVITIES SUPPORTING CHINA'S MILITARY MODERNIZATION.

Multiple U.S. criminal indictments since 2015 involve Chinese nationals, non-ethnic Chinese U.S. citizens, and naturalized Chinese U.S. citizens or permanent resident aliens procuring and exporting controlled items to China, according to a U.S. Department of Justice summary of major U.S. export enforcement, economic espionage, and sanctions-related criminal cases. Chinese efforts to acquire sensitive, dual-use, or military-grade equipment included radiation hardened integrated circuits, monolithic microwave integrated circuits, accelerometers, gyroscopes, naval and marine technologies, syntactic foam trade secrets, space communications, military communication jamming equipment, dynamic random access memory, aviation technologies, and anti-submarine warfare.

- In November 2018, a Chinese national residing in the United States was charged with conspiring to export devices with military applications to Chinese government and military actors. The Chinese national fulfilled instructions from the Chinese military to obtain dual-use technology used for anti-submarine warfare and other advanced military capabilities. This included remotely operated side scan sonar systems, hydrophones, robotic boats, unmanned

underwater vehicles, and unmanned surface vehicles.

- In October 2018, a group of Chinese Ministry of State Security (MSS) intelligence officers, associated cyber actors, and other co-conspirators were indicted on charges of conspiring to steal sensitive technological information related to turbofan engines used in commercial airliners. At the time of the intrusions, a Chinese state-owned enterprise was developing a comparable engine for use in commercial aircraft manufactured in China and elsewhere.
- In October 2018, a Chinese MSS officer was arrested and charged with economic espionage involving the theft of trade secrets for civilian and military aircraft technology related to engineering services and signature material, advanced communication systems, jet engines and aircraft propulsion, and engine containment structures from leading U.S. aviation firms. In addition, the officer targeted industry experts for recruitment by facilitating travel to China under the guise of delivering university presentations. The intelligence officer also provided monetary compensation and other forms of reimbursement to these experts.
- In September 2018, a Chinese state-owned enterprise was implicated in a conspiracy to commit economic espionage through the theft, conveyance, and possession of stolen trade secrets from a U.S. semiconductor company. The U.S. company is a global leader in the semiconductor industry and specializes in dynamic random-access memory (DRAM). China identifies DRAM development as a national priority.
- Also in September 2018, a Chinese national was charged for acting within the United States as an illegal agent of the Chinese government. The MSS tasked the Chinese national with providing biographical data on individuals for recruitment, including Chinese nationals working in the United States as engineers and scientists (some as defense contractors). The Chinese national entered the United States on a student visa to study electrical engineering and enlisted in the U.S. Army Reserves under the Military Accessions Vital to the National Interest program.

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U.S.-CHINA MILITARY-TO-MILITARY CONTACTS

Key Takeaways

- DoD engagement with China supports overall U.S. policy and strategy toward China.
- DoD conducted multiple senior level engagements with China in 2018.

U.S. STRATEGY FOR ENGAGEMENT

Key Takeaways

- DoD's plan for military-to-military contacts with China advances DoD objectives in the *National Defense Strategy* toward the long-term goal of advancing transparency and non-aggression.
- U.S.-China defense contacts promote sustained and substantive dialogue to reduce risk.

U.S. defense contacts and exchanges conducted in 2018 were designed to support overall U.S. policy and strategy toward China. The 2017 *National Security Strategy*, the 2018 *National Defense Strategy*, the 2018 *Nuclear Posture Review*, and the 2019 *Missile Defense Review* recognize the growing trend of military competition in a dynamic security environment. The United States will compete from a position of strength while encouraging China to cooperate with the United States on security issues where our interests align. DoD engagements with China seek to reduce risk and prevent misunderstanding in times of increased tension. Engagements are conducted in accordance with the statutory limitations of the National Defense Authorization Act for Fiscal Year 2000, as amended.

Military-to-military contacts with China aim to build the structures and habits necessary to prevent, defuse, and manage crises. In 2018, DoD's plan for military-to-military contacts with China focused on three interconnected priorities: (1) encouraging China to act in ways consistent with the free and open international order; (2) promoting risk reduction and risk management efforts that diminish the potential for misunderstanding or miscalculation; and (3) deconflicting forces operating in close proximity.

The pace and scope of China's military modernization provides opportunities as well as challenges for military-to-military engagement. As China's military develops and expands its reach, the risk of an accident or miscalculation also increases, putting a premium on risk reduction efforts and highlighting the need to ensure the operational safety of forces operating in close proximity.

Pursuit of a constructive, results-oriented relationship with China is an important part of U.S. strategy in the Indo-Pacific region. The *National Defense Strategy* aims to set the military-to- military relationship on a path of transparency and non-aggression, and to encourage China to act in a manner consistent with the free and open international order.

MILITARY-TO-MILITARY ENGAGEMENT IN 2018 – HIGHLIGHTS

Key Takeaways

- High-level contacts enable U.S. leaders to challenge PRC behaviors that are inconsistent with the free and open international order, gain insight into China's strategic intent, manage differences, and cooperate where our interests align.
- For example, the Secretary of Defense met with the Chinese Minister of National Defense on multiple occasions during the year and, alongside the Secretary of State, hosted the second U.S.-China Diplomatic and Security Dialogue in Washington, D.C.
- Recurring institutionalized events serve as a mechanism for dialogue at the strategic and policy-levels, including risk reduction and practical cooperation.
- Functional engagements focus on risk reduction and communication channels to promote deconfliction and coordination.
- Exchanges improve the ability to interact and coordinate in providing international public goods in areas of mutual interest.

DoD conducts all contacts with China in a manner consistent with the relevant provisions of the National Defense Authorization Act for Fiscal Year 2000, as amended.

In 2018, the U.S. and China military-to-military relationship focused on advancing strategic communications and reducing the risk of misunderstanding or miscalculation through high-level engagements and recurrent exchanges. The Secretary of Defense met with the Chinese Minister of National Defense on three occasions during the year, and the two militaries advanced consultations on air and maritime safety via the Military Maritime Consultative Agreement meetings.

DoD continued to make progress with the PLA in developing the capacity to cooperate in multilateral settings. The two militaries participated in a Disaster Management Exchange with an emphasis on deconfliction in a Multinational Coordination Cell. Such examples of military-to-military engagement enable risk reduction and enhance understanding of how each side interacts in the delivery of international public goods. As the 2018 *National Defense Strategy* states, the United States is "open to opportunities for cooperation but from a position of strength and based on our national interests. Should cooperation fail, we will be ready to defend the American people, our values, and interests."

Selected visits and exchanges are highlighted below. A complete list of 2018 engagements is provided in Appendix II.

High-Level Visits and Engagements. High-level contacts are an important means to exchange views on the international security environment, to identify areas of common interest, to manage differences, and to facilitate

common approaches to shared challenges. Discussions focused on areas of military cooperation and candidly addressed differences.

In June 2018, then-Secretary of Defense James Mattis visited Beijing. In separate meetings, the Secretary met with Chinese President Xi Jinping, Politburo Member Yang Jiechi, Central Military Commission Vice Chairman Xu Qiliang, and Minister of National Defense Wei Fenghe.

In October 2018, the Secretary of Defense met with Minster Wei on the margins of the ASEAN Defense Ministers' Meeting (ADMM)-Plus. The following month, the Secretary hosted Minister Wei in Washington, D.C. Also in November 2018, the Secretaries of State and Defense hosted the second U.S.-China Diplomatic and Security Dialogue (D&SD) in Washington, D.C. The D&SD represents the highest-level defense and diplomatic framework for dialogue to narrow differences on key diplomatic and security issues. The Chinese side, represented by Politburo Member Yang Jiechi and Defense Minister Wei, participated in the talks designed to focus bilateral discussion on ways to improve relations, contribute to greater risk reduction, and maintain effective channels of communication. Both sides engaged on strategic topics, discussed differences, and affirmed a strong commitment to a results oriented bilateral relationship.

In May 2018, U.S. Chief of Staff of the Army General Mark Milley hosted General Han Weiguo, Commander of the PLA Army, in Washington, D.C., to discuss the military-to-military relationship and issues of concern. Vice Admiral Shen Jinlong, PLAN Commander, visited the United States in September 2018 and attended the International Seapower Symposium, but was recalled by the Chinese government after the United States announced sanctions against the CMC's Equipment Development Department (EDD). The sanctions, related to purchases of military equipment from Russia and imposed pursuant to CAATSA, are intended to inflict costs on Russia for its malign activities.

In January 2018, the Chairman of the Joint Chiefs of Staff General Joseph Dunford conducted a video teleconference through the Defense Telephone Link (DTL) with Chief of the Joint Staff Department General Li Zuocheng. In June 2018 and again in December 2018, Chief of Naval Operations Admiral John Richardson conducted a video teleconference through the DTL with PLAN Commander Shen. The DTL enables sustained channels of communication between defense leaders.

Recurrent Exchanges. Recurring institutionalized events form the backbone of U.S.-China defense discussions each year. They serve as a regularized mechanism for dialogue at the strategic and policy levels, including risk reduction and practical cooperation.

In May 2018, the Military Maritime Consultative Agreement (MMCA) Working Group met in Honolulu to improve maritime safety through open communication between U.S. and Chinese naval and air forces. In December 2018, the MMCA Working Group and MMCA Plenary convened in Qingdao. Major General Joaquin Malavet, Director for Strategic Planning and Policy, U.S. Indo-Pacific Command (INDOPACOM), and representatives from U.S. Pacific Air Forces, U.S. Pacific Fleet, and U.S. Africa Command (AFRICOM) met with a PLAN and PLAAF delegation led by Rear Admiral Wang Zhongcai, PLAN Deputy Chief of Staff. Both sides reviewed unsafe incidents over the last year and discussed implementation and assessment of the Rules of Behavior for Safety of Air and Maritime Encounters Memorandum of Understanding.

In December 2018, Acting Deputy Assistant Secretary of Defense for East Asia Brigadier General Roberta Shea hosted the Defense Policy Coordination Talks with Major General Huang Xueping, Deputy Director, Office for International Military Cooperation (OIMC). The U.S. delegation included representatives from the Joint Staff, INDOPACOM, and the Department of State. The dialogue covered issues ranging from military to military engagements, confidence-building measures, key bilateral defense issues, and practical areas of cooperation.

In September 2018, China postponed a planned Joint Staff Dialogue Mechanism meeting after the United States announced sanctions against the EDD.

Functional and Academic Exchanges. Functional engagements focus on advancing risk reduction, understanding, and communication channels to promote deconfliction and coordination. Functional exchanges such as port calls are also used to enhance operational safety and exercise communications and navigation protocols.

In May 2018, the United States disinvited the PLAN from the 2018 RIM OF THE PACIFIC (RIMPAC) exercise as a result of China's continued militarization of disputed features in the South China Sea, violating a pledge by Chinese President Xi Jinping not to militarize the Spratly Islands.

In November 2018, PLA and U.S. Army soldiers participated in a Disaster Management Exchange (DME) in Nanjing. U.S. Army Pacific Commander, General Robert Brown, met with Lieutenant General Qin Weijiang, Deputy Commander of the PLA Eastern Theater Command. The exchange focused on HA/DR in an earthquake scenario in a third country in which both armies would interact as part of a Multinational Coordination Center.

Reciprocal academic exchanges – including between functional officers, rising leaders, and institutions of professional military education – help to identify and explore new areas of cooperation, discuss differences, and serve to

develop a generation of leaders on both sides who are knowledgeable and adept at handling this increasingly complex and vital relationship. Increasing contacts between mid-level officers is an important objective for both militaries as they seek to build familiarity and mutual understanding between future leaders.

In January 2018, a U.S. Army War College delegation visited China, followed by a March 2018 Air War College delegation to China. In April 2018, a PLA Air Force Command College Delegation visited the United States. In May 2018, separate delegations from U.S. National Defense University CAPSTONE and the U.S. Marine Corps War College visited China. Also in May 2018, PLA general officers visited the United States as part of a delegation of students in the strategic-level "Dragons" course from the PLA National Defense University. In December 2018, a PLA Academy of Military Science delegation visited the United States. These visits and other academic exchanges during the year offered an opportunity to increase understanding of China through engagements with various echelons of the PLA.

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PLANNING FOR MILITARY-TO-MILITARY ENGAGEMENTS IN 2019

A list of planned engagements for 2019 is provided in Appendix II

SPECIAL TOPIC: INFLUENCE OPERATIONS

The PLA has emphasized the development of its Three Warfares strategy in its operational planning since at least 2003. Three Warfares is comprised of psychological warfare, public opinion warfare, and legal warfare. Psychological warfare uses propaganda, deception, threats, and coercion to affect the adversary's decision-making capability. Public opinion warfare disseminates information for public consumption to guide and influence public opinion and gain support from domestic and international audiences. Legal warfare uses international and domestic laws to gain international support, manage political repercussions, and sway target audiences. China views the cyberspace domain as a platform providing opportunities for influence operations, and the PLA likely seeks to use online influence activities to support its overall Three Warfares strategy and to undermine an adversary's resolve in a contingency or conflict.

Consistent with this strategy, China conducts influence operations against cultural institutions, media organizations, and the business, academic, and policy communities of the United States, other countries, and international institutions to achieve outcomes favorable to its security and military strategy objectives. The CCP seeks to condition domestic, foreign, and multilateral political establishments and public opinion to accept China's narrative surrounding its priorities like OBOR and South China Sea territorial and maritime claims. Chinese influence operations are coordinated at a high level and executed by a range of actors, such as the United Front Work Department, the Propaganda Ministry, and the Ministry of State Security.

A cornerstone of China's strategy includes appealing to overseas Chinese citizens or ethnic Chinese citizens of other countries to advance Party objectives through soft power. China also sometimes uses coercion or blackmail to manipulate overseas Chinese citizens to conduct influence operations on behalf of China, such as threatening ethnic Uighurs living in the United States with imprisonment of their family members. Chinese intelligence services often facilitate these operations. Additionally, China targets ethnic Chinese citizens of other countries to support its foreign technology acquisition strategy; its "Thousand Talents Program" prioritizes recruiting people of Chinese descent or recent Chinese emigrants whose recruitment the Chinese government views as necessary to China's scientific and technical modernization, especially with regard to defense technology.

Furthermore, China harnesses academia and educational institutions, think tanks, and state-run media to advance its soft power campaign in support of China's security interests. For example, Chinese students abroad and academic organizations are used to spread the Party's narrative on Tibet and the Dalai Lama. Chinese Students and Scholars Associations (CSSAs) and Confucius Institutes organize events to support China's sovereignty claims and lodge complaints and organize protests against academic institutions that conduct activities which differ from China's polices. As of 2018, Xinhua News Agency, China's largest state-run media outlet and the Party's official mouthpiece, has not complied with the U.S. Department of Justice's request to register the agency's U.S. staff as foreign

agents under the Foreign Agents Registration Act (FARA). China's leaders probably consider open democracies as susceptible to influence operations, including the United States.

China's foreign influence activities are predominately focused on establishing and maintaining power brokers within a foreign government to promote policies that China believes will facilitate China's rise, despite China's stated position of not interfering in foreign countries' internal affairs. China's diplomatic outreach stresses building personal rapport with influential people, providing assistance, and emphasizing "win-win cooperation" through trade and diplomacy. This approach allows China to offer expedited, small-scale accomplishments for partners abroad, often in exchange for seemingly symbolic gestures that support China's long-term strategic goals. Some countries have begun to implement policy responses to Chinese influence activities, including within the European Union as well as Australia and New Zealand.

SPECIAL TOPIC: CHINA IN THE ARCTIC

China has increased activities and engagement in the Arctic region since gaining observer status on the Arctic Council in 2013. In January 2018, China published its first Arctic strategy that promoted a "Polar Silk Road" and self-declared China to be a "Near-Arctic State." The strategy identifies China's interests as access to natural resources, securing Arctic SLOCs, and promoting an image of a "responsible major country" in Arctic affairs. The strategy highlights China's icebreaker vessels and research stations as integral to its implementation.

China maintains research stations in Iceland and Norway and operates one Ukrainian-built icebreaking research vessel, the *Xuelong*, which in 2017 completed its 8th Arctic expedition and became the first Chinese official vessel to traverse Canada's Northwest Passage. In 2016, China commissioned the first of a new series of "ice-capable" patrol boats. In late September 2018, the *Xuelong* completed its 9th Arctic expedition. In September, China also launched its second icebreaking research vessel, the domestically built *Xuelong 2*. The *Xuelong 2* will be able to break ice 1.5 meters thick, compared to the original *Xuelong*'s maximum of 1.2 meters. Furthermore, the *Xuelong 2* is the first polar research vessel that can break ice while moving forwards or backwards.

Arctic border countries have raised concerns about China's expanding capabilities and interest in the region. The government of Denmark has publicly expressed concern about China's interest in Greenland, which has included proposals to establish a research station in Greenland, establish a satellite ground station, renovate airports, and expand mining. Civilian research could support a strengthened Chinese military presence in the Arctic Ocean, which could include deploying submarines to the region as a deterrent against nuclear attacks. In September 2018, a Russian expert at the Russian International Affairs Council stated the Russian Federation was strongly opposed to foreign icebreakers operating on the Northern Sea Route, including U.S. and Chinese icebreakers. Outside potential friction over the Northern Sea Route, the Arctic region is an area of opportunity for Sino-Russian commercial cooperation, in addition to energy development and infrastructure projects such as the Yamal liquefied natural gas project.

APPENDIX I: CHINA AND TAIWAN FORCES DATA

Due to ongoing restructuring of combat units as part of PLA reforms, the characterization and numbers of units and systems are approximate as units are in the process of establishing, downsizing, reorganizing, or disbanding. The data in this year's report also consequently applies a new methodology that may result in significantly different numbers than shown in previous reports, but does not necessarily reflect a sudden change in capability.

Taiwan Strait Military Balance, Ground Forces

	China		Taiwan
	Total	*Eastern and Southern Theaters*	*Total*
Total Ground Force Personnel [1]	1,020,000	408,000	140,000
Group Armies	13	5	3
Combined Arms Brigades	78 (includes 5 with amphibious role)	30 (includes 5 with amphibious role)	NA
Mechanized Infantry Brigades	Transitioning to Combined Arms Brigades (see above)		3
Motorized Infantry Brigades			6
Armor Brigades			4
Air Assault/Army Aviation Brigades	15	5	4
Artillery Brigades	15	5	3
Airborne Brigades	6	6	0
Marine Brigades	6	4	2
Tanks	5,800	UNKNOWN	800
Artillery Pieces	8,000	UNKNOWN	1,000

Note: This chart focuses on PLA combat units and applies observed widespread changes in the new group armies to all group army units. Methodology applied for the new group army construct as the PLA Army transitions to brigades is one of each specialty brigade (army aviation/air assault and artillery) and six combined arms brigades. Some units are likely in the early stages of development and not fully operational. The "Taiwan Strait Area" includes select national-level assets and units in the PLA's Eastern and Southern Theater Commands. We are unable to estimate the number of tanks and field artillery located in these two theaters at this time.

[1] Of the 1,020,000 personnel in the PLA ground forces, it is estimated that 915,000 are in combat units, with 360,000 in the Taiwan Strait Area.

Taiwan Strait Military Balance, Naval Forces

	China		Taiwan
	Total	*Eastern and Southern Theater*	*Total*
Aircraft Carriers	1	0	0
Destroyers	33	23	4
Frigates	54	43	22
Corvettes	42	33	0
Tank Landing Ships/ Amphibious Transport Dock	37	35	14
Medium Landing Ships	22	16	0
Diesel Attack Submarines	50	34	2
Nuclear Attack Submarines	6	2	0
Ballistic Missile Submarines	4	4	0
Coastal Patrol (Missile)	86	68	44
Coast Guard Ships	248	N / A	23

Note: The PLA Navy has the largest force of principal combatants, submarines, and amphibious warfare ships in Asia. In the event of a major Taiwan conflict, the Eastern and Southern Theater Navies would participate in direct action against the Taiwan Navy. The Northern Theater Navy (not shown) would be responsible primarily for protecting the sea approaches to China, but could provide mission-critical assets to support other fleets. In conflict, China may also employ CCG and PAFMM ships to support military operations. This table reflects operational units and does not include units under construction, outfitting, or conducting sea trials.

Taiwan Strait Military Balance, Air Forces

	China		Taiwan
	Total	*Eastern and Southern Theater*	*Total*
Fighters	1,500 (2,600*)	600 (750*)	350 (450*)
Bombers/Attack	450	250	0
Transport	450	30	30
Special Mission Aircraft	150	90	30

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.

*The totals in parentheses include fighter trainers.

China's Rocket Force

System	*Launchers*	*Missiles*	*Estimated Range*
ICBM	90	90	>5,500km
IRBM	80	80-160	3,000-5,500km
MRBM	150	150-450	1,000-3,000km
SRBM	250	750-1500	300-1,000km
GLCM	90	270-540	>1,500km

APPENDIX II: MILITARY-TO-MILITARY EXCHANGES

U.S.-CHINA MILITARY-TO-MILITARY CONTACTS FOR 2018	
HIGH-LEVEL VISITS TO CHINA	***Month (2018)***
Secretary of Defense	June
HIGH-LEVEL VISITS TO UNITED STATES	
PLA Army Commander	May
Minister of Defense	November
RECURRENT EXCHANGES	
Diplomatic and Security Dialogue	November
Military Maritime Consultative Agreement Working Group in the United States and the Working Group and Plenary in China	May/ December
Defense Policy Coordination Talks in the United States	December
ACADEMIC EXCHANGES	
U.S. Army War College Delegation to China	January
U.S. Air War College Delegation to China	March
PLA Air Force Command College Delegation to United States	April
U.S. National Defense University CAPSTONE Delegation to China	May
U.S. Marine Corps War College Delegation to China	May
PLA National Defense University Delegation to United States	May
PLA Academy of Military Science Delegation to United States	December
FUNCTIONAL EXCHANGES	
Disaster Management Exchange in China	November

U.S.-CHINA MILITARY-TO-MILITARY EXCHANGES PLANNED FOR 2019
HIGH-LEVEL VISITS TO CHINA
U.S. Senior Defense or Military Leader to China (TBD)
HIGH-LEVEL VISITS TO UNITED STATES
PRC Senior Defense or Military Leader to the United States (TBD)
INSTITUTIONALIZED EXCHANGES
Defense Policy Coordination Talks (TBD)
Joint Staff Dialogue Mechanism (TBD)
MMCA Plenary and Working Groups (TBD)
Defense Consultative Talks (TBD)
Asia-Pacific Security Dialogue (TBD)
ACADEMIC EXCHANGES
PRC Academy delegation to the United States (TBD)
U.S. NDU or Academy delegation to China (TBD)
FUNCTIONAL EXCHANGES
Disaster Management Exchange (TBD)
PLA Navy Ship Visit to the United States (TBD)
U.S. Navy Ship Visit to China (TBD)

APPENDIX III: CHINA'S TOP CRUDE SUPPLIERS IN 2018

China's Top Crude Suppliers 2018		
Country	**Volume (1,000 barrels/day)**	**Percentage of Imported Crude Oil**
Russia	1,434	15
Saudi Arabia	1,136	12
Angola	949	10
Iraq	902	10
Oman	659	7
Brazil	633	7
Iran	586	6
Kuwait	465	5
Venezuela	333	4
Congo (Brazzaville)	252	3
Others	1,903	21
Total	**9,252**	**100**

APPENDIX IV: ACRONYMS

A2/AD	Anti-access/area denial
AEW&C	Airborne early warning and control
AFRICOM	United States Africa Command
AGI	Intelligence collection ship
AI	Artificial intelligence
AIIB	Asian Infrastructure Investment Bank
APT10	Advanced Persistent Threat 10
ASBM	Anti-ship ballistic missile
ASCM	Anti-ship cruise missile
ASEAN	Association of Southeast Asian Nations
ASW	Anti-submarine warfare
BAT	Baidu Alibaba Tencent
BMD	Ballistic missile defense
C2	Command and control
C4I	Command, control, communications, computers, and intelligence
C4ISR	Command, control, communications, computers, intelligence, surveillance, and reconnaissance
CAS	China Academy of Sciences
CASIC	China Aerospace and Science Industry Corporation
CCG	China Coast Guard
CCP	Chinese Communist Party
CG	Cruiser
CMC	Central Military Commission
CMI	Civil-Military Integration
DDG	Guided missile destroyer
DIB	Defense industrial base
DoD	U.S. Department of Defense
DPP	Democratic Progressive Party
EDD	Equipment Development Department
EEZ	Exclusive economic zone
EW	Electronic warfare
FFG	Guided-missile frigate
FFL	Corvette
GDP	Gross domestic product
GLCM	Ground-launched cruise missile
GPS	Global Positioning System
HA/DR	Humanitarian assistance/disaster relief
IADS	Integrated air defense system
ICBM	Intercontinental ballistic missile

ICT	Information and communications technology
IEA	International Energy Agency
IO	Information operations
INDOPACOM	United States Indo-Pacific Command
INTERPOL	International police
IRBM	Intermediate-range ballistic missile
ISR	Intelligence, surveillance, reconnaissance
JLSF	Joint Logistics Support Force
JOCC	Joint Operations Command Center
JSD	Joint Staff Department
LACM	Land-attack cruise missile
LOSC	Law of the Sea Convention
LPD	Amphibious transport dock
LST	Tank landing ship
MaRV	Maneuverable reentry vehicle
MIRV	Multiple independently targeted reentry vehicles
MOOTW	Military operations other than war
MPS	Ministry of Public Security
MR	Military region
MRBM	Medium-range ballistic missile
MSS	Ministry of State Security
NFU	"No first use"
NSC	National Security Commission
NSFC	National Science Foundation of China
OBOR	"One Belt, One Road" Initiative
OTH	Over-the-horizon
PAP	People's Armed Police
PKO	Peacekeeping operations
PAFMM	People's Armed Forces Maritime Militia
PLA	People's Liberation Army
PLAA	PLA Army
PLAAF	PLA Air Force
PLAN	PLA Navy
PLANMC	PLA Navy Marine Corps
PLARF	PLA Rocket Force
PRC	People's Republic of China
R&D	Research and development
RIMPAC	RIM OF THE PACIFIC
S&T	Science and technology
SAM	Surface-to-air missile

SLBM	Submarine-launched ballistic missile
SLOC	Sea lines of communication
SLV	Space Launch Vehicles
SOF	Special operations forces
SRBM	Short-range ballistic missile
SS	Diesel-powered attack submarine
SSBN	Nuclear-powered ballistic missile submarine
SSF	Strategic Support Force
SSN	Nuclear-powered attack submarine
SSP	Air-independent attack submarine