ANNUAL REPORT TO CONGRESS

Military and Security Developments Involving the People's Republic of China 2016

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 2016

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

Section 1246, "Annual Report on Military and Security Developments Involving the People's Republic of China," of the National Defense Authorization Act for Fiscal Year 2010, Public Law 111-84, 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



The long-term, comprehensive modernization of the armed forces of the People's Republic of China (PRC) entered a new phase in 2015 as China unveiled sweeping organizational reforms to overhaul the entire military structure. These reforms aim to strengthen the Chinese Communist Party's (CCP) control over the military, enhance the PLA's ability to conduct joint operations, and improve its ability to fight short-duration, high-intensity regional conflicts at greater distances from the Chinese mainland. China's leaders seek ways to leverage China's growing military, diplomatic, and economic clout to advance its ambitions to establish regional preeminence and expand its international influence. Chinese leaders have characterized modernization of the People's Liberation Army (PLA) as essential to achieving great power status and what Chinese President Xi Jinping calls the "China Dream" of national rejuvenation. They portray a strong military as critical to advancing Chinese interests, preventing other countries from taking steps that would damage those interests, and ensuring that China can defend itself and its sovereignty claims.

Throughout 2015, China continued to assert sovereignty claims over features in the East and South China Seas. In the East China Sea, China continued to use maritime law enforcement ships and aircraft to patrol near the Senkaku (Diaoyu) Islands in order to challenge Japan's claim. In the South China Sea, China paused its land reclamation effort in the Spratly Islands in late 2015 after adding more than 3,200 acres of land to the seven features it occupies in the archipelago. Although these artificial islands do not provide China with any additional territorial or maritime rights within the South China Sea, China will be able to use them as persistent civil-military bases to enhance its long-term presence in the South China Sea significantly.

China demonstrated a willingness to tolerate higher levels of tension in the pursuit of its interests, especially in pursuit of its territorial claims in the East and South China Sea; however, China still seeks to avoid direct and explicit conflict with the United States. China's leaders understand that instability or conflict would jeopardize the peaceful external environment that has enabled China's economic development, which is central to the perpetuation of the CCP's domestic legitimacy. In the near-term, China is using coercive tactics short of armed conflict, such as the use of law enforcement vessels to enforce maritime claims, to advance their interests in ways that are calculated to fall below the threshold of provoking conflict.

In the long term, Chinese leaders are focused on developing the capabilities they deem necessary to deter or defeat adversary power projection and counter third-party—including U.S.—intervention during a crisis or conflict. China's military modernization is producing capabilities that have the potential to reduce core U.S. military technological advantages.

China's officially-disclosed military budget grew at an average of 9.8 percent per year in inflation-adjusted terms from 2006 through 2015, and Chinese leaders seem committed to sustaining defense spending growth for the foreseeable future, even as China's economic growth decelerates.

The PRC continues to focus on preparing for potential conflict in the Taiwan Strait, but additional missions, such as contingencies in the East and South China Seas and on the Korean peninsula, are increasingly important to the PLA. Moreover, as China's global footprint and international interests grow, 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, and humanitarian assistance/disaster relief (HA/DR). PLA global operations in 2015 included counterpiracy patrols, humanitarian assistance and disaster relief, exercises, and sea lane security operations. China's November 2015 public confirmation of its intention to build its first overseas military support facility in Djibouti likely reflects this more global outlook, as it will be utilized to sustain the PLA Navy's operations at greater distances from China.

During 2015, the PLA continued to improve key capabilities that would be used in theater contingencies, including cruise missiles; short, medium, and intermediate-range ballistic missiles; high performance aircraft; integrated air defense networks; information operations capabilities; and amphibious and airborne assault units. The PLA is developing and testing new intermediate- and medium-range conventional ballistic missiles as well as long-range, land-attack, and anti-ship cruise missiles, which once operational would extend the military's reach and push adversary forces further from potential regional conflicts. China is also focusing on counterspace, offensive cyber operations, and electronic warfare (EW) capabilities meant to deny adversaries the advantages of modern, information technology-driven warfare.

Despite the PLA's gains over the last two decades, its modernization program faces challenges. The organizational reforms unveiled by the leadership are part of a broader effort by President Xi to address the PLA's deficiencies, such as corruption. Since Xi took power in 2012, more than forty senior officers have fallen in a wide-ranging anti-corruption campaign that last year ensnared the former top officer in the PLA. Moreover, Xi's slogan exhorting the PLA to prepare to "fight and win" battles implies that the leadership is concerned about how the PLA, which has not fought a war in more than thirty years, would fare in combat.

The Department of Defense (DoD) approach to China is part of a broader U.S. strategy for the Asia-Pacific region that is focused on

ensuring and building upon a stable and diversified security order, an open and transparent economic order, and a liberal political order. Combined, these factors have contributed to the peace and prosperity of the entire region since the end of the Second World War, directly benefiting China and its neighbors. U.S. policy toward China is based on the premise that it is in both our countries' interests to deepen practical cooperation in areas where our countries' interests overlap, while constructively managing differences.

Sustaining positive momentum in the military-to-military relationship supports U.S. policy objectives to encourage China to uphold international rules and norms and to contribute positively to resolving regional and global problems. DoD seeks to continue building a military-to-military relationship with China that is sustained and substantive. DoD will continue to focus on enhancing risk reduction measures that diminish the potential for incidents or miscalculation, and encourage China to contribute constructively to efforts to maintain peace and stability with the United States, our allies and partners, and the greater international community.

While the United States builds a stronger military-to-military relationship with China, DoD will also continue to monitor and adapt to China's evolving military strategy, doctrine, and force development, and encourage China to be more transparent about its military modernization program. 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 preserve a principled regional order founded in international law and norms that benefit all countries equally.

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ANNUAL UPDATE

This chapter summarizes significant developments in China's military and security activities over the past year with an emphasis on developments highlighted in section 1246 of the National Defense Authorization Act for Fiscal Year 2010 (P.L. 111-84).

DEVELOPMENTS IN MILITARY STRUCTURE, DOCTRINE, AND TRAINING

In 2015, China's top leadership announced plans to initiate the most significant reforms of the PLA in at least three decades. Additionally, the People's Liberation Army (PLA) updated high-level strategies, plans, and policies that reflect its intent to transform itself into a more flexible and advanced force capable of more advanced joint operations and fighting and winning "informationized local wars"—regional conflicts defined by real-time data-networked command.

Structural Reform. The widening gap between the demands of winning informationized local wars and the PLA's legacy command, organizational, and administrative structure has fueled several proposals for reform since the 1990s. The Chinese Communist Party (CCP) Central Committee endorsed the need for reform at the Third Plenum of the 18th Party Congress in November 2013 and the Central Military Commission (CMC) established the Leading Group for Deepening Defense and Military Reforms in the months that followed. President Xi Jinping chairs the group, and CMC Vice Chairmen Fan Changlong and Xu Qiliang serve as its deputies.

In late November 2015, President Xi introduced the major elements of structural reform intended to be carried out by 2020 at a special three-day reform group session. Further announcements followed in December. The Ministry of National Defense (MND) spokesman stated that, overall, the reforms sought to improve "leadership administration and command of joint operations" so that the PLA would have a force structure able to fight and to win modern conflicts. These reforms include:

- *Theaters*. The PLA is transitioning from its seven legacy military regions (MR) to five "theaters of operations," or joint commands, in a move the MND spokesman tied to enhancing combat effectiveness.
- *Army Headquarters*. In late 2015, the PLA began to establish a headquarters for its ground forces, creating a separate PLA Army (PLAA) service. Previously, leadership of ground units was integrated into the PLA's four general departments, which were each represented on the CMC.
- *Rocket Force*. On December 31, 2015, China's military leadership re-designated the PLA Second Artillery Force (PLASAF) as the PLA Rocket Force (PLARF) and elevated it from an independent branch to a full service.

Military Regions (MR) 1985–2015



Theaters 2016–Present



All locations are approximate.
Boundary representation is not necessarily authoritative.

- *Strategic Support Force*. Also on the last day of the year, the PLA created a new force under the CMC, reportedly to oversee its space and cyber capabilities.
- *Roles and missions*. The reform plan aims to establish two clear lines of authority under the CMC. It gives the services authority over "force management" issues while the theater headquarters command operations—a distinction that was ambiguous in the past.
- *Staff Departments*. The leadership is also adjusting the PLA's senior staff bodies, in part by replacing the four general departments with six joint departments, three commissions, and five offices under the CMC.
- *Internal Discipline*. The CMC is tightening military discipline with reforms to its Discipline and Inspection Commission, its Auditing Office, the PLA judicial system, and a new Politics and Law Commission.

In September 2015, President Xi also announced that the PLA would reduce its force by 300,000 personnel by the end of 2017, a move widely expected to result in fewer non-combat personnel, such as those specialized in arts and culture, administrative duties, or academic work. China's official media also report the cuts will help to rebalance the proportion of forces among the services in ways that will raise the relative importance the PLA Navy (PLAN) and PLA Air Force (PLAAF).

At the operational level, the PLA may intend to continue to convert some divisions into brigades in order to increase its overall combat capabilities and enhance mobility. Although the majority of these conversions appear to have been accomplished prior to 2015, additional actions may have been paused in 2015 due to the wider PLA reorganization. This is part of an overall modernization effort to streamline the force and to reduce non-combat positions such as entertainment units or headquarters staffs. The PLA is also placing non-commissioned officers in positions traditionally held by officers or assigning civilians to take over some duties.

The continued development of army aviation units, special operations forces (SOF), and air-land mobility is an attempt to increase the agility of the force and build an expeditionary capability. These changes in how the PLA trains for combat and how it would fight during a conflict has required fundamental changes to PLA doctrine. Dissemination of this revised doctrine will probably take some time but will support the PLA's modernization goals for 2020.

Defense White Paper. In May 2015, China released a new defense white paper (DWP), the latest in a series of reports outlining military developments that have been issued every two years since 1998. The report, labeled a "military strategy," moved away from the detailed service-centered

profiles of earlier editions and toward a more conceptual presentation.

The paper affirmed many existing elements of China's military strategy, particularly the concept of active defense, a decades-old PLA commitment not to attack until attacked, but to counterattack strongly once struck. It also reiterated without change China's no-first-use nuclear weapons policy, which had been absent from the previous white paper.

The DWP's changes were modest and in line with the direction of recent PLA activity. The paper elevated the maritime domain within the PLA's formal strategic guidance and shifted the focus of its modernization from "winning local wars under conditions of informationization" to "winning informationized local wars, highlighting maritime military struggle." The DWP also gave more attention to emerging domains like cyber and space than earlier versions and presented a vision of a more joint, flexible, and active force overall.

Anticorruption Campaign. The CCP's anticorruption efforts in the military targeted more than 40 senior officers in 2015, including former Central Committee Politburo member and CMC Vice Chairman Guo Boxiong, who served as the PLA's top general before he retired in 2012. Guo, who was accused in July 2015 of accepting bribes and abusing his authority over promotions, is the second retired member of the high command to come under scrutiny for graft. Former CMC Vice Chairman Xu Caihou, Guo's colleague, died this year while awaiting prosecution for corruption. Anticorruption investigations in the PLA parallel a larger Party-wide effort that President Xi initiated shortly after taking office to safeguard the legitimacy of the CCP, root out corruption and powerful rival networks, improve governance, and strengthen central control. Military discipline inspectors have targeted individual power networks and sectors historically prone to corruption, and the PLA is also revising its regulations to prevent abuse more effectively.

Anniversary Parade. In September 2015, China held a high-profile military parade in Beijing to mark the 70th anniversary of the end of World War II. Chinese officials emphasized the parade's focus on peace, but regional analysts noted the unveiling of new ballistic missiles and China's growing military might. President Xi used the occasion to announce military personnel cuts as the first round of last year's reform push.

Military Exercises. The PLA focused last year's training on developing the capability to execute large-scale, complex joint operations. This included greater realism during exercises, improved core service capabilities, strengthened strategic campaign training, and execution of long-distance maneuvers and mobility operations. Major exercises included new iterations of the exercise series STRIDE, JOINT ACTION, and FIREPOWER.

- STRIDE 2015 was both larger in scale and had more rounds of force-on-force events than last year's iteration. Ten brigades from all seven MRs deployed to a training center for three rounds of force-on-force drills. STRIDE 2015 also included intensified operational command training for PLA officers, the integration of PLAAF and PLAA aviation units in coordinated air-to-ground strikes, and increased nighttime combat training.
- JOINT ACTION 2015 consisted of five separate exercises held in locations across China in which military units from all services and civilian support assets conducted complex, large scale joint operations. Exercises in western China focused on high altitude operations, with special emphasis on using space-based reconnaissance. Exercise activity in the Nanjing MR rehearsed second-echelon logistics, over-the-shore activity, and follow-on force combat operations in support of an island landing campaign.
- FIREPOWER 2015 included two large-scale evolutions: The first phase included a PLAAF "Blue Force"—or enemy force—flying more than 200 sorties with multiple types of aircraft and unmanned aerial vehicles (UAV) attacking the PLA "Red Force" air defense units in a complex electromagnetic environment. The second phase consisted of "Blue Force" Army units using artillery, anti-tank weapons, and motorized forces to attack a "Red Force" that was focused on both offensive and defensive operations.

DEVELOPMENTS IN THE SECURITY SITUATION IN THE TAIWAN STRAIT

Preparing for a contingency to prevent formal Taiwan independence remains a top PLA mission. Last year's DWP noted both improvements in cross-Strait relations and potential challenges. It praised "a sound momentum of peaceful development" in cross-Strait relations, but echoed the previous DWP in warning against "the Taiwan independence separatist forces." Should conditions deteriorate, the PLA could be called upon to compel Taiwan to abandon possible moves toward independence or to re-unify Taiwan with the mainland by force while simultaneously deterring, delaying, or denying any third-party intervention on Taiwan's behalf.

In 2015, China and Taiwan continued to explore ways to make progress on contentious issues and to hold government-to-government consultations that began in 2014. In November 2015, President Xi Jinping met with President Ma Ying-jeou, the first such meeting since 1946, and reiterated the importance of maintaining the status quo.

CHINA'S EVOLVING OVERSEAS ACCESS

China is expanding its access to foreign ports to pre-position the necessary logistics support to regularize and sustain deployments in the "far seas," waters as distant as the Indian Ocean, Mediterranean Sea, and Atlantic Ocean. In late November, China publicly confirmed its intention to build military supporting facilities in Djibouti "to help the navy and army further participate in United Nations peacekeeping operations (PKO), carry out escort missions in the waters near Somalia and the Gulf of Aden, and provide humanitarian assistance." This Chinese initiative both reflects and amplifies China's growing geopolitical clout, extending the reach of its influence and armed forces.

- China's expanding international economic interests are increasing demands for the PLAN to operate in more distant seas to protect Chinese citizens, investments, and critical sea lines of communication (SLOC).

- China most likely will seek to establish additional naval logistics hubs in countries with which it has a longstanding friendly relationship and similar strategic interests, such as Pakistan, and a precedent for hosting foreign militaries. China's overseas naval logistics aspiration may be constrained by the willingness of countries to support a PLAN presence in one of their ports.

So far, China has not constructed U.S.-style overseas military bases in the Indian Ocean. China's leaders may judge instead that a mixture of preferred access to overseas commercial ports and a limited number of exclusive PLAN logistic facilities—probably collocated with commercial ports—most closely aligns with China's future overseas logistics needs to support its evolving naval requirements.

- Preferred access would give the PLAN favored status in using a commercial port for resupply, replenishment, and maintenance purposes. A logistics facility would represent an arrangement in which China leases out portions of a commercial port solely for PLAN logistics operations.

- Such a logistics presence may support both civilian and military operations. China's current naval logistics footprint in the Indian Ocean is unable to support major combat operations in South Asia.

A greater overseas naval logistics footprint would better position the PLAN to expand its participation in non-war military missions, such as non-combatant evacuation operations (NEO), search-and-rescue (SAR), humanitarian assistance/disaster relief (HA/DR), and sea lines of communication (SLOC) security. To some extent, a more robust overseas logistics presence may also enable China to expand its support to PKO, force protection missions, and counterterrorism initiatives.

For example, in 2015, the PLAN's naval escort task forces performing counterpiracy escort duties in the Gulf of Aden were able to utilize Djibouti and Oman for basic resupply and replenishment.

Following Taiwan's January 2016 presidential and legislative elections, China has stressed that denying the "1992 Consensus"—which acknowledges China and Taiwan are part of "one China" but allows for different interpretations—would make peace and development impossible. President-elect Tsai Ing-wen of the Democratic Progressive Party has pledged to maintain the status quo in cross-Strait relations, but has not endorsed Beijing's interpretation of the 1992 Consensus. Her position differs with the approach of the outgoing Kuomintang Party.

DEVELOPMENTS IN CHINA'S TERRITORIAL DISPUTES

While China has resolved several land and maritime border disputes in the past, several persist—particularly the ongoing territorial and maritime disputes in the East China Sea, South China Sea, and along the China-India border. For the United States, some of these disputes involve U.S. allies with whom there exist long-standing cooperation and security treaty commitments. China's actions in the South China Sea in 2015, particularly its land reclamation on features in the Spratly Islands, enhanced the appearance of China's ability to exercise control over disputed areas in the South China Sea, raised tensions in the South China Sea, and caused concern over China's long-term intentions.

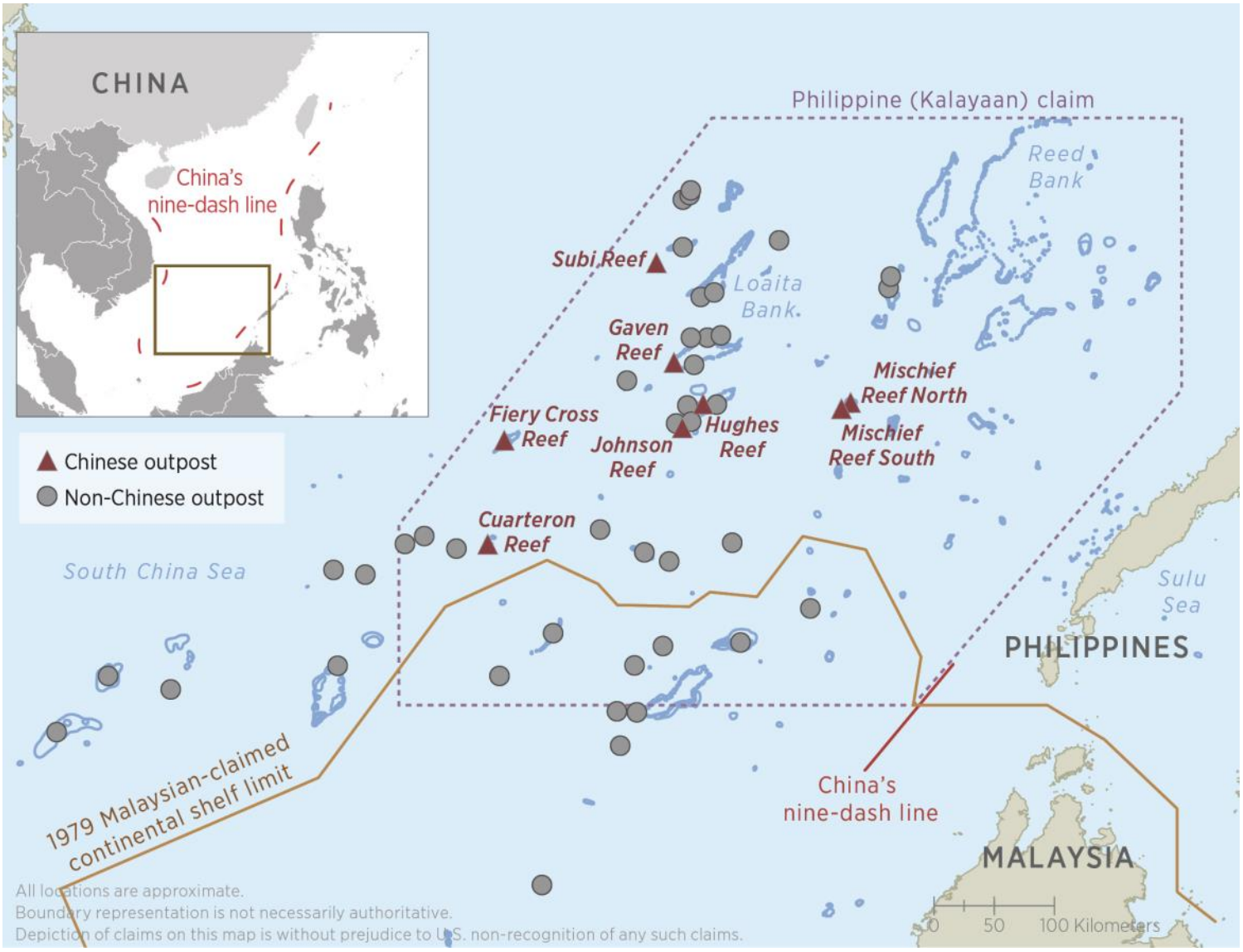
South China Sea. China depicts its South China Sea claims by using a "nine-dash line" that encompasses most of the area. China remains ambiguous about the precise coordinates, meaning, or legal basis of the nine-dash line. Brunei, Malaysia, the Philippines, Taiwan, Indonesia, and Vietnam all contest portions of China's territorial and maritime claims in the South China Sea.

In 2015, China accelerated land reclamation and infrastructure construction at its outposts in the Spratly Islands. When complete, these outposts will include harbors, communications and surveillance systems, logistics facilities, and three airfields. Although artificial islands do not provide China with any additional territorial or maritime rights within the South China Sea, China will be able to use its reclaimed features as persistent civil-military bases to enhance its presence in the South China Sea significantly and enhance China's ability to control the features and nearby maritime space.

Throughout 2015, China Coast Guard (CCG) ships maintained a presence at Scarborough Reef, continuing operations that began in 2012. Chinese officials asserted in 2015 that the patrols were normal and justifiable, claiming that China has indisputable sovereignty over the various features in the South China Sea and adjacent waters. Both China and the Philippines continue to claim sovereignty over Scarborough Reef and Second Thomas Shoal. China maintains a continuous CCG presence at both locations while the Philippines stations military personnel aboard a tank landing ship that has been grounded on Second Thomas Shoal since 1999.


PLA Army
Group Army
Motorized Infantry Division/Brigade
Armor Division/Brigade
Artillery Division/Brigade
Air Defense Brigade
Missile Unit
Amphibious Mechanized Division
PLA Air Force
Guangzhou MRAF
Air Base
Fighter/Ground Attack Division
Bomber Division
Transport Division
Airborne Corps
PLA Rocket Force
Missile Base
Missile Unit
PLA Navy
South Sea Fleet
Fighter/Ground Attack Division
Composite Flotilla
Destroyer Flotilla
Frigate Flotilla
Landing Ship Flotilla
Submarine Flotilla
0
200
400 Kilometers
CHINA
CHINA
Guangzhou
2x
2x
Taiwan Strait
Taiwan
Hainan Island
South China Sea
All locations are approximate.
Boundary representation is not necessarily authoritative.
Current as of 1 Jan. 2016; military regions from 2015 are shown.


PLA Army
Group Army
Motorized Infantry Division/Brigade
Armor Division/Brigade
Artillery Division/Brigade
Air Defense Brigade
Missile Unit
Amphibious Mechanized Division
PLA Air Force
Nanjing MRAF
Air Base
Fighter/Ground Attack Division
Bomber Division
PLA Rocket Force
Missile Base
Missile Unit
PLA Navy
East Sea Fleet
Fighter/Ground Attack Division
Composite Flotilla
Destroyer Flotilla
Frigate Flotilla
Landing Ship Flotilla
Submarine Flotilla
CHINA
East China Sea
Nanjing
Taiwan Strait
Taiwan
All locations are approximate.
Boundary representation is not necessarily authoritative.
Current as of 1 Jan. 2016; military regions from 2015 are shown.
0
200
400 Kilometers


CHINA
China's nine-dash line
Chinese outpost
Non-Chinese outpost
Philippine (Kalayaan) claim
Reed Bank
Subi Reef
Loaita Bank
Gaven Reef
Mischief Reef North
Fiery Cross Reef
Johnson Reef
Hughes Reef
Mischief Reef South
Cuarteron Reef
South China Sea
Sulu Sea
PHILIPPINES
1979 Malaysian-claimed continental shelf limit
China's nine-dash line
MALAYSIA
All locations are approximate.
Boundary representation is not necessarily authoritative.
Depiction of claims on this map is without prejudice to U.S. non-recognition of any such claims.
0 50 100 Kilometers

In October 2015, an arbitral tribunal constituted at the request of the Philippines and pursuant to Chapter XV of the Law of the Sea Convention ruled that it has jurisdiction to decide certain disputed issues between the Philippines and China, such as whether a particular feature is an "island" entitled to a territorial sea, an exclusive economic zone, and continental shelf; a "rock," a subset of islands that are entitled only to a territorial sea; or a feature that is submerged at high tide and thus not entitled to any maritime zone of its own. The arbitral tribunal will not rule on sovereignty claims to land features. The tribunal is expected to issue a ruling on the merits of the case in 2016. China continues to reiterate that it does not accept the jurisdiction of the arbitral tribunal and will not abide by its decision.

Other disputed areas include the Luconia Shoals, Reed Bank, and the Paracel Islands. The Luconia Shoals are disputed by China and Malaysia and may contain extensive oil and natural gas reserves, as well as productive fishing grounds. Reed Bank is claimed by both China and the Philippines, and in August 2014, China sent hydrographic research vessels to survey the area. In disputed waters near the Paracel Islands, tensions between China and Vietnam spiked in 2014 when China deployed and commenced operation of a state-owned exploratory hydrocarbon rig in waters also claimed by Vietnam.

East China Sea. China claims sovereignty over the Japan-administered Senkaku Islands in the East China Sea; this territory is also claimed by Taiwan. Since 2012, China has used maritime law enforcement ships and aircraft to patrol near the islands in order to challenge Japan's administration. Chinese officials continue to claim the islands are part of China's territory and that China will resolutely respond to any perceived external provocation.

Last year, China balanced this concern with efforts to improve relations with Japan gradually. The two countries resumed official senior-level exchanges in 2015 following President Xi's first bilateral meeting with Japan's Prime Minister Shinzo Abe in November 2014, where both sides announced a four-point agreement to improve bilateral ties.

China-India Border. Tensions remain along disputed portions of the Sino-Indian border, where both sides patrol with armed forces. After a five-day military standoff in September 2015 at Burtse in Northern Ladakh, China and India held a senior-level flag-officer meeting, agreed to maintain peace, and retreated to positions mutually acceptable to both sides.

DEVELOPMENTS IN CHINA'S FOREIGN MILITARY ENGAGEMENTS

China seeks to leverage engagement with foreign militaries to enhance its presence and influence abroad, bolster China's international

and regional image, and assuage other countries' concerns about China's rise. PLA engagement activities also assist its modernization by facilitating the acquisition of advanced weapon systems and technologies, increasing its operational experience throughout and beyond Asia, and giving it access to foreign military practices, operational doctrine, and training methods.

Combined Exercises. PLA participation in bilateral and multilateral exercises continues to increase in scope and complexity. In 2015, the PLA conducted at least nine bilateral and multilateral exercises with foreign militaries. The PLA conducted its first field exercise with Malaysia, first naval exercise with Singapore, and first air force exercise with Thailand. China also conducted bilateral exercises with Russia, Pakistan, India, and Mongolia. China participated in the Mongolia-hosted multinational peacekeeping exercise, KHAAN QUEST and a counterterrorism exercise with Tajikistan under the auspices of the Shanghai Cooperation Organization (SCO). Many of these exercises focused on counterterrorism, border security, peacekeeping operations (PKO), and disaster relief; however, some also included conventional air, maritime, and ground warfare training.

China and Russia also conducted NAVAL COOPERATION 2015, which consisted of two phases; the first in the Mediterranean Sea and the second in the Sea of Japan. This was the fourth NAVAL COOPERATION exercise since 2012 between China and Russia and was intended to strengthen bilateral military ties and increase mutual trust between both militaries. Phase one in the Mediterranean focused on protecting sea lines of communications (SLOCs) and combating terrorism and phase two in the Sea of Japan featured simultaneous amphibious landings, joint air defense drills, and anti-surface ship drills.

CHINA'S USE OF LOW-INTENSITY COERCION IN MARITIME DISPUTES

China has used low-intensity coercion to enhance its presence and control in disputed areas of the East and South China Sea. During periods of tension, official statements and state media seek to frame China as reacting to threats to its national sovereignty or to provocations by outside actors. China often uses a progression of small, incremental steps to increase its effective control over disputed areas and avoid escalation to military conflict. China has also used punitive trade policies as instruments of coercion during past tensions and could do so in future disputes. In 2015, China continued to employ China Coast Guard and PLA Navy ships to implement its claims by maintaining a near-continuous presence in disputed areas in order to demonstrate continuous and effective administration. Recent land reclamation activity has little legal effect, but will support China's ability to sustain longer patrols in the South China Sea. In 2012, China restricted Philippine fruit imports during the height of Scarborough Reef tensions. In 2010, China used its dominance in the rare earth industry as a diplomatic tool by restricting exports of rare earth minerals to Japan amid tensions over a collision between a Chinese fishing boat and Japanese patrol ship.

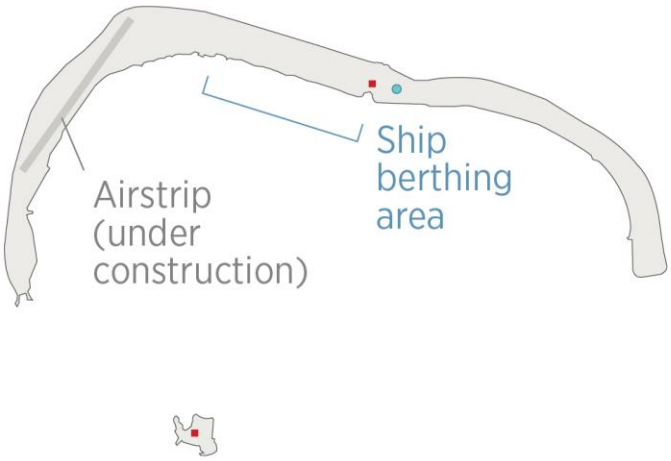
RECLAMATION AND CONSTRUCTION IN THE SOUTH CHINA SEA

China paused its two-year land reclamation effort in the Spratly Islands in late 2015 after adding over 3,200 acres of land to the seven features it occupies; other claimants reclaimed approximately 50 acres of land over the same period. As part of this effort, China excavated deep channels to improve access to its outposts, created artificial harbors, dredged natural harbors, and constructed new berthing areas to allow access for larger ships. Development of the initial four features—all of which were reclaimed in 2014—has progressed to the final stages of primary infrastructure construction, and includes communication and surveillance systems, as well as logistical support facilities.

At the three features where the largest outposts are located, China completed major land reclamation efforts in early October 2015 and began transitioning to infrastructure development, with each feature having an airfield—each with approximately 9,800 foot-long runways—and large ports in various stages of construction. Additional substantial infrastructure, including communications and surveillance systems, is expected to be built on these features in the coming year.

China's Government has stated these projects are mainly for improving the living and working conditions of those stationed on the outposts, safety of navigation, and research. However, most analysts outside China believe that China is attempting to bolster its de facto control by improving its military and civilian infrastructure in the South China Sea. The airfields, berthing areas, and resupply facilities will allow China to maintain a more flexible and persistent coast guard and military presence in the area. This would improve 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.

Mischief Reef Ouposts (North and South)





Outpost Size Comparision

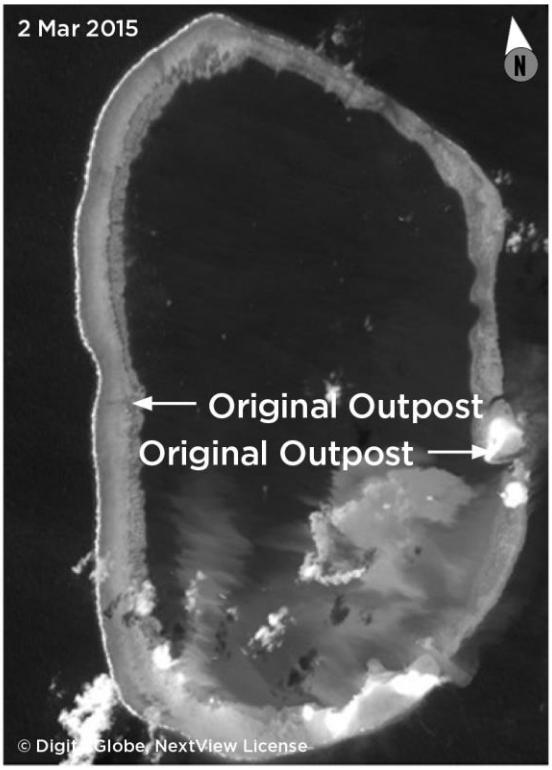


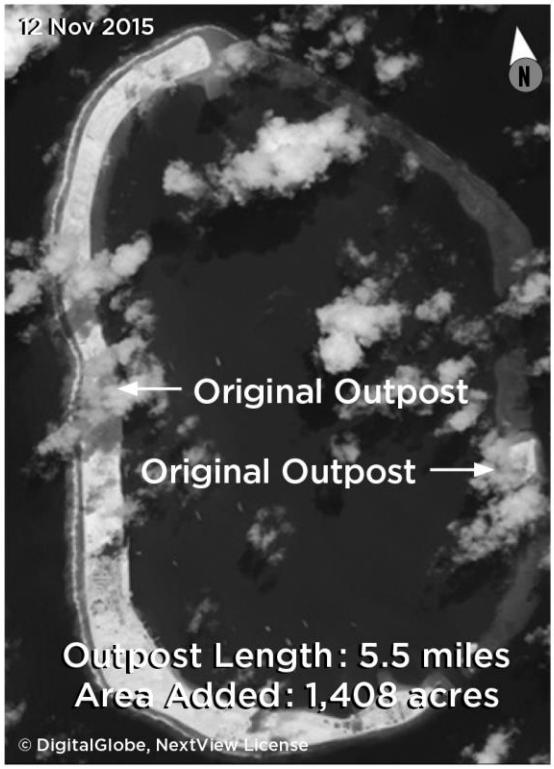
	Acres
Pre-reclamation size	.6
Post-reclamation size	**1,408**

Reclamation Completed 2015

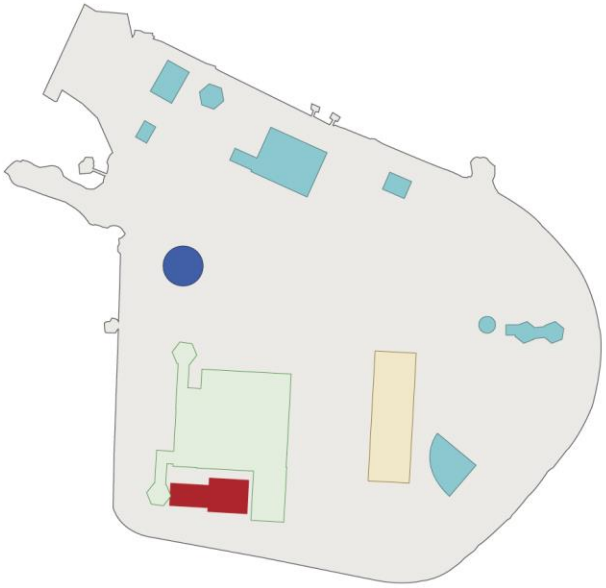
Outpost Infrastructure

- Original outpost
- Other infrastructure



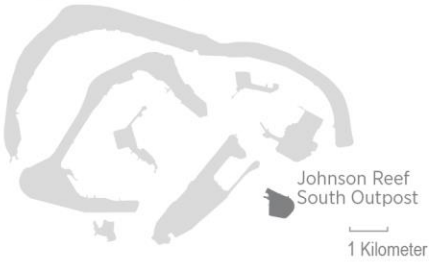


Johnson Reef South Outpost





Outpost Size Comparision

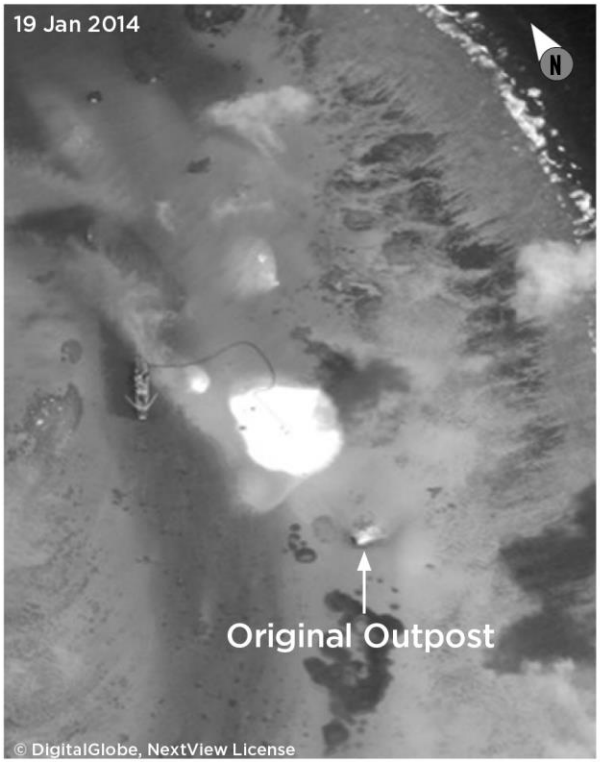


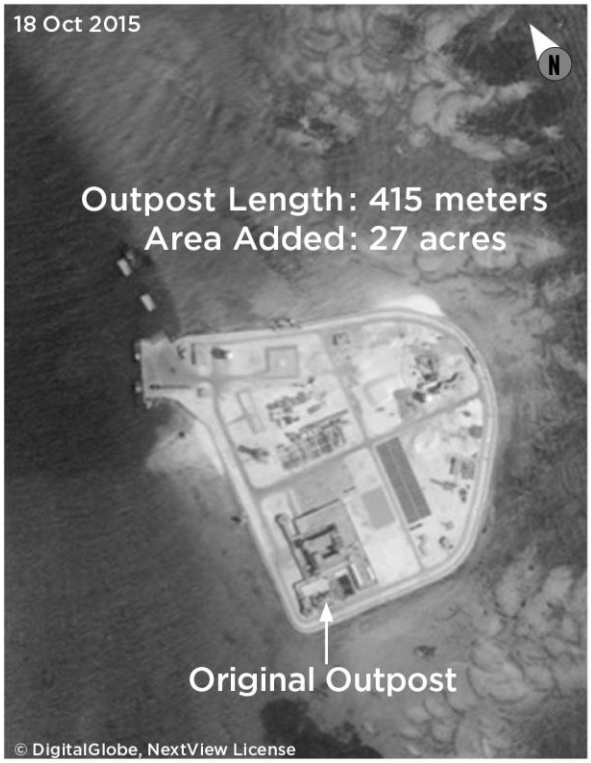
	Acres
Pre-reclamation size	.3
Post-reclamation size	**27**

Reclamation Completed 2014

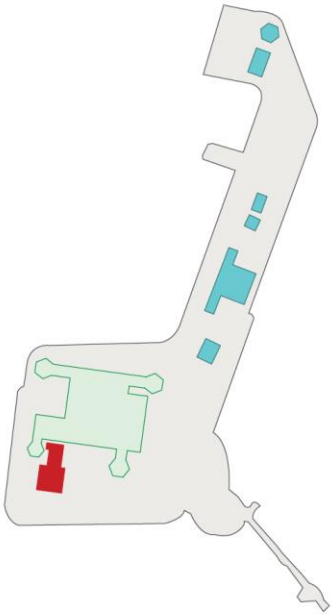
Outpost Infrastructure

- Original outpost
- Power generation
- Headquarters
- Lighthouse
- Other infrastructure





Hughes Reef Outpost





Outpost Size Comparision



	Acres
Pre-reclamation size	.3
Post-reclamation size	**18**

Reclamation Completed 2014

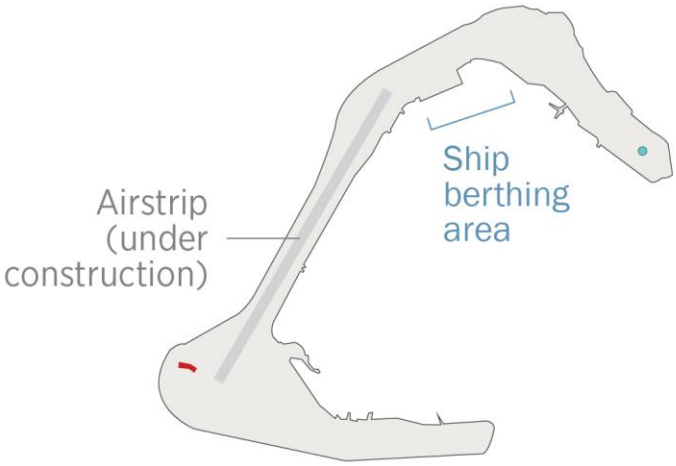
Outpost Infrastructure

- Original outpost
- Headquarters
- Other infrastructure





Subi Reef Outpost





Outpost Size Comparision

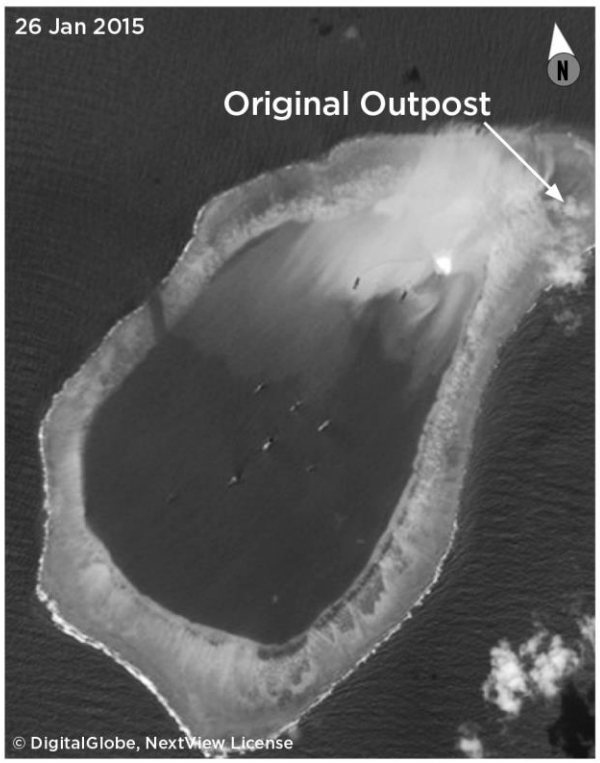


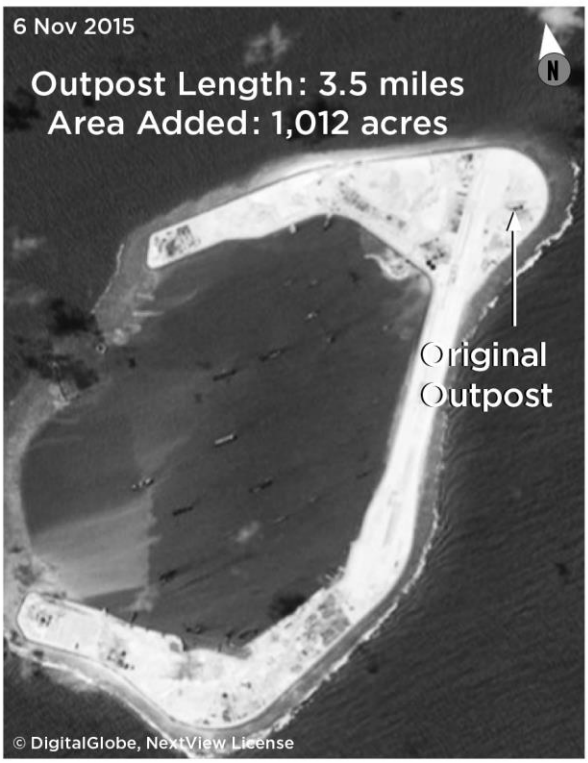
	Acres
Pre-reclamation size	.6
Post-reclamation size	**1,014**

Reclamation Completed 2015

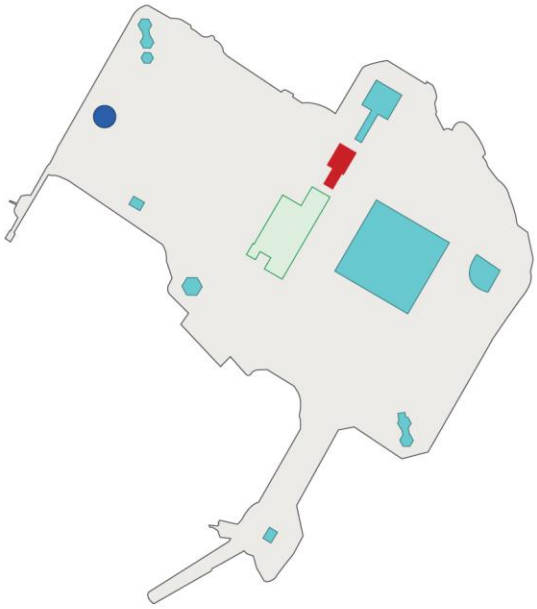
Outpost Infrastructure

- Original outpost
- Other infrastructure



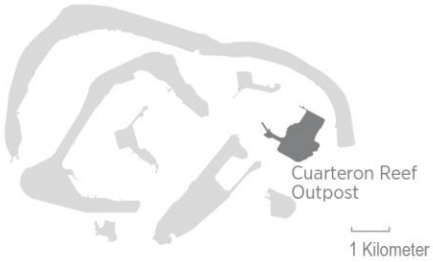


Cuarteron Reef Outpost





Outpost Size Comparision

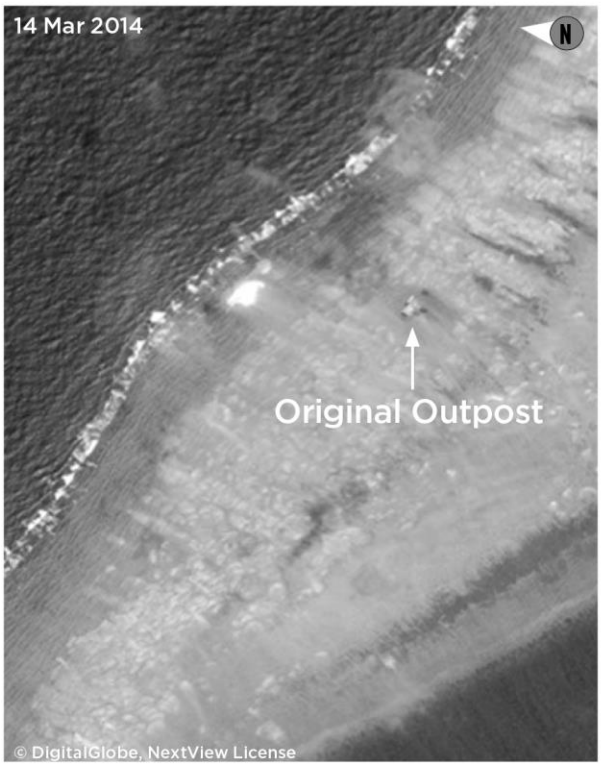


	Acres
Pre-reclamation size	.3
Post-reclamation size	**61**

Reclamation Completed 2014

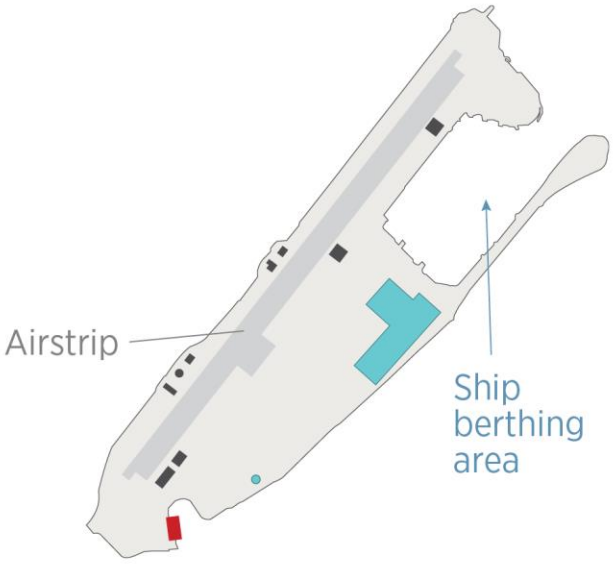
Outpost Infrastructure

- Original outpost
- Headquarters
- Other infrastructure
- Power generation
- Lighthouse



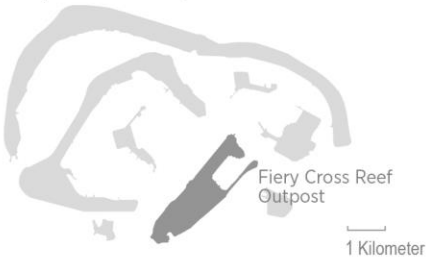


Fiery Cross Reef Outpost





Outpost Size Comparision

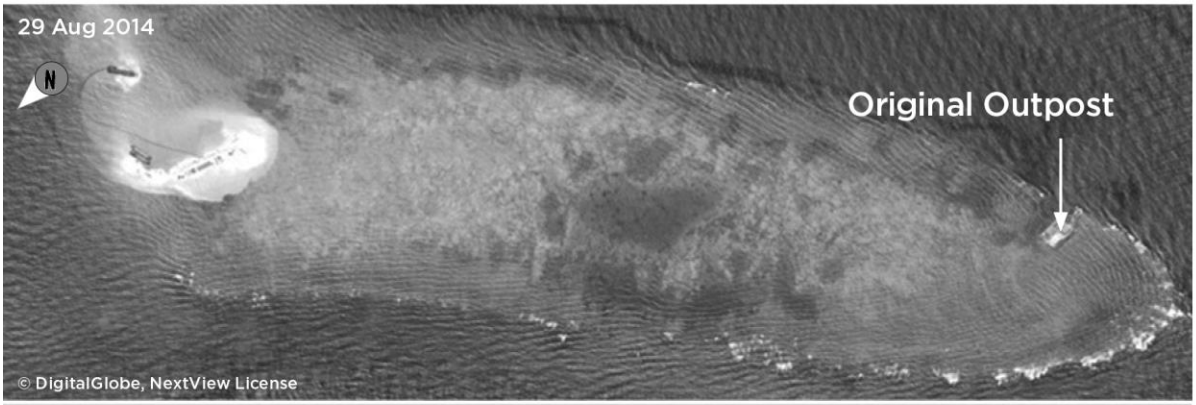


	Acres
Pre-reclamation size	2.5
Post-reclamation size	**665**

Reclamation Completed 2015

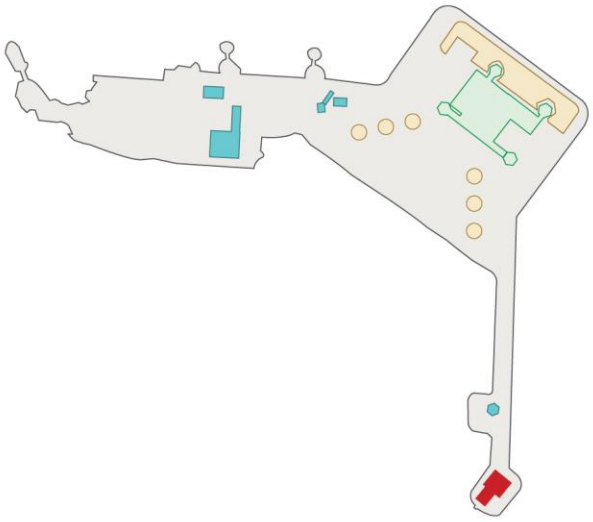
Outpost Infrastructure

- Original outpost
- Other infrastructure
- Aircraft hanger/ support





Gaven Reef Outpost





Outpost Size Comparision

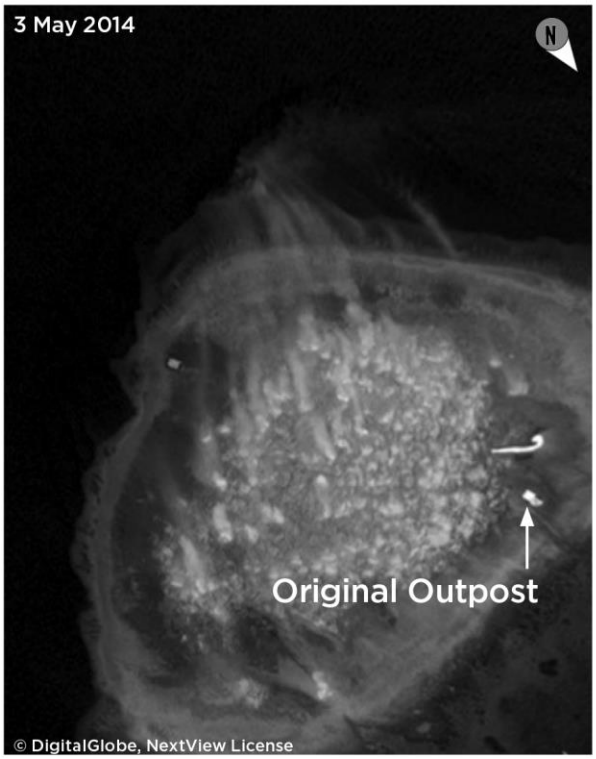


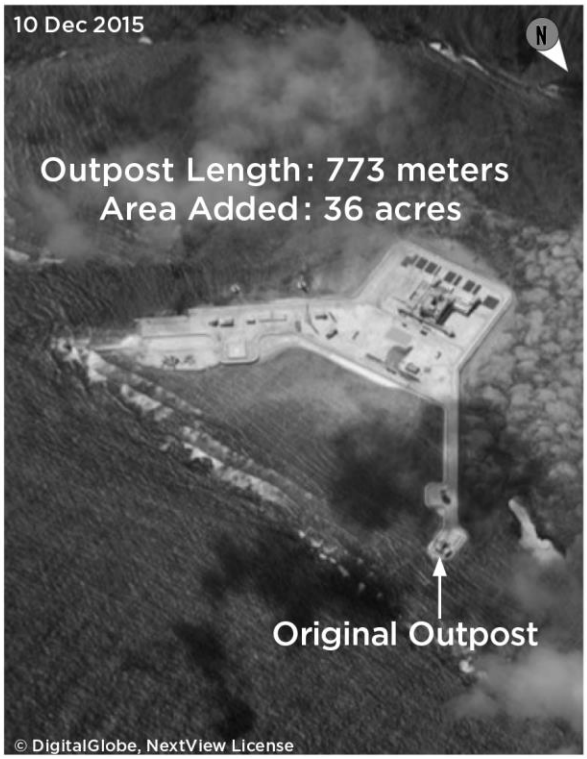
	Acres
Pre-reclamation size	.3
Post-reclamation size	**36**

Reclamation Completed 2014

Outpost Infrastructure

- Original outpost
- Power generation
- Headquarters
- Other infrastructure





A PLAN task force conducted a cruise around the world from August 2015 to February 2016, during which it conducted bilateral training with Denmark. Ships from the 20th Naval Escort Task Force in the Gulf of Aden stopped in 13 countries, including Poland, Cuba, Sweden, the United States, Denmark, and Australia. This is the first PLAN operation to circumnavigate the globe since 2002, building on more recent naval visits to Africa and Europe.

PEACEKEEPING OPERATIONS

China's participation in United Nations Peacekeeping Operations (UN PKO) supports various objectives—including improving China's international image, obtaining operational experience for the PLA, and providing opportunities to gather intelligence. These operations also reflect the PLA's expanding role beyond China's borders. China provides civilian police, military observers, engineers, logistical support, and medical personnel to UN PKO missions.

China contributes the largest number of forces among the permanent members of the UN Security Council. China maintains approximately 3,079 personnel in ten UN PKOs, mostly in sub-Saharan Africa and the Middle East. This number increased from 2,200 in 2014. China is also the sixth largest financial contributor to the UN PKO budget—fourth among UN Security Council members—pledging 6.66 percent of the total $8.27 billion budget for the period from July 2015 to June 2016.

In early 2015, China deployed approximately 700 PLA personnel to the UN Mission in South Sudan, the first time China sent a battalion of combat troops to a UN PKO mission. The battalion is protecting a refugee camp in Juba. China probably will increase its participation in future PKO deployments. During the 2015 UN General Assembly, President Xi pledged to establish a permanent peacekeeping force of 8,000 personnel, train 2,000 peacekeepers from other countries, conduct 10 mine clearance programs, and provide $100 million in military aid to fund the African Union. Xi also noted that a PLA helicopter unit will join the UN PKO in Sudan.

China's Arms Sales. From 2010 to 2014, China's arms sales totaled approximately $15 billion. As of this report's publication, data for 2015 arms sales was not yet available. China primarily conducts arms sales in conjunction with economic aid and development assistance to support broader foreign policy goals such as securing access to natural resources and export markets, promoting its political influence among host-country elites, and building support in international forums. To a lesser extent, arms sales also reflect the profit-seeking activities of individual arms trading companies in China and efforts to offset China's defense-related research and development costs.

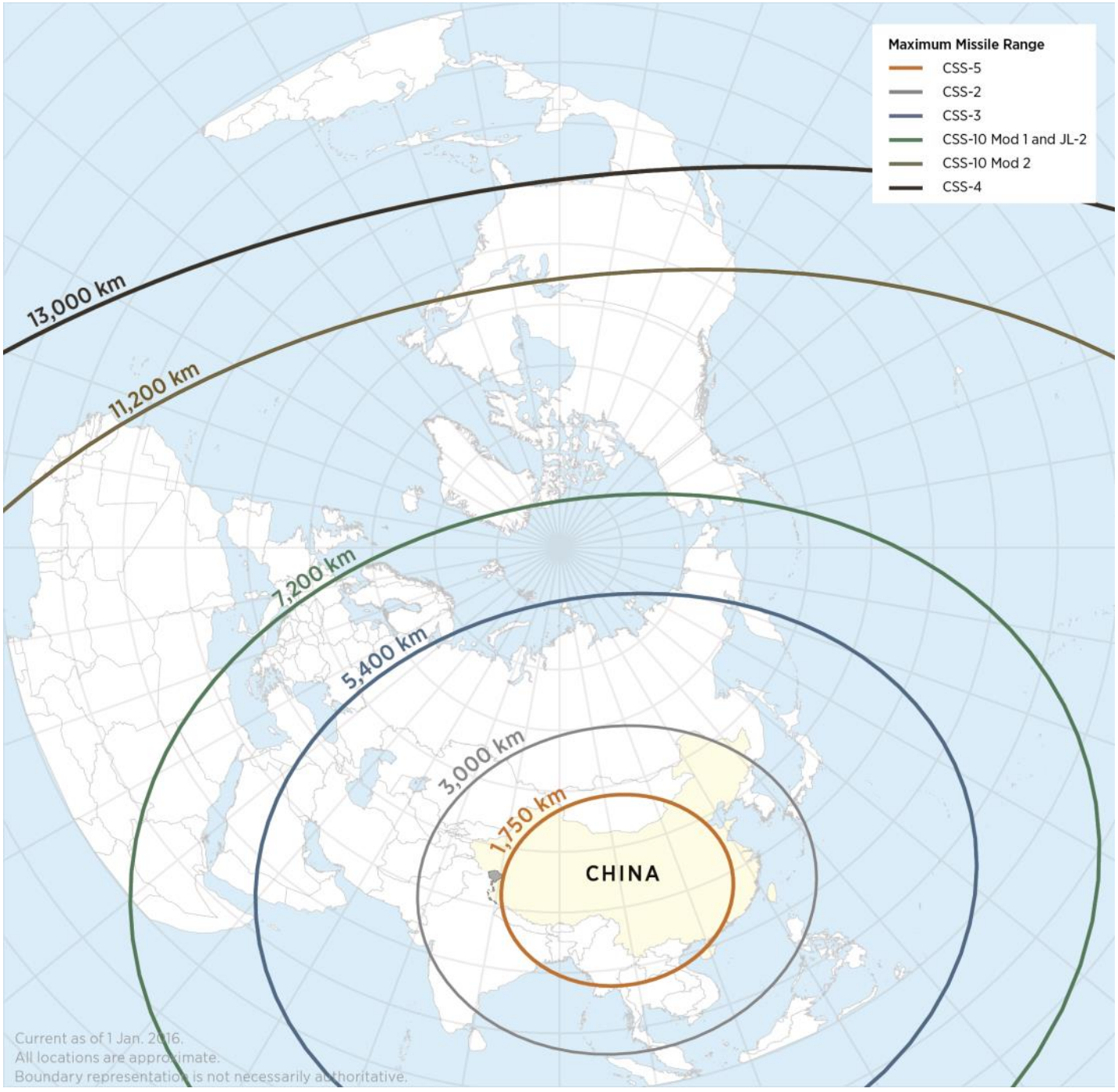
From the perspective of China's arms customers, most of which are developing countries, Chinese arms are less expensive than those offered by the top international arms suppliers, although they are also generally considered to be of lower quality and reliability. Chinese arms also come with fewer political strings attached, which is attractive to those customers who may not have access to other sources of arms for political or economic reasons.

Counterpiracy Efforts. In 2015, China maintained its support to counterpiracy efforts in the Gulf of Aden, a commitment that began in December 2008. The PLAN's 19th Naval Escort Task Force, deployed on a counterpiracy mission, also supported non-combatant evacuation operations from Yemen and participated in a Sino-Russian naval drill in the Mediterranean Sea. In 2015, China continued the trend of conducting submarine deployments to the Indian Ocean, ostensibly in support of its counterpiracy patrols. A HAN-class nuclear-powered attack submarine (SSN) operated in the Indian Ocean in the winter of 2014-15 and a YUAN-class air-independent powered attack submarine (SSP) conducted a lengthy patrol in the Indian Ocean starting in March 2015. The YUAN also conducted the first foreign port call by a PLAN submarine to Karachi, Pakistan. China's Ministry of National Defense assured regional nations that the submarines deployed to the Indian Ocean were in support of China's counterpiracy patrols; however, the submarines were probably also conducting area familiarization, and demonstrating an emerging capability both to protect China's SLOCs and to increase China's power projection into the Indian Ocean.

CURRENT CAPABILITIES OF THE PEOPLE'S LIBERATION ARMY

PLA Rocket Force (PLARF). The Rocket Force, renamed from the PLASAF late last year, operates China's land-based nuclear and conventional missiles. It is developing and testing several new classes and variants of offensive missiles, including a hypersonic glide vehicle; forming additional missile units; upgrading older missile systems; and developing methods to counter ballistic missile defenses.


Maximum Missle Range
CSS-6 SRBM and CSS-7 SRBM
CSS-5 ASBM, CSS-5 MRBM, DH-10 LACM, JH-7 with ASCM, and H-6 with ASCM
H-6 with LACM
Selected Territories in Dispute
ARCTIC OCEAN
Bering Sea
Sea of Okhotsk
RUSSIA
JAPAN
KAZ.
MONG.
Beijing
Second Island Chain
IRAN
AFG.
PAK.
CHINA
East China Sea
INDIA
600 km
First Island Chain
INDIAN OCEAN
2,000 km
3,300 km
Current as of 1 Jan. 2016.
All locations are approximate.
Boundary representation is not necessarily authoritative.


Maximum Missile Range
CSS-5
CSS-2
CSS-3
CSS-10 Mod 1 and JL-2
CSS-10 Mod 2
CSS-4
13,000 km
11,200 km
7,200 km
5,400 km
3,000 km
1,750 km
CHINA
Current as of 1 Jan. 2016.
All locations are approximate.
Boundary representation is not necessarily authoritative.

The force possesses approximately 1,200 short-range ballistic missiles (SRBM) in its inventory. China is increasing the lethality of its conventional missile force by fielding the CSS-11 (DF-16) ballistic missile with a range of 800-1,000 km. The CSS-11, coupled with the already deployed conventional land-attack and anti-ship variants of the CSS-5 (DF-21C/D) medium-range ballistic missile (MRBM), will improve China's ability to strike not only Taiwan, but other regional targets. These ballistic missile systems are complimented by the CJ-10 ground-launched cruise missile (GLCM). The CJ-10 has a range in excess of 1500 km and offers flight profiles different from ballistic missiles that can enhance targeting options.

China is fielding a growing number of conventionally armed MRBMs, including the CSS-5 Mod 5 (DF-21D) anti-ship ballistic missile (ASBM). The CSS-5 Mod 5, with a range of 1,500 km and maneuverable warhead, gives the PLA the capability to attack ships, including aircraft carriers, in the western Pacific Ocean.

China unveiled the DF-26 intermediate-range ballistic missile (IRBM) during the September 2015 parade in Beijing. When fielded, the DF-26 will be capable of conducting precision strikes against ground targets and contribute to strategic deterrence in the Asia-Pacific region. The official parade announcer also referenced a nuclear version of the DF-26, which, if it shares the same guidance capabilities, would give China its first nuclear precision strike capability against theater targets.

The PLARF continued to modernize its nuclear forces by enhancing its silo-based intercontinental ballistic missiles (ICBM) and adding more survivable, mobile delivery systems. China's ICBM arsenal to date consists of approximately 75-100 ICBMs, including the silo-based CSS-4 Mod 2 (DF-5) and multiple independently-targetable reentry vehicle (MIRV)-equipped Mod 3 (DF-5B); the solid-fueled, road-mobile CSS-10 Mod 1 and 2 (DF-31 and DF-31A); 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. China also is developing a new road-mobile ICBM, the CSS-X-20 (DF-41) capable of carrying MIRVs.

PLA Navy (PLAN). Over the past 15 years, China's ambitious naval modernization program has produced a more technologically advanced and flexible force. The PLAN now possesses the largest number of vessels in Asia, with more than 300 surface ships, submarines, amphibious ships, and patrol craft. China is rapidly retiring legacy combatants in favor of larger, multi-mission ships equipped with advanced anti-ship, anti-air, and anti-submarine weapons and sensors. China continues its gradual shift from "near sea" defense to "far seas" protection as espoused in its most recent DWP, with the PLAN conducting operational tasks outside the so-called "first island chain" with multi-

mission, long-range, sustainable naval platforms that have robust self-defense capabilities.

The PLAN places a high priority on the modernization of its submarine force and currently possesses five SSNs, four nuclear-powered ballistic missile submarines (SSBN), and 53 diesel-powered attack submarines (SS/SSP). By 2020, this force will likely grow to between 69 and 78 submarines. In addition to the 12 KILO-class SS units acquired from Russia in the 1990s and 2000s, China has built 13 SONG-class SS (Type 039) and 13 YUAN-class SSP (Type 039A) with a total of 20 YUANs planned for production. China continues to improve its SSN force, and four additional SHANG-class SSN (Type 093) will eventually join the two already in service. The SHANG SSN will replace the aging HAN-class SSN (Type 091). These improved SHANG SSNs feature a vertical launch system (VLS) and may be able to fire the YJ-18 advanced anti-ship cruise missile (ASCM). Over the next decade, China may construct a new Type 095 nuclear-powered, guided-missile attack submarine (SSGN), which not only would improve the PLAN's anti-surface warfare capability but might also provide it with a more clandestine land-attack option. Finally, China continues to produce the JIN-class SSBN (Type 094) with associated CSS-N-14 (JL-2) submarine-launched ballistic missiles (SLBM) that has an estimated range of 7,200 km. This platform represents China's first credible, sea-based nuclear deterrent. China will probably conduct its first SSBN nuclear deterrence patrol sometime in 2016. Four JIN SSBNs are operational, and up to five may enter service before China begins developing and fielding its next-generation SSBN, the Type 096, over the coming decade. The Type 096 will reportedly be armed with a successor to the JL-2, the JL-3 SLBM.

Since 2008, the PLAN has continued a robust surface combatant construction program of various classes of ships, including guided-missile destroyers (DDG) and guided-missile frigates (FFG). During 2015, the final LUYANG II-class DDG (Type 052C) entered service, bringing the total number of ships of this class to six. Additionally, a second LUYANG III-class DDG (Type 052D) entered service in 2015. It has a multipurpose VLS capable of launching ASCMs, land-attack cruise missiles (LACM), surface-to-air missiles (SAM), and antisubmarine missiles. China has also probably begun construction of a larger Type 055 "destroyer," a vessel better characterized as a guided-missile cruiser (CG) than a DDG. China has continued to produce the JIANGKAI II-class FFG (Type 054A), with 20 ships currently in the fleet and five in various stages of construction. These new DDGs and FFGs provide a significant upgrade to the PLAN's air defense capability, which will be critical as it expands operations into distant seas beyond the range of shore-based air defense systems.

Augmenting the PLAN's littoral warfare capabilities, especially in the South China Sea and East China Sea, is a new class of small

combatant. Twenty-five JIANGDAO-class corvettes (FFL) (Type 056) are in service and the latest ships have been upgraded to anti-submarine warfare (ASW) variants with a towed array sonar. China may build more than 60 of this class, ultimately replacing older PLAN destroyers and frigates. China also has 60 HOUBEI-class wave-piercing catamaran guided-missile patrol boats (PTG) (Type 022) built for operations in China's "near seas."

The PLAN continues to emphasize anti-surface warfare (ASUW) as its primary focus, including modernizing its advanced ASCMs and associated over-the-horizon targeting systems. Older surface combatants carry variants of the YJ-83 ASCM (65 nm, 120 km), while newer surface combatants such as the LUYANG II are fitted with the YJ-62 (120 nm, 222 km). The LUYANG III and Type 055 CG will be fitted with a variant of China's newest ASCM, the YJ-18 (290 nm, 537 km), which is a significant step forward in China's surface ASUW capability. Eight of China's 12 KILOs are equipped with the SS-N-27 ASCM (120 nm, 222 km), a system China acquired from Russia. China's newest indigenous submarine-launched ASCM, the YJ-18 and its variants, represents an improvement over the SS-N-27, and will be fielded on SONG, YUAN, and SHANG submarines. China's previously produced submarine-launched ASCM, the YJ-82, is a version of the C-801, which has a much shorter range. The PLAN recognizes that long-range ASCMs require a robust, over-the-horizon targeting capability to realize their full potential, and 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.

China's investments in its amphibious ship force signal China's intent to develop an expeditionary and over-the-horizon amphibious assault capability as well as HA/DR and counterpiracy capabilities. Since 2005, China has built three large YUZHAO-class (Type 071) amphibious transport docks (LPD) with a fourth soon to enter service, providing considerably greater and more flexible capability for "far seas" operations than the older landing ships. The YUZHAO can carry up to four of the new YUYI-class air-cushion medium landing craft (LCMA) and four or more helicopters, as well as armored vehicles and marines for long-distance deployments. Additional YUZHAO construction is expected in the near-term, as is a follow-on amphibious assault ship that is not only larger, but incorporates a full flight deck for helicopters. Two YUTING II-class tank landing ships (LST) are currently being built to replace older LST units that are reaching the end of their service lives, and to support logistics operations, particularly in the South China Sea.

In 2015, the PLAN's first aircraft carrier, LIAONING, certified its first cohort of domestically trained J-15 operational pilots. The air wing is expected to deploy on the

carrier in 2016. China also began construction of its first domestic aircraft carrier and could build multiple aircraft carriers over the next 15 years. Even when fully operational, LIAONING will not enable long-range power projection similar to U.S. NIMITZ-class carriers. LIAONING's smaller size limits the number of aircraft it can embark, while the ski-jump configuration limits aircraft fuel and ordnance loads. LIAONING will possibly be used for fleet air defense missions, extending air cover over a fleet operating far from land-based coverage. Although it possesses a full suite of weapons and combat systems, LIAONING will probably continue to play a significant role in training China's carrier pilots, deck crews, and developing tactics that will be used with later, more capable carriers.


North Sea Fleet HQ
East Sea Fleet HQ
South Sea Fleet HQ
Military Region
RUSSIA
MONGOLIA
Shenyang
Beijing
Beijing
NORTH KOREA
Sea of Japan
SOUTH KOREA
Qingdao
Jinan
CHINA
Ningbo
Nanjing
Guangzhou
Taiwan
Zhanjiang
South China Sea
PHILIPPINES
0 250 500 Kilometers
North Sea Fleet
1 Aircraft Carrier
– Nuclear-powered Ballistic Missile Submarines
3 Nuclear-powered Attack Submarines
19 Diesel-powered Attack Submarines
7 Destroyers
12 Frigates
9 Corvettes
– Amphibious Transport Docks
2 Tank Landing Ships
6 Medium Landing Ships
18 Missile Patrol Craft
East Sea Fleet
– Aircraft Carrier
– Ballistic Missile Submarines
– Nuclear-powered Submarines
18 Diesel-powered Attack Submarines
9 Destroyers
19 Frigates
6 Corvettes
– Amphibious Transport Docks
14 Tank Landing Ships
9 Medium Landing Ships
30 Missile Patrol Craft
South Sea Fleet
– Aircraft Carrier
4 Nuclear-powered Ballistic Missile Submarines
2 Nuclear-powered Attack Submarines
20 Diesel-powered Attack Submarines
7 Destroyers
21 Frigates
8 Corvettes
3 Amphibious Transport Docks
11 Tank Landing Ships
7 Medium Landing Ships
38 Missile Patrol Craft
All locations are approximate.
Boundary representation is not necessarily authoritative.
Current as of 1 Jan. 2016; military regions from 2015 are shown.

PLA Air Force (PLAAF) and PLA Navy Aviation. The PLAAF is the largest air force in Asia and the third largest in the world, with more than 2,800 total aircraft (not including UAVs) and 2,100 combat aircraft (including fighters, bombers, fighter-attack and attack aircraft). The PLAAF is rapidly closing the gap with western air forces across a broad spectrum of capabilities from aircraft and command-and-control (C2) to jammers, electronic warfare (EW), and datalinks. The PLAAF continues to field additional fourth-generation aircraft (now about 600). Although it still operates a large number of older second- and third-generation fighters, it will probably become a majority fourth-generation force within the next several years.

The PLAAF and PLAN may become more prominent within the PLA if China proceeds with the personnel reductions announced in September 2015. Last year, the personnel levels of the PLAAF and PLAN were just 398,000 and 235,000 respectively, accounting for 27.5 percent of the PLA overall. The PLA's planned personnel reductions may increase the relative size of the PLAAF and PLAN; Chinese analysts speculate the absolute size of the two services may even increase.

China has developed the J-10B follow-on to its first indigenously designed fourth-generation fighter and it is expected to enter service in the near-term. The PLA is also likely to acquire the Su-35 Flanker aircraft from Russia along with its advanced radar system. If China does procure the Su-35, the aircraft could enter service by 2018. In November 2015, talks to purchase 24 Su-35 fighters reportedly concluded successfully.

China has been pursuing fifth-generation fighter capabilities since at least 2009 and is the only country other than the United States to have two concurrent stealth fighter programs. China seeks to develop these advanced aircraft to improve its regional power projection capabilities and to strengthen its ability to strike regional airbases and facilities. The PLAAF has observed foreign military employment of stealth aircraft and views this technology as a core capability in its transformation from a predominantly territorial air force to one capable of conducting both offensive and defensive operations. PLAAF leaders believe stealth aircraft provide an offensive operational advantage that denies an adversary the time to mobilize and to conduct defensive operations. In 2015, China began flight testing its fifth and sixth J-20 stealth fighter prototypes. Within two years of the J-20's first flight in January 2011, China tested a second next-generation fighter prototype. The prototype, referred to as the FC-31 (and unofficially as the J-31), is similar in size to a U.S. F-35 fighter and appears to incorporate design characteristics similar to the J-20. The FC-31 conducted its first flight on October 31, 2012, and debuted at China's 10th China International Aviation & Aerospace Exhibition in Zhuhai in November 2014. The Aviation Industry Corporation of China

(AVIC) is actively marketing the FC-31 as an export fifth-generation multirole fighter to compete with the F-35 for foreign sales. AVIC is reportedly in negotiations with the PLAAF to sell the FC-31 for domestic use. In addition to manned fighter aircraft, the PLAAF also views stealth technology as integral to unmanned aircraft, specifically those with an air-to-ground role, as this technology would improve that system's ability to penetrate heavily protected targets.

China is also producing bomber-class aircraft. China continues to upgrade its H-6 bomber fleet (originally adapted from the late-1950s Soviet Tu-16 design) to increase operational effectiveness and lethality by integrating new standoff weapons. The PLAAF operates three different H-6 bomber variants. The H-6H and the more capable H-6M have been in service since the last decade. The PLAAF also employs the new, fully redesigned H-6K variant with new turbofan engines for extended range and the capability to carry six LACMs. Converting the H-6 into a cruise missile carrier gives the PLA a long-range standoff offensive air capability with precision-guided munitions capable of striking Guam. In 2015, China flew H-6Ks into the western Pacific Ocean in a demonstration of the airframe's long-range capability. PLA Navy Aviation utilizes a nearly identical version of the earlier H-6, known as the H-6G equipped with systems and four weapons pylons for ASCMs to support maritime missions. All of China's H-6 variants maintain their traditional bomb bay for gravity bombs, precision guided bombs, and naval mines. China also uses a modified version of the H-6, known as the H-6U to conduct aerial refueling operations for some of its indigenous fighter aircraft, increasing their operational ranges. China is also receiving receive IL-78s from Ukraine, which are outfitted as air-refueling tankers. China-Ukraine negotiations for additional tankers will likely continue. Although China can refuel fighter aircraft, to date no H-6 variants are capable of being refueled while airborne.

China is improving its airfields in the South China Sea with the availability of Woody Island Airfield in the Paracel Islands and construction of up to three new airfields in the Spratly Islands. All of these airfields could have runways long enough to support any aircraft in China's inventory. During late-October 2015 the PLAN deployed four of its most capable air superiority fighters, the J-11B, to Woody Island.

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-300PMU1/2) battalions and domestically produced CSA-9 (HQ-9) battalions. In an effort to improve its strategic air defense systems even further, China plans to import Russia's S-400/Triumf SAM system, as a follow-on to the SA-20, and may simultaneously develop its indigenous CSA-X-19 (HQ-19) to provide the basis for a ballistic missile defense capability.

China's aviation industry continues to test its Y-20 large transport aircraft for introduction into the PLA's operational inventory to supplement and eventually replace China's small fleet of strategic airlift assets, which currently consist of a limited number of Russian-made IL-76 aircraft.

The Y-20 made its maiden flight during January 2013 and is reported to use the same Russian engines as the IL-76. The large transports are intended to support airborne C2, logistics, paradrop, aerial refueling, and strategic reconnaissance operations, as well as HA/DR missions.



PLA Army (PLAA). In November 2015, the PLA established a separate Army headquarters for its ground forces. The CMC creation in late 2015 of a separate Army headquarters set the conditions for joint operations by leveling the status of the services. This change has required an alteration in the organization of theater commands, which for the first time are establishing separate subordinate theater army headquarters to lead their ground components.

Other aspects of PLAA modernization continued in 2015. The PLA also continued to modernize and to restructure its ground force to create a fully modern army capable of fighting and winning multiple simultaneous regional land wars as the core element of a national joint force. In 2015, the PLAA emphasized mobility exercises across MRs, the mechanization of combat brigades, the creation of high-mobility infantry and combined-arms battalions, and the delivery of advanced command, control, communication, computers, and intelligence (C4I) equipment that provides real-time data-sharing at the division and brigade level. Modernization also involves improved rotary-wing army aviation with precision-guided munitions (including dedicated air-to-air missiles for helicopter-to-helicopter aerial combat). The PLAA continued to field tracked and wheeled artillery systems, wheeled anti-tank guns, anti-tank guided missiles, wheeled and tracked armored vehicles, and air defense systems which incorporate advanced target-acquisition capabilities. Advanced long-range artillery systems—conventional and rocket—as well as supporting target-acquisition systems continued to enter the force, providing PLAA tactical- and operational-level units with world-class, long-range strike capabilities.

Two increasingly influential PLAA ground force exercise series are the STRIDE and FIREPOWER. In a STRIDE exercise, the PLAA assesses a maneuver brigade as it deploy across MR boundaries to a training center, where it then goes into carefully observed force-on-force combat against a non-cooperative dedicated opposition force (OPFOR). Battlefield success is determined primarily through extensive laser engagement systems keyed to each weapon system, much as U.S. Army units train at the National Training Center. The FIREPOWER exercise series is for artillery brigades and air defense brigades, which deploy across MR boundaries and conduct extensive live-fire practice carefully observed and evaluated by dedicated observer-controllers. Last year, the PLAA placed even more emphasis on increasing its ability to deploy operational campaign-level forces across long distances quickly, entering immediately thereafter into force-on-force combined-arms combat. In 2015, 15 combat maneuver brigades undertook a STRIDE exercise iteration, more than double the seven maneuver brigades that conducted a STRIDE exercise in 2014.

In 2014, the FIREPOWER exercise series trained 10 brigades across a number of training areas. In contrast, the 2015 FIREPOWER series trained 14 brigades at two dedicated live-fire training areas in the Lanzhou MR. Seven artillery brigades deployed to the Qingtongxia training area and seven air defense brigades deployed to the Shandan training area.

In 2015, PLAA academies conducted command-post exercises (CPX) with units conducting STRIDE and acting as the dedicated OPFOR for FIREPOWER exercises. Rather than having commanders and staffs travel to the academies, the PLAA's command software system was used to support training units at their training centers, with the pertinent academy personnel remaining at their academies. Distributed training at this level of sophistication represents a considerable advance for the PLAA, especially since the first academy cadre OPFOR-unit training only was conducted in 2012.

PLAA exercises in 2015 continued the trend of improving rotary-wing army aviation operational capabilities and overall air-ground and C2 capabilities with improved networks providing real-time data sharing within and between units. The production and fielding of improved PLAA wheeled and tracked armored vehicles, advanced air defense systems, and EW capabilities continues, as does the spread of advanced long-range artillery systems along with their supporting target-acquisition systems, including SOF trained for deep-strike reconnaissance. All elements of the PLAA were major players in the extensive JOINT ACTION-2015 series of exercises which included a focus on SOF integration with long-range fire strike assets.

The growth of additional regional training centers with full-time non-cooperative OPFORs, along with dedicated observer-controller personnel to conduct unit training evaluations and training support elements, as seen in the expansion of the STRIDE exercise series noted above, continues to drive realistic training across major portions of the PLAA. The primary limiting factor at this time seems to be the simple availability of training time at the current centers, in comparison with the size of the world's largest ground force. Extensive media coverage of Army exercises in 2015 again underscored a growing national confidence in the PLAA's ability to conduct modern air-land battle.


CHINA
MONGOLIA
Shenyang
16
39
40
NORTH KOREA
Sea of Japan
65
Beijing
Beijing
38
27
26
SOUTH KOREA
Yellow Sea
Lanzhou
54
20
12
JAPAN
21
47
Jinan
CHINA
15
1
East China Sea
13
Nanjing
Chengdu
Guangzhou
14
41
42
31
Taiwan
Philippine Sea
VIETNAM
LAOS
South China Sea
Group Army
Airborne Corps
Military Region
0
250
500 Kilometers
All locations are approximate.
Boundary representation is not necessarily authoritative.
Current as of 1 Jan. 2016; military regions from 2015 are shown.

Space and Counterspace Capabilities. Using its on-orbit and ground-based assets to support its national civil, economic, political, and military goals and objectives, China's space program continues to mature. China has invested significantly in improving its space capabilities, with particular emphasis on satellite communications (SATCOM); intelligence, surveillance, and reconnaissance (ISR); satellite navigation (SATNAV); meteorology; as well as manned, unmanned, and interplanetary space exploration. In addition to its on-orbit assets, China's space program has built a vast ground infrastructure supporting spacecraft and space launch vehicle (SLV) manufacturing, launch, C2, and data downlink. In parallel with its space program, China continues to develop a variety of counterspace capabilities designed to limit or to prevent the use of space-based assets by the PLA's adversaries during a crisis or conflict.

China's most recent DWP affirmed the PLA's focus on new, emerging security domains such as outer space. The report called space the "commanding height in international strategic competition." Although China continues to advocate the peaceful use of outer space, the report also noted China would "secure its space assets to serve its national economic and social development, and maintain outer space security."

As of December 2015, China launched 19 SLVs carrying 45 spacecraft, including navigation, ISR, and test/engineering satellites. Noteworthy 2015 accomplishments for China's space program include:

> Two New Launch Vehicles: September 2015 saw the successful debut of both the Long March (LM)-6 and the LM-11 "next generation" SLVs. The LM-6 is a small liquid-fueled SLV designed to carry up to 1000 kg into low Earth orbit (LEO), and the LM-11is described as a "quick response" SLV designed to launch a small payload into LEO on short notice in the event of an emergency.

> China's Largest Multi-Payload Launch and Smallest Satellites: The 19 September 2015 inaugural launch of the LM-6 SLV carried the largest number of satellites (20) China has ever launched on a single SLV. Most of the satellites carried onto orbit by the LM-6 were technology-demonstration satellites smaller than 100 kg. Furthermore, the four Xingchen femtosatellites launched aboard the LM-6 are the smallest Chinese spacecraft to date, weighing just 100 g each.

> Launches Begin for Beidou Global Network: China's Beidou SATNAV constellation began the next step of its construction in 2015 with the launch of the Beidou I1-S, an inclined geosynchronous orbit (IGSO) satellite, on March 30. In 2015, China launched two more medium Earth orbit satellites and two more IGSO satellite. This phase of the project plans to extend the Beidou network beyond its current regional focus to provide global coverage by 2020.

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 antisatellite 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.

In the summer of 2014, China conducted a space launch that had a similar profile to the January 2007 test. In 2013, China launched an object into space on a ballistic trajectory with a peak altitude above 30,000 km, which could have been a test of technologies with a counterspace mission in geosyncronous orbit.

Although Chinese defense academics often publish on counterspace threat technologies, no additional antisatellite programs have been publicly acknowledged. PLA writings emphasize the necessity of "destroying, damaging, and interfering with the enemy's reconnaissance...and communications satellites," suggesting that such systems, as well as navigation and early warning satellites, could be among the targets of attacks designed to "blind and deafen the enemy."

China's Engagement on International Cyber Issues. China is engaged in cyber related diplomatic and advocacy efforts in multilateral and international forums such as the Association of Southeast Asian Nations (ASEAN), the Shanghai Cooperation Organization (SCO), and among Brazil, Russia, India, China, South Africa (BRICS). China promotes international cooperation on combatting terrorists' use of the internet and countering cyber-related criminal activity and advocates for cyber norms that include principles of sovereignty, non-interference and states' rights to control online content. China, along with several other countries, contributed to the UN Group of Governmental Experts on Development July 2015 report that addresses cyber related issues and state behavior in cyberspace.

U.S.-China Cyber Engagement. DoD engages China to bring greater transparency of each nation's military doctrine, policy roles and missions in cyberspace as part of the U.S.-China Defense Consultative Talks, the Strategic Security Dialogue, and related dialogues. DoD participates in the U.S.-China Senior Experts Group on International Security Issues in Cyberspace, which was one of the outcomes of the cyber commitments between President Obama and President Xi in September 2015

DEVELOPMENTS IN NUCLEAR DETERRENCE

China continues to modernize its nuclear forces across the PLA. In 2015, China maintained nuclear-capable delivery systems in its missile forces and navy, giving it a dispersed and more-survivable capability.

- The PLA Rocket Force's (PLARF) arsenal contains 75-100 ICBMs. The PLARF is modernizing these airframes, including through the development of a new road-mobile ICBM capable of carrying multiple independent reentry vehicles (MIRVs). China has also tested a hypersonic glide vehicle, although official statements make no reference to its intended mission or potential capability to carry a nuclear warhead.
- The PLAN continues to produce the JIN-class SSBN, with four commissioned and at least one under construction. The JIN class and its SLBMs will give China its first reliable long-range, sea-based nuclear capability.

In 2015, China also continued to develop long-range bombers, including some Chinese military analysts have described as "capable of performing strategic deterrence"—a mission reportedly assigned to the PLA Air Force in 2012. There have also been Chinese publications indicating China intends to build a long-range "strategic" stealth bomber. These media reports and Chinse writings suggest China might eventually develop a nuclear bomber capability. If it does, China would develop a "triad" of nuclear delivery systems dispersed across land, sea, and air—a posture considered since the Cold War to improve survivability and strategic deterrence.

2

UNDERSTANDING CHINA'S STRATEGY

STRATEGIC OBJECTIVES

Since 2002, China's leaders—including President Xi Jinping—have characterized the initial two decades of the 21st century as a "period of strategic opportunity." They assess that during this time international conditions will facilitate domestic development and the expansion of China's "comprehensive national power," which outside observers believe will serve what they assess to be the Chinese Communist Party's (CCP) overriding strategic objectives:

- perpetuate CCP rule;
- maintain domestic stability;
- sustain economic growth and development;
- defend national sovereignty and territorial integrity;
- secure China's status as a great power and, ultimately, reacquiring regional preeminence;
- and safeguard China's interests abroad.

The CCP has distilled these objectives into President Xi's "China Dream" of national rejuvenation. The concept, first articulated by Xi shortly after the 2012 leadership transition, encapsulates a long-standing national aspiration of establishing a powerful and prosperous China. President Xi and other leaders also link the China Dream to two high-profile centenary goals: achieving a "moderately prosperous society" by the 100th anniversary of the CCP in 2012, and building a "modern socialist country that is prosperous, strong, democratic, culturally advanced and harmonious" by the 100th anniversary of the establishment of the PRC in 2049.

The China Dream also includes a commitment to developing military power commensurate with China's resurgent status as a great power. China's leaders are increasingly seeking ways to leverage its growing military, diplomatic, and economic clout to establish regional preeminence and expand its international influence. China's strategy is to secure these objectives without jeopardizing the regional peace that has been conducive to its military modernization and the economic development that has helped the CCP maintain its monopoly on power.

CHINA'S NATIONAL SECURITY MANAGEMENT

Since 2014, China has taken several steps to modernize CCP, military, and state institutions and ensure greater coherence in the conduct of China's national security policy. These efforts address long-standing concerns that China's Cold War-era system of stove-piped organizations is ill-equipped to meet the growing range of challenges that China faces as its interests and capabilities expand.

> In January, the CCP Politburo adopted China's first national security strategy outline. Official media noted that it is intended to unify efforts by various departments under the central leadership's guidance.

> In July, the National People's Congress (NPC) passed an expansive national security law, replacing an earlier law that dealt primarily with counterespionage. The law sets a wide definition of national security and gives central authorities—possibly the new National Security Commission—leadership of strategy, coordination, and crisis management.

> The content of the two documents echoes a broad national security vision first stated by President Xi in 2014 at the inaugural meeting of China's National Security Commission. At that session, Xi described 11 areas that are components of national security, ranging from political security—i.e., ensuring CCP rule—to military security, as well as a variety of other issues.

The NSC's mission, sprawling definition of national security, and powerful leaders suggests that the NSC may claim broad authority over time. At the NSC's first meeting, President Xi called on it to "establish a centralized and unified, highly authoritative state security system." The Commission's purview appears to encompass domestic and foreign affairs, endowing it with a much wider mandate than the U.S. National Security Council. Xi, Premier Li Keqiang, and National People's Congress Chairman Zhang Dejiang lead the Commission, but China has not publicly named other members. Beijing-owned press outlets note that the head of its general office is Politburo member and CCP General Office Director Li Zhanshu, who appears close to Xi and probably had little experience with international affairs during his decades-long career in the provinces.

MILITARY STRATEGY

China's ambitious, two-decade long modernization entered a new phase in 2015 as President Xi unveiled the most sweeping reforms in at least thirty years. Official Chinese press has touted the reforms as the most sweeping in the history of the PLA. The reforms are designed in part to make the PLA a leaner, more lethal force that is more capable of conducting the type of joint operations the U.S. military pioneered. The reforms establish new joint theater commands and a new Joint Staff Department, while

replacing the four general departments that have run the PLA since the establishment of the People's Republic of China in 1949 with new organizations. Xi and the Central Military Commission (CMC) have mandated that the PLA make "major breakthroughs" in overhauling its structure by 2020.

National Military Strategic Guidelines. In 2015, the leadership directed the PLA to be capable of fighting and winning "informationized local wars" with an 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 that define concepts, assess threats, and set priorities for planning, force posture, and modernization. The guidelines identify the type of war for which China must prepare, and regional analysts widely interpreted this update as an indication that China expects significant elements of a modern conflict would occur at sea.

- China's leadership has adjusted its national military strategic guidelines twice since the fall of the Soviet Union. In 1993, Jiang Zemin directed the PLA to prepare for conflict 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 "local war under infomationized conditions."
- Taiwan remains the PLA's main "strategic direction," one of the geographic areas the leadership identifies as endowed with strategic importance. Other focus areas include the East China Sea, the South China Sea, and China's borders with India and North Korea. This year's structural reforms appear to have oriented each new theater command toward a specific direction.
- In 2015, China outlined eight "strategic tasks," or types of missions the PLA must be ready to execute: safeguard the sovereignty of China's territory; safeguard national unification; safeguard China's interests in new domains such as space and cyberspace; safeguard China's overseas interests; maintain strategic deterrence; participate in international security cooperation; maintain China's political security and social stability; and conduct emergency rescue, disaster relief, and "rights and interest protection" missions.
- China's military leaders also want to achieve mechanization and to make "major progress" toward informationization by 2020. The concept of "informationization" figures prominently in PLA writings and is roughly analogous to the U.S. military's concept of "net-centric" capability: it is 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 opportunities.

Coercive Approach. In tandem with the modernization and reorganization of the PLA, Chinese leaders are increasingly leveraging tactics short of armed conflict to advance China's interests. Their approach seeks to enhance China's reach and power through activities calculated to fall below the threshold of provoking the United States, its allies and partners, or others in the Asia-Pacific region into open conflict. This is particularly evident in China's pursuit of its territorial and maritime sovereignty claims in the South and East China Seas. For instance, China is using its maritime law-enforcement vessels to limit access to Scarborough Reef and pressure the Philippine presence at Second Thomas Shoal. China's expansion of disputed features and construction in the Spratly Islands, using large-scale land reclamation demonstrate China's capacity—and a newfound willingness to exercise that capacity—to strengthen China's control over disputed areas, enhance China's presence, and challenge other claimants.

Growing Global Presence. China's maritime emphasis and attention to missions guarding its overseas interests has increasingly drawn the PLA beyond China's borders and its immediate periphery. The PLA Navy'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. In late November 2015, China acknowledged its intent to build military support facilities in Djibouti. If completed, this facility would be China's first overseas logistics station.

Active Defense. China characterizes its military strategy as one of "active defense," a concept it describes as strategically defensive but operationally proactive in orientation. It is rooted in a commitment not to attack, but to respond aggressively once an adversary decides to attack—a defense that counterattacks in order to disrupt an adversary's preparations or offensive rather than a defense that reacts passively. The PLA interprets active defense to include mandates for both de-escalation and seizing the initiative. Active defense is set in China's National Security Law (2015) and is included in the PLA's major strategy documents.

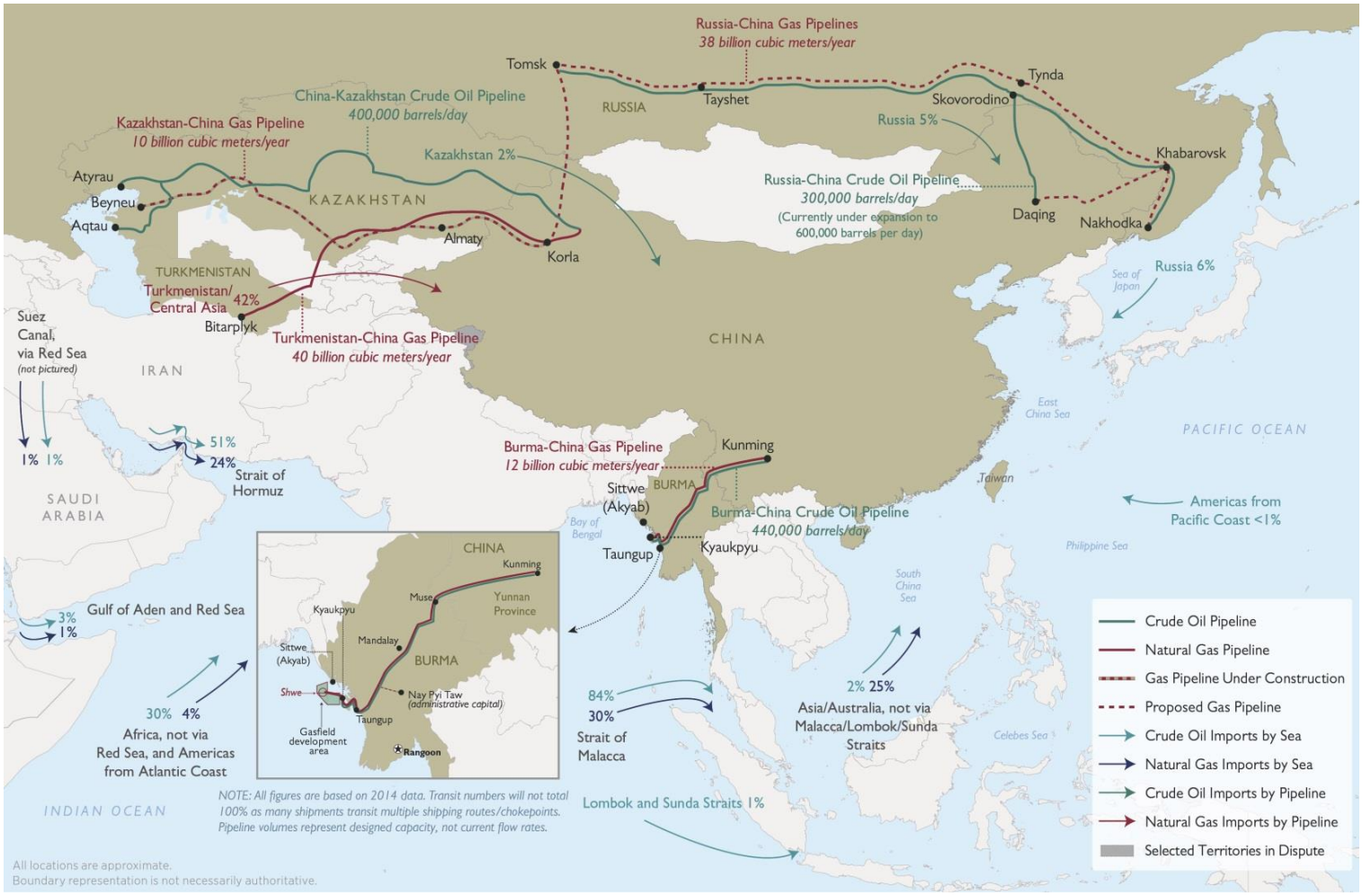
FOREIGN POLICY

China continues to regard stable relations with the United States and China's neighbors as key to its development. China sees the United States as the dominant regional and global actor with the greatest potential both to support and to disrupt China's rise. China is conscious that if its neighbors come to view it primarily as a threat, they will balance against China.

In October, in part to allay these fears, China hosted back-to-back meetings of ASEAN defense chiefs and national and military leaders who attended China's Xiangshan Forum, a semi-official dialogue on regional security. During the forum, CMC Vice Chairman Fan Changlong defended China's construction of islands in South China Sea, advocated for handling differences through peaceful bilateral negotiations, and stated that China will never "recklessly" use force to resolve disputes. Fan's comments underscored the challenges in China's regional policy. In addition, China used its 2014-2015 chairmanship of the Conference on Interaction and Confidence Building Measures in Asia (CICA) and the inaugural ASEAN-China Defense Ministers' Informal Meeting in October 2015 to push forward new mechanisms for regional security cooperation.

However, as China's foreign interests increase and its power have grown, former paramount leader Deng Xiaoping's oft-repeated policy dictum that China should "hide capabilities and bide time" has come under strain as some members of China's elite question its continued relevance. China is seeking progressively higher-profile leadership roles in existing regional and global institution while seizing the initiative to establish multilateral mechanisms such as the proposed "New Asian Security Concept," an all-inclusive security framework that promotes Asian solutions to Asian problems and provides an alternative to U.S. alliances in Asia. In late November 2014, President Xi at a rare CCP Central Foreign Affairs Work Conference—only the fourth since the establishment of the PRC—called on Beijing to take on regional and global leadership and officially endorsed the main thrust of China's foreign policy. Xi remarked on the "protracted nature of the struggle over the international order" and highlighted China's intention to play a larger role. He stressed that China would be firm in defending its interests, especially its territorial sovereignty and maritime rights.

China's increasingly assertive efforts to advance its national sovereignty and territorial claims, its forceful rhetoric, and lack of transparency about its growing military capabilities and strategic decision-making continue to raise tensions and have caused countries in the region to enhance their ties to the United States. These concerns are likely to intensify as the PLA continues to modernize, especially in the absence of greater transparency.


Russia-China Gas Pipelines
38 billion cubic meters/year
Tomsk
Tayshet
Tynda
Skovorodino
Khabarovsk
RUSSIA
China-Kazakhstan Crude Oil Pipeline
400,000 barrels/day
Kazakhstan-China Gas Pipeline
10 billion cubic meters/year
Kazakhstan 2%
Russia 5%
Atyrau
Beyneu
Aqtau
KAZAKHSTAN
Almaty
Korla
Russia-China Crude Oil Pipeline
300,000 barrels/day
(Currently under expansion to 600,000 barrels per day)
Daqing
Nakhodka
Russia 6%
Sea of Japan
TURKMENISTAN
Turkmenistan/ Central Asia 42%
Bitarplyk
Turkmenistan-China Gas Pipeline
40 billion cubic meters/year
CHINA
Suez Canal, via Red Sea
(not pictured)
IRAN
East China Sea
PACIFIC OCEAN
1% 1%
51%
24%
Strait of Hormuz
Burma-China Gas Pipeline
12 billion cubic meters/year
Kunming
Sittwe (Akyab)
BURMA
Taiwan
Americas from Pacific Coast <1%
SAUDI ARABIA
Bay of Bengal
Burma-China Crude Oil Pipeline
440,000 barrels/day
Taungup
Kyaukpyu
Philippine Sea
South China Sea
CHINA
Kunming
Muse
Yunnan Province
Kyaukpyu
Mandalay
Sittwe (Akyab)
BURMA
Shwe
Nay Pyi Taw
(administrative capital)
Taungup
Gasfield development area
Rangoon
Gulf of Aden and Red Sea
3%
1%
30% 4%
Africa, not via Red Sea, and Americas from Atlantic Coast
84%
30%
Strait of Malacca
2% 25%
Asia/Australia, not via Malacca/Lombok/Sunda Straits
Celebes Sea
Lombok and Sunda Straits 1%
INDIAN OCEAN
NOTE: All figures are based on 2014 data. Transit numbers will not total 100% as many shipments transit multiple shipping routes/chokepoints. Pipeline volumes represent designed capacity, not current flow rates.
All locations are approximate.
Boundary representation is not necessarily authoritative.
Crude Oil Pipeline
Natural Gas Pipeline
Gas Pipeline Under Construction
Proposed Gas Pipeline
Crude Oil Imports by Sea
Natural Gas Imports by Sea
Crude Oil Imports by Pipeline
Natural Gas Imports by Pipeline
Selected Territories in Dispute

CHINA'S ENERGY STRATEGY

China's engagement, investment, and foreign construction related to energy continued to grow. In 2015 China has constructed or invested in energy projects in more than 50 countries. This ambitious investment in energy assets is driven primarily by China's desire to ensure reliable, diverse energy sources to support economic growth. The Chinese companies involved are also interested in increasing profitability, as well as access to advanced technologies.

China hopes to diversify both producers and transport options. Although energy independence is no longer realistic for China, given population growth and increasing per capita energy consumption, China still seeks to maintain a supply chain that is less susceptible to external disruption.

In 2015, China imported approximately 60 percent of its oil supply, and this figure is projected to grow to 80 percent by 2035, according to International Energy Agency data. China continues to look primarily to the Persian Gulf, Africa, and Russia/Central Asia to satisfy its growing demand.

A second goal of China's foreign energy strategy is to alleviate China's heavy dependence on sea lines of communication (SLOCs), particularly the South China Sea and Strait of Malacca. In 2015, approximately 83 percent of China's oil imports transited the South China Sea and Strait of Malacca. Separate crude oil pipelines from Russia and Kazakhstan to China illustrate efforts to increase overland supply. In 2015, the Russia–China crude oil pipeline started expanding to double its capacity from 300,000 to 600,000 barrels per day (b/d) by 2016. In 2015, construction was finished on the 440,000-b/d Burma–China oil pipeline. This pipeline bypasses the Strait of Malacca by transporting crude oil from Kyuakpya, Burma to Kunming, China. The crude oil for this pipeline will be supplied by Saudi Arabia and other Middle Eastern and African countries.

Given China's growing energy demand, new pipelines will alleviate only slightly China's maritime dependency on either the Strait of Malacca or the Strait of Hormuz. Despite China's efforts, the sheer volume of oil and liquefied natural gas that is imported to China from the Middle East and Africa will make strategic SLOCs increasingly important to China.

In 2015, China imported approximately 27.7 billion cubic meters (bcm) of natural gas, 45 percent of all of its natural gas imports, from Turkmenistan by pipeline via Kazakhstan and Uzbekistan. This pipeline is designed to carry 40 bcm per year with plans to expand it to 60 bcm per year. Another natural gas pipeline designed to deliver 12 bcm per year of Burmese-produced gas commenced operations in September 2013 and shipped 3 bcm of gas in 2014. This pipeline parallels the crude oil pipeline across Burma. There was no progress in 2015 on the natural gas project that China and Russia agreed to in 2014. The pipeline is expected to deliver up to 38 bcm of gas by 2035; initial flows are to start by 2018.

China's Top Crude Suppliers 2014

Country	Volume (1,000 barrels/day)	Percentage of Imported Crude Oil
Saudi Arabia	1,012	15
Russia	850	13
Angola	775	12
Iraq	643	10
Oman	642	10
Iran	533	8
Venezuela	320	5
Kuwait	289	4
Brazil	278	4
UAE	251	4
Others	1,123	17
Total	**6,716**	**102**

Numbers may not equal 100 as figures have been rounded.

FACTORS SHAPING CHINA'S LEADERSHIP PERCEPTIONS

Authoritative official documents indicate that China's leaders over the past several years have viewed the country's security environment as becoming more complex. Even with "a generally favorable external environment," last year's Defense White Paper (DWP) assessed that "the national security issues facing China encompass far more subjects, extend over a greater range, and cover a longer time span than at any time in the country's history. Internally and externally, the factors at play are more complex than ever before." Some of these evolving factors include:

Domestic Stability. China's leaders are watchful for signs of unrest and vigilant about controlling dissent. In 2015, the leadership's anxieties about social stability spurred the CCP to tighten social controls and crackdown on dissent. The protests in Hong Kong in late 2014 inflamed Chinese officials' perceptions that the West seeks to intensify domestic instability that would overthrow the CCP. China's new National Security Commission has a mandate to protect the CCP from both internal and external threats, a reflection of the regime's enduring fear of foreign subversion. This fear of unrest probably also has contributed to the leadership's focus on tightening CCP control of the PLA. In his first speech as commander-in-chief, Xi cited the Communist Party of the Soviet Union's

lack of control of its armed forces as a key cause of the Soviet Union's demise.

Decelerating Economic Growth. China's continued economic growth has been a chief enabler of the PLA's rapid modernization. Chinese leaders, however, were concerned about the past year's slowing growth and stock market volatility. China's economy faces a range of risks, including a slowdown in the property market, ballooning debt that continues to outpace economic growth, high off-balance sheet borrowing by provincial and local governments, domestic resource constraints, and rising wages. China's leaders recognize that the economy needs to embark on a disruptive transition from an export- and investment-driven economy to a more consumer-driven economy, but they worry that the necessary reforms in the short term could undermine the steady economic growth, low unemployment, and contained inflation that the leadership judges to be the bedrock of social stability. Over the longer term, China's economy also faces environmental challenges and the dual threat of a rapidly aging population and a declining birth rate that now falls below replacement level, changes that will strain China's resources and its economic growth model. The CCP Central Committee last year decided to lift its longtime "one-child policy" in part to address this challenge, but the high cost of living still discourages many couples from having a second child.

Regional Challenges to China's Interests. There are numerous, complex maritime and territorial disputes across the Asia-Pacific. China's behavior in these disputes have increased regional concerns about its intentions in the region, undercutting its professed desire to maintain a friendly periphery, and driving its neighbors to align more closely with each other and the United States.

Nationalism. CCP and PLA leaders have adopted a more nationalistic foreign policy posture. Stirring nationalist sentiment may bolster the legitimacy of the CCP, but also risks limiting Chinese leaders' flexibility in dialogues with foreign interlocutors, including during a crisis, by limiting options and opening the leadership up to criticism that it has insufficiently defended China's national interests.

FOREIGN MILITARY ENGAGEMENT

The PLA engages with foreign militaries to demonstrate its growing capabilities and to improve its tactics, techniques and procedures. Bilateral and multilateral exercises provide a political benefit to China and opportunities for the PLA to improve capabilities in areas such as counterterrorism, mobility operations, and logistics.

Military Diplomacy. In January 2015, the PLA held an All-Army Foreign Affairs Work Conference to outline how China's military diplomacy would support the vision set by the

CCP's earlier Central Foreign Affairs Work Conference. At this PLA event, senior officials conveyed the goals and strategic outlook for military diplomacy for the next decade, addressing themes of President Xi's speech to Party leaders, including "big power diplomacy," coordination, and policy implementation.

Senior-level visits and exchanges provide China with opportunities to increase military officers' international exposure, to communicate China's positions to foreign audiences, to understand alternative world views, and to advance foreign relations through interpersonal contacts and military assistance programs. Expanded PLA travel abroad enables PLA officers to observe and study foreign military command structures, unit formations, and operational training.

Military Cooperation. As China's regional and international interests grow more complex, the PLA's international engagement will expand, especially in the areas of PKO, counterpiracy, HA/DR, counterterrorism, and joint exercises. For example, virtually every Latin American and Caribbean country that diplomatically recognizes China sends officers to the strategic-level College of Defense Studies at the National Defense University; some of these countries also send officers to the PLAA and PLAN command schools. In addition to furthering PLA modernization, the focus of these engagements will probably remain on building China's political ties, assuaging fears about China's rise, and building China's international influence, particularly in Asia, Africa, and Latin America.

Military Attaché Presence. China advances its day-to-day overseas military diplomacy work using PLA officers assigned as military attachés in at least 110 offices worldwide. China's military attaches 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 collect intelligence 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. In recent years, China's military attaché presence has grown around the world as the PLA continues to professionalize.

China's military attaché offices vary in size, generally ranging from two to 10 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 TERRITORIAL DISPUTES IN CONTEXT

The People's Republic of China's use of force in territorial disputes has varied widely throughout its history. Some disputes led to war, such as China's border conflicts with India in 1962 and Vietnam in 1979. A contested border with the former Soviet Union during the 1960s raised the possibility of nuclear war. In more recent cases, China has been willing to compromise with and even offer concessions to its neighbors. Since 1998, China has settled 11 land-based territorial disputes with six of its neighbors. In recent years, China has adopted a coercive approach that eschews military conflict in order to deal with several disputes continue over exclusive economic zones (EEZ) and ownership of potentially rich, offshore oil and gas deposits.

The ***East China Sea*** contains natural gas and oil, though hydrocarbon reserves are difficult to estimate. China and Japan have overlapping claims to both the continental shelves and the EEZs extending from their respective mainlands. 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. Since early 2009, Japan has repeatedly accused China of violating a June 2008 agreement establishing an equidistant demarcation line from each country for resource development and an area to the north spanning the line for joint exploration of oil and natural gas fields, and claimed that China unilaterally drilled beneath the demarcation line, extracting reserves from the Japanese side. China continues to contest Japan's administration of the nearby Senkaku Islands.

The ***South China Sea*** plays an important role in security considerations across the 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 areas within its "nine-dash line" claim—claims disputed in whole or part by Brunei, the Philippines, Malaysia, and Vietnam. Taiwan, which occupies the Itu Aba Island in the Spratly Islands, makes the same claims as the PRC. 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, while stating in a 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."

Tensions remain with India along their shared 4,057 km border over ***Arunachal Pradesh*** (which China asserts is part of Tibet and therefore of China), and over the ***Askai Chin*** region at the western end of the Tibetan Plateau, despite increases in China-India political and economic relations. In October 2013, Chinese and Indian officials signed the Border Defense Cooperation Agreement, which supplements existing procedures managing the interaction of forces along the Line of Actual Control. China and India continue to accuse each other of frequent incursions and military build-ups along the disputed territories, with the most recent incident occurring in September 2015 along the Line of Actual Control at Burtse in Northern Ladakh. After a five-day standoff, China and India held a senior-level flag meeting and agreed to maintain peace and retreat to positions mutually acceptable to both sides.

CHINA'S MILITARY LEADERSHIP

The PLA is the armed instrument of the CCP and organizationally is part of the Party apparatus. Career military officers are CCP members, and units at the company level and above have political officers responsible for personnel decisions, propaganda, and counterintelligence. Major decisions at all levels are made by CCP committees, which are led by the political officers and military commanders.

China's military leaders are influential in defense and foreign policy due to the Central Military Commission's (CMC) special bureaucratic status and the PLA's near-monopoly on military expertise. The military's highest decision-making body, the CMC, is technically a department of the CCP Central Committee, but is staffed almost exclusively by military officers. The CMC Chairman is a civilian, usually serving concurrently as the General Secretary of the CCP and President of China. Prior to the reorganization of the PLA high command announced in January 2016, the ex officio membership of the CMC included several vice chairmen, the minister of national defense—a position functionally unlike the U.S. Secretary of Defense—the three service commanders, and the directors of the four general headquarters departments. The officers who held those positions prior to the January 2016 announcement still serve on the CMC, but the CMC's composition may change as a result of the PLA's ongoing structural reforms.

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, was the first simultaneous transfer of all three of China's top positions to an incoming leader in recent decades. Prior to becoming CMC Chairman, Xi served as the CMC's only civilian Vice Chairman. 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 secretary to a defense minister early in his career and would have had opportunities to interact 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 Fan Changlong in 2012 became China's top uniformed officer in an unusually steep "helicopter promotion" in 2012. He formerly commanded the Jinan Military Region (MR), a test bed for new operational concepts and technology that has been at the forefront of the PLA's joint training efforts in recent years. Fan was the longest serving of China's seven MR commanders at the time of his appointment, but unlike previous CMC vice chairmen, Fan had never previously served on the CMC. He also spent 35 years in the Shenyang MR, adjacent to North Korea and Russia.

Vice Chairman Xu Qiliang—the first career air force officer promoted to CMC Vice Chairman—previously served on the CMC as PLAAF commander where he oversaw rapid force modernization and expanded the air force's foreign engagement. He vocally advocated for increasing the PLAAF's role within the larger PLA, including arguing in 2009 that the PLAAF should lead the development of offensive space capabilities. Xu may have crossed paths with Xi Jinping earlier in their careers when both men served in Fujian Province. Xu was the first PLAAF officer to serve as deputy chief of the General Staff Department (GSD) since the Cultural Revolution period, and—at 54 years of age—the youngest in PLA history.

Minister of National Defense Chang Wanquan was appointed at the National People's Congress in March 2013. The Minister of National Defense is the PLA's third most senior officer and manages its relationship with state bureaucracies and foreign militaries. Chang previously oversaw the PLA's weapons development and space portfolio as head of the General Armament Department. He played a role in China's border skirmishes with Vietnam and has held top posts across three military regions.

Joint Staff Department Chief Fang Fenghui oversees PLA operations, training, and intelligence, responsibilities that are similar to those of his role as head of the former General Staff Department (GSD). In his previous position as Beijing MR commander, he was "commander-in-chief" of China's 60th anniversary military parade in 2009 and oversaw security for the 2008 Beijing Olympic Games. Fang is the first former Beijing MR commander to move directly to Chief of the GSD. He was the PLA's youngest military region commander when he was promoted to lead the Beijing MR in 2007.

Political Work Department Director Zhang Yang oversees the PLA's political work including propaganda, discipline, and education—missions inherited from the former General Political Department. Unusually for a CMC member, Zhang spent his entire career in a single MR, the Guangzhou MR bordering Vietnam and the South China Sea, where he ultimately became the MR's Political Commissar at a relatively young age. Zhang also participated in China's border conflict with Vietnam and supported disaster relief efforts following a January 2008 snowstorm in southern China.

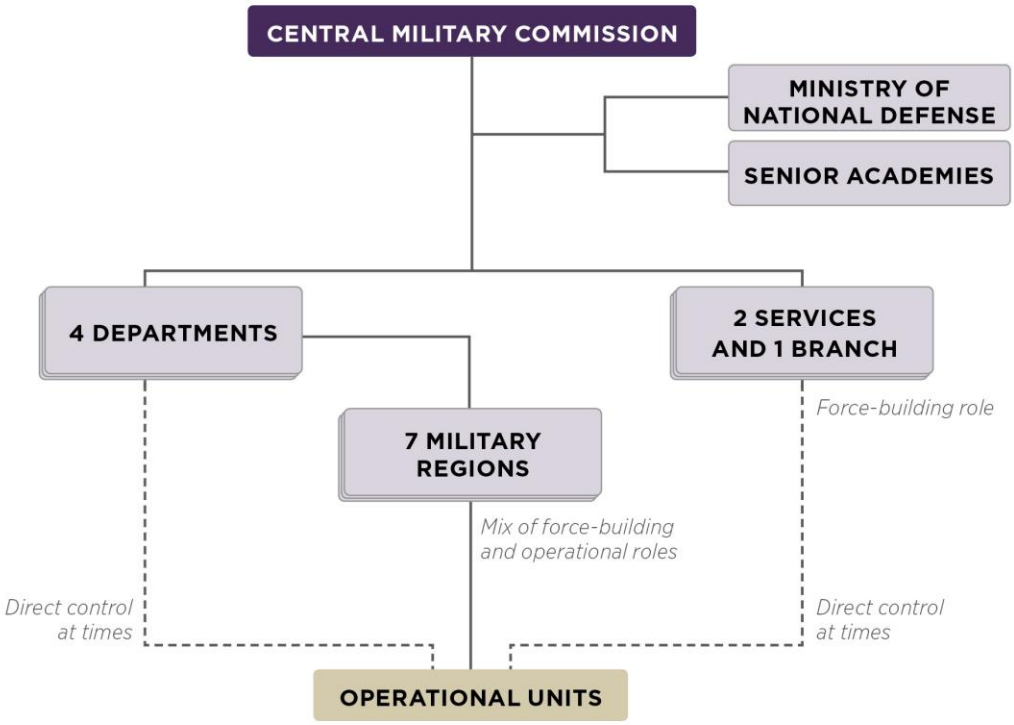
Logistics Support Department Director Zhao Keshi, previously as head of the former General Logistics Department between 2012 and 2015, was responsible for overseeing PLA support functions including supply, transportation, military finances, facilities management, and infrastructure construction. Before his appointment to the CMC in 2012, Zhao spent his entire career in Nanjing MR—responsible for a Taiwan contingency—and most recently served as its commander. He was also reportedly an exercise commander in the large military drills that induced the 1996 Taiwan Strait Crisis. Zhao has written on defense mobilization and reserve unit construction.

Equipment Development Department Director Zhang Youxia's previous position as Director of the former General Armaments Department gave him oversight of the military's weapons development and space programs. He gained rare experience as a combat commander during China's brief war with Vietnam in 1979. Zhang formerly commanded the Shenyang MR, which shares 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.

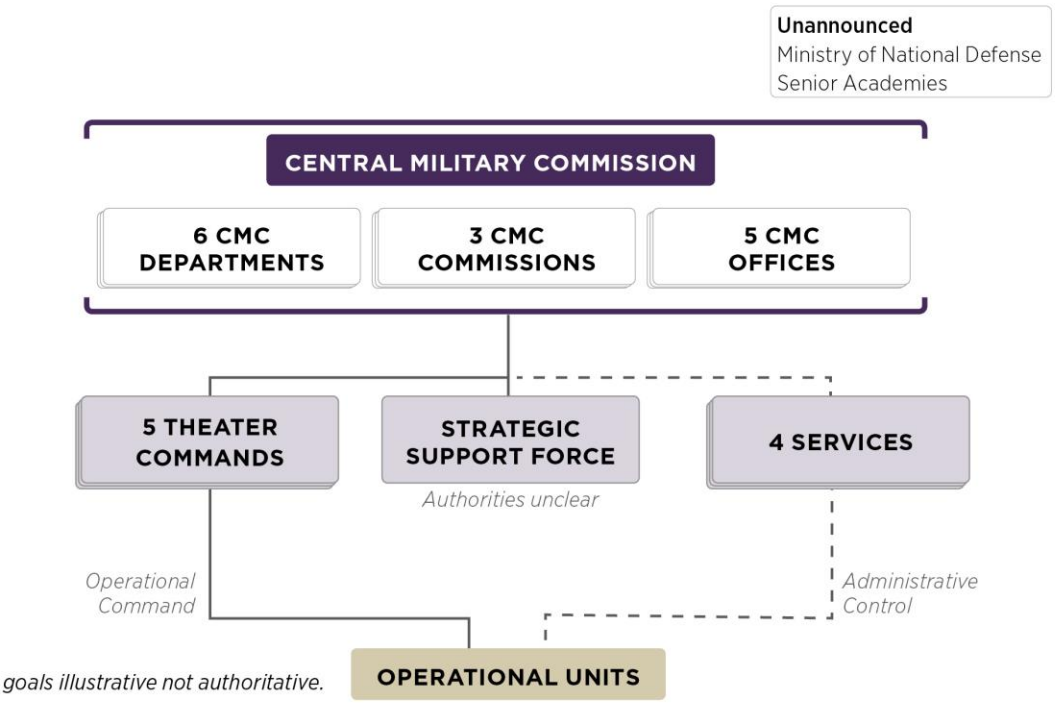
PLA Navy Commander Wu Shengli has served as head of the PLAN since 2006 and on the CMC since 2007. Under Wu, the PLAN has increased its out-of-area exercises, multinational patrols, and foreign naval exchanges, and initiated its first deployment to the Gulf of Aden. The first career PLAN officer to serve as a Deputy Chief of the General Staff, Wu also held leadership positions in two of the PLAN's three fleets, spending most of his career in the East Sea Fleet.

PLA Air Force Commander Ma Xiaotian previously oversaw the PLA's foreign military engagement activities as a Deputy Chief of the General Staff. Ma led the PLA side in key military-to-military exchanges with the United States, including the Defense Consultative Talks and the Strategic Security Dialogue component of the U.S.-China Strategic and Economic Dialogue. Ma has significant experience as a pilot and as a staff officer in multiple military regions.

People's Liberation Army 1985–2015



People's Liberation Army's Reform Goals by 2020*



*Reform goals illustrative not authoritative.

3

FORCE MODERNIZATION GOALS AND TRENDS

China is investing in military programs and weapons designed to improve extended-range power projection, anti-access/area denial (A2/AD), and operations in emerging domains such as cyberspace, space, and the electromagnetic spectrum. Current trends in China's weapons production not only enhance China's capabilities to cope with contingencies along its periphery, such as a Taiwan crisis, but will also enable the PLA to conduct a range of military operations in Asia beyond China's traditional territorial claims. Key systems that either have been deployed or are in development include ballistic missiles (including anti-ship variants), anti-ship and land-attack cruise missiles, nuclear submarines, modern surface ships, and an aircraft carrier. The need to secure trade routes, particularly oil supplies from the Middle East, has prompted China's Navy to conduct counterpiracy operations in the Gulf of Aden. Disputes with Japan over maritime claims in the East China Sea and with several Southeast Asian claimants to all or parts of the Spratly and Paracel Islands in the South China Sea have led to heightened tensions in these areas. Instability on the Korean Peninsula could also produce a regional crisis involving the PLA. The desire to protect energy investments in Central Asia, along with potential security implications from cross-border support to ethnic separatists, could also provide an incentive for military investment or intervention in this region if instability surfaces.

China's leaders have also charged the PLA with developing capabilities for missions such as UN Peacekeeping Operations (UN PKO), Humanitarian Assistance/Disaster Relief (HA/DR), and counterterrorism operations. These capabilities will increase China's options for military influence to press its diplomatic agenda, advance regional and international interests, and resolve disputes in its favor.

For example, China's ANWEI-class military hospital ship, the PEACE ARK, has deployed throughout East Asia and to the Caribbean. China conducts joint military exercises with SCO members, the most prominent being the PEACE MISSION series, with China and Russia as the main participants. China also continues its Gulf of Aden counterpiracy deployment that began in December 2008.

PLA CAPABILITIES IN DEVELOPMENT

Nuclear Weapons. China's nuclear weapons policy prioritizes maintaining a nuclear force able to survive an attack and to respond with sufficient strength to inflict unacceptable damage on an enemy. China insists the new generation of mobile missiles, with warheads consisting of multiple independently targeted reentry vehicles (MIRVs) and penetration aids, are intended to ensure the viability of China's strategic deterrent in the face of continued advances in U.S. and, to a lesser extent, Russian strategic ISR, precision strike, and missile defense capabilities. Similarly, India's nuclear force is

an additional driver behind China's nuclear force modernization. The PLA has deployed new command, control, and communications capabilities to its nuclear forces to improve control of multiple units in the field. Through the use of improved communications links, ICBM units now have better access to battlefield information and uninterrupted communications connecting all command echelons. Unit commanders are able to issue orders to multiple subordinates at once, instead of serially, via voice commands.

China has long maintained a "no first use" (NFU) policy, stating it would use nuclear forces only in response to a nuclear strike against China. China's NFU pledge consists of two stated commitments: China will never use nuclear weapons first and China will never use or threaten to use nuclear weapons against any non-nuclear-weapon state or in nuclear-weapon-free zones. There is some ambiguity 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. However, there has been no indication that national leaders are willing to attach such nuances and caveats to China's NFU doctrine.

China will probably continue to invest considerable resources to maintain a limited, but survivable, nuclear force to ensure that the PLA can deliver a damaging responsive nuclear strike. Recent press accounts suggest China may be enhancing peacetime readiness levels for these nuclear forces to ensure responsiveness.

*Land-Based Platforms***.** China's nuclear arsenal currently consists of approximately 75-100 ICBMs, including the silo-based CSS-4 Mod 2 (DF-5A) and Mod 3(DF-5B); the solid-fueled, road-mobile CSS-10 Mod 1 and Mod 2 (DF-31 and DF-31A); and the more-limited-range CSS-3 (DF-4). This force is complemented by road-mobile, solid-fueled CSS-5 Mod 6 (DF-21) MRBM for regional deterrence missions.

*Sea-based Platforms***.** China continues to produce the JIN-class nuclear-powered ballistic missile submarine (SSBN), with four commissioned and another under construction. The JIN will eventually carry the CSS-NX-14 (JL-2) SLBM with an estimated range of 7,200 km. Together these will give the PLAN its first credible long-range sea-based nuclear capability. JIN SSBNs based at Hainan Island in the South China Sea would then be able to conduct nuclear deterrence patrols.

*Future Efforts***.** China is working on a range of technologies to attempt to counter U.S. and other countries' ballistic missile defense systems, including maneuverable reentry vehicles (MaRVs), MIRVs, decoys, chaff, jamming, and thermal shielding. China has acknowledged that it tested launched a hypersonic glide vehicle in 2014. China's official media also cited numerous PLASAF

training exercises featuring maneuver, camouflage, and launch operations under simulated combat conditions, which are intended to increase survivability. Together with the increased mobility and survivability of the new generation of missiles, these technologies and training enhancements strengthen China's nuclear force and bolster its strategic strike capabilities. Further increases in the number of mobile ICBMs and the beginning of SSBN deterrence patrols will force the PLA to implement more sophisticated C2 systems and processes that safeguard the integrity of nuclear release authority for a larger, more dispersed force.

Anti-Access/Area Denial. As China modernizes the PLA and prepares for various contingencies, it continues to develop capabilities that serve to dissuade, deter, or if ordered, defeat possible third-party intervention during a large-scale, theater campaign such as a Taiwan contingency. U.S. defense planners often refer to these collective PLA capabilities as A2/AD, though China does not use this term. China's military modernization plan includes the development of capabilities to attack, at long ranges, adversary forces that might deploy or operate within the western Pacific Ocean in the air, maritime, space, electromagnetic, and information domains. As the PLA Academy of Military Science 2013 *Science of Strategy* states, "we cannot count on luck and must keep a foothold at the foundation of having ample war preparations and powerful military capabilities of our own, rather than hold the assessment that the enemy will not come, intervene, or strike."

Information Operations. An essential element, if not a fundamental prerequisite, of China's ability to counter third-party intervention is the requirement to control the information spectrum in all dimensions of the modern battlespace. PLA authors often cite the need in modern warfare to control information—sometimes termed "information blockade" or "information dominance"—and to seize the initiative early in a campaign so as to set the conditions needed to achieve air and sea superiority. China is improving information and operational security to protect its own information structures, and is also developing EW and other information warfare capabilities, including denial and deception. China's "information blockade" likely envisions the employment of military and non-military instruments of state power across the battlespace, including in cyberspace and space. China's investments in advanced EW systems, counterspace weapons, and cyberspace operations—combined with more traditional forms of control such as propaganda and denial through opacity—reflect the emphasis and priority China's leaders place on building capability for information advantage.

Cyber Operations. China believes its cyberspace capabilities and personnel lag behind the rest of the world. To deal with these perceived deficiencies, China is improving training and

domestic innovation to achieve its cyberspace capability development goals. PLA researchers advocate seizing "cyberspace superiority" by deterring or stopping an adversary by developing and employing offensive cyberspace capabilities. Chinese offensive cyberspace operations could support A2/AD by targeting critical nodes to disrupt adversary networks throughout the region.

Long-Range Precision Strike. The development of China's conventionally armed missile capability has been extraordinarily rapid. As recently as 10 years ago, several hundred short-range ballistic missiles could reach targets in Taiwan, but China had only a rudimentary capability to strike many other locations within or beyond the first island chain, such as U.S. bases in Okinawa or Guam. Today, however, China is fielding an array of conventionally armed short-range ballistic missiles (SRBMs), as well as ground- and air-launched land-attack cruise missiles (LACMs), special operations forces (SOF), and cyber warfare capabilities to hold targets at risk throughout the region. U.S. bases in Japan are in range of a growing number of Chinese MRBMs as well as a variety of LACMs. Guam could also possibly be targeted by air-launched LACMs, as demonstrated by H-6K bomber flights into the Western Pacific for the first time in 2015. At the September 2015 parade, China unveiled the DF-26. This system is capable of conducting intermediate precision strikes against ground targets, which could include U.S. bases on Guam.

China's LACM and ballistic missiles have also become far more accurate and are now more capable against adversary air bases, logistic facilities, communications, and other ground-based infrastructure. PLA analysts have concluded that logistics and power projection are potential vulnerabilities in modern warfare, given the requirements for precision in coordinating transportation, communications, and logistics networks.

Ballistic Missile Defense (BMD). China has made efforts to go beyond defense from aircraft and cruise missiles to gain a BMD capability in order to provide further protection of China's mainland and strategic assets. China's existing long-range surface-to-air missile (SAM) inventory offers limited capability against ballistic missiles. New indigenous radars, the JL-1A and JY-27A, are designed to address the ballistic missile threat, with the JL-1A advertised as capable of the precision tracking of multiple ballistic missiles. China's SA-20 PMU2 SAMs, one of the most advanced SAM systems Russia offers for export, has the advertised capability to engage ballistic missiles with ranges of 1,000 km and speeds of 2,800 meters per second. China's domestic CSA-9 long-range SAM system is expected to have a limited capability to provide point defense against tactical ballistic missiles with ranges up to 500 km. China is proceeding with the research and development of a missile defense umbrella consisting of kinetic-

energy intercept at exo-atmospheric altitudes (greater than 80 km), as well as intercepts of ballistic missiles and other aerospace vehicles within the upper atmosphere. In January 2010, and again in January 2013, China successfully intercepted a ballistic missile at mid-course, using a ground-based missile. The announced acquisition by China of the S-400 SAM system from Russia could provide China with a counter-MRBM capability depending on which interceptor variants are delivered to China.

Surface and Undersea Operations. China continues to build a variety of offensive and defensive capabilities that could permit the PLA to achieve sea control within what the PLAN calls the "near seas," as well as to project limited combat power into the "far seas." Of these, China's coastal defense cruise missiles (CDCM), air- / surface- / sub-surface-launched anti-ship cruise missiles (ASCMs), submarine-launched torpedoes, and naval mines provide the PLAN with an ability to counter an adversary fleet's intervention with multi-axis, high-intensity attacks that increase in lethality as adversary naval combatants approach China's coast. Additionally, China has fielded CSS-5 anti-ship ballistic missiles (ASBMs) specifically designed to hold adversary aircraft carriers at risk 1,500 km off China's coast. China is making gradual progress in the undersea domain as well, but continues to lack either a robust coastal or deep-water anti-submarine warfare capability. It is also unclear whether China has the capability to collect accurate targeting information and to pass it to launch platforms in time for successful strikes in sea areas beyond the first island chain.

Space and Counterspace. The PLA continues to strengthen its military space capabilities, which include advancements with the Beidou navigation satellite system, and its space surveillance capabilities that can monitor objects across the globe and in space. China is seeking to utilize space systems to establish a real-time and accurate surveillance, reconnaissance and warning system, and to enhance C2 in joint operations. Publicly, however, China stands against the militarization of space. In 2009, the then-commander of the PLAAF Xu Qiliang retracted his earlier assertion that the militarization of space was a "historic inevitability" after former President Hu Jintao swiftly contradicted him.

PLA strategists regard the ability to use space-based systems—and to deny them to adversaries—as central to enabling modern informationized warfare. Although PLA doctrine does not appear to address space operations as a unique operational "campaign," space operations will probably form an integral component of other PLA campaigns and would serve a key role in enabling actions that counter third-party intervention.

Integrated Air Defense System (IADS). Within 300 nm (556 km) of its coast, China has a credible IADS that relies on robust early

warning, fighter aircraft, and a variety of SAM systems as well as point defense primarily designed to counter adversary long-range airborne strike platforms. China continues to develop and to market a wide array of IADSs designed to counter U.S. technology, tailoring the threats to attempts to deny "high-tech" operations across a wide range of capabilities. In addition to improving China's ability to counter traditional IADS targets such as fixed-wing aircraft, UAVs, helicopters, and cruise missiles, China's airshow displays claim that new Chinese radar developments can detect stealth aircraft. China's trade materials also emphasize the systems' ability to counter long-range targets, such as long-range airborne strike and combat support aircraft. Long-range air surveillance radars and airborne early-warning aircraft, such as China's indigenous KJ-2000 and KJ-500, are said to extend China's detection range well beyond its borders.

China has increasing numbers of advanced long-range SAMs, including its indigenous CSA-9 (HQ-9), Russian SA-10 (S-300PMU), and SA-20 (S-300PMU1/PMU2), all of which have the advertised capability to protect against both aircraft and low-flying cruise missiles. In fall 2014, China signed a contract for delivery of Russia's extremely long-range SA-X-21b (S-400) SAM system (400 km), and is also expected to continue research and development to extend the range of the domestic CSA-9 SAM to beyond 200 km.

Air Operations. The planned development of China's fifth-generation fighter force will bolster China's air-to-air capability. These fighters feature high maneuverability, low observability, and an internal weapons bay, based on the J-20 or FC-31/J-31 prototypes. Other key features of these aircraft are modern avionics and sensors that offer more timely situational awareness for operations in network-centric combat environments, radars with advanced tracking and targeting capabilities, protection against enemy electronic countermeasures, and integrated EW systems. These fifth-generation aircraft, which could enter service as early as 2018, will significantly improve China's existing fleet of fourth-generation aircraft (Russian-built Su-27/Su-30 and J-11A, and indigenous J-10 and J-11B fighters) to support regional air superiority and strike operations. China's continuing upgrades to its bomber fleet will give them the capability to carry new, longer-range cruise missiles. In conjunction with procuring more capable military equipment, China is increasing the complexity and realism of air and air-defense training.

Similarly, the acquisition and development of longer-range UAVs will increase China's ability to conduct long-range ISR and strike operations. China is advancing its development and employment of UAVs. In 2015, Chinese media reported the development of the Shendiao (Sacred Eagle or Divine Eagle) as the PLA's newest high-altitude, long-endurance UAV for a variety of missions such as early warning, targeting, EW, and satellite communications. Last year, the PLAAF also reported on its use of a UAV to assist in HA/DR in the aftermath of an

earthquake in China's west—the first public acknowledgment of PLAAF UAV operations. Photos of the UAV showed it was the Yilong (also known as the Wing Loong or Pterodactyl).

Building an Informationized Military. The PLA conducts military exercises simulating operations in complex electromagnetic environments, and likely views conventional and cyber operations as means of achieving information dominance. The PLA would likely use EW, cyberspace operations (CO), and deception to augment counterspace and other kinetic operations during a wartime scenario to deny an adversary's attainment and use of information. Chinese military writings describe informationized warfare as an asymmetric way to weaken an adversary's ability to acquire, transmit, process, and use information during war and to force an adversary to capitulate before the onset of conflict. "Simultaneous and parallel" operations would involve strikes against U.S. warships, aircraft, and associated supply craft and the use of information attacks to affect tactical and operational communications and computer networks. These operations could have a significant effect on an adversary's navigational and targeting radars.

Command, Control, Communications, Computers, and Intelligence (C4I) Modernization. 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 sophisticated weapons.

The PLA views technological improvements to C4I systems as essential to improve the speed and effectiveness of decision-making while providing secure and reliable communications to fixed and mobile command posts. The PLA is fielding advanced automated command systems like the Integrated Command Platform (ICP) to units at lower echelons across the force. The adoption of the ICP enables multi-service communications necessary for joint operations. These C4I advancements are expected to shorten the command process. The new technologies introduced into the PLA enable information-sharing—intelligence, battlefield information, logistical information, and weather reports—on robust and redundant communications networks, to improve commanders' situational awareness. In particular, the transmission of ISR data in near real-time to commanders in the field could facilitate the commanders' decision-making processes and make operations more efficient.

These technical improvements have greatly enhanced the PLA's flexibility and responsiveness. "Informationized" operations no longer require in-person meetings for command decision-making or labor-intensive processes for execution. Commanders can issue orders to multiple units at the same time while on the move, and units can rapidly adjust their actions through the use of digital

databases and command automation tools. The PLA also seeks to improve its C4I capabilities by reforming its joint command institutions at the national and regional levels.

Cyberwarfare. Cyberwarfare capabilities could serve PLA operations in three key areas. First and foremost, they allow the PLA to collect data for intelligence and potential offensive cyberoperations (OCO) purposes. Second, they can be employed to constrain an adversary's actions or to slow response time by targeting network-based logistics, communications, and commercial activities. Third, they can serve as a force-multiplier when coupled with kinetic attacks during times of crisis or conflict.

The development of cyber capabilities for warfare is consistent with authoritative PLA military writings, which identify information operations (IO) as integral to achieving information superiority and as an effective means for countering a stronger foe. China's most recent Defense White Paper (DWP) for the first time noted cyberspace as a new domain of national security and area of strategic competition. The DWP also declared China's intent to expedite the development of a cyber force in response to a perceived increase in cyber threats.

PLA military writings detail the effectiveness of IO and OCO in conflicts and advocate targeting an adversary's C2 and logistics networks to affect its ability to operate during the early stages of conflict. They portray an enemy's C2 system as "the heart of information collection, control, and application on the battlefield. It is also the nerve center of the entire battlefield."

In the PLA, IO command organizations exist at the strategic, campaign, and tactical levels, according to China's Academy of Military Sciences. The campaign-level IO department contains several groups dedicated to coordinating IO. The structural reforms announced in 2015, however, may change how the PLA organizes and commands IO.

Cyber Activities Directed Against the Department of Defense. In 2015, numerous computer systems around the world, including those owned by the U.S. Government, continued to be targeted for intrusions, some of which appear to be attributable directly to China's Government and military. These and past intrusions were focused on accessing networks and exfiltrating information. China is using its cyber capabilities to support intelligence collection against the U.S. diplomatic, economic, and defense industrial base sectors that support U.S. national defense programs. The information targeted could potentially be used to benefit China's defense industry, high-technology industries, and provide the CCP insights into U.S. leadership perspectives on key China issues. Additionally, targeted information could inform Chinese military planners' work to build a picture of U.S. defense networks, logistics, and related military capabilities that could be exploited during a crisis. The accesses and skills required for these intrusions are similar to those necessary to conduct cyberattacks.

Role of Electronic Warfare in a Future Conflict

The PLA identifies electronic warfare (EW) as a way to reduce or eliminate U.S. technological advantages, and considers it an integral component of warfare. The PLA's EW doctrine emphasizes using electromagnetic spectrum weapons to suppress or to deceive enemy electronic equipment. The PLA's strategy focuses on radio, radar, optical, infrared, and microwave frequencies, in addition to adversarial computer and information systems.

China's strategy stresses that EW is a vital fourth dimension to combat, and should be considered equal to traditional ground, sea, and air forces. Effective EW is seen as a decisive aid during military operations and consequently the key to determining the outcome of war. The PLA sees EW as an important force multiplier, and would likely employ it in support of all combat arms and services during a conflict.

The PLA's EW units have conducted jamming and anti-jamming operations, testing the military's understanding of EW weapons, equipment, and performance. This helped improve the military's confidence in conducting force-on-force, real-equipment confrontation operations in simulated EW environments. Advances in research and deployment of EW weapons are being tested in these exercises and have proven effective. These EW weapons include jamming equipment against multiple communication and radar systems and GPS satellite systems. EW systems are also being deployed with other sea- and air-based platforms intended for both offensive and defensive operations.

PLA Power Projection Expanding Outward

PLA modernization and development trends over the last decade reflect an expansion in the PLA's capabilities to address regional and global security objectives. PLA ground, air, naval, and missile forces are increasingly able to project power during peacetime and to contest U.S. military superiority in the event of a regional conflict. The PLA's growing ability to project power also augments China's globally-oriented objectives to be viewed as a stakeholder in ensuring stability and a regional power.

The PLA will maintain a primary emphasis on developing capabilities for a potential Taiwan contingency but is steadily expanding the force's operational flexibility to be able to meet regionally and globally focused missions. The PLA's missile and air forces remain a critical component in extending China's defensive perimeter. This frees up and enables other military assets to focus on conducting offensive missions, such as blockades, sovereignty enforcement, and/or A2/AD, farther from China's shores. China also is focused on enhancing the PLA's ISR capabilities, which will enable improved targeting and timely responses to perceived threats.

The expansion of naval operations beyond China's immediate region will facilitate non-war uses of military force and provide China with a diverse set of capabilities for striking targets across the Pacific and Indian Ocean regions. Improving "blue water" capabilities will extend China's maritime security buffer to protect China's near and far seas interests more effectively.

China's modern naval platforms include advanced missile and technological capabilities that will strengthen the force's core warfighting competencies and enable credible combat operations beyond the reaches of land-based defenses. Moreover, China's current aircraft carrier and planned follow-on carriers will extend air defense umbrellas beyond the range of coastal systems and help enable task group operations in "far seas." Sea-based land attack probably is an emerging requirement for the PLAN. Chinese military experts argue that in order to pursue a defensive strategy in far seas, the Navy must improve its ability to control land from the sea through long-range LACM development.

Systems and Capabilities Enabling Power Projection. China has prioritized land-based ballistic and cruise missile programs to extend its strike warfare capabilities further from its borders. It is developing and testing several new classes and variants of offensive missiles, forming additional missile units, upgrading older missile systems, and developing methods to counter ballistic missile defenses. In addition to the SRBMs the PLA Rocket Force—formerly the PLASAF—has deployed to locations across from Taiwan, the force is also fielding cruise missiles, including the ground-launched CJ-10 LACM. China continues to field an ASBM based on a variant of the CSS-5 (DF-21) MRBM that it began deploying in 2010. The CSS-5 Mod 5 has a range of 1,500 km and is armed with a MaRV. China also deploys the land-attack CSS-5 Mod 4, holding at risk targets on Okinawa and the main Japanese islands, and the DF-26 will be capable of conducting precision strikes against ground targets, potentially placing U.S. forces on Guam at risk.

The PLAN continues to develop and to field ship-, submarine-, and aircraft-deployed ASCMs of both Russian and Chinese manufacture to extend its strike range. Additionally, China may develop the capability to arm the new LUYANG III-class DDG with LACMs, giving the PLAN its first land-attack capability. Furthermore, the continued deployments of the ASCM-equipped submarines in support of counterpiracy patrols underscore China's interest in protecting SLOCs beyond the South China Sea. These submarine deployments support an apparent Chinese requirement to project power into the Indian Ocean.

The PLAAF is continuing to improve its capability to conduct offensive and defensive offshore operations such as strike; air and missile defense; strategic mobility; and early warning and reconnaissance missions. In 2015, a PLA report identified a military requirement to extend surveillance into the Western Pacific Ocean. In addition to emphasizing the requirement for a new type of strategic bomber and ground-based interceptor, the report identified several additional capabilities: a high-speed land-attack cruise missile, a large transport plane, an airship that moves in the upper atmosphere, a next-generation fighter, an unmanned attack aircraft, air force satellites, and precision-guided bombs. China continues to develop stealth aircraft technology. The PLAAF already employs the H-6K bomber with the capability to carry six LACMs, a platform that will give the PLA a standoff offensive air capability with precision-guided munitions. The acquisition of three IL-78 MIDAS aerial refueling tankers will increase the PLAAF's ability to extend the range of fighter aircraft operating over the East China Sea and South China Sea. In an effort to address its strategic airlift deficiency, China is also testing a new heavy lift transport aircraft, identified as the Y-20. This aircraft began flight testing in January 2013. In addition to

being China's first indigenous heavy lift jet transport, the Y-20 could also acquire additional missions such as an airborne warning and control system (AWACS) and as an aerial refueling tanker. PLAAF and PLAN Aviation continue to make incremental improvements in their air power projection capabilities. Last year, PLAAF aircraft trained in the "far seas" closer to the western Pacific Ocean. Also in 2015, PLAN and PLAAF aircraft participated in a number of inter-service exercises and real-world operations that suggest that China is seeking to integrate future air operations. Integrating air power could allow China to enhance flexibility of strike and support aircraft in East China Sea, South China Sea, or Taiwan contingencies.

Operating its first carrier LIAONING has provided the PLAN valuable lessons, serving in what officials describe as an "experimental" capacity, that the PLA states will be applied to a future multi-carrier force. In 2015, China began construction of its first domestically produced aircraft carrier. China's next generation of carriers will probably be capable of improved endurance and of launching more varied types of aircraft, including EW, early warning, and anti-surface warfare (ASW), thus increasing the potential striking power of a PLAN "carrier battle group" in safeguarding China's interests in areas beyond its immediate periphery. The carriers would most likely perform such missions as patrolling economically important sea lanes, conducting naval diplomacy, regional deterrence, and HA/DR.

Capabilities to Realize a "Blue Water" Navy. The PLAN remains at the forefront of the military's efforts to extend its operational reach beyond East Asia and into what China calls the "far seas." Missions in these areas include protecting important sea lanes from terrorism, piracy, and foreign interdiction; providing HA/DR; conducting naval diplomacy and regional deterrence; and training to prevent a third party, such as the United States, from interfering with operations off China's coast in a Taiwan contingency or conflict in the East or South China Sea. The PLAN's ability to perform these missions is modest but growing as it gains more experience operating in distant waters and acquires larger and more advanced platforms.

The PLAN's goal over the coming decades is to become a stronger regional force able to project power across the greater Asia-Pacific region for high-intensity operations over a period of several months. However, logistics and intelligence support remain key obstacles, particularly in the Indian Ocean and in other areas outside the greater Asia-Pacific region. As a result, China desires expansion of its access to logistics in the Indian Ocean and will probably establish several access points in this area in the next decade.

In the last several years, the PLAN's "far seas" experience has been derived primarily from its ongoing counterpiracy mission in the Gulf of Aden and long-distance task group deployments beyond the first island chain in the western Pacific Ocean. China continues to sustain a three-ship presence in the Gulf of Aden to protect Chinese merchant shipping from maritime piracy. This operation is China's first enduring naval operation beyond the Asia-Pacific region.

In 2015, the PLAN continued to conduct "far seas" deployments. The PLAN continued submarine deployments to the Indian Ocean, demonstrating its increasing familiarity with operating in that region. Following a China-Russia naval exercise in 2015, three PLAN ships transited the Bering Sea and U.S. territorial waters near Alaska's Aleutian Islands. In 2015, a three-ship counterpiracy task group followed their three month deployment to the Indian Ocean with a round-the-world cruise visiting numerous ports in Europe, Central America, and the United States.

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 LUYANG III-class DDG, the JIANGKAI II-class FFG, and the JIANGDAO-class FFL. China also began construction of the much larger Type 055 CG in early 2015, with expected commissioning in 2017 or 2018.

Maritime Law Enforcement. China prefers to use its government-controlled, civilian maritime law enforcement agencies in maritime disputes, and uses the PLAN in an overwatch capacity in case of escalation. The enlargement and modernization of the China Coast Guard (CCG) forces will improve China's ability to enforce its maritime claims. The CCG is increasing its total force level at a rapid pace. Over the last five years, China has added more than 100 ocean-going patrol ships to the CCG to increase its capacity to conduct extended offshore operations and to replace old units. In the next decade, a new force of civilian law enforcement ships will afford China the capability to patrol more robustly its claims in the East China Sea and the South China Sea. Overall, the CCG's total force level is expected to increase by 25 percent. Some of these ships will have the capability to embark helicopters, a capability that only a few CCG ships currently have.

In 2013, China consolidated four of its maritime law enforcement agencies into the CCG and subordinated its operations to the Ministry of Public Security. The CCG is responsible for a wide range of missions, including enforcing China's sovereignty claims, anti-smuggling, protecting fisheries resources, and general law enforcement.

Military Operations Other Than War. The PLA continues to prepare for military operations other than war (MOOTW) including emergency response, counterterrorism, international rescue,

HA/DR, PKO, and various other security tasks. China's 2015 DWP noted the PLA will continue to incorporate MOOTW into its readiness preparations and vision of modernization. In practice, the military shares many of these missions with the People's Armed Police (PAP), a domestically-oriented paramilitary force.

In 2015, the PLA sent more than 1,000 personnel to contribute to HA/DR in Nepal following a powerful earthquake there in April. The PLA characterized the operation as China's largest-ever deployment of armed forces personnel abroad for humanitarian aid. Last year, the PLA also supported 10 UN PKO and continued to participate in several bilateral and multilateral military exercises focused on MOOTW.

China's Internal Security Forces

China's national internal security forces consist primarily of the People's Armed Police (PAP), the Ministry of Public Security (MPS), the Ministry of State Security (MSS), and the PLA. 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 linked to foreign influences and, separately, the East Turkestan Independence Movement, which China's leaders believe is a terrorist group connected to ethnic Uighur nationalists in the Xinjiang autonomous region. China blames Uighur "separatists" for terrorist attacks in China, which have increased markedly since early 2014, and has imposed strict security in Xinjiang to curb potential attacks.

PLA. As the armed wing of the Chinese Communist Party (CCP), the PLA is the ultimate guarantor of the CCP's authority, 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 "assist in maintaining public order" directly when CCP leaders consider it necessary.

PAP. The PAP is a paramilitary component of China's armed forces whose primary mission is internal security and domestic stability. It falls under the dual authority of the CMC and the State Council. Although the PAP has units for a variety of functions, such as border security and firefighting, the most numerous are for internal security. PAP units are organized into "contingents" in 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.

MPS. The MPS leads China's 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. There are about 1.9 million MPS police officers spread throughout local public security bureaus across the country.

MSS. The MSS is China's main civilian secret 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 in harming China's national security.

Precision Strike

Short-Range Ballistic Missiles (SRBMs) (less than 1,000 km). The PLA Rocket Force, formerly called the PLASAF, had approximately 1,200 SRBMs at the end of 2015. The force fields advanced variants with improved ranges and accuracy in addition to more sophisticated payloads, while gradually replacing earlier generations that do not possess true precision strike capability.

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

Intermediate-Range Ballistic Missiles (IRBMs) (3,000-5,500 km). The PLA is developing a nuclear and conventional road-mobile IRBM, which increases its capability for near-precision strike out to the "second island chain." The PLAN also is improving its over-the-horizon (OTH) targeting capability with sky wave and surface wave over the horizon (OTH) radars, which can be used in conjunction with reconnaissance satellites to locate targets at great distances from China, thereby supporting long-range precision strikes, including employment of ASBMs.

Land-Attack Cruise Missiles (LACMs). The PLA continues to field air- and ground-launched LACMs for standoff precision strikes. Air-launched cruise missiles include the YJ-63, KD-88, and the CJ-20 (the air-launched version of the CJ-10 ground-launched cruise missile still fielded in the PLASAF). China recently adapted the KD-88 LACM, with an advertised range of more than 100 km, and may be testing a longer-range version. China also is developing the CM-802AKG LACM, an export system that can strike both land and ship targets from fighters or bombers.

Ground Attack Munitions. The PLAAF has a small number of tactical air-to-surface missiles (ASM) as well as precision-guided munitions including all-weather, satellite-guided bombs, anti-radiation missiles, and laser-guided bombs. China is developing smaller-sized ASMs such as the AR-1, HJ-10 anti-tank, Blue Arrow 7 laser-guided, and KD-2 missiles in conjunction with its increasing development of UAVs. Additionally, China is also adapting to UAVs GPS-guided munitions such as the FT-5 and LS-6 that are similar to the U.S. Joint Direct Attack Munitions (JDAM).

Anti-Ship Cruise Missiles (ASCMs). The PLAN is deploying a wide range of advanced ASCMs. The most capable include the domestically produced ship-launched YJ-62 ASCM and the Russian SS-N-22/SUNBURN supersonic ASCM, which is fitted on China's SOVREMENNY-class DDGs acquired from Russia. China's submarine force is also increasing its ASCM capability, with the long-range YJ-18 ASCM replacing the older YJ-82 on the SONG, YUAN, and SHANG classes. The YJ-18 is similar to the Russian SS-N-27B/SIZZLER ASCM, which is capable of supersonic terminal sprint and is fielded on eight of China's 12 Russian-built KILO SS. In addition, PLAN Aviation employs the 200 km range YJ-83K ASCM on its JH-7 and H-6G aircraft. China has also developed the YJ-12 ASCM for the PLAN. The new missile provides an increased threat to naval assets, due to its long range and supersonic speeds. It is capable of being launched from H-6 bombers.

Anti-Radiation Weapons. China is starting to integrate an indigenous version of the Russian Kh-31P (AS-17), known as the YJ-91, into its fighter-bomber force. The PLA imported Israeli-made HARPY UAVs and Russian-made anti-radiation missiles during the 1990s.

Artillery-Delivered High Precision Munitions. The PLA is developing and deploying artillery systems with the range to strike targets within or even across the Taiwan Strait, including the PHL-03 300 mm multiple-rocket launcher (MRL) (greater than 100 km range) and the longer-range AR-3 dual-caliber MRL (out to 220 km range).

PLA Underground Facilities

The PLA continues to maintain a robust and technologically advanced underground facility (UGF) program protecting all aspects of its forces, including C2, logistics, and missile and naval forces. Given its NFU nuclear policy, China has assumed it might have to absorb an initial nuclear strike while ensuring leadership and strategic assets survive.

China determined it needed to update and to expand its military UGF program in the mid- to late-1980s. This modernization effort took on a renewed urgency following China's observation of U.S. and coalition air operations during the 1991 Gulf War and their use in OPERATION ALLIED FORCE. The following emphasis on "winning high tech battles" precipitated research into advanced tunneling and construction methods. These military campaigns convinced China it needed to build more survivable, deeply buried facilities, resulting in the widespread UGF construction effort we have detected throughout China for the last decade.

Denial and Deception

In historical and contemporary PLA texts, Chinese military theorists routinely emphasize the importance of secrecy and deception for both the protection of personnel and infrastructure and the concealment of sensitive military activities. In 2015, the Chinese press featured the PLA using a variety of denial and deception (D&D) methods, including camouflage, decoys, and satellite avoidance activities during training events to protect PRC forces from enemy surveillance and targeting. Key D&D principles identified in official PLA monographs include:

- conforming to what the enemy expects and creating false images that correspond to the target's psychological tendencies and expectations;
- detailed pre-planning, centralized control, and operational integration to ensure strategic coherence at the political, diplomatic, and economic levels;
- extensive, current, and sophisticated understanding of enemy psychology, predisposition, capabilities (particularly C4ISR), intentions, and location; and
- operational flexibility, rapid response, and the ability and willingness to employ new D&D techniques and devices.

Contemporary PLA writings also indicate the Chinese view D&D as a critical enabler of psychological shock and force multiplication effects during a surprise attack, allowing the PLA to offset the advantages of a technologically superior enemy and to reinforce its military superiority against weaker opponents.

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RESOURCES FOR FORCE MODERNIZATION

China has the fiscal strength and political will to sustain increased defense spending, supporting the continued modernization of the PLA into a more professional and capable force. The PLA continues to decrease its reliance on foreign weapon acquisitions as China's defense-industrial and research bases mature. However, the PLA still looks to foreign assistance to fill some critical, near-term capability gaps. China continues to leverage foreign investments, commercial joint ventures, academic exchanges, the experience of Chinese students and researchers, and state-sponsored industrial and technical espionage to increase the level of technologies and expertise available to support military research, development, and acquisition. China's long-term goal is to create a wholly indigenous defense-industrial sector, augmented by a strong commercial sector, to meet the needs of PLA modernization and to compete as a top-tier supplier in the global arms market. China draws from diverse sources to support PLA modernization, including domestic defense investments, indigenous defense industrial development, a growing research and development (R&D) / science and technology (S&T) base, dual-use technologies, and foreign technology acquisition.

MILITARY EXPENDITURES TRENDS

In March 2015, China announced a 9.2 percent inflation-adjusted increase in its annual military budget to $144 billion, continuing more than two decades of annual defense spending increases and sustaining its position as the second-biggest military spender in the world after the United States. Analysis of data from 2006 through 2015 indicates China's officially-disclosed military budget grew at an average of 9.8 percent per year in inflation-adjusted terms over that period. China has the ability to support defense spending growth at comparable levels for the foreseeable future.

Estimating China's Actual Military Expenditures. Using 2015 prices and exchange rates, the DoD estimates that China's total military-related spending for 2015 exceeded $180 billion U.S. dollars (USD). However, it is difficult to estimate actual military expenses due to China's poor accounting transparency and incomplete transition to a market economy. China's published military budget omits several major categories of expenditure, such as R&D and the procurement of foreign weapons and equipment.

FIVE YEAR DEFENSE BUDGET GROWTH TREND

IHS Jane's Defense Budgets expects China's defense budget to increase by an annual average of 7 percent, growing to $260 billion by 2020. As of March 2015, the DoD Comptroller forecasted the US defense budget will reach $598 billion in current dollars over the same period.

2015 Defense Budget Comparison (Adjusted for Inflation)

	Billion (USD)
China (Official Budget)	$144
Russia (National Defense Budget)	$54.4
Japan	$40.8
India	$39.0
Republic of Korea	$33.43
Taiwan	$9.9

DEVELOPMENTS AND TRENDS IN CHINA'S DEFENSE INDUSTRY

Defense Sector Reform. Having undergone dramatic transformations in the late-1990s and again in 2008, China's defense-industrial sector continues to adapt and to reorganize in an effort to improve weapon system research, development, and production capabilities. To this end, China is attempting to improve business practices, streamline its bureaucracy, institute policies, shorten developmental timelines, incorporate and refine modern manufacturing processes, improve quality control, and promote civil-military collaboration in defense system development from concept to delivery in order to compensate for an estimated lag of one-to-two generations behind its main competitors in the global arms industry. China places particular emphasis on civil-military integration to maximize the utility of its expanding science, technology, engineering, and industrial bases. In line with that objective, China established a new, high-level advisory group in 2015, the Strategic Committee of Science, Technology, and Industry Development for National Defense. The committee is tasked to help facilitate efficient and effective civil-military integration and the reform and expansion of the country's burgeoning defense industry.

China's military service armament departments and 10 state-owned defense-industrial corporations, working through their associated armament academies and research academies respectively, are supported by a wide range of research institutes (RI) and academic institutions (AI), with an increasing number of the latter capable of granting advanced degrees. The RIs and AIs serve to focus basic and applied research on cutting-edge technologies conducive to military applications and to groom the next generation of scientists and engineers to lead China's defense initiatives. They also provide a

conduit to international resources and exposure to foreign scientific research networks, as Chinese affiliates regularly attend conferences, present research findings, and publish scholarly articles.

The National Natural Science Foundation of China (NSFC) , the China Academy of Science (CAS), and the Ministry of Science and Technology (MOST) fund and promote basic and applied research, scientific innovation, and high-tech integration throughout China's scientific, engineering, and civil-military industrial complex. The CAS, working closely with the NSFC, is the highest academic institution for comprehensive R&D in the natural and applied sciences in China and reports directly to the State Council in an advisory capacity, with much of its work ultimately funding disciplines and contributing to products for military use. In 2015, the PLA General Armaments Department (GAD) and the State Administration for Science Technology and Industry for National Defense (SASTIND) worked together to monitor and to guide the military and state sides of China's defense-industrial apparatus, respectively. The GAD and subordinate service armament departments connected to China's 10 state-owned defense industrial corporations through a network of military representative bureaus and offices charged with supervising and monitoring quality control and defense contract compliance. The PLA's new Equipment Development Department, the GAD's successor following structural changes, appears intended to assume this role.

China's dual-use areas of focus in the R&D realm is indicative of the path it is taking include applied physics, material science, high-performance computing, innovative electronics/software development, electro-optics, aerospace technology, automation/robotics, high-energy physics, and nanoscience, just to name a few. For example, China's new super-large JF12 hypersonic wind tunnel, reportedly the largest in the world, is capable of replicating aerodynamic conditions from Mach 5 to Mach 9, and is instrumental for China to meet its hypersonic aspirations. This facility and other similar CAS-sponsored facilities, support research and development efforts in both China's civilian and military aerospace sectors.

MILITARY EQUIPMENT MODERNIZATION TRENDS

China's defense industry favors missile and space systems, followed by maritime assets and aircraft, and lastly, ground-forces materiel. China is developing and producing increasingly advanced systems, augmented through selected investments into foreign designs and reverse engineering. However, China's defense industries are increasing the quality of output in all of these areas as well as increasing overall production capacity. Over the past decade, China has made dramatic improvements in all defense industrial

production sectors and is comparable to other major weapon-system producers like Russia and the European Union in some areas.

Missile and Space Industry. China's production of a range of ballistic, cruise, air-to-air, and surface-to-air missiles for the PLA and for export has probably been enhanced by upgrades to primary assembly and rocket motor production facilities over the past few years. China's space-launch vehicle (SLV) industry is expanding to support commercial and rapid satellite launch services and the manned space program. The majority of China's missile programs, including its ballistic and cruise missile systems, are comparable to other international top-tier producers, although its surface-to-air missile (SAM) systems lag behind global leaders.

Naval/Shipbuilding Industry. Shipyard expansion and modernization has increased China's shipbuilding capacity and capability for all types of military projects, including submarines, surface combatants, naval aviation, and sealift assets. China's two largest state-owned shipbuilders—the China State Shipbuilding Corporation and Shipbuilding Industry Corporation—collaborate in shared ship designs and construction information to increase shipbuilding efficiency. China continues to invest in foreign suppliers for some propulsion units, but is becoming increasingly self-sufficient. China is the top ship-producing nation in the world and is pursuing a domestic aircraft carrier program. China is outfitting its latest classes of surface combatants with increasingly sophisticated anti-surface, anti-air, and anti-subsurface defensive and offensive capabilities. China is improving in most areas of the maritime sector. For instance, it is using more sophisticated ship design and construction program management techniques and software.

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

Aviation Industry. China's commercial and military aviation industries have advanced to produce a developmental large transport aircraft; modern fourth- to fifth-generation fighters incorporating low-observable technologies; modern reconnaissance and attack UAVs; and attack helicopters. China's commercial aircraft industry has invested in high-precision and technologically advanced machine tooling and production processes, avionics, and other components applicable to the production of military aircraft. However, China's aircraft industry remains reliant on foreign sourcing for dependable, proven, high-performance aircraft engines. China's infrastructure and experience in the production of large-body commercial and military aircraft are improving as a result of

China's ongoing C919 commercial airliner and Y-20 large transport programs.

Foreign Technology Acquisition. China continues to supplement indigenous military modernization efforts through the acquisition of targeted foreign technologies, including engines for aircraft, tanks, and naval vessels; solid state electronics and microprocessors, guidance and control systems; enabling technologies such as cutting-edge precision machine tools; advanced diagnostic and forensic equipment; and computer-assisted design, manufacturing, and engineering. China often pursues these foreign technologies for the purpose of reverse engineering or to supplement indigenous military modernization efforts.

China seeks some high-tech components and major end items from abroad that it has difficulty producing domestically—particularly from Russia and Ukraine. China has purchased advanced Russian defense equipment such as the SA-X-21b (S-400) SAM system, and is pursuing the Su-35 fighter aircraft as well as a new joint-design and production program for a heavy-lift helicopter and diesel-electric submarines based on the Russian PETERSBURG/LADA-class. China purchased ten used IL-76 transport aircraft from Russia, three IL-78 aircraft refitted for aerial refueling from Ukraine, an additional 52 Mi-171 multi-role medium-lift helicopters, and at least 130 AL-31F turbo-fan jet engines. China is partnering with Russia to purchase electronic components as well as creating joint production facilities located within Russia. China also has signed significant purchase contracts with Ukraine in recent years, including contracts for assault hovercraft and aircraft engines.

Science and Technology Development Goals through 2020. China's National Medium- and Long-Term Program for Science and Technology Development (2006-2020), issued by the State Council in February 2006, seeks to transform China into an "innovation-oriented society" by 2020. The plan defines China's S&T focus in terms of basic research, leading-edge technologies, key fields and priority subjects, and "major special items," all of which have military applications

China continues to implement the Ministry of Science and Technology and the Ministry of Finance the October 2014 joint statement announcing reforms of China's science spending. The objective of the reforms is to combat widely reported corruption and the waste of government funds intended for S&T research. The reforms would consolidate research funding from a system in which 40 agencies administered more than 100 S&T programs and funds into five new channels: the NSFC (small-scale competitive grants); national S&T major projects; key national R&D programs; special funds to guide technological innovation; and special projects for developing human resources and infrastructure.

Basic Research. As part of a broad effort to expand basic research capabilities, China identified five areas that have military applications as major strategic needs or science research plans requiring active government involvement and funding: material design and preparation; manufacturing in extreme environmental conditions; aeronautic and astronautic mechanics; information technology development; and nanotechnology research.

In nanotechnology, China has progressed from virtually no research or funding in 2002 to being a close second to the United States in total government investment.

Leading-edge Technologies. China is focusing on the following technologies for rapid development:

- *Information Technology*. Priorities include intelligent perception technologies, ad hoc networks, and virtual reality technologies.
- *New Materials*. Priorities include smart materials and structures, high-temperature superconducting technologies, and highly efficient energy materials technologies.
- *Advanced Manufacturing*. Priorities include extreme manufacturing technologies and intelligent service advanced machine tools.
- *Advanced Energy Technologies*. Priorities include hydrogen energy and fuel-cell technologies, alternative fuels, and advanced vehicle technologies.
- *Marine Technologies*. Priorities include three-dimensional maritime environmental monitoring technologies; fast, multi-parameter ocean floor survey technologies; and deep-sea operations technologies.
- *Laser and Aerospace Technologies*. Priorities include the development of chemical and solid state laser technologies to field a weapon-grade system ultimately for ground-based and airborne platforms.

Key Fields and Priority Subjects. China has identified certain industries and technology groups with the potential to provide technological breakthroughs, to remove technical obstacles across industries, and to improve international competitiveness. Specifically, China's defense industries are pursuing advanced manufacturing, information technology, and defense technologies. Examples include radar; counterspace capabilities; secure C4ISR; smart materials; and low-observable technologies.

Major Special Items. China has also identified 16 "major special items" for which it plans to develop or expand indigenous capabilities. These include core electronic components, high-end universal chips and operating system software, very large-scale integrated circuit manufacturing, next-generation broadband wireless mobile communications, high-grade numerically controlled machine tools, large aircraft, high-resolution satellites, and lunar exploration.

Espionage Activities Supporting China's Military Modernization. China uses a variety of methods to acquire foreign military and dual-use technologies, including cyber activity and exploitation of the access of Chinese nationals—such as students or researchers—acting as procurement agents or intermediaries. China very likely uses its intelligence services and employs other illicit approaches that violate U.S. laws and export controls to obtain key national security and export-restricted technologies, controlled equipment, and other materials unobtainable through other means.

- In November 2014, U.S. authorities arrested a named Chinese national employed by a U.S. defense contractor en route to China with sensitive proprietary documents containing equations and test results used in the development of technologically advanced titanium for U.S. military aircraft. Earlier, after the individual returned from a trip to China in August 2014, U.S. Customs and Border Protection officers found the individual in possession of undeclared cash, Chinese corporation-establishment documents, and a mostly-completed application for a Chinese state-controlled aviation and aerospace research center. The application claimed work on the engines for the U.S. F-22 and F-35 fighter aircraft.
- In May 2015, U.S. authorities arrested Chinese national Zhang Hao based on a 32 count indictment charging Zhang and five other named Chinese defendants with economic espionage and the theft of trade secrets. The indictment alleged Zhang and the other co-conspirators stole source codes, specifications, design layouts, and other documents related to thin-film bulk acoustic resonator (FBAR) dual-use technology from U.S. companies. The stolen material supported the creation of a Chinese FBAR fabrication facility and joint venture providing FBARs to commercial and military entities.

In addition, multiple U.S. criminal indictments and investigations since 2009 involve non-ethnic-Chinese U.S. citizens and naturalized Chinese U.S. citizens or permanent resident aliens procuring and exporting controlled items to China. These activities included efforts to acquire and to transfer sensitive or military-grade equipment such as radiation-hardened programmable semiconductors and computer circuits, restricted microwave amplifiers, high-grade carbon fiber, export-restricted technical data, and thermal imaging systems.

CHINA'S ARMS EXPORTS

China's defense firms are marketing and selling arms throughout the world with the bulk of their sales to the Asia-Pacific and Sub-Saharan African regions. In 2015, China's arms exports probably increased modestly as China's domestic defense industry improved. From 2010 to 2014, China signed about $15 billion in arms export agreements for conventional arms worldwide, ranging from general purpose materiel to major weapons systems.

> Pakistan remains China's primary customer for conventional weapons. China engages in both arms sales and defense industrial cooperation with Pakistan, including LY-80 surface-to-air missile systems, F-22P frigates with helicopters, main battle tank production, air-to-air missiles, and anti-ship cruise missiles. In June 2014, Pakistan started co-producing the first two of 50 Block 2 JF-17s, which is an upgraded version of the Block I JF-17.

China is the largest supplier of arms to the Sub-Saharan Africa region, which was China's second highest sales region between 2010 and 2014, with about $4 billion in sales. Sub-Saharan African countries view China as a provider of low-cost weapons with generally fewer end-use monitoring conditions relative to other arms suppliers. China tends to provide favorable payment arrangements. China's top customers in this region are South Sudan, Sudan, and Ethiopia.

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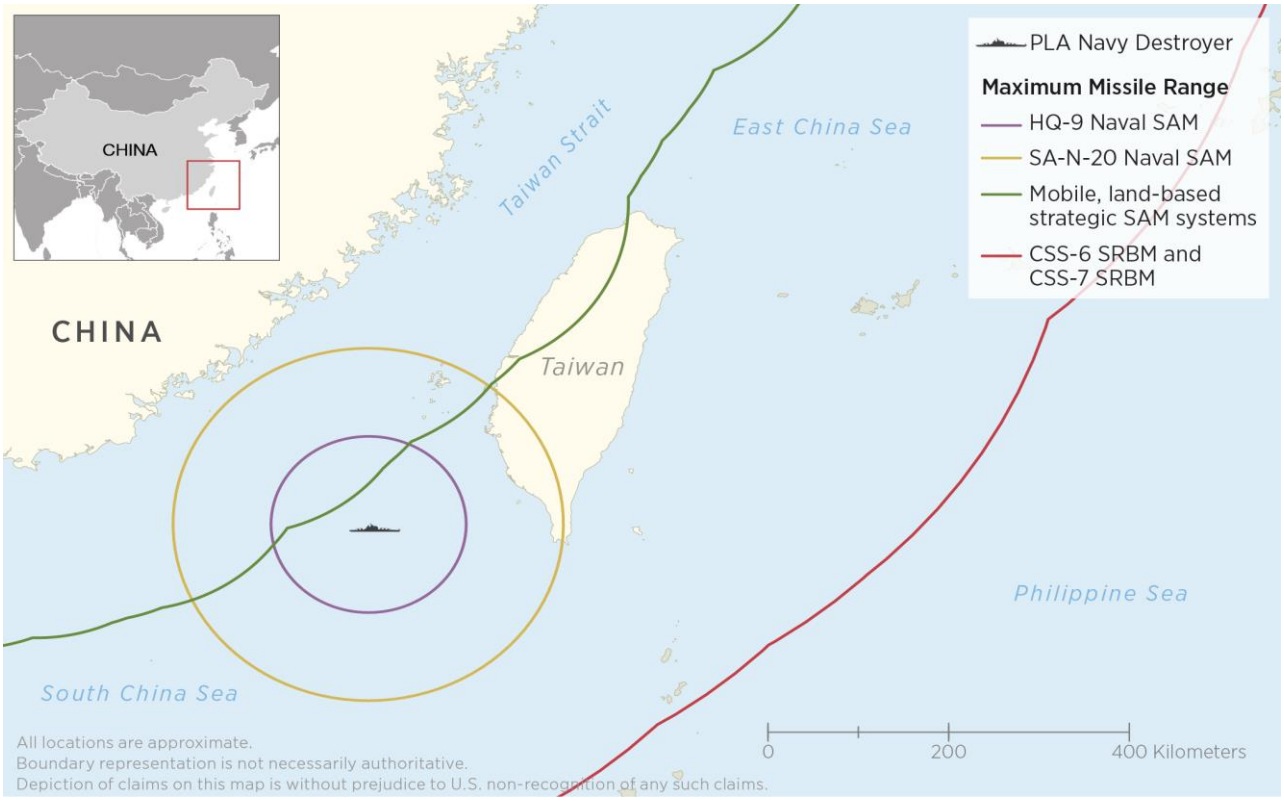
FORCE MODERNIZATION FOR A TAIWAN CONTINGENCY

China's overall strategy continues to incorporate elements of both persuasion and coercion to hinder the development of political attitudes in Taiwan favoring independence. In 2015, China's strategy toward Taiwan was influenced by what it saw as positive developments in Taiwan's political situation and approach to engagement with China. China and Taiwan have made progress in expanding cross-Strait trade, economic links, and people-to-people contacts.

Despite positive developments last year—such as the cross-Strait meeting between China's President Xi Jinping and Taiwan's President Ma Ying-jeou in November, the first such meeting since 1946—there have been no signs that China's military posture opposite Taiwan has changed significantly. The PLA continues to develop and deploy military capabilities intended to coerce Taiwan or to attempt an invasion, if necessary. These improvements pose major challenges to Taiwan's security, which has been based historically upon the PLA's inability to project power across the 100 nm Taiwan Strait, the natural geographic advantages of island defense, Taiwan's armed forces' technological superiority, and the possibility of U.S. intervention.

CHINA'S STRATEGY IN THE TAIWAN STRAIT

China appears prepared to defer the use of force as long as it believes that unification



over the long term remains possible and that the costs of conflict outweigh the benefits. China argues that the credible threat to use force is essential to maintain the conditions for political progress and to prevent Taiwan from making moves toward *de jure* independence. China has refused for decades to renounce the use of force to resolve the Taiwan issue, despite simultaneously professing its desire for peaceful unification under the principle of "one country, two systems."

The circumstances under which the mainland has historically warned it would use force have evolved over time in response to the island's declarations of its political status, changes in PLA capabilities, and China's view of Taiwan's relations with other countries. These circumstances have included:

- formal declaration of Taiwan independence;
- undefined moves toward Taiwan independence;
- internal unrest on Taiwan;
- Taiwan's acquisition of nuclear weapons;
- indefinite delays in the resumption of cross-Strait dialogue on unification;
- foreign intervention in Taiwan's internal affairs;
- and foreign forces stationed on Taiwan.

Article 8 of the March 2005 Anti-Secession Law states that China may use "non-peaceful means" if "secessionist forces… cause the fact of Taiwan's secession from China," if "major incidents entailing Taiwan's secession" occur, or if "possibilities for peaceful reunification" are exhausted. The ambiguity of these "redlines" preserves China's flexibility.

CHINA'S COURSES OF ACTION AGAINST TAIWAN

The PLA is capable of increasingly sophisticated military actions against Taiwan. It is possible China would first pursue a measured approach characterized by signaling its readiness to use force, followed by a deliberate buildup of force to optimize the speed of engagement rather than strategic deception. Another option is that China would sacrifice overt, large-scale preparations in favor of surprise to force a rapid military or political resolution before other countries could respond. If a quick resolution is not possible, China would seek to:

- deter potential U.S. intervention;
- failing that, delay intervention and seek victory in an asymmetric, limited, quick war;
- or fight to a standstill and pursue a political settlement after a protracted conflict.

Maritime Quarantine or Blockade. In addition to direct military engagement, PLA writings describe potential alternative

solutions—air blockades, missile attacks, and mining to force capitulation. China could declare that ships en route to Taiwan must stop in mainland ports for inspection and/or transshipment prior to transiting to Taiwan ports. China could also attempt the equivalent of a blockade by declaring exercise or missile closure areas in approaches to ports, in effect closing port access and diverting merchant traffic. The PLA employed this method during the 1995-96 missile firings and live-fire exercises. There is a risk, however, that any attempt to limit maritime traffic to and from Taiwan would trigger countervailing international pressure and military escalation.

Limited Force or Coercive Options. China might 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. 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 to degrade the populace's confidence in Taiwan's 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 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.

Amphibious Invasion. Publicly available Chinese writings describe different operational concepts for amphibious invasion. The most prominent of these, the Joint Island Landing Campaign, envisions a complex operation relying on coordinated, interlocking campaigns for logistics, air, and naval support, and EW. The objective would be to break through or circumvent shore defenses, establish and build a beachhead, transport personnel and materiel to designated landing sites in the north or south of Taiwan's western coastline, and launch attacks to seize and to 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 sea superiority, the rapid buildup and sustainment of supplies onshore, and uninterrupted support. An attempt to invade Taiwan would strain China's armed forces and invite international intervention. These stresses, combined with China's combat force attrition and the complexity of urban warfare and counterinsurgency (assuming a successful landing and breakout), make an amphibious invasion of Taiwan a significant political and military risk. Taiwan's investments to harden infrastructure and strengthen defensive capabilities could also decrease China's ability to achieve its objectives.

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 includes significant, and possibly prohibitive, political risk because it could galvanize pro-independence sentiment on Taiwan and generate international opposition.

THE PLA'S CURRENT POSTURE FOR A TAIWAN CONFLICT

Preparation for a Taiwan conflict with the possibility of U.S. intervention continues to play a prominent role in China's military modernization program.

Missile Forces. The PLA Rocket Force, formerly the PLASAF, is prepared to conduct missile attacks and precision strikes against Taiwan's air defense systems, air bases, radar sites, missiles, space assets, and C2 and communications facilities in an attempt to degrade Taiwan's defenses, neutralize Taiwan's leadership, or break the public's will to fight.

Air Forces. The PLAAF has maintained a force posture that provides it with a variety of capabilities to leverage against Taiwan in a contingency. First, it has stationed a large number of advanced aircraft within an unrefueled range of Taiwan, providing it with a significant capability to conduct air-superiority and ground-attack operations against Taiwan. Second, a number of long-range air defense systems provide a strong layer of defense of China's mainland against counterattack. Third, China's development of support aircraft provides the PLAAF with improved ISR capability to support PLA operations in a contingency.

Navy Forces. The PLAN is improving anti-air and anti-surface warfare capabilities, developing a credible at-sea nuclear deterrent, and introducing new platforms that are positioned to strike Taiwan in a cross-Strait conflict. The additional attack submarines, multi-mission surface combatants, and fourth-generation naval aircraft entering the force are designed to achieve sea superiority within the first island chain as well as to deter and counter any potential third party intervention in a Taiwan conflict.

Ground Forces. Increasingly armed with more modern systems such as attack helicopters, the PLAA is conducting joint training exercises that will prepare it for a Taiwan invasion scenario. The PLAA often conducts training, including amphibious landing training, under realistic conditions, including all-weather and at night. Improved networks provide real-time data transmissions within and between units, enabling better C2 during operations. Additionally, the PLAA's ongoing fielding of advanced air defense equipment is significantly enhancing the self-defense of key C2 elements and other critical assets believed to be tasked for potential use

against Taiwan. As the number of these new systems grows in the PLAA, the ability of an amphibious invasion force to defend cross-Strait amphibious lodgments successfully against counterattacks by both legacy and advanced weaponry will inevitably increase.

TAIWAN'S DEFENSIVE CAPABILITIES

China's multi-decade military modernization effort has eroded or negated many of Taiwan's historical advantages in deterring PLA aggression, such as the PLA's inability to project sufficient power across the Taiwan Strait, the Taiwan military's technological superiority, and the inherent geographic advantages of island defense.

Taiwan is taking important steps to build its war reserve stocks, grow its defense-industrial base, improve joint operations and crisis response capabilities, and strengthen its officer and noncommissioned officer corps. These improvements partially address Taiwan's declining defensive advantages. Taiwan is following through with its transition to a volunteer military and reducing its active military end-strength from 300,000 to approximately 175,000 personnel to create a "small but smart and strong force." Under this plan, which is slated for full implementation in 2019, the cost savings from a smaller force will free up resources to increase volunteer salaries and benefits, although these savings will not be sufficient to cover the costs of volunteers. The transition has led to additional personnel costs needed to attract and retain personnel under the volunteer system, diverting funds from foreign and indigenous acquisition programs, as well as near-term training and readiness.

In addition, Taiwan's military spending has dropped to approximately 2 percent of its gross domestic product. Meanwhile, China's official defense budget has grown to roughly 14 times that of Taiwan's. Recognizing China's continued growth in military spending, Taiwan is working to integrate innovative and asymmetric measures into its defense planning in order to counterbalance China's growing capabilities.

The United States maintains a One-China Policy that is based on the three Joint Communiqués and the Taiwan Relations Act (TRA). The United States opposes any unilateral change to the status quo in the Taiwan Strait by either side and does not support Taiwan independence. The United States continues to support the peaceful resolution of cross-Strait issues in a manner, scope, and pace acceptable to the people on both sides.

Consistent with the TRA, the United States has contributed to peace, security, and stability in the Taiwan Strait, including by providing defense articles and services to enable Taiwan to maintain a sufficient self-defense capability. To this end, the United States has announced more than $14 billion in arms sales to Taiwan since 2009.

CHINA'S AMPHIBIOUS CAPABILITIES

China continues to improve its ability to conduct and sustain amphibious operations through its fleet modernization and joint exercise programs. In 2015, the PLA staged three joint landing exercises that tested its capabilities, marking an increase in the complexity of its amphibious training.

- In July, the PLA used a POMORNIK-class air-cushion utility landing craft (LCUA) for the first time in an actual ground-forces landing mode during a South Sea Fleet joint landing exercise. The PLA also used YUYI-class air-cushion medium landing craft (LCMA) for the first time in an unfamiliar landing area—the naval equivalent of traveling to, and conducting landing operations within, an out-of-region training area. Although the exercise was not large (just more than 20 vessels of 10 types participated), it was unique in that it reportedly was the PLA's first uncooperative, opposition force (OPFOR)-enabled joint amphibious operation.

- In the East Sea Fleet area, exercise JOINT ACTION-2015B focused on mobilization, uploading, multi-modal transport, offloading, and follow-on second-echelon assaults inshore. The primary participants were subordinate to the Nanjing Military Region (MR), including elements of the 12th Group Army, MR reserve forces, and PLAN, PLAAF, and PLASAF units. Participants were supported by civilian aircraft, vessels, facilities, and equipment. The exercise's focus on operations following a landing suggests the PLA is confident in its ability to seize and to expand significant beachheads during an amphibious operation.

- In exercise JOINT MARITIME-2015, Chinese and Russian surface combatants, amphibious forces, and rotary- and fixed-wing aircraft conducted combined amphibious and air landing operations on the Russian coastline northeast of North Korea. The number of participants was relatively small, however, and China probably did not gain much tactical insight.

In recent years, China has built four new YUZHAO-class amphibious transport docks (LPD). Each of these is capable of carrying up to four YUYI-class LCMAs as well as four helicopters, more than 50 armored vehicles, and a large number of forces. It has also built several additional YUTING II-class tank landing ships, acquired two POMORNIK-class LCUAs from Ukraine, and is finishing construction of two additional LCUAs in China.

Additionally, as part of a push for greater civil-military integration, several exercises in 2015 featured the use of civilian ferries or roll-on/roll-off (RO/RO) vessels. The use of these civilian ferries and RO/RO vessels may increase PLA mobility but would be limited to non-combat support operations due to the need for port infrastructure.

6

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

STRATEGY FOR ENGAGEMENT

The 2015 U.S. National Security Strategy emphasizes that the United States seeks to develop a constructive relationship with China that sustains and promotes security and prosperity in Asia and around the world. At the same time, the strategy acknowledges there will be areas of competition and underscores that the United States will manage this competition with China from a position of strength while seeking ways to reduce the risk of misunderstanding or miscalculation. The Department of Defense (DoD) strategy for military engagement with the PRC's defense establishment is part of this broader approach.

U.S.-China defense contacts and exchanges provide opportunities to explore and expand cooperation in areas of mutual interest and to manage competition constructively. In 2016, DoD's plan for military-to-military contacts with the PRC focuses on three interconnected lines of effort: (1) building sustained and substantive dialogue through policy dialogues and senior leader engagements; (2) building concrete, practical cooperation in areas of mutual interest; and (3) enhancing risk management efforts that diminish the potential for misunderstanding or miscalculation.

The pace and scope of China's military modernization provide opportunities as well as challenges for military-to-military engagement. The PLA's growing military capabilities can facilitate deeper practical cooperation in areas ranging from humanitarian assistance to counterpiracy. However, as China's military develops and expands its reach, the risk of an accident or miscalculation also increases, which puts a premium on risk reduction efforts.

Pursuit of a constructive and productive relationship with China is an important part of the U.S. strategy to Rebalance to the Asia-Pacific region. DoD seeks to strengthen the U.S.-China military-to-military relationship in ways that best serve the interests of the United States and our allies and partners. Sustaining the positive momentum in the military-to-military relationship supports U.S. objectives of ensuring China acts in a manner consistent with international rules and norms and that China serves as a source of stability and shared prosperity in Asia.

As the United States builds a stronger foundation for a military-to-military relationship with China, it will continue to monitor China's evolving military strategy, doctrine, and force development, and encourage China to be more transparent about its military modernization program. The United States also will continue adapting its forces, posture, and operational concepts to deter aggression, defend our allies, and ensure we continue to engage China from a position of strength. The United States will continue to build the capacity of our allies and partners, enhance regional cooperation, and deepen

partnerships to maintain a stable and secure Asia-Pacific security environment.

MILITARY-TO-MILITARY ENGAGEMENT IN 2015 – HIGHLIGHTS

DoD conducts all contacts with China in a manner consistent with the provisions of the National Defense Authorization Act (NDAA) for Fiscal Year 2000.

In 2015, the U.S. and China military-to-military relationship focused on areas of cooperation with real world application. The two militaries advanced confidence building measures designed to reduce risk and improve transparency through signing new annexes to the Rules of Behavior for Safety of Air and Maritime Encounters Memorandum of Understanding (MOU) and the Notification of Major Military Activities MOU, one on air-to-air encounters, and the second on crisis communication. DoD also continued to make progress with the PLA in developing the capacity to cooperate in the delivery of international public goods, including humanitarian assistance and disaster relief (HA/DR), counterpiracy, peacekeeping operations (PKO), search and rescue (SAR), and military medicine.

Selected visits, exchanges, exercises, and arrangements are highlighted below. A complete list of 2015 engagements is provided in Appendix I.

Confidence Building Measures. DoD and the PLA expanded upon the historical understandings reached in 2014, when then-Secretary of Defense Chuck Hagel and PRC Minister of National Defense Chang Wanquan signed two confidence building measures: (1) the Rules of Behavior for Safety of Air and Maritime Encounters MOU, and (2) the Notification of Major Military Activities MOU. In 2015, both sides expanded upon the MOUs with an air-to-air annex and a crisis communication annex, which enhanced efforts to reduce risk and misunderstanding.

The crisis communication annex regularized the process of using the Defense Telephone Link, as part of the Notification of Major Military Activities MOU. It reaffirmed each side's commitment to improve and normalize mutual notification of military crisis information. The annex established procedures to ensure that secure communications between the U.S. and Chinese militaries occur at the appropriate level in a timely fashion. For instance, the PLA utilized the Defense Telephone Link to request a call with the Chief of Naval Operations Admiral John Richardson following U.S. operations in the South China Sea. Admiral Richardson and PLAN Commander Admiral Wu Shengli discussed ongoing engagements between the two navies, including port visits and senior leader engagements, and recent operations in the South China Sea.

The Rules of Behavior MOU affirms the large body of existing international law, standards, and guidance that relate to safe operations, such as the Law of the Sea, the Code for Unplanned Encounters at Sea (CUES), the Chicago Convention, and the International Regulations for Preventing Collisions at Sea (COLREGS). The air-to-air annex established operational and best practices for professional airmanship in order to emphasize the importance of operational safety in the air, consistent with existing international norms and practices, as part of the Rules of Behavior for Safety of Air and Maritime Encounters Memorandum of Understanding. The new air-to-air annex draws upon international norms and provides DoD and PLA the framework for a comprehensive regime that will increase operational safety and reduce risk. With the air-to-air annex complete, future discussions about operational safety will take place as part of the existing Military Maritime Consultative Agreement (MMCA) talks.

The completion of the two annexes reflected a shared objective of the two militaries to improve relations, manage risk, and expand cooperation in areas of mutual interest while managing differences. The confidence-building mechanisms manage risk and improve reciprocal transparency, while invigorating existing multilateral and bilateral engagement mechanisms, such as the Military Maritime Consultative Agreement and the Defense Policy Coordination Talks.

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 May 2015, U.S. Pacific Command (USPACOM) Deputy Commander, Lieutenant General Anthony Crutchfield, hosted the Commander of the Chengdu Military Region, Lieutenant General Li Zuocheng, at Camp Smith, Hawaii. Lieutenant General Li met with U.S. Army Pacific Command Commander, General Vincent K. Brooks, at Fort Shafter, Hawaii, and traveled to Joint Base Lewis-McChord, Washington, for meetings with the Washington National Guard where the two sides discussed HA/DR.

Later in June, the Commander, Pacific Air Forces, General Lori Robinson, visited Beijing, Nanjing, and Guangzhou. General Robinson met with the People's Liberation Army Air Force Commander of the Nanjing Military Region, Lieutenant General Huang Guoxian, as well as senior leadership from the Nanjing and Guangzhou Military Regions.

In June 2015, the Defense Department hosted Chinese Vice Chairman of the Central Military Commission, General Fan Changlong, for a visit to the United States. General Fan visited San Diego where he met with the U.S. Third

Fleet Commander, Vice Admiral Kenneth Floyd, received a tour of an aircraft carrier, the USS RONALD REAGAN, and toured a U.S. Marine Corps Recruit Depot. General Fan then travelled to Fort Hood, Texas, met with U.S. Army Forces Command Commander, Lieutenant General Sean MacFarland, and observed a live fire exercise and demonstration. The U.S. visit continued with a visit to Washington, D.C., where he met with the Secretary of Defense and other senior U.S. officials including then-Chief of Staff of the Army, General Raymond Odierno. The trip concluded with the signing of the Army-to-Army Dialogue Mechanism framework by Major General William C. Hix, Director for Strategy, Plans, and Policy, Headquarters, Department of the Army and Major General Tang Ning, Deputy Director of the Army Building Bureau within the General Staff Department's Military Training Department.

In November 2015, USPACOM Commander, Admiral Harry Harris, traveled to China, where he met with senior military officials in Beijing and Nanjing, holding meetings with the Chief of General Staff, General Fang Fenghui, the Vice Chairman of the Central Military Commission, General Fan Changlong, and the Nanjing Military Region Commander, General Cai Yingting.

In November, Secretary of Defense Ash Carter met with Chinese Minister of National Defense, General Chang Wanquan, in Kuala Lumpur, Malaysia, on the sidelines of the Association of Southeast Asian Nations Defense Ministers' Meeting-Plus (ADMM-Plus).

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.

In February 2015, then-Deputy Assistant Secretary of Defense David Helvey hosted Deputy Director Rear Admiral Li Ji, Minister of National Defense Foreign Affairs Office (MND-FAO), for the Defense Policy Coordination Talks (DPCTs) in Washington, D.C. The U.S. side included USPACOM J-5 Mobilization Assistant Brigadier General Joseph Whitlock and Deputy Director for Asia of the Joint Staff, Brigadier General David Stilwell. The dialogue covered issues ranging from military-to-military engagements, confidence building measures, and practical areas of cooperation.

In March 2015, Assistant Secretary of Defense David Shear hosted the inaugural Asia-Pacific Security Dialogue (APSD) and hosted Rear Admiral Guan Youfei, Director of the Ministry of National Defense Foreign Affairs Office (MND-FAO). The dialogue discussed security interests of mutual concern.

In June 2015, Deputy Secretary of State Antony Blinken and Under Secretary of Defense for Policy Christine Wormuth hosted the fifth Strategic Security Dialogue in

Washington and met with Executive Vice Foreign Minister Zhang Yesui and Deputy Chief of the General Staff, Admiral Sun Jianguo. USPACOM Commander, Admiral Harry Harris and Joint Staff J5, Vice Admiral Frank Pandolfe also participated. The Dialogue covered issues ranging from North Korea to the South China Sea. Admiral Sun also had an office call with Deputy Secretary of Defense Robert Work.

In November 2015, a delegation from the Headquarters Department of the Army inaugurated the U.S.-China Army-to-Army Dialogue Mechanism (AADM) in Beijing, China. The AADM establishes a sustained and substantive dialogue between U.S. and PLA land forces that is nested within broader U.S.-China security dialogues and fora. The AADM is focused on deepening military cooperation in HA/DR, peacekeeping, Corps of Engineer exchanges, educational exchanges at all levels, and military medical exchanges.

Functional and Academic Exchanges. Reciprocal 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 contact 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 2015, a USPACOM senior military-medicine delegation travelled to China for an exchange with their PRC counterparts. The same month, a delegation from the U.S. Army, Pacific executed the Disaster Management Exchange in China. These exchanges advanced practical areas of cooperation.

In February 2015, a PLA Navy Prospective Commanding Officer delegation visited the United States. The delegation met with the Chief of Naval Operations, Admiral Jonathan Greenert, in the Pentagon, toured the US Naval Academy, and traveled to Newport, Rhode Island, to participate in discussions with USN counterparts attending the Surface Warfare Officers School.

In March 2015, a delegation from the U.S. Air War College traveled to China, followed by a reciprocal visit from the PLA Air Force Command College visit to the U.S. Air War College at Maxwell Air Force Base, Alabama, in April 2015.

In May 2015, an Office of the Secretary of Defense (OSD)-Army delegation met with Ministry of National Defense (MND) Peacekeeping Affairs Office and MND Peacekeeping Center in the first military-to-military, only, peacekeeping experts working session. The session resulted in the establishment of an annual working group. The U.S. Army Peacekeeping and Stability

Operations Institute at Carlisle Barracks, Pennsylvania, hosted a subsequent session in October 2015, and China will host in 2016. Also in November 2015, OSD-Policy participated in a State Department-led interagency delegation to Beijing to conduct a peacekeeping technical experts meeting where China indicated its interest to cooperate on peacekeeping capacity building for countries in the Africa and Asia-Pacific regions.

In August 2015, National Defense University CAPSTONE fellows traveled to China, offering an opportunity for newly selected U.S. general and flag offices to increase understanding of China and the Pacific. The same month, the Joint Staff hosted a PLA mid-to-senior level officer exchange in Washington, D.C.

In October 2015, a U.S. Navy Prospective Commanding Officer delegation visited China. The delegation toured China's aircraft carrier, the LIAONING, and participated in discussions with officers and crew. The delegation visited the PLAN Submarine Academy, the PLAN Naval Command Academy, and traveled to Beijing to meet PLAN Commander Admiral Wu Shengli.

In November 2015, a delegation from the Headquarters Department of the Army inaugurated the U.S.-China Army-to-Army Dialogue Mechanism (AADM) in Beijing, China. The AADM establishes a sustained and substantive dialogue between U.S. and PLA Land Forces that is nested within broader U.S.-China security dialogues and fora. The AADM is focused on deepening military cooperation in HA/DR, peacekeeping, Corps of Engineers exchanges, educational exchanges at all levels, and military medical exchanges.

Ship Visits and Exercises: Ship visits and exercises promote trust between the two sides and build joint capacity to provide international public goods in areas of mutual interest, such as SAR, HA/DR, and counterpiracy. Port calls are also used to enhance operational safety and exercise communications and navigation protocols.

In April 2015, the U.S. Seventh Fleet flagship, the USS BLUE RIDGE conducted a port visit to Zhanjiang, home of the PLAN South Sea Fleet. In July 2015, the USS STETHEM visited Qingdao and conducted a search and rescue table top exercise.

In October 2015, the PLAN midshipman training ship, the ZHENG HE, visited Joint Base Pearl Harbor-Hickam, Hawaii.

In November and December 2015, the PLAN's Counterpiracy Task Group's three ships visited Naval Station Mayport, Florida and Joint Base Pearl Harbor-Hickam, Hawaii, respectively, during an around-the-world transit home.

The PLAN hospital ship, the PEACE ARK, visited San Diego, California in November to conduct a port visit and medical subject matter expert exchange with staff of the Military Sealift Command hospital ship the USNS MERCY and Balboa Naval Hospital.

Also in November, the USS STETHEM visited Shanghai for a port visit. The Commander of the United States Pacific Fleet, Admiral Scott H. Swift, participated in the port visit and met with Admiral Wu and Vice Admiral Su Zhiqian, the PLAN East Sea Fleet Commander. Admiral Su Zhiqian, the PLAN East Sea Fleet Commander.

PLANNING FOR MILITARY-TO-MILITARY ENGAGEMENTS IN 2016

A list of planned engagements for 2016 is provided in Appendix I.

SPECIAL TOPIC: POLITICAL WORK IN THE PEOPLE'S LIBERATION ARMY

Although most Western militaries are considered apolitical, professional forces that first and foremost serve the state, the PLA has been a politicized "party army" since its inception and exists to guarantee the CCP regime's survival above all else. In fact, official media regularly excoriates the idea of an apolitical military, in part because the leadership judges that the Communist Party of the Soviet Union's lack of control over its military was a key factor in the demise of the Soviet Union.

Maintaining the "party army" identity even as the PLA embarks on major structural reforms is the top priority for China's leadership, including President Xi Jinping. The PLA reforms include the establishment of the Political Work Department, which appears to have assumed many of the responsibilities of the former General Political Department. The PLA's political work system is the primary means through which the CCP "controls the gun" in accordance with Mao Zedong's famous dictum that "political power grows out of the barrel of a gun." Most PLA officers are Party members, and in recent decades PLA officers typically have comprised approximately 20 percent of the CCP's Central Committee. Moreover, since 1997 the two uniformed vice chairmen of the Central Military Commission have served concurrently on the Politburo.

The tiers of political work in the PLA are interlocking and reinforcing systems that allow the Party to penetrate the military from top to bottom. These tiers consist of the political commissar system, the Party committee system, and the Party discipline inspection system.

- **Political commissars** are responsible for personnel, education, security, discipline, and morale. Prior to this year's reorganization of the high command, the General Political Department (GPD), the director of which served on the CMC, managed the PLA's political commissars and was the locus of political work in the military. It is unclear how the ongoing reorganization of the PLA will affect this system.

- The **Party committee system** is replicated in some fashion at each level of command. Party committees are directly subordinate to the CCP Central Committee and are intended to ensure loyalty at all levels. They propagate the Party line, policies, and directives throughout the force.

- The Party **discipline inspection bodies** monitor the performance of Party members in the military and ensure upright behavior. The PLA Central Discipline Inspection Commission is subordinate to the CMC and has been particularly active in recent years as it oversees investigations to weed out graft and uproot politically powerful networks in the ranks as part of China's ongoing anti-corruption campaign. In November 2015, Xi also announced the creation of a new PLA Politics and Law Commission, mirroring a similar Party organization that oversees legal and judicial issues in the state bureaucracy.

APPENDIX I: MILITARY-TO-MILITARY EXCHANGES

U.S.-CHINA MILITARY-TO-MILITARY CONTACTS FOR 2015	
HIGH-LEVEL VISITS TO CHINA	***Month (2015)***
U.S. Pacific Air Forces Commander to China	May
U.S. Pacific Command Commander to China	November
HIGH-LEVEL VISITS TO UNITED STATES	
PRC Chengdu Military Region Commander to the United States	May
PRC Vice Chairman of the Central Military Commission to the United States	June
HIGH-LEVEL MULTILATERAL ENGAGEMENTS	
Western Pacific Naval Symposium in China	April
Shangri-La Dialogue U.S. Pacific Command Chiefs of Defense Conference in Hawaii	June December
Pacific Armies Chief's Conference in Indonesia	September
RECURRENT EXCHANGES	
Defense Policy Coordination Talks in the United States	February
Asia-Pacific Security Dialogue in the United States	March
Strategic Security Dialogue in the United States	July
Military Maritime Consultative Agreement Working Groups and Plenary in China and the United States	June/ November
Strategic Security Dialogue	July
Army-to-Army Dialogue Mechanism	November
ACADEMIC EXCHANGES	
U.S. Air War College Delegation to China	March
PLA Air Force Command College Delegation to the United States	March
FUNCTIONAL EXCHANGES	
U.S. Air War College Delegation to China	March
PLA Air Force Command College Delegation to the United States	March
Pacific Armies Management Seminar in Indonesia	September
U.S. Navy Prospective Commanding Officer Delegation to China	October
U.S Pacific Command Mid –Level Officers visit to China	October
U.S Army War College Delegation to China	October

Disaster Management Exchange in the United States	November
Peacekeeping Workshop in the United States	October
JOINT AND MULTILATERAL EXERCISES	
Kowari in Australia	October
COBRA GOLD in Thailand	February
KHAAN QUEST in Mongolia	June

U.S.-CHINA MILITARY-TO-MILITARY EXCHANGES PLANNED FOR 2016
HIGH-LEVEL VISITS TO CHINA
Secretary of Defense (TBD) Chief of Staff of the Army (2/3 QTR) Chief of Naval Operations (3/4 QTR)
HIGH-LEVEL VISITS TO UNITED STATES
PRC Senior Defense or Military Leader (TBD) Theater Command Delegation (TBD)
INSTITUTIONALIZED EXCHANGES
Defense Policy Coordination Talks (4 QTR)
Joint Staff Strategy Talks (September)
MMCA Plenary and Working Groups (3/4 QTR)
Army-to-Army Dialogue Mechanism (September)
Disaster Management Exchange (November)
Military Medicine Exchange (August)
Defense Consultative Talks (June)
Asia-Pacific Security Dialogue (3 QTR)
ACADEMIC EXCHANGES
PRC Academy delegation to the United States (TBD) U.S. National Defense University or Academy delegation to China (May) U.S. Air War College (February) National War College Student Delegation (April) Marine War College (May) U.S. Naval War College-PLA Navy Student Exchange (2/3 QTR) U.S. Army Cadet Command (TBD) PLA Nanjing Army Command College (TBD) PLA National Defense University Student Delegation (July) National Defense University Strategic Discussion (October/November) PLA National Defense University "Dragons" Class (TBD) PLA Air Force Command College Student Delegation (April) PLA Navy Command College (TBD)

FUNCTIONAL EXCHANGES
PLA Navy Ship Visits to the United States (TBD)
U.S. Navy Ship Visits to China (TBD)
U.S. Navy-PLA Navy Prospective Commanding Officer Exchange in the United States or China (TBD)
Gulf of Aden Counterpiracy Exercise (TBD)
Peacekeeping Exchange in the United States or China (3/4 QTR)
Prospective Commanding Officer Exchange (3/4 QTR) Mid-level Officer Exchange (TBD)
Military Archive Delegation (TBD)

BILATERAL OR MULTILATERAL MILITARY EXERCISES INVOLVING THE PLA 2012-2015

Bilateral and Multilateral Exercises Since 2012			
Year	**Exercise Name**	**Type of Exercise**	**Participants**
2012	NAVAL COOPERATION 2012	Maritime	Russia
	Unnamed	Counterpiracy	France
	BLUE ASSAULT 2012	Maritime (Amphibious Assault)	Thailand
	PEACE MISSION 2012	Counterterrorism	Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Uzbekistan
	SHARP KNIFE 2012	Counterterrorism	Indonesia
	Unnamed	Maritime (Search and Rescue)	Vietnam
	Unnamed	Counterpiracy	United States
	COOPERATIONA SPIRIT 2012	HA/DR	Australia, New Zealand
2013	Unnamed	Counterterrorism;	Pakistan
	ADMM+ Exercise	Maritime (Search and Rescue); HA/DR	ASEAN
	PEACE MISSION 2013	Counterterrorism	Russia
	FRONTIER DEFENSE JOINT DETERMINATION 2013	Counterterrorism	Kyrgyzstan
	SHARP KNIFE AIRBORNE 2013	Counterterrorism	Indonesia
	HAND IN HAND 2013	Counterterrorism	India
	STRIKE 2013	Counterterrorism	Thailand

2014	COBRA GOLD 2014	Counterterrorism	United States, Thailand
	KOMODO 2014	Naval Diplomacy	Hosted by Indonesia
	MARITIME COOPERATION 2014	Counterterrorism	Bangladesh, Malaysia, Singapore, Brunei, Pakistan, India, Indonesia
	MARITIME COOPERATION 2014	Maritime	Russia
	KOMODO 2014	Naval Diplomacy	Hosted by Indonesia
	MARITIME COOPERATION 2014	Maritime	Russia
	GROUP SAIL 2014	Maritime (Search and Rescue); Communications; Counterpiracy	United States, Singapore, Brunei
	RIMPAC 2014	Multilateral Naval Exercises	Hosted by the United States (22 countries participated)
	Unnamed	Counterpiracy	United States
	Unnamed	Maritime (Search and Rescue) & Communications	United States
	PEACE MISSION 2014	Counterterrorism	Russia
	BORDER DEFENSE COOPERATION 2014	Counterterrorism	Russia
	Unnamed	Communications	United States
	SHARP KNIFE AIRBORNE 2014	Counterterrorism	Indonesia
	COOPERATION 2014	Infantry Exercise	Singapore
2015	JOINT SEA 2015	Maritime	Russia
	CHINA-SINGAPORE COOPERATION 2015	Maritime	Singapore
	KHAAN QUEST 2015	Peacekeeping	Hosted by Mongolia
	SHAHEEN-IV	Air	Pakistan
	Unnamed	Maritime	Denmark
	PEACE AND FRIENDSHIP 2015	Maritime	Malaysia
	HAND IN HAND 2015	Counterterrorism	India
	FALCON 2015	Counterterrorism	Mongolia
	FALCON STRIKE 2015	Air	Thailand

APPENDIX II: CHINA AND TAIWAN FORCES DATA IN 2015

Taiwan Strait Military Balance in 2015, Ground Forces			
	China		Taiwan
	Total	***Taiwan Strait Area***	***Total***
Personnel (Active)	1.25 million	400,000	130,000
Group Armies/Army Corps	18	8	3
Infantry Divisions	12	4	0
Infantry Brigades	23	7	5
Mechanized Infantry Divisions	7	4	0
Amphibious Mechanized Infantry Divisions	2	2	0
Mechanized Infantry Brigades	25	8	3
Armor Divisions	1	0	0
Armor Brigades	17	7	4
Amphibious Armor Brigades	1	1	0
Army Aviation Brigades and Regiments	11	6	3
Artillery Brigades	22	9	5
Airborne Divisions	3	3	0
Marine Brigades	2	2	2
Tanks	7,000	2,800	1,100
Artillery Pieces	8,000	3,900	1,600

Note: In 2015, People's Liberation Army (PLA) active ground forces were organized into group armies and independent airborne and marine units deployed through seven military regions. (MRs). A significant portion of these assets were deployed in the Taiwan Strait area (the former Nanjing, Guangzhou and Jinan MRs), including coastal defense, border defense, headquarters, and administrative units reflected in the personnel total but not tabulated in detail. Taiwan has three army corps and four principle defense commands. Each army corps contains an artillery command roughly equivalent to a brigade plus. The numbers of specific systems are approximate.

Taiwan Strait Military Balance in 2015, Naval Forces			
	China		Taiwan
	Total	***East and South Sea Fleets***	***Total***
Aircraft Carriers	1	0	0
Destroyers	23	16	4
Frigates	52	40	22
Corvettes	23	14	1
Tank Landing Ships/ Amphibious Transport Dock	30	28	14
Medium Landing Ships	22	16	0
Diesel Attack Submarines	57	38	4
Nuclear Attack Submarines	5	2	0
Ballistic Missile Submarines	4	4	0
Coastal Patrol (Missile)	86	68	45
Note: In 2015, the PLA Navy had the largest force of principal combatants, submarines, and amphibious warfare ships in Asia. In the event of a major Taiwan conflict, the East and South Sea Fleets would be expected to participate in direct action against the Taiwan Navy. The North Sea Fleet would be responsible primarily for protecting Beijing and the northern coast, but could provide mission-critical assets to support other fleets.			

Taiwan Strait Military Balance in 2015, Air Forces			
	China		Taiwan
	Total	*Within range of Taiwan*	*Total*
Fighters	1,700	130	384
Bombers/Attack	400	200	0
Transport	475	150	19
Special Mission Aircraft	115	75	25

Note: In 2015, the PLA Air Force and Navy had approximately 2,100 operational combat aircraft. These consisted of air defense and multi-role fighters, ground attack aircraft, fighter-bombers, and bombers. An additional 1,450 older fighters, bombers, and trainers were employed for training and research and development. The PLA also possess approximately 475 transports and more than 100 surveillance and reconnaissance aircraft with intelligence, surface search, and airborne early warning capabilities. We expect the PLA Air Force would supplement its military transports with civilian aircraft in a combat scenario. The majority of PLA Air Force and PLA Navy aircraft are based in the eastern half of the country, and approximately 330 aircraft could conduct combat operations against Taiwan without refueling. However, this number could be significantly increased through any combination of aircraft forward deployment, decreased ordnance loads, or altered mission profiles. Taiwan Air Force figures do not indicate a significant change; they reflect a change in the categorization of some aircraft.

China's Missile Forces			
System	***Missiles***	***Launchers***	***Estimated Range****
ICBM	75-100	50-75	*5,400-13,000+ km*
MRBM	200-300	100-125	*1,500+ km*
SRBM	1,000-1,200	250-300	*300-1000 km*
GLCM	200-300	40-55	*1,500+ km*

Note: Estimates reflect the PLA's ongoing modernization of its missile forces and in some cases may have increased.

APPENDIX III: MEMORANDUM OF UNDERSTANDING BETWEEN THE DEPARTMENT OF DEFENSE OF THE UNITED STATES OF AMERICA AND THE MINISTRY OF NATIONAL DEFENSE OF THE PEOPLE'S REPUBLIC OF CHINA REGARDING THE RULES OF BEHAVIOR FOR SAFETY OF AIR AND MARITIME ENCOUNTERS

MEMORANDUM OF UNDERSTANDING BETWEEN THE DEPARTMENT OF DEFENSE OF THE UNITED STATES OF AMERICA AND THE MINISTRY OF NATIONAL DEFENSE OF THE PEOPLE'S REPUBLIC OF CHINA REGARDING THE RULES OF BEHAVIOR FOR SAFETY OF AIR AND MARITIME ENCOUNTERS

The Department of Defense of the United States of America and the Ministry of National Defense of the People's Republic of China (hereinafter the Sides):

Honor the June 2013 discussion between President Barack Obama of the United States of America and President Xi Jinping of the People's Republic of China about the importance of rules of behavior for safety of encounters between the naval vessels and military aircraft of the two Sides;

Recognize that the People's Republic of China is a Party to the *United Nations Convention on the Law of the Sea* and that the United States supports and observes customary international law as reflected in the *United Nations Convention on the Law of the Sea*;

Recognize that the United States of America and the People's Republic of China are Parties to the *Convention on the International Regulations for Preventing Collisions at Sea, 1972*, and the Collision Regulations (COLREGs) contained therein, which apply to all vessels flagged by both Sides, including naval ships, in order to "maintain a high level of safety at sea";

Recognize that the United States of America and the People's Republic of China are Parties to the *Convention on International Civil Aviation* ("Chicago Convention");

Recognize that both Sides concluded the *Agreement on Establishing a Consultation Mechanism to Strengthen Military Maritime Safety (MMCA)*, which endorsed "the need to promote common understandings regarding activities undertaken by their respective maritime and air forces when operating in accordance with international law, including the principles and regimes reflected in the United Nations Convention on the Law of the Sea"; and

Recognize as members of the Western Pacific Naval Symposium (WPNS), that both the United States Navy and the People's Liberation Army Navy contributed to the development and adoption of the *Code for Unplanned Encounters at Sea (CUES)* in order to maximize safety at sea.

SECTION I

This Memorandum of Understanding and its Annexes (hereinafter referred to collectively as "Memorandum") describes the purpose, principles, and processes of an effort to strengthen adherence to existing international law and norms, to improve operational safety at sea and in the air, to enhance mutual trust, and to develop a new model of military-to-military relations between the two Sides.

Both Sides affirm their commitment to the rules of behavior for safety of military vessels and military aircraft of the two Sides when they encounter each other at sea or in the air.

Both Sides consider that this effort contributes directly to risk reduction and to strengthening regional peace and stability.

SECTION II

The United States Department of Defense and the People's Republic of China Ministry of National Defense are the authorized agencies for the purposes of implementing this Memorandum.

SECTION III

The Annexes of this Memorandum (terms of reference and surface-to-surface), including the international laws and norms reflected therein, comprise the technical content of the Rules of Behavior for Safety of Air and Maritime Encounters.

Both Sides decided to complete another annex (air-to-air encounters) in 2015.

After completion of the air-to-air encounters annex, the contents of the existing Annexes can be conformed and finalized with the approval of both sides.

SECTION IV

Both authorized agencies should conduct an annual assessment meeting, led by senior colonel/senior captain/colonel/captain-level officers or civilian equivalents, to review the previous year's events relating to the application of the rules of behavior and consult on potential revision and improvements for future implementation.

The annual assessment meeting should take place under the MMCA mechanism and be hosted in the United States and China on a rotating basis by the

U.S. and Chinese Sides, consistent with the rotation cycle of MMCA meetings.

No less than four (4) weeks prior to the annual assessment meeting, both authorized agencies should propose and set the topics for inclusion in the Rules of Behavior portion of the MMCA agenda and exchange papers on operational safety issues involving air and maritime encounters that took place after the previous assessment meeting. The outcome of that review should be provided to the Defense Policy Coordination Talks and other mutually decided-upon policy dialogues.

In addition to the annual assessment meeting, both authorized agencies may hold periodic and ad hoc consultations as mutually determined for the purpose of exchanging information and to consider questions related to activities within this Memorandum or to discuss the inclusion of future annexes.

SECTION V

Both Sides voluntarily support this Memorandum, which is of unlimited duration and may be discontinued by either Side upon written notice to the other Side.

This Memorandum is not intended to be binding under international law.

This Memorandum is not intended to affect the rights or obligations of either Side under relevant international agreements or customary international law.

This Memorandum is made without prejudice to either Side's policy perspective on military activities in the Exclusive Economic Zone.

Although this Memorandum is in the public domain, neither Side should disclose to any third parties the content of assessments conducted under this Memorandum without the written approval of the other Side. Related discussions conducted under the MMCA framework are subject to the disclosure provision in the MMCA charter.

Any disagreement concerning the interpretation and application of this Memorandum should be resolved by consultation between the two Sides.

This Memorandum may be modified *mutatis mutandis* to allow for adoption by other government agencies with their written consent.

This Memorandum contains:

Annex I: Terms of Reference for Safety of Air and Maritime Encounters

Annex II: Rules of Behavior for Safety of Surface-to-Surface Encounters

The content of these Annexes may be modified upon the consent of both Sides. Additional annexes may be added upon the consent of both Sides.

This Memorandum is signed at WASHINGTON , BEIJING , on NOVEMBER 9, NOVEMBER 10 , 2014 in both English and Chinese.

The Department of Defense of The United States of America	The Ministry of National Defense of The People's Republic of China
	常萬全

ANNEX I

Terms of Reference of the Rules of Behavior for Safety of Air and Maritime Encounters

SECTION I

Definitions

i. Where applicable, definitions used in the Annexes to the Memorandum of Understanding between the Department of Defense of the United States of America and the Ministry of Defense of the People's Republic of China Regarding the Rules of Behavior for Safety of Air and Maritime Encounters (Memorandum) are those definitions found in the *United Nations Convention on the Law of the Sea* (UNCLOS), the *Convention on International Civil Aviation* (Chicago Convention), the *Convention on the International Regulations for Preventing Collisions at Sea, 1972* and the *Collision Regulations* (COLREGs) contained therein, the *Code for Unplanned Encounters at Sea* (CUES), and other existing international agreements or established multilateral rules of behavior.

ii. A "military vessel" includes warships[1] and naval auxiliaries.[2]

iii. A "naval auxiliary" is a vessel, other than a warship, that is owned by or is under the exclusive control of the armed forces of a State and used for the time being on government non-commercial service.[3] For the purpose of this document, the term "naval auxiliary" in English will be translated as "military auxiliary" in Chinese.

iv. A "formation" means an ordered arrangement of two or more military vessels proceeding together and normally maneuvered together.

v. A "vessel restricted in her ability to maneuver" is defined in the COLREGs.[4]

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[1] UNCLOS Article 29.
[2] CUES, Para. 1.3.3.
[3] *See, e.g.*, The San Remo Manual On International Law Applicable to Armed Conflicts at Sea at 13(h) (Louise Doswald-Beck ed., 1995); the Convention regarding the Régime of the Straits (Montreux Convention, 1936); CUES, Para. 1.3.4.
[4] COLREGs, Rule 3.g.

SECTION II

The Rights, Obligations, and Immunities of Military Ships and Military Aircraft

i. Nothing in this Memorandum or its Annexes absolves a commander (commanding officer) or master (as applicable) of the consequences of any neglect of precautions to avoid collision or avoid taking any other course of action that may be required by the ordinary practice of seamen, or by the special circumstances of the case.[5]

ii. Every flag State should take such measures for military vessels flying its flag as are necessary to ensure safety at sea.[6]

iii. Military vessels and military aircraft enjoy sovereign immunity and are therefore immune from the jurisdiction of any State other than their flag State.[7]

iv. Because naval auxiliaries are State owned or operated and used for the time being only on government non-commercial service, they enjoy sovereign immunity.[8]

v. Military vessels and military aircraft may act to defend themselves.[9]

vi. When military vessels and military aircraft of a Side exercise their rights, freedom, and lawful uses of the sea and airspace under international law, they are to have due regard for the rights, freedoms, and lawful uses of the sea and airspace by the other Side's military vessels and military aircraft under international law.[10]

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[5] CUES, Para. 1.4.2.
[6] UNCLOS, Art. 94.
[7] CUES, Para. 1.5.1.
[8] CUES, Para. 1.3.4.
[9] *Charter of the United Nations*, Art. 51.
[10] UNCLOS, Arts. 58 and 87.

ANNEX II

Rules of Behavior for Safety of Surface-to-Surface Encounters

SECTION I

Military vessels that encounter each other at sea are to abide by the *Convention on the International Regulations for Preventing Collisions at Sea, 1972* and the *Collision Regulations* (COLREGs)[1] contained therein and implement in good faith the *Code for Unplanned Encounters at Sea* (CUES) developed and adopted by the Western Pacific Naval Symposium.[2]

SECTION II

Military vessels that encounter each other at sea should ensure navigation safety through active communications and coordinated actions. The *International Code of Signals* (ICS), the *Radio Regulations of the International Telecommunication Union*, the *Standard Marine Communication Phrases* (SMCP), and CUES are to be the fundamental basis of communication and contact for military vessels.[3]

SECTION III

The following principles of communication should be observed during encounters between military vessels:

i. Take active measures for proactive and timely communication.[4]

ii. When one Side initiates a call, the other Side should respond promptly.[5]

iii. With reference to Paragraph 3.6. of CUES, the information communicated may include but is not limited to the following:

1. Clarification of identity;[6]

2. Courtesy greetings;[7]

3. Vessel maneuvering intentions;[8]

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[1] COLREGs, Rule 1.
[2] CUES, Para. 2.0.
[3] CUES, Paras. 3.2. and 3.3.
[4] COLREGs, Rule 8(a).
[5] COLREGs, Rule 8(a).
[6] CUES, Paras. 3.4. and 3.6.
[7] CUES, Para. 3.5.2.
[8] CUES, Para. 3.6.1.

4. Events in progress or planned that may concern the safety of nearby vessels; and

5. Other information relating to navigation safety.[9]

iv. Further, the Sides should:

1. Maintain effective communication until the risk of collision or miscalculation has passed;[10] and

2. Refrain from using uncivil language or unfriendly physical gestures.

v. Communications between military vessels during an emergency may be conducted using all possible methods to achieve communication and contact, including the use of plain language messages.[11]

SECTION IV

General Navigation Safety Rules

i. When military vessels of either Side encounter each other at sea, they are to maintain a safe distance to avoid the risk of collision.[12]

1. Military vessels of both Sides are to consider the relevant provisions of the COLREGs and CUES and the special circumstances at sea at the time, to be the primary basis for determining safe distance.[13]

2. A safe distance determined during specific circumstances between the military vessels of both Sides applies only in that situation and is not to be used as the basis for determining safe distance under other circumstances.

ii. If a military vessel of either Side encounters a military vessel of the other Side that is restricted in its ability to maneuver, or both encounter each other and are restricted in their ability to maneuver, they are to abide by the terms and spirit of the COLREGs. [14]

iii. When a single military vessel encounters a formation or convoy at sea, it should not hinder the navigation of the formation or convoy, should take early measures to steer clear of the route of the formation or convoy, and should not pass through the formation or convoy.

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[9] CUES, Para. 2.2.
[10] COLREGs, Rule 8(d) and CUES, Para. 3.3.1.
[11] COLREGs, Rule 36 and ICS, Chapter 4 Section 3.
[12] CUES, Para. 2.6.2.
[13] CUES, Para. 2.6.1.
[14] COLREGs, Rule 2, 3, 18, 27, and 35.

When there is a risk of collision between vessels in formation or convoy and a single military vessel, actions to avoid collisions should be taken in accordance with the COLREGs.[15]

iv. When the formations and/or convoys of military vessels of both Sides encounter each other at sea, they should avoid maneuvering in a manner that hinders each other's passage and should actively communicate with one another to coordinate the actions of both Sides.[16]

SECTION V

Rules for Specially Designated Areas

i. Maritime Navigation Warning Areas

1. When conducting activities that may affect the safety of nearby military vessels and military aircraft, commanders (commanding officers) on scene are to ensure the appropriate warning or warning area is established and the related activities occur within that area.[17]

2. When conducting activities that may affect the safety of nearby military vessels and military aircraft, such as military exercises and live weapons firing, the on-scene forces are to provide timely hazard warnings to vessels or aircraft in the vicinity of the warning area.[18] If there are operational safety concerns, military vessels or military aircraft in the vicinity of or inside the area should conduct timely, active communication to coordinate their actions and ensure safety.[19]

3. The military vessels and military aircraft of one Side should to refrain from interfering with the activities in a warning area declared by the other Side; however, military vessels and military aircraft always enjoy the rights of freedom of navigation, overflight, and other internationally lawful uses of the sea related to these freedoms.[20]

4. Military vessels or formations should actively notify nearby military vessels or military aircraft of activities that may affect their safety and coordinate safe distance in accordance with CUES and the ICS.[21]

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[15] CUES, Paras. 2.3.1., 2.3.2., and 2.3.3.
[16] CUES, Para. 2.3.3.
[17] Joint International Hydrographic Organization (IHO)/International Maritime Organization (IMO)/World Meteorological Organization (WMO) Manual on Maritime Safety Information (MSI), Para. 4.2.2.; ICS, Chapter 4, Section 3 and Appendix.
[18] MSI, Para. 4.2.2.; ICS, Chapter 4, Section 3 and Appendix.
[19] COLREGs, Rule 8(a).
[20] UNCLOS, Articles 56 and 58.
[21] CUES, Para. 2.6. and ICS, Chapter 4, Section 3.

SECTION VI

Rules for Establishing Mutual Trust at Sea

i. Peacetime Security Assurance Measures

1. The commander (commanding officer) or master is responsible for determining whether his or her vessel is threatened by a vessel or aircraft. That determination must balance the potential threat from other military vessels and military aircraft and their right to operate in the area.

2. When conducting operations, military vessels and military aircraft should in a timely manner communicate maneuvering intentions and determine safe distance.[22] In addition to the normal factors in determining safe distance, it should be considered that military vessels and military aircraft may have safety concerns based on the prevailing tactical and operational conditions that may necessitate additional communication. [23]

3. The primary method to assure peaceful intent in the air and maritime domain for the military vessels of both Sides is adherence to the existing safety rules and standards reflected in the *United Nations Law of the Sea Convention* and the COLREGS combined with positive and timely communication to clarify actions.

ii. Commanders (commanding officers) or masters need to consider the potential ramifications before engaging in actions that could be misinterpreted. Actions that the prudent commander (commanding officer) or master generally should avoid include:[24]

1. Simulation of attacks by aiming guns, missiles, fire-control radars, torpedo tubes, or other weapons in the direction of military vessels or military aircraft encountered;[25]

2. Except in cases of distress, the discharge of signal rockets, weapons, or other objects in the direction of military vessels or military aircraft encountered;[26]

3. Illumination of the navigation bridges of military vessels or military aircraft cockpits;[27]

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[22] CUES, Para. 2.6.2.
[23] *Charter of the United Nations*, Article 51; *See e.g.,* Brierly, *The Law of Nations*, 7th ed. (2012); and Randerlzhofer, Article 51, in *The Charter of the United Nations*, *A Commentary*, 2d ed. (2002).
[24] CUES, Para. 2.8.1.
[25] CUES, Para. 2.8.1.
[26] CUES, Para. 2.8.1.
[27] CUES, Para. 2.8.1.

4. The use of a laser in such a manner as to cause harm to personnel or damage to equipment onboard military vessels or military aircraft encountered;[28]

5. Aerobatics and simulated attacks in the vicinity of vessels encountered;[29]

6. The unsafe approach by one Side's small craft to another Side's vessel; and

7. Other actions that may pose a threat to the other Side's military vessels.

iii. When engaging in military training while underway, military vessels or formations should actively notify nearby military vessels or military aircraft of possible safety concerns. Both Sides should coordinate maneuvering intentions not to hinder the training and avoid misperception and miscalculation.

iv. Rules for Emergency On-Scene Coordination

1. During encounters at sea, military vessels should avoid dangerous approaches and situations that could result in misperception and miscalculation. Once such a situation occurs, the two Sides involved should increase communication and take active measures to reduce navigation and flight hazards.[30]

2. During encounters at sea, in case of collision, whatever the cause, the military vessels of the two Sides should separate immediately after damage control and life-saving measures are taken and should avoid taking any action that leads to escalation of the situation. Both Sides should conduct active rescue of personnel as required by international law and in the spirit of safety of life at sea, as their capacity allows. However, one Side may not board or salvage the other Side's military vessel or military aircraft without prior explicit consent.[31]

3. For situations occurring at sea, such as a dangerous approach and collision, or other actions that could lead to misperception and miscalculation, both Sides should take active measures to reduce tension and communicate with each other, conduct professional assessment, and explore improvement measures through military and diplomatic channels and the Military Maritime Consultative Agreement (MMCA) mechanism.

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[28] CUES, Para. 2.8.1.
[29] CUES, Para. 2.8.1.
[30] CUES, Para. 3.2. and 3.3.; COLREGs, Rule 36; and ICS, Chapter 4, Section 3.
[31] UNCLOS, Articles 32, 58(2), 95, and 236.

SECTION VII

Relevant Communication Rules

i. During encounters at sea, military vessels are to use sound, light, flag signals, semaphore, radio, et cetera to communicate with one another according to the ICS and the *International Radio Regulation of the International Telecommunication Union.*

ii. Communication call signs for military vessels.[32]

1. Individual vessel call signs are the vessel NAME, or HULL NUMBER, or INTERNATIONAL RADIO SIGNAL CALLSIGN. Vessels and aircraft should also identify their nationality.[33]

2. Formation call signs are the vessel NAME or HULL NUMBER or INTERNATIONAL RADIO SIGNAL CALLSIGN of the commanding vessel.

3. When the call sign of the platform being called is unknown, it should be addressed as UNKNOWN STATION with sufficient supplementary information; for example, position, course, and speed; to alert the station that it is being called. Units called as UNKNOWN STATION should answer using their INTERNATIONAL RADIO SIGNAL CALLSIGN.[34]

iii. Unless decided by the two Sides, all voice communications should be conducted in ENGLISH, as required by International Maritime Organization (IMO) standards and CUES.[35] Use plain language whenever possible. Both Sides are encouraged to use communication methods that do not rely on a common spoken language. If spoken language difficulties are likely to arise, the Sides should use the selected signals vocabulary in the annex of CUES[36] or Tables 2 and 3 of ICS.[37]

iv. Radio Communication Frequency

1. Vessel-to-vessel radio communication frequency[38]:
   - Main frequency: VHF Channel 16 - 156.8 MHz
   - Secondary frequency: HF Channel 2182 KHZ

[32] CUES, Para. 3.4.
[33] CUES, Para. 3.4.1
[34] CUES, Para. 3.4.2
[35] CUES, Para. 3.5.1.
[36] CUES, Annex A.
[37] ICS, Chapter 4, Section 3.
[38] CUES, Para. 3.12.1.

- Working frequency: Decided by the two Sides through discussion after communication is established.

2. Military vessel-to-aircraft radio communication frequency[39]:
   - Main frequency: International Air Distress – VHF Channel 121.5 MHz, or International Military Air Distress – VHF Channel 243 MHz[40]
   - Secondary frequency: HF Channel 3023 KHz
   - Working frequency: Decided by the two Sides through discussion after communication is established.

[39] CUES, Para. 3.12.2.
[40] ITU, *Radio Regulations,* Article S5.111.

Supplement to the Memorandum of Understanding On the Rules of Behavior for Safety Of Air And Maritime Encounters Between the Department of Defense of the United States of America And the Ministry of National Defense of the People's Republic of China

On November 10, 2014, the Department of Defense of the United States of America and the Ministry of National Defense of the People's Republic of China signed *the Memorandum of Understanding Regarding the Rules of Behavior for Safety of Air and Maritime Encounters* (hereinafter referred to as "*Memorandum*"). The Memorandum was jointly announced by President Barack Obama and President Xi Jinping on November 12, 2014.

The *Memorandum* states that the content of related annexes may be modified and additional annexes may be added upon mutual consent, and both Sides decided to add the following content to the annexes of the *Memorandum*:

1. Rules of Behavior for Safety of Air-to-Air Encounters, to be listed as Annex III to the *Memorandum* (see Enclosure 1)

2. Newly Added Terms of Reference for Air-to-Air Encounters for Inclusion in Annex I of the Memorandum (see Enclosure 2)

This *Memorandum* supplement is signed at BEIJING, SEPTEMBER 15, 2015, WASHINGTON on SEPTEMBER 18, 2015 in duplicated texts in both English and Chinese.

The Department of Defense of the United States of America	The Ministry of National Defense of the People's Republic of China
Clyneke E. Smith	孫建國

ANNEX III

Rules of Behavior for Safety of Air-to-Air Encounters

SECTION I

Military aircraft that encounter each other in flight should operate consistent with the Convention on International Civil Aviation and its Annexes and guidance to the extent practicable when compatible with mission requirements. The Sides should also implement in good faith the Code for Unplanned Encounters at Sea (CUES) as it applies to air-to-air encounters as referenced in this Annex.

SECTION II

Military aircraft that encounter each other in flight should ensure navigation safety through professional airmanship, including the use of appropriate communications as defined in this Annex. The International Code of Signals (ICS), the Radio Regulations of the International Telecommunication Union, the Code for Unplanned Encounters at Sea (CUES), and relevant International Civil Aviation Organization (ICAO) Annexes are the references and guidance for communication and contact for military aircraft of both Sides. [1]

SECTION III

[1] *Infra*, Sections III, V, and VII.

Enclosure 1

When military aircraft encounter each other in the air, both Sides should encourage active communications when in the interest of flight safety.[2] Communication between military aircraft should be conducted according to the following principles:

i. If one military aircraft initiates a call, the other military aircraft should actively respond, if mission permits. Pilot discretion should determine when to conduct communications based on the situation at that time.

ii. Communicated information may include, but is not limited to, the following content:
   - Clarification of identity;[3]
   - Aircraft maneuvering intentions;[4]
   - Events in progress or planned that may concern the safety of aircraft encountered;[5] and
   - Other information related to flight safety.[6]

iii. Military aircrew should refrain from the use of uncivil language or unfriendly physical gestures.

iv. Communications between military aircraft during an emergency may be conducted by any method possible.[7]

v. Although these rules encourage communications, they do not intend to obligate military aircraft to communicate.

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[2] International Civil Aviation Organization (ICAO) Convention on International Civil Aviation, Annex 10, Volume II, Para. 5.1.8.8.

[3] *See also* CUES, Paras. 3.4 and 3.6.

[4] *See* CUES, Para. 3.6.1.

[5] *Cf.* ICAO, Annex 10, Volume II, Chapter 5, Para. 5.1.8.4.

[6] *Cf.* ICAO, Annex 10, Volume II, Chapter 5.

[7] *See, e.g.*, ICAO, Annex 10, Volume II, Chapter 5, ICAO Annex II, Appendices 1 and 2, and ICS, Chapter 4, Section 3.

Enclosure 1

SECTION IV

General Flight Rules

i. When the military aircraft of both Sides have an unintentional encounter in flight, they should ensure safe separation to avoid creating a safety hazard.[8] To determine safe separation, military aircraft should comprehensively consider their own national rules, relevant international guidance, and factors including the mission, meteorological considerations, and flight situation.

ii. The safe separation between the military aircraft of both Sides determined in a specific circumstance is applicable to the situation at the time and should not be used as the basis for determining safe separation in other circumstances.

iii. When the military aircraft of one Side intentionally approach the military aircraft of the other Side for the purpose of identification, verification, or escort, the pilots of both Sides are responsible to operate with professional airmanship and give due regard for the safety of the other Side's aircraft.[9] Following the above-mentioned principles, the aircraft initiating the approach should maintain safe separation, while the aircraft of the other Side should avoid reckless maneuvers.

SECTION V

Rules for Specially Designated Areas

Air Danger Area or Warning Area

i. When conducting activities that may affect the safety of nearby military vessels and military aircraft, commanders are to ensure the appropriate danger area or warning area has been

[8] *Cf.* ICAO, Annex 2, Para 3.2.1.

[9] UNCLOS, Articles 58 and 87.

established or declared.[10] The on-scene commander also is to provide timely hazard warnings to vessels or aircraft in the vicinity.[11] Commanders should ensure that related activities are limited to the applicable area.

ii. If there are operational safety concerns, military vessels or military aircraft in the vicinity or inside the applicable area should conduct timely, active communication to coordinate their actions and ensure safety.[12]

iii. The military vessels and military aircraft of one Side should refrain from interfering with the activities in the applicable area established or declared by the other Side; however, military vessels and military aircraft always enjoy the rights and freedom of navigation, overflight, and other internationally lawful uses of the sea related to those freedoms.[13]

SECTION VI

Rules for Establishing Mutual Trust in the Air

i. Peacetime Security Assurance Measures

- The aircraft commander of a military aircraft is responsible for determining whether his or her aircraft is threatened by another aircraft. That determination must balance the potential threat from the other military aircraft and their right to operate in the area.

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[10] These areas are established and activated advising of the presence of hazards that may affect the safety of air navigation by issuance of a Notice to Airmen (NOTAM). *See* ICAO Annex 15, Chapter 5, Para. 5.1.1.1.; *see* also CUES Para. 2.10. For maritime warnings, *see* Joint International Hydrographic Organization (IHO) / International Maritime Organization (IMO) / World Meteorological Organization (WMO) Manual on Maritime Safety Information (MSI), Para. 4.2.2.; ICS, Chapter 4, Section 3 and Appendix.

[11] *See* MSI, Para 4.2.2.; ICS, Chapter 4, Section 3 and Appendix.

[12] *Cf.* ICAO, Annex 10, Volume II, Para. 5.1.8.4.

[13] UNCLOS, Articles 56 and 58.

ii. The pilots of military aircraft should consider the potential ramifications before engaging in actions that could be misinterpreted. Actions that the prudent pilot generally should avoid include:

- Actions that impinge upon the ability of the other Side's military aircraft to maneuver safely;
- Approaching the other Side's military aircraft at an uncontrolled closure rate that may endanger the safety of either aircraft;
- The use of a laser in such a manner as to cause harm to personnel or damage to equipment onboard the other Side's military aircraft.[14]
- Actions that interfere with the launch and recovery of military aircraft by the other Side's military vessel;[15]
- Aerobatics and simulated attacks in the vicinity of the vessels encountered;[16] and
- Except in the case of distress, the discharge of signal rockets, weapons, or other objects in the direction of military vessels or military aircraft encountered.[17]

iii. Rules for Emergency On-Scene Coordination

- During encounters in the air between the military aircraft of both Sides, if an emergency situation occurs, the pilots of both Sides involved should increase communication and take active measures to reduce flight hazard.[18]

- During encounters in the air, if an emergency situation occurs, whatever the cause, the military aircraft of the two Sides should separate immediately and should avoid taking any action that leads to escalation of the situation.

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[14] CUES, Para. 2.8.1.; *see also* Annex II, Rules of Behavior for Safety of Surface-to-Surface Encounters ("Annex II"), Section VI, Para. Ii.4.

[15] *See* UNCLOS, Articles 58 and 87.; *See also,* Section V above; *Cf.* ICAO Annex 2, Paras. 3.2.5.a. and 3.2.5.b.

[16] CUES, Para. 2.8.1.; *see also* Annex II, Rules of Behavior for Safety of Surface-to-Surface Encounters Section VI, Para. ii.5.

[17] CUES, Para. 2.8.1.; *see also* Annex II, Rules of Behavior for Safety of Surface-to-Surface Encounters Section VI, Para. ii.2.

[18] *Cf.* ICAO, Annex I0, Volume II, Para. 5.1.8.4.

Enclosure 1

iv. For situations of concern occurring in the air, such as an unsafe encounter or other actions that could lead to misperception and miscalculation, both Sides should take active measures to reduce tension, communicate with each other at appropriate levels, conduct professional assessments, and explore improvement measures through military and diplomatic channels, including the Military Maritime Consultative Agreement (MMCA) mechanism.

SECTION VII

Relevant Communication Rules

i. Unless otherwise decided by the two Sides, all voice communications should be conducted in English as the internationally accepted language for flight operations.[19] Use plain language whenever possible.

ii. If voice communications are attempted in the interests of flight safety, the military aircraft initiating the call should identify the nationality or international radio call sign ("call sign") of the military aircraft addressed, followed by its own nationality or call sign. If the aircraft initiating the call cannot identify the nationality or call sign of the other aircraft, it should address "unknown aircraft" with other supplemental information, such as the aircraft's position, course heading, and speed in order to call attention to the other aircraft to respond.

iii. Radio Communication Frequencies
- Main frequencies:
  1. International Air Distress – VHF 121.5MHz, or
  2. International Military Air Distress – UHF 243.0MHz[20]

[19] *Cf.* ICAO Annex 1, Chapter 1 and Annex 10 Volume II, Chapter 5.

[20] *See, e.g.,* ICAO Annex 10, Volume V, Chapter 4, Table 4-1; ICAO Annex 2, Appendix 2, Para. 2.; and International Telecommunication Union (ITU) Radio Regulations, S5.200 and S5.111.

Newly Added Terms of Reference for Air-to-Air Encounters for Inclusion in Annex I Terms of Reference of the Rules of Behavior for Safety of Air and Maritime Encounters

i. Military aircraft include manned and unmanned fixed-wing aircraft, rotary-wing aircraft, and helicopters of both sides' militaries.

ii. Air Danger Area or Warning Area is an airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.[1]

[1] ICAO, Annex 2, Chapter 1, page 1-3.

Enclosure 2

Appendix IV: Memorandum of Understanding Between the United States of America Department of Defense and the People's Republic of China Ministry of National Defense on Notification of Major Military Activities Confidence-Building Measures Mechanism

MEMORANDUM OF UNDERSTANDING
BETWEEN
THE UNITED STATES OF AMERICA DEPARTMENT OF DEFENSE
AND THE PEOPLE'S REPUBLIC OF CHINA
MINISTRY OF NATIONAL DEFENSE
ON NOTIFICATION OF MAJOR MILITARY ACTIVITIES
CONFIDENCE-BUILDING MEASURES MECHANISM

PREAMBLE

The United States Department of Defense and the People's Republic of China Ministry of National Defense (hereinafter referred to as the "sides"):

Reaffirm the commitment to the development of a new model of U.S.-China military-to-military relations, which is an integral part of the bilateral relationship;

Affirm that both sides are committed to improve relations, deepen mutual understanding, reduce risk, and reduce the potential for misunderstanding and miscalculation;

Recognize that both sides seek to advance the bilateral relationship through military confidence-building measures, undertaken in a spirit of equality and openness;

Realize the consensus between President Barack Obama and President Xi Jinping, and to establish a notification of major military activities confidence-building measures initiative;

Determine that this mechanism for notification of major military activities forms the basis from which both sides exchange notifications of military activities and strengthen confidence and mutual trust through reciprocal notifications and information sharing;

Affirm that notifications should aim to reduce misunderstanding, prevent miscalculation, and manage risk and crisis effectively; and

Establish a mechanism to inform when both sides would exchange notifications of major military activities on the basis of the principles of

constructive cooperation, mutual interest, mutual trust, mutual benefit, and reciprocity, consistent with accepted international norms of behavior.

SECTION I

This MOU describes the purpose, principles, and processes for bilateral exchanges, with annexes covering the details for specific notification activities.

Both sides affirm their aspiration to establish a voluntary foundation for notifications of major military activities, and endeavor to improve the scale and frequency of notifications gradually through consultations in a reciprocal, incremental manner through the addition of annexes. New annexes should not conflict with previously developed ones.

SECTION II

The United States Department of Defense, Office of the Secretary of Defense, and the People's Republic of China, Ministry of National Defense Foreign Affairs Office, are the authorized agencies for executing this mechanism and accomplishing notifications, which are to be effected through diplomatic and military channels.

SECTION III

Both authorized agencies should hold an annual assessment working group meeting, led by senior-colonel/colonel-level officers or civilian equivalents, to review the prior year's progress and consult on improvements for future implementation of the mechanism.

The annual assessment working group meetings should be hosted on a rotating basis by the U.S. and Chinese sides, taking place under the framework of the Defense Policy Coordination Talks. The annual assessment working group meeting should take place immediately prior to the Defense Policy Coordination Talks.

No less than two weeks prior to the annual assessment working group meeting, both authorized agencies should propose and set a meeting agenda and exchange papers listing notifications that took place after the previous annual assessment working group meeting.

At the annual assessment working group meeting, both sides should review activities that took place during the period after the previous annual meeting and produce a joint assessment report for submission to the Defense Policy Coordination Talks.

A joint statement may be released to the public once concurred in by both sides.

In addition to the annual assessment working group meeting, both authorized agencies intend to hold periodic and *ad hoc* consultations as mutually determined for the purpose of exchanging information and notifications, and to consider questions related to activities within this mechanism or to discuss the inclusion of future annexes.

SECTION IV

Both sides voluntarily support this MOU, which is of unlimited duration and may be discontinued by either side upon written notice to the other side.

This MOU should not affect the obligations of either side under relevant agreements. Likewise, activities under this MOU should not occur at the expense of the interests of third parties.

Although this MOU is in the public domain, neither side should disclose to third parties the content of notifications received under this mechanism without the written approval of the other side.

Any disagreement concerning the interpretation of or activities under this MOU should be resolved by consultation between both sides.

This MOU contains:

Annex I: Notification of Major Security Policy and Strategy Developments

Annex II: Observation of Military Exercises and Activities

Additional annexes may be added upon the consent of both sides.

This MOU is signed at Beijing and Washington, on October 31 and November 4, 2014 in both Chinese and English.

The Department of Defense of The United States of America	The Ministry of National Defense of The People's Republic of China
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ANNEX I

NOTIFICATION OF MAJOR SECURITY POLICY AND STRATEGY DEVELOPMENTS

SECTION I

Recognizing the importance of speeches, pronouncements, and official publications in increasing transparency and improving mutual understanding, both sides seek to foster greater comprehension of each other's security policy, strategy, and intent through regular exchanges of information related to major official publications and statements.

SECTION II

Both sides intend to exchange information voluntarily about their respective country's security policy, strategy, and legal information, including the adjustment of respective national defense policies and strategy, by providing briefings and information about speeches, major government publications such as White Papers, strategy publications, and other official announcements related to policy and strategy.

Either side may request additional information about announcements, including requests to meet with subject matter experts and principal authors of publications at a suitable and mutually acceptable time and location to inform and deepen discussion on topics of particular interest.

SECTION III

The authorized agencies in Beijing and Washington are the recognized channels for notifications and the exchange of substantive information under this mechanism.

When appropriate, notification briefings could be provided prior to or simultaneous with the public release of major announcements.

Neither side should disclose to third parties the content of notifications that it receives without the written consent of the other side.

SECTION IV

This annex is an integral part of the MOU, managed by the authorized agencies.

ANNEX II

OBSERVATION OF MILITARY EXERCISES AND ACTIVITIES

SECTION I

As an important form of notification, observation of military exercises and activities aims to foster mutual trust and transparency in military affairs.

The U.S. – China observation of military exercises and activities mechanism (observation mechanism) is intended to promote reciprocal observation of military exercises and activities. The intent of military observers at both sides' exercises is to increase mutual understanding of the intent, organization, and implementation of military exercises, and to reduce the potential for misunderstanding or miscalculation.

The observation of military exercises and activities should be voluntary and occur within the existing framework of bilateral U.S. – China military relations.

SECTION II

The observation mechanism should comprise invitations from either country to observe unilateral, bilateral, or multilateral military exercises or activities in which the side extending the invitation is either the host or co-host.

The observation mechanism is not intended to supplant any other bilateral or multinational U.S. – China defense arrangements or interactions.

SECTION III

The observation mechanism should strive for reciprocal access to military exercises and increased openness between the two sides' armed forces. Specific goals are:

i. Gradually expand and increase over time the quality and quantity of reciprocal observation of military exercises.
ii. Deepen mutual understanding and increase comprehension of each side's intent.
iii. Demonstrate in a concrete and measurable manner, steadily increasing openness, mutual trust, and reciprocal confidence.

iv. Build greater understanding and mutual respect between observers and hosts.

SECTION IV

This annex is an integral part of the MOU, managed by the authorized agencies.

The host or co-host country is the side extending the invitation to observe an exercise that it hosts in its own country, or in a third country, or on whose platform the observation activities will take place. The invited country is the side sending military or civilian observers. The composition of the observation team should be determined through friendly consultations between the two sides.

The host should determine the program for invited observers, conveying a written invitation via the authorized agencies no later than eight weeks prior to the event, which should be accepted or declined in a written response, returned through the same channels.

If either side is invited to observe a multilateral or bilateral exercise, the consent of the third-party co-hosts should be sought by the inviting host. Other countries participating in the observed exercise should be notified.

Neither side should disclose to third parties the content of military exercise observations without the written consent of the other side.

ANNEX III

MILITARY CRISIS NOTIFICATION MECHANISM FOR USE OF THE DEFENSE TELEPHONE LINK

SECTION I. PURPOSE

The military crisis notification mechanism for use of the Defense Telephone Link (hereinafter referred to as the military crisis notification mechanism) is intended to improve and normalize mutual notification of military crisis information via the Defense Telephone Link (DTL) including audio and video modes, in order to reduce risk, foster mutual trust, and increase openness.

Both sides recognize the importance of sustained channels of communication and share a commitment to avoid misunderstanding and miscalculation, and to prevent unintended incidents or crisis from harming the overall relationship.

SECTION II. SCOPE

The military crisis notification mechanism should encompass communications and notifications of a crisis consistent with the scope established in the 2008 Defense Telephone Link Agreement. Since the timing of a military crisis by its nature is unpredictable, this mechanism establishes norms, encourages effective use of risk-reduction measures, and supports the effective use of the DTL in times of actual crisis.

The military crisis notification mechanism should be on voluntary basis and occur within the existing framework of the 2014 Notification of Major Military Activities Confidence-Building Measures Mechanism (hereinafter referred to as the Notification CBM Mechanism) and the 2008 Defense Telephone Link Agreement (hereinafter referred to as the 2008 DTL Agreement).

The military crisis notification mechanism is not intended to alter or supersede any other bilateral or multilateral agreements or obligations.

SECTION III. GOALS

Ensure that secure calls between the U.S. and Chinese militaries are accomplished at the appropriate level within the mutually determined time frame, particularly at a time of crisis.

The specific goals of the military crisis notification mechanism are to:

i. Improve the ability to communicate clearly the nature of the military crisis in a smooth and timely fashion;
ii. Ensure communications at the appropriate leadership level are sufficient and effective;
iii. Deepen mutual understanding and increase comprehension of each side's intent;
iv. Prevent destabilizing escalation in times of crisis or tension; and
v. Demonstrate, in a concrete and measurable manner, steadily increasing openness and mutual trust.

SECTION IV. PROCEDURES

Consistent with the consensus reached in the 2008 Agreement, the side proposing the call should provide 48-hours advance notice, and both sides should identify the callers and a mutually acceptable time to place the call. During a crisis, a call may be requested without advance notice.

The side receiving a request to hold a call should respond to the request within 24 hours of receipt, replying positively or negatively in writing. During a crisis, if the official or officer requested is unavailable, another official or officer may be proposed, particularly to ensure a timely response.

When consensus for a time of the call between the two proposed officials or officers cannot be reached, either side may delegate authority. Either side may propose a lower-level or alternate official or officer to communicate with an appropriate counterpart.

Both sides should place importance on the value of completing a mutually determined call, preferably within 48 hours after the initial proposal.

The authorized agencies as established by the notification CBM mechanism should propose a DTL call in writing.

A proposal should include the following information:

- Date of the proposal;
- Specify voice, video, or non-secure phone line;
- Official or officer initiating the call, including name and title;
- Official or officer requested to receive the call, including name and title;

- Reason for the call;
- Requested date and time of the call, including day/month/year, time, and time zone referenced; and
- Requested alternate date and time, if the primary date and time are not available, including day/month/year, time, and time zone referenced.

If the DTL is not available or circumstances warrant, non-secure communications means should be considered.

The number of notifications made in the previous year, including DTL calls, should be reviewed on annual basis at the annual assessment meeting between the two authorized agencies under the Defense Policy Coordination Talks. Both sides should discuss the circumstances of all proposed calls in order to increase mutual understanding and improve the regular use of the DTL.

Based on the consensus reached at the annual assessment meeting, both sides should develop a joint public statement on outcomes and accomplishments, to be released if appropriate.

SECTION V. ORGANIZATION

The military crisis notification mechanism annex is an integral part of the overall Memorandum of Understanding Between the United States of America Department of Defense and the People's Republic of China Ministry of National Defense on Notification of Major Military Activities Confidence-Building Measures Mechanism, managed by the authorized agencies of both sides.

The Department of Defense of the United States of America	The Ministry of National Defense of the People's Republic of China