

## CHAPTER 2

### U.S.-CHINA SECURITY RELATIONS

#### SECTION 1: YEAR IN REVIEW: SECURITY AND FOREIGN AFFAIRS

##### **Introduction**

The year 2016 saw Chinese President and General Secretary of the Chinese Communist Party (CCP) Xi Jinping continue to consolidate and grow the power of China's military and security apparatus. This was highlighted in particular by his ambitious new military reform and reorganization; China's continued assertiveness in the South China Sea, even in the face of an international arbitral ruling; demonstrations of the Chinese military's efforts to improve its force projection capabilities; and the Chinese military's expanding global engagement and footprint. This section, based on Commission hearings, discussions with outside experts, and open source research and analysis, discusses these and other trends and developments related to China's territorial disputes, military reforms and modernization, defense budget and procurements, military exercises and training, international defense engagement, and security relations with the United States.

##### **Major Developments in China's National Security and Military Modernization in 2016**

###### ***China's Maritime Disputes in the South China Sea***

After several years of taking increasingly assertive steps to strengthen its position and undermine those of other claimants in the South China Sea disputes,\* in 2016 China for the first time faced an international legal ruling regarding its actions in the South China Sea. In July, an arbitral tribunal at the Permanent Court of Arbitration in The Hague issued a ruling on the merits of a case initiated in 2013 by the Philippines † regarding China's claims and activities in the South China Sea. The Philippines' case asked the tribunal, among other things, to declare whether: (1) China's claims based on the nine-dash line—China's vague and expansive demarcation of its claim to around 90 percent of the South China Sea—are invalid under the UN Convention on the Law of the Sea

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\*Parties to South China Sea disputes include Brunei, China, Malaysia, the Philippines, Taiwan, and Vietnam.

† In 2014, Vietnam submitted a formal statement of interest in the case to the Permanent Court of Arbitration. Carl Thayer, "Vietnam Files Statement of Interest with the Permanent Court of Arbitration," *cogitASIA* (Center for Strategic and International Studies blog), December 15, 2014.

(UNCLOS);\* (2) certain land features in the South China Sea are rocks, islands, or low-tide elevations;† and (3) China has interfered with the Philippines’ right to exploit resources within the latter’s claimed waters.<sup>1</sup>

In a blow to the credibility of China’s claims, the tribunal ruled overwhelmingly in the Philippines’ favor. The most notable findings of the 479-page ruling included:

- China’s claims to historic rights and resources within the nine-dash line (see Figure 1) have no legal basis.<sup>2</sup>
- None of China’s claimed land features in the Spratly Islands are islands (and as such, none of China’s claimed features can generate more than 12 nautical miles [nm] of surrounding maritime territory).<sup>3</sup>
- China violated the Philippines’ sovereign rights by conducting the following activities in the Philippines’ exclusive economic zone: interfering with Philippine oil exploration activities, prohibiting Filipino fishermen from operating, failing to stop Chinese fishermen from operating, and building artificial islands.<sup>4</sup>
- China violated its marine environmental protection obligations under UNCLOS by causing “severe harm to the coral reef environment” with its land reclamation activities and by not preventing the harvesting of endangered species by Chinese fishermen.<sup>5</sup>

While many countries in the region and around the world responded to the ruling with statements of support for international law,<sup>6</sup> China’s initial response was to reject and attempt to discredit the ruling.<sup>7</sup> Also, in early August, China’s Supreme People’s Court announced that foreign fishermen who illegally fish in China’s “jurisdictional waters” could be imprisoned for up to one year.<sup>8</sup> The actions China could take in the longer term to consolidate its territorial claims and register its displeasure with the ruling include, among other things, one or more of the following: increasing its presence and activities in disputed waters; adding arms or defenses to land features it occupies; conducting land reclamation on Scarborough Reef—a coral reef atoll claimed by China, the Philippines, and Taiwan—over which China effectively secured control in 2012; and declaring an air defense identification zone (ADIZ)‡ over part of the South China Sea.

\* China is a party to UNCLOS.

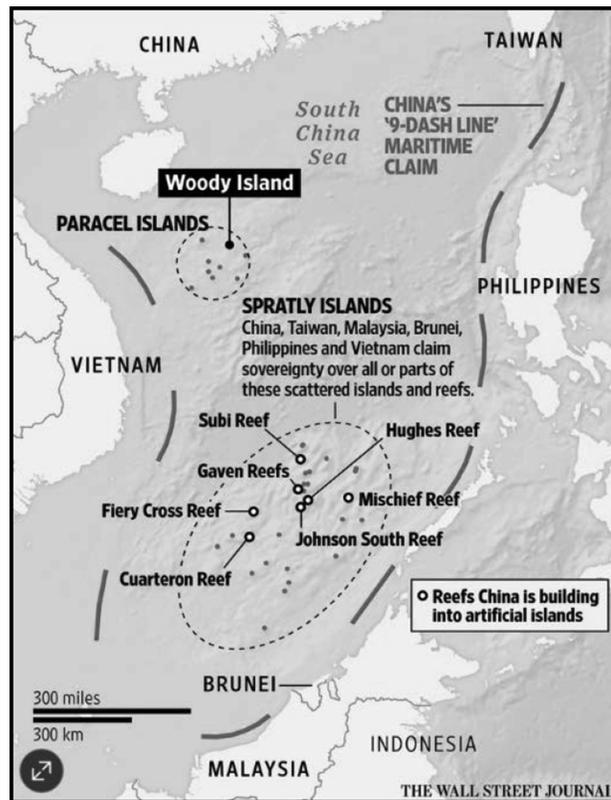
† The distinction, as defined by UNCLOS, between an island, rock, and low-tide elevation is important because each type of feature generates a different maritime entitlement. Islands, which must be above water at high tide and be capable of sustaining human habitation or economic activity of their own, can generate exclusive economic zones. (An exclusive economic zone is a 200-nautical-mile zone extending from a country’s coastline, within which that country can exercise exclusive sovereign rights to explore for and exploit natural resources, but over which it does not have full sovereignty.) Rocks, which are defined as being above water at high tide but unable to sustain human habitation or economic activity, only generate a 12-nautical-mile territorial sea. Low-tide elevations are land features that are submerged at high tide. Unless they are located within the territorial sea of another island or mainland coastline, they do not generate any maritime entitlements. UN Convention on the Law of the Sea, “Part 8: Regime of Islands”; UN Convention on the Law of the Sea, “Part 2: Territorial Sea and Contiguous Zone”; and UN Convention on the Law of the Sea, “Part 5: Exclusive Economic Zone.”

‡ An ADIZ is a publicly declared area, established in international airspace adjacent to a state’s national airspace, in which the state requires that civil aircraft provide aircraft identifiers and location. Its purpose is to allow a state the time and space to identify the nature of approaching aircraft before those aircraft enter national airspace in order to prepare defensive

The ultimate impact of the ruling on China's behavior and the status of the disputes is not yet clear. Because the ruling has no inherent enforcement mechanism, the onus is on the international community to support and initiate means of enforcing the ruling. Among the potential actions for enforcing the tribunal's ruling are freedom of navigation operations, such as those undertaken by the U.S. Navy, and actions in other international legal institutions. For example, Mark Rosen, senior vice president at CNA, a nonprofit research and analysis organization, writes that "the Philippines could petition the International Court of Justice for an order enforcing the tribunal's decision since China cannot veto such a petition and the order would be legally binding upon China."<sup>9</sup>

The ruling aside, China's efforts to advance its position in the South China Sea continued unabated in 2016.

**Figure 1: Map of the South China Sea**



Source: Chun Han Wong, "U.S., China Trade Familiar Accusations over South China Sea," *Wall Street Journal*, February 18, 2016.

measures if necessary. In November 2013, China established an ADIZ in the East China Sea that encompasses the Senkaku Islands, which Japan administers but over which both countries claim sovereignty. An ADIZ does not have any legal bearing on sovereignty claims. Kimberly Hsu, "Air Defense Identification Zone Intended to Provide China Greater Flexibility to Enforce East China Sea Claims," *U.S.-China Economic and Security Review Commission*, January 14, 2014.

*Continued Infrastructure Development on Artificial Islands*

After finishing major land reclamation work on seven coral reef atolls in October 2015, China continues to build infrastructure on its 3,200 acres of artificial islands.<sup>10</sup> This construction in the Spratly Islands will help China advance its position in the southern portion of the South China Sea by bolstering its ability to enhance and sustain its maritime law enforcement and military presence. The infrastructure will also serve to improve China's ability to detect and track foreign maritime forces and fishing boats.\*<sup>11</sup> China has completed runways on three outposts.<sup>12</sup> In January 2016, three Chinese commercial aircraft landed on Fiery Cross Reef—the first aircraft landing on a Chinese runway in the Spratly Islands—and in April a People's Liberation Army (PLA) aircraft landed there.<sup>13</sup> The latter was the first publicized landing by military aircraft on one of these land features.<sup>14</sup> Within one day of the tribunal's ruling in July, several commercial aircraft requisitioned by the Chinese government had landed on Mischief and Subi reefs.<sup>15</sup> China is also building reinforced aircraft hangars on Fiery Cross, Mischief, and Subi reefs. Each outpost will have enough hangars for 24 fighters and three to four larger military aircraft,<sup>16</sup> such as small transport aircraft (see Figure 2).

**Figure 2: Hangars under Construction on China's South China Sea Outposts at Fiery Cross Reef (Left) and Subi Reef (Middle, Right) in the Spratly Islands**



Source: Center for Strategic and International Studies, Asia Maritime Transparency Initiative, "Build It and They Will Come," August 9, 2016.

China also continues to build infrastructure to enable large ships to access these outposts and has built surveillance systems, including military radars.<sup>17</sup> There appears to be a high-frequency radar installation on one outpost,<sup>18</sup> which would provide for a large surveillance coverage area.<sup>19</sup>

To counter China's land reclamation and infrastructure construction in the Spratly Islands, Vietnam has deployed rocket launchers to five land features it occupies in the Spratly Islands, according to unnamed Western officials interviewed by Reuters. The officials said the launchers were unarmed but could be made operational in two or three days. Vietnam's Ministry of Foreign Affairs said this information was "inaccurate," however.<sup>20</sup>

\*The infrastructure China is building in the Spratly Islands would help it enforce an ADIZ over part of the South China Sea should it decide to declare one there. However, China will have to overcome challenges such as the impact of the harsh maritime environment on the maintenance of aircraft and an underdeveloped joint command structure in the South China Sea. For more information, see Michael Pilger, "ADIZ Update: Enforcement in the East China Sea, Prospects for the South China Sea, and Implications for the United States," *U.S.-China Economic and Security Review Commission*, March 2, 2016, 7–10.

### **Environmental Impact of China's Island Building in the South China Sea**

Between 2013 and 2015, Chinese dredgers deposited sand and gravel on top of about five square miles of coral reefs in the South China Sea.\*<sup>21</sup> In addition, according to John W. McManus, professor of marine biology and fisheries at the University of Miami, China's dredging of sand and gravel for the island building and dredging of channels and harbors at the artificial islands resulted in damage to at least 40.68 square kilometers (km) (15.7 square miles [mi]) of reefs in the Spratly Islands.<sup>22</sup> Furthermore, Kent Carpenter, professor of biological sciences at Old Dominion University, whom the tribunal consulted as part of the proceedings in the Philippines' arbitration case, said island building, such as that conducted by China, "removes vital components of available reef habitat that have functioned as a single ecosystem for many generations of reef inhabitants. This causes dramatic reductions in populations and local extinction of prominent fishes and invertebrates."†<sup>23</sup>

China's island building will almost certainly contribute to increased Chinese fishing in the surrounding waters. The Chinese government claims these islands will provide Chinese and foreign fishing boats with shelter during storms as well as repair and replenishment services.<sup>24</sup> In addition, however, they could exacerbate the already severe problem of fisheries depletion in the South China Sea and will raise the risk of a clash between Chinese fishing boats and those of other claimant countries. Chinese fishing boats regularly ram or otherwise harass other ships in the South China Sea,<sup>25</sup> and China's practice of using coast guard ships to protect its fishing boats could further raise the risk of a clash, particularly as the port facilities at China's outposts will enhance the coast guard's ability to operate in the area.

Of further concern is that China's maritime militia, a quasi-military force of fishermen that are tasked by and report to the PLA, has a key role in China's South China Sea strategy. They are trained to participate in a variety of missions, including search and rescue, reconnaissance, deception operations, law enforcement, and "rights protection," which often entails activities like harassing foreign vessels in China's claimed waters.<sup>26</sup>

These developments are occurring in the context of a looming fisheries crisis in the South China Sea. In an interview with *National Geographic*, Dr. McManus said that due to overfishing,

\* Although these reefs may already have been damaged by the widespread harvesting of giant clams in the South China Sea by Chinese fishermen in recent years, coral could have grown there again if they were left undisturbed. However, as long as the reefs are buried, coral will never grow there. Hannah Beech, "The Environment Is the Silent Casualty of Beijing's Ambitions in the South China Sea," *Time*, June 1, 2016; Victor R. Lee, "Satellite Imagery Shows Eocide in the South China Sea," *Diplomat* (Japan), January 16, 2016.

† For more information on the environmental impact of China's island building in the Spratly Islands, see Matthew Southerland, "China's Island Building in the South China Sea: Damage to the Marine Environment, Implications, and International Law," *U.S.-China Economic and Security Review Commission*, April 12, 2016.

**Environmental Impact of China's Island Building  
in the South China Sea—Continued**

“What we’re looking at is potentially one of the world’s worst fisheries collapses ever.” He explained, “We’re talking hundreds and hundreds of species that will collapse, and they’ll collapse relatively quickly, one after another.”<sup>27</sup>

*Deployment of Advanced Military Equipment to South China Sea Islands*

Since late 2015, China has conducted several rotational deployments of advanced military equipment to Woody Island in the Paracel Islands,\* likely signaling to the United States, rival claimants, and Chinese citizens its resolve to protect its sovereignty claims.<sup>28</sup> In October 2015, Chinese J–11 fighter aircraft appeared to deploy there,† seemingly in conjunction with training in the South China Sea<sup>29</sup> (China deployed them again in February and April 2016).‡<sup>30</sup> Then, in February 2016, China deployed two HQ–9 surface-to-air missile batteries.<sup>31</sup> Although it was not the first time the platform had been deployed to Woody Island, it was the first deployment not associated with a military exercise.<sup>32</sup> China removed the missiles in July.<sup>33</sup> It is unclear if and when they will be redeployed there.

*Military Presence in the South China Sea*

The PLA continues to train for contingencies in the South China Sea. In July, the PLA Navy conducted a large-scale military exercise in the South China Sea near Hainan Province and the Paracel Islands.<sup>34</sup> Forces from all three PLA Navy fleets took part in the exercise, which involved surface ships, submarines, navy aviation aircraft, and coastal defense forces and training in anti-air, anti-surface, and anti-submarine warfare.<sup>35</sup> The seven-day exercise concluded the day before the arbitral tribunal announced its ruling.<sup>36</sup> Prior to the exercise, the Chinese government announced that an area of 100,000 square km (38,610 square mi) where the exercise would be held—which included waters claimed by Viet-

\* China took control of the Paracel Islands after a short naval battle with Vietnam in 1974. The Paracel Islands, which are also claimed by Taiwan and Vietnam, are located in the northern part of the South China Sea. Toshi Yoshihara, “The 1974 Paracels Sea Battle: A Campaign Appraisal,” *U.S. Naval War College Review* 69:2 (Spring 2016): 41.

† Two aircraft are seen in photographs posted on China Military Online, a website sponsored by the *People’s Liberation Army Daily*. Although the captions in the photos do not state where the aircraft were located, military experts believe the location to be Woody Island. China Military Online, “Naval Aviation J–11 Fighters Conduct Flight Training,” October 31, 2015; Jun Mai, “Chinese Jets Training with Missiles Fly by Disputed South China Sea Waters near Vietnam in New Response to US Warships,” *South China Morning Post* (Hong Kong), November 2, 2015; and Wendell Minnick, “China Expands Presence with Fighters on Woody Island,” *Defense News*, November 8, 2015.

‡ An unnamed U.S. official told Fox News that under ten military aircraft were observed on Woody Island in February. Commercial satellite imagery showed two J–11 fighter aircraft on Woody Island in April. Lucas Tomlinson, “Exclusive: China Sends Fighter Jets to Contested Island in South China Sea,” Fox News, February 23, 2016; Lucas Tomlinson and Yonat Friling, “Chinese Fighter Jets Seen on Contested South China Sea Island, Evidence of Beijing’s Latest Bold Move,” Fox News, April 12, 2016.

nam—would be off limits.\* Starting on July 19, PLA Naval Aviation fighter aircraft conducted a live fire exercise in the South China Sea.<sup>37</sup> It is unclear whether the exercise had been planned prior to the tribunal’s announcement.

On July 18, a PLA Air Force spokesperson said the PLA Air Force had recently carried out a combat air patrol near Scarborough Reef and other South China Sea reefs and islands. Among the aircraft that participated in the patrol were H-6K bombers, fighters, and tankers. The spokesperson said the PLA Air Force “will continue to conduct combat patrols on a regular basis in the South China Sea.”<sup>38</sup> On August 6, the spokesperson said H-6K bombers, Su-30 fighters, and other aircraft conducted another patrol above the Spratly Islands and Scarborough Reef as part of combat training.<sup>39</sup>

### *Dispute Diplomacy*

During the three and a half years between the initiation of the Philippines’ arbitration case and the tribunal’s ruling, China expended resources and energy to discredit the Philippines’ case and the legitimacy of the proceedings, arguing that it would “neither accept nor participate in the arbitration.”<sup>40</sup> In the months leading up to the ruling in particular, Beijing began a campaign of diplomatic warfare<sup>41</sup> to solicit support from other countries, and suggested in June that nearly 60 countries had pledged support to China’s position,<sup>42</sup> although in reality only 31 foreign governments made public statements to that effect before the ruling.<sup>†</sup><sup>43</sup> The Chinese government and government-affiliated entities also placed advertisements and editorials in overseas media outlets, including the United States’ *Washington Post*<sup>44</sup> and *San Francisco Chronicle*,<sup>45</sup> the UK’s *Telegraph*,<sup>46</sup> and Australia’s *The Age*,<sup>47</sup> supporting Beijing’s stance on the arbitration. In addition, following the tribunal’s ruling, a three-minute video supporting China’s position played on a large screen 120 times per day above New York City’s Times Square for 12 days in July and August.<sup>‡</sup><sup>48</sup> Through diplomatic pressure and economic leverage China has also succeeded in preventing other South China Sea claimants from rallying in opposition to China’s activities or in support of the legal arbitration process. Members of the Association of Southeast Asian Nations (ASEAN) §—five of whom have claims in the South China Sea—

\*State practice under international law has been that countries issue these kinds of notices prior to military exercises for safety reasons, but they cannot prohibit ships and aircraft from entering the area. Steve Mollman, “China Illegally Cordoned off a Huge Part of the South China Sea for Military Drills—And Will Likely Do So Again,” *Quartz*, July 11, 2016.

† These were Afghanistan, Algeria, Bahrain, Comoros, Djibouti, Egypt, The Gambia, Iraq, Jordan, Kenya, Kuwait, Lebanon, Lesotho, Liberia, Libya, Mauritania, Morocco, Niger, Oman, Palestine, Papua New Guinea, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Togo, Tunisia, United Arab Emirates, Vanuatu, and Yemen. The joint statement between China and the 21 countries of the Arab League at the China-Arab States Cooperation Forum in June 2016, which included a section on the resolution of territorial and maritime disputes, is counted as a statement of support from each of these countries. Center for Strategic and International Studies, Asia Maritime Transparency Initiative, *Arbitration Support Tracker*, June 15, 2016.

‡ In 2015, the privately-funded Hainan Nanhai Research Foundation, which is affiliated with China’s National Institute for South China Sea Studies, founded a think tank called the Institute for China-America Studies. The institute is located in Washington, DC. Institute for China-America Studies; Jeremy Page, “New Chinese Institute to Tackle Thorny Island Dispute,” *Wall Street Journal*, May 1, 2015.

§ ASEAN members are Brunei, Burma (Myanmar), Cambodia, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand, and Vietnam.

have failed to endorse a joint plan of action. The joint statement issued by the body after its first meeting following the tribunal's ruling did not include language regarding the ruling.<sup>49</sup>

The Philippines' election of Rodrigo Duterte, whose presidential campaign featured contradictory approaches to resolving the Philippines' dispute with China,\* raises questions about the direction of China-Philippines relations going forward. While the bilateral relationship was strained under former president Benigno Aquino Jr., who took a firm stand on the Philippines' South China Sea claims, Mr. Duterte suggested on the campaign trail and while in office that his government might be more amenable to negotiating bilaterally with Beijing. Appearing to have sensed an opportunity to influence the new administration, Beijing pursued a two-pronged approach: strongly condemning the Philippines' case at The Hague while conducting friendly outreach to the new administration.<sup>50</sup> It is not yet clear whether this approach will bear fruit for Beijing's South China Sea strategy. President Duterte enthusiastically welcomed the tribunal ruling, and the Philippines' foreign secretary rejected his Chinese counterpart's offer to enter bilateral negotiations over the dispute "outside of and in disregard of the arbitral ruling." However, in August, former Philippines president Fidel Ramos traveled to Hong Kong at the request of President Duterte for unofficial meetings with Chinese interlocutors and President Duterte said bilateral talks on the dispute between Manila and Beijing would begin "within the year."<sup>51</sup>

Following U.S. criticisms of extrajudicial killings associated with President Duterte's ongoing counternarcotics campaign, President Duterte in September seemed to signal a turn away from the Philippines' previously robust defense relations with the United States. In October, the Philippines minister of Defense announced the suspension of joint patrols with the United States in the South China Sea, and indicated he may request the withdrawal of U.S. military advisers stationed in the country once the Philippines military is able to carry out counterterrorism operations on its own—perhaps years away.<sup>52</sup> Around the same time, President Duterte said his administration should explore procuring arms from China and Russia, suggesting a departure from the country's longstanding reliance on U.S. arms exports (underscored by his statement that, "We don't need F-16 jets, that is of no use to us").<sup>53</sup> In these and other remarks, he emphasized his personal dislike of the United States, culminating in his declaration of a "separation from the United States" during a state visit to Beijing in October, although he later clarified this did not mean a severance of ties.<sup>54</sup> As this Report went to print, the U.S. Department of Defense (DOD) had not received any formal request for the withdrawal of U.S. forces or other specific changes in the U.S.-Philippines military relationship.<sup>55</sup> Should President Duterte's anti-American rhetoric translate to real policy shifts, it could have significant consequences for the ongoing South China Sea disputes and regional security.

\*During his presidential campaign, Mr. Duterte made several inflammatory and contradictory remarks about how his administration would handle the South China Sea dispute with China: he alternately asserted he would personally ride a jet ski out to defend the Philippines' claimed islands and strike a deal with China to resolve the dispute. *Economist*, "Change of Command in the Philippines: Talk Duterte to Me," July 9, 2016.

### ***China's Maritime Disputes in the East China Sea***

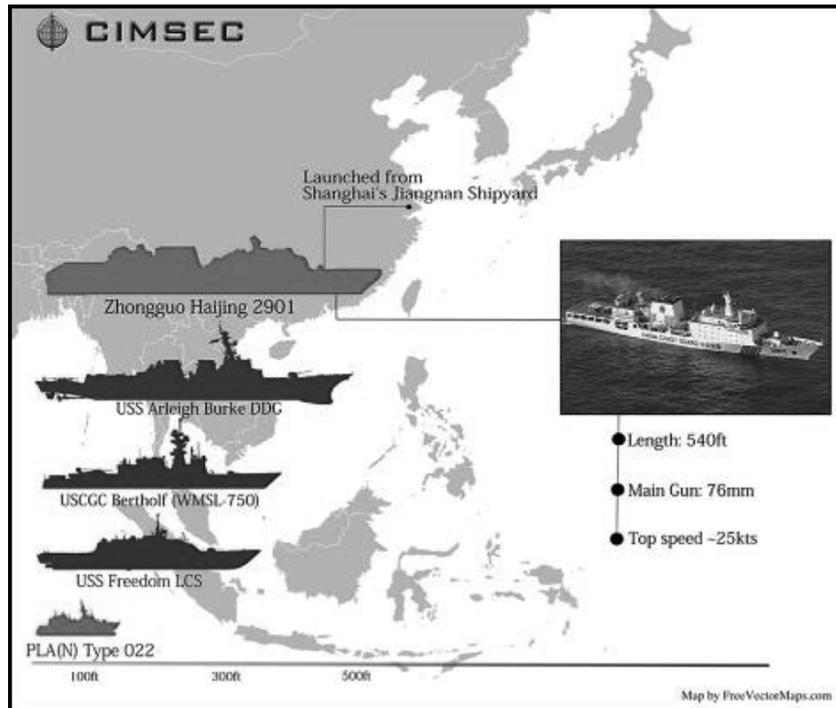
The dispute between China and Japan over the Senkaku Islands (called the Diaoyu Islands by China) entered a period of increased risk of escalation in 2016 as PLA Navy ships sailed within 24 nm of the islands for the first time in June. On June 9, a PLA Navy frigate entered the Japanese-administered contiguous zone—a 12-nm area adjacent to the territorial sea\*—around the Senkakus; a few days later, a PLA Navy intelligence-gathering ship entered the territorial sea.<sup>56</sup> Previously, only China Coast Guard and other Chinese maritime law enforcement ships had patrolled within the contiguous zone. These developments followed an announcement by Japan's chief cabinet secretary in January that the Japanese government was prepared to deploy the Japan Maritime Self-Defense Force to conduct “a maritime policing operation” in response to a foreign warship that conducts activities not allowed under the principle of “innocent passage” in Japan's territorial waters.<sup>57</sup> The Japanese government announced that on August 6, about 230 Chinese fishing boats had sailed to the waters near the Senkaku Islands and that 6 China Coast Guard ships had entered the Senkaku Islands' contiguous zone.<sup>58</sup>

Meanwhile, the average tonnage of China Coast Guard ships that patrol around the Senkakus increased by about 45 percent between 2014 and 2015.<sup>59</sup> China is also likely to deploy to the Senkakus its new China Coast Guard ship *Haijing 2901*, which is larger than the U.S. Navy's Arleigh Burke-class destroyer (see Figure 3).<sup>60</sup> *Haijing 2901* is armed with 76 millimeter guns.<sup>61</sup> In contrast, the Japan Coast Guard unit dedicated to patrolling the Senkakus has ten new ships that are of much smaller tonnage.<sup>62</sup> According to the Center for Strategic and International Studies' Asia Maritime Transparency Initiative, “Tokyo understands that the increasing size and capabilities of [China Coast Guard] vessels around the Senkakus present a unique challenge—sooner or later [Japan Coast Guard] counterparts could face a situation in which they cannot maintain their decades-long administrative control over the waters around the islets, at least without assistance from the Japan Maritime Self-Defense Force.”<sup>63</sup> If Japan responds to Chinese patrols with military ships, tensions would increase, as would the risk of miscalculation or an accidental collision, which could spark a crisis.

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\*In its territorial sea, a state has full sovereignty, subject to the right of innocent passage. In its contiguous zone, a state can enforce customs-related laws. Under UNCLOS, foreign civilian and military ships may transit through a country's territorial sea according to the principle of innocent passage, which prohibits activities that are “prejudicial to the peace, good order or security of the coastal State,” such as military exercises or intelligence gathering. UN Convention on the Law of the Sea, “Part 2: Territorial Sea and Contiguous Zone.”

**Figure 3: Comparison of the China Coast Guard *Haijing 2901* with U.S. Navy and PLA Navy Ships**



Source: Ryan Martinson, "East Asian Security in the Age of the Chinese Mega-Cutter," *Center for International Maritime Security*, July 3, 2015.

In addition, scrambles\* by Japanese fighter aircraft in response to Chinese aircraft continue to increase, suggesting an uptick in Chinese air activity around the islands and raising the risk of an accidental collision.<sup>64</sup> In its 2015 fiscal year (which ended on March 31, 2016), Japan scrambled fighters 571 times against Chinese aircraft after 464 such scrambles in fiscal year 2014.<sup>65</sup> The number of scrambles against Chinese aircraft in the first three months of 2016 more than doubled in comparison to the same period in 2015.<sup>66</sup> Scrambles against Chinese aircraft increased again during the next three months, jumping from 114 during that same period in 2015 to around 200.<sup>67</sup> The head of public affairs at the Japanese Self-Defense Force's Joint Staff said in April 2016, "China is modernizing its air force and is clearly aiming to improve its air combat capability in faraway skies ... Concrete activities based on those targets are reflected in these numbers."<sup>68</sup> Regarding a scramble by Japanese fighter aircraft over the East China Sea on June 17, China's Ministry of Defense asserted that the aircraft took "provocative" actions against Chinese fighter aircraft, an assertion the Japanese government denied.<sup>69</sup>

\* In military aviation, scrambling refers to directing the immediate takeoff of aircraft from a ground alert condition of readiness to react to a potential air threat.

### ***Reform and Reorganization of the PLA***

In January 2016, China began executing the most sweeping reform and reorganization of the PLA\* since the 1950s.<sup>70</sup> The intent of this reform is to strengthen the CCP's control over the military and improve the PLA's capability to fight regional conflicts at greater distances from China through integrated joint operations.<sup>†</sup><sup>71</sup> The reforms, announced in December 2015 by President Xi, called for restructuring China's leading military authority, the Central Military Commission, expanding the service headquarters system, transitioning the PLA from a military region to a theater joint command structure, and eventually reducing the PLA by 300,000 troops to a force size of two million personnel.<sup>72</sup> China has indicated these reforms will be completed by 2020.<sup>73</sup>

#### *Reform Objectives*

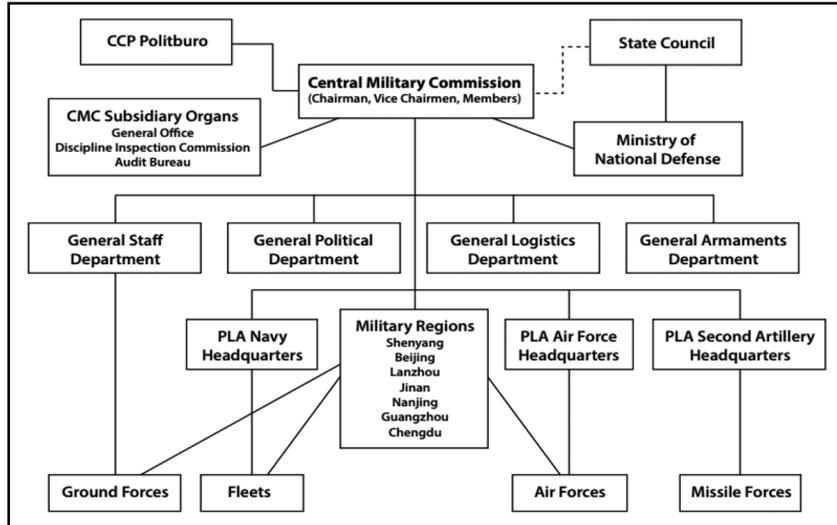
The Third Plenary Session of the CCP's 18th Central Committee, held in November 2013, established a series of objectives for PLA reforms to include restructuring the command institutions for joint operations, which led to the reorganization of the Central Military Commission's four general departments and establishment of theater joint commands.<sup>74</sup> A 2014 article published online in a weekly Chinese state-run newsmagazine noted that the "core objective" of reorganization was adapting the PLA to the "operational needs of modern warfare, to build . . . systems and mechanisms . . . conducive to joint operations, to advance fusion and integration of operational elements, and to achieve joint operations."<sup>75</sup> The reforms establish two lines of authority under the Central Military Commission: the first line creates a flatter command and control relationship with theater commands, and the second line establishes a true services structure‡ focused on the "train, man, and equip" mission for maintaining and improving the PLA.<sup>76</sup> Phillip C. Saunders, director of the Center for the Study of Chinese Military Affairs at the U.S. National Defense University, and Joel Wuthnow, research fellow at the Center for the Study of Chinese Military Affairs, note military reforms are intended to "tighten central political control over a force that was seen as increasingly corrupt and to build the PLA into a credible joint warfighting entity."<sup>77</sup>

\*As noted elsewhere in this Report, China's definition of "reform" often differs from that of the United States and other countries. China's military reforms, which are intended to improve the PLA's ability to achieve a true joint warfighting capability and address corruption, will not necessarily unfold along the same lines of past U.S. military reforms. This latest reform is the PLA's 11th since 1949. The largest previous structural reorganization occurred in 1985 when the PLA's 13 military regions were restructured and reduced to 7 (Shenyang, Beijing, Lanzhou, Jinan, Nanjing, Guangzhou, and Chengdu). For additional information concerning PLA troop reductions and reorganizations since 1949, see Kevin McCauley, "PLA Transformation: Difficult Military Reforms Begin," *Jamestown Foundation*, September 18, 2015.

†Integrated joint operations incorporate all service elements in a common network under a unified commander over the entire battlespace, rather than having each service conducting sequential operations within a campaign. Roy Kamphausen, David Lai, and Andrew Scobell, eds., *The PLA at Home and Abroad: Assessing the Operational Capabilities of China's Military*, Strategic Studies Institute, 2010, 208–209; U.S. Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2009*, April 2009, 15; and Major General Zhan Yu, "A Study of Theory of Integrated Joint Operations," *China Military Sciences* 20:6, 2007.

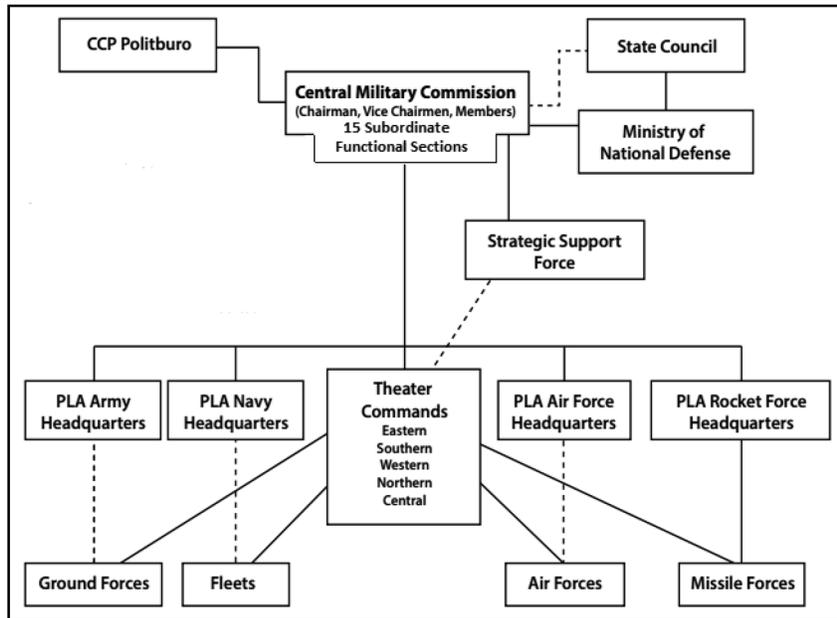
‡The PLA Army, unlike the navy and the air force, did not have a separate national-level command headquarters in Beijing as the general departments acted as the national-level army headquarters prior to the reorganization of the Central Military Commission. Dennis J. Blasko, *The Chinese Army Today: Tradition and Transformation for the 21st Century*, Routledge, 2006. 31.

**Figure 4A: PLA Organizational Structure before Reforms**



Source: Adapted from Phillip C. Saunders and Joel Wuthnow, "China's Goldwater-Nichols? Assessing PLA Organizational Reforms," *Institute for National Strategic Studies*, April 2016, 2-3.

**Figure 4B: PLA Organizational Structure after Reforms**



Source: Adapted from Phillip C. Saunders and Joel Wuthnow, "China's Goldwater-Nichols? Assessing PLA Organizational Reforms," *Institute for National Strategic Studies*, April 2016, 2-3.

### *National-Level Military Reform and Reorganization*

In an effort to improve command and control as well as tighten political control over the PLA, the four general departments of the Central Military Commission (the general staff, political, logistics, and armaments departments) were reorganized into 15 subordinate functional sections in January 2016 (see Figures 4A and 4B).<sup>\* 78</sup> One of the more important developments resulting from the abolishment of the general departments was the subsequent establishment of the Joint Staff Department, which will serve as a direct command and control link between the Central Military Commission and operational forces in the five new joint theater commands.<sup>79</sup> With this reorganization, the oversight functions that had previously resided in the General Staff Department, such as military training and education, were transferred to other new departments or offices, leaving the Joint Staff Department to focus on providing operational guidance to the PLA. However, it is too early to tell if this change will improve the Central Military Commission's command and control of PLA joint operations conducted at the theater level.<sup>† 80</sup>

In addition to improving national-level command and control, military reforms also provide President Xi an opportunity to tighten CCP control over the PLA. Dr. Saunders and Dr. Wuthnow state that some "senior PLA officers at the [Central Military Commission], the general departments, and the military regions had too much power and were not always responsive to orders from the center."<sup>81</sup> To address this problem, President Xi may have used reforms to restructure the departments across a system of many subordinate functional sections to diffuse its responsibilities and minimize the potential for concentrated power bases within the PLA.<sup>82</sup>

### *Theater-Level Military Reform and Reorganization*

A central feature of the reforms is the creation of a theater structure with combat responsibilities along China's periphery and within the geographic boundaries of the theater to replace the military region structure, improve joint operations, and meet security challenges in western China and along China's periphery.<sup>83</sup> The missions and structure associated with the five Joint Theater Commands also align with the PLA's previous war zone structure.<sup>84</sup> Wang Xiaohui, a scholar from China's National Defense University,

<sup>\*</sup>The 15 functional sections replacing the general departments include the Joint Staff Department, Political Work Department, Logistic Support Department, Equipment Development Department, Training Management Department, National Defense Mobilization Department, Discipline Inspection Commission, Political and Law Commission, Science and Technology Commission, Strategic Planning Office, Reform and Formation Office, International Military Cooperation Office, Audit Office, and the General Affairs Administration. Kenneth Allen, Dennis J. Blasko, and John F. Corbett, "The PLA's New Organizational Structure: What Is Known, Unknown and Speculation (Part 1)," *Jamestown Foundation*, February 4, 2016, 6.

<sup>†</sup>The Joint Staff Department, in addition to having operational control over PLA troops in the new theaters, has a command and control function over troops conducting overseas operations through the department's Combat Operations Bureau and the Overseas Operations Office. U.S.-China Economic and Security Review Commission, *Hearing on Developments in China's Military Force Projection and Expeditionary Capabilities*, written testimony of David M. Finkelstein, January 21, 2016; Phillip C. Saunders and Joel Wuthnow, "China's Goldwater-Nichols? Assessing PLA Organizational Reforms," *Institute for National Strategic Studies*, April 20, 2016, 4; China Military Online, "MND Holds Press Conference on CMC Organ Reshuffle," January 12, 2016; *Global Times* (China), "CMC Reveals Combat Ops, Info Bureaus," April 12, 2016; Andrew Tate, "China Establishes Overseas Operations Office," *IHS Jane's*, March 29, 2016; and *Global Times* (China), "CMC Reveals Combat Ops, Info Bureaus," April 12, 2016.

suggests that establishing theaters and a theater-level joint command system allows Beijing to organize forces for conducting “joint training according to the theater’s strategic direction” and to “exercise operation[al] command in wartime ... of all combat forces within the theater to carry out integrated joint operations.”<sup>85</sup> This new structure enables PLA forces to more quickly and efficiently meet the requirements of specific anticipated regional war scenarios than the previous structure, which required a transition from an administrative to an operational structure to respond to a crisis. The operational focus and structure of the theaters is likely as follows:

- **Eastern Theater:** The Eastern Theater Command’s security challenges include preventing Taiwan independence, compelling Taiwan unification, countering any foreign intervention during a Taiwan conflict, and defending maritime sovereignty claims in the East China Sea.<sup>86</sup>
- **Southern Theater:** The Southern Theater Command’s security challenges include defending maritime sovereignty claims and China’s sea lines of control in the South China Sea, as well as defense along the border with Vietnam.<sup>87</sup>
- **Western Theater:** The Western Theater Command is focused on missions associated with combating domestic extremism and terrorism in Xinjiang Uyghur Autonomous Region and Tibet Autonomous Region, as well as addressing an Indian border dispute contingency.<sup>88</sup> The theater will likewise guard against infiltration by Central Asian extremist and terrorist groups.<sup>89</sup>
- **Northern Theater:** The primary security concern for the Northern Theater Command is stabilizing the Korean Peninsula and conducting border stability operations associated with a North Korea contingency.<sup>90</sup> The theater may share responsibility for contingencies involving Japan with the Eastern Theater, and likely is responsible for northern border contingencies involving Mongolia and Russia.<sup>91</sup>
- **Central Theater:** The primary security concern for the Central Theater Command is conducting capital defense operations during any contingency involving another theater’s area of responsibility.<sup>92</sup> This theater likely also has responsibilities for responding to domestic emergencies.

#### *Service-Level Military Reform and Reorganization*

China transformed the PLA service structure by designating the ground forces as the PLA Army and establishing a headquarters for the service, and by elevating the Second Artillery Force, responsible for China’s nuclear and conventional missiles, to a service called the Rocket Force.<sup>93</sup> Along with the PLA Navy and Air Force, this brings the total number of services to four, all of which will focus on the “train, man, and equip” mission. The new Strategic Support Force will focus on cyber, information, and electromagnetic warfare, and possibly some areas of space operations. Creating a more equitable service structure puts all four services on equal footing from an organizational standpoint.

- ***PLA Army Headquarters:*** China established a separate PLA Army service headquarters for the ground forces at the end of 2015.<sup>94</sup> Prior to establishing an army headquarters, leadership for the ground force was integrated into the PLA's four general departments.<sup>95</sup> Now, the army for the first time is aligned with the other services and will have the same responsibilities for managing and equipping the force—tasks for which the four general departments were previously responsible.<sup>96</sup>
- ***PLA Rocket Force:*** China's elevation of the PLA Rocket Force at the end of 2015 from an independent branch to a full service puts the Rocket Force on equal footing with the PLA Navy, Air Force, and Army concerning force modernization.<sup>97</sup> The Rocket Force has retained the responsibility for land-based nuclear missiles and conventional missiles and is charged with enhancing China's nuclear deterrence and counternuclear strike capability, strengthening medium- and long-range precision strike, and building a powerful modernized rocket force.<sup>98</sup>
- ***PLA Strategic Support Force:*** China created a new force under the Central Military Commission called the Strategic Support Force to oversee space and cyber capabilities.<sup>99</sup> While much remains unknown about the full range of missions the Strategic Support Force will conduct, the departments that resided under the General Staff Department prior to reform that appear to have been transferred to this force include elements from the First Department (operations), Second Department (intelligence), Third Department (technical reconnaissance), and Fourth Department (radars and electronic countermeasures).<sup>100</sup> This composition at a minimum would suggest the Strategic Support Force is charged with cyber, space, reconnaissance, and electronic warfare missions supporting joint integrated operations. Furthermore, the Strategic Support Force may play a role in the conduct of both information and legal warfare, though it is too early to determine whether and how these warfare areas will be addressed by the force.<sup>101</sup>

### ***China's 2016 Defense and Security Budget***

In March 2016, China announced a 2016 military budget of \$146.67 billion (renminbi 954.35 billion), an increase of 7.6 percent over its announced budget for 2015, but the lowest rate of growth in six years.<sup>102</sup> This figure represents 11 percent of China's total central government outlays budgeted for 2016\* and approximately 1.3 percent of projected gross domestic product (GDP).<sup>103</sup> Observers offer varying estimates of China's defense budget, having long noted the impossibility of accepting China's official figures at face value for numerous reasons (including Beijing's provision of only top-line numbers and its omission of major defense-related expendi-

\*China's central government general public budget includes "central government expenditures, tax rebates for local governments, general transfer payments to local governments, special transfer payments to local governments, and payments to central government reserve funds." If only the central government expenditures category is counted, China's 2016 defense budget represents 35 percent of projected central government spending. National People's Congress of the People's Republic of China, *Full Text: Report on China's Central, Local Budgets (2016)*, March 23, 2016.

tures such as research and development programs, foreign arms purchases, and local government support to the PLA).<sup>104</sup> U.S. Department of Defense estimates have added roughly 25 percent to China's reported budget in each of the past four years,<sup>105</sup> projecting that it "exceeded \$180 billion" in 2015<sup>106</sup> as opposed to the \$141.9 billion figure China reported,\* for example. The Stockholm International Peace Research Institute (SIPRI) typically estimates China's military budget to be around 50 percent higher than reported, projecting \$215 billion for 2015 (2016 estimates from these sources are not yet available).<sup>107</sup> The International Institute for Strategic Studies, another source of independent estimates, added around 40 percent to Beijing's reported budget from 2008 to 2014.<sup>108</sup> For comparison, the United States appropriated \$572.7 billion for DOD in 2016.<sup>109</sup> This number would represent a decline in U.S. military expenditures in both real and nominal terms for the fifth straight year, according to SIPRI data (SIPRI has not yet reported on U.S. military spending for 2016).<sup>110</sup>

Chinese officials have sought to highlight this slower rate of increase in military spending, beginning with the March 2016 budget announcement's observation that "China's military budget will continue rising, but more slowly compared to the previous few years,"<sup>111</sup> terming this "in line with China's national defense need and fiscal revenue."<sup>112</sup> President Xi stated that "it is not easy to secure a normal rise in the military budget anymore," tying this to "mounting pressure from the economic downturn."<sup>113</sup> China's economic performance has long been touted as the reference point for its decisions on military spending, although its reported nominal military budget increases have outpaced GDP growth for four years in a row prior to 2016.<sup>114</sup> With China projecting real GDP growth of 6.5 to 7 percent in 2016,<sup>115</sup> this marks the fifth straight year the numbers have not aligned, albeit with a narrower gap. Importantly, however, adjusting for inflation reveals that defense spending hikes have generally been in line with GDP growth:<sup>116</sup> The Department of Defense stated in 2016 that "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,"<sup>117</sup> close to its average real GDP growth rate of 9.7 percent during this time.<sup>118</sup> China's reported real defense budget growth rate will actually be lower than its real GDP growth rate in 2016, assuming a 2 percent inflation rate.<sup>119</sup> Whether this alignment with GDP growth is reflected in independent estimates, and whether it continues if China's gradual economic slowdown persists, will bear watching in future years.

Outside assessments of China's lower rate of defense spending growth in 2016 have generally agreed that China's economic slowdown is playing a role.<sup>120</sup> Several experts have specifically suggested that China's planners are cognizant of the dangers of Soviet-style military overextension in pursuing military modernization.<sup>121</sup> Other analysts have suggested the lower growth rate may be related to China's ongoing military reorganization.<sup>122</sup>

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\*Due to fluctuations in exchange rates this figure may vary by source; this Report utilizes the rate at the time of the 2015 budget's announcement. U.S.-China Economic and Security Review Commission, *2015 Annual Report to Congress*, November 2015, 238.

Several trends in addition to economic performance will likely factor into China's defense budget planning going forward. Craig Caffrey, principal analyst for defense budgets at IHS Jane's, assesses that China's military reforms "will reduce pressure on the defense budget in the longer term."<sup>123</sup> On the other hand, studies have observed that the cost of ships and weapons generally tends to increase faster than inflation (even in the absence of a large-scale, high-technology military modernization effort such as China's), eventually requiring continuous spending increases to avoid force reductions.<sup>124</sup> Andrew S. Erickson, professor of strategy at the Naval War College, noted in testimony to the Commission in 2014 that a buildup of aircraft carriers and other large vessels—which China now appears to be pursuing under a doctrinal shift toward "far seas" protection\*<sup>125</sup>—could be detrimental to its budget for this reason.<sup>126</sup> China's ability to rely on large numbers of low-paid recruits will also continue to diminish as labor costs rise;<sup>127</sup> the September 2015 decision to cut 300,000 troops<sup>128</sup> is notable for this reason. However, the longstanding assessment that China's defense spending increases appear sustainable in the near term, reiterated by DOD in 2016,<sup>129</sup> should be expected to hold.

### ***China's Military Hardware Development and Acquisitions Impacting Force Projection Capabilities***

Over the past several years, China significantly increased its number of available weapons and weapons systems for force projection in air, sea, and amphibious missions.<sup>130</sup> Moreover, in addition to producing large numbers of platforms, China also has focused on improving the capabilities of individual platforms. The Congressional Research Service reported that PLA Navy modernization in particular "has appeared focused less on increasing total platform (i.e., ship and aircraft) numbers than on increasing the modernity and capability of Chinese platforms."<sup>131</sup> China also tested new space launch vehicles and launched additional intelligence, surveillance, and reconnaissance (ISR) and navigation satellites in 2016, in an effort to further augment the capabilities of its military forces in areas such as intelligence-gathering and precision strike. Significant developments in China's defense acquisitions from late 2015 to 2016 include the following:

***J-20 stealth fighter production:*** China's first squadron † of J-20 multirole stealth jet fighters is expected to be delivered by the end of 2016 and could become operational as early as 2018.<sup>132</sup> In addition to eight prototype J-20s built to date, China has reportedly produced its first production-line J-20 and began test flights with the new aircraft in January 2016.<sup>133</sup> The J-20 is a fifth-generation fighter with modern stealth features and integrated electronic warfare capabilities that could degrade the ability of U.S. forces to detect and engage it.<sup>134</sup>

\* China typically defines its "near seas" as waters within the Yellow Sea, East China Sea, and South China Sea. China typically describes its "far seas" or "distant seas" as waters outside of its near seas.

† A squadron of J-20s would consist of two to four aircraft. Kevin Pollpeter and Kenneth W. Allen, eds., *The PLA as Organization v2.0*, Defense Group Inc., 2015, 14.

**Second aircraft carrier confirmed:** In December 2015, a Chinese Ministry of National Defense spokesperson confirmed for the first time that China's second aircraft carrier (Type 001A) is under construction.<sup>135</sup> He did not give a timeline for construction.<sup>136</sup> The new carrier will have a conventional power plant and a ski jump ramp rather than a powered catapult launch system.<sup>137</sup> The ski jump ramp will limit the carrier's capabilities by restricting the launch weight of its fighters.<sup>138</sup> Satellite imagery indicated that as of August 2016, construction of the new carrier was nearly complete.<sup>139</sup> China could build multiple additional aircraft carriers over the next 15 years.<sup>140</sup> According to DOD, "China's next generation of carriers will probably be capable of improved endurance and of launching more varied types of aircraft, including [electronic warfare], early warning, and [antisurface warfare], thus increasing the potential striking power of a [PLA Navy] 'carrier battle group' in safeguarding China's interests in areas beyond its immediate periphery."<sup>141</sup>

**Su-35 fighter purchase:** In November 2015, Russia and China signed a \$2 billion contract for Russia to deliver 24 Su-35 (FLANKER-E) multirole jet fighters to China.<sup>142</sup> The Su-35, with its advanced avionics and targeting and passive electronically scanned array radar systems, will improve China's air-to-air and strike capabilities.<sup>143</sup> Moreover, the aircraft's long range (reportedly approximately 2,200 mi with internal fuel and 2,800 mi with auxiliary fuel tanks) will enhance the PLA's ability to project force in the South China Sea and Western Pacific.<sup>144</sup> The Su-35 is capable of firing advanced antisurface and air-to-air missiles.<sup>145</sup> China most likely will attempt to reverse engineer components of the Su-35—particularly its advanced turbofan engine—to aid indigenous jet fighter production.<sup>146</sup> The Su-35 could enter service in 2018.<sup>147</sup>

**Type 072A tank landing ship production:** The PLA Navy commissioned three Type 072A tank landing ships\* (see Figure 5) from May 2015 to January 2016, bringing the PLA Navy's Type 072A fleet to 12 ships.<sup>148</sup> The Type 072A can carry 10 tanks, 4 landing craft (such as China's Zubr [POMORNIK] hovercraft), and 250 soldiers, and has a helicopter landing pad.<sup>149</sup> The resumption of production could suggest Beijing wants to increase its force projection capabilities for contingencies in the South and East China seas. It may also signal to Taiwan's new Democratic Progressive Party-led government that Beijing is willing to take Taiwan by force.<sup>150</sup>

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\*Tank landing ships are designed to carry vehicles and troops to shore during amphibious operations.

Figure 5: Type 072A Tank Landing Ship



Source: Shahryar Pasandideh, "China's Developing Naval Power Projection Capabilities," *NATO Association of Canada*, October 29, 2014.

**Type 054A frigate production:** China commissioned its 22nd Type 054A (JIANGKAI II) guided missile frigate in February 2016.<sup>151</sup> The Type 054A has been deployed for global missions, such as Gulf of Aden antipiracy patrols. However, according to *China Signpost*, a China-focused research consultancy, the ship's limited size, armaments, and electronics suite make it suited for a limited fleet defense role rather than for high-intensity missions.<sup>152</sup> The Type 054A reportedly is equipped with HHQ-16 surface-to-air missiles (range of 20 nm to 40 nm) and can fire YJ-83 antiship cruise missiles (range of 65 nm to 100 nm).<sup>153</sup>

**Type 052D destroyer production:** In December 2015, a second Type 052D (LUYANG III) destroyer entered service with the PLA Navy.<sup>154</sup> According to the U.S. Office of Naval Intelligence, the Type 052D's advanced air defense radar "allows the [PLA Navy] surface force to operate with increased confidence outside of shore-based air defense systems, as one or two ships are equipped to provide air defense for the entire task group."<sup>155</sup> According to the U.S. Office of Naval Intelligence, the Type 052D carries the YJ-18 antiship cruise missile (range of 290 nm) and an extended-range variant of the HHQ-9 surface-to-air missile (80 nm).<sup>156</sup> The PLA Navy reportedly plans to deploy ten Type 052Ds in total.<sup>157</sup>

**Y-20 production:** In July 2016, the PLA Air Force inducted China's first operational Y-20 heavy transport aircraft into service (see Figure 6).<sup>158</sup> The PLA likely will develop airborne early warning, maritime patrol, and tanker variants of the Y-20.<sup>159</sup> A tanker variant of the Y-20 would improve China's force projection capabilities by extending the range of its aircraft to reach farther into areas of

potential conflict, such as the South China Sea and Western Pacific.<sup>160</sup> The Y-20 reportedly has a maximum payload of roughly 55–65 tons.\*<sup>161</sup> By comparison, the U.S. C-17 Globemaster heavy transport aircraft has a maximum payload of approximately 76 tons.<sup>162</sup> A March 2016 article in the state-run *People's Daily* said the Y-20 would be delivered “in bulk” to the PLA by the end of 2016.<sup>163</sup>

**Figure 6: Y-20 Heavy Transport Aircraft**



*Source:* Jay Bennett, “China’s New Y-20 Is the Largest Military Aircraft Currently in Production,” *Popular Mechanics*, June 20, 2016.

**Space:** China conducted its first Long March-7 (LM-7) rocket launch in June 2016, utilizing the new Wenchang Satellite Launch Center in Hainan Province for the first time.† The LM-7 uses a less toxic and more efficient fuel than previous Chinese rockets and will reportedly serve as China’s main carrier for future space missions.<sup>164</sup> The LM-7 can carry 13.5 tons into low Earth orbit, a significant increase from the LM-2F at 8 tons and the more frequently-used LM-2C and LM-2D at 3.9 tons;<sup>165</sup> the forthcoming LM-5, expected to be launched later this year, will be able to carry 25 tons into low Earth orbit and 14 tons to geostationary transfer orbit‡ (as opposed to the LM-3E at 5.5 tons)<sup>166</sup> as China’s largest launch vehicle to date.<sup>167</sup> The LM-7 and LM-5 will thus be able to launch larger payloads, such as the three modules planned for China’s future 60-ton space station,<sup>168</sup> or greater numbers of sat-

\* When used in this section, “ton” refers to “metric ton.”

† The Wenchang Space Launch Center is China’s fourth such center and closer to the equator than the others, providing fuel savings and, by extension, payload savings for satellite launches to geosynchronous orbit, as satellites require less maneuvering to get into position once launched. Wang Cong and Fu Shuangqi, “Rocket Launch Gets China One Step Closer to Own Space Station,” *Space Daily*, June 28, 2016.

‡ It is common to compare launch vehicles’ capabilities based on the amount of mass they can lift to “geosynchronous transfer orbit,” an elliptical orbit at an altitude of around 23,000 mi at the furthest point from Earth into which a spacecraft is first launched in order to later reach geosynchronous and geostationary Earth orbits. The spacecraft does this by turning and firing its rocket engine to circularize its orbit. Geosynchronous Earth orbit can be achieved at about 22,000–23,000 mi above the equator; spacecraft in this orbit return to the same point in the sky at the same time each day. Geostationary Earth orbit is the highest orbital band within geosynchronous Earth orbit; at this altitude, satellites move at the same speed as the Earth’s rotation, enabling them to cover large geographic areas. National Aeronautics and Space Administration, *Basics of Space Flight: Planetary Orbits*, 2015.

ellites.\* They also represent steps along the path toward the LM-9 “heavy lift launch vehicle” that China plans to develop in the next 15 years.<sup>169</sup> China reportedly requires the ability to launch around 100 tons (likely less at higher orbits) to support manned lunar and deep space missions.<sup>170</sup> Furthering its manned space program, China launched its second space lab, the Tiangong-2, in September 2016,<sup>171</sup> and launched the Shenzhou-11 spacecraft to link with Tiangong-2 in October 2016, its first manned space mission since 2013.<sup>172</sup>

China launched numerous military-relevant satellites in 2016. Of its primary series that likely provide military ISR functions, Beijing launched a remote sensing satellite, the Gaofen-4,<sup>173</sup> into geosynchronous orbit† for the first time, as well as additional Yaogan and Shijian satellites.‡<sup>174</sup> China also launched its 23rd Beidou navigation satellite,<sup>175</sup> and announced plans in May 2016 to launch a total of 30 Beidou satellites during the 13th Five-Year Plan period (2016 to 2020) in pursuit of its objective to complete a global satellite navigation system by 2020.<sup>176</sup> A government white paper published in June 2016 also announced that China plans to make this service available to global users free of charge (as the United States does with the Global Positioning System [GPS]).<sup>177</sup> China launched the Aolong-1 spacecraft, equipped with a robotic arm, aboard the LM-7. While Chinese officials have described it as the first spacecraft in a series tasked with collecting man-made debris in space, one article quoted two unnamed Chinese experts noting it has potential as an antisatellite weapon.<sup>178</sup> Finally, state media reported that China launched the world’s first experimental quantum communications§ satellite in August 2016, which will test

\*For reference, the U.S. Federal Aviation Administration forecast an average mass of 4.9 tons for commercial satellites in 2016, while satellites in the “extra heavy” category have a mass of over 5.4 tons. Early U.S. reconnaissance satellites weighed as much as 15 tons, but modern military satellites are much smaller: China’s first Yaogan satellite weighed 2.7 tons according to media reports, the newest U.S. Global Positioning System satellites weigh 3.9 tons, and U.S. Space-Based Infrared System early warning satellites weigh 4.8 tons. China’s prototype space station, the Tiangong-1, has a mass of 8.5 tons. Federal Aviation Administration, *2015 Commercial Space Transportation Forecasts*, April 2015, 8; Kevin Pollpeter, *China Dream, Space Dream: China’s Progress in Space Technologies and Implications for the United States* (prepared for the U.S.-China Economic and Security Review Commission by the University of California Institute on Global Conflict and Cooperation), March 2, 2015, 47; Lockheed Martin Corporation, *GPS III Fact Sheet*, 2014; Rui C. Barbosa, “Long March 4C Launches Yaogan Weixing-19,” *NASASpaceflight.com*, November 20, 2013; United States Air Force, *Space Based Infrared Systems*, March 13, 2013; and Peter Pae, “Massive Spy Satellite Program to Cost Billions,” *Los Angeles Times*, March 18, 2001.

†Geosynchronous Earth orbit can be achieved at about 22,000–23,000 mi above the equator. The highest orbital band within geosynchronous Earth orbit in frequent use is known as “geostationary Earth orbit.” At this altitude, satellites move at the same speed as the Earth’s rotation, enabling them to cover large geographic areas.

‡The Yaogan series represents the core component of China’s maritime ISR architecture and includes electro-optical (EO), synthetic aperture radar (SAR), and electronic intelligence (ELINT) variants. Some Shijian satellites have been used for strictly civilian purposes; many appear to perform military ISR functions and likely feature ELINT sensors used for broad area maritime surveillance, or infrared sensors to detect ballistic missile launches in support of a future early warning system. The Gaofen series has EO and SAR variants and features China’s first high-definition satellite and first satellite capable of sub-meter resolution. U.S.-China Economic and Security Review Commission, *2015 Annual Report to Congress*, November 2015, 299–301.

§A quantum communication network is theoretically unbreakable as any attempt to intercept the encryption key would alter the physical status of the data (quantum data, unlike bits, are in a state of “superposition,” existing in two states at the same time) and trigger an alert to the communicators. Quantum communication has thus far been limited to short distances due to the technological difficulty of maintaining the quantum data’s fragile state over a long distance. Giuseppe Vallone et al., “Experimental Satellite Quantum Communications,” *Physical Review Letters* 15:4 (July 20, 2015): 1; Yu Dawei, “In China, Quantum Communications Comes of

Continued

technology that could eventually enable secure digital communication using a virtually unbreakable encryption key.<sup>179</sup>

On the commercial side, China built and launched a satellite for Laos in November 2015, a service known as “delivery-in-orbit” that it has also provided to Bolivia, Nigeria, Pakistan, and Venezuela to date.<sup>180</sup> Since U.S. restrictions prohibit exports of satellites and components to China (including for launch service purposes),<sup>181</sup> China relies on launch service contracts like these to compete in the global market.<sup>182</sup>

### ***PLA Navy Nuclear Ballistic Missile Submarine Deterrent Patrol Developments***

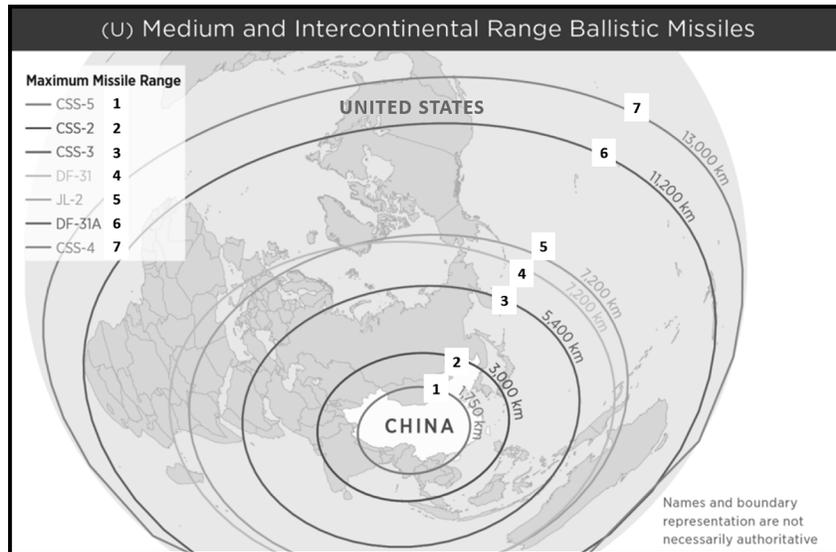
The PLA Navy currently operates four Type 094 JIN-class nuclear-powered ballistic missile submarines (SSBNs) and has a fifth submarine under construction.<sup>183</sup> The JIN SSBN, based in Hainan Province in the South China Sea, is supported by underground submarine facilities.<sup>184</sup> The JIN’s JL–2 submarine-launched ballistic missile (SLBM)\* is armed with a nuclear warhead with an assessed range of 7,200 km (4,474 mi), far enough to strike the continental United States depending on the location of the launch (see Figure 7).<sup>185</sup> In testimony to the U.S. Senate Armed Services Committee in 2016, Lieutenant General Vincent Stewart, director of the U.S. Defense Intelligence Agency, indicated that the “PLA Navy deployed the JIN-class ... submarine in 2015, which, when armed with the JL–2 SLBM, provides Beijing its first sea-based nuclear deterrent.”†<sup>186</sup> This provides China the ability to conduct a nuclear strike from the sea and, perhaps more importantly, provides it with the potential for a survivable second strike capability should it suffer a first strike on land.

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Age,” Caixin, February 6, 2015; Stephen Chen, “China to Launch Hack-Proof Quantum Communication Network in 2016,” *South China Morning Post* (Hong Kong), November 4, 2014; and Michael A. Nielsen and Isaac L. Chuang, *Quantum Computation and Quantum Information*, Cambridge University Press, 2000, 14.

\* China conducted a series of JL–2 tests from the JIN SSBN beginning in 2009, with the most recent test occurring in January 2015. Jesse Karotkin, a former senior intelligence officer for China at the U.S. Office of Naval Intelligence, testified to the Commission in January 2014 that it had “been a long-road for the Chinese to get this system operational.” Another potential indication that the JL–2 is operational is a report that a JIN-class SSBN crew was given two awards for successful missile tests that occurred in November 2013 and January 2015. U.S.-China Economic and Security Review Commission, *Hearing on PLA Modernization and its Implications for the United States*, written testimony of Jesse Karotkin, January 30, 2014; China Central Television, “Focus Today’ on Type-094 Submarine, DF-26 Missile, Aircraft Carrier ‘Liaoning,’” October 1, 2015; Ge Chong, “Type 094 Nuclear Submarine High Seas Navigation Will Enhance Sea-Based Deterrence Capability—Carrying JL–2 Missiles with Range Covering the Territory of the United States,” *Wen Wei Po* (Hong Kong), February 12, 2014; and Bill Gertz, “Ready to Launch,” *Washington Free Beacon*, August 21, 2012.

† The Type 092 XIA-class SSBN was China’s first attempt to develop a sea-based nuclear deterrent; however, the XIA is likely currently incapable of conducting operational missions. DOD noted in 2010 that the XIA’s operational status was in question, and in 2015 omitted any mention of the XIA in discussing China’s SSBNs in its *Annual Report to Congress on Military and Security Developments Involving the People’s Republic of China 2015*. U.S. Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2015*, April 2015, 9; U.S. Office of Naval Intelligence, *The PLA Navy: New Capabilities and Missions for the 21st Century*, April 2015, 16.

**Figure 7: JL-2 Missile Range Compared to other Chinese Ballistic Missiles**

Note: The ring labeled “5” represents the range of the JL-2. DOD uses a mix of both Chinese and NATO designators in the above graphic. U.S. Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2015*, April 7, 2015, 88.

Source: U.S. Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2015*, April 7, 2015, 88.

DOD currently assesses that China will conduct its first SSBN nuclear deterrence patrol before the end of 2016, a timeline that has been revised twice (DOD previously estimated the patrol would occur in 2014, then in 2015).<sup>187</sup> It will not necessarily be clear when China begins its first nuclear deterrence patrol: though some of the preparations for a patrol (such as the submarine’s movement into an underground tunnel complex prior to deployment) may be observable, it will not be apparent whether a nuclear warhead is mated to the missile, or when missiles are loaded prior to deployment.\* For this reason, any JIN SSBN deployment may require senior U.S. defense officials to assume that China is conducting a deterrence patrol (i.e., a patrol in which an SSBN is armed with a nuclear warhead).† DOD assesses a fifth JIN-class SSBN will enter the PLA Navy’s order of battle by 2020, which would provide

\* Hans M. Kristensen, director of the Nuclear Information Project at the Federation of American Scientists, notes there is a “covered railway ... connect[ing] a high-bay building with possible access into the mountain at the eastern part of the [Longpo naval] base [on Hainan Island] with one of the land-based tunnels to the underground submarine cave. ... The covered railway ... seems intended to keep movement of something between the two mountains out of sight from spying satellites. ... The purpose of the facilities and rail is unknown but might ... be intended for movement of SLBMs or other weapons between storage inside the mountain to the submarine cave for arming of SSBNs.” Hans M. Kristensen, “China SSBN Fleet Getting Ready—But for What?” *Federation of American Scientists*, April 25, 2014.

† Admiral Cecil Haney, Commander of U.S. Strategic Command, stated in October 2015 that when a JIN SSBN goes to sea he must assume it is conducting a deterrence patrol based on the submarine’s “operational capability.” Cecil Haney, “Transcript: Admiral Cecil Haney, Commander STRATCOM, Defense Writers Group,” *Defense Writers Group*, October 22, 2015, 16.

China the minimum SSBN force required to maintain a near continuous at-sea nuclear deterrent presence in peacetime.<sup>188</sup>

Conducting nuclear deterrence patrols likely will require a series of procedures to be in place prior to SSBN patrol activity. For example, DOD states “SSBN deterrence patrols will force the PLA to implement more sophisticated [command and control] systems and processes that safeguard the integrity of nuclear release authority for a larger, more dispersed force.”<sup>189</sup> China’s policy of keeping nuclear warheads stored separately from missiles in order to prevent an accident or unauthorized use (known as “de-alerting”)<sup>190</sup> will likewise require revision for JL-2 SLBMs to be deployed on submarines during peacetime.<sup>191</sup> China may also be enhancing peacetime readiness levels for these nuclear forces to ensure responsiveness,<sup>192</sup> which may be applied to China’s SSBN force as well.

### **PLA Exercises and Training**

China views conducting joint and transregional exercises as key to narrowing the gap between training and real combat experience for the PLA.<sup>193</sup> The PLA conducts exercises to enhance warfighting competencies, test and evaluate tactics, develop and refine integrated joint operations command structures and concepts, and evaluate service proficiencies.<sup>194</sup> The overall objective of PLA exercises is to develop an effective operational capability to achieve success in local wars under “informationized” conditions.\*

#### ***Evolution of PLA Exercises for Joint Operations***

While the development of joint integrated operations has been a focus of PLA modernization objectives since the late 1990s, it was not until the Tenth Five-Year Plan (2001 to 2005) that the PLA initiated its program to develop a credible joint operation concept.<sup>195</sup> Mark Cozad, a senior international defense policy analyst with the RAND Corporation, states that during this period, China pursued a “multifaceted effort . . . that brought together a broad body of military science research, technology development, new training guidelines, and operational experimentation.”<sup>196</sup> This phase of joint exercise development culminated with Sharp Sword-2005, an exercise that experimented with air-land integration and firepower strike coordination between the army and air force.<sup>197</sup> Mr. Cozad argues that although this “exercise highlighted several shortcomings in the PLA’s capability to perform integrated joint operations, it marked a significant foundational basis on which follow-on efforts would build.”<sup>198</sup> Between 2006 and 2008, China continued to refine and experiment with joint operational concepts that contributed to the revision of the Outline on Military Training and Evaluation, which provides training guidance to the PLA.<sup>199</sup> The revised Outline, released by the then General Staff Department in January 2009, emphasized realistic training, joint training, and training under complex electromagnetic environments.<sup>200</sup> PLA joint training then entered a “standardized development” phase between 2009 and 2010 to test joint operation concepts that emerged from

\* In Chinese military doctrine, “informationization” refers to the application of advanced information technology to military operations. The PLA views informationization as a required enabler of its goal to be able to win “local wars under informationized conditions.”

the Sharp Sword series of exercises.<sup>201</sup> During this period China conducted Stride-2009, Firepower-2009, and Mission Action-2010, which set key themes for joint exercises that followed the Tenth Five-Year Plan.<sup>202</sup> The exercise themes the PLA focused on included civil-military integration, air force and naval force projection, joint training methods, and command and control for war zones.<sup>203</sup>

### **Key Exercises**

Since the release of the revised Outline and training standardization, China has continued to focus on incorporating greater realism, strengthening campaign training, and conducting long-distance maneuvers during exercises to develop PLA capabilities to conduct large-scale joint operations.<sup>204</sup> Exercises such as Stride, Firepower, Mission Action, and Joint Action emphasize many of these focus areas.<sup>205</sup>

**Stride (Kuayue):** Stride is a long-distance ground force maneuver exercise that was held four times from 2009 to 2016.<sup>206</sup> Skills practiced in this exercise series have included command and control, logistics, civil-military integration, joint campaign planning, long-range firepower strike, deployment of special operational forces, urban combat, reconnaissance, information warfare, and electronic warfare.<sup>207</sup> The Stride series of exercises has sought to test and evaluate combat forces and since 2014 has made use of opposing forces to increase realism.<sup>208</sup> During Stride-2016 the PLA continued the theme of long-distance maneuver operations, which included moving combined arms brigades from each of the five new theater commands, using an opposing force, and conducting operations in a complex electromagnetic (jamming) environment.<sup>209</sup>

**Firepower (Huoli):** Firepower, like Stride, was held four times between 2009 and 2016. The Firepower series focuses on long-range mobility, precision strike, command and control, and reconnaissance operations.<sup>210</sup> Firepower-2015 made use of opposing forces simulating U.S. tactics during the exercise.<sup>211</sup> As in 2015, Firepower-2016 continued the use of an opposition force to create realistic battlefield conditions for the transregional exercise.<sup>212</sup>

**Mission Action (Shiming Xingdong):** Mission Action, held in 2010 and 2013, focused on long-range maneuver. Mission Action-2010, a followup to the Stride-2009 exercise, was the first time operational PLA forces crossed military region boundaries to participate in a joint exercise and were deployed by road, rail, and air.<sup>213</sup> Mission Action-2013 built upon the 2010 transregional mobility theme by conducting the deployment while defending against an opposing force to create a more realistic training environment.<sup>214</sup>

**Joint Action (Lianhe Xingdong):** Joint Action, held in 2014 and 2015, emphasized theater command and control, reconnaissance, information operations, logistics, ground-air integration, and civil-military integration for conducting joint operations.<sup>215</sup> During Joint Action 2015, the PLA focused on sea-air-land integration, information operations, and maritime operations.<sup>216</sup> The 2014 and 2015 exercises both emphasized PLA joint planning.<sup>217</sup>

### ***Evaluation and Prospects for Joint Exercises and Future Operations***

The goal of PLA exercises is to improve joint integrated operational capabilities by collecting data to support training and doctrinal development and then implement lessons learned from training assessments\* and evaluations.<sup>218</sup> Kevin McCauley, an independent researcher who has published widely on China's military, states the PLA views the conduct of exercises "approximating actual combat conditions as vital for supporting research for future training and operational methods, as well as a means to overcome lack of combat experience."<sup>219</sup> In addition to using exercises to overcome a lack of combat experience, the PLA uses them to evaluate units and ensure the highest-performing PLA troops will be deployed at the front lines of any future conflict.<sup>220</sup> The continued monitoring of PLA exercises should provide insight into the types of operations the PLA is preparing for as well as any strengths or weaknesses the PLA experiences in preparation for those missions.

### **China's Global Security Activities in 2016**

#### ***PLA Overseas Activities***

China's global security engagement continued to expand in 2016, reflecting the PLA's improving ability to operate far from China's shores, and China's goal—outlined in its 2015 defense white paper—to "safeguard the security of [its] overseas interests."<sup>221</sup>

#### *China Constructing Djibouti Military Support Facility*

In February 2016, China began constructing a naval facility in Djibouti, its first overseas military facility.<sup>222</sup> According to a Chinese Ministry of Foreign Affairs spokesperson, the facility "will better serve Chinese troops when they carry out international peacekeeping operations, escort ships in the Gulf of Aden and the waters off the Somali coast, and perform humanitarian rescue [operations]."<sup>223</sup> The facility most likely will provide more comprehensive and streamlined logistical support than PLA Navy ships have received in past replenishment and maintenance visits to port facilities in Djibouti and other regional countries.<sup>224</sup> According to Djibouti Foreign Minister Mahmoud Ali Youssouf, the facility will host "a few thousand" military and administrative personnel.<sup>225</sup>

China's military foothold in Djibouti will boost its power projection capabilities and influence in an area of the world crucial to China's economic interests.<sup>226</sup> Djibouti occupies a strategic position at the Straits of Bab el Mandeb—a chokepoint for sea lines of communication between the Red Sea and the Indian Ocean—through which travels a large portion of hundreds of billions of dollars in trade between China and the Middle East and Europe.<sup>227</sup> In 2014,

\*The PLA makes assessments based on factors that include the amount of training time units receive and unit effectiveness in both confrontation and simulation training. Data are collected on operational areas such as maneuver, coordination between units, fire strike coordination, and electromagnetic spectrum management. U.S.-China Economic and Security Review Commission, *Hearing on Developments in China's Military Force Projection and Expeditionary Capabilities*, written testimony of Mark R. Cozad, January 21, 2016; Kevin McCauley, "Incomplete Transformation: PLA Joint Training and Warfighting Capabilities," *Jamestown Foundation*, March 6, 2015.

for example, 52 percent of China's crude oil imports by volume came from the Middle East.<sup>228</sup> Moreover, China could deploy equipment to Djibouti to collect intelligence on U.S. and friendly forces in the region.<sup>229</sup> Djibouti hosts U.S. Navy Camp Lemonnier—a critical hub for U.S. counterterrorism operations in Africa and the Middle East—as well as Japanese and French military facilities.<sup>230</sup>

#### *Gulf of Aden Antipiracy Deployments*

In August 2016, China launched its 24th PLA Navy antipiracy deployment to the Gulf of Aden.<sup>231</sup> These operations have significant implications for China's force projection capabilities. According to DOD, "The expansion of [Chinese] 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."<sup>232</sup> PLA Navy ships on antipiracy deployments in the Gulf of Aden have also conducted several other security operations in the region, such as a March 2015 non-combatant evacuation operation in Yemen<sup>233</sup> and an escort operation for ships transporting chemical weapons out of Syria for destruction in 2013–2014.<sup>234</sup> Though piracy in the Gulf of Aden has declined significantly in recent years due to the success of international piracy efforts, there is no indication that the PLA Navy will conclude operations there. David Brewster, senior research fellow at Australian National University's National Security College, testified to the Commission that "Beijing is now using its antipiracy deployment[s] as justification for expanding its naval presence in the Indian Ocean and making it more permanent."<sup>235</sup>

#### *UN Peacekeeping Operations*

In September 2015, President Xi announced China will establish a ten-year, \$1 billion "China-UN peace and development fund" to support UN activities—to include peacekeeping operations and sustainable development programs—and commit 8,000 personnel\* to build a UN "peacekeeping standby force."†<sup>236</sup> China currently has roughly 2,600 personnel active in UN peacekeeping operations.<sup>237</sup> China's peacekeeping activities reflect its apparent desire to generate international goodwill and soft power by demonstrating that it is a responsible stakeholder in international affairs.<sup>238</sup> These deployments also support China's goal to safeguard its overseas economic interests and expatriate citizens.<sup>239</sup> Moreover, conducting peacekeeping operations around the world could provide Chinese personnel with valuable logistics, mobility, and operational experience.<sup>240</sup> In the most notable case of Chinese peacekeeping operations, in December 2015 China deployed 1,031 personnel on a UN

\*"Personnel" here refers to police, military experts, and troops.

†Although authoritative sources have not outlined the mission or role of China's proposed peacekeeping standby force, it could resemble the former Denmark-led Standby High-Readiness Brigade, an international force of thousands of soldiers that from 1997 to 2009 was available to the UN as a rapidly deployable peacekeeping force. Peter Viggo Jakobsen, "Peacekeeping Contributor Profile: Denmark," *Providing for Peacekeeping*, June 2016; UN, *SHIRBRIG: Ready to Deploy*, 2007.

peacekeeping mission in South Sudan,<sup>241</sup> where violence has threatened the civilian population of the country, as well as Chinese investments in oil production and the physical safety of Chinese workers.<sup>242</sup> In 2014, China successfully lobbied the other members of UN Security Council to support a resolution directing peacekeepers in South Sudan to guard oil facilities, in addition to conducting other peacekeeping duties (China is the largest investor in South Sudan's oil sector).<sup>243</sup> Two Chinese peacekeepers were killed in July 2016 amid violence between rival factions in the country.<sup>244</sup> As of August 2016, roughly 2,200 Chinese peacekeepers were active in South Sudan and five other African countries: Côte d'Ivoire, the Democratic Republic of Congo, Liberia, Mali, and Sudan, as well as Western Sahara.<sup>245</sup>

#### *Overseas Humanitarian Assistance/Disaster Relief Operations*

According to DOD, the PLA's ability to perform overseas humanitarian assistance and disaster relief (HA/DR) operations is "modest but growing" as it gains more experience operating far from China, and China's growing HA/DR capabilities "will increase [its] options for military influence to press its diplomatic agenda, advance regional and international interests, and resolve disputes in its favor."<sup>246</sup> Moreover, in testimony before the Commission, Georgetown University professor Oriana Skylar Mastro suggested China's HA/DR operations could "provide a legitimate and nonthreatening rationale for the development of power projection capabilities."<sup>247</sup> Recent developments regarding Chinese HA/DR include the following:

- In May 2016, China conducted a search and rescue exercise in the Pearl River Delta in Guangdong Province involving 35 vessels and more than 1,300 personnel, the "largest exercise of its kind" China has organized.<sup>248</sup>
- In May 2016, a Chinese official announced China will build a base station—apparently to include port facilities—for a search and rescue ship in the Spratly Islands in the South China Sea. According to a *China Daily* report, the ship will be equipped with advanced rescue facilities, and "might carry [unmanned aerial vehicles] and underwater robots." The ship reportedly will assist fishing boats and other vessels in distress.<sup>249</sup>
- In April 2016, Chinese search and rescue vessel *Dong Hai Jiu* 101 joined an international search effort for Malaysia Airlines flight MH370.<sup>250</sup> Most of the passengers on MH370 were Chinese nationals.<sup>251</sup>
- In December 2015, approximately 200 Chinese and U.S. Army troops conducted a joint HA/DR drill in Washington State.<sup>252</sup>
- The PLA deployed more than 1,000 personnel to contribute to HA/DR in Nepal following a catastrophic earthquake in April 2015.<sup>253</sup> The Nepal mission was China's largest-ever overseas HA/DR operation.<sup>254</sup>

*Space-Tracking Facility in Argentina*

China is building a space telemetry, tracking, and control facility in Argentina.<sup>255</sup> The PLA-affiliated China Satellite Launch and Tracking Control General is managing the project.<sup>256</sup> The station will provide China a southern hemisphere node to communicate with its satellites to download images or conduct orbital adjustments without waiting for them to fly over Chinese territory.<sup>257</sup> Many observers have suggested the station could have dual-use applications, such as the ability to track missiles and space assets.<sup>258</sup> The station reportedly will support China's planned unmanned missions to the moon and Mars.<sup>259</sup>

***Military-to-Military Engagement***

As China proceeds with an ambitious military modernization program and gradually institutes reforms aimed at informationization and integration of its military services, the PLA continues to expand its engagement with foreign militaries. Since the Commission's *2015 Annual Report to Congress*, the PLA has increased the number and type of exercises it holds with other countries' armed forces.<sup>260</sup> Through such engagement, China seeks to improve its international standing and enhance its presence abroad while easing foreign anxieties about the PLA's growing capabilities and expanding missions; acquire insights into other militaries' operations, doctrine, and training methods (including those of the United States and U.S. allies and partners); and gain experience operating newly introduced platforms while helping facilitate defense industrial cooperation.<sup>261</sup>

*The PLA's Bilateral and Multilateral Exercises with Foreign Militaries*

Since November 2015, the PLA has been involved in 12 significant bilateral and multilateral exercises (see Table 1). Several of these exercises were the first of their kind, including Falcon Strike-2015 and Joint Evacuation-2016, demonstrating closer cooperation between the PLA and the militaries of Thailand and the United Kingdom, respectively. Many focused on non-traditional security challenges including counterterrorism, antipiracy, and HA/DR. They have also attempted to ease foreign countries' anxieties concerning China's military modernization and support President Xi's foreign policy objectives by seeking to shape the international system and improve the security environment along China's periphery.<sup>262</sup> The knowledge and experience acquired from these exercises can be applied to a variety of missions. The PLA also engaged in bilateral exercises focusing on missile defense operations and sea and air combat (some involving live-fire drills) with close defense partners, including Russia and Pakistan.<sup>263</sup>

**Table 1: Significant PLA Bilateral and Multilateral Military Exercises, November 2015–October 2016 \***

Date	Exercise Name or Type (Location)	Other Participants	PLA Weapons Systems and Units Involved (if reported)	Details
11/12/15–11/30/15	Falcon Strike-2015 (Thailand)	Thailand	J-11A fighters <sup>264</sup>	This exercise was the first ever between the two air forces. According to a Chinese Defense Ministry spokesperson, the purpose of the exercise was to enhance mutual understanding, deepen bilateral cooperation, and increase mutual trust. <sup>265</sup>
12/31/15–1/1/16	Naval Exercise (East China Sea)	Pakistan	Two missile frigates	The first naval exercise between the two countries in the East China Sea included drills on ship formation movement, search and rescue, and live-fire drills striking targets in the air and at sea. The exercise also had antipiracy and antisubmarine components. <sup>266</sup>
2/7/16	China-India 2016 Cooperation (India)	India	30 border troops	The first combined exercise between Chinese and Indian border troops was focused on HA/DR. It was designed to preserve peace and stability in the border region and promote trust between the two militaries. <sup>267</sup>
3/23/16–3/24/16	Joint Evacuation-2016 (Nanjing, China)	Great Britain	Not reported	The two countries conducted their first simulated tabletop non-combatant evacuation operation together, which simulated evacuating people from an unnamed third country in a civil war beset by terrorism, and each shared their respective policies and experiences in such operations. <sup>268</sup>

\*Not noted in this table is the PLA's involvement in military competitions with foreign armed forces, which serve as another venue for the PLA to engage with other countries' militaries and gain experience in logistics and deployment of forces in unfamiliar environments. Rather than focusing on tactics and involving specific scenarios like most military exercises, competitions typically only test certain combat skills and weapons systems. From July 30 to August 13, 2016, the PLA Army, Navy, and Air Force attended the International Army Games 2016 in Russia. Joining over 17 countries, the PLA delegation reportedly included more than 1,000 officers and soldiers participating in 21 competitions—a larger footprint than previous years. China Military Online, "International Army Games 2016 Wraps Up in Russia," August 15, 2016; China Military Online, "China Sends Troops to Participate in International Army Games 2016," July 18, 2016.

**Table 1: Significant PLA Bilateral and Multilateral Military Exercises, November 2015–October 2016—Continued**

<b>Date</b>	<b>Exercise Name or Type (Location)</b>	<b>Other Participants</b>	<b>PLA Weapons Systems and Units Involved (if reported)</b>	<b>Details</b>
4/9/16–4/30/16	Shaheed V (Pakistan)	Pakistan	JH-7A, J-8II, and J-11 fighters, and KJ-200 early warning aircraft	This annual exercise consisted of ground attack and air-to-air combat and simulated fighting against extremists in China's Xinjiang Uyghur Autonomous Region, Central Asia, and the northern tribal areas of Pakistan. <sup>269</sup>
4/12/16–4/16/16	Komodo-2016 (Indonesia)	United States (and 34 other countries)	Guided-missile frigate and salvage lifting ship	This exercise (now in its second iteration) consisted of drills on maritime peacekeeping and HA/DR, live-fire drills directed at surface targets, and early warning drills. <sup>270</sup>
5/2/16–5/12/16	ASEAN Defense Minister's Meeting Plus (ADMM-Plus) Maritime Security and Counterterrorism Exercise (Singapore and Brunei)	ASEAN,* the United States (and seven other countries)	Guided-missile destroyer	This semiannual exercise was larger and more complex than any previous ADMM-Plus exercise. Maritime security and counterterrorism drills included helicopter operations, divisional tactics, and land storming in a counterterrorism scenario. <sup>271</sup>
5/21/16–6/10/16	Blue Strike-2016 (Thailand)	Thailand	Warship, nine amphibious armored vehicles, air defense and antitank missile launchers, naval aviation troops, and 266 marines	In the third major exercise between the two militaries, China sent a warship and naval aviation troops to the exercise for the first time. Marines from both sides held seminars on anti-piracy, disaster relief, and air defense operations. The exercise also included training at sea and on land, including counterterrorism, anti-chemical warfare, and live-fire drills. <sup>272</sup>
5/23/16–5/28/16	Aerospace Security-2016 (Russia)	Russia	Not reported	The two countries conducted their first "computer-assisted anti-missile defense exercise."

\* All ASEAN members sent troops to the exercise except Burma and Laos. China Military Online, "Destroyer Lanzhou Leaves Singapore after ADMM-Plus Exercise," May 13, 2016.

**Table 1: Significant PLA Bilateral and Multilateral Military Exercises, November 2015–October 2016—Continued**

Date	Exercise Name or Type (Location)	Other Participants	PLA Weapons Systems and Units Involved (if reported)	Details
				The purpose of the exercise was to improve the capacity of each country to respond to intentional or accidental cruise and ballistic missile strikes. <sup>273</sup>
6/30/16–8/4/16	Rim of the Pacific (RIMPAC) 2016 (United States)	United States (and 25 other countries)	Guided missile frigate, guided missile destroyer, hospital ship, replenishment ship, and submarine-rescue ship	During the exercise, the PLA Navy participated in HA/DR, submarine rescue, maritime blockade, and antipiracy training. <sup>274</sup>
9/5/16–9/21/16	Peace Mission-2016 (Kyrgyzstan)	Shanghai Cooperation Organization (SCO) countries *	Self-propelled artillery, fighters, and Z-9 helicopters	In the eighth iteration of Peace Mission, which has been conducted since 2005, the SCO countries held the counterterrorism exercise for the first time in Kyrgyzstan. The exercise was designed to strengthen mutual trust and combat the “three evils” of terrorism, extremism, and separatism. <sup>275</sup>
9/12/16–9/20/16	Joint Sea-2016 (South China Sea)	Russia	11 fixed-wing aircraft, eight helicopters, 10 ships, and 160 marines	The annual Joint Sea exercise was conducted for the first time in the South China Sea in undisputed waters near Zhanjiang, home of the PLA Navy’s South Sea Fleet. The exercise focused on amphibious operations and “island seizing,” and also included air defense, antisubmarine warfare, and search and rescue drills. <sup>276</sup>
Forthcoming 2016	Gulf of Aden Counter-piracy Exercise	United States	N/A	N/A

\*SCO member countries include China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan. Afghanistan, Belarus, Iran, and Mongolia are observer states, and India and Pakistan are in the process of becoming full members. The organization was established in 2001 and is the primary vehicle for China’s security engagement with Central Asia.

*The PLA Participates in RIMPAC 2016 Exercise*

Despite opposition from some U.S. defense analysts and members of Congress,\* the United States invited China to participate in its biennial RIMPAC exercise for the second time in a row. Already the world's largest naval exercise, this year's exercise expanded in size to involve 26 countries (compared to 22 in the previous iteration). The PLA Navy slightly increased its delegation from four to five ships compared to RIMPAC 2014—including a submarine rescue ship for the first time—and increased its number of participating personnel from 1,100 to 1,200.<sup>277</sup> Before the exercise, the PLA Navy task force participated in a group sail† from waters near Guam to Hawaii, where the exercise was staged, with several U.S. destroyers.<sup>278</sup> During the exercise, the PLA Navy participated in HA/DR, submarine rescue, maritime blockade, and antipiracy drills, but was restricted by U.S. law, per the National Defense Authorization Act for Fiscal Year 2000,<sup>279</sup> from engaging in combat drills related to surface warfare, air and missile defense, and amphibious operations.<sup>280</sup>

*China and Russia Conduct South China Sea Naval Exercise*

In September, China and Russia conducted an eight-day-long naval exercise, Joint Sea-2016—their first exercise together in the South China Sea—with five Russian ships and ten PLA Navy ships participating, including surface combatants and support ships from both countries, as well as Chinese submarines.<sup>281</sup> According to analysts Peter W. Singer and Jeffrey Lin, the Chinese task group comprised “some of China’s most modern warships,” including a Type 052C (LUYANG II) destroyer, a Type 052B (LUYANG I) destroyer, and three Type 054A (JIANGKAI II) frigates;<sup>282</sup> the Russian task group included two 1980s-vintage UDALOY I destroyers.<sup>283</sup> The Russian contingent also included two helicopters, amphibious assault craft, and 90 marines; the Chinese contingent included 11 fixed-wing aircraft, eight helicopters, and 160 marines. The exercise, which has been held annually since 2012, was based in Zhanjiang, a city in southern China’s Guangdong Province and the headquarters of the PLA Navy South Sea Fleet.<sup>284</sup> According to Chinese state-run media, it was held in undisputed waters to the east of Zhanjiang.<sup>285</sup> It focused on “island-seizing,” among other drills covering amphibious operations, air defense, anti-submarine warfare, and search and rescue; 2015’s Joint Sea-2015 II drill in the Sea of Japan also emphasized forced incursions and island landing.<sup>286</sup> This is the first time the PLA has conducted a naval exercise in the South China Sea with another country. Beijing has long argued that outside countries should not “meddle” in the South China Sea dispute.<sup>287</sup>

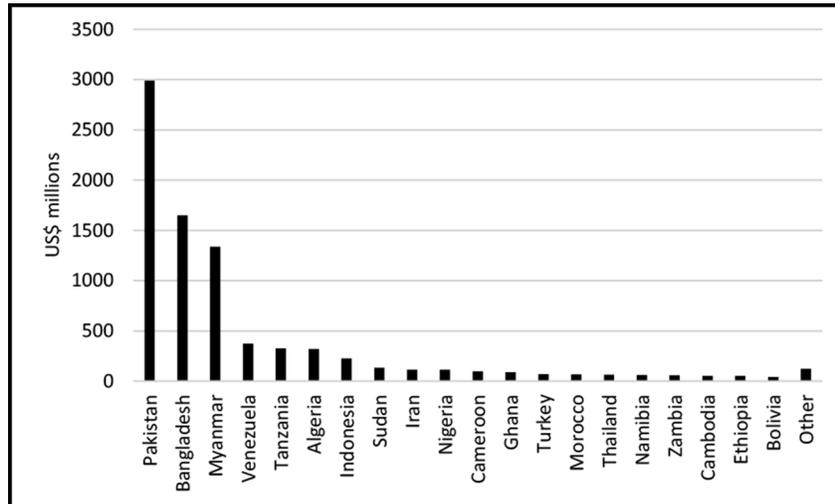
\*Much of the opposition was related to China’s assertive actions in the South China Sea. Notably, in May 2015, senators Jack Reed and John McCain, the bipartisan leadership of the Senate Armed Services Committee, co-authored a letter to the Obama Administration expressing their opposition to inviting China to RIMPAC. Shirley Kan, “Rescind China’s Invitation to Join RIMPAC,” *PacNet* #35 (Center for Strategic and International Studies), April 15, 2016; USNI News, “Document: McCain, Reed Letter to SECDEF Carter on Chinese Actions in South China Sea,” May 22, 2015.

†According to the U.S. Navy, the group sail “offers participating units the chance to operate together and conduct basic training-like tactical maneuvering drills and communication system checks. [It] helps prepare participating units for the more complex exercises conducted during RIMPAC.” Commander Naval Surface Force U.S. Pacific Fleet, *International Ships Sail to Hawaii for Rim of the Pacific 2016*, June 24, 2016.

### ***Military Sales***

China was the third-largest arms exporter worldwide in aggregate terms during the 2011–2015 period with \$8.5 billion in exports, following the United States with \$46.9 billion and Russia with \$36.2 billion (all in constant 1990 dollars).<sup>288</sup> Comparing five-year periods, China’s exports of major arms rose 88 percent from \$4.5 billion between 2006–2010 and 2011–2015, while U.S. and Russian exports rose 27 and 28 percent, respectively,\* meaning China’s share of global arms sales rose from 3.6 to 5.9 percent.<sup>289</sup> During the past five years China has sold arms to 37 countries, with Pakistan (35 percent), Bangladesh (20 percent), and Burma (Myanmar) (16 percent) as top recipients.<sup>290</sup> China’s customer base has also extended to Africa, the Middle East, and South America, with exports to Algeria, Nigeria, and Venezuela surging late in this period.<sup>291</sup> Over two-thirds of African countries now use military equipment from China, including at least ten countries that only began using Chinese arms over the past decade, according to a report published by the International Institute for Strategic Studies in 2016.<sup>292</sup> All recipients of China’s arms exports to date have been low- and middle-income countries (see Figure 8).<sup>293</sup>

**Figure 8: China’s Arms Sales by Recipient, 2011–2015**  
(constant 1990 dollars)



Source: Stockholm International Peace Research Institute, *SIPRI Arms Transfers Database*. <https://www.sipri.org/databases/armstransfers>.

Major Chinese arms exports agreed upon or revealed in 2016 include the following:

- Nigeria reportedly signed an agreement to purchase the JF–17, an inexpensive multirole fighter jointly produced by China and Pakistan,<sup>292</sup> in January 2016.<sup>295</sup> If the agreement is fulfilled,

\*This represents a decline from last year’s comparison of back-to-back five-year periods (2005–2009 and 2010–2014), which showed a 143 percent rise. U.S.-China Economic and Security Review Commission, *2015 Annual Report to Congress*, November 2015, 254.

Nigeria will be the first export customer for this aircraft; prospective customers have withdrawn from negotiations in several previous cases.\*<sup>296</sup>

- Thailand's defense minister announced in July 2016 that the Royal Thai Navy would seek cabinet approval to purchase YUAN-class diesel-electric submarines from China, a contract reportedly worth \$1 billion, despite Thailand's government reportedly deciding to shelve the deal last year. The purchase is indicative of Thailand's efforts to pursue closer relations with China, even as relations with the United States, a treaty ally, have soured following Thailand's 2014 military coup and the suspension of U.S. military assistance programs as required by U.S. law.<sup>297</sup>
- Pakistan publicly displayed Chinese-made Z-10 attack helicopters for the first time during a parade in 2016 (having begun an operational evaluation in 2015), although defense officials are reportedly still weighing the purchase. Pakistan currently operates the U.S.-made AH-1F Cobra, and is awaiting delivery of the U.S.-made AH-1Z Viper and pursuing Russian-made MI-35 Hind attack helicopters to replace these in addition to considering the Z-10, according to media reports.<sup>298</sup> A statement by a senior Pakistani naval official in August 2016 confirmed that the purchase of eight YUAN-class submarines, announced in 2015, is moving forward and scheduled for completion by 2028;<sup>299</sup> this sale indicates that Chinese arms exports to Pakistan are advancing in sophistication.<sup>300</sup>
- Turkmenistan conducted a military exercise in April 2016 that revealed it purchased the FD-2000 long-range surface-to-air missile—the export version of China's HQ-9, with a range of approximately 200 km (124 mi)—as well as the export version of the medium-range HQ-12, with a range of 50 km (31 mi).<sup>301</sup>
- Kazakhstan will purchase Pterodactyl WJ-1 unmanned aerial vehicles (UAVs) from China, according to a media report from June 2016.<sup>302</sup> The WJ-1, produced by the Chengdu Aircraft Industry Group under the state-owned Aviation Industry Corporation of China, is an integrated reconnaissance and strike variant of a medium-altitude, long-endurance UAV in the Yilong or Wing Loong series,<sup>303</sup> which closely resembles the design of the U.S. MQ-9 Reaper.<sup>304</sup> It is closer in size to the smaller U.S. MQ-1 Predator, with significantly reduced capabilities such as a lower maximum payload weight.<sup>305</sup>

\*In February 2015, Argentina announced it would explore fighter aircraft purchases from China, potentially involving the JF-17, but did not sign a contract and no longer appears to be interested. Malaysia was reportedly discussing a JF-17 purchase, but its defense minister denied this report in December 2015. Sri Lanka was reported to have signed an agreement to buy JF-17s, but denied this in January 2016; India had lobbied hard against the purchase. At least eleven other countries have been named as potential buyers in past media reports, but none have signed agreements to date. Richard D. Fisher Jr., "DSA 2016: Pakistan Bullish on JF-17 Sales," *IHS Jane's Defence Weekly*, April 21, 2016; Ankit Panda, "Revealed: Why Sri Lanka Backed off the Sino-Pakistani JF-17 Thunder," *Diplomat (Japan)*, January 11, 2016; MercoPress (Uruguay), "Argentina's Purchase of Israeli Fighter Jets Will Be Left to Next Government," November 12, 2015; and Franz-Stefan Gady, "Is This Country the Sino-Pak JF-17 Fighter's First Customer?" *Diplomat (Japan)*, June 24, 2015.

- Media reports in early 2016 took note of the expanding use of Chinese-made UAVs worldwide, highlighted by drone strikes carried out by Iraq and Nigeria for the first time.<sup>306</sup> One article noted that during the 18 months preceding February 2016 the number of states or nonstate actors with armed drones had “quietly grown to double-digit membership, largely thanks to Chinese technology that is both less expensive and easier to obtain than U.S. drone technology.”<sup>307</sup> To date, China is reported to have sold armed UAVs to Egypt, Iraq, Burma, Nigeria, Pakistan, Saudi Arabia, and the United Arab Emirates,<sup>308</sup> while Algeria is considering a purchase,<sup>309</sup> according to public sources. One of China’s most commonly exported drones is the CH-4, one of the Caihong or Rainbow series manufactured by a subsidiary of the state-owned China Aerospace Science and Technology Corporation (see Figure 9).<sup>310</sup> This medium-altitude, long-endurance UAV also resembles the MQ-9 Reaper and is closer to it in size than the WJ-1, but again has lower capabilities, such as a smaller maximum payload weight;<sup>311</sup> the series includes reconnaissance, attack, and mixed variants.<sup>312</sup> According to a report from *People’s Daily*, China successfully carried out two CH-4-launched missile tests using satellite data links at a range of over 1000 km (621 mi) in May 2016, whereas operators could previously control Chinese-made UAVs at a maximum distance of 250 km (155 mi).<sup>313</sup> This capability, if achieved, could assist China’s UAV exports going forward.<sup>314</sup>

**Figure 9: CH-4 Unmanned Aerial Vehicle**



Source: Xinhua, “The CH-4: The AK-47 of Drones,” April 9, 2015.

\*This list included China, Iraq, Israel, Nigeria, Pakistan, Somalia, South Africa, the United Arab Emirates, the United Kingdom, and the United States, as well as nonstate actors Hezbollah and Hamas, according to this Report. At least 78 countries deploy surveillance drones. New America, “World of Drones: Military.” <http://securitydata.newamerica.net/world-drones.html>; W.J. Hennigan, “A Fast Growing Club: Countries That Use Drones for Killing by Remote Control,” *Los Angeles Times*, February 22, 2016.

### **U.S.-China Security Relations in 2016**

U.S.-China security relations continued to be strained in 2016, with tensions in the South China Sea playing a key role. The two sides nonetheless cooperated on several areas of mutual interest, while continuing to expand and institutionalize U.S.-China security ties.

#### ***Areas of Cooperation***

##### *Iran Sanctions Lifted Pursuant to 2015 Joint Comprehensive Plan of Action*

China was among the eight signatories (along with the European Union, France, Germany, Iran, Russia, the United Kingdom, and the United States) of the Joint Comprehensive Plan of Action in July 2015, which scheduled the removal of UN sanctions on Iran in exchange for the imposition of restrictions on its nuclear program. In January 2016, with these restrictions verified, the sanctions were lifted (not including unilateral sanctions imposed by specific countries).<sup>315</sup> During a visit to Iran by President Xi later in January, the first visit by a Chinese leader in 14 years, Beijing and Tehran agreed to boost trade to \$600 billion over 10 years and formulate a “25-year comprehensive document” covering “long-term and strategic cooperation.”<sup>316</sup> According to National Defense University research fellow Joel Wuthnow, “China is expected to be a prime beneficiary of the deal as Chinese firms take advantage of greater access to the Iranian market, especially in the energy sector.”<sup>317</sup>

As the primary destination for Iranian oil exports, and a historically close security partner to Tehran, China’s involvement in this effort was crucial.<sup>318</sup> For example, according to China’s foreign minister, its negotiators helped resolve a key dispute over the future of Iran’s Arak heavy-water reactor during the July 2015 negotiations.<sup>319</sup> China’s record on the Iran sanctions program is mixed, however. Former deputy assistant secretary of State for East Asian and Pacific affairs Thomas Christensen noted that China watered down the most significant UN Security Council resolution establishing the sanctions in the first place by ensuring Iran’s largest banks and energy sector were not included, and did not join North American and European countries in passing unilateral sanctions—the primary source of pressure on Iran’s economy—alongside the UN sanctions.<sup>320</sup> China also used its role in the UN Security Council to indirectly aid Iran by vetoing crucial resolutions affecting the Syrian government, Iran’s ally, during the sanctions period.<sup>321</sup> In addition, Chinese national oil companies were reportedly able to negotiate favorable prices on Iranian crude oil imports during the time in which UN sanctions were in effect (although these imports did decrease), and exploited a loophole by increasing their Iranian fuel oil imports—not covered by the sanctions—beginning in 2013.\*<sup>322</sup> Analysts have pointed out several other potential con-

\*The U.S. Department of Commerce also imposed severe restrictions on U.S. exports to Chinese telecommunications company ZTE in March 2016, after ZTE allegedly violated sanctions against exporting U.S.-made technology to Iran. Two weeks later the U.S. government granted a reprieve on these restrictions, since extended to November 2016. Juro Osawa, “U.S. Grants ZTE Another Extension of Trade-Sanctions Relief,” *Wall Street Journal*, August 18, 2016; Joel Schechtman, “U.S. Extends ZTE Reprieve for Alleged Iran Sanctions Violations,” Reuters, June

cerns that might arise from closer Sino-Iranian ties moving forward: whether China would be willing to roll back its trade deals in compliance with reimposed sanctions if Iran were to violate the agreement<sup>323</sup> (China could not block the reimposition of sanctions, based on the agreement's construction);<sup>324</sup> whether deeper strategic cooperation could weaken U.S. regional influence;<sup>325</sup> whether Chinese assistance could strengthen Iran's position and indirectly benefit nonstate actors supported by Iran;<sup>326</sup> and whether China is poised to resume major arms sales to Iran\* (although most Chinese arms sales to Iran would require a UN Security Council waiver for the first eight years of the agreement).<sup>327</sup> Thus while China's participation should be seen as an important example of international cooperation, it also likely indicates that the threshold required for Beijing to lend assistance in future challenges will be high, depending on whether the case involves vital national interests and a far-reaching threat.<sup>328</sup> (For a detailed discussion of China's approach to the rules-based international system, see Chapter 4, "China and the U.S. Rebalance to Asia.")

#### *2016 U.S.-China Strategic and Economic Dialogue*

The official U.S. State Department press release following the eighth annual Strategic and Economic Dialogue, held in Beijing from June 6 to 7, 2016, noted that Washington and Beijing expressed general agreement on several international issues: condemnation of North Korea's 2016 nuclear and ballistic missile tests and support for relevant UN Security Council resolutions; support for the UN Mission in South Sudan and the implementation of the Sudan-South Sudan peace agreement; support for cooperative efforts to promote a "peaceful, stable, and unified Afghanistan"; support for resolving the Syrian conflict through political means; and support for the Iraqi government's reform and counterterrorism efforts, for example. They also endorsed further cooperation on civil efforts such as the Container Security Initiative program and the Community Emergency Response Team training course held by U.S. federal and Chinese central disaster management organizations in 2015. More specifically, the two sides stated they would improve the implementation of previously established bilateral confidence building measures by: (1) conducting military exercises related to the Rules of Behavior for Safety of Air and Maritime Encounters † in conjunction with port visits and (2) discussing addi-

27, 2016; and Jeffrey Sparshott, "U.S. to Provide Temporary Trade Sanction Relief to China's ZTE Corp.," *Wall Street Journal*, March 21, 2016.

\*According to Dr. Wuthnow, China ended its support for Iran's nuclear program in 1997 and has largely refrained from major military sales to Iran over the last decade. Joel Wuthnow, "Posing Problems without an Alliance: China-Iran Relations after the Nuclear Deal," *National Defense University*, February 2016, 1-2.

†The Memorandum of Understanding (MOU) on Rules of Safety of Air and Maritime Encounters, agreed on by the United States and China in 2014, seeks to avoid miscalculations and misunderstandings in encounters between U.S. and Chinese surface ships by establishing best practices for unplanned encounters. During a state visit in September 2015, the United States and China announced an air-to-air annex to the Rules MOU. The original MOU followed a similar nonbinding agreement, the Code for Unplanned Encounters at Sea, signed in 2014 by China, the United States, and 19 other Pacific countries. U.S. Department of Defense and China's Ministry of National Defense, *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 Defense of the People's Republic of China*, September 18, 2015; U.S. Department of Defense and China's Ministry of National Defense, *Memorandum of Understanding between the United States of America Department of Defense and the People's Republic of China's Ministry of Defense on Notification of Major Military Activities Con-*

tional annexes to the 2014 Notification of Major Military Activities Memorandum of Understanding, including “a mechanism for informing the other party of ballistic missile launches.”<sup>329</sup> The dialogue was overshadowed, however, by China’s assertive behavior in the South China Sea and economic disputes,<sup>\*</sup><sup>330</sup> reflected in President Xi’s statement that “some differences can be solved through hard work . . . [but] some differences cannot be solved at the moment.”<sup>331</sup> Moreover, DOD officials reported an “unsafe” intercept in which Chinese J–11 aircraft came within 50 feet of a U.S. EP–3 reconnaissance aircraft that was conducting a routine mission in international airspace over the South China Sea in May 2016,<sup>†</sup> showing that concerns regarding dangerous actions persist despite statements by Administration officials that China’s behavior is becoming safer and more professional.<sup>332</sup>

#### *2016 Nuclear Security Summit*

Following the fourth biannual Nuclear Security Summit, hosted in Washington in March 2016, Washington and Beijing released a Joint Statement on Nuclear Security Cooperation declaring their “commitment to working together to foster a peaceful and stable international environment by reducing the threat of nuclear terrorism and striving for a more inclusive, coordinated, sustainable and robust global nuclear security architecture for the common benefit and security of all.” The statement specifically noted the outcomes of the first annual U.S.-China bilateral talks on this topic, held in Stockholm in February 2016 and intended to “intensify [U.S.-China] cooperation to prevent nuclear terrorism and continue advancing Nuclear Security Summit goals,” as means to this end.<sup>333</sup> Specific outcomes have included the opening of the Nuclear Security Center of Excellence in Beijing, a joint U.S.-Chinese venue intended to provide nuclear security training, a forum for bilateral and regional best practices exchanges, and a location for demonstrating advanced nuclear security technologies.<sup>334</sup> Another point of action has been ongoing U.S. assistance in converting Chinese-origin Miniature Neutron Source Reactors—both in China and

*fidence Building Measures Mechanism*, November 4, 2014; and Jeremy Page, “China Won’t Necessarily Observe New Conduct Code for Navies,” *Wall Street Journal*, April 23, 2014.

<sup>\*</sup>For a detailed discussion on outcomes of the economic track, see Chapter 1, Section 1, “Year in Review: Economics and Trade.”

<sup>†</sup>The 2015 air-to-air annex to the U.S.-China MOU on Rules of Safety of Air and Maritime Encounters calls for “safe separation” during such intercepts but does not define this term specifically, instead requiring both militaries to refer to their own national rules and relevant international guidance, among other factors. It also notes that what qualifies as safe separation can vary depending on circumstances. The annex specifically refers to the Chicago Convention on International Civil Aviation (initiated in 1944), which calls for intercepts to not endanger the lives of persons on board or the safety of aircraft, but also does not define what specifically constitutes a “safe” as opposed to “unsafe” intercept, leaving it to signatory countries to write national laws that comply with the Convention. U.S. Federal Aviation Administration regulations, which provide much greater detail and are followed by U.S. military aircraft, set the threshold for safe separation at 500 feet. U.S. Department of Defense and China’s Ministry of National Defense, *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 Defense of the People’s Republic of China*, September 18, 2015; International Civil Aviation Organization, *Convention on International Civil Aviation Part 1*, Chapter 1, Article 3 bis, 2006, 3; and U.S. Federal Aviation Administration, *Aeronautical Information Manual Chapter 5, Section 6: National Security and Interception Procedures*, February 11, 2010.

abroad—from highly enriched uranium (HEU) fuel to low-enriched uranium (LEU) fuel.\*<sup>335</sup>

### Select U.S.-China Security-Related Visits and Exchanges in 2016

*Shangri-La Dialogue:* At the 15th Shangri-La Dialogue,<sup>†</sup> held in Singapore in June 2016, U.S. Secretary of Defense Ashton Carter advocated for a “principled security network” featuring expanded cooperation among regional militaries, and warned that China risked building a “Great Wall of self-isolation” through its actions in the South China Sea.<sup>336</sup> Other regional defense officials at the dialogue voiced their support for a rules-based international order, while Chinese defense officials reiterated Beijing’s position on its territorial claims in the South China Sea.<sup>337</sup> Admiral Sun Jianguo, deputy chief of the Joint Staff Department under the Central Military Commission, reading from prepared remarks rather than addressing other participants’ questions,<sup>338</sup> emphasized that China did not intend to comply with the upcoming UN Tribunal ruling and insisted that China’s sovereignty is indisputable.<sup>339</sup>

*High-Level Dialogue on Cybercrime and Related Issues:* China’s Minister of Public Security chaired the second high-level U.S.-Chinese dialogue on cybercrime in Beijing in June 2016, pursuant to an agreement signed in Washington in September 2015 in which both sides pledged not to conduct or knowingly support cyber-enabled theft of intellectual property for commercial gain.<sup>340</sup> At this event, U.S. and Chinese officials agreed to deepen cooperation on combating cybercrime, reflected positively on the cybercrime-themed “table-top exercise” held in April 2016 and decided to hold a second prior to the next dialogue, and determined they would implement a previously planned hotline for cyber-related discussions.<sup>341</sup> The next high-level meeting on cybercrime is planned for late 2016 in Washington.<sup>342</sup>

*Port visits:* Port visits have grown in frequency since the Commission’s 2015 Annual Report to Congress, with a PLA Navy antipiracy task group visiting Florida (the PLA’s first visit to the United States’ East Coast) and Hawaii in November and December 2015, respectively, and the PLA Navy hospital ship *Peace*

\*According to the International Atomic Energy Agency, there are four Chinese-built Miniature Neutron Source Reactors in China, two of which are in operation, and one each in Ghana, Iran, Nigeria, Pakistan, and Syria. These are low-power (approximately 30 kilowatt) research reactors used primarily for scientific analysis, education, and training; national and international efforts have been underway since 1978 to convert them from the use of HEU to LEU fuel. HEU is enriched to the level theoretically required for the construction of a gun-type nuclear weapon (it differs substantially from weapons-grade uranium, which is enriched to a much higher level; the higher the enrichment level, the lower the amount of material needed to construct a weapon). International Atomic Energy Agency, “CRP on Conversion of Miniature Neutron Source Research Reactors (MNSR) to Low Enriched Uranium (LEU),” June 14, 2016; Nuclear Threat Initiative, “Civilian HEU Reduction and Elimination Resource Collection,” March 15, 2016.

†The Shangri-La Dialogue, or Asia Security Summit, is hosted annually by the International Institute for Strategic Studies. It is attended by defense ministers and their civilian and military chiefs of staff from over 50 Asia Pacific countries. International Institute for Strategic Studies, “About the IISS Shangri-La Dialogue.”

**Select U.S.-China Security-Related Visits and Exchanges in 2016—Continued**

*Ark* visiting San Diego in November 2015.<sup>343</sup> Also in November 2015, U.S. Navy destroyer *Stethem* visited Shanghai, where U.S. Pacific Fleet Commander Admiral Scott Swift met with PLA Navy Commander Wu Shengli and PLA Navy East Sea Fleet Commander Admiral Su Zhiqian.<sup>344</sup> Chinese authorities abruptly canceled a planned May 2016 visit to Hong Kong by U.S. aircraft carrier *John C. Stennis*—the first time Beijing had canceled a port visit since 2014—apparently in response to U.S. Navy operations in the South China Sea, but a then-ongoing visit to Hong Kong by command ship *Blue Ridge* proceeded as planned.<sup>345</sup> The U.S. guided missile destroyer *Benfold* made a scheduled port visit to Qingdao, China in August 2016.<sup>346</sup>

*High-level official visits:* In November 2015, U.S. Pacific Command Commander Admiral Harry Harris met with PLA generals in Beijing and Nanjing, including Chief of the Joint Staff Department under the Central Military Commission General Fang Fenghui, Vice Chairman of the Central Military Commission General Fan Changlong, and then-Nanjing Military Region commander general Cai Yingting;\* Secretary Carter also met with Chinese Minister of National Defense General Chang Wanquan in Kuala Lumpur at the ADMM-Plus summit.<sup>347</sup> U.S. Chief of Naval Operations (CNO) John Richardson traveled to China for three days in July 2016, where he visited the headquarters of China's North Sea Fleet in Qingdao, toured Chinese aircraft carrier *Liaoning* and the PLA Navy's submarine academy, and met with Commander Wu, continuing the trend set by his predecessor, CNO Jonathan Greenert, who met several times with Commander Wu.<sup>348</sup> Admiral Swift also visited Qingdao in August 2016.<sup>349</sup>

*Other exchanges:* CNO Richardson held a video teleconference with Commander Wu in January 2016, continuing the program of quarterly discussions begun in 2015. CNO Richardson stated after the teleconference that “face-to-face interaction and frank exchanges help build a personal connection that benefits both our navies now and into the future” and a U.S. Navy press release noted that such conversations serve to establish a dialogue that reduces the risk of miscalculation between U.S. and Chinese naval forces.<sup>350</sup> In January 2016 U.S. and Chinese defense officials met in China for the Defense Policy Coordination Talks, where they reportedly “emphasized the positive momentum sustained in the U.S.-China military-military relationship over the past year” and discussed key regional and global issues.<sup>351</sup> The U.S. Army held its inaugural Army-to-Army Dialogue Mechanism with Chinese forces in Beijing in November 2015.<sup>352</sup>

\* Due to ongoing reforms in the Chinese military structure, the former Nanjing Military Region is now the Eastern Theater Command, headquartered in Nanjing.

### ***Areas of Tension***

#### *Planned U.S. Missile Defense Deployment in South Korea*

Following North Korea's nuclear weapons test in January and satellite test using ballistic missile technology in February, South Korean officials announced they would enter talks regarding the deployment of a U.S. Terminal High Altitude Area Defense (THAAD) missile defense system to South Korea. Later in the year, the United States and South Korea agreed to deploy one THAAD battalion in South Korea by the end of 2017.<sup>353</sup> While U.S. officials have insisted the system is solely intended to defend against missile threats from North Korea and will not affect China's nuclear deterrent,<sup>354</sup> China has opposed the deployment, arguing it exceeds U.S. and Korean defense needs and will harm China's strategic interests.<sup>355</sup> China's ambassador to South Korea even stated that THAAD deployment "could destroy [China-South Korea] bilateral relations in an instant,"<sup>356</sup> and a Chinese Foreign Ministry spokesperson warned in late September that China "will take necessary measures to defend national security interests and [the] regional strategic balance."<sup>357</sup> U.S. Army Chief of Staff Mark Milley visited Beijing in August 2016 to provide a technical briefing on the system to PLA Army General Li Zuocheng in an effort to reassure Beijing that the planned deployment will not threaten China.<sup>358</sup> (For more information on the planned deployment and on North Korea-China relations, see Chapter 3, Section 4, "China and North Korea.")

#### *South China Sea*

Tensions in the South China Sea continued to affect U.S.-China relations over the past year as well. China voiced opposition to each of the freedom of navigation operations and overflights conducted by the United States in the South China Sea in 2016, and continued its attempts to shadow and warn off U.S. vessels and aircraft.<sup>359</sup> As noted earlier, China firmly rejected the July 2016 arbitration ruling that voided many of its South China Sea maritime claims,<sup>360</sup> while the United States urged Beijing to abide by the ruling.<sup>361</sup> During his three-day visit to China in July 2016, CNO Richardson reaffirmed that the U.S. Navy would continue to conduct freedom of navigation operations in the South China Sea. He also stated that his support for "a continued and deepening navy-to-navy relationship" would be "conditioned on continued safe and professional interactions [with the PLA Navy] at sea."<sup>362</sup> Commander Wu also urged cooperation, but stated that "We will never stop our construction on the Nansha [Spratly] Islands halfway ... no matter what country or person applies pressure."<sup>363</sup>

#### *U.S. Arms Sale to Taiwan*

China issued a standard condemnation regarding the U.S. arms sale to Taiwan in December 2015, and for the first time threatened sanctions against the U.S. companies involved, although it did not suspend military exchanges as it has done in the past.<sup>364</sup> (For a detailed discussion on developments in cross-Strait relations in 2016, see Chapter 3, Section 2, "China and Taiwan.")

*Cyber Espionage*

Chinese cyber espionage against a range of U.S. entities continued in 2016, to the detriment of U.S. economic and national security. (See Chapter 2, Section 3, “China’s Intelligence Services and Espionage Threats to the United States,” for a discussion of Chinese intelligence operations and espionage against the United States. See Chapter 1, Section 1, “Year in Review: Economics and Trade,” for an update on China’s September 2015 pledge not to conduct or knowingly support cyber-enabled theft of intellectual property.)

*U.S. Rebalance to Asia*

Finally, Washington’s Asia Pacific strategy aimed at sustaining its regional leadership—the “Rebalance to Asia”—continued to undergo criticism in Beijing in 2016, likely based not on the strategy itself but on underlying differences in the two countries’ approaches to regional and international norms. (For a detailed discussion on the Rebalance strategy and U.S.-China relations, see Chapter 4, “China and the U.S. Rebalance to Asia.”)

**Conclusions**

- In 2016, an international tribunal ruled overwhelmingly in the Philippines’ favor in its case regarding China’s South China Sea claims and activities; Beijing expectedly rejected the ruling. One of the most significant findings of the ruling was that China’s claims to historic rights and resources within the “nine-dash line” have no legal basis. The strength of the ruling will be in its support from and enforcement by the international community, as the ruling itself has no enforcement mechanism. Aside from the arbitration ruling, tensions remained high in the South China Sea, as China landed several aircraft in the Spratly Islands and conducted military deployments to the Paracel Islands, both of which are disputed territories.
- The risk of escalation in tensions between China and Japan in the East China Sea and miscalculation or an accidental collision between Chinese and Japanese ships and aircraft has grown with the first instances of the Chinese navy sailing within 24 nautical miles of the disputed Senkaku Islands, the increased size of Chinese coast guard ships patrolling there, and the growing frequency of scrambles of Japanese fighter aircraft against Chinese aircraft.
- The ongoing People’s Liberation Army (PLA) reorganization, the most sweeping structural reorganization of the PLA since the 1950s, seeks to address operational and developmental challenges Beijing believes have prevented the PLA from meeting the needs of modern warfare. Operational challenges addressed by flattening command and control between Beijing and the theaters could improve the PLA’s capability to conduct joint integrated operations against a range of perceived threats along China’s periphery and within western China. Though China seeks to complete reforms by 2020, it will likely take longer. However,

once reforms are fully realized the PLA will be better positioned to execute the contingency operations assigned to each theater.

- China's reported 2016 military budget grew relative to the previous year at the lowest rate in six years, with slowing economic growth likely playing a role. Future defense spending increases should be sustainable in the near term, however. China is acquiring a growing number of increasingly advanced multi-mission ships, fighter aircraft, heavy transport aircraft, and space assets, which will increase its ability to project power both near and far from its shores. The PLA's improving force projection capabilities will strengthen its hand in regional military conflicts and support its imperative to protect its overseas interests.
- China's increasing overseas military presence reflects its interest and willingness to use military force to defend its growing overseas assets. China's global security activities likely will continue to increase as the population of Chinese nationals overseas grows along with Chinese overseas economic activity and national interests.
- China's military exercises will continue to expand in complexity and scale as the PLA works to overcome its lack of combat experience. As exercises increase in complexity they will reveal insights into specific missions or contingency operations the PLA may be preparing to conduct along China's periphery or beyond. China has also increased the number and type of military exercises it holds with other countries; many of these exercises focused on nontraditional security challenges, including counterterrorism, antipiracy, and humanitarian assistance/disaster relief, helping the PLA improve its capacity to conduct such operations and ease other countries' anxieties about China's military modernization.
- Despite cooperation on several areas of mutual interest and the continued expansion of security ties, U.S.-China relations over the past year continued to be strained. Points of tension included China's activities in the South China Sea, the planned deployment of a U.S. Terminal High Altitude Area Defense (THAAD) missile defense system to South Korea, the U.S. arms sale to Taiwan, Chinese cyber espionage activities, and the U.S. Rebalance to Asia strategy.

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## SECTION 2: DEVELOPMENTS IN CHINA'S MILITARY EXPEDITIONARY AND FORCE PROJECTION CAPABILITIES

### Introduction

Chinese defense and national security white papers highlight multiple military missions that would require the People's Liberation Army (PLA) to conduct operations beyond the territorial boundaries of the People's Republic of China (PRC), to include anti-piracy, peacekeeping, and humanitarian assistance/disaster relief (HA/DR) operations.<sup>1</sup> Chinese military strategic thinkers likewise discuss the need for the PLA to pursue long-distance, or expeditionary, operational capabilities.<sup>2</sup> The requirements to support these operations include developing long-range naval, air, as well as intelligence, surveillance, and reconnaissance capabilities to advance and safeguard national interests and conduct military operations at greater distances from China's periphery.<sup>3</sup> The term associated with these missions is "non-war"<sup>4</sup> operations. As China's interests and activities abroad grow, the U.S. Department of Defense (DOD) asserts the PLA's "military modernization program has become progressively more focused on investments for a range of missions beyond China's periphery, including power projection" operations.<sup>5</sup>

This capability, regardless of whether referred to as "expeditionary" or "long-distance," will boost the PLA's ability to conduct warfighting missions further into the Western Pacific and beyond. Kristen Gunness, chief executive officer of Vantage Point Asia LLC and an adjunct senior international policy analyst at the RAND Corporation, testified to the Commission that "many of the expeditionary capabilities that the PLA is investing in or improving are ... 'overlap' capabilities that are useful across a range of mission sets, including antiaccess/area denial,\* cross-border [operations], and expeditionary missions."<sup>6</sup> Examples of developments within the PLA that enhance these capabilities include the construction of surface warfare and amphibious ships, strike aircraft, and attack submarines; the improvement of air and sealift capacity; and the application of lessons learned from joint training and operational deployments.

This section analyzes the security challenges, evolving missions, joint operational developments, and military modernization efforts associated with China's interest in developing an expeditionary force projection capability throughout and beyond the second island

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\*According to DOD, "antiaccess" actions are intended to slow deployment of an adversary's forces into a theater or cause them to operate at distances farther from the conflict than they would prefer. "Area denial" actions affect maneuvers within a theater, and are intended to impede an adversary's operations within areas where friendly forces cannot or will not prevent access. U.S. Department of Defense, *Air Sea Battle: Service Collaboration to Address Anti-Access & Area Denial Challenges*, May 2013, 2.

chain;\* it also examines the implications for the United States and U.S. allies and partners in the Asia Pacific.† This analysis draws from the Commission’s January 2016 hearing on developments in China’s military force projection and expeditionary capabilities, consultations with experts on Chinese military affairs, the Commission’s July 2016 trip to China and India, and open source research and analysis.

## **Factors Driving China’s Interest in Expeditionary Capabilities**

### ***Security Challenges***

China’s 2015 defense white paper, entitled “China’s Military Strategy,” identifies a range of Chinese security concerns that include challenges to territorial integrity, security of citizens abroad, terrorism, ongoing border disputes, recurring regional crises, and the potential for local wars.<sup>7</sup> The strategic military thinking outlined in the white paper highlights expanding military activities that are intended to enhance China’s efforts to defend “core interests,” although it does not indicate a departure from the PLA’s traditional military missions (which include defending the Chinese Communist Party [CCP], defending the homeland, and unifying with Taiwan). However, according to Timothy Heath, a senior international defense research analyst with the RAND Corporation, “The rising importance placed [by the 2015 defense white paper] on the protection of the nation’s expanding interests marks a profound shift in security policy. While continuing to prioritize peaceful means to strengthen control over its core interests and improve its strategic position, China is at the same time preparing for more coercive options short of war.”<sup>8</sup>

### **China’s Core Interests**

Chinese officials began making core interest declarations in 2003 to characterize Beijing’s concern that Taiwan was steadily moving toward de jure independence. In 2011 China issued a white paper titled “China’s Peaceful Development” that defined core interests as “state sovereignty, national security, territorial integrity and national reunification, China’s political system established by the Constitution and overall social stability, and the basic safeguards for ensuring sustainable economic and social de-

\*The first island chain refers to a line of islands running through the Kurile Islands, Japan and the Ryukyu Islands, Taiwan, the Philippines, Borneo, and Natuna Besar. The second island chain is farther east, running through the Kurile Islands, Japan, the Bonin Islands, the Mariana Islands, and the Caroline Islands. PLA strategists and academics have long asserted the United States relies primarily on the first island chain and the second island chain to strategically “encircle” or “contain” China and prevent the PLA Navy from operating freely in the Western Pacific. Hai Tao, “PRC Article Surveys China’s Naval Rivals, Challenges,” *Guoji Xianqu Daobao*, January 6, 2012. Staff translation; Bernard D. Cole, *The Great Wall at Sea (2nd ed.)*, Naval Institute Press, 2010, 174–176.

†Many of the long-range expeditionary capabilities the PLA is pursuing would enable the combat insertion of troops conducting island landing operations during an invasion of Taiwan. However, this section is focused on a range of contingencies or requirements driving the PLA to build an expeditionary capability for operations within and beyond the second island chain or along China’s land borders.

### **China's Core Interests—Continued**

velopment.”<sup>9</sup> In 2015, the Standing Committee of the National People's Congress passed a new National Security Law that expanded the country's authoritative rule over a far greater list of “core interests,” including space and cyberspace.<sup>10</sup> Zheng Shuna, a National People's Congress official, explained at the unveiling of the new National Security Law in Beijing that “the country must defend its sovereignty, security, and development interests. It must also maintain political and social stability. . . . Any government will stand firm and will not leave any room for disputes, compromises, and interference when it comes to protecting core interests. China is no exception.”<sup>11</sup> Chinese officials make core interest declarations, especially those focused on national sovereignty and territorial integrity, to advance foreign policy objectives. Occasionally, Chinese officials have indicated Beijing would be willing to use force to protect China's core interests.<sup>12</sup>

Some core interest statements issued by senior Chinese leadership include:

- The first time a Chinese official spoke publicly about core interests in a diplomatic context was in 2003. Tang Jiaquan, then Chinese foreign minister, told then U.S. secretary of State Colin Powell concerning Taiwan that “the Taiwan issue concerns China's core interests [and] proper handling of this issue is key to ensuring the stable development of U.S.-China relations.”<sup>13</sup>
- In November 2008, a Chinese Foreign Ministry spokesperson responding to a question about then French president Nicolas Sarkozy's meeting with the Dalai Lama said “the Chinese Government is resolute and clear-cut on issues of major principles, including those involving China's sovereignty and territorial integrity, its national core interest, and the feelings of the Chinese people. [China] resolutely oppose[s] [the Dalai Lama's] separatist activities in any country in whatever capacity, and his contact with foreign governments and leaders in whatever form.”<sup>14</sup>
- More recently, Chinese President and General Secretary of the CCP Xi Jinping, during a July 2016 meeting with U.S. National Security Advisor Susan Rice, called upon “China and the United States to effectively manage their differences and respect each other's core interests.”<sup>15</sup> President Xi's statement came after the July 12, 2016, ruling released by the Permanent Court of Arbitration in The Hague concerning the UN Convention on the Law of the Sea case on China's claims and activities in the South China Sea.<sup>16</sup>

These security concerns are driving China to pursue capabilities that would facilitate PLA operations abroad in defense of Chinese interests. Oriana Skylar Mastro, an assistant professor of Security Studies at Georgetown University's Edmund A. Walsh School of

Foreign Service, testified to the Commission that “commercial, economic, and political reasons are pushing China to give greater consideration to global threats and opportunities.”<sup>17</sup> As more Chinese citizens travel abroad and China’s overseas interests expand,\* China is becoming increasingly exposed to threats that instability or hostile activity pose to citizens and investments beyond China’s borders.<sup>18</sup> In recent years, anti-China sentiment has led to the targeting of Chinese citizens and economic interests abroad:

- In August 2016, a suicide car bomber attacked the Chinese Embassy in Kyrgyzstan, killing himself and wounding three Kyrgyz employees of the embassy. Following the attack, the Chinese Ministry of Foreign Affairs stated that China “will strengthen antiterrorism cooperation with regional countries including Kyrgyzstan under bilateral and the Shanghai Cooperation Organization ... frameworks, clamp down on all forms of terrorism, and take tangible efforts to ensure the safety of Chinese institutions and people in relevant countries and uphold regional peace and stability.”<sup>19</sup>
- Also in August 2016, the Islamic State of Iraq and the Levant (ISIL) conducted a terrorist attack against a hospital in Quetta, Pakistan, that killed 74 people. Lieutenant General Asim Saleem Bajwa, director general of Inter-Services Public Relations for Pakistan’s military, claimed the attack was “specifically targeting the China-Pakistan Economic Corridor.”<sup>20</sup>
- In August 2015, three Chinese tourists were killed during a terrorist attack targeting a shrine in Bangkok, Thailand. Although unconfirmed, some analysts and officials have suggested the attack specifically targeted Chinese tourists.<sup>21</sup>
- In July 2015, the Chinese government issued a travel warning in Turkey after Asian tourists were harassed in Istanbul during protests against China’s abuses of Uyghurs in Xinjiang.<sup>22</sup>
- In 2015, ISIL—which in 2014 identified China as a country that deprives Muslims of their rights<sup>23</sup>—killed a Chinese citizen who had been held hostage for several months.<sup>24</sup>
- In 2014, three Filipino men angry about Chinese business and environmental practices sought to carry out attacks against Manila’s international airport, the Chinese embassy in Manila, and Chinese workers in the Philippines.<sup>25</sup> The plots failed, and Filipino authorities arrested the men.<sup>26</sup>

Even if not specifically targeted, Chinese citizens traveling, working, or living abroad face safety and security concerns. For example, in 2011 four Chinese oil workers were among many foreign workers abducted by Revolutionary Armed Forces of Colombia

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\* Between May 2013 and May 2014, Chinese citizens conducted 98 million overseas trips and 20,000 Chinese companies operated in more than 180 countries. China’s Department of Consular Affairs has assessed that by 2020 Chinese citizens will make 150 million trips overseas per year. Oriana Skylar, “The Foreign Policy Essay: Why China Will Become a Global Military Power,” *Lawfare* (Blog), January 11, 2015; Keira Lu Huang, “‘Not Enough’ Consular Officers to Serve Chinese Nationals, Foreign Ministry Says,” *South China Morning Post* (Hong Kong), May 19, 2014.

guerrillas in Colombia and held captive for nearly 18 months before being released.<sup>27</sup>

### Security along China's One Belt, One Road

A potential source of security risks to Chinese citizens and investments abroad is China's "One Belt, One Road" initiative,\* which employs economic engagement—primarily through infrastructure investment—to advance China's broader geostrategic goals and economic growth.<sup>28</sup> The land route associated with this initiative—the Silk Road Economic Belt—includes projects in unstable portions of South and Central Asia, making it potentially vulnerable to terrorist attacks.†<sup>29</sup> Dr. Mastro suggests the "PLA is eager to collect its portion of the political and fiscal patronage that accompanies the One Belt, One Road initiative, and has largely agreed that the PLA should be responsible for protecting Chinese interests along the One Belt and One Road," which observers note "may require China to abandon its long-standing policy of avoiding security entanglements abroad."<sup>30</sup> (For an in-depth discussion of China's One Belt, One Road initiative in South Asia, see Chapter 3, Section 1, "China and South Asia.")

Although China may initially rely on local military and security forces ‡ to protect Chinese citizens working on the One Belt, One Road initiative, constituencies within China's security apparatus argue the PLA should have a larger role in protecting the corridor.<sup>31</sup> China has experience deploying troops abroad while conducting counterterrorism exercises with the Shanghai Cooperation Organization (SCO),§ and enacted a counterterrorism law that provides the PLA and other Chinese security forces a legal basis to deploy abroad with host country permission.<sup>32</sup> The existing military cooperation between SCO members, coupled

\*China's "One Belt, One Road" initiative is a culmination of several policies and projects aimed at linking China with its trading partners. The "Silk Road Economic Belt," announced by President Xi in 2013, runs through South and Central Asia, and its maritime corollary, the "21st Century Maritime Silk Road," runs from China's coast through Southeast Asia and the Indian Ocean to Africa and the Mediterranean Sea. U.S.-China Economic and Security Review Commission, *2015 Annual Report to Congress*, November 2015, 23.

†According to Andrew Small, a transatlantic fellow with the German Marshall Fund of the United States, "For several years, notably from 2004 to 2008, Pakistan was the most dangerous overseas location for Chinese nationals, who faced politically-motivated targeting from groups ranging from the Balochistan Liberation Army to the Pakistani Taliban." U.S.-China Economic and Security Review Commission, *Hearing on China-South Asia Relations*, written testimony of Andrew Small, March 10, 2016.

‡While Pakistan has pledged to provide a 20,000-strong security force for Chinese workers, including 10,000 police and 10,000 military troops, China is concerned about competency and rampant corruption within the Pakistani police. Chinese scholar, meeting with Commissioners, Beijing, China, June 24, 2016.

§The SCO, established in 2001 by China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan, is the primary vehicle for China's security engagement with Central Asia. In addition to the SCO's six member states, it has six observer states (Afghanistan, Belarus, India, Iran, Mongolia, and Pakistan). India and Pakistan are in the process of becoming full SCO members. Counterterrorism is the stated primary focus of the SCO, although the organization ostensibly concerns itself with a wide range of issues, including economic cooperation, energy ties, counternarcotics, tourism, cultural exchanges, and international affairs. Xinhua, "China Voice: SCO Provides New Paradigm for Global Security Cooperation," June 29, 2016; U.S.-China Economic and Security Review Commission, *2015 Annual Report to Congress*, November 2015, 406.

### **Security along China's One Belt, One Road—Continued**

with the new counterterrorism law, could provide the PLA an opportunity to conduct limited expeditionary operations in conjunction with another SCO member should security conditions along the One Belt, One Road corridor deteriorate and Chinese citizens and infrastructure investments be threatened.

*The SCO and counterterrorism training:* Since 2002, China has participated in 15 SCO exercises that focused primarily on counterterrorism and provided Chinese troops experience operating in overseas locations.<sup>33</sup> China also pursues bilateral counterterrorism cooperation outside the SCO framework, including with Kazakhstan, Pakistan, Thailand, and the United States.<sup>34</sup>

*Counterterrorism and Beijing's principle of noninterference:* According to a study prepared for the Commission by CNA, a non-profit research and analysis organization, China's 2015 Counterterrorism Law\* suggests "Beijing is considering a more expeditionary approach to countering terrorist threats in the future," and notes that the new law "provides an explicit legal basis for Chinese public security and state security forces to engage in counterterrorism operations overseas, with permission of the host governments† and after reporting to the State Council."<sup>35</sup> This would provide Beijing an option for conducting joint counterterrorism operations along portions of the One Belt, One Road corridor and elsewhere.

### **Evolving PLA Missions**

The growing need for Beijing to protect Chinese interests abroad is not entirely new. In 2004, then Chinese president and general secretary of the CCP Hu Jintao introduced the "New Historic Missions," which included guidance for the PLA to "safeguard national interests" and "promote world peace and common development"—a dramatic change in the PLA's mission.<sup>36</sup> The 2015 defense white paper, influenced by guidance from the New Historic Missions, outlined eight strategic tasks, or missions, currently assigned to the

\*China's counterterrorism law, enacted in January 2016, defines terrorism as "advocacy or behavior aimed at realizing political or ideological objectives through means of violence, destruction, intimidation, or other methods or creating social panic, endangering public safety, violating persons or infringing property, or coercing state organs or international organizations." Murray Scot Tanner and James Bellacqua, "China's Response to Terrorism," *CNA* (prepared for the U.S.-China Economic and Security Review Commission), June 16, 2016, 33–34.

†China is unlikely to conduct expeditionary missions in foreign countries without first obtaining permission from the host country. In her testimony to the Commission, Dr. Mastro writes "China has had a historical aversion to alliances and overseas basing; China argues that its rejection of such 'hegemonic' behaviors is critical evidence that it will be a different, more peaceful, great power. China's policy of not interfering in the domestic affairs of other countries also continues to be an influential principle, in part because of the ongoing need to protect itself from international criticism, separatist movements, and calls for democracy or greater protection of human rights. Pressures for continuity, such as the belief that interference is ineffective, the desire to promote China's leadership in the developing world, and the deep-rooted desire to be a different type of great power than the United States or former colonial powers, affect calculations of costs, benefits, and appropriate responses to its expanding overseas interests." U.S.-China Economic and Security Review Commission, *Hearing on Developments in China's Military Force Projection and Expeditionary Capabilities*, written testimony of Oriana Skylar Mastro, January 21, 2016.

PLA.<sup>37</sup> In addition to safeguarding the CCP, the missions outlined and tasked to the PLA in the 2015 white paper are:

- Safeguarding sovereignty and security of China’s territorial land, air, and sea;
- Safeguarding unification of the motherland;
- Safeguarding security and interests in new domains;\*
- Safeguarding security of China’s overseas interests;
- Maintaining strategic deterrence and ability to carry out nuclear counterattack;
- Participating in regional and international security cooperation and maintaining regional and world peace;
- Strengthening efforts in operations against infiltration, separatism, and terrorism so as to maintain China’s political security and social stability; and
- Performing emergency rescue and disaster relief, rights and interests protection, guard duties, and support for national economic and social development.<sup>38</sup>

Several of these missions require some degree of expeditionary capability.<sup>39</sup>

Of note, to date many of the missions conducted by the PLA that have an expeditionary component have contributed to international efforts to enhance peace, security, and stability. For example, the PLA mobilized medical units and constructed Ebola treatment centers in Liberia during the 2014 outbreak.<sup>40</sup>

- *Noncombatant evacuation operations* † (*NEOs*): Until recently, the PLA had little experience planning and conducting NEOs, as the Ministry of Foreign Affairs had coordinated the bulk of China’s operations to evacuate Chinese citizens abroad.‡ Al-

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\* China’s 2015 defense white paper entitled “China’s Military Strategy” discusses PLA “force development in critical security domains” and contains a reference to the PLA being tasked with “safeguarding China’s security and interests in new domains.” The critical domains emphasized in the 2015 white paper are maritime, space, cyberspace, and nuclear deterrence. Discussion of the maritime domain centers on abandoning the “traditional mentality that land outweighs sea” and is an acknowledgement that China must develop a modern maritime force to protect its sea lines of communication and overseas interests. The white paper also states that China must “deal with security threats and challenges in [the space] domain, and secure its space assets . . . and maintain outer space security.” The white paper refers to cyberspace as a new national security domain requiring the PLA to develop the capability to counter threats to China’s cyber infrastructure. Finally, the white paper discusses the nuclear realm as a new domain, emphasizing nuclear deterrence by restating China’s “no first use policy” and noting that “China will optimize its nuclear force structure.” China’s State Council Information Office, *China’s Military Strategy*, May 2015.

† Noncombatant evacuation operations involve the extraction of civilians from a foreign country amid a dangerous security situation.

‡ China has conducted several evacuation operations over the past decade: In 2006, China evacuated 325 Chinese citizens from the Solomon Islands, 246 from East Timor, 170 from Lebanon, and 300 from Tonga. With the exception of the Lebanon evacuation, China relied on chartered air to extract its citizens. In Lebanon, China evacuated 170 Chinese citizens by coordinating departures through the Syrian, Cypriot, and Israeli embassies. In 2008, China evacuated 212 Chinese citizens from Chad and 3,000 Chinese tourists from Thailand. The Chadian government coordinated the transport of Chinese citizens to Cameroon. In the case of Thailand, Chinese aviation authorities arranged air transport for its citizens from Bangkok. In 2009 and 2010, China sent an aid team to Haiti to assist in earthquake relief and evacuated 48 Chinese citizens with the team upon return. In 2010, China airlifted 1,299 Chinese citizens from Kyrgyzstan. In 2011, Chinese citizens were evacuated from Egypt and Libya. In Egypt, China

Continued

though the PLA Navy did successfully plan and execute the first military-led evacuation\* of Chinese citizens from Yemen in 2015,<sup>41</sup> the operation occurred in what DOD would call a permissive environment; the PLA has no experience conducting NEOs in a hostile environment.† The success of the Yemen operation reinforced expectations of Chinese citizens that the PLA will play a greater role in such missions in the future.<sup>42</sup> The PLA's limited NEO planning experience probably motivated China's participation in a March 2016 tabletop exercise with the United Kingdom focused on noncombatant evacuation operations.<sup>43</sup>

- *Antipiracy operations:* The PLA Navy began Gulf of Aden antipiracy operations in December 2008. This operation, conducted by 24 consecutive task groups, marks the first time the PLA Navy has engaged in and sustained a mission beyond China's near seas.<sup>44</sup> The PLA Navy has used these deployments to gain logistical experience by sustaining a persistent three-ship presence off the Horn of Africa to protect Chinese merchant shipping from piracy.<sup>45</sup>
- *Humanitarian assistance and disaster relief (HA/DR):* The PLA conducts HA/DR, both within China and overseas, in the execution of nontraditional security missions.<sup>46</sup> PLA HA/DR missions to date have consisted of troops deployed to conduct search and rescue, logistics, engineering, medical, and transportation operations, and have provided the PLA opportunities to strengthen overseas operational and mobilization capabilities.<sup>47</sup>
- *Peacekeeping operations:* The PLA supports UN peacekeeping operations; as of September 2016, China maintains approximately 2,639 personnel‡ in 10 operations, largely in sub-Saha-

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chartered flights to evacuate 1,848 Chinese citizens. In Libya, China rented cruise liners, cargo ships, and fishing boats to evacuate 35,000 of its citizens and for the first time used PLA Navy ships to provide security for an evacuation operation. In 2014, China evacuated 3,500 Chinese citizens from Vietnam and 1,200 from Iraq. In 2015, China evacuated roughly 600 Chinese citizens from Yemen. The NEO was carried out by two PLA Navy frigates and a replenishment ship conducting antipiracy operations in the Gulf of Aden. The Yemen operation was followed by a NEO in Nepal, where the Chinese Ministry of Foreign Affairs organized civilian Chinese aircraft to return approximately 2,700 Chinese citizens to China. Jane Perlez and Yufan Huang, "Yemen Evacuation Shows Chinese Navy's Growing Role," *New York Times*, March 31, 2015; Xinhua, "Backgrounder: China's Major Overseas Evacuations in Recent Years," March 30, 2015; and Xinhua, "China Brings Home 2,700 Citizens from Nepal," April 29, 2015; Mathieu Duchâtel and Bates Gill, "Overseas Citizen Protection: A Growing Challenge for China," *Stockholm International Peace Research Institute*, February 12, 2014.

\*Although the PLA Air Force and Navy supported the evacuation of Chinese citizens in Libya with four Il-76 transport aircraft and a warship, the operation was coordinated by the Ministry of Foreign Affairs and relied heavily on commercial transport. Abraham M. Denmark, "PLA Logistics 2004–2011: Lessons Learned in the Field," in Roy Kamphausen, David Lai, and Travis Tanner, *Learning by Doing: The PLA Trains at Home and Abroad*, U.S. Army War College Strategic Studies Institute, November 2012, 311–315.

†U.S. defense doctrine identifies three environments—permissive, uncertain, and hostile—as possible during a NEO. Permissive environments exist when there is no resistance and a NEO requires little or no assembly of combat forces. Operations in a permissive environment focus on medical treatment, transportation, and administrative processing involved in an evacuation. An uncertain environment exists when a government lacks control over its territory, requiring troop reinforcement for the operation. A hostile environment exists when noncombatants are evacuated under conditions ranging from civil disorder to full-scale combat, requiring a sizable security force and possibly requiring forcible entry operations. Chairman of the Joint Chiefs of Staff, *Joint Publication 3–68: Noncombatant Evacuation Operations*, November 18, 2015.

‡A total of 13 Chinese troops have been killed to date during peacekeeping operations, with 3 fatalities—1 in Mali and 2 in South Sudan—occurring in 2016. China Military Online, "UN Peacekeeping Chief Hails Great Professionalism of Chinese Peacekeepers," July 28, 2016; Chi-

ran Africa and the Middle East.<sup>48</sup> In 2012, China deployed its first UN peacekeeping combat forces to the UN Mission in South Sudan to provide security for PLA engineering and medical personnel.<sup>49</sup> The 2012 deployment to South Sudan was followed in 2015 by the PLA's first deployment of an infantry battalion to support a peacekeeping operation.<sup>50</sup> Participation in peacekeeping operations has provided the PLA operational experience deploying military observers, engineers, logistics support, and medical personnel to UN missions and, according to DOD, reflects the PLA meeting requirements found in the "New Historic Missions' of taking on roles and generating capabilities for operations far beyond China's borders."<sup>51</sup>

- *Indian Ocean far sea deployments:* In early 2014, Chinese surface combatants carried out far sea training, during which they transited through the South China Sea, into the eastern Indian Ocean, and then sailed back to China through the Philippine Sea.<sup>52</sup> During the 23-day deployment, the PLA Navy conducted training associated with antisubmarine warfare, air defense, electronic warfare, and expeditionary logistics.<sup>53</sup> In addition to ongoing antipiracy operations in the Gulf of Aden, China dispatched an intelligence gathering ship to the Indian Ocean in 2012, and has deployed four classes of submarines (both nuclear and conventionally powered) to the Indian Ocean.\*<sup>54</sup> China is likely to continue to build on these developments to further the PLA's capability to conduct nontraditional security missions and to enhance its expeditionary capabilities beyond the first island chain.<sup>55</sup> (For more on China's recent activities in the Indian Ocean, see Chapter 3, Section 1, "China and South Asia.")

### **Military Modernization: Implications for Developing an Expeditionary Capability**

The force structure and capabilities for supporting and sustaining a PLA expeditionary force (beyond the nascent NEO, antipiracy, and HA/DR operational capabilities currently exhibited) outside the first island chain have yet to fully take shape.<sup>56</sup> Nevertheless, several features of China's ongoing military modernization

na's Ministry of National Defense, *Official English Transcript of PRC National Defense Ministry's News Conference*, July 28, 2016.

\*Since China deployed the SHANG-class nuclear attack submarine to the Gulf of Aden in support of PLA Navy antipiracy operations in December 2013, China has dispatched a total of three additional classes of submarine to the Indian Ocean. The PLA Navy deployed the SONG-class diesel electric submarine and the HAN-class nuclear-powered attack submarine in 2014. In 2015, China deployed the YUAN-class diesel electric submarine equipped with an air-independent power propulsion system. By deploying submarines from each of these classes, China has demonstrated the ability to conduct Indian Ocean deployments with a range of submarines from the PLA Navy's submarine order of battle. U.S. Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2016*, April 26, 2016, 22; Abhijit Singh, "Deciphering China's Submarine Deployments in the Indian Ocean Region," *Institute for Defence Studies and Analyses*, July 8, 2015; Zachary Keck, "Can China's Nuclear Submarines Blockade India?" *National Interest*, June 5, 2015; Andrew S. Erickson and Austin M. Strange, "Six Years at Sea ... and Counting: Gulf of Aden Anti-Piracy and China's Maritime Commons Presence," *Jamestown Foundation*, June 2015, 100–102; Andrew S. Erickson and Austin M. Strange, "China's Global Maritime Presence: Hard and Soft Dimensions of PLAN Antipiracy Operations," *Jamestown Foundation*, May 1, 2015; and U.S. Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2015*, April 7, 2015, 19.

could enable the PLA to sustain more robust expeditionary operations in the future. The PLA is working to increase its capacity to conduct these externally focused non-war operations, as indicated by the modernization themes identified in the 2015 defense white paper, guidance to the PLA in the form of the New Historic Missions, and reforms within the Central Military Commission with implications for command and control for operational forces overseas.<sup>57</sup>

Although China's expeditionary military capabilities are currently limited, they will increase in coming years, as will the likelihood that Beijing will use increases in capability to protect its citizens and economic interests abroad.<sup>58</sup> With the exception of conflicts involving Russia and India, the PLA probably can conduct these kinds of operations along China's periphery; however, according to *China's Incomplete Military Transformation: Assessing the Weaknesses of the People's Liberation Army*, a report prepared for the Commission by the RAND Corporation, the "PLA's ability to conduct effective offensive actions into neighboring countries is impeded by continuing logistics shortfalls ... (such as aerial tankers and airlift)."<sup>59</sup> Furthermore, to support, sustain, and defend long-range operations, the PLA must continue to develop or procure large amphibious ships, heavy lift aircraft, and logistical support capabilities, as well as continue to improve command and control capabilities.

The following aspects of the PLA's naval and air force modernization efforts will enhance China's ability to conduct expeditionary operations:

#### *Amphibious Ships*

Some expeditionary operations require amphibious ships to transport troops and equipment. Chinese analysts have suggested large amphibious ships would contribute to conducting non-war military missions such as NEOs.<sup>60</sup>

- *Amphibious transport dock*: China commissioned its fourth YUZHAO-class amphibious transport dock in February 2016, and additional ships are likely planned for the class.<sup>61</sup> The YUZHAO can carry up to four air cushion landing craft, four helicopters, armored vehicles, and troops for long-distance deployments, which DOD notes "provide[s] a ... greater and more flexible capability for 'far seas' operations than the [PLA Navy's] older landing ships."<sup>62</sup>
- *Amphibious assault ship*: According to DOD, China seeks to construct a class of amphibious assault ships larger than the YUZHAO class that would include a flight deck for conducting helicopter operations.<sup>63</sup> China may produce four to six of these Type 081 ships with the capacity to transport 500 troops and configured for helicopter-based vertical assault.<sup>64</sup>

#### *Aircraft Carriers*

Aircraft carriers will likely play a role in China's future military actions, such as providing air and other support for antipiracy operations, NEOs, and far seas defense.<sup>65</sup> Christopher D. Yung, direc-

tor of East Asian Studies at the U.S. Marine Corps University, states the PLA recognizes “an expeditionary force . . . has to operate in an integrated, self-protected manner ” in order to “create a protective bubble around a task force,” as is called for in China’s 2008 defense white paper.<sup>66</sup> As large amphibious ships generally lack a defensive capability against an airborne or subsurface threat, any operation occurring beyond the range of land-based aircraft will require ships capable of providing air defense and prosecuting submarines to defend task groups conducting expeditionary operations.

- *Aircraft carrier Liaoning*: The PLA Navy continues to integrate the refurbished KUZNETSOV-class aircraft carrier, *Liaoning*, into the fleet.<sup>67</sup> *Liaoning*’s primary mission is fleet air defense.\* It may eventually embark a total of 36 aircraft: 24 J-15 fighters, 6 antisubmarine warfare helicopters, 4 airborne early warning helicopters,† and 2 rescue helicopters.<sup>68</sup>
- *Indigenous aircraft carrier program*: China’s Ministry of Defense confirmed China’s first indigenous aircraft carrier was under construction in December 2015.<sup>69</sup> The carrier will have a ski jump flight deck design similar to *Liaoning*, which will limit the carrier to air defense and possibly antisubmarine warfare operations.<sup>70</sup> Although the PLA Navy’s first indigenously produced aircraft carrier will be similar to *Liaoning*, future carriers are likely to be flat deck ships, like U.S. aircraft carriers, that utilize steam or magnetic catapults and would enable the PLA Navy to employ aircraft armed with heavier munitions intended for maritime strike or land attack missions.<sup>71</sup> According to DOD, China could build several aircraft carriers in the next 15 years.<sup>72</sup> China may ultimately produce five ships—for a total of six carriers—for the PLA Navy.<sup>73</sup>

### *Escort Ships*

In addition to aircraft carriers, any amphibious ships conducting expeditionary operations in far seas will require escort by multi-mission-capable surface combatants. U.S. Navy Rear Admiral (Ret.) Michael A. McDevitt, a senior fellow with CNA Corporation, testified to the Commission that the

*backbone of . . . [far] seas’ forces will be the multi-mission LUYANG II/III (Type 052C and 052D) class destroyers (DDG). They are likely to form the bulk of the warship escorts for Liaoning, any follow-on carriers, and expeditionary amphibious forces. These 8,000 ton destroyers . . . have phased-array radars and a long-range SAM [surface-to-air missile] system which provides the [navy] with its first credible area air-defense capability (the ability to de-*

\*DOD’s 2015 report on China’s military states *Liaoning*’s “smaller size limits the number of aircraft it can embark, while the ski-jump configuration . . . restricts fuel and ordnance load . . . [and] is therefore best suited to fleet air defense missions, extending air cover over a fleet operating far from land-based coverage.” U.S. Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2015*, April 7, 2015, 11.

†Shipborne early warning aircraft provide indications of approaching air threats, threat identification, and positional data to intercept aircraft operating from a carrier. Limited by its ski jump flight deck, *Liaoning* will require the PLA Navy to operate a helicopter, rather than a larger fixed wing aircraft, as an early warning aircraft.

*fend more than just oneself). Because these ships are fitted with a multi-purpose 64-cell vertical launch system, they will also be able to load land-attack cruise missiles.*<sup>74</sup>

#### *Attack Submarines*

Nuclear attack submarines, conventional diesel electric attack submarines, or attack submarines that employ air-independent power\* are likely to provide security for PLA Navy surface forces conducting expeditionary operations. Since 2014, China has deployed all three types of attack submarines to the Indian Ocean in support of PLA Navy antipiracy operations in the Gulf of Aden.<sup>75</sup>

- *Nuclear attack submarine:* Nuclear attack submarines are well suited for long-range and endurance operations. Rear Admiral McDevitt testified to the Commission that the PLA Navy has modernized its nuclear attack submarine force to include SHANG-class (Type 093) submarines, “and is expected to introduce a new class that could result in a 2020 inventory of 7–8 ... [submarines], which would exceed the United Kingdom and French ... forces and place China third globally in operational nuclear powered attack submarines, behind the United States and Russia.”<sup>76</sup>
- *Conventional attack submarine:* China’s deployment to the Indian Ocean of diesel-electric submarines (some of which employ air-independent power) suggests the PLA Navy will consider dispatching both conventionally and nuclear-powered attack submarines in support of far sea operations. Conventionally powered submarines lack the speed of nuclear submarines, but with enough lead time, dispatching a diesel-electric submarine may provide the PLA Navy more deployment flexibility with regard to managing the overall operational readiness of the submarine force.

#### *Large Transport Aircraft*

In addition to a sealift capability, expeditionary operations may require heavy lift aircraft. The Y-20 large transport aircraft entered service with the PLA Air Force in July 2016.<sup>77</sup> The Y-20 is a heavy lift aircraft in the same category as the Russian Il-76 or the U.S. C-17. The Y-20 is estimated to be capable of carrying 140 troops and flying 2,700 miles with a maximum payload capacity of 66 metric tons.<sup>78</sup> The Y-20 has been accepted by the PLA Air Force, and the aircraft could eventually support or conduct airborne command and control, logistics support, aerial refueling, and HA/DR missions.<sup>79</sup>

In addition to the Y-20, China and Ukraine have agreed to joint licensed production of the Antonov An-225 strategic airlift aircraft in China,<sup>80</sup> which will greatly improve the PLA Air Force’s strategic lift capacity for conducting expeditionary operations. The An-

\*According to the Nuclear Threat Initiative, an air-independent power propulsion system “uses liquid (or compressed) oxygen or hydrogen fuel cells, thereby allowing submarines to stay submerged for longer periods without the need for external sources of oxygen. This increased endurance also increases a submarine’s survivability.” Nuclear Threat Initiative, “Nuclear Threat Initiative Glossary.”

225 is the largest transport aircraft in the world, is powered by six Progress D-18T jet engines, and is capable of lifting a payload of more than 250 tons.<sup>81</sup> China may begin flying the An-225 by 2019.<sup>82</sup>

### *Logistics Support*

Expeditionary operations require replenishment and access to repair facilities. In addition to access to overseas logistics nodes, any PLA Navy ships conducting or supporting expeditionary operations will likely require underway replenishment ships to replenish surface combatants at sea.<sup>83</sup> Sustaining operations in areas where the PLA does not currently have an established presence will require a more robust underway replenishment capability for the PLA Navy, and access to support facilities for both naval and overseas air operations.

- *Fleet replenishment oilers*: Chinese warships, especially those conducting extended overseas deployments, may require continuous resupply at times when they are beyond the near seas and do not have access to a reliable resupply port.<sup>84</sup> The PLA Navy currently has seven FUCHI-class replenishment oilers, and could have ten replenishment ships by 2020.<sup>85</sup>
- *Overseas supply points*: Although the PLA Navy has improved access to ports overseas, replenishment (and logistics more generally) remains a concern among PLA Navy leadership.\*<sup>86</sup> In February 2016, China's Ministry of Defense announced it was constructing infrastructure for "support facilities" in Djibouti to support PLA Navy antipiracy operations in the Gulf of Aden.<sup>87</sup> This announcement may indicate the PLA is pursuing permanent access to facilities with the capabilities to support communications requirements, medical needs, ship and equipment repair, and replenishment and resupply functions along the lines of the United States' "places not bases" concept.†<sup>88</sup> (For more detail on the PLA's facility in Djibouti, see Chapter 2, Section 1, "Year in Review: Security and Foreign Affairs.") China may also seek to establish military facilities elsewhere in the region—though its ability to do this will depend on host country agreement. China has played a large role in financing and constructing civilian port infrastructure in the Indian Ocean, including the Port of Colombo and Port

\*Dr. Mastro highlights some guiding principles the PLA is likely considering regarding operations from an overseas support facility, noting "China's purpose for the base would need to be in line with host countries' interests and neighboring countries' preference and the base must be set up to protect overseas rights and interests, and cannot be used to attack other countries. Also, China's overseas access policies no doubt take into account a desire to minimize [the] 'China Threat Theory' or concerns nations have with how China may use its newfound military power in the future." U.S.-China Economic and Security Review Commission, *Hearing on Developments in China's Military Force Projection and Expeditionary Capabilities*, written testimony of Oriana Skylar Mastro, January 21, 2016.

†The term "places not bases" is used by U.S. officials to distinguish between agreements the United States has with allies, such as Japan, to permanently station forces in a country, and pacts offering temporary and limited access to overseas facilities, such as the agreement the United States has with Singapore. Prashanth Parameswaran, "Beware China's 'Basing' Strategy: Former U.S. Navy Chief," *Diplomat* (Japan), July 29, 2015; U.S. Pacific Air Forces Public Affairs, "Pacific Air Forces Modifies Command Strategy," October 10, 2014; and Emma Chanlett-Avery, "Singapore: Background and U.S. Relations," *Congressional Research Service*, July 26, 2013, 3.

of Hambantota in Sri Lanka, and Gwadar Port in Pakistan. (For more on China's port infrastructure investments in South Asia, see Chapter 3, Section 1, "China and South Asia.")

Nonmilitary assets could also contribute to China's logistics capabilities in expeditionary operations. For example, the PLA Navy has relied on Chinese state-owned shipping companies to resupply antipiracy task forces in the Gulf of Aden. According to Chinese security experts Andrew S. Erickson and Austin Strange, China Ocean Shipping (Group) Company, or COSCO, has used its extensive network of regional contacts to facilitate relations between the PLA Navy and local replenishment services suppliers in countries near the Gulf of Aden.\*<sup>89</sup> Rear Admiral McDevitt testified to the Commission that the PLA Navy has

*mastered the logistics of sustaining small task groups on distant stations. The advantage of a state-owned enterprise that is in the logistics services business worldwide ([such as] COSCO) means that China enjoys a built-in shore-based support structure at virtually all the major ports along the Pacific and Indian Oceans. When combined with its modern multi-product replenishment ships that have developed significant skill in at sea support, this has become a successful approach to logistic sustainment halfway around the world from Chinese homeports.<sup>90</sup>*

#### *Intelligence, Surveillance, and Reconnaissance Facilitating Command and Control*

The PLA will continue improving intelligence, surveillance, and reconnaissance (ISR) capabilities for supporting operational troops. Deployed PLA commanders will require a significant amount of ISR to support their missions, and space-based sensors and aircraft will play a vital role in improving commanders' operational situational awareness.<sup>91</sup> For instance, the PLA has increased its ISR coverage in the Asia Pacific with shore-based unmanned aerial vehicles (UAVs) capable of long-duration reconnaissance operations.<sup>92</sup> In addition to improving shore- and space-based sensors, surface ships—including intelligence-gathering ships—and aircraft directly supporting an operation would likely require their own ISR capability. The U.S. Office of Naval Intelligence assesses the PLA Navy "will probably emerge as one of China's most prolific UAV users,† employing UAVs to supplement manned ISR aircraft as ... they are ideally suited for this mission ... [due to] their long loiter time,

\*According to Dr. Erickson and Mr. Strange, "[A] COSCO subsidiary, COSCO West Africa, Ltd., has become the PLA [Navy's] largest partner in procuring supplies for escort ships. ... According to COSCO's website, at the close of fiscal year 2011 the company operated a fleet of 157 vessels, which were active at 159 ports in 48 countries." Andrew S. Erickson and Austin Strange, "Learning by Doing: PLAN Operational Innovations in the Gulf of Aden," *Jamestown Foundation*, October 24, 2013.

†The PLA Navy has operated UAVs from ships since at least June 2011, when a P-3C maritime surveillance aircraft operated by the Japan Maritime Self-Defense Force detected a small UAV operating above a PLA Navy frigate conducting training in the East China Sea. In addition to shipborne UAVs, China is developing long-range high-endurance UAVs such as the "Sacred Eagle" for early warning, targeting, and electronic warfare missions, as well as for satellite communications. Both ship- and land-based UAVs will likely be used in future overseas operations. U.S. Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2016*, April 26, 2016, 62; James C. Bussert, "Chinese Navy Employs UAV Assets," *SIGNAL Magazine*, April 2012.

slow cruising speed, and ability to provide near real-time information through the use of a variety of onboard sensors.”<sup>93</sup>

## **Joint Training and Operational Deployments: Lessons Learned for Developing China’s Expeditionary Capability**

### ***Joint Training***

While China continues to standardize training across the PLA by focusing on integrated joint training, the PLA has yet to conduct joint exercises specifically focused on preparation for conducting expeditionary operations. To date, the PLA has primarily focused exercises on China’s most important conflict scenarios: a Taiwan contingency or a sovereignty crisis that occurs along China’s periphery.<sup>94</sup> However, the capabilities being tested during these exercises may also provide the PLA insights for conducting future joint expeditionary operations.<sup>95</sup> For example, although the PLA’s major recurring joint exercises such as Stride, Mission Action, and Joint Action,\* described later, do not specifically focus on expeditionary operations per se, they have elements that would apply to operations in which the PLA is required to deploy a force to protect Chinese citizens abroad or defend against a challenge to a Chinese territorial claim in the East and South China seas. Mark Cozad, a senior international defense policy analyst with the RAND Corporation, underscores this issue by noting that “the skills developed during joint exercises are applicable to a range of potential future expeditionary operations.” He continues, “PLA joint training involving long-range mobility, local logistical procurement, and adapting to new operational environments is translatable to future operations to secure and protect PRC citizens and interests overseas.”<sup>96</sup> The recurring exercises that provide the best insight into these emerging skills are Stride, Mission Action, and Joint Action.

- *Stride (Kuayue)*: Stride is a long-distance ground force maneuver exercise that the PLA held three times between 2009 and 2015.<sup>97</sup> The training scenarios have ranged from a generic threat within China to a Taiwan contingency operation.<sup>98</sup> Some of the skills practiced in this exercise series have included command and control, logistics, civil-military integration, joint campaign planning, long-range firepower strike, deployment of special operational forces, urban combat, reconnaissance, information warfare, and electronic warfare.<sup>99</sup> The skills tested and evaluated could easily apply to non-war missions such as NEOs.
- *Mission Action (Shiming Xingdong)*: Mission Action, held in 2010 and 2013, was—like Stride—focused on long-range maneuver and could be applicable to a range of externally focused operations beyond a Taiwan contingency.<sup>100</sup>
- *Joint Action (Lianhe Xingdong)*: The Joint Action exercise series involves training that could be applied to supporting joint expeditionary operations. Joint Action exercises held in 2014

\*The Stride, Mission Action, and Joint Action series of exercises focus on realistic operational conditions, campaign training, and long-distance maneuvers to develop PLA capabilities to conduct large-scale joint operations. For an in-depth discussion of PLA exercises and training in general, see Chapter 2, Section 1, “Year in Review: Security and Foreign Affairs.”

and 2015 included joint operations, theater command and control, reconnaissance, information operations, logistics, ground-air integration, and civil-military integration.<sup>101</sup> Joint Action 2015 incorporated sea-air-land integration, information operations, and maritime operations.<sup>102</sup> The training during the 2015 exercise had a strong joint operations focus, and included an amphibious landing component that would be applicable for expeditionary operations, particularly against Taiwan or in the South China Sea.<sup>103</sup>

In addition to the benefit the PLA gains from evaluating its capability to conduct long-range mobility and logistics during these exercises, the PLA also gains experience exercising its joint operational planning and intelligence support. Mr. Cozad testified that a “major point of emphasis for PLA’s joint exercises is . . . improving the ability of commanders and their staffs to plan and direct operations involving forces from multiple services and arms in unfamiliar, complex environments.”<sup>104</sup> This experience would be valuable to PLA commanders executing operations abroad.

### ***Operational Deployments***

In addition to conducting joint exercises, the PLA has been studying and applying lessons learned from its own operational deployments regarding planning and logistical challenges that could have applications for future expeditionary operations. Some notable PLA deployments include:

- *PLA Army*: According to the Congressional Research Service, over the past 15 years the PLA Army has been active in conducting operational deployments, sending over “27,000 military personnel to 24 UN peacekeeping operations around the world.”<sup>105</sup> These types of deployments provide the PLA with experience in crowd control, patrolling, operational intelligence gathering, civic affairs, and interoperability with foreign forces.<sup>106</sup> Dr. Yung argues “the deployment of an infantry battalion [to South Sudan] into an austere environment will have provided the PLA with direct experience in expeditionary logistics\* and the requirements of preparing a ground combat force to deploy overseas for contingency operations.”<sup>107</sup>
- *PLA Air Force*: The PLA Air Force has conducted some notable overseas deployments. In 2010, China sent fighter aircraft to Turkey for the Anatolian Eagle exercise and participated in the Peace Mission exercise with Kazakhstan and Russia.<sup>108</sup> During the Peace Mission deployment, the PLA Air Force flew fighters from China, supported by aerial refueling tanker aircraft, to conduct training strikes against targets in Kazakh-

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\*The PLA conducts logistics support for deployed Chinese peacekeeping troops. Dennis J. Blasko, an independent consultant who has written extensively about the Chinese military, notes that in 2004 the then General Logistics Department “issued training material entitled ‘Logistics Support for Peacekeeping Forces’ based on UN guidance and the PLA’s own experience.” In addition to the PLA training to support peacekeepers, Beijing is looking to expand the PLA’s capability to preposition material to support peacekeeping operations. China’s planned military facility in Djibouti is expected to enable this capability. U.S. Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2016*, April 26, 2016, 6; Dennis J. Blasko, *The Chinese Army Today: Tradition and Transformation for the 21st Century*, Routledge, 2006, 179.

stan.<sup>109</sup> In 2014, the PLA Air Force deployed aircraft to Russia to participate in Avidarts, a Russian-held contest that tests combat skills.<sup>110</sup> In 2015, the PLA Air Force deployed aircraft to Australia to participate in search and rescue operations for missing Malaysian Airlines Flight 370.<sup>111</sup> PLA Air Force overseas deployments have not been without their challenges: during the Peace Mission exercise, for example, there were not enough foreign linguists to translate between Russian and Chinese air crews, and the PLA relied on rail rather than air transport to support logistics, which could be a constraining factor in an actual operation.<sup>112</sup> The PLA Air Force could use the lessons learned to develop processes—to include identifying requirements and developing plans for mitigating language barriers, and predeployment and logistical requirements for supporting air operations outside China—well in advance of operations.<sup>113</sup>

- *PLA Navy*: The PLA Navy has conducted multiple out-of-area deployments, sustained antipiracy operations in the Gulf of Aden since December 2008, planned and executed a NEO in Yemen, and provided at-sea security for the UN operation to remove Syrian chemical weapons.<sup>114</sup> Some of the lessons learned during these deployments involve addressing the wellbeing of deployed personnel, resolving logistical challenges, and improving communications between Chinese and foreign ships.<sup>115</sup>

The application of lessons learned from these types of activities should assist the PLA with mission planning in support of future expeditionary operations. However, the PLA may still have to work through additional planning challenges, such as dealing with any new logistical requirements that would come from expanding operations beyond geographic areas to which the PLA is currently deployed.

#### **Indicators for Monitoring Developments Concerning Near- and Long-Term Joint Expeditionary Operations**

According to a National Defense University study co-authored by Dr. Yung and Ross Rustici, a researcher with National Defense University's Institute for National Strategic Studies, five criteria could be used for monitoring the PLA's potential to further develop expeditionary capabilities:

- *Distance*: Chinese military experts have discussed the problem distance poses to operations in far seas.<sup>116</sup> Dr. Yung notes China is working toward addressing the “tyranny of distance in its ‘out of area’ operations,” and “the modernization of China’s surface combatants has allowed China’s [antipiracy] task forces to operate at greater distances.”<sup>117</sup> He continues, “A second development in support of China’s ‘distance’ problem is . . . evidence that China is building a more formalized network of facilities . . . for the purposes of

**Indicators for Monitoring Developments Concerning  
Near- and Long-Term Joint Expeditionary  
Operations—Continued**

servicing and supporting its ... forces.”<sup>118</sup> In addition to support facilities enabling maritime operations in far seas, overseas support facilities will likely be required to sustain PLA Air Force strategic lift operations abroad. Mr. Heath and Cristina Garafola, a project associate at the RAND Corporation, note “access to foreign airfields will enable the [PLA Air Force] to better carry out its non-war missions to meet these requirements.”<sup>119</sup>

- *Duration:* The duration of extended out-of-area or expeditionary operations is likely a concern for the PLA. To address this planning concern, the PLA Navy is working to improve its logistical capability. Dr. Yung states that during the early stage of the antipiracy deployments, “PLA task forces had initially been operating for a 3–4 month duration, [and] this duration has increased to the point that a typical task force is expected to operate for about 170 to 200 days.”<sup>120</sup> He notes this is in part the “result of improved logistical support networks as well as modernized surface combatants.”<sup>121</sup> As part of the ongoing reorganization of the PLA, in September 2016, the PLA established a “Joint Logistics Support Force” to support “strategic battle support missions,” indicating China is working to improve joint logistics support, which would apply to expeditionary forces operating abroad.<sup>122</sup>
- *Capacity:* China is demonstrating the ability to sustain antipiracy and other far seas operations while maintaining the capability to conduct operations in the near seas simultaneously. China has been able to achieve this capability because the PLA Navy has produced modern surface ships, such as the LUYANG II/III-class destroyers and FUCHI-class logistics ships. The acquisition of additional replenishment ships brings China’s replenishment force up to seven, and the continued acquisition of modern surface combatants provides China a larger pool of ships for deployments to increase operational capacity.<sup>123</sup> Capacity is also a limitation for the PLA Air Force’s nascent air expeditionary capability. The air force, Mr. Heath and Ms. Garafola note, “has focused heavily on developing a small number of elite units to carry out high profile missions abroad.”<sup>124</sup> Furthermore, the limited number of tanker aircraft will remain a constraint on expeditionary operations until China begins producing a tanker variant of the Y-20 to supplement its fleet of three Il-78 (MIDAS) tanker aircraft (acquired from Ukraine) and 12 H-6U tankers.<sup>125</sup> Therefore, additional tanker and strategic lift capacity would be a strong indicator the PLA Air Force intends to continue to develop an expeditionary capability.

**Indicators for Monitoring Developments Concerning  
Near- and Long-Term Joint Expeditionary  
Operations—Continued**

- *Coordination:* Coordination between ships escorting amphibious transports and ships providing logistical support during any future expeditionary operation will be essential to the success of that operation. The PLA Navy appears to be making progress here as well. Dr. Yung highlights that PLA Navy “exercises in the Western Pacific have been increasingly more complex, suggesting a process of improved command and control at the task force level. Additionally, there is some evidence of improved ability of the PLA Navy to coordinate and control vessels being escorted [in the Gulf of Aden] through an effective use of VHF [very high frequency communications] with foreign flagged vessels. This is furthermore manifested in coordinating rendezvous, managing ships of varying speeds and duration, and working out optimal formations for the protection of the escorted vessels.”<sup>126</sup>
- *Environments:* China is building military capabilities to deal with hostile air, surface, and subsurface operational environments in the far seas. The PLA Navy is working to incorporate the *Liaoning* aircraft carrier into the fleet, has begun construction of its first indigenous aircraft carrier, and likely is constructing a Type 081 amphibious assault ship, all of which would increase the anti-air and anti-surface warfare capabilities to support future anti-piracy operations.<sup>127</sup> Furthermore, the PLA Navy is equipping surface combatants with hangars to shelter anti-submarine helicopters and towed sonar arrays, which are expected to improve anti-submarine warfare capabilities.<sup>128</sup> However, Dr. Yung notes the PLA still requires “dedicated anti-missile ships capable of providing protection to its task forces like [U.S. Navy] cruisers do for the U.S. carrier strike groups.”<sup>129</sup> He surmises that “China’s [anti-air warfare] and missile defense systems are still in their infancy, so it is safe to say that for the foreseeable future [PLA Navy] ‘far seas’ operations would still be vulnerable to a concerted missile attack from land-based aircraft and other seaborne aircraft.”<sup>130</sup>

**Implications for the United States and U.S. Allies and Partners**

***Implications for U.S. Defense Policy***

Although China’s current expeditionary capabilities are limited in comparison to those of the United States, they will improve over the next 10 to 20 years and likely will be on par with second-tier powers.\*<sup>131</sup> As the PLA develops a more robust expeditionary capability, it will likely increase its capacity to conduct the types of

\*Dr. Mastro notes that second-tier military powers—such as Russia, France or the United Kingdom—have the capacity to project limited but meaningful force outside their immediate regions. Oriana Skylar Mastro, “China’s Military Is about to Go Global,” *National Interest*, December 18, 2014.

previously noted deployments in the Gulf of Aden, intercept training in the South China Sea, HA/DR operations in Southeast Asia, and naval deployments in the Indian Ocean. These capabilities, however, could also be used in combat scenarios with potential implications for U.S. interests. For example, training for visit, board, search, and seizure operations\* in conjunction with at-sea intercept training could easily be applied to a blockade operation against Taiwan and pose a threat to merchant shipping. Increased sea and airlift capacity would improve the PLA's capability to conduct combat insertion of troops during an island landing campaign.<sup>132</sup> And PLA Navy submarines operating in the Indian Ocean could delay U.S. ships headed for the South China Sea from transiting through the Indian Ocean.<sup>133</sup>

*Expeditionary Capabilities and China as a Responsible Stakeholder*

Since the 2005 address given by Robert Zoellick, then deputy secretary of State, to the National Committee on U.S.-China Relations calling for China to become a “responsible stakeholder,” the West had hoped China would play a larger role in maintaining the global order.<sup>134</sup> China has indicated an interest in working to solve pressing global problems and cooperating with the United States, to some extent, to address common threats such as climate change, piracy, terrorism, and natural disasters.<sup>135</sup> Mr. Heath notes that “the logic underpinning the argument for China to become a ‘responsible stakeholder’ . . . assumes that if Beijing contributed more to combating commonly shared threats, such as nuclear proliferation, North Korean provocations, terrorism in the Middle East, and climate change, the world would benefit—and China and the United States would enjoy healthier, more cooperative relations.”<sup>136</sup> China’s development of an expeditionary capability could facilitate cooperation, particularly in the areas of HA/DR and antipiracy operations. The United States and its allies in Asia face a conundrum, however: the same expeditionary capabilities that would enable China to embrace the role of “responsible stakeholder” and contribute to regional security could enable the PLA to pose a military threat and spur greater military competition.<sup>137</sup> This reality will likely be a great concern to U.S. allies in Asia and will require the United States to reassure allies that the United States will remain present in the region.<sup>138</sup>

While China’s development of an expeditionary capability could make China a useful partner for cooperation on nontraditional security issues in the region, the United States will need to engage both Beijing and U.S. allies concerning how this emerging capability could be employed to improve regional security.<sup>139</sup> Gabe Collins, a private researcher focused on Chinese security issues, suggests “any engagement [between the U.S. and Chinese militaries] needs to incorporate discussions to assess how China intends to use its growing power projection abilities and also explore ways to de-

\*The PLA Navy during predeployment training for Gulf of Aden antipiracy operations conducts simulations of rescue operations and participates in live fire exercises; the special operations units take part in training involving rappelling off of shipborne helicopters and visit, board, search, and seizure techniques. U.S.-China Economic and Security Review Commission, *Hearing on Developments in China’s Military Force Projection and Expeditionary Capabilities*, written testimony of Christopher D. Yung, January 21, 2016.

conflict Chinese expeditionary operations and those of other militaries in strategic regions like Africa and the Middle East.”<sup>140</sup> Mr. Collins goes on to state, “China’s developing expeditionary capabilities make it a more useful partner for cooperation on nontraditional security issues and the United States should try to increase discussions on this topic with its Chinese partners, both bilaterally and in multilateral for[a].”<sup>141</sup>

*Increased Potential for U.S. and Chinese Forces to Operate in Close Contact*

China is concerned about U.S. military presence in the Asia Pacific region.<sup>142</sup> Any development of PLA expeditionary capabilities expands Beijing’s military options for responding to perceived threats along China’s periphery, within the region beyond the first island chain, or beyond the region to defend Chinese interests and citizens abroad. This expanding presence could result in U.S. and Chinese forces conducting missions within the same operational space. PLA Navy and Air Force patrols in and beyond the South China Sea put U.S. and Chinese forces in closer operating proximity and raise the risk of miscalculation or escalation should an incident at sea occur.<sup>143</sup> This concern is reinforced by more than a decade of aggressive maneuvers by Chinese military and maritime militia forces operating close to U.S. surveillance and reconnaissance aircraft, survey ships, and naval ships conducting routine operations in and around the East and South China seas.<sup>144</sup>

**Aggressive Chinese Military or Maritime Militia Encounters**

Examples of aggressive Chinese military or maritime militia encounters include the following:

- In May 2016, two PLA Air Force fighters conducted an unsafe intercept of a U.S. EP-3 aircraft, causing the EP-3 to dive away to avoid a collision.<sup>145</sup>
- In 2013, a PLA Navy ship crossed the U.S. guided missile cruiser *Cowpens*’ bow, causing the ship to alter course to avoid a collision.<sup>146</sup>
- In 2009, the U.S. Navy ship *Impeccable* was harassed by maritime militia boats in the South China Sea.<sup>147</sup>
- In 2001, a PLA Navy fighter collided with a U.S. Navy EP-3 reconnaissance aircraft over the South China Sea.<sup>148</sup>

*Expeditionary Force and Chinese Core Interests*

While China’s nontraditional security concerns may be driving the PLA’s pursuit of an expeditionary force, the increased capabilities will provide Beijing additional tools to address traditional regional security objectives.<sup>149</sup> Mrs. Gunness highlights this concern, testifying that a recent policy shift involving Chinese leadership in

Beijing indicates China is taking an increasingly harder stance on defending issues that have been defined as core interests:

*For example, in 2013, Xi Jinping pledged that China would not ‘compromise an inch’ of any of its territorial and sovereignty claims. In June 2015, China enacted a sweeping security law intended to protect its core interests, including defending sovereignty claims and territorial integrity. Beijing also has demonstrated a growing willingness to ‘impose costs’ to deter countries from impinging on PRC core interests. Examples include the PRC restriction on imports of Philippine bananas in response to the Scarborough Reef crisis and the freezing of high-level diplomatic activity for a year in response to British Prime Minister David Cameron’s meeting with the Dalai Lama. These activities have so far been primarily nonmilitary in nature and are seen by China as efforts to manage crises and deter further escalation into the military realm. However, the development of PLA expeditionary capabilities, particularly the “overlap” capabilities that also can be used for anti-access/area denial missions, adds greater tools for potential coercive force.<sup>150</sup>*

### **Implications for U.S. Allies**

China’s pursuit of an expeditionary capability is a concern among U.S. allies and partners in Asia. The expeditionary capabilities sought by the PLA provide Beijing a wider range of options for using force to resolve territorial disputes in the future.<sup>151</sup> Furthermore, many of the capabilities required for HA/DR, NEOs, and peacekeeping operations are dual-use capabilities that can be employed in traditional war-fighting missions against weaker regional opponents.<sup>152</sup> Thus far, China has sought to manage its security interests in the Asia Pacific in part through economic engagement and military-to-military cooperation to burnish its “peaceful rise” or “peaceful development”<sup>\*</sup> image and enhance its security environment by seeking to mitigate the security concerns of its neighbors.<sup>153</sup> However, recent developments, particularly concerning China’s island-building campaign in the South China Sea and the militarization of those reclaimed features, suggest Beijing is willing to risk criticism by the United States, the region, and the wider international community for eroding the Asian security environment.<sup>154</sup>

- *South China Sea land reclamation:* In the South China Sea’s Spratly Islands, China has reclaimed more than 3,200 acres of land.<sup>155</sup> Although DOD states these “artificial islands do not provide China additional territorial or maritime rights within

<sup>\*</sup> Established in the 1990s, China’s “peaceful rise” strategy, later renamed “peaceful development,” emphasized Chinese modernization and sought to downplay fears of Chinese regional hegemonic ambitions, often referred to in Beijing as the “China threat theory.” Beijing continues to reassure its neighbors of China’s peaceful rise; however, Chinese actions to enforce its territorial and jurisdictional claims in the East and South China seas have resulted in contradiction between Beijing’s words and deeds. Robert G. Sutter, Michael E. Brown, and Timothy J. A. Adamson, “Balancing Acts: The U.S. Rebalance and Asia-Pacific Stability,” *Elliott School of International Affairs, George Washington University*, August 2013, 7; Ian Storey, “The South China Sea Dispute (Part 2): Friction to Remain the Status Quo,” *Jamestown Foundation*, June 21, 2013.

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.”<sup>156</sup> Because of these activities, some countries in the region—such as Vietnam and the Philippines—have increased military modernization efforts and support for U.S. freedom of navigation operations in the South China Sea.<sup>157</sup>

- *Chinese South China Sea presence operations and coercion:* China is using coercion to enhance its presence and control in disputed areas in the South China Sea. Beijing continues to employ China Coast Guard and PLA Navy ships to enforce claims by maintaining presence in disputed areas.<sup>158</sup> The land reclamation in the South China Sea will support China’s ability to sustain these presence operations.<sup>159</sup> The Congressional Research Service reports that South China Sea territorial disputes have “intensified in the past few years, leading to numerous confrontations and incidents involving fishing vessels, oil exploration vessels and oil rigs, coast guard ships, naval ships, and military aircraft. The intensification of the disputes . . . has substantially heightened tensions between China and other countries in the region, particularly . . . the Philippines . . . and Vietnam.”<sup>160</sup> As with its land reclamation activities, China’s military and law enforcement coercion operations have had a similar effect. For example, Vietnam is seeking U.S. defense equipment to improve the capability of the Vietnamese military to monitor and respond to Chinese challenges in the South China Sea.<sup>161</sup>

According to an interlocutor with whom the Commission met during its June 2016 trip to China and India, India is concerned about China’s expanding presence in the Indian Ocean.<sup>162</sup>

- *Submarine deployments:* Abhijit Singh, an analyst with the Institute for Defense Studies in India, notes that since a “Yuan-class submarine visited Karachi [in 2015], New Delhi has been worried over the possibility of a Chinese takeover of its maritime neighborhood. In the [guise] of antipiracy operations, Indian observers believe, Chinese submarines have been performing specific standalone missions—a process meant to lay the groundwork for a rotating but permanent deployment in the Indian Ocean.”<sup>163</sup>
- *PLA Navy surface combatant deployments:* In 2014 the PLA Navy conducted its first far seas deployment in the Indian Ocean, and carried out exercises first in the South China Sea and then in the eastern Indian Ocean with a three-ship task force.<sup>164</sup> Furthermore, PLA Navy antipiracy deployments in the Indian Ocean have included the Type-71 class amphibious ship, suggesting interest in a greater PLA Navy littoral presence beyond the first island chain.<sup>165</sup>

Regardless of Beijing’s ultimate intention, many countries in the region, including India, view any expansion in PLA expeditionary capabilities as a security concern. Dr. Mastro suggests:

*In terms of regional stability, while the Chinese leadership may only plan on building expeditionary forces to address*

*non-traditional threats, the increased capabilities may shape Chinese interests and preferred methods of achieving traditional regional security objectives. The implications for the United States and its regional allies and partners are uncertain. China's increased military role in global affairs and enhanced expeditionary capabilities could create a balancing backlash among its Asian neighbors and contribute to instability in the region, as incentives for preventive war increase with the rapid shifts in the regional balance of power. China could become confident in its ability to achieve its objectives by brute force alone, especially with domestic support. However, a global expeditionary PLA could also create a more assertive China that is positioned to provide international public goods, further enmeshing Beijing into the current world order and reducing the incentives for it to use force to resolve disputes.<sup>166</sup>*

The dual-use nature of expeditionary capabilities, therefore, is resulting in China's neighbors remaining interested in the United States being politically, economically, and militarily engaged in the Asia Pacific as a counter to an aggressive China if necessary.

### **Conclusions**

- The military capabilities China is developing will expand or improve the ability of the People's Liberation Army to conduct a range of externally focused operations, to include combat insertion, island landing operations, humanitarian assistance/disaster relief operations, noncombatant evacuation operations, and peacekeeping missions. Improvements in these areas can also strengthen China's traditional warfighting capabilities against weaker neighbors. Given its enhanced strategic lift capability, strengthened employment of special operations forces, increasing capabilities of surface vessels and aircraft, and more frequent and sophisticated experience operating abroad, China may also be more inclined to use force to protect its interests.
- China's pursuit of expeditionary capabilities, coupled with the aggressive trends that have been displayed in both the East and South China seas, are compounding existing concerns about China's rise among U.S. allies and partners in the greater Asia. This also is driving additional increases in defense acquisitions throughout the region.
- The People's Liberation Army will continue to modernize in the area of logistics, with implications for expeditionary operations. The air force will continue to see additional strategic airlift aircraft incorporated into the air order of battle, particularly once the Y-20 heavy lift aircraft enters serial production. Furthermore, China is likely to continue to seek opportunities to secure military facilities abroad, such as the one it has begun constructing in Djibouti, to facilitate a range of operations.
- Regardless of China's interest in developing a more robust expeditionary capability, regional contingencies, such as a conflict with Taiwan or concerning maritime disputes in the East or South China seas, will remain the focus of Chinese war planning.

## RECOMMENDATIONS

### *Developments in China's Military Expeditionary and Force Projection Capabilities*

The Commission recommends:

- Congress require the U.S. Department of Defense to conduct a study identifying the risks and gains associated with the United States pursuing a burden sharing strategy that utilizes emerging People's Liberation Army expeditionary capabilities to help stabilize the Asia Pacific region during a crisis or to counter a shared threat such as the spread of terrorism in Southeast Asia.

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## **SECTION 3: CHINESE INTELLIGENCE SERVICES AND ESPIONAGE THREATS TO THE UNITED STATES**

### **Introduction**

The United States faces a large and growing threat to its national security from Chinese intelligence collection operations. Among the most serious threats are China's efforts at cyber and human infiltration of U.S. national security organizations. These operations are not a recent phenomenon, but reports of Chinese espionage against the United States have risen significantly over the past 15 years.<sup>1</sup> The threat from Chinese intelligence operations also extends overseas. For example, China's growing technical intelligence\* collection capabilities are increasing its ability to monitor deployed U.S. military forces. Moreover, by infiltrating and attempting to infiltrate defense entities in U.S. ally and partner countries, China could affect U.S. alliance stability and indirectly extract sensitive U.S. national defense information. Meanwhile, the national security implications of Chinese intelligence collection operations have grown amid U.S.-China competition and Beijing's expanding military might.

This section examines the threat to U.S. national security from Chinese intelligence collection. It discusses the structure, role, capabilities, process, and operations of China's intelligence services; U.S. responses to Chinese espionage; and the implications of Chinese intelligence collection for U.S. national security.

### **China's Intelligence Services**

China's intelligence community includes Chinese government, People's Liberation Army (PLA), and Chinese Communist Party (CCP) institutions that target U.S. national security organizations. The following are descriptions of these organizations and their roles within China's intelligence community. In all cases, the top priority for these organizations is to support and preserve the CCP-led Chinese party-state.<sup>2</sup>

### ***Ministry of State Security***

The Ministry of State Security (MSS) is a Chinese government ministry answerable to both China's State Council—the chief administrative authority of the Chinese government—and the CCP Politburo Standing Committee.<sup>3</sup> According to Peter Mattis, fellow at the Jamestown Foundation, the MSS “is not unlike an amalgam of [the U.S. Central Intelligence Agency] and [the U.S. Federal Bureau of Investigation].”<sup>4</sup> The MSS conducts a variety of intelligence col-

\*“Technical intelligence” here refers to signals, imagery, electronic, and measurements and signatures intelligence.

lection operations, such as human intelligence (HUMINT) and cyber operations.<sup>5</sup>

### ***PLA Intelligence***

PLA intelligence is responsible for collecting foreign military, economic, and political intelligence\* to support military operations.<sup>6</sup> The PLA—with its subsidiary units responsible for intelligence collection—answers to China’s Central Military Commission (CMC), China’s leading military authority, which is dual-hatted as a Chinese government organization and a CCP organization.<sup>7</sup> PLA intelligence organizations conduct HUMINT operations, as well as technical intelligence collection operations, to include cyber operations.<sup>8</sup>

### ***Reforms to PLA Intelligence***

Since late 2015, China has initiated several reforms to the structure of the PLA† that have reshaped major elements of PLA intelligence. Although much is unknown about these reforms, some information has emerged that gives insight into the evolution of PLA intelligence.

#### **New PLA Agencies**

In January 2016, Chinese President and General Secretary of the CCP Xi Jinping announced the reorganization of the PLA’s four general departments (the general staff, political, logistics, and armaments departments) into 15 new agencies under the CMC.<sup>9</sup> The PLA General Staff Department, which had been the primary authority for PLA foreign intelligence collection, was reorganized into the new Joint Staff Department; however, it is still unclear whether the newly created Strategic Support Force or the Joint Staff Department will take on the former General Staff Department’s supervisory responsibilities for intelligence activities.<sup>10</sup>

Before the dissolution of the General Staff Department, the most prominent PLA organizations responsible for foreign intelligence collection were the second, third, and fourth departments of the General Staff Department. The Second Department (2PLA) was responsible for the collection and analysis of HUMINT, imagery intelligence, and tactical reconnaissance.<sup>11</sup> The Third Department (3PLA) was responsible for collecting signals intelligence and conducting cyber operations.<sup>12</sup> According to John Costello, fellow at think tank New America, 3PLA was “roughly equivalent to the U.S. National Security Agency in function and mission.”<sup>13</sup> The Fourth Department (4PLA)—responsible for electronic warfare and electronic countermeasures—surveilled foreign information networks.<sup>14</sup> In addition, theater-level PLA Army, Navy, Air Force, and missile forces contained intelligence units that mirrored the structure of General Staff Department intelligence units.<sup>15</sup> It is unclear how elements of PLA intelligence under the former General Staff Department will be reorganized within the new Joint Staff Department.

\*Political intelligence is intelligence concerned with the dynamics of the internal and external political affairs of foreign countries, regional groups, multilateral treaty arrangements, and organizations and foreign political movements directed against or having an impact on established governments or authority. Bruce W. Watson, Susan M. Watson, and Gerald W. Hopple, *United States Intelligence: An Encyclopedia*, Garland Publishing, Inc., 1990, 447.

†For more information on recent PLA reforms, see Chapter 2, Section 1, “Year in Review: Security and Foreign Affairs.”

### Strategic Support Force

In December 2015, President Xi announced the formation of the Strategic Support Force, a new branch of the PLA.<sup>16</sup> According to Song Zhongping, a professor at the PLA Rocket Force Equipment Research Academy and former PLA Second Artillery Force officer, the Strategic Support Force will consist of cyber forces “focusing on attack and defense,” space forces “focus[ing] on reconnaissance and navigation satellites,” and electronic warfare forces focusing on “jamming and disrupting enemy radar and communications.”<sup>17</sup> This suggests the Strategic Support Force will take on and centralize some intelligence collection missions and processes previously spread among various elements of the PLA. It is likely that the former 3PLA and 4PLA will be subordinated to the Strategic Support Force.<sup>18</sup>

### New Theater Command Structure

In February 2016, President Xi announced the reorganization of China’s seven military regions into five “theater commands.”<sup>19</sup> The structure of theater- and tactical-level military intelligence before and after this reorganization is difficult to discern using open sources, but it appears the PLA is moving toward greater jointness and integration of the intelligence collected by various military services to inform military decision makers.\*<sup>20</sup>

### ***Other Chinese Intelligence Services***

Several other actors in the Chinese intelligence community collect foreign intelligence. The following are two notable examples of these organizations. Both have conducted influence operations in addition to intelligence collection operations.<sup>21</sup>

#### *PLA General Political Department International Liaison Department*

In addition to the PLA’s primary military intelligence forces under the former General Staff Department, before the dissolution of the PLA’s four general departments, the PLA General Political Department International Liaison Department was responsible for collecting foreign intelligence through networks of official and unofficial agents abroad.<sup>22</sup> International Liaison Department agents used informal contacts with foreign actors to identify and investigate individuals and organizations to collect intelligence and expand China’s influence abroad.<sup>23</sup> It appears the new CMC Political Work Department may take over this mission.

#### *CCP United Front Work Department*

The United Front Work Department under the CCP Central Committee is responsible for, among other things, building and managing relationships with actors overseas to expand China’s soft power and further the CCP’s political agenda.<sup>24</sup> The department reported-

\*It appears that PLA military services (the PLA Army, Air Force, Navy, and Rocket Force), in addition to the theater commands, will have integrated technical reconnaissance units and electronic warfare and electronic countermeasure units. However, the relationship between these units and the new CMC departments and Strategic Support Force is unclear. Junichi Takeda, “President Xi’s Strong Army Strategy,” *Gunji Kenkyu* (Japan), May 2016, 50–65; Chinese military expert, interview with Commissioner.

ly participates in building foreign intelligence collection networks, particularly in Taiwan.<sup>25</sup>

### **China's Intelligence Collection Capabilities**

Assessing China's intelligence collection capabilities is difficult. Open source analysts often must rely on media reports, which are not necessarily authoritative and do not necessarily provide a full picture of China's intelligence activities. Case studies offer some insight, but public reports might not reflect the most sophisticated Chinese espionage operations.

#### ***Human Intelligence Capabilities***

Because the affiliation of Chinese intelligence agents is unknown in many cases, it is often difficult to attribute reported infiltrations to either the MSS or the former 2PLA, the two primary foreign HUMINT collectors in China's intelligence community.<sup>26</sup>

- *2PLA*: 2PLA has demonstrated it can use HUMINT operations to infiltrate and extract intelligence from prominent U.S. national security organizations. Notably, between 2004 and 2008, an agent reportedly affiliated with 2PLA successfully recruited two U.S. Department of Defense (DOD) employees, James Fondren and Gregg Bergersen. Both men passed classified U.S. national defense information to the agent (see "Targets of Chinese Espionage," later in this section).<sup>27</sup> Open sources have not indicated how the reorganization of the CMC departments will affect the subordination and control of the PLA's HUMINT organizations.
- *MSS*: In the past ten years, reported cases of Chinese espionage against the United States have not suggested MSS HUMINT operations have been effective.<sup>28</sup> In the most recent high-profile HUMINT case reportedly handled by the MSS, the ministry's U.S. informant received tens of thousands of dollars from his handlers to apply for employment at U.S. national security organizations, but was apprehended by U.S. authorities before infiltrating these organizations (see "China's Approach to HUMINT," later in this section).<sup>29</sup> However, the MSS has been notably active and successful conducting HUMINT operations against Taiwan.<sup>30</sup>

China's HUMINT agencies could become more effective as China's intelligence community pursues more aggressive operations, and as China's access to detailed sources of personal information on U.S. actors—such as the information China reportedly obtained through the U.S. Office of Personnel Management (OPM) hack—gives Chinese HUMINT collectors a wealth of information to target and recruit U.S. actors.<sup>31</sup>

#### ***Technical Intelligence Collection Capabilities***

The PLA operates an extensive and increasingly sophisticated array of ground-, sea-, air-, and space-based assets for the collection of technical intelligence.\*<sup>32</sup> Many recent developments in China's military modernization—such as the rapid development and deployment

\*"Technical intelligence" here refers to signals, imagery, electronic, and measurements and signatures intelligence.

of advanced intelligence, surveillance, and reconnaissance (ISR) ships, aircraft, and satellites—will increase China’s ability to collect intelligence on U.S. military forces and the military forces of U.S. allies and partners.\* Moreover, the PLA’s drive to increase information sharing between military units will facilitate the integration of technical intelligence to create a more accurate, real-time picture of battlefield conditions.<sup>33</sup> These developments would strengthen China’s hand in a military confrontation, or in the lead-up to a military confrontation, with the United States.<sup>34</sup>

### *Cyber Espionage*

China has a large, professionalized cyber espionage community. Chinese intelligence services have demonstrated broad capabilities to infiltrate a range of U.S. national security (as well as commercial) actors with cyber operations (see “Targets of Chinese Espionage,” later in this section). Units within the former 3PLA, in particular, have been responsible for a large number of cyber operations against U.S. actors.<sup>35</sup> According to Director of National Intelligence James Clapper, China—along with Russia, Iran, and North Korea—poses the most significant cybersecurity threat to the United States.<sup>36</sup> Moreover, according to DOD,

*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.<sup>37</sup>*

In addition to the cyber espionage elements of the MSS and PLA, many unofficial Chinese actors target the United States with cyber espionage operations. These actors include government contractors, independent “patriotic hackers,” and criminal actors.<sup>38</sup> Distinguishing between the operations of official and other Chinese cyber actors is often difficult, as is determining how these groups interact with each other. Some observers suggest China is shifting cyber espionage missions away from unofficial actors to centralize and professionalize these operations within its intelligence services.<sup>39</sup>

### **China’s Intelligence Process**

Understanding how Chinese intelligence services receive tasks, fuse intelligence, and disseminate intelligence products to decision makers is crucial to identifying what information reaches Chinese decision makers and how effectively that information is delivered. Analyzing this aspect of Chinese intelligence is difficult using open sources, but public reports and expert commentaries offer some insight.

\*For more information on China’s military modernization affecting its ISR capabilities, see U.S.-China Economic and Security Review Commission, *2015 Annual Report to Congress*, November 2015, 240–246; U.S.-China Economic and Security Review Commission, *2014 Annual Report to Congress*, November 2014, 299–314.

- *Tasking*: China's intelligence services are responsible for serving the interests of the Chinese state and the CCP.\*<sup>40</sup> The extraction of U.S. national defense information would advance these priorities by aiding China's military modernization and offering insight into U.S. national security decision making. The MSS and PLA are subordinate to—and most likely receive tasks from—the CCP Politburo Standing Committee and the CMC, respectively, and tasking from these organizations may be coordinated by a variety of organizations across the CCP, the Chinese government, and the PLA.<sup>41</sup>
- *Processing and communication to decision makers*: China may lack a well-organized system for processing and communicating intelligence to decision makers.<sup>42</sup> However, Chinese intelligence services probably share intelligence to support each other's operations. In testimony before the Commission, Mark Stokes, executive director of the Project 2049 Institute, wrote that “the PLA's [signals intelligence] community presumably provides direct support to senior policymakers and [the] HUMINT community, including the MSS, CMC Joint Staff Department Intelligence Bureau, and the CMC Political Work Department Liaison Bureau.”<sup>43</sup> Moreover, the PLA's increasing jointness most likely will facilitate the processing and communication of diverse sources of intelligence to military decision makers.<sup>44</sup>

### **China's Intelligence Collection Operations against U.S. National Security Entities**

Chinese intelligence services conduct extensive intelligence collection operations against U.S. national security entities, including private U.S. defense companies. This section examines how China conducts HUMINT operations, in particular, and highlights the threat of Chinese espionage to U.S. national security by providing examples of Chinese infiltrations and alleged infiltrations of a wide range of U.S. national security entities.

#### ***China's Approach to HUMINT***

China's approach to HUMINT is broadly similar to U.S. intelligence agencies' approach to HUMINT.<sup>45</sup> Chinese intelligence services conduct overt, covert, and clandestine intelligence collection operations † against U.S. targets through a network of agents within and outside of China working as—among other things—diplomats, defense attachés, and academics.<sup>46</sup> They employ a variety of means to recruit and handle intelligence collectors, such as blackmail, financial incen-

\*Thomas Woodrow, former senior intelligence analyst for the Pacific Command Joint Intelligence Operations Center China Division, notes that Chinese leaders describe “national strategic priorities as ‘core interests’ [and that] ... China's core interests include ‘the political stability of China’ and the ‘sovereignty and security, territorial integrity, and national unity of China.’ These core interests can also be viewed as red lines indicating a Chinese threshold for the potential use of military force.” Thomas Woodrow, “The PLA and Cross-Border Contingencies in North Korea and Burma,” in Andrew Scobell et al., *The People's Liberation Army and Contingency Planning in China*, National Defense University Press, 2015, 206.

†Overt operations are openly acknowledged by or are readily attributable to their sponsor. Covert operations are planned and executed to conceal the identity of or permit plausible denial by their sponsor. Clandestine operations are sponsored or conducted with the intent to assure the secrecy and concealment of the operation. U.S. Department of Defense, *Department of Defense Dictionary of Military and Associated Terms*, November 8, 2010, 33, 55, 180; William Safire, “Spookspeak,” *New York Times Magazine*, February 13, 2005.

tives, and sexual entrapment.<sup>47</sup> They recruit and employ agents to collect a wide range of information, including U.S. national security secrets. Chinese intelligence services seek to recruit agents from a variety of backgrounds. According to the authors of *Chinese Industrial Espionage: Technology Acquisition and Military Modernization*, William C. Hannas, James Mulvenon, and Anna B. Puglisi,

*While Chinese intelligence does have a historically strong track record of attempting to recruit ethnic Chinese, primarily because of cultural and language affinity, more recent cases suggest that they have broadened their tradecraft to recruit non-ethnic assets as well.*<sup>48</sup>

Moreover, China has demonstrated interest in collecting intelligence through U.S. sources with indirect access to U.S. national security information.<sup>49</sup> According to Mr. Mattis,

*In one case that I am aware, Chinese intelligence pitched someone with a think tank affiliation in D.C., and his value was in, at least as it was described to him, being able to write reports about U.S.-China relations or U.S. policy toward [China] because of a broad range of contacts to whom he could reach out and speak.*<sup>50</sup>

Notably, in at least one confirmed case, Chinese intelligence recruited a recent U.S. college graduate, Glenn Duffie Shriver, while he was living in China shortly after studying abroad in China in 2002–2003.<sup>51</sup> In October 2010, Mr. Shriver pleaded guilty to conspiring to provide U.S. national defense information to Chinese intelligence officers.<sup>52</sup> He received more than \$70,000 from his Chinese handlers to apply to the U.S. Foreign Service and the Central Intelligence Agency National Clandestine Service with the intention of communicating classified U.S. national defense information to them after gaining employment.<sup>53</sup>

Although Chinese intelligence services approach foreign HUMINT collection with a similar framework to their U.S. counterparts,<sup>54</sup> their tactics differ on several points. In testimony before the Commission, Mr. Mattis said, “The distinctions between the U.S. and Chinese approaches to HUMINT probably are questions of specific techniques and comfort operating overseas.”<sup>55</sup> For example, Chinese intelligence agents have not been observed conducting dead drops,\* a common method in Western intelligence collection for the transmission of items between agents and their case officers.<sup>56</sup> Moreover, Chinese intelligence services historically appeared to recruit nearly all their agents within China, rather than recruiting agents in target or other foreign countries, although in a significant evolution, Chinese intelligence services in recent years have appeared increasingly willing to recruit agents abroad.<sup>57</sup>

### ***Targets of Chinese Espionage***

Chinese intelligence services target a broad range of U.S. national security actors, including military forces, defense industrial compa-

\*A “dead drop” is a covert procedure in which an agent leaves a message or material in a safe location for retrieval by another agent or controller at a later time. Bruce W. Watson, Susan M. Watson, and Gerald W. Hopple, *United States Intelligence: An Encyclopedia*, Garland Publishing, Inc., 1990, 148.

nies, national security decision makers, and critical infrastructure entities. These operations have far-reaching implications for U.S. national security.<sup>58</sup> Moreover, the threat to U.S. national security extends overseas. China's infiltration of the systems of U.S. allies and partners could have serious implications for U.S. alliance stability and the security of U.S. national defense information.

Although this section focuses on Chinese intelligence collection against U.S. national security entities, Chinese commercial espionage also harms U.S. national security. As National Counterintelligence Executive Bill Evanina said in July 2015, "Economic security is national security."<sup>59</sup> Intrusions by Chinese actors into U.S. companies and other commercial institutions harm both the individual companies and the overall U.S. economy, to the benefit of China.\* China recognizes the link between economic and national security, and its commercial and national security espionage efforts function in tandem to exploit it.<sup>60</sup>

The following are selected examples of China's infiltration or alleged infiltration of entities with a role in U.S. national security. In general, China's attempts to infiltrate these targets are almost certainly increasing.<sup>61</sup>

#### *U.S. Military Forces*

China's intelligence collection operations targeting U.S. military forces could give China insight into U.S. operational plans. This could allow China to more fully anticipate and more efficiently and effectively counter U.S. military operations.

- According to the Senate Committee on Armed Services, "Hackers associated with the Chinese government successfully penetrated the computer systems of U.S. Transportation Command contractors at least 20 times in a single year [from June 2012 to May 2013], intrusions that show vulnerabilities in the military's system to deploy troops and equipment in a crisis."<sup>62</sup>
- In March 2014, Benjamin Pierce Bishop, a former defense contractor at U.S. Pacific Command and retired lieutenant colonel in the U.S. Army, pleaded guilty to communicating classified national defense information, including information on joint training between the U.S. and South Korean militaries, to an unauthorized person—a Chinese woman with whom he was involved in a romantic relationship.<sup>63</sup>
- In September 2009, James Fondren, former deputy director of Pacific Command's liaison office in Washington, DC, was found guilty of engaging in unlawful communication of classified information.<sup>64</sup> According to court documents, he had written "opinion papers" containing classified DOD information concerning the PLA and sold them to a Chinese intelligence agent.<sup>65</sup>
- In March 2008, Gregg Bergersen, former analyst at the Defense Security Cooperation Agency (an agency within DOD), pleaded guilty to conspiring to disclose national defense information to persons not entitled to receive it.<sup>66</sup> Mr. Bergersen had passed

\*For additional discussion of China's commercial cyber espionage, see U.S.-China Economic and Security Review Commission, *2015 Annual Report to Congress*, November 2015, 192–228.

information to a Chinese intelligence agent and received money and gifts from the agent.<sup>67</sup> Mr. Bergersen leaked information about anticipated U.S. arms sales to Taiwan, among other subjects.<sup>68</sup>

#### *U.S. Defense Industrial Entities*

China's intelligence collection operations targeting U.S. defense industrial entities and its acquisition of sensitive defense technology could undermine U.S. military superiority by accelerating China's military modernization and giving China insight into the capabilities and operation of U.S. weapons and weapons systems.

- In June 2016, Wenxia “Wency” Man, a Chinese-born naturalized U.S. citizen, was convicted of conspiring with an agent in China to illegally export to China the MQ-9 Reaper/Predator B unmanned aerial vehicle, as well as engines used in the F-35, F-22, and F-16 jet fighters and technical data associated with these platforms.<sup>69</sup>
- In June 2016, Amin “Amy” Yu, a Chinese national and permanent resident of the United States, pleaded guilty to illegally acting as an agent of the Chinese government.<sup>70</sup> Ms. Yu illegally exported commercial technology used in marine submersible vehicles\* to conspirators at China's Harbin Engineering University, a research institute that supports PLA Navy military modernization.<sup>71</sup>
- In March 2016, Su Bin, a Chinese national, pleaded guilty to conspiring from 2008 to 2014 to steal U.S. military technical data, including data on the Boeing C-17 Globemaster military transport aircraft and jet fighter aircraft, and export this information to China.<sup>72</sup> Some of Mr. Su's co-conspirators were members of the PLA Air Force.<sup>73</sup>

#### *National Security Decision Makers and Government Organizations*

China's intelligence collection operations targeting U.S. national security decision makers and government organizations could give China insight into highly sensitive U.S. national security decision making processes.

- In August 2016, Kun Shan “Joey” Chun, a Chinese-born naturalized U.S. citizen, pleaded guilty to illegally acting as an agent of the Chinese government.<sup>74</sup> Mr. Chun was a Federal Bureau of Investigation (FBI) electronics technician. He passed sensitive information to China on, among other things, surveillance technologies used by the FBI.<sup>75</sup> Mr. Chun's Chinese contacts provided him with financial payments and partially paid for a trip to Italy and France, during which he met with a Chinese intelligence officer.<sup>76</sup>
- According to an NBC report from August 2015, since 2010 China has targeted and infiltrated the personal e-mail accounts of

\*According to the U.S. Department of Justice, “marine submersible vehicles” refers to “unmanned underwater vehicles, remotely operated vehicles, and autonomous underwater vehicles.” U.S. Department of Justice, *Florida Woman Charged in 18-Count Indictment for Conspiracy to Illegally Export Systems, Components, and Documents to China*, April 21, 2016.

many Obama Administration officials.<sup>77</sup> As of 2014 the infiltrations were ongoing, according to the report.<sup>78</sup>

- In July 2015, OPM announced that hackers had extracted personnel records of roughly 22 million U.S. citizens.<sup>79</sup> The hackers were reportedly affiliated with the MSS.<sup>80</sup> Some of the stolen files contained detailed personal information of federal workers and contractors who have applied for security clearances. Among the information extracted were the fingerprints of 5.6 million people, some of which could be used to identify undercover U.S. government agents or to create duplicates of biometric data to obtain access to classified areas.<sup>81</sup>
- In 2010, China reportedly attempted to infiltrate the e-mail accounts of top U.S. national security officials, including then Joint Chiefs of Staff chairman Admiral Mike Mullen and then chief of naval operations Admiral Gary Roughead.<sup>82</sup>
- In May 2016, Mr. Clapper said U.S. intelligence has seen evidence that foreign actors have targeted the 2016 presidential campaigns with cyber operations.<sup>83</sup> These actors most likely include Chinese intelligence services, as well as actors in Russia and other countries.<sup>84</sup> During the 2008 U.S. presidential election, China reportedly infiltrated information systems of the campaigns of then senator Barack Obama and Senator John McCain.<sup>85</sup>

### *U.S. Critical Infrastructure*

U.S. critical infrastructure\* entities are a major target of Chinese cyber operations, and China is capable of significantly disrupting or damaging these entities.<sup>86</sup> In 2013, the U.S. Department of Homeland Security reported that attacks—including cyber intrusions—on critical infrastructure could disrupt “the ability of government or industry to ... carry out national security-related missions.”<sup>87</sup> At a November 2014 hearing of the House of Representatives Permanent Select Committee on Intelligence, Admiral Michael Rogers, commander of U.S. Cyber Command and director of the National Security Agency, indicated he believed “advanced nation state adversaries” like China or Russia have the capability to “shut down vital infrastructure like oil and gas pipelines, power transmission grids, and water distribution and filtration systems.”<sup>88</sup> China reportedly has already infiltrated many U.S. critical infrastructure entities,†

\*According to the U.S. Department of Homeland Security, critical infrastructure entities are entities “considered so vital to the United States that their incapacitation or destruction would have a debilitating effect on security, national economic security, national public health or safety, or any combination thereof.” A Presidential Policy Directive from February 2013 defines 16 critical infrastructure sectors: chemical; commercial facilities; communications; critical manufacturing; dams; defense industrial base; emergency services; energy; financial services; food and agriculture; government facilities; healthcare and public health; information technology; nuclear reactors, materials, and waste; transportation systems; and water and wastewater systems. U.S. Department of Homeland Security, *Critical Infrastructure Sectors*, October 27, 2015; White House Office of the Press Secretary, *Presidential Policy Directive: Critical Infrastructure Security and Resilience*, February 12, 2013.

† In April 2016, Szuhsung “Allen” Ho, a Chinese-born naturalized U.S. citizen, and China General Nuclear Power Company, a Chinese state-owned enterprise, were indicted for conspiracy to unlawfully engage and participate in the production and development of special nuclear material outside the United States. Maria L. La Ganga, “Nuclear Espionage Charge for China Firm with One-Third Stake in UK’s Hinkley Point,” *Guardian*, August 10, 2016; U.S. Department of Justice, *U.S. Nuclear Engineer, China General Nuclear Power Company, and Energy Technology International Indicted in Nuclear Power Conspiracy against the United States*, April 14, 2016.

such as power transmission grids, and installed software that could be used to disable or destroy infrastructure components in a crisis or military conflict.<sup>89</sup>

#### *U.S. Allies and Partners*

At a minimum, China has targeted several U.S. ally and partner countries with intelligence collection operations. To the extent that the United States has shared military technology, weapons and weapons systems, and operational plans with these countries, China's infiltration of their defense establishments could compromise U.S. national security. These infiltrations also threaten U.S. alliance stability.

Among U.S. allies and partners, Taiwan is a prominent target of Chinese espionage. David Major, chief executive officer and president of the CI Centre, testified to the Commission that 56 agents of China were arrested in Taiwan from 2002 to 2016 for involvement in Chinese espionage plots to extract sensitive information—including U.S. military technology shared with Taiwan—from Taiwan defense and intelligence organizations.<sup>90</sup> The implications of this challenge for the U.S.-Taiwan relationship are particularly significant.<sup>91</sup> Taiwan relies on defense cooperation with the United States—including the transfer of U.S. military equipment—to help maintain its self-defense capabilities in the face of China's rapidly growing military might.<sup>92</sup> Moreover, Taiwan's strategic position in the Western Pacific makes its defensibility an important aspect of the U.S. alliance system and strategy for the region.<sup>93</sup>

In addition, cases of alleged Chinese infiltrations, including the following, have affected other U.S. partners:

- In July 2016, the Finnish cybersecurity firm F-Secure published a report suggesting China was responsible for cyber intrusions into the information systems of the Philippines Department of Justice, organizers of the Asia Pacific Economic Cooperation summit, and an unidentified international law firm representing the Philippines in the lead-up to the July 2016 decision by the Permanent Court of Arbitration at The Hague regarding the China-Philippines territorial dispute in the South China Sea.<sup>94</sup>
- In February 2016, a senior Norwegian intelligence official said actors in China had stolen confidential information from Norwegian companies that is now being used in Chinese military technology.<sup>95</sup> Norway is a member of the North Atlantic Treaty Organization.
- In December 2015, the Australian Broadcasting Corporation published a report suggesting China was responsible for a massive cyber intrusion into the systems of the Australian Bureau of Meteorology, which provides data to the Australian Department of Defence.<sup>96</sup> Australia is a U.S. treaty ally.
- China-based actors have conducted extensive cyber operations targeting Japan.<sup>97</sup> In February 2015, the Japan National Institute of Information and Communications Technology reported that China was responsible for 40 percent of approximately 26 billion attempts to compromise Japanese information systems in 2014.<sup>98</sup> Japan is a U.S. treaty ally.

- Chinese intelligence has recruited agents in Thailand and, reportedly, the Philippines, both of which are U.S. treaty allies.<sup>99</sup> Moreover, China allegedly handled a U.S. informant while he was traveling in Italy and France.<sup>100</sup> China's apparent shift toward more overseas recruitment and handling operations<sup>101</sup> could create a greater espionage threat environment in these and other U.S. partner countries.

### **U.S. Responses to Chinese Espionage**

Recent U.S. responses to Chinese espionage have included an April 2015 executive order allowing for sanctions in response to foreign “malicious cyber-enabled activities,”\* a September 2015 memorandum of understanding between the United States and China agreeing that neither government would “conduct or knowingly support cyber-enabled theft of intellectual property ... with the intent of providing competitive advantages to companies or commercial sectors,”<sup>102</sup> and increased U.S. Department of Justice (DOJ) investigations and prosecutions of espionage cases involving Chinese actors. (For more information on the status of the September 2015 memorandum of understanding, see Chapter 1, Section 1, “Year in Review: Economics and Trade.”) This section considers DOJ's responses in detail, as well as the U.S. Intelligence Community's response and enhanced U.S. government cybersecurity measures.†

#### **DOJ Responses**

U.S. prosecutions of alleged Chinese commercial espionage have risen sharply over the past several years. From 2014 to 2015 alone, Chinese commercial espionage cases accounted for a large portion of a 53 percent rise in commercial espionage cases investigated by the FBI.‡<sup>103</sup> Because DOJ sometimes has approached cases of defense-related espionage as commercial espionage cases—that is, cases prosecuted under commercial espionage laws, rather than defense espionage laws—these statistics probably capture a rise in Chinese espionage operations targeting U.S. national security actors.<sup>104</sup> Moreover, as noted earlier, non-defense-related Chinese commercial espionage itself threatens U.S. national security.

In February 2013, as a part of the Obama Administration's roll-out of a national strategy to protect U.S. trade secrets, then attorney general Eric Holder said DOJ “has made the investigation and prosecution of trade secret theft a top priority,” and that DOJ's National Security Division Counterespionage Section “has taken a leading role in economic espionage cases—and others affecting national security and the export of military and strategic commodities or technology.”<sup>105</sup> In the same speech, Mr. Holder highlighted the threat from China by listing successful prosecutions of individuals

\*The Obama Administration has not yet applied the sanctions against China or any other country. For additional information about the sanctions, see U.S.-China Economic and Security Review Commission, *2015 Annual Report to Congress*, November 2015, 204–205.

†For more information on the April 2015 executive order, see U.S.-China Economic and Security Review Commission, *2015 Annual Report to Congress*, November 2015, 204–205.

‡In May 2014, a federal grand jury indicted five PLA officers for computer hacking and economic espionage conducted against U.S. companies, among other offenses. Since the indictment, the U.S. government has taken no further actions in the case. U.S. Department of Justice, *U.S. Charges Five Chinese Military Hackers for Cyber Espionage against U.S. Corporations and a Labor Organization for Commercial Advantage*, May 19, 2014.

for transferring trade secrets—including, in one case, defense information—to China.<sup>106</sup>

### ***U.S. Intelligence Community Responses***

The U.S. counterintelligence response to Chinese espionage has suffered from a lack of coordination within the U.S. Intelligence Community. According to the Office of the Director of National Intelligence (ODNI) *National Counterintelligence Strategy of the United States of America 2016*, “The current and emerging [counterintelligence] challenges facing the United States require an integrated, whole-of-government response.”<sup>107</sup> The document outlines priorities for achieving this objective, such as “strengthen[ing] secure collaboration, responsible information sharing and safeguarding, and effective partnerships” among counterintelligence organizations.<sup>108</sup> However, ODNI’s Office of the National Counterintelligence Executive, which is statutorily responsible for developing the U.S. government National Counterintelligence Strategy, does not appear to have practical authority to make structural changes within the U.S. Intelligence Community toward this goal.<sup>109</sup> Michelle Van Cleave, former national counterintelligence executive, testified to the Commission that “instead of looking at the strategic implications of China’s intelligence operations, the U.S. government for the most part has adopted a case-by-case approach to dealing with the threat they represent.”<sup>110</sup> This approach has—at least publicly—largely manifested as a series of isolated espionage prosecutions, rather than a coordinated counterintelligence effort across the Federal Government.

### ***Enhanced U.S. Government Cybersecurity Measures***

The Obama Administration has taken some steps to enhance cybersecurity measures at federal agencies and government contractors, including the following:

- In December 2015, DOD issued an interim amendment to the Defense Federal Acquisition Regulation Supplement that strengthened cybersecurity requirements and cyber incident reporting requirements for defense contractors.<sup>111</sup>
- In February 2016, the Obama Administration announced the creation of the Commission on Enhancing National Cybersecurity.<sup>112</sup> The commission’s mandate includes making recommendations for measures to increase “the quality, quantity, and level of expertise of the cybersecurity workforce in the Federal Government and private sector.”<sup>113</sup> In August 2016, the commission released a request for information on critical infrastructure cybersecurity and cybersecurity research and development, among other topics.<sup>114</sup>
- In May 2016 the Federal Acquisition Regulation was amended to impose higher requirements on U.S. government contractors to safeguard their information systems from cyber intrusions and to require them to “identify, report, and correct information and information system flaws in a timely manner.”<sup>115</sup>
- The Obama Administration’s fiscal year (FY) 2017 budget proposal allotted more than \$19 billion for cybersecurity—an increase of more than 35 percent over FY 2016.<sup>116</sup>

- In July 2016, the White House issued a Presidential Policy Directive on “Cyber Incident Coordination.”<sup>117</sup> The directive created a coordination mechanism and clarified the division of labor between U.S. government agencies responsible for responding to “significant cyber incidents” affecting U.S. government and private entities.<sup>118</sup>

The U.S. government’s efforts to increase cybersecurity at national security organizations have not always been communicated clearly. In April 2016, an e-mail from U.S. Air Force Cyber Command circulated within the Air Force indicated that products of Lenovo Group Ltd.—a technology company affiliated with the Chinese government—would be removed from DOD’s “Approved Products List,” and that all Lenovo products currently in use would be removed from DOD systems.<sup>119</sup> However, within several days an Air Force spokeswoman said the message should not have been sent and indicated that DOD had not banned Lenovo products.<sup>120</sup> It is unclear how this situation was resolved.

Increased cybersecurity measures could mitigate, but will not eliminate, the threat of Chinese cyber espionage. Cyber intruders generally develop new approaches more quickly than their targets can develop defenses.<sup>121</sup> Moreover, the human element of cyber espionage is difficult, and sometimes impossible, to defend against. Poor personal cybersecurity practices and procedures among insiders, as well as intentional leaks by insiders, can aid infiltrators.<sup>122</sup>

### **Implications for U.S. National Security**

China’s illicit extraction of sensitive U.S. national security information has far-reaching consequences for U.S. interests.

In recent years, Chinese agents have extracted data on some of the most advanced weapons and weapons systems in the U.S. arsenal, such as jet fighters and unmanned submersible vehicles. The loss of these and other sensitive defense technologies undermines U.S. military superiority by accelerating China’s military modernization and giving China insight into the capabilities and operation of U.S. weapons and weapons systems.

The United States shares weapons, weapons systems, and operational plans with its allies and partners, many of whom China has targeted with espionage operations. China’s infiltrations of these countries’ defense establishments have significant implications for U.S. alliance stability. If the United States perceives significant security risks in sharing information and equipment with its partners, it could hesitate to provide such support in the future.<sup>123</sup> Even when China is not successful in extracting sensitive information, public reports of failed espionage attempts—such as the many recent reports of Chinese agents apprehended in Taiwan<sup>124</sup>—could undermine U.S. confidence in its partners and contribute to a deterioration in bilateral defense relations.

China’s infiltrations of the information systems of U.S. government organizations with a role in national security, along with infiltrations of the e-mail accounts of prominent U.S. government officials, could give China insight into U.S. government national security decision making and provide China with opportunities to manipulate it. These breaches could give China insight into inter-

nal U.S. discussions of issues relevant to U.S.-China contingencies, potentially allowing China to anticipate and counter U.S. actions, including military operations. Moreover, these breaches could give Chinese intelligence information useful for targeting and recruiting agents for espionage and influence operations.

The Chinese intelligence threat to U.S. national security will grow as China reforms and centralizes its intelligence apparatus and gains experience conducting intelligence collection operations. Its HUMINT operations, in particular, already appear to be growing more aggressive and extensive.<sup>125</sup> China's intelligence processing and communication to decision makers is likely to become more effective and efficient as the PLA moves toward joint, integrated intelligence operations. The potential resubordination and centralization of elements of the former PLA General Staff Department intelligence departments to the new Strategic Support Force also could create a more streamlined and well-coordinated intelligence apparatus.

### **Conclusions**

- Chinese intelligence has repeatedly infiltrated U.S. national security organizations and extracted information with serious consequences for U.S. national security, including information on the plans and operations of U.S. military forces and the designs of U.S. weapons and weapons systems. This information could erode U.S. military superiority by aiding China's military modernization and giving China insight into the operation of U.S. platforms and the operational approaches of U.S. forces to potential contingencies in the region.
- China's growing technical intelligence collection capabilities could strengthen China's hand in a contingency. Its extensive network of intelligence, surveillance, and reconnaissance (ISR) assets and continued development and deployment of increasingly advanced ISR platforms will increase the ability of the People's Liberation Army (PLA) to monitor U.S. forces. Moreover, the enhanced jointness of PLA intelligence at the theater level will facilitate the integration of data collected by these platforms to form a more comprehensive, real-time battlefield picture.
- Chinese intelligence reportedly has repeatedly targeted and succeeded in infiltrating the personal e-mail accounts of leading U.S. government officials. These infiltrations could give China insight into highly sensitive U.S. national security decision-making processes.
- China's infiltration of the national security establishments of U.S. allies and partners could allow China to indirectly access sensitive U.S. national security information. Moreover, these breaches could undermine the strength and stability of U.S. alliances by causing the United States to hesitate to share sensitive information with its partners.

## RECOMMENDATIONS

### *Chinese Intelligence Services and Espionage Threats to the United States*

The Commission recommends:

- Congress direct the U.S. Department of State to develop educational materials to alert U.S. citizens living and traveling abroad about recruitment efforts by Chinese intelligence agents, and to make these materials available to U.S. universities and other institutions sending U.S. students to China. Congress should also direct the U.S. Department of Defense to develop and implement a program to prepare U.S. students studying in China through Department of Defense National Security Education Programs to recognize and protect themselves against recruitment efforts by Chinese intelligence agents.
- Congress direct the Federal Bureau of Investigation to provide a classified report to Congress on what risks and concerns have been identified as associated with information systems acquired by the U.S. government, and how those risks are being mitigated. This report should identify information systems or components that were produced, manufactured, or assembled by Chinese-owned or -controlled entities.

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