



# **DYNAMIC BALANCE**

## **An Alliance Requirements Roadmap for the Asia-Pacific Region**

Patrick M. Cronin, Mira Rapp-Hooper, and Harry Krejsa

## About the Authors



Dr. Patrick M. Cronin is a Senior Advisor and Senior Director of the Asia Pacific Security Program at the Center for a New American Security. Previously, he was the Senior Director of the Institute for National Strategic Studies (INSS) at the National Defense University, where he simultaneously oversaw the Center for the Study of Chinese Military Affairs. Dr. Cronin has a rich and diverse background in both Asia-Pacific security and U.S. defense, foreign, and development policy. Prior to leading INSS, Dr. Cronin served as the Director of Studies at the London-based International Institute for Strategic Studies (IISS). Before joining IISS, Dr. Cronin was Senior Vice President and Director of Research at the Center for Strategic and International Studies (CSIS). In 2001, Dr. Cronin was confirmed as Assistant Administrator for Policy and Program Coordination, the third-ranking position at the U.S. Agency for International Development (USAID), where he led the interagency task force that helped design the Millennium Challenge Corporation.



Dr. Mira Rapp-Hooper is a Senior Fellow with the Asia-Pacific Security Program at CNAS. She is formerly a Fellow with the CSIS Asia Program and Director of the CSIS Asia Maritime Transparency Initiative. Her expertise includes Asia security issues, deterrence, nuclear strategy and policy, and alliance politics. She was previously a Stanton Nuclear Security Fellow at the Council on Foreign Relations. Dr. Rapp-Hooper is a Foreign Policy Interrupted Fellow and a David Rockefeller Fellow of the Trilateral Commission.



Harry Krejsa is a Research Associate with the Asia-Pacific Security Program at CNAS. Mr. Krejsa previously worked as a policy analyst for the Congressional Joint Economic Committee, a researcher with the Center for the Study of Chinese Military Affairs at National Defense

University, and a consultant to international security and development agencies. Mr. Krejsa has led a field analysis on political transition in Myanmar, piloted anti-terror training programs in South Asia, and served as a Fulbright Fellow in Taiwan.

## Acknowledgements

The authors would like to thank Shawn Brimley and Timothy Walton for their invaluable feedback and input. The authors are indebted to Melody Cook and Maura McCarthy for their design and editing of this report. Finally, the authors would like to thank Hannah Suh, Marcel Angliviell de la Beaumelle, and Richard Seongwon Lee for their critical support.

This project would not have been made possible without the generous support of the Government of Japan, and we owe special thanks to Shuji Maeda for all of his assistance.

## About the Asia-Pacific Security Program

The Asia-Pacific Security program seeks to inform the exercise of U.S. leadership in Asia by analyzing how the United States can rebalance its priorities; shape a rules-based regional order; modernize traditional alliances; build the capacity of new partners; and strengthen multilateral institutions and respect for the rule of law. From exploring rising maritime tensions in the region, to crafting ways to renew key alliances and partnerships, to articulating strategies to extend and enhance America's influence, the program leverages the diverse experience and background of its team, deep relationships in the region and in Washington, and CNAS' convening power to shape and elevate the conversation on U.S. policy across a changing Asia.

## Cover Photo

To confront growing anti-access/area-denial challenges in the Asia-Pacific, the United States and its partners will need to create a capabilities development roadmap based on their comparative advantages. Missile defense war games are prime opportunities for partners to plan for integrating their respective capabilities, such as in the 2013 U.S.-Japan game pictured here and the U.S.-Japan-South Korea trilateral game expected in June 2016. (U.S. Air Force/Tech. Sgt. Jerome S. Tayborn)

# **DYNAMIC BALANCE**

## **An Alliance Requirements Roadmap for the Asia-Pacific Region**

<b>2</b>	<b>Executive Summary</b>
<b>5</b>	<b>Introduction</b>
<b>10</b>	<b>The A2/AD Challenge And Third Offset Strategies</b>
<b>13</b>	<b>Flashpoints, Escalation, and A2/AD</b>
<b>18</b>	<b>Ally And Partner Approaches</b>
<b>26</b>	<b>Operating Domains</b>
<b>34</b>	<b>Conclusion: Toward An Alliance Requirements Roadmap</b>

# **EXECUTIVE SUMMARY**

**T**his study analyzes the growing anti-access/area-denial (A2/AD) challenges posed by China and explores the role that allies and partners may play in engaging these in a variety of contexts and domains. The report begins by delving into the A2/AD challenge and potential third offset strategies. The report then considers three plausible scenarios for escalation and the implications for allied and partner cooperation. Thirdly, the report explores some specific allies' and partners' requirements and approaches to countering China's A2/AD capabilities. Fourth, the report examines some of the major implications of trends for specific warfare areas or domains. Finally, the report concludes with a general alliance requirements roadmap for the next U.S. administration working in tandem with key allies and partners.

The defense component of America's rebalance to Asia must erase doubts about future U.S. power projection capability. This study analyzes the growing A2/AD challenges that seek to sow such doubts, particularly those posed by China, and it explores the role that allies and partners may play in addressing them in a variety of contexts and domains. Amid a rapidly changing regional security environment, the United States needs an alliance requirements roadmap for guiding a dynamic balance of power in which to build a rules-based order for cooperation and prosperity. This roadmap must identify capabilities to defend territorial sovereignty against cross-domain attacks, maintain open access to lines of communication to support allied reinforcements, and build upon each state's comparative advantages.

China is revising the regional order through a combination of military and non-military efforts. Aggressive military modernization efforts include an array of new weapons, especially anti-ship ballistic missiles and anti-ship cruise missiles; advanced submarines, aircraft, and surface ships; and supporting C4ISR (command and control, communications, computers, intelligence, surveillance, and reconnaissance) systems. By raising questions about the United States' ability to access and aid its allies, Beijing hopes to undermine Washington's influence in the region. An effective strategic response will require a constant recalibration of means and ways to achieve a dynamic balance. An alliance requirements roadmap can help navigate U.S. and allied officials in the right direction.

The United States will have to look beyond military tools to counter China's regional strategy. China is asserting itself by exploiting environments with weak legal and diplomatic frameworks. Disagreement over the application of the United Nations Convention on the

Law of the Sea (UNCLOS), combined with the diverse interests of Association of Southeast Asian Nations (ASEAN) members, enables Beijing's efforts to weaken and reshape the regional order.

This study examines the U.S. regional response to China's strategy and what would be required of the United States and its regional partners to maintain and strengthen a rules-based global order. Such a goal would call for engaging China when it is cooperative but also countering China when it is belligerent. This will require the United States and its regional partners to build comprehensive power, including through growing trade and investment, broadening diplomatic engagement, strengthening national and regional institutions, fostering cooperation and information sharing, and, finally, boosting military capabilities.

How and where it is best to boost those capabilities is the central concern of this report. The United States assuredly will need to rely on its allies and partners to be able to operate forward and effectively. Yet each partner's own defensive capabilities vary widely, as does the political and fiscal support necessary to grow those capabilities. As China asserts its power, regional allies and partners of the United States increasingly will share an overlapping interest in checking Beijing's potential aggression. Although each country has unique interests driving its defense posture, partners also offer comparative advantages. In addition to partners and allies considering their own vital security interests, they increasingly have an interest in contemplating how they may act as geographical force multipliers and provide complementary support to a broader regional security network. China's increasingly assertive actions in the region, combined with its military and paramilitary modernization efforts, are helping provide much of the political will for countries in the region to revisit their own defense investments and partnerships. Consequently, the following analysis seeks to define an alliance requirements roadmap and the investments on which U.S. allies and partners should focus their efforts. Viewed through lenses of likely flashpoints – including escalation over the Senkaku Islands, a cross-strait Taiwan conflict, or South China Sea contingencies – this study presents a framework to assess these defensive investments.

Japan, the most capable and advanced of the United States' allies and partners in the Asia-Pacific, faces critical decisions for advancing the operational capabilities of the U.S.-Japan alliance. New U.S.-Japan Defense Guidelines and landmark security legislation hold profound institutional implications for the two



countries' operational integration and open new doors to strengthen Japan's deterrent and response capabilities. This study recommends expanding Japan's ability to conduct dynamic defense of its territory and surrounding waters. Specifically, it recommends bolstering Japan's amphibious capabilities, naval defenses, offensive and defensive long-range strike capabilities, and dual-use space systems.

Other U.S. allies and partners similarly should consider what platforms and investments are appropriate for their particular defense requirements and their ability to complement the United States and other security partners. Australia, standing alongside Japan as one of the United States' most capable partners, has great potential to contribute to regional maritime domain awareness as well as a need for more capable naval and aerial complements. Taiwan, though also technologically advanced, faces a more local set of defensive needs and would be better served by investments tightly focused on territorial defense and infrastructure hardening.

**To counter the A2/AD challenge and pull China into a rules-based global order, an alliance requirements roadmap will be necessary not only to build technological power, but also to knit together the region's relations and skills in a stronger security framework.**

This report also considers powers with developing security forces, especially the Philippines and Vietnam but also Malaysia, Indonesia, South Korea, and India. The study recommends investments tailored to the interests and comparative advantages of these countries. For instance, India and Vietnam could evolve into important contributors to regional security to include defense co-production with the United States, while the Philippines can achieve a minimal effective maritime and air defense to shield against aggression. But all could be integrated into a shared network for maintaining situational awareness.

To counter the A2/AD challenge and pull China into a rules-based global order, an alliance requirements roadmap will be necessary not only to build technological power, but also to knit together the region's relations and skills in a stronger security framework.

The United States also must pursue its own investment roadmap in order to arrest the degradation of America's military edge.

At the operational level, long-range ISR and precision fires to include ballistic missiles and hypersonic cruise missiles should be at the fore of U.S. force posture in the region. China's A2/AD projectile strategy largely can be countered by denying a potential adversary a few fixed bases to target. This places an emphasis on access and mobile expeditionary capabilities and is facilitated by the evolution of unmanned systems, cyberspace operations, and hypersonics. Together, these can comprise a new operational paradigm within which the United States and key allies and partners can cooperate.

This study recommends such investments be focused on technologies associated with the "third offset strategy," designed primarily to prepare U.S. military forces to cope with the proliferation of long-range, precision strike weapons. Precision-guided systems once were central to American military dominance but now are increasingly pervasive and allow potential challengers to project power with great accuracy at long distances. In the Indo-Pacific region, the main challenge derives from China's rapid acquisition of systems that can threaten sustained fire out to Guam and other parts of the second island chain, more than 2,000 miles from China. For the United States to retain military technological advantages, it will need some combination of improvements, probably in the form of long-range unmanned strike, unmanned undersea vehicles, and innovative munitions.

Equipped with an alliance requirements roadmap that indicates potential investments in technology, skills, institutions, and relationships, the United States and its allies and partners will be better able to navigate the difficult road ahead as they seek their final destination of a prosperous, rules-based Asia-Pacific region.

This project is based on a series of research activities, including roundtable sessions, workshops, and a selection of commissioned essays that informed the conclusions found herein. To build a foundation of subject matter expertise, CNAS commissioned this essay series from experts in third offset strategic thinking, Asian-Pacific maritime security issues, and on partner countries in Asia. These essays were the focus of a December 2015 experts' workshop, where CNAS investigators and thought leaders discussed in depth the tools the United States, Japan, and its regional partners would need to best shape the future security environment of the Asia-Pacific. The conference papers from this workshop are cited throughout our analysis and have done much to shape the study findings.

# INTRODUCTION

**C**hina's assertive rise is creating growing turbulence in maritime Asia. Despite a slowdown in China's economic growth, Beijing is investing heavily in military and paramilitary capabilities designed to project greater influence over the East and South China Seas.<sup>1</sup> China also is increasing the activity of military operations in and around its near seas.<sup>2</sup> These capabilities include, but are not limited to, those associated with an A2/AD approach. Anti-access capabilities aim to prevent U.S. forces from entering the Asia-Pacific region should it become a theater of military operations, and area-denial capabilities seek to prevent U.S. forces' "freedom of action in the more narrow confines of the area under an enemy's direct control."<sup>3</sup> China's military modernization is heavily focused on projecting naval and air power into its near seas and includes anti-ship ballistic missiles and anti-ship cruise missiles, as well as submarines, aircraft, and surface ships, and supporting C4ISR systems. These growing Chinese capabilities are eroding the credibility of U.S. military power projection that has undergirded post-World War II stability.

This advance in high-end Chinese capabilities is compounded by the fact that Chinese leaders appear increasingly willing to risk short-term reputational costs to maximize long-term gains. With respect to sovereignty claims, this has been manifested using incremental, "salami slicing" tactics in the South China Sea.<sup>4</sup> There are both short- and long-term implications of China's security challenge and competition. How can and should the United States and its allies and partners respond, adapt, compete, and cooperate?

This emerging A2/AD challenge in the Pacific often is treated as though it falls exclusively on the shoulders of the United States. There are good reasons for this. First, the United States alone has relied on theater access to provide security to and maneuver throughout the region since the end of World War II. If China's A2/AD strategy comes to full fruition, the relative loss of access and maneuverability will be greatest for the United States. Second, A2/AD strategies are technologically intensive, relying on sophisticated missile systems and C4ISR. Given the military capability of the United States compared to other states in the region, it is expected that U.S. forces, rather than other Asian forces, will play a more prominent role in countering China's A2/AD strategy. This point would be magnified in any high-intensity conflict.

As China's military modernization has continued, analysts have focused on Beijing's use of gray-zone strategies and U.S. responses to those lower-level, incremental incursions.<sup>5</sup> There has been little recognition,

however, that gray-zone conflicts and A2/AD are not bifurcated at opposite ends of the conflict spectrum. Quite to the contrary, China's development of high-end, highly escalatory capabilities may make it more inclined to assert its interests using civilian or paramilitary means, in a new manifestation of the stability-instability paradox. Likewise, China's gray-zone strategies may serve the interests of its A2/AD approach. Nowhere is this more apparent than in the South China Sea, where China has constructed artificial islands and is now arming them with surface-to-air missiles and sophisticated radars – technologies associated with A2/AD strategies. Although the United States may retain the ability to destroy Chinese forces on these islands during a major conflict, in contingencies short of war China may be able to use these capabilities to coerce other regional states. Gray-zone strategies and emerging A2/AD challenges are, therefore, rapidly converging.

By and large, U.S. analysts have not explored the role that allies may play in responding to these challenges. This inattention has two significant consequences. First, it means that policymakers in Washington have not fully considered the role that the country's closest regional partners may play in responding to China's advances, despite the fact that these allies are among the United States' greatest regional interests and resources.<sup>6</sup> Second, it leaves longstanding U.S. allies anxious about their position in this newly contested environment, which ironically may serve China's strategic aims.<sup>7</sup>

### China's Regional Challenge

China's military modernization and assertiveness need to be placed within the wider context of China's challenge in the Asia-Pacific region. China's assertive behavior is manifested in numerous ways. China exploits ambiguous and weak legal and diplomatic frameworks, from the UNCLOS to institutions centered on the ASEAN. It conceals hard power behind the seemingly more benign image of white-hulled coast guard and law enforcement forces, even though it often uses those forces as weapons, equips many of them with arms, and is deploying them in both greater number and tonnage than any other nation in the region.<sup>8</sup> It mixes the carrots of trade, finance, and the Asian Infrastructure and Investment Bank and "One Belt, One Road" with the sticks of information warfare and mounting military deployments and operations.

Yet discerning the precise aims of Chinese behavior is difficult. China's assertiveness notwithstanding, Beijing has eschewed direct military confrontation in the past and even recently. Often Chinese leaders, both in the time of the Communist Party and before, have



viewed themselves as masters of calculated uses of force (including against nuclear-armed powers) to achieve political aims. That legacy of strategic success in this regard is currently lauded in China. China is willing to engage in specific confidence-building measures (CBMs) to limit the possibility of accidental and inadvertent escalation and conflict.

China remains a top trading partner of the United States and every nation in the Asia-Pacific region. At the same time, assessments of China's assertiveness must be tempered with a balanced look at China's vulnerabilities, including numerous internal challenges. China's economic growth is slowing, and while it has overhauled its military in the past two decades, the transformation of the People's Liberation Army (PLA) into a modern fighting force is far from complete.<sup>9</sup> Furthermore, beyond CBMs, there are numerous areas of expanding Sino-American cooperation, including with respect to trade, proliferation, climate change, and other global challenges.

### **By developing A2/AD capabilities, China seeks to erode America's preponderant military position that undergirds the regional order.**

However, China's peaceful diplomatic announcements need to be examined beside some of Beijing's less cooperative actions. Despite President Xi's vow not to militarize the South China Sea, China's behavior is a better forecaster of the future than reassuring words.<sup>10</sup> For example, building three new runways on artificial islands in the South China Sea in the past two years, deploying of surface-to-air missiles (SAMs) and modern fighter aircraft on Woody Island, and installing military radars at Cuarteron and Fiery Cross Reefs seem obvious harbingers of what is to follow. As Director of National Intelligence James Clapper concluded recently: "Based on the extent of land reclamation and construction activity, we assess that China has established the necessary infrastructure to project military capabilities in the South China Sea beyond that which is required for point defense of its outposts."<sup>11</sup> Reports that China now is actively building near Scarborough Shoal – about 125 miles from the Subic Bay area of the Philippines and close to 600 miles away from China's Hainan Island – are still another indicator of Beijing's determination to enhance its control over the South China Sea.<sup>12</sup>

China's military growth does not simply threaten to deny access and maneuver to U.S. forces; it carries far-reaching regional security implications. By investing in both the quantity and quality of its new systems, China is nibbling away at the influence of other regional players, while making it difficult for the United States and its partners to maintain escalation dominance and notional air and sea control in the long term. China's challenge is part of a larger pattern of disputing parts of the post-World War II regional order built by major stakeholders, including the United States, Japan, and many others. By developing A2/AD capabilities, China seeks to erode America's preponderant military position that undergirds the regional order.

China's military buildup is all the more worrisome when coupled with the perception that Beijing is flouting regional norms, the rule of law, and the principle of settling disputes peacefully. China's unwillingness to join the Philippines in seeking international arbitration in the South China Sea, coupled with Beijing's foot-dragging with regard to finalizing a binding Code of Conduct, is a bad omen for the entire region. China increasingly appears to have the will to ignore longstanding regional rules of the road, as well as the capability to do so.

It is not possible to know the future of China, nor the final aims of Chinese leaders bent on achieving national rejuvenation and fulfilling a "China Dream." Even if U.S. and other officials downplay China's ideology, there is little doubt that Beijing projects alternative values and uses a unified information strategy to undercut U.S. regional influence. An excellent example of this was Xi Jinping's 2014 call for an Asian security order that would exclude the United States.<sup>13</sup> Whatever Beijing's exact goals, the consequences of continuing down the current path should be clear: China may carve out an ever-larger sphere of influence so that it can determine who uses the maritime and air commons of the Asia-Pacific region. China's incremental improvements are eroding the perception, if not the reality, of U.S. power projection and thus the ability of the United States to continue to underwrite regional security. Whether or not one considers China's growing internal suppression of political rights and free speech or its use of tailored coercion in the East and South China Seas, relying on the benevolence of future Chinese leaders is a high-risk strategy. Hence, the policy imperative is to find a way to safeguard national interests and regional order in the face of China's expanding challenge to both.

### America's Regional Response

China's growing military power and assertiveness in its near periphery has clear implications for a regional order still reliant on American alliances and power projection capability. As China has invested in its ability to employ a modern military at greater range, and thus to extend its regional influence, the United States has begun to implement its own lines of effort to maintain access in the Western Pacific. This includes: the deployment of new assets to the Pacific theater; augmented regional force posture; security assistance to allies and partners; and investment in new military technologies and concepts as part of a third offset. These lines of effort can reduce U.S. vulnerability and preserve power projection capabilities in the Asia-Pacific region.

As part of its rebalance to the Pacific, the United States has deployed new assets to the region. This includes Virginia-class attack submarines, P-8 surveillance aircraft, F-22 and F-35 fighters, B-52 and B-2 bombers, Aegis missile defense-equipped vessels, and littoral combat ships, and will include the new Zumwalt stealth destroyer. It also has increased the tempo of its military exercises and broadened them to include new partners and new missions. For the most part, these are incremental changes, but they are clear acknowledgements of the challenges China's new capabilities pose.<sup>14</sup>

Washington has concluded several new rotational base access agreements that augment its posture in the region. Prior to these efforts, U.S. force posture was overwhelmingly concentrated in Northeast Asia; while it remains so, rotational agreements make it more likely that the United States will be able to maintain access to key waterways in the event of a crisis or conflict. The U.S.-Australia Force Posture Agreement has established the rotational presence of U.S. Marines in Darwin and in Northern Australia. Washington and Canberra continue to discuss follow-on access agreements. Singapore has agreed to host four littoral combat ships and a P-8 surveillance aircraft. In a recent success, the Philippines Supreme Court approved the 2014 Enhanced Defense Cooperation Agreement (EDCA). As part of the EDCA, Manila has announced that it will grant Washington rotational access to five bases in the Philippines, with additional sites likely to come. In the coming years, U.S. policymakers may seek rotational agreements with Malaysia and Vietnam.<sup>15</sup>

The United States also has made strides in the area of security assistance. Until 2015, the PACOM area of responsibility received just 1 percent of foreign military financing. The Pentagon's \$425 million Maritime Security Initiative (MSI) funds five years of partner capacity building for the Philippines, Vietnam,



*As part of its rebalance strategy, the United States has deployed new assets, like the Zumwalt-class stealth destroyer, to the Asia-Pacific region to help offset the challenges posed by China's new capabilities. (U.S. Navy courtesy of General Dynamic Bath Iron Works)*

Indonesia, Malaysia, and Thailand. The MSI is primarily focused on helping partners build their maritime domain awareness capabilities so that they can better provide for their own security. It also will provide training and maintenance assistance to recipient countries. Just 10 months after Secretary Carter announced the initiative, the first \$50 million of funding to partners was authorized; this amount will increase in the coming years.<sup>16</sup>

Finally, through the third offset and related initiatives, the United States has begun to develop capabilities and concepts that will allow it to exploit its advantages in a more contested environment. The third offset follows two prior Cold War initiatives to counteract the Soviet Union's qualitative conventional military advantages. This new offset acknowledges the increasing prevalence of precision-guided munitions, upon which American military dominance has long been predicated. The third offset seeks to exploit U.S. quantitative advantages in existing systems and qualitative advantages in next-generation systems; it also makes a renewed investment in operational concepts, war gaming, and other forms of alternative analysis. As CNAS security scholars Shawn Brimley and Loren DeJonge Schulman have asserted,

The third offset strategy is designed to help ensure that U.S. military forces can successfully operate in a world of ubiquitous precision munitions. This should be the central challenge animating U.S. force planners and strategists over the next several decades.<sup>17</sup>

What is obvious, however, is that the United States cannot achieve a durable regional order on its own. U.S. military strategy must transcend unilateral efforts or a singular focus on operations and tactics, both of which were associated, fairly or not, with earlier attempts to fashion an Air-Sea Battle concept.<sup>18</sup> An effective security posture requires the further strengthening of America's alliances and the extension of new partnerships. More operational and integrated alliances with Japan, Australia, Korea, and the Philippines will go a long way toward creating a geographically dispersed network that can work more closely on a web of security partnerships with Vietnam, Indonesia, Malaysia, Singapore, India, and others.

This Asian power web needs to be focused on achieving greater maritime and air situational awareness and local A2/AD capabilities. Harnessing these capabilities, along with establishing a more capable U.S. military presence, will make it difficult for any other single power to seek regional domination or an exclusive right to make the rules.

If the United States is going to be able to continue to operate its military forces effectively in the Asia-Pacific region, then it increasingly will have to rely on the growing capabilities of allies and partners, as well as access to their geographically distributed network and bases. That is why one of the key policy questions confronting the next U.S. administration is its plan for harnessing allies and partners to stay ahead of the curve of China's growing A2/AD capabilities. What are the critical requirements of different allies and partners? How can key allies such as Japan and Australia be leveraged to advance an organic web of security cooperation? What are the realistic next steps of advancing the capacity of allies and partners? And how can the United States forge ahead with so-called third offset strategies – which seek to tap emerging technologies, use existing technologies in innovative ways, and employ effective new concepts of operations – to counter the very capabilities that China is building and that appear to be eroding U.S. power projection?

**If the United States is going to be able to continue to operate its military forces effectively in the Asia-Pacific region, then it increasingly will have to rely on the growing capabilities of allies and partners, as well as access to their geographically distributed network and bases.**

As important as allies and partners are to the United States maintaining a future military edge, however, it remains far from certain that allies and partners can or will add significantly to U.S. capabilities. But while it seems likely that allies will be more focused on defense than power projection, it may well be the case that robust defense capabilities are precisely what the alliance security architecture needs from non-U.S. participants. Either way, both they and the United States have an interest in ensuring that the capabilities each pursues are complementary and mutually reinforcing. Strategic resilience also will be an essential attribute of U.S. allies and partners. For those partners capable of fielding emerging technologies associated with third offset strategies – such as, Japan, Korea, Australia, and Singapore – a principal challenge will be maintaining operations in what the Chinese refer to as “winning informationized local wars.”<sup>19</sup>

With these strengths and limitations in mind, how should the United States forge ahead with an alliance requirements roadmap?

# **THE A2/AD CHALLENGE AND THIRD OFFSET STRATEGIES**

## The A2/AD Challenge

China's growing ability to exercise sea and air access denial and control over portions of maritime Asia is founded on geographical fact and a military buildup supported by other instruments of policy. The most immutable fact is the enduring strategic reality of geography. China's near seas – the Yellow, East, and South China Seas – afford Beijing a long, deep continental periphery from which to project force out toward the first island chain, from the southern tip of Kyushu down through the Philippine archipelago, Brunei, and parts of Malaysia over to Singapore. The Strait of Malacca is the main sea line of communication connecting the Pacific to the Indian Ocean and through it passes roughly one-third of all global seaborne trade, including about half of all oil trade. In contrast to China's relatively favorable geographical position with respect to the East and South China Seas, U.S. forces in the region remain disproportionately concentrated in Japan and South Korea, and major reinforcements would require long and vulnerable lines of communication.

Many of the Asian states that comprise U.S. allies, partners, and interests are proximate to China, and the continental United States is far removed. Proximity and defensive depth afford China many advantages, although from a Chinese perspective those advantages are offset by the potential for other countries to be able to contain critical chokepoints. China's egress from Asia through and beyond the first island chain depends on access through these potentially vulnerable chokepoints – hence the desire to exercise absolute control over air and sea lines of communication (SLOCs). The SLOC vulnerability faced by the PLA has been likened to a geographical key to peace by Robert Kaplan.<sup>20</sup> But the increasing range of PLA forces and A2/AD capabilities is changing this equation by ceding the cost-exchange ratio of offensive forces to China. China's projectile strategy effectively puts more expensive U.S. aircraft at great risk should they seek to operate within range of China's seaboard, and allows it to hold partners like Japan and Taiwan at risk while raising the potential costs to the United States should it intervene on their behalf. The United States thus needs active engagement, the restrained use of force, and sufficient reserves to provide credible deterrence.<sup>21</sup>

This second reason for China's mounting potential ability to deny access and control the seas and airspace off its coast is a direct result of nearly two decades of near-double-digit growth in defense spending and a massive expansion in both the quantity and quality of naval, missile, air, air defense, and other systems fielded by the PLA.<sup>22</sup> Several types of attack submarines, both

nuclear and diesel-electric; anti-ship cruise, surface-to-surface, and ballistic missiles that give China precision strike capabilities out to the second island chain; advanced fighter aircraft; and vastly improved surface-to-air missiles for air defense add up to considerable defensive capability. This could give China the ability to deny U.S. power projection toward Asia and start to tip the balance of which country could win a contest for sea and air control in the first or even the second island chain over the coming decade or two. Significant growth in Chinese information-based systems, from offensive cyber capabilities to integrated C4ISR systems and advances in space systems, including anti-satellite capability, is augmenting China's military hardware. And the buildup and modernization of these forces, augmented by robust paramilitary forces in the form of coast guard and law enforcement capabilities, is giving China both numerical and increasingly qualitative superiority over most of its neighbors.

**China's projectile strategy effectively puts more expensive U.S. aircraft at great risk should they seek to operate within range of China's seaboard, and allows it to hold partners like Japan and Taiwan at risk while raising the potential costs to the United States should it intervene on their behalf.**

China is capitalizing on its geography and massive military modernization by extending its control over its near seas. By continuing to add territory in the form of artificial islands built on low-tide elevations and rocks in the Spratly Islands – and fortifying these lily pads with runways, surface-to-air missiles, high-frequency radars, and other dual-use infrastructure – China is gradually increasing the territorial and airspace dimensions of potential control, especially throughout most of the South China Sea. The United States likely retains the ability to neutralize these outposts in the case of full-blown conflict, but this would require a significant diversion of high-value U.S. assets. These islands also give China the ability to coerce other regional states in conflicts that may not involve the United States.



All of these hard power capabilities are built on a foundation of strategic communications, economic investment, and “lawfare” to advance China’s creeping assertions of sovereignty. Through the combination of military forces that extend China’s operational control and nonmilitary measures that erode others’ will and capability to respond, China is seeking to change the status quo and achieve a degree of positive control or sovereignty over most or all of the first island chain and beyond.

### **A Strategy to Counter the A2/AD Challenge**

The Department of Defense has begun to put in place several distinct lines of effort to engage the A2/AD challenge from China. These include: deployment of new military assets to the region, such as littoral combat ships to Singapore and an additional attack submarine to Guam; rotational base access agreements to augment U.S. force posture inside the theater, including those with Singapore, Australia, and the Philippines; new operational concepts that wrestle with how the United States may fight a conventional war in a more contested environment, notably Air-Sea Battle and its successor concept, Joint Access and Maneuver in the Global Commons; presence and freedom of navigation operations that aim to dissuade China from encroaching on the global commons; and third offset technological investments.

**One of the challenges the United States faces is that not only is past U.S. primacy in long-range precision-strike regime systems eroding, but it is far from clear that the United States will maintain the advantage in emerging systems.**

At two distinct inflection points during the Cold War, the United States used advanced technology and concepts of operations to gain the upper hand on an ever-modernizing Soviet force. But one of the challenges the United States faces is that not only is past U.S. primacy in long-range precision-strike regime systems eroding, but it is far from clear that the United States will maintain the advantage in emerging systems. Indeed, the same investments that have allowed peer competitors like China to master precision-guided munitions may make them well prepared to innovate on next-generation technologies, too. This is why the Pentagon is making its third offset investments alongside new operational concepts and showing a renewed interest in war gaming and other forms of alternative analysis. Given that much of this planning is secret, it is difficult to assess how well the United States is poised to maintain an advantage over China’s A2/AD capabilities.<sup>24</sup> But countering A2/AD, whether through the use of third offset strategies or not, will vary on the context.

Announced in November 2014 by then-Secretary of Defense Chuck Hagel, the third offset strategy aims to maintain military supremacy in light of advances by other nations in the area of precision-guided munitions.<sup>23</sup> These investments seek to counter China and other competitors by improving the United States’ quantitative edge in prevailing technologies; they also aim to develop new technologies, including in unmanned systems, hypersonic vehicles, and directed energy weapons, that will allow the United States to maintain a qualitative advantage over potential adversaries.



# **FLASHPOINTS, ESCALATION, AND A2/AD**

**A**s the United States and its regional allies contemplate the emerging challenges posed by China's A2/AD capabilities, there are at least three prominent escalation scenarios that should be considered. The first is a contingency in the East China Sea, in which China seizes the Senkaku Islands or parts of Japan's southwest island chain. The second is a South China Sea scenario in which China invades one or more Spratly Island features held by the Philippines. The third is an invasion of Taiwan.

For the purposes of this report, escalation is defined as an increase in the intensity or scope of a conflict that crosses thresholds that are considered significant by one or more participants.<sup>25</sup> In assessing the alliance requirements for meeting A2/AD challenges around specific flashpoints, it is useful to ask not only *where* these contingencies are likely to arise, but *how*. Hence, what are the mechanisms by which escalation may take place in the East China Sea, the South China Sea, or over Taiwan?

Conflict escalation can take at least three forms. When *deliberate escalation* occurs, a combatant purposefully increases the intensity or scope of a conflict to gain an advantage, send signals to an adversary, or avoid defeat. *Inadvertent escalation* occurs when one or more combatants deliberately take an action that is interpreted as escalatory by the adversary even though the actor does not perceive it to be so. This mechanism recognizes that escalation thresholds are inherently subjective and can be fluid. *Accidental escalation* occurs when one or more combatants make an operational mistake. This may include an unintended clash between vessels or aircraft, or one combatant bombing the wrong target.<sup>26</sup>

It is important that we clarify the most likely escalation mechanisms around each potential flashpoint, because each type of escalation requires a different form of management. If the United States and its allies hope to avoid accidental escalation, they will focus on clarifying their rules of engagement and on appropriate force management. If they hope to avoid inadvertent escalation, they will manage risk by clarifying escalation thresholds on all sides of a potential conflict. And if they hope to avert deliberate escalation, they will focus on deterrence by punishment and by denial in an effort to change their adversary's risk calculus.

The aim of using plausible scenarios of contingencies that could convulse the region between now and about 2025 is to assess possible outcomes and indicate possible needs or "gaps" that exist for U.S. and allied forces should conflict occur, which in turn will inform recommendations in the following sections of the report.

### East China Sea Escalation

The most plausible scenario for potential military escalation in the East China Sea involves a clash of vessels or aircraft, especially between China and Japan. Although occurring in a slightly different context, the 2001 midair collision involving a U.S. EP-3E reconnaissance aircraft and two Chinese fighter jets demonstrates how suddenly a crisis can ensue in contested air or maritime space.<sup>27</sup> Another route to China-Japan escalation that immediately would raise questions about U.S. extended deterrence might involve activists seizing land or vessels and the actions spiraling out of control, whether inadvertently or not. In fact, Japan has faced this type of potential crisis over the Senkakus in the past. The first significant risk of escalation through activist seizure of a rock or island occurred more than a decade ago, at a time before China and Japan had proceeded to concentrate more military and law enforcement capabilities around the Senkaku Islands (or the Diaoyutai, as the Chinese call them); more recently, China has employed fighter aircraft and unmanned surveillance drones to contest the airspace.<sup>28</sup>

Looking forward, Japan fears a deliberate escalation through a full-scale invasion of parts of the Senkakus or even Japan's Ryukyu Islands. An invasion may or may not be plausible, given the great risk to regional stability and China's relations in the region and globally. Either way, the Chinese would have to be prepared to stave off a likely joint counter-invasion. The United States has stipulated that any aggression on Japan, including on any territories administered by Japan, would be covered under the bilateral alliance treaty.<sup>29</sup> Rebuffing a deliberate invasion of islands in the East China Sea could entail an amphibious counter-invasion as well as a struggle for air superiority and local sea control. The revised 2015 bilateral defense guidelines give Japan chief responsibility for not just homeland security but also for defense in the East China Sea. At the same time, the United States' Article V commitment and accompanying declaratory policy suggest it would not stay sidelined in a major crisis.

Japan has been investing in weapons platforms that may help to forestall invasions and enable amphibious counterattacks, including: Global Hawk drones, V-22 Osprey multi-mission tilt-rotor aircraft, CH-47JA Chinook helicopters, amphibious assault vehicles, and Hyuga-class helicopter destroyers.<sup>30</sup> Also relevant is Japan's transition away from a static defense posture to a "dynamic defense" that envisions an increased operational level and tempo for the Japan Self-Defense Force (JSDF) as a whole.<sup>31</sup> Another significant investment



*The potential for escalation in the East China Sea is all too possible. Pictured here is China's Harbin guided missile destroyer during the China-Russia "Joint Sea-2014" navy exercise in the East China Sea off Shanghai. (AP)*

has been Japan's establishment of an Amphibious Rapid Deployment Brigade (ARDB) – a Marine-like unit housed within the Japan Ground Self-Defense Force (JGSDF), whose primary mission is the defense of the island chain. The JGSDF currently has approximately 700 troops in service of this mission, and the initial ARDB deployment raises this to 2,000 troops and 90 specialists.<sup>32</sup> If the ARDB is fully funded and resourced and conducts regular training with the U.S. Marines, this could go a long way toward shoring up the defense of Japan's *Nansei* or southwest islands.

Offsetting these recent investments, however, are some lingering realities regarding Japan's rate of military transformation that will need to be addressed for Tokyo to fully engage in this escalation scenario. Japan's overall defense spending remains relatively low (around 1 percent of its GDP), and Japan's general economic outlook calls for continued slow economic growth.<sup>33</sup> In addition, when it comes to bringing together Japan's armed forces, the nation continues to face significant hurdles regarding joint operations. Keeping pace with the rapidly modernizing Chinese maritime and air forces will be a formidable challenge even over the next decade.

### South China Sea Escalation

South China Sea scenarios are possible throughout the semi-enclosed body of water and are most likely to involve either the Philippines or Vietnam. However, we focus on scenarios dealing with the Philippines, because the United States is allied with Manila and increasingly seeking to expand both military activities in and access to the strategically located Southeast Asian democracy. There is growing tension arising from the confluence of Chinese reclamation and military activity in the South China Sea, the United States gaining access to five military sites within the Philippines, and a pending ruling by the International Tribunal for the Law over China's claims in the South China Sea. The *Philippines v. China* case filed by Manila includes 15 detailed claims that fall into three categories of issues: China's nine-dash line, the status of land features and their entitlements, and China's activities within the Philippine EEZ.<sup>34</sup>

Akin to the East China Sea scenario, accidental escalation could take place if Chinese and Philippine vessels or aircraft clashed in the Spratly Islands or over Scarborough Shoal. Inadvertent escalation could

transpire if China attempted to seize one or more Philippine-held features, believing it could do so without U.S. intervention, and Washington opted to intervene. Deliberate escalation would occur if Beijing launched a campaign to seize multiple South China Sea features, aiming to present the United States with a *fait accompli*.

China would rely on mainland-based forces, in addition to forces based out of Hainan and possibly other forces stationed at other islands in the South China Sea. The United States does not have forces permanently based out of the Philippines and would rely on Japan and Guam, as well as forces afloat, meaning both would operate some 500-1,000 miles away from major staging areas. China could rotationally deploy to or exercise around its artificial islands, which would mean it could have amphibious or other forces in the theater already, albeit in small numbers. China also might use an aircraft carrier. Today and for much of the decade ahead, the Philippines has little to no capacity to mount an independent response. China's artificial islands have extended its refueling and resupply range. This new "territory" could prove significant in lower-level conflict, and could grow more so if China chooses to base anti-ship cruise missiles and SAMs there. Even so, China's artificial islands are vulnerable to U.S. attack, which might occur well short of any high-intensity conflict. China would have advantages if a contingency broke out with no prior warning (or with the element of surprise). As more time passed, however, the United States could mobilize major troops and equipment, assuming that China did not find other, potentially non-kinetic, ways to dissuade Washington from leveraging its conventional military capabilities locally.

The implication of this scenario in the Spratlys is that for the foreseeable future, any attack on the Philippines would require U.S. military intervention to restore the status quo. If China launches a more discreet campaign, however, and the United States chooses not to intervene, Beijing probably would succeed in shifting the territorial status quo. Allies fare better the more warning time they have, a fact that could ensure that any Chinese move might occur with little or no notice. Preventing a *fait accompli* seizure puts a premium on building up the capacity of the Philippines. Because the Philippines will take years or even decades to shore up air and naval forces, its first priority for engaging China's growing capabilities must be to improve maritime domain awareness. At the same time, the United States and the Philippines will want to focus on improving alliance coordination mechanisms to provide for a possible combined response to aggression.

## Taiwan Escalation

A showdown over Taiwan may be as or more plausible than one in the South China Sea. As with the East and South China Sea scenarios, tensions could escalate around Taiwan through both inadvertent and deliberate mechanisms. However, unintentional sudden conflict appears the most plausible path in the foreseeable future. After the January 2016 election of Democratic Progressive Party leader Dr. Tsai Ing-wen, Beijing made it clear that any moves it interpreted as seeking political independence would be unacceptable.<sup>35</sup> Escalation most likely would be preceded by warnings in the form of loud Chinese objections and potential maneuvers in response to certain policies. A deliberate PLA campaign might commence with an attempt at achieving air superiority and sea control, potentially followed by an amphibious invasion. Taiwan, with U.S. support, would aim to thwart each of these assaults, beginning with seeking to deny China air and sea dominance over time. But the attrition of U.S. and Taiwanese forces and the constraints on in-theater U.S. forces could give Beijing every incentive to win a quick and decisive conflict through overwhelming local power and numerical advantage.

Of all the scenarios, the question of China's geographical advantage is most acutely felt in any conflict over Taiwan. The United States would rely on Air Force and Marine bases several hundred miles away in Japan (at Kaenda, Futenma, Misawa, Iwakuni, and Yokota, for instance) and as far away as Guam (Andersen Air Force Base). Meanwhile, China would operate from the mainland and would be able to produce far higher sortie rates. Although the United States might have two aircraft carriers within range, they now would be forced to confront China's growing A2/AD capabilities in the form of a variety of anti-ship ballistic and cruise missiles, as well as a tremendous increase in the capability of attack submarines.

Assessing the military balance out to 2020, the situation could become less favorable still, despite relevant new capabilities that include the supercarrier USS *Gerald R. Ford*, capable of deploying 75 aircraft; the Zumwalt-class destroyer; and some two dozen or so littoral combat ships.<sup>36</sup> In particular, when looking out to the end of this decade, whether the United States and Taiwan could hold air superiority over China is questionable.<sup>37</sup> While a longer conflict might favor U.S.-Taiwan forces, a withering Chinese assault could make it impossible to sustain a sufficient tempo from greater distances. Taiwan could invest in A2/AD capabilities that help prolong the ability to maintain air superiority and forestall a possible amphibious invasion; the latter mission should remain relatively cost-effective to achieve.

In each conflict, fighting could escalate and involve conflict in other areas throughout the region and around the world. For instance, escalation into cyber and outer space might raise conflict to global dimensions. The requirements for intense conflict transcend this report, but suffice it to say the United States needs contingency plans with its most capable allies in the event that a conflict with China does not remain a localized and short war.

**Despite U.S. defense modernization and overall conventional military superiority, there will be no substitute for the capability resident in key allies and partners.**

The three most plausible scenarios for armed conflict escalating in maritime Asia are likely to become more challenging in the decade ahead, and each presents unique technological and geographic challenges for the United States and its allies. Despite U.S. defense modernization and overall conventional military superiority, there will be no substitute for the capability resident in key allies and partners.

# **ALLY AND PARTNER APPROACHES**



**W**ith the Taiwan, East China Sea, and South China Sea escalation scenarios in mind, we turn to the roles and responsibilities of long-standing U.S. allies. Japan has deep interests in all three of these scenarios, as well as contingencies that might directly impact its home islands. Australia is clearly beginning to prepare for more sustained military competition with China, and its interests are most directly implicated in the South China Sea. Other U.S. partners may have less sophisticated militaries, but nonetheless are beginning to grapple with the implications for their own security of China's A2/AD approaches. This includes Taiwan, the Philippines, Vietnam, Malaysia, and India. Finally, as it considers its own A2/AD approach, the United States must recall that security assistance may be one of the most reliable ways it can assure access in the Asia-Pacific region.

### **Challenges for Japan and the U.S.-Japan Alliance**

Japan has a vested interest in all three A2/AD escalation scenarios and is newly able to consider its role in each, as well as in A2/AD contingencies that might directly involve the Japanese mainland. Tokyo is focused now on the implementation of the U.S.-Japan Defense Guidelines and its landmark security legislation enabling the right of collective self-defense, both of which were achieved last year. The issue of how best to strengthen U.S.-Japan operational integration is a hot topic for analysis, and includes proposals to fully tap a new alliance coordination mechanism and consider setting up a combatant command.<sup>38</sup> This section draws on the thinking of several key former Japanese officials to analyze how Japan sees the A2/AD challenge and its role in countering it.

China's A2/AD capabilities may challenge Japan in at least four broad areas: the three escalatory-crisis scenarios discussed in the previous section and the long-term peacetime competition between the United States and China.<sup>39</sup>

In a Taiwan contingency, the critical question for Japan is whether China's growing military capabilities will nullify its potential defense contribution. In this scenario, Japan's primary military mission would include securing key U.S. bases in Japan, blockading strategic chokepoints, and defending Western Pacific sea lanes. To protect U.S. forces based in Japan, the JSDF will need advanced air defenses against an ever-improving array of ballistic and cruise missiles. This is why Japan has deployed SM-3 Block IA interceptors at sea and Patriot PAC-3 interceptors on land. Under the current Mid-Term Defense Plan, Japan also plans to deploy SM-3 Block

IIA interceptors.<sup>40</sup> Despite these steps, China may be motivated to prevent Japan from successfully assisting U.S. armed forces. Japanese and American bases alike could be targeted, and Beijing probably would seek to deny Japan the sufficient political will to provide timely support for U.S. military action. Without prior Japanese approval to use its bases, U.S. forces would be grounded, and the employment of U.S. forces from Japan in the defense of Taiwan might never get started.

A contingency over or around the Senkaku Islands is different, because for the JSDF such a scenario would constitute a primary mission of sovereign territorial defense. Chinese military and paramilitary ships, as well as commercial fishing ships, regularly operate in the vicinity of the islands as well as in the contiguous zone of the islands. Indeed, between September 2012 and November 2015, Chinese government vessels entered Japanese territorial waters an average of 10 times per month.<sup>41</sup> Many experts worry that China might further increase the frequency and the capability of its maritime presence in these areas. China's coast guard is numerically superior to the Japan Coast Guard (JCG) and now includes the world's largest law enforcement vessel, the 12,000-ton "Zhongguo Haijing 2901."<sup>42</sup> Japan's largest coast guard ship, the Shikishima-class patrol vessel, displaces only 9,300 tons. If China begins to use its new coast guard cutter to patrol around the Senkakus, it may be able to muscle the JCG out of the way, advancing its efforts to erode Japanese administrative control.

The United States will be heavily dependent on Japan for its regional A2/AD strategy in all manner of contingencies. U.S. forces and bases are concentrated in Northeast Asia; there, the fuel and ammunition storage that is permitted by U.S. bases in Japan is absolutely vital when it comes to defense within the first island chain. And because China seeks to counter U.S. domain dominance, U.S. forces stationed or forward deployed in Japan are likely to be targets that China seeks to neutralize in wartime.<sup>43</sup> Japan itself is also a target of the strategy, if only because of its strategic location and alliance with the United States. The government of Japan should of course seek to prevent such clashes from occurring, but it also must consider the specific contours of China's A2/AD challenge as it lays out its own force-building plans. Specifically, it should consider three categories of Chinese military threats.

First, China is likely to use ballistic and cruise missiles in a preemptive or first strike on Japan and U.S. forces, and possesses these in large quantities. These missiles are likely to target U.S. forces, bases, and other core infrastructure that may support a military response.

Second, Japan must consider the threats to its C4ISR systems. Third, China may rely on the assault and seizure of islands as it seeks to control strategic chokepoints. In a full-scale conflict, the PLA Navy and PLA Air Force may seek to dominate chokepoints in Japan's southwest island chain, including Yonaguni, Ishigaki, and Miyako islands, and fortify these islands to guarantee the PLA's free transit.<sup>44</sup>

Japan and the United States must build their militaries to cope with these challenges. To this end, the U.S.-Japan alliance should focus on several categories of capabilities. First, the allies should acquire fleet defense capabilities to counter China's anti-ship ballistic missiles. Second, they must refocus on undersea warfare. Third, Japan in particular must acquire capabilities to counter PLA efforts at domain denial, including larger investments in air and missile defenses. The alliance also must plan to repel invasions of the southwest island chain. Finally, the United States and Japan should jointly field cutting-edge technologies, including C4ISR systems, unmanned vehicles, ballistic missile and cruise missile defense, fleet ballistic missile defenses, anti-submarine warfare, and mining technologies.

**A critical question is whether Japan will move beyond its traditional, self-imposed defense spending cap of 1 percent of GDP. The JSDF can maximize its return at current spending levels by advancing real interservice jointness, starting with a permanent joint operations headquarters.**

However, as Japan contemplates the emerging regional A2/AD challenges, its own roles and missions necessarily will evolve. These challenges have both inspired and enabled Japanese responses, as demonstrated by its domestic security legislation and the 2015 U.S.-Japan bilateral defense guidelines. As missions expand, so too must capabilities.<sup>45</sup>

A critical question is whether Japan will move beyond its traditional, self-imposed defense spending cap of 1 percent of GDP. The JSDF can maximize its return at current spending levels by advancing real interservice jointness, starting with a permanent joint operations

headquarters. As Japan and the United States implement their new Alliance Coordination Mechanism, they must address technology issues related to interoperability and improved command and control.<sup>46</sup>

Within its own forces, Japan must continue to reorient JGSDF land force missions and capabilities from its northern islands to the defense of the southwest island chain, and must rely on amphibious and special operations capabilities. The Japan Maritime Self-Defense Force needs to continue to build up maritime domain awareness in the waters surrounding Japan. Survivable forces require greater defense against ballistic and cruise missiles, reliance on undersea warfare, and stealth technologies. Regional and global engagement and presence also can dissuade adventurism, build the capacity of neighbors, and create a generally favorable international environment.

As Japan Air Self-Defense Force (JASDF) aircraft confront an increasingly contested peacetime environment that could quickly escalate, it is important for Japan's air components to focus on crisis management and extended deterrence. This is particularly important in an alliance context, and the JASDF should expand its exercises with the U.S. Air Force with an aim of developing joint operational capabilities in aerospace. Japan will need new airbase defensive capabilities and operating concepts. JASDF acquisition needs to find an affordable balance to preserve sufficient stealth, precision-guided strike, and situational awareness. Maintaining operations in a contested electromagnetic spectrum also will be a growing challenge affecting JASDF and all of Japan's forces. More work is needed to consider potential space, counter-space, and cyber elements of U.S.-Japan cooperation.<sup>47</sup>

### **Australia's Role and Responsibilities**

If Japan is on the front lines of the A2/AD challenge, Australia offers strategic defensive depth. Australia's new defense white paper offers a detailed analysis and roadmap for maintaining its high-end operational capabilities in the form of new submarines, frigates, and aircraft. According to Prime Minister Malcolm Turnbull's explanation of the new defense spending plan, it is a basic result of regional trends:

In the next two decades, half of the world's submarines and at least half of the world's advanced combat aircraft will be operating in our region. We simply have to do more and work harder to maintain our influence.<sup>48</sup>

Australia's concerns about China's low- and high-end military investments are apparent throughout its white paper.<sup>49</sup> And while its national interests are implicated most directly in a South China Sea contingency, its white paper makes clear that it is seeking to maintain access more broadly rather than simply rely on protecting a southern sanctuary.

Along with major investments in maritime and air forces, the latest Australian white paper focuses on adequate funding for enablers and support, from logistics and jointness to C4ISR capabilities dependent on cyber and outer space. Without ever mentioning A2/AD, the white paper says the Australian Defence Force (ADF) of the future is meant to guarantee “unfettered access to the global commons.”<sup>50</sup> The Australian government intends to be able to project itself forward in the Asia-Pacific region:

The future ADF will be more capable of operations to deter and defeat threats to Australia, operate over long distances to conduct independent combat operations in our region, and make more effective contributions to international coalitions that support our interests in a rules-based global order.<sup>51</sup>

On top of national capabilities and the maintenance of a strong alliance with the United States, Canberra is doubling down on “strengthen international security partnerships,” presumably to include close cooperation with Japan and other regional actors.<sup>52</sup>

In addition to overlapping security interests based on history, geopolitics, and shared values, the U.S.-Australia alliance is fully interoperable and networked. Both have long been members of the “Five Eyes” intelligence cooperation framework, and they are poised to further deepen that cooperation through advanced C4ISR systems and platforms. Australia's deployment of F-35A fifth-generation fighter aircraft and Global Hawk/Triton UAVs, for instance, helps ensure greater maritime domain awareness as well as high-end military interoperability.

Undersea warfare is another area where cooperation under the U.S.-Australia alliance is set to expand. Although Canberra passed up an opportunity to deepen trilateral submarine production with Japan and the United States, Australia's current plan should ensure that it is poised to cooperate with both in the decades ahead.<sup>53</sup> U.S. Navy officials have voiced concerns about the size of America's subsurface force in the Pacific, and thus the Australian decision to purchase a French submarine design to replace its aging Collins-class diesel submarines is welcome news.<sup>54</sup> The French shipbuilder DCNS



*The Royal Australian Navy is replacing its Collins-class submarines, with France winning the bid to build 12 Shortfin Barracuda-design submarines. The submarines will increase undersea warfare cooperation between the France, Australia, and the United States and allow for potential cooperation with other Indo-Pacific nations. (Royal Australian Navy)*

won the competition with its plan to build 12 stealthy Shortfin Barracuda-design submarines in Australia. The estimated cost of the submarine replacement is around \$39 billion, a huge procurement for Australia and one driven primarily by China's growing challenge.<sup>55</sup> Importantly, the French-Australian co-production effort, with submarines to be built in Adelaide, preserves the option of integrating U.S. electronics and fire-control systems. The future submarine fleet should allow Australia the potential to cooperate with other submarine forces, including those of Japan, India, and some Southeast Asian nations.

In addition to C4ISR and undersea warfare, Australia's developed defense capabilities make it an ideal partner for the United States with respect to other technologies associated with third offset strategies.

### **Other Partner Roles and Responsibilities**

Beyond Japan and Australia, South Korea remains the most capable regional military ally in Asia. While South Korea necessarily places a priority on deterring North Korea, its increasingly capable blue-water naval capabilities, acquisition of fifth-generation aircraft and long-range UAVs, and the creation of a major naval facility on Jeju Island all create greater potential for Seoul to project power throughout the first island chain. In addition, South Korea has an incentive to share maritime domain awareness. While South Korea might not want to join South China Sea naval patrols anytime soon, it certainly can be expected to contribute to regional situational awareness.



Singapore enjoys close military cooperation with the United States and deploys a very highly developed maritime and air capability, backed by the best situational awareness and cyber capabilities in Southeast Asia. Singapore provides the United States with critical anchorage, both for its Pacific Command logistics forces as well as for up to four littoral combat ships. But Singapore also seeks to play a careful balancing role to ensure great-power peace and stability, and that fact limits the capable city-state from playing an even more critical role in regional security.<sup>56</sup>

Less robust military partners in the region also are grappling with the consequences of Chinese A2/AD capabilities. Emerging allies and partners, including the Philippines, Vietnam, Malaysia, and India, are struggling with these challenges in their own ways, even when the present security environment does not pit them directly against China. But anti-access capabilities are perhaps the most distressing to Taiwan, a longstanding recipient of U.S. defense assistance, who must consider the implications in case of a full-scale Chinese invasion.

A cross-Strait conflict over Taiwan may be among the most likely and worrisome contingencies in the Asia-Pacific.<sup>57</sup> A Chinese invasion may consist of an air campaign and an amphibious invasion, as well as efforts to prevent the United States from coming to Taiwan's aid. Taiwan therefore should meet A2/AD with A2/AD of its own, emphasizing cheaper methods of homeland defense as opposed to expensive attempts at domain superiority.<sup>58</sup>

For these purposes, investments in mines are superior to those in destroyers, and Taiwan should prefer dug-in gunnery to new F-16s. But these are representative,

generalized examples, not necessarily recommendations. Taipei also might prioritize distributed mobility over concentrated power. Its defensive needs suggest that swarming, anti-ship small craft are superior to large surface ships that require major bases and may be more vulnerable to attack.

Taiwan's military services will need to adapt to a new operating environment. The Air Force will need to focus on survival and enemy attrition rather than achieving superiority, and conventional naval operations quickly may become infeasible following initial strikes of resupply infrastructure. Rather than try to emulate in smaller quantities the capabilities that the United States would bring to bear in Taiwan's defense, Taipei should capitalize on U.S. support to pursue an asymmetric force that is highly specialized for cross-Straits defense. Ground forces can provide cross-domain denial capabilities, from strengthening ISR to sinking ships.<sup>59</sup>

Meanwhile, the U.S. alliance with the Philippines is being tested by rising tensions in the South China Sea. Washington and Manila are responding to these challenges, however, through two primary approaches: rotational base access and partner capacity building. Through the Enhanced Defense Cooperation Agreement, the Philippines has granted to the United States access to at least five installations throughout the Philippines. These will provide hubs for stepped up engagement, training, and exercises to build the capacity of the Philippines' maritime and air forces. The Philippines may grant its ally access to additional locations in an effort to ensure that it has naval assets in close proximity to the South China Sea.

The Philippines also has been the recipient of significant security assistance. The United States has transferred decommissioned Coast Guard cutters and C-130 aircraft to help the Philippines augment its scant navy and air force, and the Philippines also has received security assistance from other regional partners. Manila has been the primary recipient of aid from the Pentagon's new Maritime Security Initiative.

Beyond pressing ahead with rotational access, training, capacity building, and maritime domain awareness, the Philippine government will need to make a long-term commitment to capability and capacity building. The Armed Forces of the Philippines traditionally have been oriented toward countering land-based threats from insurgents, and a counter-A2/AD mission will require a sustained increase in defense spending as well as a reallocation across services.

Vietnam is a formidable neighbor and South China Sea claimant state. But its maritime and air capabilities



*Littoral combat ships (LCS) can perform a multitude of functions and work with other groups of ships or an aircraft carrier to perform missions such as minesweeping and submarine detection. The USS Fort Worth (LCS-3), pictured here transiting the Pacific Ocean, is one of four LCS rotationally deployed to Singapore. (U.S. Navy)*

only recently are receiving serious investment. Vietnam is adding a modest submarine fleet, along with multi-role aircraft and fast-attack surface ships and missiles. The key is the ongoing addition of six Russian Kilo-class submarines, which Vietnam started to deploy in 2015.<sup>60</sup> The purchase of two Russian and two Dutch frigates in the past three years also provides Vietnam with the beginnings of a blue-water naval capability.<sup>61</sup> Vietnam additionally is beginning to augment its limited surveillance capabilities with a joint French-Vietnamese-produced satellite, as well as through India's apparent decision to build a satellite tracking station in Vietnam to watch China.<sup>62</sup> The U.S. Maritime Security Initiative should be able to further bolster these ISR and maritime capabilities. Furthermore, both Japan and the United States are supplying more patrol boats for Vietnam's coast guard. And Vietnam recently has decided to open Cam Ranh Bay deep-water harbor to international port visits and has agreed to provide essential port services for foreign vessels.<sup>63</sup> Both American and Japanese naval ships have called on the port this year.

Vietnam's maritime defenses could be strengthened through a couple of additional, if more difficult, steps. First, Vietnam could fortify its two dozen or so island outposts to make them difficult for an aggressor to occupy. Although the United States would prefer for all nations to desist from militarizing land features in the South China Sea, allowing China to proceed with building and equipping artificial islands is hampering the defense of China's neighbors. Second, the United States could fully lift the ban on lethal arms sales, not least as a catalyst to possible joint defense production. Joint production might provide the most realistic and sustainable long-term path for Vietnam to retain a basic self-defense capability of its long coastal area. Obviously this decision needs to take human rights concerns into account, but it is doubtful that the continued partial ban is affecting Vietnam's domestic politics.

Malaysia's approach to the emerging A2/AD environment is instructive in its own right and lends insight into how other U.S. regional partners may balance current challenges alongside their continued ties to China.<sup>64</sup> Kuala Lumpur has been engaged in something of an A2/AD balancing act. Malaysia has tried to preserve its "special relationship" with China while simultaneously signaling its displeasure with growing Chinese encroachment in the maritime domain.

Kuala Lumpur has shown its continued affinity for China through its purchase of China's LY-80 Medium Range Surface to Air Missile defense system and Prime Minister Najib Razak's visit to China in late May 2015,

during which the two sides signed a joint communiqué formalizing the Comprehensive Strategic Partnership.<sup>65</sup> In November 2015, Malaysia announced that it would provide the PLA Navy with access to its base in Sabah state at Kota Kinabalu.<sup>66</sup>

At the same time, Malaysia's signals of discontent with China's A2/AD challenge have taken concrete form. In response to China's encroachments, Malaysia has stepped up its maritime law enforcement patrols.<sup>67</sup> And while the official policy may be a comprehensive strategic partnership with China, Malaysia has long pursued a "hedging strategy" that seeks to strengthen defense ties with the United States while attempting to modernize the Malaysian Armed Forces, with the threats of the South China Sea foremost in mind.<sup>68</sup>

As it seeks to continue this hedge, Malaysia would be wise to pursue greater maritime domain awareness in the form of maritime patrol aircraft. It also may want to seek precision-guided munitions that can hold at risk Chinese shipping in the Malacca Straits, with an emphasis on anti-ship ballistic missiles in particular.<sup>69</sup> But this is an admittedly expensive option and probably would have to be based off current systems, such as the MGM-140 Army Tactical Missile System surface-to-surface missile.<sup>70</sup>



*India is a strategic partner for the United States given its interest in the Indian Ocean and the possibility of China expanding its basing in and around the Indian Ocean. The United States and India have expanded cooperation as evidenced by U.S. Defense Secretary Ash Carter meeting with Indian Prime Minister Narendra Modi in New Delhi in April 2016 to strengthen U.S.-India cooperation and signal U.S. commitment to the Asia rebalance. Modi will visit Washington in June in another sign of growing U.S.-India relations. (U.S. Department of Defense/Air Force Senior Master Sgt. Adrian Cadiz)*

Indonesia, although not technically a claimant state, remains committed to gradually strengthening its maritime domain awareness and seeks to have some operational air capability to help defend the area around the critical Natuna islands. Thailand, although a U.S. treaty ally, geographically is somewhat buffered from the South China Sea and remains handicapped by a military government that appears unwilling to return the country to civilian rule.<sup>71</sup>

India is another example of an emerging strategic partner whose approach to A2/AD may evolve with time. India's primary area of maritime interest is the Indian Ocean. If China were to expand its basing in and around the Indian Ocean, this certainly would be worrisome to New Delhi, as it would provide the PLA with additional avenues for attacking India. In this case, India would be likely to turn to the United States to cooperate in fielding counter-A2/AD capabilities.<sup>72</sup>

**Kuala Lumpur has been engaged in something of an A2/AD balancing act. Malaysia has tried to preserve its 'special relationship' with China while simultaneously signaling its displeasure with growing Chinese encroachment in the maritime domain.**

The 2015 Framework for U.S.-India Defense Relationship and the Defense Trade and Technology Initiative advance military-technical cooperation to address common security challenges, including A2/AD. India and the United States certainly would cooperate in the areas of cybersecurity, electronic warfare and space. India also would have interest in unmanned platforms in the air, surface, and sub-surface domains, and in low-cost ordnance delivery systems like directed-energy weapons. There are notable challenges to U.S.-India cooperation in this area, including prohibitions on the exchange of classified information.<sup>73</sup>

Unsurprisingly, regional partners' A2/AD concerns seem to relate inversely to their geographic distance from China. Nonetheless, these partners' thinking in this space is instructive on how regional states will prioritize these security challenges as they emerge.

### Security Cooperation as Access

As China and the United States compete for access over the coming decades, they are likely to use security cooperation to advance their goals. China is engaged in a range of activities on its periphery, as well as an intensive and sustained campaign to increase influence in the second and third island chains (from the Federated States of Micronesia and Palau to the U.S. territory of the Commonwealth of the North Marianas, and other island states).<sup>74</sup> China's greater reach poses additional challenges that could threaten to interrupt U.S. SLOCs within the first island chain in the defense of allies and partners.

A2/AD competition need not take only the form of high-end technological investment, but also can include transfers of military equipment, offers of training and scholarships, bilateral and multilateral exercises, and multiple forms of defense diplomacy.<sup>75</sup> China has long been confounded by America's web of regional alliances and partnerships – a formidable bulwark anchored in Northeast Asia and arching southwestward to Australia. China must find a way to undermine the veritable U.S. monopoly on security partnerships in the Asia-Pacific in order to offset what is, at present, a notable strategic advantage for the United States.

From a U.S. perspective, security cooperation helps to underwrite the status quo and provides opportunities for U.S. military forces to access regional ports, airfields, and training facilities. It provides some level of influence so that regional militaries and political leaders will take U.S. preferences into account when facing security decisions. And finally, it helps develop in U.S. allies and partners a range of desired military capabilities that can be leveraged in the future.

At the low end of this capability range, the United States expects allies and partners to share the burden in confronting regional security challenges like disaster response and peacekeeping. Further up the scale, the United States desires allies and partners to make meaningful contributions to regional maritime security. At the top tier, the United States wants capable allies and partners that can contribute militarily in the event of an outbreak of war.

Security cooperation is also important because it communicates strategic intent. Since the Cold War, security cooperation and assistance programs have been used to reaffirm alliances and partnerships, or to forge new ones in strategically important areas. In FY15, the Department of State significantly increased funding for Asia in two of the most important such cooperation initiatives, the hardware-oriented Foreign Military Financing program and the human-capital boosting International Military





*Security cooperation provides an opportunity for U.S. military forces to train regionally and for U.S. allies and partners to develop a range of military capabilities. Amphibious assault vehicles from the forward-deployed amphibious dock landing ship USS Tortuga (LSD-46) and the Royal Thai Navy medium landing ship HTMS Surin participate in Exercise Cobra Gold 2012, an annual Thai-U.S. co-sponsored joint and multinational exercise designed to advance security throughout the Asia-Pacific region and enhance interoperability with participating nations. (U.S. Navy/Lt. Cmdr Mark C. Jones)*

Education and Training program. Nonetheless, this is the smallest total for any geographic region.

Annual Department of Defense contributions to security cooperation in the Asia-Pacific are more difficult to calculate, but it is safe to say that they will greatly exceed the State Department's expenditures beginning in 2016 as the Maritime Security Initiative for Southeast Asia gets underway. Assistance under the MSI "may include provision of equipment, supplies, training, and small-scale military construction," as well as "training to ministry, agency, and headquarters level organizations for such forces." In the coming decade, the United States needs to expand efforts to incorporate Japan, Korea, and Australia into a coordinated regional security cooperation strategy.

There are good reasons for the next U.S. administration to conduct a thorough review of its security assistance programs, although this is beyond the scope of this report. However difficult it is to build up effective partners with relatively limited capability, the task is complicated by U.S. standard operating procedures, bureaucratic layers, and a general bias toward being prepared to fight high-end warfare. This is not to diminish some of the good work and outstanding people who invest so much time and energy into building partnership capacity. But in almost every case, the number of people working on security assistance country teams

is too small to do much more than provide administrative support, and there are major gaps in the delivery of what are meant to be unified assistance programs with strategic objectives. At the very least, a review and appropriate action by the next U.S. administration could improve upon the strategic impact of U.S. partnership capacity building programs. Phase 0 security cooperation should be aligned with contingency and operational plans. Consequently, site surveys and preparation should be atop the list of in terms of what takes place with many of the "access" and basing partners of the United States.

Beyond U.S. security cooperation with treaty partners, rotational access is somewhat easier to achieve because it avoids the thorny political and legal issues associated with permanent basing agreements. What U.S. planners covet most - ensured wartime access for the positioning of U.S. forces - surely will not materialize without sustained efforts to periodically exercise access through security cooperation activities. Through persistent engagement over years, perhaps decades, the United States will be well positioned to expand its access, whether permanent or rotational, and thereby achieve the necessary operational agility to counter an adversary's A2/AD strategy.

# **OPERATING DOMAINS**



*Amphibious capabilities will be critical to operating in the maritime geography of the Asia-Pacific region. The Japanese Ground Self-Defense Force has been investing in such capabilities and are pictured here conducting a beach landing during the 2016 Iron Fist Exercise. (U.S. Marine Corps/Lance Cpl. Ryan Kierkegaard)*

**T**he United States and its partners must consider defense technology investments for their strategic impact in the different operating domains of land, sea, air, space, and cyberspace. An anti-access environment calls for not only technological innovation, but for new conceptions of how the United States and its partners can operate in environments with which they have long been familiar. Analysts must also consider how A2/AD may implicate nuclear deterrence and warfighting.

### **Sea Domain: Amphibious Forces**

Amphibious forces may play an important role in a counter-A2/AD scheme.<sup>81</sup> Mobile amphibious forces can combine sea, ground, and air capabilities, and therefore are perfectly suited for the maritime geography of the Asia-Pacific region. Amphibious operations are particularly useful in three principal ways.

First, amphibious operations can help counteract China's efforts to expand the reach of A2/AD by employing a reciprocal A2/AD strategy within the first island chain or from other territory distant from the Chinese mainland. Ground forces are still the most effective way to occupy territory; amphibious forces – combining complementary capabilities and maneuvering from the sea – can prevent or eliminate Chinese presence

that may be part of Beijing's A2/AD efforts.<sup>82</sup>

Second, amphibious forces play a central role in the United States' and allies' own A2/AD networks. Although Chinese A2/AD capabilities get the most attention, A2/AD works both ways. American forces and partners are equally capable of establishing their own anti-access schemes that deny, or at least limit, China's access and freedom of action inside the first island chain and beyond. Specifically, amphibious forces can emplace, operate, and shift A2/AD weaponry and systems throughout the island and littoral geography of the region. Amphibious units have always been mobile, but they were limited in how far offshore they could dominate.<sup>83</sup>

There are several steps allied and partner nations can take to exploit their amphibious forces' ability to counter Chinese A2/AD capabilities. First, allies and partners must expand their amphibious capabilities. Japan already recognizes the usefulness of amphibious forces employing A2/AD weapons and is setting up an anti-ship missile network in its southern islands. Other partners, or potential partners, with varying degrees of amphibious capabilities on the first island chain or near the South China Sea include Australia, Taiwan, Indonesia, Vietnam, and the Philippines. For these amphibious forces, offensive operations to forestall or uproot China's

outward advance of its A2/AD network are perhaps a tall order. However, operating anti-ship cruise missiles, mobile anti-aircraft systems, smart sea mines, and anti-submarine warfare systems is more easily done. These are classic asymmetric weapons – relatively inexpensive, easy to operate, and potentially quite effective. U.S. leadership is necessary for sizing up regional military and amphibious capabilities and considering how A2/AD capabilities might be incorporated.<sup>84</sup>

Second, allies and partners should consider the use of nontraditional shipping. When employing amphibious forces in A2/AD, it helps to think beyond the traditional concept of purpose-built amphibious ships operating in relatively large forces, such as the three-ship, 2,000-man Marine Expeditionary Unit configuration. Smaller, stealthier, sometimes faster craft – to include civilian vessels – can be effective for moving amphibious troops,

equipment, and hardware – particularly for missions such as emplacing and shifting anti-ship cruise missiles, High-Mobility Rocket Artillery Systems, and other weapons to new locations. Allies should contemplate the vessels they have at their disposal that might fit this bill, as well as how they can procure additional vessels at relatively low cost.

Third, the United States and its allies and partners should evaluate the utility of arming amphibious assault ships. A U.S. Naval Institute *Proceedings* article by three U.S. Navy admirals calls for installing anti-ship missiles on amphibious assault ships as part of a comprehensive distributed lethality concept.<sup>85</sup> It makes sense to take advantage of this technology, both to increase overall firepower and to complicate the adversary's calculus. Of course, commanders must be careful when employing amphibious ships and must adequately protect them.

#### STRATEGIC INTERDICTION AND AIR FORCES

Although this report focuses on how the United States can work with allies and partners to counter potential A2/AD threats, there is an alternative strategic analysis that takes a more U.S.-centric approach: Given the advantage of distance and strategic depth, in theory the United States could consider a strategy based on offshore interdiction.

Notable experts argue that much of the current U.S. thinking about how to address China's rising A2/AD capabilities is founded on tactical and symmetrical force-on-force concepts and the pursuit of game-changing technologies.<sup>76</sup> Some argue that rather than seeking to plug all the vulnerabilities exposed by an offensive assault within the first island chain, the United States should consider a version of offshore control.<sup>77</sup> By moving any military confrontation offshore, far away from China's advantageous waters and airspace, the United States and its allies and partners fundamentally change the competition. As one author argues, "the tactical defensive enables the strategic offensive, where any conflict will be settled."<sup>78</sup> However, one significant downside of this U.S. approach is that it leaves fully exposed allies who comprise the first island chain itself, including Japan, South Korea, and the Philippines.

A tailored offshore defense could attack China's key vulnerabilities, including its unfavorable geographic position and dependency on maritime traffic flows.<sup>79</sup> A strategic maritime interdiction campaign would target four elements to cripple Chinese production and its transport of vital energy resources:

- A "counterforce" effort designed to attrite the PLA Air Force and PLA Naval Air Force, particularly bombers, naval forces, and naval auxiliaries, to the point that they can neither project military power nor defend against U.S. power projection, at least far beyond the PRC continental shelf.
- An "inshore" element, consisting of operations to interfere with unopposed traffic in coastal waters and rivers.
- A "distant" maritime strategy, which will interdict energy supplies close to their source, out of effective Chinese military reach. Aimed primarily at bulk petroleum carriers and secondarily at coal transports, this element ignores container, dry bulk, or passenger vessels. A traditional quarantine conducted at a nontraditional distance, the seizure or diversion of Chinese-flag or China-bound hulls need not involve lethal force.
- An "infrastructure degradation" plan intended to disrupt or destroy specific soft targets, such as oil terminals, oil refineries, pipelines, and railway chokepoints such as tunnels and bridges. This is intended to make any resource distribution problem created by distant interdiction much worse by chopping the internal supply and production networks into unsupported pieces.<sup>80</sup>

There are some inherent contradictions in thinking that the United States can simply hope to counter A2/AD capabilities well off the Asian mainland, however. First and foremost, in scenarios to defend Japan, Taiwan, and Southeast Asian allies the strategy would be unlikely to achieve the key political objectives. Second, this call for a counterforce and counter-infrastructure campaign resembles those envisioned by Air-Sea Battle-like campaigns that depend on forward power projection. Nonetheless, offshore control arguments provide a useful reminder that the United States and its allies' best responses to Chinese A2/AD may not always be symmetric or in-kind.





*A tailored, strategic maritime interdiction campaign would target Chinese vulnerabilities, including its dependence on maritime traffic flows. These flows include vital raw materials transported by massive shipping vessels like the Vale Sohar, seen here delivering ore to Nantong, China. (Wikimedia)*

But the need to protect against improved weapons is a problem as old as warfare. If aircraft carriers cannot operate near the Asian coast, then obviously these amphibious forces would be needed offshore in defense of land features within the first and second island chains.

Amphibious forces also support maneuver of the maritime force. By making full use of their capabilities and long-range weapons, amphibious forces can aid the offensive maneuver and operations of U.S. and partner naval and air forces by seizing terrain and providing covered sea and airspace from which to operate. In achieving this mission, amphibious forces free fleet resources to either expand area denial efforts or focus on offensive operations.<sup>86</sup>

### Sea Domain: Naval Forces

Just as amphibious force projection requires a new look under A2/AD conditions, so too does the naval instrument.<sup>87</sup> Naval power provides the United States with a flexible, adaptable, and dynamic means to influence conflict resolution on a sustained basis in the areas where competition most often occurs. Naval power is scalable enough to allow a response that is limited in scope and does not result in an “act of war,” thus preventing escalation of conflict with a potential adversary.<sup>88</sup> It therefore can be calibrated to respond to all manner of contingencies, ranging from gray zone incursions to high-intensity conflict in the Asia-Pacific.

As the United States and its allies contemplate conditions of reduced access and maneuverability inside the first island chain, they must reconsider the level of risk that their forces will have to assume.<sup>89</sup> Additionally, they

will have to challenge their assumptions about the levels of access and dominance that are required to operate in an A2/AD environment to achieve strategic objectives. This, in turn, creates an imperative to rethink the technological requirements of forces in an environment of fiscal scarcity.

Naval forward presence may no longer be truly global in scale. Rather, it may need to be better targeted to national objectives. The current Navy strategy recognizes this fact: “Our force employment aligns capability, capacity and platforms to regional mission demands, ensuring that our most modern and technologically advanced forces are located where their combat power is needed most.”<sup>90</sup> When the “Pivot to Asia” was announced in 2011, the U.S. Navy reevaluated the status of its forward presence as a key component of deterring aggression and assuring access. Going forward, hard choices must be made by the U.S. president about where the application of naval power is most likely to provide maximum influence in shaping competition and deterring conflict. Forward presence must be allocated based on the most important strategic goals, not as the result of competition between combatant commanders in their individual pursuits of success in their own areas of responsibility.<sup>91</sup>

As A2/AD challenges grow, the United States will have to evaluate the level of risk it is willing to accept in employing its valuable naval assets and sailors in maritime conflict.<sup>92</sup> Some scholarly writing has argued that the use of aircraft carrier strike groups in battle is no longer viable in an A2/AD environment because the risk of losing expensive naval assets such as carriers, destroyers, and F-18s is simply too great. This wisdom advises that these cherished assets cannot be sent into heavily fortified, well-defended, advanced combat scenarios. According to this reasoning, the United States must develop technology that increases the range from which it strikes in order to protect the platforms and personnel it holds dear.<sup>93</sup>

**Naval power is scalable enough to allow a response that is limited in scope and does not result in an ‘act of war,’ thus preventing escalation of conflict with a potential adversary.**

The United States should continue to explore advanced technologies that can improve the survivability of its forces. Despite the increased level of risk that

China's growing A2/AD strategies present to warfighters, however, the U.S. Navy must employ novel operational and tactical constructs designed to protect the vulnerable carrier strike group and its assets. The fact that China's DF-26 anti-ship ballistic missile exceeds a 2,000-nautical-mile range does not necessarily mean that the U.S. Navy must operate beyond that envelope.<sup>94</sup>

How can we employ naval assets in this newly contested maritime domain? One such operational concept is distributed lethality, which envisions the geographic dispersal of surface assets that already exist in the U.S. naval inventory. Distributed lethality provides for diversification in the employment of naval forces, complicates enemy calculations through dispersal, and emphasizes a strong offensive posture by employing surface assets in "hunter-killer" small action groups that seize and maintain sea control, providing freedom of maneuver for follow-on forces. The employment concept may entail a greater assumption of risk by U.S. forces, however, because surface asset dispersal and an offensive posture may decrease the survivability of assets.<sup>95</sup>

Distributed lethality allows commanders to rethink the nature of access in the maritime domain when it comes to competition with China.<sup>96</sup> Naval power, including naval air power, enables theater access through sea control. But in a vast, geographically dispersed region like the Asia-Pacific, how much access is enough? Unimpeded, universal access may not be necessary for the U.S. Navy to operate. Access can be limited to certain windows for limited objectives. U.S. military planners long organized their operations around assumptions of dominance and unrestricted, uncontested access in every domain. To achieve that type of access in a future conflict with China is unrealistic because of the tremendous outlay of assets and firepower it would necessitate. But that unrestricted access may not be required to achieve sea control in limited areas for specific goals, such as control of strategic points to further degrade an adversary's C4ISR picture.

### Land Domain

Ground forces also may have a role to play in a U.S. and allied counter-A2/AD approach.<sup>97</sup> The United States and its partners must defeat China's strategy rather than its capabilities if they are to avoid an everlasting cycle of punch and counter-punch, and ground forces are part of this approach. China's A2/AD systems alone do not guarantee Chinese freedom of action or the exclusion of U.S. forces in the Pacific region. Properly employed, ground forces reassure allies and deter opponents. In the maritime theater of the Asia-Pacific region, ground



*Survivability and range will be important priorities for U.S. and allied strategy, as weapons like this DF-26 anti-ship missile challenge traditional areas of American military superiority. (Wikimedia)*

forces may provide the key to retaining U.S. influence and ensuring a favorable order. Should deterrence fail, the U.S. must control the key geographic locations needed to prevent Chinese expansion and freedom of operation. Ground forces provide an effective means for controlling important terrain. Further, ground forces employed on behalf of a partner display a level of commitment and military resolve that far surpasses the reassurances of mere diplomatic promises, occasional military overflights, or the fleeting passage of naval vessels.

But what exactly should be done with those ground forces in a contested environment and how can they be employed in an effective way? Furthermore, how can those forces be sustained and reinforced? If these forces fall under the threat of China's A2/AD umbrella, the United States will find it difficult to sustain, reposition, or reinforce them. Essentially, U.S. forces may become isolated in the operating area, leaving them vulnerable to defeat or operational irrelevance. The operational problem thus revolves around ensuring that enough U.S. and allied forces are in the proper area, in sufficient quantities, before conflict begins so they have a fighting chance at being operationally effective.

Experts argue that the United States and its partners should consider re-filling the strategic ring that previously surrounded the contested waters of Asia and constrained Chinese expansion. This would require a reversal of the strategic positioning the American military has conducted over the last few years. Instead of withdrawing forces from Korea and Japan, those forces should be kept in place and augmented. Instead of moving to Guam – the second island chain – forces should remain centrally located on Okinawa in the first



island chain and be reinforced with additional area denial capabilities. Additionally, efforts to build access and presence in the Philippines, Singapore, Australia, and Malaysia should continue. Increased force presence in Korea and southern Japan will help control naval access from the East China Sea to the Sea of Japan and beyond. Ground forces that are strategically placed within this theater may encounter new challenges to their operations, but strictly speaking, they will not be denied.

Importantly, land forces can combine with amphibious forces to establish allied A2/AD zones that employ these cross-domain fires.<sup>98</sup> Toward this end, anti-ship cruise missiles, THAAD, other mobile anti-aircraft systems, the F35-B fighter, “smart” sea mine technology, and amphibious forces now can be deployed more quickly than ever before.

### **Air Domain: Manned and Unmanned Systems**

U.S. airpower remains the leading edge of America’s power projection capability throughout the Asia-Pacific. Whenever tensions mount, there are corresponding moves of U.S. strategic bombers and advanced tactical aircraft. As China continues to improve the range of its precision strike capabilities, the United States will seek to exploit its advantages in long-range and low-observable airpower.<sup>99</sup>

In this environment, advanced fifth-generation aircraft (the F-35) that are interoperable with key regional allies and partners have a role to play and will continue to

provide a qualitative edge against China’s quantitative superiority in the air.<sup>100</sup> These aircraft are supported by an essential fleet of surveillance, electronic warfare, lift, and rotary systems capable of enforcing the U.S. interests of maintaining peace and deterring conflict. The United States also has advantages in extended range aircraft that boast a long unrefueled combat radius – namely the B-1, B-52, and B-2. Washington already has begun to rotate these low-observable aircraft through the Pacific theater at times of crisis.<sup>101</sup> Given that its allies and partners do not possess this type of extended-range air capability, Washington should consult with them on the differentiated roles of airpower in a contested environment.

It is equally important to recognize the role that unmanned systems may play in a contested A2/AD environment, particularly since allies and partners may be able to invest in these themselves. In Asia, unmanned aerial vehicles are proliferating quickly, with approximately 15 countries operating UAVs.<sup>102</sup> Some – including South Korea, China, and India – also employ other types of unmanned systems, such as sentry robots or unmanned ground vehicles.<sup>103</sup>

The characteristics of unmanned systems enable them to both mitigate the tyranny of distance inherent in the vast expanse of the Asia-Pacific and assume greater risk inside the dense threat envelope created by Chinese A2/AD capabilities.<sup>104</sup> Because they are not constrained by the limitations of human operators, unmanned systems can conduct missions for substantially longer periods



*Unmanned systems will be important tools for managing the vast distances and increased risk involved in contested Asia-Pacific environments. The X-47B unmanned UAV prototype, pictured here being aerially refueled, could provide a platform for penetrating strike capability. (U.S. Navy)*

of time – and often at far greater ranges – than their manned counterparts. In addition, their increased expendability expands the menu of viable mission sets and provides states with a greater degree of operational flexibility within a high-threat A2/AD environment.<sup>105</sup>

As with non-stealthy manned assets, unmanned systems could be vulnerable in peacetime or conflict.<sup>106</sup> Indeed, China previously has targeted U.S. RQ-4 Global Hawks with electronic jamming and alternatively could shoot these systems down if Beijing deems them to be a threat.<sup>107</sup> For this reason, it will be necessary for the United States to field stealthy high-altitude, long-endurance systems that could continue to provide broad area maritime surveillance in a wartime environment. Although little is known about the United States' stealthy unmanned ISR platforms, defense officials have acknowledged the existence of two: the RQ-170 Sentinel and the longer range RQ-180. Open source reporting suggests that the newly operational RQ-180 is comparable in endurance and capability to the Global Hawk.<sup>108</sup> If accurate, this system could maintain situational awareness for the United States and its allies and partners, even in the event of a conflict.

Similarly, stealthy unmanned systems hold the potential to preserve the efficacy of legacy platforms – including aircraft carriers and their associated fighter aircraft – that are growing increasingly vulnerable to long-range A2/AD capabilities.<sup>109</sup> Unmanned systems provide one possible option for addressing this problem. With its X-47B UAV prototype, the U.S. Navy demonstrated a stealthy, carrier-based penetrating strike capability. If Navy requirements for the Unmanned Carrier-Launched Airborne Surveillance and Strike follow-on program are adjusted to include a robust strike capability, the system could extend the range of the carrier air wing significantly, such that the carrier could operate beyond the 1,000 to 1,500 nautical mile distance at which the threat landscape is most intense. However, for UAVs to provide high-altitude airborne coverage, they would have to either ensure control of space or be able to communicate in a space-denied environment.

As the United States and its regional partners contemplate technological investments, then, they must consider the promise of UAVs when it comes to extending the range of existing systems and mitigating risk in a contested A2/AD environment. Unmanned underwater vehicles and unmanned surface vehicles also could play a critical role in maintaining sea denial and control.

## Space Domain

As advanced nations become more dependent upon on-orbit and terrestrial control infrastructure, U.S. allies face the reality that space is a key factor not only for civil society, but in national security as well. The United States' allies in Asia do not yet possess the capability, infrastructure, or organization to develop and conduct effective, defense-relevant, counter-A2/AD space operations, and traditional U.S. positions have not lent themselves to considering military applications of space.<sup>110</sup> In the meantime, China – as part of a broad competition with the United States and intrinsic to its emergence as a world power – recognizes not only the advantage of these space-based capabilities, but the importance of being able to hold at risk U.S. space assets as part of its A2/AD strategy.

National security space planners in allied countries should consider the following: what relevant national security space technologies to pursue; what industrial capacity to develop, and how much; what on-orbit and terrestrial control capabilities to develop in the context of future military requirements; how to organize space policy bureaucratically and programmatically within allied governments and within alliances; how to structure bilateral dialogues in order to cooperate most effectively; how to design, develop, re-orient, and sustain the national scientific and technical infrastructure necessary for the successful development of national security space capabilities; how to identify, recruit, train, and sustain the necessary national security space cadre; and how to develop accepted foundational alliance and national strategic and operational concepts for space that guide all of the above.

**In reality, most U.S. allies in the region will have neither the will nor the capability to invest heavily in the space domain.**

In reality, most U.S. allies in the region will have neither the will nor the capability to invest heavily in the space domain. Japan, however, is better positioned to do so.<sup>111</sup> For political and budgetary reasons, Tokyo should emphasize dual use civil-military space systems and missions. Japan could utilize space operations for oceanographic purposes, suited to anti-submarine warfare; for maritime domain awareness and tsunami warnings; to secure communications between civilian and military agencies; for remote sensing for reconnaissance and

early warning; for space situational awareness to monitor foreign space activities; and for space-based positioning, navigation, and timing.

In the East and South China Sea contingencies as well as in Taiwan, the space domain is likely to become more important with the passage of time. This applies equally to the use of space for communications and the need to conduct counter-space operations against an adversary reliant on its use. This will require pursuing advantages in a number of space technology areas, including distributed constellations, which in turn may require transferring funding from space programs to non-space areas that better accomplish the same military tasks in a contested environment. Other technology areas that deserve greater focus by U.S. allies and partners are those for space situational awareness (both radio-frequency [RF] and non-RF systems) and counter-space systems (in particular, ground-based, high-energy lasers and Synthetic Aperture Radar jammers).

### **Beyond the Warfare Domains: Nuclear Forces**

DoD recognizes the five warfare domains of sea, air, land, space, and cyberspace. Transcending all of those domains, however, are questions about nuclear forces. Although nuclear forces do not now occupy a central role in China's A2/AD strategy or the potential responses of the United States and its allies, they could come to be relevant in the future.<sup>112</sup> If China were to succeed in opening its A2/AD umbrella over the region, the United States and its allies would be likely to consider emphasizing more than they do today that they are prepared to use nuclear weapons in the face of effective and severe Chinese *non-nuclear* attack against important U.S. or allied interests. That is, they likely would concentrate more on the nature and severity of the assault than on the weapons employed; the appeal of such a concentration is predicated on the superiority of U.S. arms in conventional warfare. Such a posture would be designed to more closely tie the deterrent effect of nuclear weapons to a broader range of potential contingencies, rather than reserve them for a relatively narrow band of circumstances, such as nuclear and unconventional weapons attacks.<sup>113</sup>

To support such a strategy, the United States would be likely to field, plan for the use of, and develop a nuclear force. Its associated C4ISR architecture would be more capable of limited and controlled strikes, particularly – but not exclusively – against any attacking Chinese forces as well as those nodes crucial to their projection and sustainment. At the same time, U.S. allies like Japan would be likely to press for a more visible and connected U.S.

nuclear deterrent posture on their behalf. For instance, they likely would consider more seriously the possibilities for participating in U.S. nuclear missions, perhaps along the lines of NATO's "nuclear sharing" arrangements. Japan also would be more likely to consider basing arrangements for U.S. nuclear-capable forces, and even potentially for U.S. nuclear weapons themselves. Should the threat from China become especially severe and some allies lose confidence in the sufficiency or credibility of the United States' extended nuclear deterrent, pressures for independent nuclear arsenals in the region would likely intensify. The use of B-52 overflights and B-2 deployments to Diego Garcia, as well as discussion about basing B-2 bombers in Australia, are all force posture moves designed to strengthen extended deterrence in the region.<sup>114</sup>

This potential relationship between conventional and nuclear forces demonstrates that China's development of military power will not necessarily have purely linear or correlative consequences.<sup>115</sup> There is sometimes an implicit sense that responses to China's military buildup are likely to remain within the legacy strategic and political-military architecture; yet the reality is that there are thresholds at which more discontinuous or disruptive responses become more likely. If China is able to attain conventional mastery in the Western Pacific, that would compel the United States and its allies and partners in the region to reexamine at the most fundamental level their traditional strategies. Such a reexamination essentially would have to include consideration of a greater reliance on nuclear weapons for their deterrent and defense.

# **CONCLUSION**

## **Toward An Alliance Requirements Roadmap**

**A**nalysis of China's A2/AD strategies and possible U.S. responses tends to emphasize high-end, technologically intensive solutions. There can be no question that technological innovation – as envisioned by third offset strategies – is an imperative for the United States. It is also crucial for Japan, whose new security legislation, history of cutting-edge innovation, and already sophisticated military make it an ideal partner with whom to coordinate and collaborate.

The 2015 U.S.-Japan Defense Guidelines offer a framework for closer alliance integration, a focus on joint and combined operations, the establishment of an operational coordination mechanism, and the development of C4ISR capabilities dependent on cyber and outer space, all of which are intended to deal with both coercive gray-zone and high-end A2/AD challenges. The United States and Japan should consider an array of steps to fulfill the promise of this framework. Japan's new security legislation enables Tokyo decisionmakers to become a more equal ally with the United States, and Washington should continue to welcome moves that strengthen the alliance capability and build out a flexible web of security partners throughout the region. The overriding goal remains to erode the saliency of China's strategy, which is a strategy apparently designed to win without fighting, to displace U.S. power and divide the region in order to gain predominance, to advance Chinese influence through incremental moves, and to deploy A2/AD capabilities that call into question the maintenance of U.S. forward power projection forces.

To counter China's capabilities and strategy, Japan and the United States, along with other allies and partners in the region, need to focus on the following requirements.

1. The United States and its allies should develop a regional strategy for dealing with China that is focused on countering Beijing's strategy and military capabilities both inside the first island chain as well as offshore and outside of it. By hedging between these two strategies and keeping open options, the alliance can retain maximum flexibility and be prepared to fall back to a tactical defensive position if necessary. At the same time, a military strategy must be placed into a larger grand strategy, a comprehensive and positive vision for achieving an inclusive, rules-based regional order. This will require balancing the competing objectives of cooperating with China while contesting its more aggressive moves. The process for realizing this strategy must allow for regular updates and calibration to adjust to an ever-changing security landscape.
2. At the operational level, long-range ISR, precision fires to include ballistic missiles, and hypersonic cruise missiles should be at the forefront of U.S. regional power. One of the most effective countermeasures to China's A2/AD strategy would be to avoid relying on a few fixed and therefore vulnerable bases. Emphasis should be placed on geographically dispersed access and mobile expeditionary capabilities. The rapid evolution of unmanned systems, cyberspace operations, and hypersonics can facilitate this desire for mobility, range, speed, and information dominance. Together, these can comprise a new operational paradigm within which the United States and key allies and partners can cooperate.
3. Information will be a critical element of region-wide cooperation. An operational C4ISR regime will serve as the lynchpin of a more operational U.S.-Japan alliance and the centerpiece of an increasingly region-wide architecture for creating a common operating picture. Achieving better integration over cyber and outer space assets and systems is essential, but so are additional steps that provide for information fusion.
4. Partner nations should engage in an ever-tighter region-wide set of exercises, training, and operations that materially advance operational capabilities in vital naval, amphibious, air, ground, cyber, space, and nuclear domains. For instance, theater anti-submarine warfare is just one of the missions that may grow in importance, given China's buildup of its submarine fleet. Notwithstanding Australia's decision regarding its follow-on submarine program, there may be new opportunities for trilateral security cooperation that could produce long-term strategic benefits beyond the realm of defense industrial cooperation.
5. An alliance plan for building partner capacity throughout the region should include key actors in Southeast Asia and important regional countries such as Australia, India, and South Korea. Because the capabilities and interests of each actor vary, the plan needs to be tailored to the individual and identify the overlap between local capacity and will. The plan should identify cost-effective steps that could best help nullify the threatening aspects of China's growing A2/AD capabilities. For instance, Japan is better poised to play a significant defense role in the East China Sea than it is in the South China Sea. Japan is also



best suited to contribute non-lethal hardware such as coast guard vessels or maritime patrol aircraft, in addition to providing training and maintenance assistance. The United States may be able to transfer other platforms and technologies that Japan cannot. In most cases, however, initial investments will have to focus on information sharing, exercises, and training, leaving greater national capabilities to a mid- to long-term plan.

6. A roadmap for balancing relations with China also will be vital. This roadmap needs to deal with both cooperation and competition. Regarding the former, attempting to identify areas of agreement and minimize areas of disagreement can be useful. An alliance plan for engaging China must seek to produce effective confidence-building measures and codes of conduct to avert escalation or manage a crisis, build understanding, and identify areas of shared interest in the long-term maintenance of order and stability in the Asia-Pacific region.

Beyond these general guidelines, however, there are a number of specific areas and domains that deserve to be part of an alliance requirements roadmap. These domains and missions are identified in the chart below.

The chart above synthesizes this report's recommendations with respect to the technologies and warfare domains to which regional partners and allies should turn their attention. These recommendations account for existing vulnerabilities when it comes to each state's ability to counter China's A2/AD, as well as the unique and asymmetric strengths it might exploit.

Because of its geographic position and existing force structure, we recommend that Australia invest in amphibious lift capabilities, submarines and frigates, and long-range fighter aircraft, all of which will extend its reach and ability to engage contingencies in the South China Sea and further afield. Canberra also should make concerted investments in unmanned systems.

While India is not yet confronted with pressing challenges from China's A2/AD capabilities, it would do well to invest in unmanned systems, as well as in surface and sub-surface combatants to protect its declared interests in the Indian Ocean. We expect that China's strides in cyber and electronic warfare will give New Delhi reason to invest in these domains.

Given its geographic proximity to China and its rapidly evolving defense policy, this study has made numerous recommendations for Japan. We have suggested that Tokyo focus on capabilities most closely associated with island defense, including amphibious forces and

assault ships, anti-ship ballistic missiles, smart sea mines, and anti-submarine warfare capabilities. We also recommend that Japan expand its investment in missile defenses to engage China's conventional, shorter-range ballistic missiles.

Our analysis suggests that its geographic position and hedged posture mean that Malaysia should pursue patrol aircraft, vessels, and ISR capabilities to improve maritime domain awareness, and should consider investments in anti-ship missiles to deter threats in the Malacca Strait. The Philippines has begun to invest in its coast guard and its navy, and should continue to prioritize purchases like missile-capable frigates. It also should invest in anti-submarine warfare capabilities and surveillance aircraft.

Taiwan should focus on defensive fortifications and hardening, and technology that includes anti-aircraft defense, anti-ship small craft, and smart sea mines. Vietnam is advised to invest in maritime patrol aircraft and unmanned vehicles for ISR.

As this study has demonstrated, however, countering A2/AD is not simply about costly investments in future technology. Partners with varying levels of existing capabilities and technological prowess can and must consider their existing asymmetric advantages as they determine how they can protect their own security interests and complement and enhance U.S. efforts to compete with China. Taiwan's and Japan's concerns about amphibious assault contingencies suggest that both should be investing in relatively low-cost sea mines, for example. Policymakers in Washington must work with partners to identify their asymmetric advantages – be they geographic, technological, or otherwise – to help them to invest strategically, rather than to compete with China symmetrically.

**In most cases, initial investments will have to focus on information sharing, exercises, and training, leaving greater national capabilities to a mid- to long-term plan.**

Similarly, A2/AD is not just a matter of the United States and its partners finding new asymmetric advantages, but of using existing domains in new and innovative ways. As we have argued, amphibious, naval, and ground forces all have a role in assuring access and maneuver throughout the Pacific. Their continued

## Future Capabilities Roadmap

Allies and partners' future capabilities should build on existing strengths and comparative advantages. This is a recommended capabilities roadmap for the United States and its allies and partners.

ALLIES AND PARTNERS	AUSTRALIA	INDIA	JAPAN	MALAYSIA
TECHNOLOGIES	Unmanned ISR systems Amphibious lift Next-generation submarines More capable frigates Long-range fighter aircraft	Unmanned ISR systems Surface and sub-surface deterrence systems Cyber and electronic warfare	Amphibious assault ships and forces Anti-ship ballistic missiles Smart sea mines Anti-submarine warfare Hypersonic vehicles Long-range strike Missile defense Mobile anti-aircraft defense Dual-use space systems	Maritime patrol vessels and aircraft Anti-ship missiles

ALLIES AND PARTNERS	PHILIPPINES	TAIWAN	VIETNAM	UNITED STATES
TECHNOLOGIES	Surveillance aircraft Missile-capable frigates Anti-submarine warfare capabilities	Hardening of critical infrastructure Amphibious defense Anti-aircraft defense Anti-ship small craft Smart sea mines	Unmanned ISR systems Maritime patrol aircraft Missile strike capabilities	<i>Third offset technologies</i> Long-range unmanned strike Unmanned undersea vehicles Smart sea mines Untraditional munitions (directed energy, rail guns)

relevance may require the United States and its partners to reevaluate prevailing notions about force structure, operational doctrine, and risk. The United States and its allies must confront this reappraisal in the spirit of cooperation and, in some cases, interoperability. But the investments that have been made in these domains over the last several decades are hardly irrelevant. Indeed, Washington and its allies must remember that they seek to undermine China's A2/AD strategy as opposed to any singular technology or tactic, and many familiar tools are well suited to this task.

Additionally, where the United States urges innovation – as through the third offset – need not be limited to the realm of high technology. A vital but under-emphasized component of the third offset is a renewed emphasis on war gaming and alternative analysis. Unlike

NATO, where the United States and its allies retain a combined command, Washington traditionally has not engaged in much war gaming with its Asia-Pacific partners, though South Korea is a notable exception. Cooperative war gaming of A2/AD scenarios may allow the United States and its allies to exploit existing asymmetric advantages and to reconceive how they will operate in newly contested, but ultimately familiar, warfare domains.

Finally, when it comes to undermining China's strategy as opposed to its technology or tactics, it bears remembering that one of Beijing's aims is to erode the credibility of longstanding U.S. security commitments by raising questions about Washington's ability to access and aid its allies. A2/AD may be relatively new, but this type of assurance challenge is as old as the notion of a

security guarantee itself. Scholars of Cold War extended deterrence often recall the Healey Theorem, named for British Defense Minister Dennis Healey: “It takes 5 percent credibility of American retaliation to deter the Soviet Union, but 95 percent to assure the Europeans.” This adage reminds us that it has always been – and likely always will be – exceedingly difficult for a security-providing superpower to assure its allies that it stands able and willing to defend their interests against new and evolving defense challenges.

Just as the United States and NATO managed to hang together despite the onset of nuclear parity, however, Washington and its Asia-Pacific partners can do so as well. They must identify existing technological, geographic, and other warfighting advantages; invest strategically where they have complementary, asymmetric strengths; bring new ways of thinking to familiar tools and domains; and invest in cooperative planning and analysis. This points to a need for deeper, more institutionalized defense cooperation across the board, both within existing U.S. alliances and across them. As this study reminds us, allies and partners are the United States’ most dynamic and enduring form of access in the region. In an increasingly contested environment, this makes studied cooperation a strategic imperative.

## Endnotes

1. Although the slowdown is apparently starting to have an effect on the rate of growth of PLA military spending, Beijing is still investing more on defense than the rate of China's economic growth. For instance, Beijing announced that defense spending would rise by 7.6 percent next year, even though economic growth has slowed to below 7 percent per year. See Jeremy Page, "Ailing Economy Slows China's Defense Expansion," *The Wall Street Journal*, March 4, 2016, <http://www.wsj.com/articles/china-to-raise-defense-spending-by-7-8-1457071436>.
2. *China Security Report 2016: The Expanding Scope of PLA Activities and PLA Strategy* (Tokyo, Japan: National Institute for Defense Studies, March 2016).
3. Andrew Krepinevich, Barry Watts, and Robert Work, *Meeting the Anti-Access and Area-Denial Challenge* (Washington, DC: Center for Strategic and Budgetary Assessments, 2003), ii.
4. We have documented some of this assertiveness in various publications, including: Patrick M. Cronin, Ely Ratner, Elbridge Colby, Zachary M. Hosford, and Alexander Sullivan, "Tailored Coercion: Competition and Risk in Maritime Asia," (Center for a New American Security, March 2014), [http://www.cnas.org/sites/default/files/publications-pdf/CNAS\\_TailoredCoercion\\_report.pdf](http://www.cnas.org/sites/default/files/publications-pdf/CNAS_TailoredCoercion_report.pdf); and Mira Rapp-Hooper, "America's Security Role in the South China Sea," A Statement by Dr. Mira Rapp-Hooper, Testimony to the House Foreign Affairs Committee, Subcommittee on Asia and the Pacific, July 23 2015, [http://csis.org/files/attachments/ts170723\\_Rapp\\_Hooper.pdf](http://csis.org/files/attachments/ts170723_Rapp_Hooper.pdf).
5. For instance, see the CNAS Maritime Strategy Series of papers produced on this topic, including the capstone report by Patrick M. Cronin and Alexander Sullivan, "Preserving the Rules: Countering Coercion in Maritime Asia," (Center for a New American Security, March 2015), <http://www.cnas.org/sites/default/files/publications-pdf/CNAS%20Maritime%20Strategy%20Series%20Capstone.pdf>.
6. As Secretary of Defense Ashton Carter has said, "America's alliances and partnerships have been the bedrock of peace and stability in the Asia-Pacific for decades." At the 2015 Shangri-La Dialogue in Singapore, Secretary Carter added that the United States is working to transform regional alliances and partnerships "into platforms for regional and global cooperation." See Secretary of Defense Ashton Carter Speech, IISS Shangri-La Dialogue: "A Regional Security Architecture Where Everyone Rises," May 30, 2015, <http://www.defense.gov/News/Speeches/Speech-View/Article/606676/iiss-shangri-la-dialogue-a-regional-security-architecture-where-everyone-rises>.
7. Opinions vary but for expressions of allied concern see, inter alia, Ernesto Londono, "Hegel Seeks to Reassure Allies in Asia amid Questions about U.S. Commitment," *The Washington Post*, April 5, 2014, and Christi Parsons and Michael A. Mimoli, "Seven Years On, Deeper U.S. Commitment to Asia Eludes Obama," *Los Angeles Times*, November 13, 2015. For a more nuanced alliance expression of concern about whether the United States is nimble enough to strike the right balance between strength and engagement in the Asia-Pacific region, see Elsin Wainwright, *Australia and the US Asian Alliance Network* (Sydney, Australia: U.S. Studies Centre at the University Sydney, March 2016), <http://ussc.edu.au/ussc/assets/media/docs/publications/Alliance21/Australia%20and%20the%20US%20Asian%20alliance%20network%20HI%20RES.pdf>.
8. See Ryan D. Martinson, "China's Second Navy," U.S. Naval Institute *Proceedings*, April 2015, <http://www.usni.org/magazines/proceedings/2015-04-0/chinas-second-navy>.
9. For instance, see Roger Cliff, *China's Military Power: Assessing Current and Future Capabilities* (New York: Cambridge University Press, 2015).
10. See Jeremy Page, "President Xi's Most Dangerous Venture Yet: Remaking China's Military," *The Wall Street Journal*, April 25, 2016, <http://www.wsj.com/articles/president-xi-jinpings-most-dangerous-venture-yet-remaking-chinas-military-1461608795#>.
11. Letter from James R. Clapper, Director of National Intelligence, to Senator John McCain, Chairman of the Senate Armed Services Committee, February 23, 2016.
12. Daniel Brunnstrom and Andrea Shalal, "Exclusive: U.S. Sees New Chinese Activity Around South China Sea Shoal," *Reuters*, March 19, 2016, <http://www.reuters.com/article/us-southchinasea-china-scarborough-exclu-idUSKCN-0WK01B>.
13. Xi Jinping, "New Asian Security Concept for New Progress in Security Cooperation," Remarks at the Fourth Summit of the Conference on Interaction and Confidence Building Measures in Asia, May 30, 2014, <http://id.china-embassy.org/eng/gdxw/t1160962.htm>.
14. Rapp-Hooper, Testimony before the U.S.-China Economic and Security Review Commission on "China and the U.S. Rebalance to Asia."
15. Ibid.
16. Ibid.
17. Shawn Brimley and Loren DeJonge Schulman, "Sustaining the Third Offset Strategy in the Next Administration," *War on the Rocks*, March 15, 2016.
18. For a thoughtful critique on these earlier concepts, see Aaron L. Friedberg, *Beyond Air-Sea Battle: The Debate of US Military Strategy in Asia* (New York: Routledge, 2014).
19. M. Taylor Fravel, "China's New Military Strategy: 'Winning Informationized Local Wars,'" *China Brief*, Vol. 15, Issue 13, June 23, 2015, <http://www.jamestown.org/programs/>

- chinabrief/single/?tx\_ttnews%5Btt\_news%5D=44072&-cHash=c403ff4a87712ec43d2a1cf576f3ec1#.VvlylLA3dk.
20. Robert D. Kaplan, *The Revenge of Geography: What the Map Tells Us About Coming Conflicts and the Battle Against Fate* (New York: Random House, 2012).
21. Ibid.
22. “China Security Report 2016: The Expanding Scope of PLA Activities and PLA Strategy,” (National Institute for Defense Studies, March 2016) <http://www.nids.go.jp/english/publication/chinareport/index.html>.
23. Sydney J. Greenberg, Jr., “Hagel Lists Key Technologies for US Military; Launches ‘Offset Strategy,’” *Breaking Defense*, November 16, 2014, <http://breakingdefense.com/2014/11/hagel-launches-offset-strategy-lists-key-technologies/>.
24. Richard Bitzinger, “Third Offsets Strategies and Chinese A2/AD Capabilities,” (paper submitted for the Alliance Requirements Roadmap Conference, December 10, 2015).
25. This definition and escalation typology is drawn from a Rand study, which is the most comprehensive contemporary study of escalation mechanisms of which this author is aware. Forrest E. Morgan, Karl P. Mueller, Evan S. Medeiros, Kevin L. Pollpeter, and Roger Cliff, *Dangerous Thresholds: Managing Escalation in the 21st Century* (Santa Monica: Rand Corporation, 2008), xi.
26. Morgan et. al., *Dangerous Thresholds*, xii–xiv.
27. Elisabeth Rosenthal and David E. Sanger, “U.S. Plane in China After It Collides with Chinese Jet,” *The New York Times*, April 2, 2001, <http://www.nytimes.com/2001/04/02/world/us-plane-in-china-after-it-collides-with-chinese-jet.html?pagewanted=all>.
28. “Chinese Activists Land on Senkaku Islet; Japan Arrests 14,” Kyodo News story, *The Japan Times*, August 16, 2012, <http://www.japantimes.co.jp/news/2012/08/16/national/chinese-activists-land-on-senkaku-islet-japan-arrests-14/#.Vtx9-VLA3dl>.
29. Christi Parsons and Julie Makinen, “In Asia, Obama Reaffirms Alliance with Japan,” *Los Angeles Times*, April 23, 2014, <http://articles.latimes.com/2014/apr/23/world/la-fg-obama-tokyo-20140424>.
30. Franz-Stefan Gady, “Japan’s Defense Ministry Wants Record Military Budget for 2016,” *The Diplomat*, September 1, 2015, <http://thediplomat.com/2015/09/japans-defense-ministry-wants-record-military-budget-for-2016/>.
31. Tetsuo Kotani, “U.S.-Japan Allied Maritime Strategy: Balancing the Rise of Maritime China,” *Strategic Japan* (Center for Strategic and International Studies, April 2014), [http://csis.org/files/publication/140422\\_Kotani\\_USJapanAlliance.pdf](http://csis.org/files/publication/140422_Kotani_USJapanAlliance.pdf).
32. Paul Kallender-Umezu, “Japan’s Amphibious Capabilities Struggle with Rivalries, Budget,” *Defense News*, October 11, 2015, <http://www.defensenews.com/story/defense/naval/marines/2015/10/07/japans-amphib-capabilities-stuggle-rivalries-budgets/73482062/>.
33. Masaaki Iwamoto, “IMF Says Japan’s Growth to 2020 Will Be Worse Than in Deflation Years,” *Bloomberg News*, July 29, 2015, <http://www.bloomberg.com/news/articles/2015-07-29/japan-s-growth-to-2020-seen-by-imf-worse-than-in-deflation-years-icp9ah09>.
34. See Mira Rapp-Hooper and Harry Krejsa, *Reefs, Rocks, and the Rule of Law: After the Arbitration in the South China Sea* (Center for a New American Security, April 2016), <http://www.cnas.org/sites/default/files/publications-pdf/CNAS-Report-AfterArbitration-FINAL.pdf>.
35. Reuters, “China’s Xi Says Won’t Allow Taiwan to Be ‘Split’ Off Again,” *The New York Times*, March 6, 2016, [http://www.nytimes.com/reuters/2016/03/06/world/asia/06reuters-china-parliament-taiwan.html?\\_r=0](http://www.nytimes.com/reuters/2016/03/06/world/asia/06reuters-china-parliament-taiwan.html?_r=0).
36. Cliff, *China’s Military Power: Assessing Current and Future Capabilities*, 190. \*Please verify this is correct\*
37. Eric Heginbotham, Michael Nixon, Forrest E. Morgan, Jacob Heim, Jeff Hagen, Sheng Li, Jeffrey Engstrom, Martin C. Libicki, Paul DeLuca, David A. Shlapak, David R. Frelinger, Burgess Laird, Kyle Brady and Lyle J. Morris., *U.S. and Chinese Air Superiority Capabilities: An Assessment of Relative Advantage, 1996–2017* (Santa Monica: Rand Corporation, 2015); and Eric Heginbotham, Michael Nixon, Forrest E. Morgan, Jacob Heim, Jeff Hagen, Sheng Li, Jeffrey Engstrom, Martin C. Libicki, Paul DeLuca, David A. Shlapak, David R. Frelinger, Burgess Laird, Kyle Brady and Lyle J. Morris, *The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996–2017* (Santa Monica, CA: Rand Corporation, 2015), [http://www.rand.org/pubs/research\\_reports/RR392.html](http://www.rand.org/pubs/research_reports/RR392.html).
38. See Sachiko Kuno, Michèle Flournoy, Patrick Cronin, and Maki Fukami, “Strategic Resilience: A U.S.-Japan Alliance Action Plan for All-Hazard Emergency Management” (CNAS, S&R Foundation, and IIGR, March 2016), 32–37.
39. Narushige Michishita, “A2/AD and ‘Presence at Sea (PAS)’ Challenges from an Allied Perspective,” (paper submitted for the Alliance Requirements Roadmap Conference, December 10, 2015).
40. Ibid.
41. MOFA, “Trends in Chinese Government and Other Vessels in the Waters Surrounding the Senkaku Islands, and Japan’s Response- Records of Intrusions of Chinese Government and Other Vessels into Japan’s Territorial Sea,” November 5, 2015, [http://www.mofa.go.jp/region/page23e\\_000021.html](http://www.mofa.go.jp/region/page23e_000021.html).
42. Ibid.
43. Yoji Koda, “Fundamental Concepts of China’s A2AD and



- Cooperative Countermeasures of Japan and USA: Force Building and Military-Posture Forming under Japan U.S. Alliance,” (paper submitted for the Alliance Requirements Roadmap Conference, December 10, 2015), 3.
44. Ibid., 4.
  45. Masayuki Hironaka, “Future Roles, Missions, and Capabilities of the Japan Self-Defense Force,” (paper submitted for the Alliance Requirements Roadmap Conference, December 10, 2015), 2.
  46. Ibid., 2.
  47. Ibid., 3.
  48. Prime Minister Malcolm Turnbull, “The 2016 Lowy Lecture,” March 23, 2016, <http://www.lowyinstitute.org/news-and-media/audio/2016-lowy-lecture-prime-minister-australia-malcolm-turnbull>.
  49. Richard Fontaine, “China Looms Large in Australia’s New Strategy,” *The National Interest*, March 25, 2016, <http://nationalinterest.org/feature/china-looms-large-australias-new-strategy-15595>.
  50. 2016 Defence White Paper (Canberra, Australia: Department of Defence, 2016), <http://www.defence.gov.au/white-paper/Docs/2016-Defence-White-Paper.pdf>, 44.
  51. Ibid., 83–84.
  52. Ibid., 9.
  53. Andrew Shearer, *Australia-Japan-U.S. Maritime Cooperation: Creating Federated Capabilities for the Asia-Pacific* (Center for Strategic & International Studies, April 2016), 27.
  54. Dave Majumdar, “Danger: America’s Great Submarine Shortage in the Pacific,” *The National Interest*, February 25, 2016, <http://nationalinterest.org/blog/the-buzz/danger-americas-great-submarine-shortage-the-pacific-15318>.
  55. Rob Taylor, “French Shipbuilder Wins \$39 Billion Australian Submarine Deal,” April 26, 2016, <http://www.wsj.com/articles/french-shipbuilder-wins-australian-submarine-deal-1461639120>.
  56. Alexander Sullivan, “Autonomous Power? Securing Singapore’s Interests in the 21st Century,” (Center for a New American Security, August 2014).
  57. Harry Krejsa, “Taiwan and Countering Chinese A2/AD: Fighting Fire with Fire,” (paper submitted for the Alliance Requirements Roadmap Conference, December 10, 2015), 1.
  58. See Iskander Rehman, Jim Thomas, and John Stillion, *Hard ROC 2.0: Taiwan and Deterrence Through Protraction* (Washington, D.C.: Center for Strategic and Budgetary Assessments, 2014), [https://issuu.com/csbaonline/docs/2014-10-01\\_csba-taiwanreport-1?e=15123547/14383688](https://issuu.com/csbaonline/docs/2014-10-01_csba-taiwanreport-1?e=15123547/14383688).
  59. Krejsa, “Taiwan and Countering Chinese A2/AD: Fighting Fire with Fire,” 3.
  60. Lindsay Murdoch, “South China Sea Dispute: Vietnamese Subs Deployed as Deterrent to China,” *The Sydney Morning Herald*, January 7, 2016, <http://www.smh.com.au/world/vietnamese-subs-deployed-to-south-china-sea-20160107-gm0z6a.html>.
  61. Steven Stashwick, “Naval Buildups in the South China Sea,” *The Diplomat*, July 15, 2015, <http://thediplomat.com/2015/07/naval-buildups-in-the-south-china-sea/>.
  62. See Koh Swee Lean Collin, “Vietnam’s Master Plan for the South China Sea,” *The Diplomat*, February 4, 2016, <http://thediplomat.com/2016/02/vietnams-master-plan-for-the-south-china-sea/>; and Sanjeev Miglani and Greg Torode, “India to Build Satellite Tracking Station in Vietnam that Offers Eye on China,” Reuters, January 25, 2016, <http://in.reuters.com/article/india-vietnam-satellite-china-idINKCN0V309W>.
  63. Tran Dang, “Vietnam Opens Cam Ranh Port for Military, Civilian Purposes,” *Thanhniien News*, <http://www.thanhniiennews.com/politics/vietnam-opens-cam-ranh-port-for-military-civilian-purposes-60033.html>.
  64. Scott Cheney-Peters and Natalie Sambhi, “Malaysia’s A2/AD Dilemma,” (paper submitted for the Alliance Requirements Roadmap Conference, December 10, 2015), 4.
  65. See Malaysian and Chinese Firms Sign MoU for Surface-To-Air Defence Missile System LY-80 SAM,” Army Recognition, June 5, 2014, [http://www.armyrecognition.com/june\\_2014\\_global\\_defense\\_security\\_news\\_uk/malaysian\\_and\\_chinese\\_firms\\_sign\\_mou\\_for\\_surface-to-air\\_defense\\_missile\\_system\\_ly-80\\_sam.html](http://www.armyrecognition.com/june_2014_global_defense_security_news_uk/malaysian_and_chinese_firms_sign_mou_for_surface-to-air_defense_missile_system_ly-80_sam.html); and Chow Bing Ngeow, “Comprehensive Strategic Partners but Prosaic Military Ties: The Development of Malaysia–China Defence Relations 1991–2015,” 37 no. 2 (August 2015), 270.
  66. Staff reporter, “PLA Navy gains use of port in Malaysia close to Spratly islands,” *South China Morning Post*, November 21, 2015, <http://www.scmp.com/news/china/diplomacy-defense/article/1881300/pla-navy-gains-use-port-malaysia>; Yet analysts also note that Malaysia has long given access to Western navies including the United States to its bases and that Malaysia’s defense relations with the United States “are significantly stronger than those with China.” See Prashanth Parameswaran, “Why Did China’s Navy Gain Use of a Malaysia Port Near the South China Sea?,” *The Diplomat*, November 24, 2015, <http://thediplomat.com/2015/11/why-did-chinas-navy-gain-use-of-a-malaysia-port-near-the-south-china-sea/> for analysis on the Kota Kinabalu agreement; and Ngeow, “Comprehensive Strategic Partners but Prosaic Military Ties: The Development of Malaysia–China Defence Relations 1991–2015,” 294.
  67. Dzirhan Mahadzir, “Malaysia Steps up Presence at Luconia Shoals,” IHS Jane’s Defence Weekly, December 16, 2015,

<http://www.janes.com/article/56721/malaysia-steps-up-presence-at-luconia-shoals>.

68. Chow Bing, 274.
69. Terrence K. Kelly, Anthony Adler, Todd Nichols, and Lloyd Thrall, *Employing Land-Based Anti-Ship Missiles in the Western Pacific* (Rand Corporation, 2013), 8, [http://www.rand.org/content/dam/rand/pubs/technical\\_reports/TR1300/TR1321/RAND\\_TR1321.pdf](http://www.rand.org/content/dam/rand/pubs/technical_reports/TR1300/TR1321/RAND_TR1321.pdf).
70. Scott Cheney-Peters and Natalie Sambhi, "Malaysia's A2/AD Dilemma," 5.
71. Des Walton, "The Importance of U.S.-Thai Security Cooperation Pre-Coup, Post-Coup, & Beyond," cogitASIA blog for the Center for Strategic and International Studies, July 13, 2015, <http://cogitasia.com/the-importance-of-u-s-thai-security-cooperation-pre-coup-post-coup-beyond/>.
72. Nirmal Verma, "India: A2/AD Partnership Requirements for Awareness and Access," (paper submitted for the Alliance Requirements Roadmap Conference, December 10, 2015), 3.
73. Ibid., 6.
74. For instance, see *NIDS China Security Report 2016: The Expanding Scope of PLA Activities and the PLA Strategy* (Tokyo, Japan: National Institute for Defense Studies, March 2016).
75. Des Walton, "Security Cooperation: The Key to Access and Influence in the Asia-Pacific," (paper submitted for the Alliance Requirements Roadmap Conference), December 10, 2015.
76. Colonel Michael W. "Starbaby" Pietrucha, USAF, "Avoiding the Charge of the Light Brigade: Circumventing the A2/AD Challenge," (paper submitted for the Alliance Requirements Roadmap Conference, December 10, 2015).
77. T.X. Hammes, "Offshore Control: A Proposed Strategy for an Unlikely Conflict," *Strategic Forum*, no. 278, 1. National Defense University Press, 2012.
78. Pietrucha, "Avoiding the Charge of the Light Brigade: Circumventing the A2/AD Challenge."
79. Ibid.
80. Ibid.
81. Grant Newsham, "Exploiting Amphibious Operations to Counter Chinese A2/AD Capabilities," (paper submitted for the Alliance Requirements Roadmap Conference, December 10, 2015).
82. Ibid.
83. Ibid.
84. The author recommends studying the Swedish Marines and other Scandinavian amphibious forces for examples of imaginative use of amphibious forces and development of specialized craft, hardware, and tactics suited to archipelagic and close, narrow littoral waters. There are a number of ideas and lessons to be gleaned that are appropriate for operating in Asia's complex archipelagos, such as Indonesia and the Philippines.
85. Vice Admiral Thomas Rowden, Rear Admiral Peter Gumataotao, and Rear Admiral Peter Fanta, "Distributed Lethality," U.S. Naval Institute, *Proceedings*, January 2015, volume 141.
86. Newsham, "Exploiting Amphibious Operations to Counter Chinese A2/AD Capabilities."
87. Commander Jennifer Couture, "Naval Power in the Indo-Pacific in an Anti-Access/Area-Denial Environment," (paper submitted for the Alliance Requirements Roadmap Conference, December 10, 2015).
88. Elbridge Colby, "America Must Prepare for 'Limited War,'" *The National Interest*, October 21, 2015, <http://nationalinterest.org/feature/america-must-prepare-limited-war-14104>.
89. Couture, "Naval Power in the Indo-Pacific in an Anti-Access/Area-Denial Environment."
90. *A Cooperative Strategy for 21st Century Seapower*, (Washington, D.C.: Department of the Navy, March 2015), <http://www.navy.mil/local/maritime/150227-CS21R-Final.pdf>, 2.
91. Ibid.
92. Couture, "Naval Power in the Indo-Pacific in an Anti-Access/Area-Denial Environment."
93. For complete review on both sides of this issue, see Dr. Jerry Hendrix, "Retreat from Range," (Center for a New American Security, October 2015); and Seth Cropsey, Bryan G. McGrath, and Timothy A. Walton, "Sharpening the Spear," (Washington, DC: The Hudson Institute, October 2015).
94. Couture, "Naval Power in the Indo-Pacific in an Anti-Access/Area-Denial Environment."
95. Rowden et. al., "Distributed Lethality."
96. Couture, "Naval Power in the Indo-Pacific in an Anti-Access/Area-Denial Environment."
97. Lt. Col. Pete McAleer, "Employing Ground Forces to Counter Chinese Strategy in the Asian Maritime Environment," (paper submitted for the Alliance Requirements Roadmap Conference, December 10, 2015).
98. Jim Thomas, "Why the U.S. Army Needs Missiles," *Foreign Affairs*, 92 no. 3 (May/June 2013); and Andrew F. Krepinevich Jr., "How to Deter China," *Foreign Affairs*, 94 no. 2 (March/April 2015).

99. Kelley Sayler, "The Promise of Unmanned Systems in the Asia-Pacific," (paper submitted for the Alliance Requirements Roadmap Conference, December 10, 2015).
100. Hiroaki Uchikura, "The Future of Trans-Pacific Airpower Interoperability: Preparation for a Growing Anti-Access/Area Denial Environment," (Washington, DC: Brookings Institution, 2010), 38. [http://www.brookings.edu/~media/research/files/papers/2010/6/30-transpacific-airpower-uchikura/0630\\_transpacific\\_airpower\\_uchikura.pdf](http://www.brookings.edu/~media/research/files/papers/2010/6/30-transpacific-airpower-uchikura/0630_transpacific_airpower_uchikura.pdf); and Robert P. Haffa Jr., "Full-Spectrum Air Power: Building the Air Force America Needs," (Washington, DC: Heritage Foundation, 2012). <http://www.heritage.org/research/reports/2012/10/full-spectrum-air-power-building-the-air-force-america-needs>.
101. Robert Martinage, "Toward a New Offset Strategy: Exploiting U.S. Long-Term Advantages to Restore U.S. Global Power Projection Capability," (Center for Strategic and Budgetary Assessment, 2014), 59.
102. This number includes China, Taiwan, North Korea, South Korea, Japan, India, Pakistan, Sri Lanka, Thailand, Malaysia, Singapore, Philippines, Indonesia, Australia, New Zealand, and Vietnam. See Michael C. Horowitz and Matthew Fuhrmann, "Droning On: Explaining the Proliferation of Unmanned Aerial Vehicles," October 24, 2014, [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2514339](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2514339).
103. See, for example, Mark Prigg, "Who goes there? Samsung unveils robot sentry that can kill from two miles away," *The Daily Mail*, September 15, 2014, <http://www.dailymail.co.uk/sciencetech/article-2756847/Who-goes-Samsung-reveals-robot-sentry-set-eye-North-Korea.html>; Jeffrey Lin and P.W. Singer, "China's New Military Robots Pack More Robots Inside (Starcraft-style)," *PopSci.com*, November 11, 2014, <http://www.popsci.com/blog-network/eastern-arsenal/chinas-new-military-robots-pack-more-robots-inside-starcraft-style>; and Prasad Kulkarni, "Daksh could be useful in Mumbai operations," *The Times of India*, November 28, 2008, <http://timesofindia.indiatimes.com/city/pune/Daksh-could-be-useful-in-Mumbai-operations/articleshow/3766844.cms?referral=PM>.
104. Sayler, "The Promise of Unmanned Systems in the Asia-Pacific."
105. For an in-depth discussion of the benefits of unmanned systems, see Paul Scharre, "Robotics on the Battlefield: Part I: Range, Persistence, and Daring," (Center for a New American Security, May 2014), [http://www.cnas.org/sites/default/files/publications-pdf/CNAS\\_RoboticsOnTheBattlefield\\_Scharre.pdf](http://www.cnas.org/sites/default/files/publications-pdf/CNAS_RoboticsOnTheBattlefield_Scharre.pdf).
106. Sayler, "The Promise of Unmanned Systems in the Asia-Pacific."
107. Bill Gertz, "Inside the Ring: China Targets Global Hawk Drone," *The Washington Times*, December 11, 2013, <http://www.washingtontimes.com/news/2013/dec/11/inside-the-ring-china-targets-global-hawk-drone/?page=all>.
108. Amy Butler and Bill Sweetman, "Secret New UAS Shows Stealth, Efficiency Advances," *Aviation Week*, December 6, 2013, <http://aviationweek.com/defense/secret-new-uas-shows-stealth-efficiency-advances>.
109. Sayler, "The Promise of Unmanned Systems in the Asia-Pacific."
110. Paul S. Giarra, "U.S.-Japan Alliance: Space-Based Counter to A2/AD Capabilities," (paper submitted for the Alliance Requirements Roadmap Conference, December 10, 2015).
111. Ibid.
112. Elbridge Colby, "Nuclear Weapons and China's A2/AD Capabilities," (paper submitted for the Alliance Requirements Roadmap Conference, December 10, 2015).
113. Ibid.
114. Reuters, "U.S. Says in Talks to Base Long-Range Bombers in Australia," March 9, 2016, <http://www.reuters.com/article/us-southchinasea-australia-usa-idUSKCN0WB05Q>.
115. Colby, "Nuclear Weapons and China's A2/AD Capabilities."

## **About the Center for a New American Security**

The mission of the Center for a New American Security (CNAS) is to develop strong, pragmatic and principled national security and defense policies. Building on the expertise and experience of its staff and advisors, CNAS engages policymakers, experts and the public with innovative, fact-based research, ideas and analysis to shape and elevate the national security debate. A key part of our mission is to inform and prepare the national security leaders of today and tomorrow.

CNAS is located in Washington, and was established in February 2007 by co-founders Kurt M. Campbell and Michèle A. Flournoy.

CNAS is a 501(c)3 tax-exempt nonprofit organization. Its research is independent and non-partisan. CNAS does not take institutional positions on policy issues. Accordingly, all views, positions, and conclusions expressed in this publication should be understood to be solely those of the authors.

© 2016 Center for a New American Security.

All rights reserved.



Bold. Innovative. Bipartisan.