ACTIVE DENIAL

A ROADMAP TO A MORE EFFECTIVE, STABILIZING, AND SUSTAINABLE U.S. DEFENSE STRATEGY IN ASIA

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Preface

As relations between the United States and China deteriorate, chances of a military clash are only too real. Multiple factors, including Taiwan, could lead to a major escalatory spiral of conflict in Asia. Such an escalation is undesirable as, among other things, it would be a threat to the security and prosperity of the United States.

This year-long study by three members of the Quincy Institute's East Asia Program and seven external partners, spearheaded by former QI Research Fellow Rachel Esplin Odell, is a major undertaking to lay out a safer military strategy for the United States in Asia. The strategy, called Active Denial, lays out the military posture needed to reduce chances of escalation in the event of conflict, while ensuring that any Chinese military offensive cannot succeed. The strategy also has the additional benefit of yielding significant annual savings of roughly $75 billion (about 10 percent) by 2035 compared to the last Trump administration defense plan.

The Quincy Institute was founded in 2019 to advance policy-relevant scholarship to move U.S. foreign policy away from endless war and toward vigorous diplomacy, economic engagement, and the combating of existential threats such as climate change. The focus of this study was to evolve a shorter-term military strategy in Asia for the United States that lowers risk and makes for a more stable military balance. The research group did not aspire to address questions of grand strategy in the longer-term. Consequently, the report does not present a Restraint grand strategy towards China. Rather, it lays out a shorter-term military strategy aimed at reducing the risk of conflict in the region, which in turn can serve as a bridge toward a grand strategy of Restraint for Asia.

Active Denial's defense-centered approach reduces chances of escalation in any conflict, including nuclear escalation, while its focus on resilience ensures that the United States will prevail. The strategy challenges multiple assumptions currently rampant in Washington of relying primarily on offense and, as some have argued, maintaining or regaining U.S. military dominance in the region. It also emphasizes the importance of diplomatic tools in achieving a more stable Asia.

By reducing the U.S. military footprint in Asia, especially Army and Marines ground forces, and eliminating vulnerable or superfluous platforms, active denial will significantly lower costs to the American taxpayer. By mitigating the security dilemma and reducing arms racing in the region, the strategy could foster mutually acceptable

compromises in regional disputes and open the door for more inclusive cooperation involving the United States, China, and other Asian nations. In doing so, it can ensure the maintenance of hard-won peace in a region vital to America's prosperity.

The recommendations of this study, if adopted by the United States, will reduce the risk of a major conflagration in Asia and contribute to stabilizing the currently fraught circumstances in the region. They ought to be taken to heart, and acted upon, in the national interest.

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Executive Summary

As China's military power has grown over the past three decades, U.S. military dominance in the Western Pacific has eroded significantly. Efforts by the United States to restore military dominance in the region through offensive strategies of control are unlikely to succeed. Not only would such efforts prove financially unsustainable; they could also backfire by exacerbating the risk of crises, conflict, and rapid escalation in a war.

At the same time, the United States and various countries in the region have legitimate concerns about how China intends to apply its growing military capabilities. The possibility that Beijing could use force against Taiwan or against U.S. allies in disputes over islands and maritime jurisdiction raises the specter of a direct U.S.–China war. China's increasing use of diplomatic and economic coercion against other states in geopolitical disputes also heightens other countries' general anxiety about how Beijing might use military force for coercive purposes.

In view of these trends, the United States needs a more credible, stabilizing, and affordable defense strategy for deterring potential use of military force by China, coupled with a diplomatic strategy to reduce military tensions and improve crisis management.

The 10 authors of this report, with extensive expertise on these topics and high-level experience in government and the military, convened in late 2020 to develop a proposal for such a strategy, one that meets three key criteria. It must:

(1) Effectively deter potential aggression;
(2) Enhance stability and limit risks of rapid and nuclear escalation;
(3) Remain affordable under tighter fiscal constraints.

Through a series of structured discussions, war games, and broader working groups of experts, we have developed a road map for implementing a defense strategy that can meet these objectives. It is based on a concept we call active denial.

Key components of an active denial strategy

Active denial is a defense strategy characterized by a phased approach to operations. This approach focuses on deploying resilient and primarily defensive U.S. and allied forces to blunt and disrupt attack, while preparing for focused counterattack later. It relies upon a smarter division of labor between allied and forward-deployed U.S. forces, both of which are to be optimized for resilience. It also employs a restrained approach

to escalation and seeks to limit the scope of battle, with an end goal of defeating aggression rather than subjugating the adversary.

U.S. force structure should be redesigned around an active denial strategy, with a greater focus on the U.S. Navy and Air Force and cuts to Army and Marine force structure. Changes should also be made within each service:

- The Navy should emphasize smaller ships, with light carriers replacing half the current large carriers at a ratio of 2 to 1. It should expand its inventory of smaller surface combatants relative to larger ships and maintain submarine and logistical capability.

- The Air Force should reorganize and emphasize maintenance and ground support capabilities and accelerate cuts to older aircraft to recapitalize the fleet of combat aircraft. Additionally, it should reduce maintenance costs and maintain tanker, transport, and intelligence, surveillance, and reconnaissance capabilities.

- The Army and Marine Corps should cut 26 of their combined 71 brigade combat teams and regiments, including eight from the active force. For the Asia–Pacific theater, these forces should instead focus on capabilities for defending against air and naval aggression, including more mobile long– and medium-range air-defense and anti-ship capabilities.

Force posture in Asia should also be adjusted to reflect an active denial strategy. The United States and its allies should invest more in regional basing infrastructure to improve resilience and prepare for distributed operations. At the same time, the units least suited to relevant contingencies — such as most Marine ground troops in Okinawa and some U.S. Air Force assets in South Korea — should be moved to other locations.

Benefits of an active denial strategy

Implementing these changes to U.S. defense strategy, force structure, and force posture would significantly enhance deterrence, stability, and fiscal sustainability. We have identified the core benefits as these:

- By making U.S. and allied forces more resilient while preserving their potency, active denial would ensure that the United States and its allies would avoid defeat at the outset of conflict and defeat attacks in subsequent phases.

- By making deployed forces more defensively oriented and focusing operations primarily on adversary forces directly engaged in offensive operations, the proposed strategy would limit rapid, early escalation and reduce the risk of inadvertent nuclear escalation.

- By prioritizing the forces appropriate for the Asian theater, trimming ground-force elements, and adopting concepts of operation that capitalize on the region's defensive advantages, an active denial strategy would offer a road map for a more affordable defense. Specifically, the changes we recommend would generate annual savings, measured against the last Trump administration defense plan, of roughly $75 billion, or 10 percent of the Trump plan's projected costs, by 2035.

An accompanying diplomatic strategy with allies and partners — and Beijing

To succeed, these changes must be accompanied by deepened engagement with allies and partners in Asia. The United States should continue to move beyond its longstanding "hub-and-spokes" network of bilateral alliances and encourage more security cooperation among these allies and partners. The United States will be more likely to gain buy-in from allies and partners for an active denial strategy if it avoids a simplistic U.S.–vs.–China bipolar perspective and an overemphasis on military tools to the neglect of the diplomatic, political, and economic dimensions of security policy.

Finally, while shifting to an active denial strategy will reduce pressures for rapid escalation and escalation to the nuclear level, military strategy on its own cannot prevent conflict. Rather, such a shift must be coupled with efforts to limit arms racing, mitigate gray-zone coercion, and promote détente and restraint. These measures should include efforts to promote strategic nuclear stability, reduce the militarization of key conflict hot spots, limit unrealistic or costly commitments, and adopt stabilizing crisis management mechanisms. This will require unilateral restraint and direct diplomacy with Beijing.

Reforming strategy and preventing war requires political leadership

This report's 10 authors have converged on these recommendations despite holding a range of views on China's intentions, the scope of U.S. interests in Asia, and the objectives of U.S. defense strategy in the region in the medium and long terms. Our ability to achieve consensus on an active denial strategy despite disagreement about such issues is a measure of the robustness of our recommendations. This bodes well in a political climate wherein gridlock often impedes progress in rationalizing defense policy and controlling debt and spending.

Nonetheless, the changes we recommend will not be simple or easy. They will require strong political leadership from the president and secretary of defense. This will be key to overcoming the entrenched bureaucratic, congressional, and defense-industry interests that have kept the United States wedded to a path of inertia in its recent budgets and acquisitions. Only through such leadership can the United States implement a more effective, stabilizing, and affordable defense strategy, coupled with essential diplomatic outreach to allies and partners and to China itself. Such an approach is, in turn, key to preventing and mitigating the dangers of a U.S.–China war.

Note: As this report was about to be published, Russia launched an invasion of Ukraine. See our postscript for a consideration of the potential implications of this development for the arguments presented here.

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[1] Rachel Esplin Odell is now a foreign affairs analyst in the U.S. Department of State, but the research, workshop, and wargame phases of this project concluded before she joined the State Department and was still a research fellow at the Quincy Institute. This report relies solely on open sources, and the views in this report are those of the authors and do not necessarily reflect those of the State Department or the U.S. government.

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List of Acronyms

A2/AD	Anti-access/area denial
ACE	Agile combat employment
ACSA	Acquisition and cross-servicing agreement
AEW	Airborne early warning
ANZUS	Australia–New Zealand–United States alliance
ARDB	Amphibious rapid-deployment brigade (Japan)
ARRW	Air-launched rapid response weapon
ASB	AirSea Battle
ASCM	Anti-ship cruise missile
ASDF	Air Self-Defense Force (Japan)
ASEAN	Association of Southeast Asian Nations
ASW	Anti-submarine warfare
ATACM	Army tactical missile system
AUKUS	Australia–United Kingdom–United States alliance
AWACS	Airborne warning-and-control system
C4ISR	Command, control, communications, computers, intelligence, surveillance, and reconnaissance
CALCM	Conventional air-launched cruise missile
CBMs	Confidence-building measures
CBO	Congressional Budget Office
CC&D	Camouflage, concealment, and deception
CCP	Chinese Communist Party
CMC	Central Military Commission
COE	Center of Excellence
CVL	Light aircraft carrier
CVN	Aircraft carrier
DARPA	Defense Advanced Research Projects Agency
DMO	Distributed maritime operations
DTRA	Defense Threat Reduction Agency
EABO	Expeditionary Advanced Base Operations
EDCA	Enhanced Defense Cooperation Agreement
EEZ	Exclusive economic zone
FONOP	Freedom of navigation operation
GAO	Government Accountability Office
GSDF	Ground Self-Defense Force (Japan)
GSOMIA	General Security of Military Intelligence Agreement
HA/DR	Humanitarian assistance and disaster relief
HAS	Hardened aircraft shelter
HIMARS	High Mobility Artillery Rocket System
HVAA	High value airborne assets

ICBM	Intercontinental ballistic missile
INDOPACOM	Indo–Pacific Command
IISS	International Institute for Strategic Studies
ISR	Intelligence, surveillance, and reconnaissance
JAM-GC	Joint Concept for Access and Maneuver in the Global Commons
JASSM	Joint Air-to-Surface Standoff Missile
JASSM-ER	Joint Air-to-Surface Standoff Missile-Extended Range
JSDF	Japan Self-Defense Forces
JSM	Joint Strike Missile
LCS	Littoral combat ship
LRASM	Long-range anti-ship missile
LRHW	Long Range Hypersonic Weapon
MDT	Mutual Defense Treaty
MDTF	Multi-Domain Task Force
MEADS	Medium Extended Air Defense System
MEB	Marine Expeditionary Brigade
MEF	Marine Expeditionary Force
MEU	Marine Expeditionary Unit
MLR	Marine Littoral Regiment
MMCA	Military Maritime Consultation Agreement
MR-X	Multi-Role X (fighter aircraft)
MSDF	(Japan) Maritime Self-Defense Force
NATO	North Atlantic Treaty Organization
New START	New Strategic Arms Reduction Treaty
NFU	No first use
NGAD	Next Generation Air Dominance (fighter aircraft)
OPCON	Operational control
PDI	Pacific Deterrence Initiative
PLA	People's Liberation Army
PLAN	People's Liberation Army Navy
PRC	People's Republic of China
PrSM	Precision Strike Missile
RAA	Reciprocal Access Agreement
RAP	Reliable Acoustic Path
RIMPAC	Rim of the Pacific (naval exercise)
ROK	Republic of Korea
SAM	Surface-to-air missile
SEAD	Suppression of enemy air defenses
SMA	Special Measures Agreement
SOFA	Status of Forces Agreement
SOSUS	Sound Surveillance System
SSBN	Submersible ship ballistic nuclear; a.k.a. nuclear-powered ballistic missile submarine
SSN	Submersible ship (nuclear); a.k.a. nuclear-powered attack submarine

UAV	Unmanned aerial vehicle
UN	United Nations
USAF	United States Air Force
USFK	U.S. Forces Korea
USMC	United States Marine Corps
USN	United States Navy
USV	Unmanned surface vehicle
UUV	Unmanned underwater vehicle
VFA	Visiting Forces Agreement
VLS	Vertical launch system
THAAD	Terminal high-altitude area defense

List of Tables and Figures

Chapter 1: The Need for a New U.S. Defense Strategy in Asia

Rachel Esplin Odell was the lead author of this chapter, with contributions from other report authors.

Introduction

A shifting regional military balance

The past three decades have witnessed a steady transformation in the military balance in Asia. As China's military capabilities have expanded, the United States' longstanding military dominance in the Western Pacific has eroded significantly. This trend has occurred against the backdrop of the heavy fiscal burden imposed by high U.S. defense spending during two decades of war in the Middle East and Central Asia, as well as the more fundamental difficulty of projecting American military power across the vast expanses of the Pacific Ocean. Taken together, these factors make it increasingly difficult for the United States to maintain a post–Cold War approach to deterrence designed to dominate opponents from the outset of hostilities through offensive action.

Not only are U.S. efforts to respond to this shifting balance of power by reasserting military dominance through offensive strategies of control unlikely to succeed; they could also endanger U.S. interests and regional peace and stability. At the strategic level, such efforts contribute to the intensity of the security dilemma unfolding in the region between China and the United States and its allies and partners. At the operational level, a U.S. strategy of control and the massing of potent but vulnerable assets in forward locations, juxtaposed against China's own forward-leaning military strategy, undermine crisis stability by creating incentives for each side to strike first and rapidly escalate in a conflict.

At the same time, the United States and other countries in the region have legitimate concerns about how China intends to apply the capabilities developed during its decades-long military modernization. Beijing's willingness and capability to possibly use force against Taiwan, or against U.S. allies such as Japan or the Philippines in disputes over islands and maritime jurisdiction, raise the specter of a direct U.S.–China war. More fundamentally, there is considerable uncertainty and distrust as to how China will use its growing military power, some of which is inherent in any state's expansion in military capabilities and some of which is exacerbated by Beijing's behavior when it intends to coerce other states in territorial and geopolitical disputes.

Calls for a new U.S. defense strategy in Asia

In recognition of these changing dynamics and their serious dangers, a growing number of American analysts have advocated a more defensively oriented U.S. force posture and military strategy in Asia that would be more effective, more stabilizing, and less expensive. These include scholars of grand strategy arguing for a more limited role for the U.S. military in foreign policy, as well as defense analysts and military planners seeking to develop concepts of operations that can deter and, if necessary, prevail without excessive risk and cost.

Proposals for such a defense strategy — variously termed "mutual denial," "active denial," or "defensive defense" — have broad elements in common. One important element is the need for U.S. allies and partners, and Taiwan, to do more for their own defense, especially through cost-effective "hedgehog strategies" that reduce their military forces' vulnerability to attack, in part through investment in more anti-ship missiles and air defense systems and reforms to military organization and training. The United States, meanwhile, would restructure its force posture in the Western Pacific. It would reduce its forward-deployed ground troops and large surface platforms and increase investment in standoff weapons-delivery systems and smaller surface platforms. At the same time, the U.S. would disperse its forward-deployed forces across a broader area with more strategic depth and employ passive and active defenses to increase resilience, rather than maintaining forces in highly concentrated and vulnerable forward locations.[2]

Thus far, however, proposals for an alternative defense strategy have not been fully developed. First, they lack important details about the required changes to force structure and posture, including a detailed assessment of military efficacy as well as an appreciation of the concrete budgetary implications of such changes. These proposals also often lack in-depth awareness of the perspectives of countries within the Western Pacific, and thus fail to lay out the diplomatic and political strategies necessary for transitioning the U.S. military and American allies to a more denial-oriented posture in Asia. Finally, proposals to date are often not accompanied by considerations of the confidence-building, crisis-management, and arms-control measures needed to mitigate the risks of even a more stabilizing, denial-based strategy.

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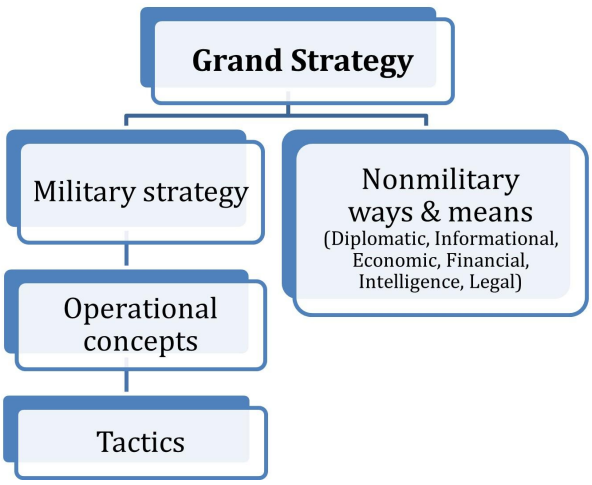
[2] See Gholz, Eugene, Benjamin Friedman, and Enea Gjoza. "Defensive Defense: A Better Way to Protect U.S. Allies in Asia. *The Washington Quarterly*, December 2019; Heginbotham, Eric, and Richard J. Samuels. "Active Denial: Redesigning Japan's Response to China's Military Challenge." *International Security* 42, no. 4, Spring 2018; Beckley, Michael. "The Emerging Military Balance in East Asia: How China's Neighbors Can Check Chinese Naval Expansion." *International Security*, Fall 2017; Biddle, Stephen, and Ivan Oelrich. "Future Warfare in the Western Pacific: Chinese Antiaccess/Area Denial, U.S. AirSea Battle, and the Command of the Commons in East Asia." *International Security*, Vol. 41, No. 1, Summer 2016; Swaine, Michael D., Mike M. Mochizuki, Michael L. Brown et al. *China's Military and the U.S.-Japan Alliance in 2030: A Strategic Net Assessment*. Carnegie Endowment for International Peace, 2014; Heginbotham, Eric and Jacob Heim. "Deterring without Dominance: Discouraging Chinese Adventurism under Austerity." *The Washington Quarterly*, Spring 2015; Steinberg, James, and Michael E. O'Hanlon. *Strategic Reassurance and Resolve: U.S.–China Relations in the Twenty-first Century*. Princeton University Press, 2014. Colby, Elbridge A. *The Strategy of Denial: American Defense in an Age of Great Power Conflict.* Yale University Press, September 2022, advocates a defense strategy that shares some limited features in common at the conceptual level with these other versions of denial and with the "active denial" strategy that we recommend in this report, but differs significantly at a more strategic level. These distinctions will be discussed further, including in Chapter 2.

This report endeavors to develop those details to lay out a concrete policy road map for restructuring U.S. defense strategy in the Asia–Pacific around a strategy that we call active denial. Our intent is to chart a course toward a more stabilizing, effective, and cost-efficient means for protecting U.S. security interests in the region. The report includes recommendations that are concrete and actionable for members of Congress and defense planners, and it builds a rigorous budgetary component into the assessment. It also includes specific recommendations for U.S. allies and partners, and Taiwan, and for how U.S. diplomats and defense officials can mobilize them to implement needed reforms.

How a defense strategy of active denial relates to U.S. grand strategy in Asia

This report is first and foremost about defense strategy, rather than grand strategy. Any nation's grand strategy — its theory of how best to protect its security and other national interests — must include a military strategy that serves as one means by which the ends of its grand strategy can be achieved. (See Figure 1.1.) However, it is possible for a military strategy to be compatible with more than one variant of grand strategy, since military strategy is a means that can be applied to the accomplishment of different ends. This is true for the defense strategy of active denial that we advocate in this report.[3]

Figure 1.1: Relationship between military strategy and grand strategy



[3] Military strategies are not always defensive in nature, but since the active denial strategy we present in this report is oriented toward a defensive strategic goal of deterring and defeating aggression, we use the terms military strategy and defense strategy interchangeably.

In a report published by the Quincy Institute in January 2021 entitled "Toward an Inclusive and Balanced Regional Order: A New U.S. Strategy in East Asia," three of the authors of the present study (Michael D. Swaine, Jessica J. Lee, and Rachel Esplin Odell) outlined an overall vision of what a U.S. grand strategy in East Asia should entail.[4] That report underscored that the future of this region will be determined primarily by economic and diplomatic trends. Thus, if the United States is to protect its interests in Asia and avoid an inexorable marginalization of its access to and influence in the region, it must rebalance its strategy to place greater emphasis on diplomatic and economic means for promoting its interests.[5] Such a rebalancing toward economic and diplomatic engagement in Asia will require the United States to increase investments in its diplomatic statecraft, join new trade agreements, offer more development aid, invest in initiatives to combat climate change and pandemics, and negotiate new, inclusive rules and norms governing contentious issues such as military activities at sea.[6]

Crucially, the United States must resist the temptation to limit its engagement in the region exclusively to coalitions or initiatives that appear to be aimed primarily at confronting or containing China, given that many U.S. allies and partners are unwilling to participate in such a zero-sum approach. While such an approach will be useful and appropriate on certain issues, Washington must also participate in institutions and negotiate regional agreements that include Beijing, so enmeshing the United States, China, and countries throughout Asia together in a regional, multilateral infrastructure that promotes positive-sum growth and problem-solving.

While placing an emphasis on diplomatic and economic engagement, the Quincy Institute's January 2021 strategy report also highlighted the imperative of pursuing a more stable military balance with China by restructuring U.S. alliances and force posture in East Asia around a defense strategy of denial rather than dominance or operational control:

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[4] Swaine, Michael D., Jessica J. Lee, and Rachel Esplin Odell. "Toward an Inclusive & Balanced Regional Order: A New U.S. Strategy in East Asia." Quincy Institute for Responsible Statecraft, January 11, 2021, https://quincyinst.org/2021/01/11/toward-an-inclusive-balanced-regional-order-a-new-u-s-strategy-in-east-asia. For a discussion of the widely varying approaches to Asia among scholars who advocate a grand strategy of restraint, see "Chapter 3: The Asia-Pacific," in Priebe, Miranda, Bryan Rooney, Nathan Beauchamp-Mustafaga, Jeffrey Martini, and Stephanie Pezard. *Implementing Restraint Changes in U.S. Regional Security Policies to Operationalize a Realist Grand Strategy of Restraint.* RAND Corporation, 2021. https://www.rand.org/content/dam/rand/pubs/research_reports/RRA700/RRA739-1/RAND_RRA739-1.pdf. See also the summary of different variants of restraint by Hicks, Kathleen et al. Series: *Getting to Less*, Defense 360. Center for Strategic and International Studies. 2020. https://defense360.csis.org/series/getting-to-less/.

[5] It will also require the United States to invest more in the foundations of its own domestic economy, such as its healthcare, education, and science and technology research and development. Such investments are critical to boosting America's economic engagement and influence globally and in the Asia-Pacific region specifically.

[6] In the trade domain, this is perhaps most vividly illustrated by the question of U.S. participation in the CPTPP. As much as U.S. allies and partners Asia value U.S. security contributions in the region, they are especially eager for Washington to engage in the region in ways that balance China's economic influence and facilitates their economic growth. Setting aside the debate over the domestic economic implications of the CPTPP then, it is clear that U.S. accession to this trade pact would probably do more to bolster American influence and interests in the Asia-Pacific region than would any change to U.S. force posture or defense strategy. For recommendations on how the United States could enhance stability and build goodwill in Asia through supporting negotiations over new rules in the maritime order, see Rachel Esplin Odell, "Promoting Peace and Stability in the Maritime Order Amid China's Rise," Quincy Brief No. 15, July 30, 2021, https://quincyinst.org/report/promoting-peace-and-stability-in-the-maritime-order-amid-chinas-rise.

> [T]he United States should also seek to tighten its military coordination with U.S. allies and restructure its alliances around a more defensive denial-oriented military strategy. Through such a strategy, the United States should not seek to exercise dominance or control in the waters and airspace of the Western Pacific but should instead work with allies to implement a smarter approach to balancing China's growing power centered on denying Chinese control over those same spaces. Under this strategy, the United States and its allies should seek to counter potential Chinese aggression by employing some of the same anti-access/area-denial strategies and asymmetric capabilities that China has developed. By enhancing coastal and air defenses, in particular, they can take advantage of regional geography and render such aggression too costly and difficult for Beijing to undertake.

This project is intended to build on the preliminary defense-strategy recommendations in that report and develop them into a detailed road map for how the United States should redesign and restructure its defense strategy and force posture in Asia over a medium-term time frame of the next 13 years (i.e., to 2035).

At the same time, the focus on defense strategy in this report is not meant to suggest that military means are the most important or appropriate tools for promoting U.S. interests in Asia or elsewhere. On the contrary, we concur with Evan Feigenbaum's warning that United States forces must not become the Hessians of Asia, providing military power to counterbalance bullying by China but exercising declining political and economic influence.[7] However, given the rise of China's own military power and more coercive behavior, the serious risks presented by regional arms racing, and the real dangers of adhering to a status quo U.S. strategy, it is essential that Washington get its defense strategy right.

Differences and consensus among the steering group

To develop this road map for how the United States can shift toward a force structure and posture based on a defense strategy of denial, project director Rachel Esplin Odell convened a steering group consisting of 10 expert analysts. These analysts possess a broad range of deep expertise in numerous areas pertinent to this project, including U.S. military strategy, defense planning, budgetary assessment, alliance politics, nuclear security, and the military strategies and defense politics of China, Japan, and South Korea. The 10 steering group members, who collectively are the authors of this report,[8] do not necessarily agree with all of the arguments made by three of their number (Swaine, Lee, and Odell) in the above-mentioned January 2021 Quincy Institute report. However, each of them has extensive experience in analyzing how the United States can

[7] See "Evan Feigenbaum on Asia's Fragmented Future." Grand Tamasha podcast, November 24, 2020. https://grand-tamasha.simplecast.com/episodes/evan-feigenbaum-on-asias-fragmented-future/transcript.

[8] Lead authors for the report's main sections are listed in notes on chapter headings, but all the authors provided insights throughout the process that informed the drafting and revision of each chapter.

shift toward a more denial-oriented defense strategy in Asia (see biographies at the end of this report).

Over the course of this project, the steering group analyzed several key questions central to U.S. strategy in Asia, including trends in China, the United States, and the region; U.S. interests and objectives in Asia, and ways and means to promote U.S. interests and objectives. Through this process, the steering group identified some areas of disagreement, even while forging consensus on three key overarching areas.

Key areas of difference among the authors

First, there are various views among the steering group on some key issues, including the nature of China's intentions, the scope of U.S. interests in Asia, the underlying purpose of U.S. defense strategy in Asia, and the longer-term goals for U.S. military presence in Asia beyond 2035.

- **The nature of China's intentions.** There are different views among the report authors about the extent to which China is a revisionist power or a status quo power. Although all report authors recognize that China, like all major powers, including the United States, seeks to shape or revise the rules of the international order better to promote its interests, there is disagreement among the group as to how far China likely intends to go in reshaping the present international order or in challenging the territorial status quo, and to what extent that intention challenges U.S. interests:

    - Some of the authors of this report view China's aims as revisionist in some areas — especially in disputes over Taiwan, small islands and border areas, and maritime claims — while judging that revisionism to be probably limited in nature. That is, they assess that the PRC is unlikely to engage in territorial expansion or military aggression beyond those disputes. They do not see China as bent on forcing the U.S. military to withdraw all forward presence from the Western Pacific or excluding U.S. military or economic access to the region, particularly not within the next 13 years. They judge the People's Liberation Army's expanding presence farther from China's shores as driven by a relatively narrow interest in defending Beijing's growing overseas investments and guarding against disruptions to the sea lines of communication upon which its economy depends for energy resources and trade.

    - Others in this group of authors assess that China's revisionist aims may not remain limited. They view Beijing's increased use of economic sanctions, cyberattacks, and disinformation campaigns to punish other countries for adopting policies distasteful to China — including measures intended for their own defense — as evidence that Beijing is unlikely to exercise restraint in a

wide range of disputes beyond the present territorial disputes. China's growing capacity to coerce other countries militarily, even in the gray zone short of the use of force, is thus a greater cause of concern.

- **The scope of U.S. interests in Asia.** The report authors agree that the most fundamental U.S. national interests include the protection of the lives, safety, and well-being of Americans, the defense of U.S. territory, and the defense of the integrity of the U.S. political system — and that U.S. strategy around the world, including in Asia, must be designed to protect these interests. When it comes to how these interests should be understood in the Asia–Pacific region, all of the authors agree that key U.S. interests include regional peace and stability, nuclear nonproliferation, and access to mutually beneficial economic exchange. Beyond these areas of consensus, the report authors prioritize and emphasize different interests:

    - Some of the authors place a strong emphasis on U.S. interests in transnational public goods in Asia, especially reducing climate change, limiting the spread of pandemics, and ensuring efficiency and stability in the global economic system. They believe that the well-being of average Americans is most likely to be harmed in coming years by failure to prioritize these interests. While other authors would not necessarily disagree, they would place a greater relative emphasis on more traditional security threats posed by China's growing power.

    - Some report authors view promoting U.S. values, defending democracies, and upholding international law as core U.S. interests — those especially endangered amid a global uptick in authoritarianism. Others express more concern about how U.S. democracy promotion in the context of growing regional security competition has the potential to exacerbate conflict or undermine other countries' domestic movements for human rights progress.[9]

    - Some report authors believe that the defense of treaty allies should be considered a core U.S. interest, given the importance of maintaining the credibility of commitments to U.S. political influence and deterrent capability around the world. Other authors view alliances as a means to protect U.S. interests, rather than interests in and of themselves. They believe other countries judge U.S. credibility more by the weight of U.S. interests in defending an ally than by how the United States has acted in response to other contingencies.

[9] For the views of one author on these subjects, see Odell, Rachel Esplin. "Washington needs a new approach to human rights promotion—in China and beyond." *Responsible Statecraft*, June 9, 2021. https://responsiblestatecraft.org/2021/06/09/washington-needs-a-new-approach-to-human-rights-promotion-in-china-and-beyond; Odell, Rachel Esplin. "Why it's wrong for the U.S. to label China a threat to the 'world order'." *Responsible Statecraft*, March 20, 2021. https://responsiblestatecraft.org/2021/03/20/why-its-wrong-for-the-us-to-label-china-a-threat-to-the-world-order.

- All of the report authors agree that avoiding war in the Taiwan Strait is in the U.S. national interest. To this end, we support the longstanding U.S. position in favor of any peaceful, mutually agreed resolution to cross–Strait differences. We believe that maintaining the long-established approach of strategic ambiguity, backed by credible capabilities and commitment to the U.S. One China policy, is the best way to deter unilateral or aggressive changes to the status quo.[10] However, there are strong disagreements among the report authors as to whether and under what circumstances Washington should actually fight a war with China over Taiwan if deterrence fails, and whether or not encouraging Taiwan and Beijing to engage in unification negotiations would serve U.S. interests.[11]

- **Purpose of U.S. defense strategy in Asia.** There are also different ways of thinking among this group of authors about the motivating question of why we need a credible deterrence strategy toward China over the next 13 years.

  - Several authors of this report see the present U.S.–China dynamic primarily as a security dilemma, with the most significant dangers in the U.S.–PRC relationship stemming from the insecurity each feels in the face of the other's military power — which, in turn, drives each side to respond by balancing against the other. Thus, they see an effective U.S. force posture in the region as needed primarily to deter the PRC from using military force in the areas where it has clear revisionist aims in order to maintain regional peace and stability. At the same time, they stress the need for measures to limit arms racing and manage the risk of crises that will accompany any competitive military strategy, even one designed more around denial rather than control. They also see credible U.S. defense strategy in Asia as important for maintaining influence with key allies and partners to prevent them from seeking more escalatory and dangerous capabilities, including nuclear weapons.

[10] Our views on the role of an active denial strategy in deterring and defending against PRC aggression toward Taiwan are discussed further in this chapter's section on "Denial, Taiwan, and Strategic Ambiguity."

[11] Some of the report's authors believe that if the PRC engages in unilateral aggression without Taiwan declaring formal independence, the United States should assist Taiwan in providing for its defense using the active denial warfighting concepts outlined in this report. A couple of the report authors would also stress that even peaceful or negotiated unification should only be accepted if the PRC's regime evolves in a less authoritarian direction, as only in such a scenario would Beijing be capable of providing credible assurances that it would respect the democratic autonomy of Taiwan's people under a unification regime. In the meantime, in light of Beijing's recent infringements on Hong Kong's autonomy, notwithstanding its "one country, two systems" model, such assurances for Taiwan would likely lack credibility. By contrast, some report authors assess that although strategic ambiguity backed by active denial capabilities is valuable in helping deter China from using force against Taiwan, the severe risks of actually employing U.S. military force to defend Taiwan if deterrence fails would outweigh the benefits to U.S. interests. Some of the report's authors would also stress that, over the longer term, PRC capabilities may grow to such an extent that the United States might not be able to credibly defend Taiwan or do so at a level of risk that would be sensible or politically acceptable within the United States. From this perspective, the imperative for China and Taiwan to reach a more stable modus vivendi is likely to grow over time, and U.S. strategy may need to consider ways to bring the two sides closer to that goal, whether through facilitated negotiations or other incentives.

- Even while agreeing on the need to deter China from using force for its current revisionist aims, limit arms racing, manage strategic risk, and prevent nuclear proliferation by allies and partners, some report authors also have the structural realist concern that the PRC military could pose a more direct threat to the United States over the longer term. They worry that if the United States does not balance China's growing power, Beijing could establish regional economic and military hegemony in Asia and on that basis exclude the United States from economic access to the region or punish or threaten the United States, including its homeland, more directly.

- **Longer-term strategic preferences.** There are also differences among the authors' longer-term expectations and preferences for U.S. strategy, and how the medium-term denial strategy recommended in this report for the next 13 years relates to the longer-term outlook beyond 2035.

  - Some authors see the denial strategy recommended in this report as a medium-term approach that could serve as a possible bridge to a much lighter U.S. military footprint and a regional collective and/or cooperative security approach in the future. They believe that it is desirable and possible for the United States eventually to reduce its military presence in Asia beyond our recommendations by supporting increases in the capabilities of other Asian countries to provide for their own defense, strengthening Asian regional institutions, increasing positive-sum U.S.–China diplomatic and economic interactions, and signaling more credibly to China that the United States does not aim to prevent its rise to great-power status.[12]

  - By contrast, other authors view a denial strategy as the basis for a longer-term competitive strategy with China, with a core logic that is likely to persist beyond 2035. That is, the need for a strategy that effectively deters Beijing and hedges against the risks of unbalanced PRC military power, even while being less escalatory in nature and more fiscally sustainable, is more likely over time to grow rather than to diminish. They do not believe that a smaller role for the U.S. military in a regional collective security arrangement will be possible or stabilizing in the foreseeable future, even beyond 2035.

We recognize that these disagreements may be unsatisfying to readers who may seek more unanimity and clarity in this report on these first-order questions. The answers to these questions matter for U.S. grand strategy, especially over the longer term, and several of the report's authors have, in fact, engaged in extensive discussions on these questions in other venues and publications (including the January 2021 Quincy Institute report).[13] However, we have found through our experience in this project that unanimity

[12] Such an approach could become more viable if China's economic growth or military buildup falters significantly.
[13] See Swaine, Michael D., Ezra F. Vogel, Paul Heer et al. "The Overreach of the China Hawks: Aggression Is the Wrong Response to Beijing." *Foreign Affairs*, October 23, 2020. https://www.foreignaffairs.com/articles/china/2020-10-23/overreach-china-hawks.

on these points is not necessary to reach agreement on the best defense strategy for the United States in Asia.

In fact, we argue that the diversity of views among this group of authors on the underlying reasons for why we need a defense strategy of active denial reflects the robustness of our recommendations for what a force structure and posture designed around active denial should entail and how this strategy should be implemented. Practitioners in the executive and legislative branches and in the broader U.S. foreign-policy community also disagree over the nature of China's intentions and the purpose of U.S. defense strategy in Asia in the medium and long terms. The recommendations of this report can appeal to a broad range of those practitioners. This bodes well in a political climate wherein gridlock often poses a formidable obstacle to progress in rationalizing defense policy and controlling debt and spending.

Core points of consensus among the authors

Despite differing views in some areas, the 10 authors of this report have joined to write this report because we all agree that our current strategy, structure, and posture must shift in the direction of active denial. We share a consensus on three core propositions:

- **Reforming U.S. defense strategy, force structure, and force posture.** First, an active denial strategy is needed to achieve the three goals identified above for a new U.S. defense strategy: (1) to provide a more credible deterrent than the present strategy, (2) to reduce the pressures for rapid escalation that stem from the present strategy and posture, and (3) to improve the fiscal sustainability of U.S. defense strategy and posture relative to current and proposed plans.
    - The main elements of this strategy and an analysis of how it is credible, stabilizing, and affordable are detailed in Chapter 2, which develops strategy and operational concepts; in Chapter 3, which gives recommendations for force structure, and in Chapter 4, which includes recommendations for U.S. force posture in the Western Pacific. Chapter 5 describes the benefits of an active denial strategy for nuclear stability, and Appendix A assesses this strategy's budgetary implications.

- **Mobilizing allies, partners, and Taiwan to reform their defense strategies and capabilities.** Second, U.S. allies and partners in the region, especially Japan and Australia, must carry more of the load in balancing against China's power and providing for their own defense, while avoiding highly escalatory doctrines such as deterrence by conventional or nuclear punishment.[14] It is also critical that

[14] As noted above, the prevention of nuclear proliferation in the Asia-Pacific is seen by all report authors as a key U.S. interest. As discussed in greater detail in Chapters 4 and 5, the maintenance of an extended deterrence commitment to South Korea, especially prior to eventual denuclearization of the Korean Peninsula but possibly even afterward, is likely necessary to prevent Seoul from pursuing nuclear weapons, which is crucial for preventing nuclear proliferation in Tokyo. Likewise, the U.S. alliance with Japan, including U.S. extended deterrence of Pyongyang and Beijing, fulfills an important direct role in preventing Tokyo from acquiring nuclear weapons.

Taiwan make significant reforms in favor of a denial-oriented strategy and force posture.
    - Chapter 4 presents an analysis of the views of various regional allies and partners and recommendations for how to mobilize key allies, partners, and Taiwan to reform their defense strategies.[15]

- **Restraining military competition and arms racing through robust diplomacy.** Finally, a denial strategy must be coupled with efforts to mitigate the security dilemma, improve the tenor of political relations with China, and manage certain areas of the military competition. This will require the United States to pursue active cooperation with China in areas requiring collective action, coupled with persistent engagement in discussions with China over a range of measures to stabilize the U.S.–China security relationship. Those should include discussions about crisis-management mechanisms, confidence-building measures, and mutual restraint in areas of particular concern, such as artificial intelligence, space, and cyber. Such discussions should be conducted with an eye toward formal arms-control agreements should conditions permit. Broader political and strategic initiatives that could help to reduce underlying drivers of conflict should also be explored.
    - Chapter 6 presents recommendations in these areas in the context of an analysis of how China is likely to react to a U.S. shift toward a denial strategy, coupled with a discussion of strategic arms control in Chapter 5.

The remaining chapters of this report provide detailed analysis and recommendations in each of these three areas. The following sections of this chapter provide summaries of each of them.

The need to reform U.S. defense strategy, force structure, and force posture

The fundamental argument of this report is that U.S. military strategy, force structure, and force posture require significant changes. They should be redesigned in ways that are more effective in deterring China, while also being less likely to incentivize a first strike during a crisis and thereby undermine stability. In light of the fiscal constraints facing the United States and the urgent imperative to devote greater investments toward domestic revitalization and nontraditional, high-priority security threats such as climate

Some strategists have suggested that nuclear proliferation in Seoul or Tokyo would enhance the deterrence of Pyongyang and Beijing alike and thereby reduce the need for the United States to maintain its military commitments in the region. However, there is little reason to believe that nuclearization in Japan or South Korea would prevent a conventional arms race in Northeast Asia, as all sides would likely continue to feel insecure about the dangers of conventional threats below the threshold of nuclear use and China would likely look for ways to maintain its military superiority over its regional neighbors.

[15] Throughout this report, we deliberately employ the formulation "allies, partners, and Taiwan" to avoid implying that Taiwan should be viewed as part of a U.S.-led strategic network alongside other allies or partners or treated as a strategic asset to leverage against Beijing. Such an attitude toward Taiwan undermines the basic logic of the U.S. One China policy, which supports any peaceful, mutually agreed resolution to cross-Strait differences (to include unification).

change, these reforms also need to be cost-effective and affordable within sustainable defense budget levels.

This report argues that the United States can achieve these objectives through restructuring its forces around an active denial strategy, a defensively oriented approach designed to first blunt and later defeat a potential adversary's attack. This is less ambitious than military strategies that aim to control the theater of battle and dominate adversaries from the outset of a conflict through offensive military action. It does not rely upon threats of inflicting massive harm to civilians and civilian infrastructure in the adversary's country. And it does not require denying China any increase in its power and influence in Asia. Rather, China's economic importance and political power in the region and the world will likely continue to grow.

As considered in Chapter 2, our use of the term "denial" derives not from the distinction found in the works of early nuclear theorists between "deterrence by punishment" and "deterrence by denial," which lumps all non-punishment strategies into one basket called "denial." Rather, we draw upon the earlier historical tradition that distinguishes military strategies of control, which seek to maintain the unrestricted use of an area or domain, from strategies of denial, which focus on limiting an adversary's ability to gain such superiority. We argue that this conceptual distinction between control and denial is more useful when considering security challenges in the Asia–Pacific theater, and recent studies that instead are based upon the punishment vs. denial distinction have muddied the conceptual waters.[16] To distinguish our use from that of other recent commentators, as well as to refer more specifically to the concepts of operation we envision, we employ the term "active denial" to describe our recommended strategy.

The key components of an active denial strategy

As described in greater detail in Chapter 2, this strategy of active denial should entail, *inter alia*, the following overarching imperatives:

- Reject efforts to reëstablish all-aspects military dominance in Asia through strategies that rely upon a highly offensive way of war.
- Adopt a lighter, more resilient force posture to limit U.S. vulnerability and reduce the incentives for either the U.S. or China to strike first.
- Prepare to conduct phased operations, involving, first, a holding action to blunt an attack, followed later by counterattack as reinforcements flow into the theater.
- Focus operations against the forces directly engaged in offensive action, rather than more ambitious efforts to paralyze and destroy the adversary's larger military system.
- Limit strikes on the Chinese mainland to bases along the coast and eschew efforts to conduct persistent operations in airspace over the mainland.

[16] Colby, Elbridge A. *The Strategy of Denial: American Defense in an Age of Great Power Conflict.* New Haven, Connecticut. Yale University Press, 2021.

- Aim to defeat potential aggression by China, rather than subjugate Beijing or achieve regime change; during any conflict, maintain communication and be ready to negotiate terms to end the war.
- Adjust force structure consistent with this denial strategy and with a tighter focus on capabilities most relevant to Asia:
    - Significantly reduce overall numbers of Army and Marine Corps ground troops, which would not play a major role in U.S.–China conflict; these services should invest instead in more anti-ship and, especially, air and missile-defense capabilities.
    - Shift emphasis in naval force-building to a greater proportion of smaller warships (frigates as opposed to destroyers and cruisers), while, over time, replacing half of the large aircraft carriers with a greater number of light carriers.
    - Accelerate the Air Force's retirement of old aircraft and emphasize organizational and cultural shifts to facilitate agile operations.
- Adjust force posture in Asia consistent with the active denial strategy:
    - Reduce U.S. ground troop presence in Japan; hand off most ground-force responsibilities to Japan.
    - Reduce U.S. forces deployed in South Korea as part of a coordinated, step-by-step process toward building a peace regime on the Korean Peninsula.
    - Together with allies, prepare military infrastructure to maximize operational resilience through mobility, dispersion, hardening, redundancy, and camouflage and concealment.

An F-16 Fighting Falcon assigned to the 36th Fighter Squadron is pushed inside a hardened facility by members of the 36th Aircraft Maintenance Unit Nov. 4, 2015, at Osan Air Base, Republic of Korea. (U.S. Air Force photo/Staff Sgt. Benjamin Sutton).

Such a strategy will help enable the United States to maintain a more stable balance of power in the Western Pacific and provide a more realistic and meaningful deterrence capability, while limiting escalation dynamics and mitigating the security dilemma. However, as we will consider below, such outcomes will also require a greater investment in crisis-management mechanisms, strategic arms control, and diplomatic engagement regarding regional hotspot issues.

Denial strategy and fiscal sustainability

The strategy we recommend is deliberately designed to be sustainable in light of the very real constraints on U.S. economic and financial resources. As is true of all countries, how much the United States can spend on defense is in part determined by the country's economic, financial, physical, and political health. Likewise, the strategic choices the country's leadership makes, and specifically the defense strategies, programs, and forces it embraces, affect the level of resources that can be devoted to meeting other critical domestic and international challenges. While there has never been a period in U.S. history when these constraints and trade-offs were not present, they are more significant today than they have been at any time since the fall of the Soviet Union and will become far more difficult to manage effectively over the next several decades. In this context, it is more important than ever that the United States embrace a defense posture that is realistic in its goals, strategy, and force structure and modernization requirements. Perhaps more than anything else, this means adopting an affordable and sustainable strategy for dealing with China.

Our analysis in Chapters 2 and 3 and Appendix A explains how the denial strategy we recommend fits this bill. Making force structure, modernization, and other changes consistent with an active denial strategy would generate annual savings compared with the last Trump administration defense plan of roughly $75 billion, 10 percent of the Trump plan, by 2035. These savings would result primarily from cuts to the Army's force structure, reflecting the limited role for ground forces in the event of a conflict with China. Annual savings of as much as $138 billion (18 percent) could be achieved if the United States were, in addition, to adopt a more restrained approach to other missions — for example, accepting a significantly less robust capacity to conduct stability operations and to carry out a second smaller military operation at the same time it is engaged in a war with China.

Denial strategy and nuclear stability

A major impetus for adopting a denial military strategy in East Asia is to improve nuclear stability in the region by reducing the likelihood of U.S.–China nuclear escalation in a conventional conflict. Chapter 5 of this report thus conducts an in-depth evaluation of how a shift to an active denial strategy would affect the risks of

inadvertent or deliberate nuclear escalation. It concludes that although there will always be some risk of nuclear escalation in great-power conflict, the approach to conventional deterrence and warfare associated with the active denial strategy reduces the likelihood of escalation compared with the current strategy of control. Active denial is less forward-leaning, particularly at the outset of conflict. It still leaves room for offensive U.S. operations against mainland China in response to an attack by the PRC, but it limits the number, depth, scope, and sensitivity of targets, and adopts a more structured approach to limiting horizontal and vertical escalation. The active denial strategy also has benefits for reducing deliberate nuclear-escalation incentives by providing a better way to signal limited U.S. military objectives during a war.

Denial, Taiwan, and strategic ambiguity

Although, as described above, the authors of this report differ in the particulars of how Taiwan relates to U.S. interests — including whether or not and under what circumstances Washington should consider fighting a war with China over Taiwan — we share support for the longtime status quo U.S. approach of strategic ambiguity over Taiwan. We argue that the U.S. goal vis-à-vis Taiwan should be to support any peaceful, mutually agreed resolution to cross-Strait differences, whether this implies eventual unification, formal independence, or something else. In the meantime, Washington should rely upon its One China policy and continued strategic ambiguity as to whether or not it would use military force to defend Taiwan to deter conflict.

The logic of strategic ambiguity requires the United States to maintain a minimum degree of credible military capacity to come to the defense of Taiwan if the United States ends up judging that is appropriate and necessary. However, we argue that a U.S. force posture oriented around the defense of Japan, a treaty ally, through a denial strategy — coupled with Taiwan's parallel defense strategy of denial, and specifically a hedgehog strategy built around distributed ground, antiaircraft, and anti-ship capabilities — would be sufficient for this purpose. Indeed, this is far better than shifting toward a force posture more explicitly designed around the defense of Taiwan involving greater integration and joint training of U.S. and Taiwan forces. Such a shift would undermine the United States' longstanding strategic ambiguity, which could, in turn, embolden both Beijing and Taipei to take unilateral actions that move all parties closer to war. By contrast, the separate but parallel denial strategies we recommend would help maintain the uncertainty central to strategic ambiguity and promote mutual restraint on both sides of the Strait.

Although the objective under these parallel denial strategies would be to deter the use of military force by Beijing, it is essential that the United States also explore ways it can apply diplomatic and economic means to deter an invasion, blockade, or other use of force against Taiwan, or to bring China to the negotiating table if deterrence failed. As

Patrick Porter and Michael Mazarr have argued, such means provide an important pathway for limiting escalation in a conflict between the United States and China.[17]

Above all, the United States must remember that maintaining peace in the Taiwan Strait is first and foremost a political rather than a military problem. At the root of this political challenge is Beijing's fundamental determination to realize the unification of the two sides of the Strait under its control, coupled with its growing anxiety that the peaceful, uncoerced approach to unification that it has formally espoused since 1979 is losing traction. This anxiety is informed by trends in Taiwan, especially the growing Taiwanese as opposed to Chinese self-identification of Taiwan's people, the declining popularity of the Kuomintang, the conservative party that still favors a unified China, and the widespread rejection in Taiwan of a "one country, two systems" model for unification, especially in the wake of Beijing's recent crackdown on Hong Kong's democracy movement despite guarantees that the territory would enjoy autonomy under such a model. To some degree, there is little that Washington can do on its own to shift these dynamics, given how much they are driven by domestic political developments in China and Taiwan.

Nonetheless, the United States does play a crucial role in shaping Beijing's perception of the urgency and severity of Taiwan's drift away from the mainland, which could in turn shape the Communist Party's decisions as to how and when to apply coercion or force to Taipei. Thus, Washington needs to prevent any further erosion of its One China policy and restore the credibility of that position with both Beijing and Taipei. Changes to how the U.S. articulates and interprets its One China policy — viewed in Washington as necessary responses to increased cross–Strait coercion by Beijing — have likely weakened deterrence in the Taiwan Strait rather than strengthened it.[18] By signaling that the United States views Taiwan as a strategic asset that must be kept separate from China, Washington is likely increasing Beijing's concerns that a peaceful approach to unification is losing traction and that more coercive and militarized tactics must be brought to bear against the island.[19]

Denial strategy and the Korean Peninsula

The primary focus of this report concerns the design of U.S. defense strategy vis-à-vis China. However, we also direct some attention to the defense strategy required on the Korean Peninsula to deter potential North Korean aggression. As explained in Chapters

[17] Porter, Patrick, and Michael Mazarr. "Countering China's Adventurism Over Taiwan: A Third Way." Lowy Institute, May 20, 2021. https://www.lowyinstitute.org/publications/countering-china-s-adventurism-over-taiwan-third-way.
[18] See Shih, Gerry, and Lily Kuo. "Trump upsets decades of U.S. policy on Taiwan, leaving thorny questions for Biden." *Washington Post*, January 13, 2021. https://www.washingtonpost.com/world/asia_pacific/trump-biden-taiwan-china/2021/01/13/1bbadee0-53c0-11eb-acc5-92d2819a1ccb_story.html; Ratner, Ely. "Assistant Secretary of Defense for Indo-Pacific Security Affairs, Statement before the 117th Congress, Committee on Foreign Relations." U.S. Senate, December 8, 2021. https://www.foreign.senate.gov/imo/media/doc/120821_Ratner_Testimony1.pdf.
[19] Odell, Rachel Esplin, and Eric Heginbotham. "Strait of Emergency? Don't Fall for the Invasion Panic." *Foreign Affairs*, September/October 2021. https://www.foreignaffairs.com/articles/china/2021-08-09/strait-emergency.

2 and 4, our basic judgment is that the North Korea problem is a much more limited military challenge to the United States and its allies, in part due to the vast and growing power imbalance between North and South Korea. The ROK's defense budget is as large as estimates of North Korea's entire GDP, and the South should, therefore, be able to provide most of the necessary conventional defense capability. If the United States does not wish to see further nuclear proliferation, however, maintaining the alliance, and extended nuclear deterrence against nuclear attack, will be necessary.

To the extent that America's conventional capabilities also contribute to deterrence and make its nuclear deterrence credible, they overlap significantly with the air and naval capabilities that would be maintained for deterrence in Asia under the active denial strategy and the reduced ground capabilities that would be maintained for other contingencies. The requirements for the Korean Peninsula can, then, be subsumed under the broader force structure outlined in this report.

We assess that the present impasse on the Korean Peninsula, even more importantly, is at this point first and foremost a diplomatic and political challenge. We therefore recommend that the United States adopt a diplomatic and political strategy to move toward the establishment of a peace regime on the Peninsula involving Pyongyang's gradual denuclearization. Such a peace regime should hold to the U.S.–ROK alliance's original purpose of maintaining peace on the Korean Peninsula and defending South Korea against potential North Korean aggression. Although South Korea has grown far more wary of China and its intentions and is likely to continue to hedge against security threats from Beijing, Seoul remains reluctant to repurpose the U.S. alliance as part of a broader military network intended primarily to deter or contain China. The United States should respect this reluctance, and this restraint will help constrain the U.S.–China security dilemma in the region and prevent the possibility of a direct U.S.–China military engagement on the Korean Peninsula. It will also help to secure the PRC's support for a peace regime — should Pyongyang prove receptive — since Beijing, one of the parties to the Korean War armistice, is less likely to accept an outcome that leaves U.S. forces forward-deployed on the Korean Peninsula indefinitely after the resolution of inter–Korean differences.

South Korean President Moon Jae-in and North Korean leader Kim Jong Un shake hands at the truce village of Panmunjom inside the demilitarized zone separating the two Koreas, South Korea, April 27, 2018. Korea Summit Press Pool/Pool via Reuters.

The importance of mobilizing allies, partners, and Taiwan

This strategy of denial also requires that the United States leverage its position to secure a larger effort from U.S. allies, partners, and Taiwan than they have heretofore made, and a better division of labor within alliances. Conceived of as a unified alliance effort, within which a rough division of labor is agreed, the denial strategy should work to mitigate the incentives for allies to adopt deterrence by punishment and the acquisition of substantial long-range strike capabilities. As explained in Chapter 4, the current U.S. approach, which encourages allies to do more without an accompanying robust discussion of roles and missions, is effectively green-lighting their pursuit of destabilizing punishment-oriented strike capabilities. If the United States instead coordinates with allies to implement a more thoughtful and deliberate approach to promoting an active denial strategy and effective roles and missions with its allies, it can help shape trajectories in more stabilizing ways.

This should entail efforts to encourage Japan to spend more on its own defense and to encourage Japan and South Korea to spend defense dollars more effectively. Given the most likely contingencies in each case, this should entail Japan investing more in air

and naval forces and less in ground forces, while South Korea should enhance its ground-war capabilities. As part of these efforts, the United States should renegotiate the Special Measures Agreement with Japan, reducing expectations for financial host-nation support from Tokyo in exchange for a larger Japanese defense budget or greater spending on military infrastructure. The United States should also look for win-win solutions to longstanding frictions with local communities. It should, for example, consider a package arrangement in Japan that provides for a reduction of total U.S. numbers and permanent facilities, while expanding access to civilian ports and airfields for training and contingencies.

To ensure that regional allies are willing to put their trust in a division of labor with the United States and direct their resources to productive — and not destabilizing — capabilities, the United States will have to exercise care not to suggest that an active denial strategy or a lighter footprint means that it is abandoning those allies. The previous administration's demanding style and lack of concessions provided a tonic to local leaders intent on acquiring long-range strike capabilities and, to an extent, hedging more on nuclear issues. By making the U.S. commitment to the alliance more politically and financially sustainable, an active denial strategy can help unwind some of that damage and encourage allies to adopt denial strategies and capabilities of their own.

To encourage Taiwan to provide more effectively for its own defense, the United States must exercise greater discipline in its arms sales to Taipei. Washington should prioritize selling hardware such as anti-ship cruise missiles, surface-to-air missiles, surveillance drones, and sea mines needed for Taipei to implement a hedgehog strategy of defensive denial. The recent sale of additional Harpoon coastal defense systems and missiles to Taipei is an important step in this direction. Washington should encourage Taipei to shift its domestic industry's focus toward such capabilities and away from longer-range land-attack missiles. Taiwan should also invest more in ensuring that it has sufficient ground forces to cover potential landing areas, to include airports and port facilities as well as beaches, and that it has credible reserves capable of replacing losses and operating effectively. The United States should privately make arms sales conditional on Taiwan's willingness to emphasize resiliency and the improvement of its overall defense capability. It should also make clear to Taiwan that U.S. ground troops will not be able to play a role in performing the beach and port defense and guerilla and urban warfare functions that the Republic of China's army and reserve forces must be prepared to execute.

Finally, even while leveraging existing allies and partners, as well as Taiwan, to provide more for their own defense, the United States should be careful not to exacerbate the security dilemma with China. Expanding its formal alliances in Asia could further stimulate China's fear of encirclement and provoke reactions that would undermine the security interests of allies and partners as well as the United States.[20] Likewise, while

[20] Some of the report authors would stress their concern that new alliances would risk binding the United States to security commitments, the costs of which might outweigh the benefits. These costs could include driving a security dilemma with China and

boosting security cooperation and the self-defense capabilities of Southeast Asian nations, Washington should avoid seeking to craft more militarized "mini-lateral" groups or a more integrated NATO–like multilateral alliance in the region.[21] The risks of such formalized defense arrangements in accelerating the security dilemma by further stimulating China's fear of encirclement would outweigh the potential deterrence benefits. Instead, even while enhancing its security cooperation in the region, it is critical that the United States work with allies and partners to create and pursue opportunities for security dialogues and tension-reduction with China.

The imperative to mitigate military competition

While shifting to an active denial strategy will reduce pressures for rapid or nuclear escalation, this cannot on its own prevent conflict. Rather, such a shift must be coupled with measures to limit arms racing, mitigate gray-zone coercion, and promote détente and policy restraint. As described in greater detail in Chapters 5 and 6, these measures should include efforts to promote strategic nuclear stability, reduce the militarization of key conflict hotspots, limit infeasible or costly commitments, and adopt stabilizing crisis-management mechanisms. These objectives should be achieved through a combination of unilateral restraint and negotiated agreements, as follows:

- Resume track 1.5 strategic dialogue with China on nuclear deterrence and strategic stability, and expand the track 1.5 framework to include other issues as a way to generate innovative ideas for solutions.
- Enhance technical cooperation among national laboratories on nuclear security, and pursue mutual visits to military units of particular concern to each side.
- Acknowledge mutual nuclear vulnerability with China and express openness to limits on America's ballistic-missile defense to create opportunities to advance more ambitious arms-control measures with China over time.

promoting free riding or reckless behavior among allies, thus potentially entangling the United States in disputes peripheral to or counterproductive to its interests.

[21] A few of the report authors, including Brian Killough and Eric Heginbotham, disagree with this recommendation, arguing that if China's aggressive behavior were to drive other countries to balance against it to such an extent as wanting to form more robust alliances to counter Beijing, then the United States should welcome the opportunity to work with them.

Secretary of Defense Lloyd J. Austin III meets with Chinese Defense Minister Gen. Wei Fenghe to discuss U.S.- China defense relations in Singapore, June 10, 2022 (Photo vis U.S. Department of Defense).

- Pursue an agreement with China on limiting the role of artificial intelligence in certain military capabilities, such as nuclear command and control.
- Resume discussions on how to avoid incidents at sea and in the air, and establish stronger crisis-management mechanisms to reduce the probability of crisis and to prevent crises from escalating to war.
- Reduce the militarization of key hot spots such as Taiwan, the Korean Peninsula, the Senkaku Islands, and the South China Sea.
    - Refocus attention toward pursuing diplomatic and legal ways of managing or resolving these hotspot issues.
    - Reduce the currently very high tempo of U.S. military operations, including formal, announced freedom of navigation operations and other surveillance operations and exercises, in areas close to China's coast or in disputed areas in the South China Sea to a more moderate tempo, in some cases unilaterally and in others through a negotiated process of quid pro quo measures taken in coordination with China.[22]
    - Reaffirm that the United States does not take positions on sovereignty over the Senkaku Islands or the South China Sea islands,[23] even while

[22] A couple of the report authors, including Brian Killough, do not fully agree with this recommendation, due to concerns over the potential loss of intelligence and setting a negative precedent.
[23] This would not require the United States to recognize the legitimacy of China's excessive maritime claims in the South China Sea, such as its nine-dash line, its claim to historic rights, or its treatment of offshore archipelagos as units for the purposes of claiming maritime zones. These claims are largely separate from the underlying sovereignty disputes over the islands themselves.

calling for the peaceful resolution of those disputes in accordance with international law.
    - Support South Korea in the pursuit of a peace regime on the Korean Peninsula and eventual denuclearization.
- Coordinate with China to plan how to deconflict U.S./South Korean and Chinese forces seeking to secure loose nuclear weapons or nuclear material in the event of the collapse of the North Korean government.

In addition, the various examples of policy restraint noted above will also help to restrain U.S.–China military competition. This includes a continued rejection of calls for closer integration of the U.S. and Taiwan militaries or joint exercises and training between the United States and Taiwan, together with the reinforcement of strategic ambiguity on the defense of Taiwan. It also includes refraining from efforts to expand formal U.S. military alliances in Asia to include other countries.

Project design and methodology

This project was executed in three distinct phases entailing structured workshop discussions, research-based expert presentations, and drafting and extensive peer review. These phases also included two war games.

Phase 1: Structured discussions of foundational issues. In the first phase of the project, conducted in January and February 2021, the steering group and two additional project advisers met in a series of workshops focused on foundational strategic issues underlying U.S. defense strategy, force structure, and force posture in Asia. These workshops involved structured discussions of three overarching topics: (1) U.S. interests and objectives in Asia, (2) trends affecting U.S. interests and objectives in Asia, and (3) the ways and means to protect and promote U.S. interests and achieve U.S. objectives in light of those trends. The project director worked with project rapporteurs to synthesize the working conclusions of each of these sessions and integrate them into the next phases of the project.

War game exercise No. 1. At the end of the first phase of the project, the steering group participated in a war game exercise designed and executed by Eric Heginbotham and Matthew Cancian of the MIT Wargaming Lab. This initial game was intended to introduce a shared awareness of the key challenges confronting the U.S. military in designing a more effective and stabilizing defense strategy in Asia. In so doing, it provided a shared baseline for the group as they divided into smaller groups and entered the second phase of the project to conduct more detailed recommendations. This initial exercise was built around a defense of Japan scenario in the year 2035. (See Appendix B.)

Phase 2: Research-based structured discussions in four working groups. In the second phase of the project, from March to May 2021, four working groups were convened to

develop a detailed road map for shifting to a new defense strategy. Each working group addressed one of four different issues: (1) conventional defense strategy, force structure, and force posture, including budgetary assessments of recommended changes, (2) nuclear issues, including escalation risks, extended deterrence, and nuclear arms control, (3) perspectives of allies and partners, the roles and missions of allies, and strategies for leveraging defense reforms in allies and partners, and (4) China's likely response to a denial strategy and possible confidence-building measures and conventional arms control with China.

Each working group was led by a member of the steering group, with participation from a subset of other steering group members and several additional subject matter experts. (See the list of working group participants at the beginning of this report.) Each working group held a series of approximately four workshops to address key questions related to the working group's purview, with research-based presentations by different working group members serving as the basis for structured discussions. The project rapporteur recorded the insights of the working group experts, and the project director coordinated across the different working groups, working with each of the working group leaders individually and in periodic joint coordination sessions.

War game exercise No. 2. At the conclusion of the working group phase, the steering group reconvened for another war game exercise designed to evaluate how a U.S. force structure and posture restructured around a strategy of active denial would fare in a conflict. This exercise was built around a scenario of a PRC invasion of Taiwan in 2035, examining how parallel denial strategies — involving a more robust Taiwan self-defense strategy of denial, coupled with a U.S. denial strategy designed more around the defense of Japan and general first island chain deterrence — would fare in repelling a PRC invasion. This was meant to test the proposition that the United States does not need to abandon strategic ambiguity and to establish that Taiwan and the United States can instead maintain sufficient deterrence capacity by improving their separate capabilities without the need for a major military buildup, major military exercises with Taiwan, or integration between the U.S. and Taiwan militaries that goes beyond present defense talks and low-level capacity building. (See Appendix B.)

Phase 3: Synthesis, drafting, and peer review. In the third phase of the project, the steering group members worked together to synthesize conclusions from the preceding project phases so as to draft the report manuscript. (See notes under each chapter heading for information on the primary contributions of various steering group members.) This phase involved extensive rounds of feedback and revision, including feedback from the members of the four working groups, project adviser and editor Paul Heer, the Quincy Institute's director of studies, Sarang Shidore, and four formal peer reviewers.

Chapter 2: Envisioning a U.S. Defense Strategy of Active Denial in Asia

Eric Heginbotham was the lead author of this chapter, with significant contributions from Brian Killough, Steven Kosiak, Brad Martin, and Rachel Esplin Odell.

The previous chapter briefly summarized the key elements of our proposed shift in U.S. defense strategy needed to promote American interests and security objectives in Asia. The purpose of this chapter and the next two chapters is to develop a detailed road map for transitioning to a U.S. strategy, force structure, and force posture that accomplishes the three objectives outlined in the first chapter: (1) provide a deterrent against potential aggression in Asia that is more credible than the status quo strategy and force posture, (2) reduce the incentives or pressures for rapid conventional or nuclear escalation, and (3) do so at realistic budget levels.

In this chapter, we address the problem in four parts. First, we assess the global context and establish assumptions about how the Asia-related force structure relates to requirements in other parts of the world. Second, we examine the nature of the military problems in Asia that our force structure is designed to address. Third, we address the critical choice of strategy and operational concepts that best address those military challenges. And fourth, we assess the evolution of actual U.S. strategy to date and where it sits within the preceding discussion of strategic options.

The two subsequent chapters will expand upon our preferred strategy of active denial. Chapter 3 discusses the force structure and force posture changes that would be appropriate for the strategy and the budget required. Chapter 4 expands upon how the United States should work with allies and partners to implement an active denial strategy in the region. It will discuss needed changes to U.S. force posture in the region and ways the United States should seek to shape the discussion of roles, missions, and priorities with allies to improve the efficacy of the defense picture in Asia. It will also discuss how Taiwan can implement its own parallel denial strategy through reforms to its force structure and posture to enhance deterrence against aggression from Beijing.

Asia–Pacific's unique security problem

Strategy should be flexible enough to address or accommodate evolving conditions. The unique security challenge the United States faces in the Asia–Pacific region is the result of historic and simultaneous shifts in U.S. domestic resources (which will constrain defense spending), the global balance of resources, and the security dynamic that is specific to Asia. The United States has important priorities at home. And although the Russian invasion of Ukraine has underscored the continuing salience of

military power elsewhere, U.S. allies in Europe and other parts of the world are capable of picking up more of the overall defense burden. Meanwhile, the rise of China and its impact on the balance of power in Asia have moved that region to the forefront of U.S. defense requirements. Within this context, American alliances have served U.S. interests well over the decades and perform a number of functions; they should not be abandoned unless circumstances overwhelmingly favor that course. But not all alliances require the same degree of maintenance or support — especially in terms of material commitment.

Budget pressures, defense spending, and China strategy

As is true of all countries, the United States' strategic choices are constrained and shaped by its economic and financial resources. The country's economic, financial, physical, and political health will affect how much it can spend on defense. Likewise, the strategic choices the country's leadership makes, and specifically the defense strategies, programs, and forces it embraces, affect the level of resources that can be devoted to meeting other critical domestic and international challenges. While there has never been a period in U.S. history during which these constraints and trade-offs were not present, they are more significant today than they have been at any time since the fall of the Soviet Union, if not since the end of World War II. And they are likely to become far more difficult to manage effectively over the next several decades.

The capacity of the United States to support the levels of defense spending needed to implement its current defense plans and strategy, let alone the more costly plans and strategies advocated by some, will be severely tested in coming years for at least three reasons. First, demographic, economic, and other trends in the United States will increasingly constrain the resources available for defense. Second, because national security has come to be defined much more broadly than in the past, the military will increasingly have to compete with other priorities for limited resources. And third, as always, cost growth in the Defense Department's weapons acquisition, operations and support, and other programs and activities is likely to reduce the size of the military that U.S. defense budgets can adequately support.

Domestically, perhaps the greatest long-term budgetary challenges confronting the United States concern its aging population and other demographic changes, in conjunction with rising health- care costs. From 2020 to 2050, the share of the U.S. population over 65 years of age will grow from some 16 percent to 22 percent, while the working-age share of the population will decline from 58 percent to 54 percent.[24] This shift is not a temporary, one-time demographic blip, but rather a permanent change — driven by, among other things, the long-term decline in birth rates common to developed countries. This shift is projected to contribute to a slowing of U.S. economic growth and

[24] Jonathan Vespa, Lauren Medina, and David M. Armstrong, "Demographic Turning Points for the United States: Population Projections for 2020 to 2060," (Washington DC: Bureau of the Census, February 2020), pp. 1 and 6, https://www.census.gov/content/dam/Census/library/publications/2020/demo/p25-1144.pdf

to an increase in federal spending for Social Security and health care.[25] Taken together, federal spending on Social Security and major federal health programs is projected to grow from 10.2 percent to 15.7 percent of the economy over this same period.[26]

Worse yet, because of the imbalance between federal tax revenue and spending, debt is projected to grow dramatically. The federal debt, which hovered at 25 percent to 50 percent of the economy for decades, grew from 35 percent of the economy in 2007 to 102 percent in 2021.[27] Absent any major increases in taxes or cuts to spending, it is projected to increase to some 202 percent of the U.S. economy by 2051.[28] While the real interest costs associated with financing this growing debt have actually declined as a share of the economy in recent years, this trend is projected to reverse in coming years, with net interest costs growing from about 1.4 percent of the U.S. GDP in 2021 to 8.6 percent by 2051.[29] Such significant borrowing by the federal government threatens to crowd out the private investment needed to sustain economic growth over the long term.[30] Repairing the country's worsening fiscal situation will require more than simply restraining military spending, which — including veterans' benefits — generally accounts for about a fifth of federal spending.[31] But curtailing defense spending has been a central element of every major deficit-reduction package enacted since the mid–1980s, and it is difficult to imagine a future deficit-reduction effort that does not similarly include constraints on defense spending.

The pressure on the defense budget may also be greater in coming years than in the past because the notion of what constitutes national security has expanded in recent decades to include not only the capacity to execute traditional military missions, but also to address the challenges posed by cybersecurity, failed states, economic competition, climate change, and a global pandemic. Moreover, even the rise of China, though clearly encompassing a significant military dimension, has muddied the waters in terms of how best to respond to national-security concerns. Specifically, its rise has driven home how critical economic growth and technological prowess are for expanding a country's influence abroad in not just economic but also social, political, and

[25] This continued growth is projected to result in a dramatic increase in federal (as well as private) health care spending—increasing spending on Medicare, Medicaid and other federal health care programs from about 5.3 percent of gross domestic product (GDP) in 2019 to 9.4 percent in 2051. *The 2021 Long-Term Budget Outlook* (Congressional Budget Office, March 2021), p. 19, https://www.cbo.gov/system/files/2021-03/56977-LTBO-2021.pdf

[26] Congressional Budget Office. *The 2021 Long-Term Budget Outlook.*

[27] Congressional Budget Office. *The 2021 Long-Term Budget Outlook.* 1.

[28] Congressional Budget Office. *The 2021 Long-Term Budget Outlook.* 1.

[29] Congressional Budget Office. *The 2021 Long-Term Budget Outlook.* 19.

[30] For a brief discussion of the potential for increased federal borrowing to crowd out private investment, see Congressional Budget Office. The 2021 Long-Term Budget Outlook. 11. Some policy experts and economists have argued that in the current low-interest environment, concerns about federal borrowing crowding out private investment have lost much of their force. See Furman, Jason, and Lawrence H. Summers. "A Reconsideration of Fiscal Policy in the Era of Low Interest Rates. Discussion Draft." November 30, 2020. furman-summers2020-12-01paper.pdf (piie.com). However, this is not the same as arguing that, should interest rates increase and the share of the economy accounted for by federal borrowing grow substantially, it would not result in such crowding out. Furman and Summers, for example, recommend holding real net interest payments of the federal government to no more than 2 percent of GDP, far below the 8.6 percent share that the Congressional Budget Office projects those payments would absorb by 2051, absent significant policy changes. Furman and Summers. "A Reconsideration of Fiscal Policy in the Era of Low Interest Rates." 4.

[31] This estimate includes funding for the Department of Defense and Department of Energy and other defense-related activities, as well as funding for the Department of Veterans Affairs. It is based on its share of total federal spending exclusive of net interest costs.

diplomatic terms. China's economy and science and technology capabilities are the primary means by which it exerts influence in the world today. And there is a growing agreement among many in the U.S. Congress that greater U.S. government funding of basic and applied research, education, infrastructure, and foreign development assistance may be needed to maintain America's competitive advantage economically and diplomatically vis-à-vis China.

Finally, the capacity of the United States to adequately fund current force structure, modernization, and readiness plans will, in part, be undermined by continued cost growth within the military itself. Over time, adjusted for changes in the size of the force structure, the cost of operating, supporting, and modernizing the U.S. military has consistently increased well beyond the rate of inflation in the overall economy. On average, the cost of manning, operating, and modernizing individual weapon systems (whether ships, aircraft, or combat vehicles) and the units they are organized into has grown consistently in real (inflation-adjusted) terms. New weapon systems often cost two or even three times more than the systems they are intended to replace.[32] Likewise, military compensation and operations and maintenance costs have grown in real terms by as much as several percentage points a year.[33] To be sure, the growth in the cost of operating, supporting, and modernizing U.S. forces — system-for-system and unit-for-unit — also reflects the military leadership's decision to focus on quality over quantity. But those decisions affect the size of the force: The U.S. military today is roughly one-third smaller than it was in 1990.

From a planning and efficiency standpoint — even without the additional external pressures associated with America's demographic changes and broader national security concerns — it would be prudent for the Defense Department to adjust its strategy and plans to more realistically account for this likely internal cost growth and to begin, sooner rather than later, making the necessary trade-offs and hard choices. And again, as noted above, more than anything else, this may mean revising the U.S. military's strategy for dealing with China to ensure that it is effective and sustainable within realistic budget levels.

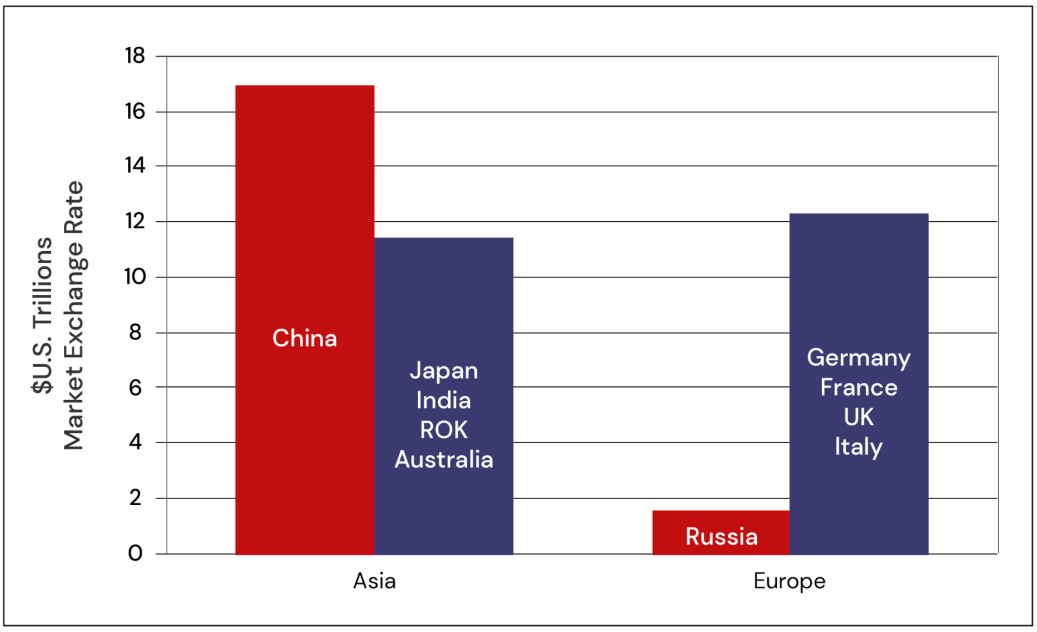
[32] For a discussion of inter-generational cost growth in weapons acquisition, see Arena, Mark V. et al. *Why Has the Cost of Fixed-Wing Aircraft Risen?* RAND Corporation, 2008. 10-15. https://www.rand.org/pubs/monographs/MG696.html; Arena, Mark V. et al. *Why Has the Cost of Navy Ships Risen?* RAND Corporation, 2006. 11-20. https://www.rand.org/pubs/monographs/MG484.html.
[33] For a discussion of cost growth in these areas, see Harrison, Todd. *Analysis of the FY 2019 Defense Budget.* Center for Strategic and International Studies, October 2018. 12-19.
https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/180917_Harrison_DefenseBudget2019.pdf.

Global distribution of resources for defense

The budgetary pressures on U.S. defense spending are playing out within a global environment in which other major economies are also confronting resource challenges that will influence their military potential. The balance of economic resources within and between different regions of the world offers a starting point for this analysis. And if we compare the world's next two largest military powers with the other leading economies within their regions — Russia in Europe and China in Asia — enormous differences between the two regions are immediately evident.

The combined GDP of the four largest European NATO members is 768 percent the size of Russia's. (See Figure 2.1.) (Here and below, all comparisons are provided using market exchange rates.) In Asia, the combined GDP of the four largest economies after China (Japan, India, South Korea, and Australia) is 67 percent of China's. Unlike the European case, none of these four nations is allied with any other. One of them, India, is not allied with the United States. And unlike the European case, these states are not geographically contiguous. Even if they were allied with one another, they could not easily come to each other's aid in the event of attack without stripping resources necessary for their own defense — at least not in the absence of U.S. forces to fill the gap. The nearest ports in India are more than 5,000 kilometers from Okinawa by sea, while Australia has limited air and naval forces with which to patrol its northern approaches, which stretch some 4,000 kilometers from east to west, and would have little to dispatch elsewhere.

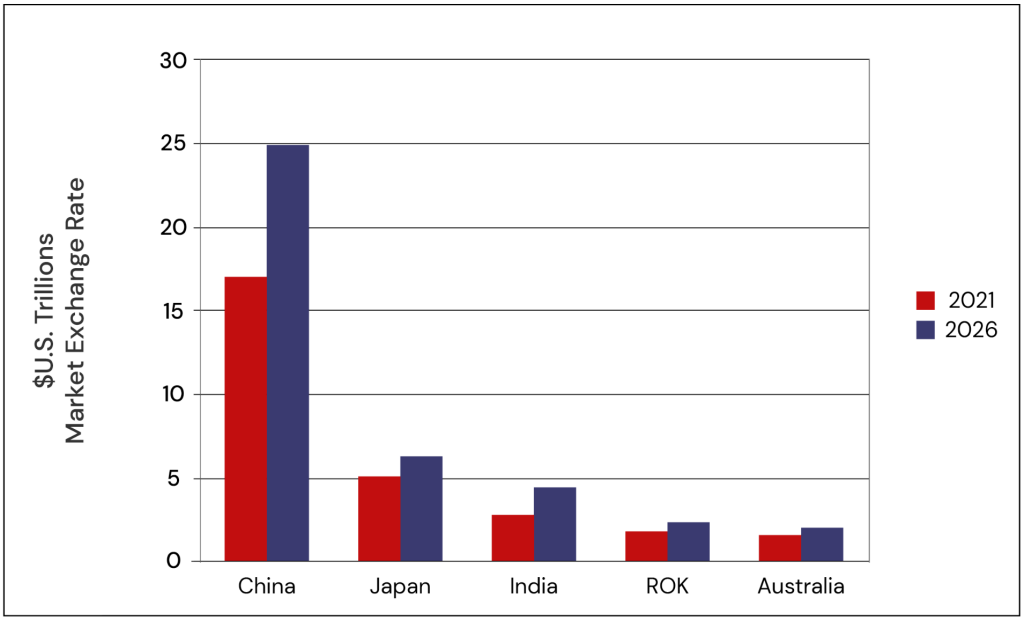
Figure 2.1: Distribution of economic resources in Asia and Europe: GDP of China and Russia and leading regional economies, 2021



Source: IMF *World Economic Outlook Database*, GDP Estimates for 2021, *https://www.imf.org/en/Publications/WEO/weo-database/2021/October/weo-report?c=193,924,132,134,534,136,158,542,922,112,&s=NGDPD,&sy=2019&ey=2026&ssm=0&scsm=1&scc=0&ssd=1&ssc=0&sic=0&sort=country&ds=.&br=1*, viewed on January 25, 2022.

It is true that most states of Asia would benefit in national security terms from advantageous terrains and topographies — archipelagic, mountainous, or heavily forested, depending on the case — but the imbalance of power in individual cases is extreme. (See Figure 2.2) And the IMF projects the imbalance to worsen for three out of four countries by 2026. Combined, their economies are projected to decline from 67 percent of China's to 60 percent over that period. In Western Europe, even the fourth-largest economy, Italy's, is larger than Russia's, whereas the second-largest economy in Asia, Japan's, is less than a third of China's, even when measured by market exchange rates; South Korea's the region's fourth-largest economy, is 11 percent the size of China's. Individually, the relative power position of these Asian states is closer to that of Poland vis-à-vis Germany than that of France or Britain on the eve of World War Two. Hence, while a defender might gain some benefit from defensive geography and might optimize force design to capitalize on such geography, it is doubtful whether this could offset such large asymmetries in resources.

Figure 2.2: 2021 and projected 2026 GDP of Asia's five largest economies



Source:
https://www.imf.org/en/Publications/WEO/weo-database/2021/October/weo-report?c=193,924,132,134,534,136,158,542,922,112,&s=NGDPD,&sy=2019&ey=2026&ssm=0&scsm=1&scc=0&ssd=1&ssc=0&sic=0&sort=country&ds=.&br=1, viewed on January 25, 2022.

This is not to say that regional states are seriously threatened by territorial conquest, for which China lacks the motive and means in most cases. But most of them are vulnerable to coercive military operations, blockade, or the capture of disputed areas. Three of these states (Japan, Australia, and India) have remote territories that might complicate defense and largely neutralize defensive advantage. The Sakishima Islands, at the southwestern end of the Japanese archipelago, are incapable of supporting large forces and are farther from the nearest major Japanese Island, Kyushu, than they are from the Chinese mainland. Disputed territories between India and China are difficult to populate adequately with military forces given the nature of the terrain. All of these states are also potentially vulnerable to blockade operations that could be conducted largely beyond the easy reach of land-based airpower.

Given the overwhelming differences in the prospects for conventional defense, absent American support, in Europe and Asia, there is good reason to focus on the latter as a larger issue for U.S. defense planning as budgets become tighter and priorities must be set. Even advocates of offshore balancing have stipulated that Asia might be the one area where "the United States may indeed be the indispensable nation."[34]

To be sure, relative resource distribution should not be the only determinant of U.S. regional policies, alliance relationships, and military planning. Many of America's closest political and economic partners are located in Europe, and maintaining alliances there

[34] Mearsheimer, John J., and Stephen M. Walt. "The Case for Offshore Balancing: A Superior U.S. Grand Strategy." *Foreign Affairs, Vol. 95, Issue 4*, July/August 2016. 81.

supports and encourages partnership and shared values. Despite a positive correlation of economic power in favor of NATO, Russia's invasion of Ukraine confronts Europe with serious challenges. Russia is a major nuclear power, with far more numerous and capable nuclear weapons than any country other than the United States. Its willingness to brandish them in ways that threaten use to cover Russian aggression highlights the critical role that extended U.S. nuclear deterrence plays in protecting NATO countries and in reducing the incentives that allies such as France and the United Kingdom might have to expand and diversify their own nuclear inventories.

All this said, in a resource-constrained world, it would make little sense for NATO planning to assume that the United States will provide the critical mass of forces for major conventional missions when European states are more than capable of providing that for themselves and when the same cannot be said of Asia. If we take that as a starting point, there are significant implications for force-planning.

Asia in the global context: Priorities, ground forces, and the defense budget

With the past balance of power based on U.S. maritime predominance deteriorating in Asia, budget pressures increasing in the United States, and the fact that European allies are capable of providing much more for their own defense, the United States can and should prioritize defense needs in Asia. Compared with scenarios elsewhere in the world, China-related scenarios are far more demanding when the potential contribution of allies in each region is considered alongside the magnitude of the challenge. Nevertheless, China-related scenarios are not the only factors that could influence U.S. force structure. This report focuses on U.S. defense requirements in Asia and concentrates heavily on China-related contingencies. To an extent, however, military forces are fungible and can be deployed anywhere. Thus, to understand the implications of any Asia-centered changes to U.S. military strategy, force structure, and force posture, it is necessary to consider the larger global context and potential requirements elsewhere.

Complicating the effort to place Asia in context is uncertainty over how U.S. interests will be defined globally, or in other regions. We can stipulate those interests for Asia, but we are less well-positioned to do so beyond the region. In lieu of a full assessment, which others will be more qualified to offer, in Appendix A we present three different sets of assumptions about how requirements elsewhere might be defined and the rough scale of forces required under each. The most immediate observation that comes out of the assessment of China-related contingencies and consideration of those elsewhere in the world is the considerable overlap in requirements for naval and air forces but not ground forces.

Ground forces — particularly heavy armored or mechanized units or large brigade-sized elements — have a far less conspicuous role in China-related scenarios than they might

in other contingencies. As we discuss in greater detail in the remainder of this chapter, China-related requirements are primarily air and maritime. In scenarios that involve supporting countries against the possibility of an amphibious Chinese attack, those states would provide the bulk of the ground forces. Small U.S. ground units — individual battalions with attached antiaircraft or anti-ship missile systems — might play an important role in the maritime fight, and some number of brigade-sized elements might be useful as a backstop. But collectively, these would represent only a small portion of the U.S. ground force structure.

In some non–China contingencies — *e.g.*, a war in defense of the Baltic states or South Korea — ground forces would be in higher demand. However, even under our most conservative planning assumptions — which include the capability to conduct simultaneously, or in rapid succession one major-theater war and one half of a major-theater war (*i.e.*, a minor war), as well as to sustain one stability operation, all while maintaining sufficient forces for homeland defense and recovery of recently deployed forces — there is considerable redundancy in the U.S. ground-force structure.

In making that calculation, we assume that a major-theater war could require ground forces equivalent to the 12 brigades employed in Operation Iraqi Freedom. U.S. ground forces currently include some 71 Army brigade combat teams, BCTs, or Marine Corps regiments. To be sure, some of these contingencies, especially in Europe or Korea, could require more forces than were employed in Operation Iraqi Freedom. But potential contributions by allied forces should be more than sufficient to make up that difference.

Whether or not the European NATO allies or the ROK are prepared to assume a substantial role in ground-force operations today, there is no doubt of their potential to do so by 2035 or 2040. As noted earlier, the ROK's defense budget exceeds the estimated total GDP of North Korea, and Western Europe's resources are vastly greater than Russia's. Hence, it is not unreasonable to expect Koreans and Europeans to provide the majority of the required forces for contingencies in each case. U.S. allies would be unlikely to provide the same level of support in any potential U.S. conflict in the Middle East, but such a conflict would likely be smaller in scale and thus also fit within the scale of Operation Iraqi Freedom.

These calculations reflect our assumption that the United States should (1) remain engaged politically with its existing democratic allies and partners around the world, and (2) scale back the disproportionate burden assumed by the U.S. military in areas where allies have the clear potential to become mostly self-sufficient. This would allow the United States to continue to reap the benefits of partnership in areas where it has invested heavily for 70 years, refocus scarce military resources on East Asia, where allies do not have the resources to defend themselves without external assistance, and maintain defense spending at a more affordable level.

Specifically, this report proposes changes that would provide for continued but more modest growth in the Air Force's budget, and relatively flat spending by the Navy over the next decade and a half. By contrast, our recommendations would generate far more significant savings in the Army and, in percentage terms, Marine Corps budgets.

Finally, and as discussed further below, although South Korea has overwhelming conventional superiority vis-à-vis North Korea, as long as the United States judges that it is worthwhile to maintain the U.S.–ROK alliance and prevent further nuclear proliferation in Northeast Asia, it will need to maintain sufficient force structure, forward presence, and extended deterrence to assist South Korea in deterring a potential North Korean attack, whether conventional or nuclear. However, the military forces required for that task are more consistent with contingencies elsewhere in the world and hence fit within the framework provided in Appendix A.

Some readers might find our assumptions about areas outside Asia either too conservative or insufficiently so. We nevertheless offer this cursory assessment of the larger global context to place the discussion related to China and East Asia in wider perspective. In particular, if the United States were to adopt even more-restrained policies elsewhere in the world, as some grand strategists have advocated, such as shedding security commitments in Europe and the Middle East — or, for that matter, on the Korean Peninsula — that would create room further to reduce its defense-spending burden, as considered in Appendix A.

The nature of the military problem in East Asia

Within East Asia, there are two groups of contingencies that might plausibly engage large components of the U.S. military and drive force planning: those involving China and those involving North Korea. Scenarios involving China are unique among major contingencies facing the United States today, in terms of scale and in their nature as primarily air and naval challenges. In important ways, China-related contingencies shape the size, structure, and posture of the Air Force, Navy, and Marine Corps. Contingencies centered on the Korean Peninsula, located at the heart of Northeast Asia, influence the force posture and deployment patterns of all the services, but they more closely resemble those in Europe or the Middle East in terms of force requirements, engaging a balanced set of service assets that, if anything, would be weighted heavily toward ground forces.

China-related contingencies

Although maintaining peace and security in the Asia–Pacific region is not primarily a military problem, military elements are nevertheless important. The United States will want to maintain capabilities to deter Chinese military action against allies or partners

in Asia. It should maintain the capability to defend, as treaty allies, South Korea, Japan, the Philippines, Thailand, and Australia. And as we have argued in Chapter 1, it is also in U.S. interests to maintain strategic ambiguity with regard to Taiwan, backed by the capability to intervene effectively. None of this is to say that the United States should extend protections to all regional states, or even all political partners, or that it should automatically move to protect Taiwan in the event of an attack, regardless of circumstances. We advocate a policy of restraint in U.S. engagement and careful evaluation of individual problems. Rather, we refer here to capabilities that should be maintained against a class or set of strategic problems within the region to include invasion, blockade, or coercive attack (*e.g.*, military strikes designed to force political concessions).

Although the aim of deterrence, as well as the diplomatic activities described elsewhere in this report, is to maintain peace and avoid war, it is necessary to discuss the nature of potential conflicts to assess deterrent efficacy. Contingencies might unfold differently, and political drivers would influence decision-making on the geographic scope of conflict, as well as the intensity of conflict. Operationally, however, there would be considerable overlap in the forces and systems that would be important in the most likely scenarios involving China — as well as in the nature of the operational challenges.

Deterring China does not necessarily require the certainty of a decisive defeat, but it does require that the United States present China with the prospect of unacceptable risk in the event that it engages in military aggression. That, in turn, requires that we consider the course and outcome of potential conflict. Below, we highlight key aspects of the military problem: the PRC's force structure and operational concepts, how those forces compare with U.S. and allied capabilities, the geographic and access problems confronting the United States, and some of the opportunities presented to the United States by geography, technology, and alliances.

China's force structure

China has advanced military capabilities in all domains. The People's Liberation Army has developed extensive anti-access, area denial capabilities, including long-range strike, submarines, counter-space, and cyber. These capabilities capitalize on geography to make it more difficult for the United States to enter the region or employ aircraft carriers or air wings to blunt PRC operations.[35] While China continues to develop A2/AD, it has also developed large and modern air and sea forces capable of contesting control of nearby airspace and maritime areas. The PLA is more deficient in some areas than others, and although it will take significant time to address some issues, it is energetically addressing all of them. Nevertheless, some scenarios or tasks will be more realistic for the PLA than others and will remain so through 2035.

[35] It is important to note that the term "A2/AD" was coined by U.S. analysts, and the related concept of "counter-intervention" figures less prominently in the PLA's own military doctrine than is sometimes alleged by U.S. observers. See Fravel, M. Taylor, and Christopher P. Twomey. "Projecting Strategy: The Myth of Chinese Counter-intervention." *The Washington Quarterly*, 7:4. 171–187. http://dx.doi.org/10.1080/0163660X.2014.1002164.

During the 1980s and 1990s, when Chinese air and naval forces were demonstrably weaker than their U.S. and even Japanese counterparts, the PLA began to deploy an array of ground-launched ballistic and cruise missiles, submarines, and other A2/AD assets. Chinese missiles pose particularly daunting challenges to U.S. military operations in Asia, as they can be used to target America's relatively sparse basing infrastructure near potential conflict areas. Currently, the PLA likely operates 1,250 to 1,726 conventionally armed, ground-launched ballistic and cruise missiles, virtually all with sufficient accuracy reliably to attack runways, aircraft parking areas, naval facilities, and ammunition and equipment bunkers.[36]

China is less dependent on ground-launched missiles than it once was, but it has nevertheless continued to develop its inventory. It has extended the range of its systems, deploying large numbers of DF–26 intermediate-range ballistic missiles, so-called "Guam killers," with an estimated range of 4,000 kilometers.[37] And it has produced new missile classes and variants, including hypersonic boost-glide missiles that will be more difficult to shoot down, and a wide range of missiles that maneuver on reëntry. These trends are likely to continue to 2035, with an increasingly varied and sophisticated arsenal of greater range, though perhaps not dramatically greater numbers.

China's inventory of modern combat aircraft and warships has grown rapidly over the last two decades, producing a force capable of vying for air and sea control within the first-island chain (*i.e.*, within the East China Sea and South China Sea) and projecting a degree of power beyond it. (See Figure 2.9 below.)

China's fourth-generation fighter aircraft reached series production during the 2000s, and the rate of deployment has continued to accelerate. By 2020, the PLA Air Force and PLA Navy Air Force operated roughly 1,058 fourth-generation tactical combat aircraft, including an increasing number with ground-attack capabilities in addition to their air-to-air functions.[38] Despite massive investments in engine manufacturing, China has continued to experience difficulties producing adequate engines for its fifth-generation fighters, the J–20 and the J–35, the latter the leading candidate to be China's main

[36] Force structure (units) provide a good indication of the number of launchers, estimated to number 405 ballistic and 108 cruise missile launchers. *Military Balance 2020*. International Institute for Strategic Studies, February 2020. 249. https://www.iiss.org/publications/the-military-balance/military-balance-2020-book. Greater uncertainty surrounds the number of missile reloads associated with each launcher. The 2020 DoD annual report to Congress on *Military and Security Developments Involving the People's Republic of China* is more conservative than in past years, estimating that China deploys "more than 1,250" ballistic missiles (excluding ICBMs, which are all nuclear armed) and ground-launched cruise missiles. ii and 166.

[37] The DF-26 was revealed in 2015 and an estimated 17 launchers had been deployed by 2017. The 2020 Department of Defense annual report to Congress, *Military and Security Developments Involving the People's Republic of China* surprised many analysts when it asserted that 200 launchers and more than 200 missiles had been fielded. 59.

[38] Roblin, Sebastien. "China's New J-16D Aircraft Might Have a Terrifying New Military Capability." *The National Interest*, November 30, 2017. https://nationalinterest.org/blog/the-buzz/chinas-new-j-16d-aircraft-might-have-terrifying-new-military-23427; Kay, Linda. "Copycat J-16 Jet 'Much Superior' to the Su-30: Chinese PLA Pilot." *Defense World*, March 25, 2021. https://www.defenseworld.net/2021/03/25/copycat-j-16-jet-much-superior-to-the-su-30-chinese-pla-pilot.html

carrier-based fighter of the future.[39] Until those issues are resolved, it can continue low-rate production of such aircraft using imported or less-powerful engines.

Eventually, the rate of growth in the PLA's modern air inventory will slow as the last legacy aircraft, third-generation and older, are replaced. Nevertheless, based on current lines of production, the PLA Air Force and Navy are likely to operate roughly 2,200 fourth– and fifth–generation tactical combat aircraft by 2035.

The PLA Navy began series production of large surface combatants, destroyers and cruisers, only in the mid–2010s, but growth since then has been striking. Until then, the PLAN surface fleet was built around smaller but capable frigates. From 2014 to mid–2020, however, China launched 25 Luyang III (Type 052D) destroyers and eight Renhai cruisers.[40] It currently has two midsize carriers afloat, with a larger (80,000–ton) carrier under construction. The PLAN has, in other words, launched a significant blue-water navy in the course of six years, even as it has continued to build smaller craft. Eventually, the need to maintain and upgrade the ships currently entering service will slow the rate of growth, but it is nevertheless likely that China will operate about 70 large surface combatants by 2035.[41]

The PLA Navy currently operates about 53 tactical submarines. Most, however, roughly 46 boats, are diesel submarines, and the relative handful of nuclear-powered Shang-class submarines are not comparable with their U.S. counterparts in terms of the ability to remain quiet and undetected. Hence, while Chinese submarines could pose challenges to U.S. forces, they would not have the high speed or endurance to pose a lethal challenge at long distances from China's coast — especially if they have to transit acoustic submarine barriers such as SOSUS or RAP, which might be employed across the first island chain. Nevertheless, PLAN submarines are improving, and PLA strategists have identified the need for more nuclear-powered boats, so the overall submarine threat could change in the future.[42]

China is also improving its support and power-projection capabilities. Though the PLA is building such systems at a deliberate pace, it has the potential to accelerate their development. The PLA's combined air forces currently maintain only very limited airborne early-warning, AEW, and airborne tanker capability. The PLA operates fewer than 25,

[39] Keck, Zachary. "Engine Problems: Why China's J-20 Stealth Fighter Can't Beat America's F-22 or F-35." *National Interest*, July 8, 2020. https://nationalinterest.org/blog/reboot/engine-problems-why-chinas-j-20-stealth-fighter-cant-beat-americas-f-22-or-f-35-164346; Liu Zhen. "Can China Finally Solve its Military Jet Engine Problems: A New Material Might Just do the Trick." *South China Morning Post*, May 29, 2021. https://www.scmp.com/news/china/science/article/3135300/can-china-finally-solve-its-military-jet-engine-problems-new; Johnson, Reuben. "China's J-35 Carrier Fighter Appears; Steps to 'Most Powerful Navy'?" *Breaking Defense*, July 1, 2021. https://breakingdefense.com/2021/07/chinas-j-35-carrier-fighter-appears-step-to-most-powerful-navy/.

[40] *Military Balance 2021*. International Institute for Strategic Studies. 232.

[41] The PLAN currently operates 47 such ships with more fitting out. The Office of Naval Intelligence estimates that by 2030, China will have 65 large surface combatants (including carriers, destroyers, and cruisers). U.S. Office of Naval Intelligence. "China: Naval Construction Trends vis-à-vis U.S. Navy Shipbuilding Plans, 2020-2030." February 6, 2020.

[42] 胡冬英, 黄锐, 蔡广友 [Hu Dongying, Huang Rui, and Cai Guangyou]. 推进潜艇兵力走向远洋的几点思考 ("Some Thoughts on Pushing Submarine Forces into Distant Oceans"). 舰船电子工程 [*Ship Electronic Engineering*], vol. 37, no. 1, January 2017.

mostly small tanker aircraft, compared with more than 400 larger aircraft in the U.S. active and reserve components. The shortage of tankers would limit the PRC's ability to operate, for example, east of Taiwan or in other buffer areas in a conflict over the island. Looking forward, however, AEW and tanker variants of the Y–20 cargo aircraft, which recently entered series production, will boost China's air-to-air capability.

Similar patterns are evident in naval support, airlift, and amphibious capability — areas where China's capabilities remain nascent but are developing. As of 2021, the PLA Navy inventory includes less than 310,000 tons of amphibious ships, a modest amphibious fleet when measured against that of the United States today (840,000 tons) or against the fleet that assaulted the Okinawa beaches in 1945 (2,400,000 tons).[43] It is also modest in the context of the task to be achieved in, for example, an invasion of Taiwan, which has roughly the same number of active troops as the Japanese had on Okinawa, plus a substantial reserve. China can supplement amphibious lift with commercial ships, but those ships would not be able to unload efficiently without docking at a port. Thus, the PLA would need to capture ports intact to use those additional ships, and ports can be destroyed or damaged if captured.

PRC military capabilities relative to other regional countries

Before touching on other aspects of the military balance — to include geography, technology, the contingencies in question, and mobilization — regional military forces themselves can be briefly compared. The most obvious point is simply that China's military dwarfs (or will dwarf) that of other East Asian states in its region in many categories of combat power. Not only does it have more systems in most categories, but the qualitative disadvantage of China's military that still exists relative to the United States is much smaller, nonexistent, or reversed when compared with other regional states.

Among the other regional states, Japan has the most potent air and naval capabilities and therefore serves as a useful point of comparison.[44] We address potential increases in Japan's defense budget and improvements in its budget in Chapter 4. In this section, we assume that it simply follows the program of record, rather than adjusting force structure.

The Japan Air Self–Defense Force has a relatively stable inventory of fewer than 250 fighters and fighter-ground attack aircraft. China's modern aircraft (fourth– and fifth-generation) thus outnumber Japan's by more than 4 to 1 — a ratio that could rise to 8 to 1 by 2035. Qualitatively, China's fourth-generation aircraft are at least as capable as Japan's.[45] Japan plans to purchase 140 F–35s to replace its F–4s and older F–15s, which

[43] Morison, Samuel Eliot. *Victory in the Pacific 1945*, Vol. XIV of *History of the United States Naval Operations in World War II.* New York, NY. Castle Books, 1960. Estimates of PRC shipping based on *Military Balance 2021*. International Institute for Strategic Studies.
[44] For an assessment of Japanese capabilities and strategy, see Heginbotham and Samuels. "Active Denial: Redesigning Japan's Response to China's Military Challenge."
[45] In part, this is a function of age. China's 4th generation fighters are still being produced, and many are quite new. It is also a function of investment in modernizing the electronics of this portion of the inventory. China has invested heavily in digital

will likely tilt the qualitative balance in the air back in Japan's favor. However, it is doubtful whether the qualitative edge would be great enough to overcome the disparity in numbers, and the PLA Rocket Force's conventional missiles provide, in any case, the means to destroy much of Japan's air force on the ground — highlighting the need (addressed in subsequent sections of this report) for major infrastructure improvements.

Japan has long maintained a powerful force of naval vessels, which currently includes 45 large surface combatants (carriers, cruisers, and destroyers) and six frigates. For decades, the trend in Japan's naval shipbuilding was toward ever-larger, more capable, and more expensive ships, culminating in the recently constructed 10,250–ton Maya-class cruisers. However, Japanese defense officials have decided that the Maritime Self–Defense Force will not be able to compete without greater attention to efficiency and numbers and it has, therefore, introduced a smaller, compact frigate, the Mogami class.[46] Japan plans to commission 22 of these stealthy, 5,500–ton ships. Meanwhile, the MSDF has been able to grow its submarine force from 19 to 22 by keeping boats in the inventory longer.

Japan's fleet of large warships is ostensibly comparable with China's in size. However, unlike China's large surface combatants, all of which are new, modern designs, Japan's fleet includes a mix of highly capable ships equipped with the advanced Aegis combat system and older designs that would be of marginal utility in modern naval warfare. The PLAN has eclipsed the MSDF in scale, with a far larger inventory of frigates and corvettes, and the gap will continue to grow over the next decade. More importantly, Japan's fleet would have to operate against not just China's surface and submarine force; it would also have to survive in the face of air and missile threats. Without the ability to gain air superiority, the Japanese fleet would be at a severe disadvantage.

Against all other regional states, China's margin of superiority is even larger. Some of these, such as Australia and the ROK, maintain modern air and naval capabilities that can help establish a stable balance of power in East Asia — even if they would be hopelessly outnumbered if forced to fight separately. Other regional states, such as the Philippines, have almost no modern air or naval capability and would be highly vulnerable to blockade or other forms of attack should their interests collide with those of China.

radiofrequency memory jammers, improving aircraft survivability, and active electronically scanned array (AESA) radar, while Japan has only recently decided to upgrade its F-15 fleet with AESA radar. Defense Intelligence Agency. *China Military Power: Modernizing a Force to Fight and Win.* 2019.

[46] Kubo, Nobuhiro. "Exclusive – Japan to speed up frigate build to reinforce East China Sea: sources." Reuters, February 17, 2017. https://www.reuters.com/article/japan-navy-frigates-idINKBN15W150.

PRC military capabilities relative to the United States

Overall, the U.S. fleet and air forces, including the Air Force, Navy aviation, and Marine Corps aviation, remain larger and more capable than those of China — in some cases far larger and far more capable. However, the gap is narrowing, and, more important, the proximity of potential conflict areas to China would neutralize many U.S. advantages. The U.S. fleet today has 92 large surface combatants, plus 11 large carriers and nine amphibious assault ships that can double as small carriers. The PLAN today has roughly 47 large surface combatants, including two midsize carriers. We estimate that by 2035, the PLAN will have roughly 70 large surface combatants in service, while several competing plans and budgetary realities make the future size of the U.S. Navy's force of large surface combatants less certain.[47]

On the air side, the U.S. Air Force, Navy, and Marine Corps today operate about 2,930 fighters and fighter-ground attack aircraft, compared with slightly more than 1,058 in China's inventory. Although the U.S. Air Force has decided that the F–35 may not be the ideal fifth-generation fighter and is looking to avoid overreliance on that platform, the F–35 is being produced in significant numbers and will ensure that the U.S. fifth-generation fighter force remains significantly larger than China's J–20 fleet, plagued as it is by engine troubles. As of 2020, the United States had 231 F–35As in service, as well as 136 F–35Bs and F–35Cs, while China was in the process of standing up its first squadron of 24 J–20s.

Perhaps most important, despite the PLA's efforts to improve jointness, the quality of training, and other forms of human "software," the United States continues to enjoy significant advantages over China in these areas. Moreover, because the obstacles to improvement involve the PLA's organizational culture, and the expectations and understanding of senior officers, change is likely to be slower in these areas than it is on the hardware side.[48] That said, Chinese operational practices are evolving, the force recruits high quality and motivated individuals, and geography and proximity will generally work in China's favor.

The effects of geography and technology on the balance of power

On their own, comparisons of China's force structure and military capabilities with those of regional countries and the United States are insufficient for an accurate evaluation of the military balance in the Western Pacific. It is also essential to consider the effect of the interaction between geography and military technology. In academic security

[47] See Congressional Research Service. *Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress.* March 18, 2021; Labs, Eric J. "An Analysis of the Navy's Fiscal Year 2022 Shipbuilding Plan." Congressional Budget Office, September 2021.
[48] Early socialization in any organization, particularly within organizations that require years of professional training of its leaders, tends to make their culture resistant to change—a pattern further reinforced by vested interests embedded in the leadership of constituent components. In China's case, change is further complicated by the powerful ties to the Communist Party and the existence of political cadres within the PLA. For the effects of these issues on the Chinese military, see Chase, Michael S. et. al. *China's Incomplete Military Transformation: Assessing the Weaknesses of the People's Liberation Army* (PLA). RAND Corporation, 2015.

studies, these are often referred to as the key factors that determine the "offense-defense balance" — that is, whether offensive action or defensive action by a given force is more likely to succeed in any given time and place.[49] Since the goal of the United States and other countries in the region is defensive, they will benefit if geography and technology favor the defense. Conversely, any potential offensive military action by China would be more likely to succeed if the offense-defense balance tips toward the offense.

In the Western Pacific today, some observers have focused on a combination of technology, politics, and the region's maritime geography to argue that the defender should enjoy major advantages. They argue that this defense dominance would work in favor of the United States, its allies, and others in the region if China were to engage in aggression.[50] At the same time, U.S. military planners and strategists often emphasize the tyranny of distance and other geographic challenges that would make it more difficult for the United States to prevail in a conflict in the region.[51]

In this section, we assess both of these more optimistic and pessimistic sets of arguments. We consider the effects on the military equation not only of technology and distance, but also the crucial yet often overlooked factor of strategic depth. We conclude that the effects of these factors are mixed. Many of the individual points made by optimists and pessimists are valid, though important caveats are often neglected. Overall, we assess that the defense does indeed convey a margin of advantage when material considerations are held equal and that those advantages can be exploited by the United States and its regional allies and partners. However, the inherent advantages of the defense, partially offset by technologies that do not favor the defender, are alone not enough to offset the substantial asymmetry of power between China and regional actors without external assistance.[52] At the same time, although U.S. power attenuates across the reach of the Pacific, the issue of strategic depth within the region presents a more mixed picture.

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[49] Although some scholars have argued it is possible to assess a general offense-defense balance applying across space during a particular period due largely to the prevailing nature of military technology, Charles Glaser and Chaim Kaufmann observe that geography, technology, and other factors work in ways that make the offense-defense balance situation-specific, not just specific to a particular era. For example, the technology available during the early 20th century created a defense dominant stalemate on the western front of World War I but did not in the east, where there was more room for infantry and cavalry forces to maneuver and flank defensive strongpoints. Glaser, Charles L., and Chaim Kauffmann. "What is the Offense-Defense Balance and Can We Measure It?" *International Security*, Vol. 22, No. 4, Spring 1998.

[50] Biddle and Oelrich. "Future Warfare in the Western Pacific;" Gholz, Friedman, and Gjoza. "Defensive Defense: A Better Way to Protect U.S. Allies in Asia;" and Beckley. The Emerging Military Balance in East Asia: How China's Neighbors Can Check Chinese Naval Expansion."

[51] See comments by then U.S. PACOM Commander Admiral Samuel J. Locklear, III. "PACOM Before the House Appropriations Committee Remarks." U.S. Indo-Pacific Command, March 18, 2015. https://www.pacom.mil/Media/Speeches-Testimony/Article/581146/pacom-before-the-house-appropriations-committee-remarks/; Freier, Nathan P., and John H. Schaus. "Geostrategic Net Assessment: INDOPACOM Through 2030." *Parameters*, Vol. 50, No. 2, Summer 2020.

[52] As Charles Glaser and Chaim Kaufmann observe, the defensive almost always conveys a degree of advantage, all other things held equal. The question is the extent to which defensive advantages can offset the material superiority of an attacker. Glaser and Kauffmann, "What is the Offense-Defense Balance and Can We Measure It?"

Technology, geography, and the offense-defense balance

Some observers have argued that small, mobile missiles contribute to widespread defense dominance, particularly when combined with maritime barriers in East Asia's environment.[53] However, although some technologies favor the defender more than in the past, others provide new options for the attacker. Moreover, hedgehog strategies that capitalize on defensive technologies to make invasion difficult are vulnerable to other forms of attack. In aggregate, technology would interact with geography to provide some relative advantage to regional states in the Western Pacific defending against aggression. However, this advantage is not overwhelming enough on its own to outweigh the significant material superiority of a potential attacker as powerful as China.

Arguments supporting the defense-dominant properties of modern weapons are based on factors related to modern intelligence, surveillance, and reconnaissance, ISR, the evolution of surface-to-air missiles, and the proliferation of anti-ship missiles. Radar is generally limited by line-of-sight distances and is highly vulnerable when mounted on aircraft and moved beyond the protection of air defenses.[54] SAMs may have regained relative capability vis-à-vis airborne nemeses since the days in which U.S. aircraft operated with near impunity during the Gulf War, due to improvements in their seeker heads and propellants.[55] And amphibious attack is rendered more hazardous than in the past by the proliferation of and improvements to anti-ship cruise and ballistic missiles.[56]

At the same time, it bears remembering that another salient feature of the Gulf War was the ability of standoff strikes to reach and destroy fixed targets deep inside an adversary's territory. Pound for pound, such missiles have gained range, precision, and destructive force since that time. And while dispersion can mitigate the risk from these systems, any conventional defense will always include critical infrastructure that is fixed, semi-fixed, or difficult to hide. Long-range missiles today can accurately blanket airfields with submunitions or destroy munitions bunkers, buried fuel, or command and control facilities with highly accurate unitary munitions. When employed against fixed targets, these missiles are equally effective against attackers and defenders and do not, therefore, convey defensive advantage. Similarly, cyber weapons and space-based intelligence systems are not by themselves affected by the distance between one state and another.

Regional states can exploit defensive technologies by pursuing highly defensive hedgehog strategies that rely on large numbers of ground-based antiaircraft and anti-ship missiles to frustrate invasion. We recommend these as part of integrated U.S.

[53] Biddle and Oelrich. "Future Warfare in the Western Pacific;" Gholz, Friedman, and Gjoza. "Defensive Defense: A Better Way to Protect U.S. Allies in Asia;" and Beckley. "The Emerging Military Balance in East Asia: How China's Neighbors Can Check Chinese Naval Expansion."
[54] Biddle and Oelrich, "Future Warfare in the Western Pacific."
[55] Heginbotham, Eric et al. *The U.S.-China Military Scorecard.* RAND Corporation, 2015. 118-130.
[56] Gholz, Eugene. "No Man's Sea: Implications for Strategy and Theory." Paper presented to the International Studies Association. Atlanta, Georgia. March 2016.

and allied strategies, as elaborated later in this report. However, such purely defensive strategies can leave the defender more vulnerable, rather than less, to other forms of military attack or coercion, such as blockade strategies conducted by naval and air forces operating outside the range of these missile systems.

Even in defenses against invasion, purely defensive hedgehog strategies have limits. For example, they are better suited to the defense of large land masses or islands (*e.g.*, Kyushu or Taiwan), where large numbers of systems could be deployed and could reposition themselves over land, than they would be in the defense of outlying islands. While outlying islands could host defensive systems that would help in the short term, any long-term defense would rely on the ability to resupply or replace assets deployed there. The control of airspace and seas that would permit such repositioning would be decided primarily by the size and quality of air and naval forces that could operate around the islands.

None of this is to say that, all things held equal, the offense enjoys inherent advantages over the defense; the reverse is true. And defensive hedgehog strategies can play an important role in deterring attack and coercion, especially as part of an integrated alliance strategy. But there is no evidence that the advantages of the defense are dramatically greater than they have been historically, especially when the potential tactics of both sides are considered. Meanwhile, it is clear that the imbalance in resources is dramatically greater than has historically been the case in Europe, from which much of the U.S. thinking on modern war and the balance of power derives.

During World War II, German efforts to defeat the Royal Air Force and Navy failed in the face of a significant water barrier, smart British strategy, and the inherent advantages of defensive airpower (*e.g.*, the ability to recover downed airmen) combined with a well-integrated radar net. However, it should be remembered that on the eve of battle, Germany's economy was not hugely larger than Britain's — roughly 22 percent larger, according to one source.[57] More broadly, the disparities evident among the leading states of Asia have never existed in modern Europe, even in the Europe of Louis XIV. Data assembled by leading economic historians strongly suggest that, in modern Europe, the largest economy has never equaled more than half of the next four combined, whereas China's economy is significantly larger than the next four in Asia today.[58]

[57] Harrison, Mark, ed. *The Economics of World War II: Six Great Powers in International Comparison.* Cambridge University Press, 1998. 8.

[58] This assertion is based on snapshot years, which include 1700, 1820, 1913, 1937, 1950, and 2017. Depending on the years examined, the data are from Broadberry, Stephen, and Alexander Klein. "Aggregate and Per Capita GDP in Europe, 1870-2000: Continental, Regional and National Data with Changing Boundaries." Paper for European Commission, October 27, 2011. The older (1820 and 1700) figures are from Maddison, Angus. *Contours of the World Economy 1-2030 AD: Essays in Macro-Economic History*. Oxford University Press, 2007. Adjustments were made to reflect the national boundaries of those years.

Distance from the United States and power projection challenges

If relative defensive advantage is insufficient for regional countries to defend themselves against possible aggression by a much more powerful neighbor, then they would need external support from countries such as the United States. However, the significant distance of the bulk of U.S. territory and forces from the Western Pacific presents its own challenges. From the U.S. perspective, the most immediate problem in projecting power to support allies or others in the region is the time required to move forces from their garrisons into areas of operations.

Between 8 percent and 15 percent of relevant U.S. combat power, depending on type, is forward-deployed in the Western Pacific, primarily in Japan, the ROK, and Guam.[59] The Indo–Pacific Command as a whole commands a much higher percentage of U.S. forces, including more than half of all U.S. Navy ships and submarines, with large concentrations in Hawaii, San Diego, and other points on the U.S. West Coast. Although these additional forces fall under the same major command, they are located far from potential conflict areas. Hawaii is more than 6,000 kilometers and San Diego more than 8,000 kilometers from Tokyo. In addition to INDOPACOM assets, additional reinforcements for a major Asian contingency could be borrowed from other commands and would flow from more distant locations.

Estimating the speed with which U.S. reinforcements might flow into the theater during a contingency is difficult and would depend on a variety of factors. During the Gulf War, the U.S. Air Force was able to deploy roughly one squadron of combat aircraft, 24 aircraft, every two to four days during the first phase of the buildup in August 1990, and again during the second phase in December and early January 1991.[60] Additional support units (*e.g.*, tankers and surveillance, command, and control aircraft) were flown in at the same time. Assuming that Japan or other allies opened air bases or airports to facilitate U.S. movement, it is reasonable to suppose that the U.S. Air Force might be able to match this performance in Asia, at least in terms of delivering squadrons to the theater. As we discuss further below, however, the number of squadrons that could be based within easy reach of the most likely contingencies is limited, and getting them to the forward-most bases would be problematic if the bases were under attack.

Ship availability is the primary constraint in the case of the U.S. Navy. According to a 2008 assessment, aircraft carriers are deployed 19 percent of the time, able to surge (within 90 days) 57 percent of the time, and in depot maintenance 24 percent of the time. Of those available to surge, 80 percent could be available within 30 days.[61] Conventionally powered surface ships are deployed more of the time (25 percent) and

[59] The deployed units include roughly 250 of the U.S. Air Force's 1,780 tactical combat aircraft (fighters and fighter ground attack aircraft), one of the Navy's 10 carriers, 11 of its 92 cruisers and destroyers, and 4 of its 52 attack submarines (with a fifth to be deployed in 2022).
[60] *Gulf War Air Power Survey, Vol. III, Logistics and Support.* RAND Corporation, 1993. 120.
[61] Yardley, Roman et al. "Aircraft Carrier Maintenance Cycles and Their Effects." RAND Research Brief, 2008. https://www.rand.org/pubs/research_briefs/RB9316.html.

spend less time in depot maintenance (16 percent), but all ships rotate through the same general maintenance and deployment phases.[62] Virtually all available ships could move simultaneously once they have been prepared and provisioned. The transit time from Hawaii to the Philippine Sea would likely vary from seven to nine days, and from San Diego to the same area from 10 to 12 days.[63]

Depending on warning time before a conflict, and the U.S. willingness to move additional assets during peacetime, U.S. forward-deployed forces would, together with regional allies and partners, fight outnumbered in any conflict with Chinese forces. This imbalance would be evident even if the PLAN were to encounter significant maintenance delays. Proximity and the potential ability to plan in advance work in China's favor.

Comparative strategic depth and access to facilities

A third set of factors shaping the military balance beyond relative power involves access to basing and strategic depth within the theater. These issues would affect the two sides differently in Northeast and Southeast Asia, as well as on the air and naval sides. In the air and maritime arenas, U.S. access to bases is limited, and, in some cases, geography limits overall allied basing near relevant conflict areas. In Northeast Asia, the United States operates just two air bases (Kadena and Futenma) within unrefueled fighter range of Taiwan and the Sakishima Islands at the end of Japan's Ryukyu island chain. Japan's Air Self-Defense Force operates one additional base within that range, at Naha.

The PLA Air Force and PLA Navy Air Force have access to 39 military air bases within unrefueled fighter range of Taipei (1,000 kilometers), as well as access to dozens of air bases further inland.[64] Many of China's bases are located in the geographic sweet spot, sufficiently far inland to be protected by SAMs arrayed in depth, but close enough to conflict areas to provide relatively easy access. (See Figure 2.3.) Both sides could, in theory, also use civilian airfields, though Japanese airfields in the Ryukyu chain are also limited in number, and most are small. (See Figure 2.8 below.) When considering an air campaign in Northeast Asia, then, China has a robust basing structure and strategic depth. While both sides could strike adversary airfields, China could temporarily deprive the United States and Japan of all airfields close to potential conflict areas by concentrating fire on just a handful of locations, while its own basing infrastructure would be naturally more resilient.

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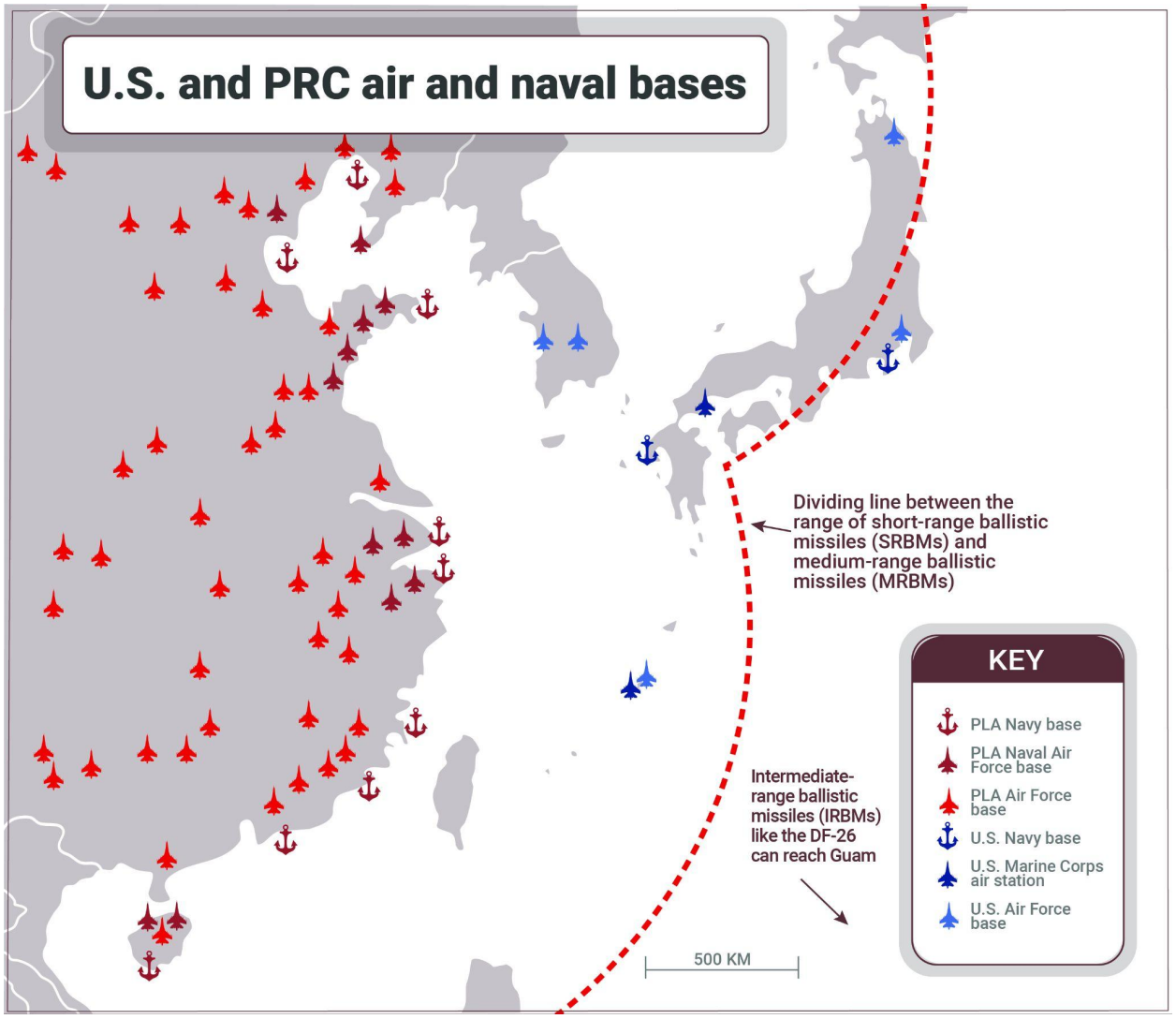
[62] Yardley, Roland J. et al. *Extending Depot Length and Intervals for DDG-51-Class Ships: Examining the 72-Month Operational Cycle*. RAND Corporation, 2016. xiv. https://www.rand.org/pubs/research_reports/RR1235.html.

[63] Although most U.S. surface ships have top speeds in excess of 30 knots when just out of maintenance (and aircraft carriers significantly higher than that), long-distance transit speeds are generally closer to 20 knots. The times listed above reflect transit speeds of 20 knots or 25 knots. On transit speeds, see O'Rourke, Ronald. *Navy Nuclear-Powered Surface Ships: Background, Issues, and Options for Congress.* Congressional Research Service, September 21, 2009.

[64] *U.S.-China Military Scorecard.* RAND Corporation. 54.

Figure 2.3: U.S. and PRC air and naval bases



Source for PLA base locations: Dutch Aviation Society, *Scramble*, "China Air Force" and "China Naval Aviation," *https://www.scramble.nl/planning/orbats/china/china-naval-aviation*; *https://www.scramble.nl/planning/orbats/china/china-air-force*. See also, Lawrence "Sid" Trevethan, *Brigadization of the PLA Air Force* (China Aerospace Studies Institute, 2018).

In Southeast Asia, geography and politics would combine to create somewhat different effects on a potential air battle. With the exception of periodic U.S. Air Force deployments to northern Australia under the Enhanced Air Cooperation program, the U.S. air forces have no regular peacetime access in Southeast Asia. The United States might, then, be heavily reliant on carrier-based airpower and the limited air presence that might be flown from and sustained out of bases in Northeast Asia and the Marianas. It would presumably gain some additional access if the United States were coming to the defense of a threatened regional ally, though without prior preparation, the efficiency of air operations from new locations would be lower than normal.

China's ability to sustain air operations in Southeast Asia would depend on the specific locus of conflict. In the event that conflict was primarily in the southern half of the South China Sea (*e.g.*, around the Spratly Islands), China's ability to sustain an air battle would be far more limited than it would be in Northeast Asia. While it is true that China has built three air bases on reclaimed land in the Spratly Islands group, China's position in that area is far from the support and protection afforded to air bases on the mainland and lacks depth. Bases on Hainan Island are, for example, more than 1,000 kilometers from the Spratly Islands. Chinese ships or positions in the South China Sea would be hard pressed to withstand determined attack. Geography, then, would not provide advantage to China in the South China Sea in the way that it might in Northeast Asia.

In the maritime domain, the United States — not China — would enjoy strategic depth. Modern warships, with limited onboard munitions, would have to move back regularly to port to reload their missile stocks (or protected bays if a "reload at sea" capability is developed) during a high-end naval conflict. Once again, China has more bases in close proximity to conflict areas, which would reduce the cycle speed between those areas and bases. Proximity is, however, a double-edged sword: Chinese naval bases, and the ships located there (to include ships that are fitting out, rearming, and even undergoing depot maintenance) are all within potential range of U.S. air– and sea-launched cruise missiles.[65] The United States and its allies, on the other hand, would have options as to how far back to withdraw ships for refitting, rearming, or repairs.

Outside of port, too, PLA ships would operate in a narrower band of water, primarily within the first island chain, and while they would benefit from proximity to land-based defenses, their lack of strategic depth would greatly assist the United States and its allies in locating and targeting them. Conversely, in the face of China's complex of anti-ship strike capabilities, the United States might choose to hold its fleet farther from conflict areas. This would reduce the U.S Navy's ability to bring its forces to bear, but it would at least enjoy choice as to the degree of risk it wants to incur, and it could adjust its position based on current circumstances.

Summary assessment of the China-related military problem

China's military capabilities greatly exceed those of all other regional states, and, despite increased efforts by key U.S. allies, the gap continues to widen. Technology, combined with the region's maritime geography, would provide a degree of advantage to the defender, particularly in areas near the region's larger islands, but these factors alone would not be likely to offset the asymmetry in military potential of regional states without outside assistance. Both sides can tailor their military force structure and

[65] Against ships in port, the United States could presumably employ land-attack missiles, like the JASSM-ER, with a range of roughly 1,000 km. Roughly 20 JASSM-ERs can be carried by a single B-52, which could launch from well beyond the range of Chinese air defenses. Other U.S. missiles with even longer ranges, like the Tomahawk or the JASSM-XR, could also be employed. While it is true that China could, in principle, attack deep U.S. bases, the obstacles would be greater and the potential frequency and scale of these attacks would be more modest.

concepts of operation to mitigate geographic disadvantages or capitalize on areas of advantage — and those possibilities for optimizing force structure and posture will evolve with technology, the strategic situation, and the actions of potential adversaries. This report aims to identify such areas open to the United States and its partners.

DPRK–related contingencies

Assuming that the United States continues to view deterring North Korean aggression and retaining the U.S.–ROK alliance as in its interests, DPRK–related contingencies will remain one driver of U.S. force structure and posture in Asia. Should a conflict occur on the Korean Peninsula, the possibility of rapid escalation is very real, and in Chapter 4 we recommend measures to reduce the probability of conflict. As long as the security treaty with South Korea remains in place, however, the United States will want to maintain sufficient forces of the right type to deter conflict.

As in Europe, the overall balance of economic resources on the Peninsula has tilted dramatically toward the U.S. ally, and the ROK can provide the bulk of resources for its own defense. Specialization of labor within the alliance, however, can greatly enhance the effectiveness of defensive forces, and U.S. forces remain an important backstop. More importantly, unless the United States is willing to countenance South Korea's nuclear armament — together with the likely regional effects on nuclear policies in China, Japan, and possibly elsewhere — then extended nuclear deterrence will remain central to the alliance. That, in turn, will have consequences for the conventional U.S. force posture.

Once encompassing the more industrialized portions of the Korean Peninsula, the DPRK, after almost seventy years of *juche* — "self-reliance" — is all but crippled economically, while its neighbor to the south, though not without challenges of its own, has generally moved from strength to strength. The Bank of Korea, one of the few organizations that ventures a guess as to the overall size of economic activity in the North, suggests the DPRK's gross national income in 2018 was roughly $32 billion, or less than 2 percent of South Korea's.[66]

According to the U.S. Department of State, North Korea spends more on its military than any other country as a percentage of GDP, (from 13 percent to 24 percent in 2017).[67] Nevertheless, the ROK, spending about 2.4 percent of GDP on defense, roughly $40 billion, has a defense budget that is almost certainly larger than North Korea's total economy.

[66] Converted using average exchange rate of 1100 KRW to one USD.
file:///Users/cis57/Downloads/GDP_of_North_Korea_in_2018.pdf.
[67] U.S. Department of State. *World Military Expenditures and Arms Transfers 2019.* Bureau of Arms Control, Verification, and Compliance. December 2019. https://2017-2021.state.gov/world-military-expenditures-and-arms-transfers-2019/index.html.

The terrain in Korea does not lend itself to rapid offensive operations, at least not when the defender populates the front adequately.[68] The interior is largely mountainous, and the two relatively flat areas along the coasts are bisected by rivers and urban areas that would pose obstacles to rapid armored advance.[69] The North Korean army is, in any case, not in a condition to conduct high-tempo offensive operations, even in ideal terrain. Its equipment is largely antiquated — the bulk of its armor is derived from outdated T–55 and T–62 designs — and fuel shortages limit its ability to train or exercise, particularly at higher echelons.[70] The contrast with South Korea, which has leveraged one of the world's most advanced economies to produce cutting-edge weapons while implementing a dynamic training regime, is difficult to overstate.

All this said, North Korea's development of nuclear weapons — driven in part by its conventional weakness — has introduced new complications that must be accounted for in U.S. strategy and force structure. First, if the United States wishes to prevent nuclear breakout by South Korea, with potential spillover effects on Japanese and Chinese nuclear thinking, then it will need to maintain extended nuclear deterrence of nuclear attack by the North. Moreover, to have the intended dampening effect on South Korean nuclear calculations, extended nuclear deterrence must be credible and accompanied by the continued forward deployment of U.S. conventional forces.

Second, North Korea's maintenance of nuclear weapons means that conventional war planning must account for hybrid threats and discourage escalation. North Korean leaders might come to believe that, under the cover of a nuclear arsenal capable of surviving a first strike, it could engage in low-level conflict.[71] Under circumstances deemed threatening to Pyongyang, artillery deployed north of the DMZ and within range of Seoul could, for example, be employed to ratchet up pressure on the ROK. These guns can be rolled out of hardened shelters, fired, and moved back under cover quickly. Responding to such attacks would require substantial airpower networked with overhead and ground-based sensors to shorten time between detection and attack. Although such a capability is within South Korea's economic and technical capability, the United States would need to provide some elements of such a system until the ROK's targeting capabilities matured, which could take a full decade.

A more significant driver of U.S. force structure would be backstopping South Korean forces should provocation from the North prompt a response and threaten broader escalation. Following the North's bombardment of Yeonpyeong Island in 2010, Seoul adopted a policy of "proactive deterrence," under which it would develop the capability

[68] At the time of North Korea's June 1950 assault on the South, the ROK had an army of fewer than 100,000, and only a portion was deployed along the 200 km front. As troop strengths grew over the course of the war, offensive operations became far more difficult and costly.
[69] O'Hanlon, Michael. "Stopping a North Korean Invasion: Why Defending South Korea is Easier than the Pentagon Thinks." *International Security*, Vol. 22, No. 4, Spring 1998. https://doi.org/10.2307/2539242.
[70] Min-Seok, Kim. "The State of the North Korean Military" in Chung Min Lee and Kathryn Botto, eds. *Korean Net Assessment: Politicized Security and Unchanging Strategic Realities.* Carnegie Endowment for International Peace, 2020; Headquarters of the U.S. Army. *North Korean Tactics.* Army Techniques Publication, No. 8-100.2. July 2020.
[71] Krepon, Michael. "The Stability-Instability Paradox, Misperception, and Escalation Control in South Asia" in *Escalation Control and the Nuclear Option in South Asia.* Krepon, Michael, Rodney W. Jones, and Ziad Haider, eds. Washington, D.C. Stimson, 2004.

to retaliate in kind or escalate if provoked.[72] Whatever the original calculations on both sides, it is not difficult to imagine circumstances in which significant escalation, or the threat of escalation, might loom large. In a crisis, the possibility that U.S. forces would assist the South would contribute to deterrence in two ways. First, it would make any potential miscalculation by Pyongyang as to the balance of conventional power far less likely. Second, it would provide the collateral that would virtually guarantee a devastating response to any potential nuclear use by North Korea, further reducing the probability of miscalculation.

U.S. air and naval forces would provide the most vital support, as they could respond quickly to attacks on Korean positions and limit ROK casualties. A ground contingent would, however, send the clearest signal of U.S. commitment to extended nuclear deterrence, and the constituent elements of the 2nd Infantry Division, whose headquarters are already located in Korea, would provide the core of that contingent, though lighter units might be the first to arrive. South Korean infantry divisions could be assumed to hold most of the front, and U.S. ground forces requirements would likely remain comfortably within the 12–BCT force, the "Operation Iraqi Freedom equivalent," we outline in Appendix A. These units would be fungible with the ground force required for operations in a European or Middle Eastern contingency. And as in the European cases, U.S. air and naval force structure requirements would represent a fraction of those required for the more challenging China-related scenarios.

DPRK–related contingencies remain challenging, and successful preparation and deterrence will depend in large measure on how the ROK allocates its defense resources, a topic addressed further in Chapter 4. These contingencies will not constitute a major driver of force structure independent of the larger set of global contingencies. Accordingly, the focus of the remainder of this chapter and the next will be on the strategy and force structure needed to deter and defend against potential challenges in the China-related contingencies explained above.

Choosing the right strategy for East Asia

Having described the nature of the military problem in East Asia, we now turn to the question of how the United States and other countries in the region can address that problem. We begin with the three goals of U.S. defense strategy introduced in Chapter 1. These three goals can be used as criteria for judging alternative defense strategies and the corresponding force structure: (1) deterrence efficacy, (2) escalation potential, and (3) budgetary realism. Each of these criteria merits discussion.

[72] Denmark, Abraham M. "Proactive Deterrence: The Challenge of Escalation Control on the Korean Peninsula." Korea Economic Institute academic paper series, December 2011.

Criteria for evaluating strategy

Deterrence efficacy. During the post–Cold War period, nuanced discussions about the distinction between deterrence and predominance, or strategies that relied on the promise of decisive defeat, fell by the wayside. Overwhelming U.S. capabilities relative to those of potential competitors made the difference moot. Historically, however, the distinction has been critical. During the Cold War, the United States and its NATO allies never sought to deter the Soviet Union by maintaining clear conventional superiority. Indeed, their de facto policy of nuclear first use was oriented toward compensating for conventional weakness by suggesting a willingness to escalate to a level at which defeat or victory would be meaningless. The European Cold War strategy of nuclear deterrence against conventional attack carried grave escalation risks, but it was regarded as necessary by many, especially in the European political and defense community, because of Europe's conventional weakness, and it did work to chasten leaders on both sides.

A deterrence strategy that relies heavily on nuclear first use has little support in the United States and Asia today. It is unnecessary, given U.S. conventional military capabilities, and it would likely lack credibility, given the different geographic and political circumstances of East Asia. On the other hand, circumstances lend themselves well to conventional deterrence. There is a rich literature on what might make such deterrence effective. A central argument in that literature is that deterrence depends upon the ability to introduce risk into the potential attacker's calculations, in particular by extending the likely timeline of conflict and thus imposing the uncertainties of extended combat.[73] To enhance deterrence efficacy, then, there is reason to prioritize measures that make quick defeat less likely while entailing a plausible path toward final victory, even if the approach might, early on, bring less offensive potential to the fight.

Escalatory potential. Force posture, force structure, and operational concepts can have a significant impact on the potential for escalation in a conflict. One's own forces and those of allies can be postured in more or less offensive ways, and this might provide one's own side with incentives to strike first or, if conflict has begun, to escalate quickly. At the same time, the more vulnerable one's own forces are to attack, the higher the incentive the other side will have to strike first, before effective protective measures may be taken. When forces are deployed far forward in highly offensive postures but are not well protected from attack, as is the case with U.S. forces in Asia at present, the incentives for both sides to attack first may be particularly high and crisis stability will, consequently, be low. When, however, one's own forces have a more defensive posture and are well protected against attack, the opposite should be true.

In a closely related vein, if force structure is more weighted toward large or vulnerable platforms, such as large aircraft carriers, this may also incentivize first strike and rapid

[73] Mearsheimer, John J. *Conventional Deterrence.* Ithaca, NY. Cornell University Press, 1983; Mueller, Karl P. "Conventional Deterrence Redux: and Avoiding Great Power Conflict in the 21st Century." *Strategic Studies Quarterly,* 12, no. 4, Winter 2018.

escalation, as an adversary might believe that a single blow could cripple America's political will to fight. Sinking a single U.S. aircraft carrier could kill more U.S. troops than died in the war in Iraq. If such an attack succeeded but had the opposite effect, pressure on the U.S. for rapid escalation might follow. Similar principles apply to operational concepts. Forces that operate in a distributed manner will be less vulnerable to attack, all else being equal, and generate fewer incentives for the adversary to strike first. Conversely, strategies that rely on paralyzing the adversary's nerve centers may become dependent on such measures to achieve other effects — *e.g.*, to disable air defenses and enable sustained operations in adversary airspace — so incentivizing surprise attack to enable attacks on the enemy's nervous system.

Budgetary realism. Given the budgetary pressures considered above, some strategic options may be more realistic than others. Attempting to build capabilities that could ensure all-aspects dominance in areas close to China from the outset of a conflict, for example, would be a nonstarter. Similarly, heavy reliance on capabilities intended to penetrate Chinese airspace and attack PRC missile launchers "left of launch" — *i.e.*, before they can launch their missiles — would also be an expensive proposition, given the large investment China has made in its fleet of modern fighter aircraft and its large array of sophisticated air-defense missiles. Such a strategy would require not only penetrating strike or bomber aircraft, but also large numbers of stealthy aircraft capable of supporting those strikers by suppressing enemy air defenses — all with either extraordinary range or the ability to refuel in the air from aircraft that could operate close to China. One goal of selecting a military strategy that might achieve U.S. objectives in Asia, then, would be to consider the ways geography, time, and technology might be harnessed to create an effective deterrent that would not impose unsustainable stress on the U.S. economy.

Strategic options: Lexicon, distinctions, and evaluation

Military strategy not only defines operational concepts; it also guides the forces and posture required to execute those concepts. Since U.S. interests in Asia are, from the perspective of grand strategy, defensive in nature, we concentrate here on military strategies of deterrence. We do this with the understanding that to achieve their deterrent purpose, strategy should also provide a guide to military success should deterrence fail.

Broadly, conventional deterrent strategies can be grouped into three ideal types: punishment, control, and denial, with any number of sub-variants for each. In this section, we discuss the lexicon of conventional deterrence, offer historical examples, and specify and evaluate the options open to U.S. strategists today.

A note on lexicon and usage

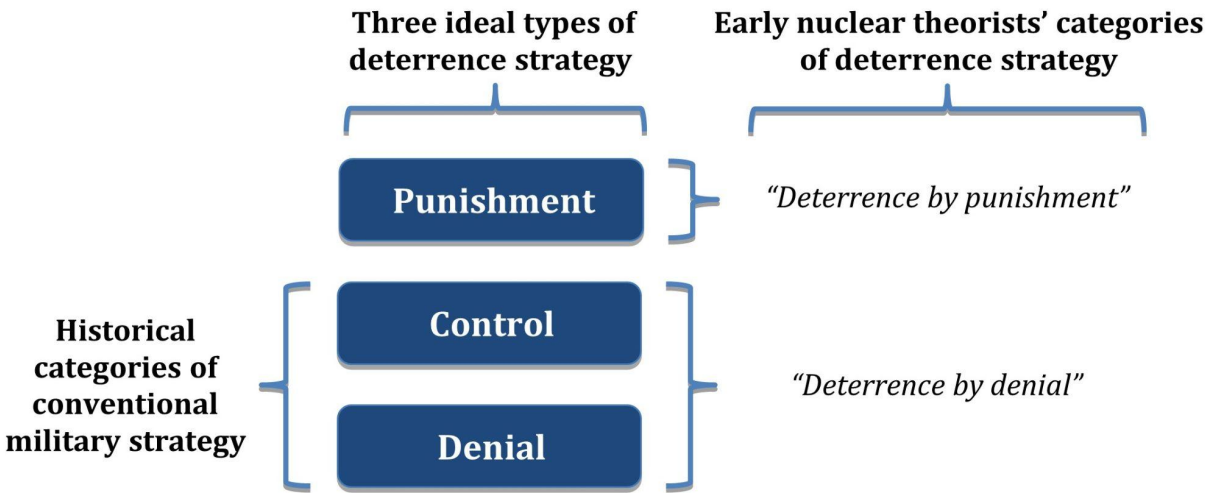
Before evaluating the merits of different strategic approaches, some discussion of the lexicon and its derivation is in order. The language used in discussions of deterrence strategies is often inadequately specific and confused. In writings on contemporary military problems, certain terms, especially "deterrence by denial," have been used in very different ways, muddying the strategic waters.

In an effort to highlight the changes wrought by nuclear weapons, early nuclear strategists differentiated two broad approaches to deterrence: punishment and denial. Deterrence by punishment involves discouraging military aggression by threatening to inflict unsustainable pain on the potential attacker, regardless of the outcome of any force-on-force engagement or battle. These theorists observed that punishment strategies were possible before the advent of nuclear weapons but argued that nuclear weapons are particularly well-suited for such purposes.[74] Being relatively uninterested in different conventional strategies, these same individuals grouped all other deterrent approaches under the label of denial, which was defined as preventing an adversary from successfully accomplishing military objectives.[75]

However, lumping all nonpunitive military strategies into a single category, whatever the label, is not useful in differentiating the wide variety of conventional military approaches open to a defensive power. Moreover, in an unfortunate twist, the term those strategists selected for this grab bag, "denial," has been used historically as a specific approach in a more refined parsing of conventional military strategy. (See Figure 2.4.)

[74] Thomas C. Schelling was particularly eloquent on these points. Schelling, Thomas C. *Arms and Influence*. Yale University, 1966.
[75] Snyder, Glenn H. *Deterrence by Denial and Punishment*. Princeton, NJ. Center for International Studies, 1959.

Figure 2.4: Alternative lexicons for categories of military and deterrence strategy



In this report, when we refer to denial we employ the longer standing or historical lexicon, in which military strategies of denial are posited against those of control. In the older historical tradition, the two terms — control and denial — have often been juxtaposed, frequently in reference to a single domain. Sea control, for example, signals a condition under which one is able to exploit the sea and sea transport for one's own purposes without significant interference by an adversary. Sea denial, on the other hand, is defined as "the condition short of full sea control that exists when an opponent is prevented from using an area of sea for his purposes."[76] Both labels can be applied to other domains, geographic areas, or strategic problems, the distinction being whether one wishes to secure full and uninhibited use of the area or domain for oneself, or prevent the adversary from unobstructed use of that same area or domain.

In employing this dichotomy between strategies of denial and control, our ideas are in line with a number of recent writings on strategy in East Asia, as well as older traditions of operational strategy. This scholarship has appended adjectives to denial (*e.g.*, "active denial" or "mutual denial") to indicate the specific usage employed.[77] Other recent authors, however, have employed the broader (and in our view less useful) language that derives from the work of nuclear strategists and distinguishes strategies of punishment from that of all others. Most notably, Elbridge Colby, who formerly served as deputy assistant secretary of defense for strategy and force planning, has published a book titled *The Strategy of Denial* that draws on the more general distinction between deterrence by punishment and denial, without engaging the differences between

[76] British Ministry of Defense, as cited in Till, Geoffrey. *Seapower: A Guide for the Twenty-First Century.* London. Routledge, 2013. For more on the distinction as applied to navies, see Vego, Milan. *Maritime Strategy and Sea Denial: Theory and Practice.* London. Routledge, 2018; Vego, Milan. *Maritime Strategy and Sea Control: Theory and Practice*. London. Routledge, 2017.
[77] See Swaine, Michael D., Mike M. Mochizuki, Michael L. Brown et al. *China's Military and the U.S.-Japan Alliance in 2030: A Strategic Net Assessment*. Carnegie Endowment for International Peace, 2014; Heginbotham and Heim. "Deterring without Dominance: Discouraging Chinese Adventurism under Austerity"; Beckley, Michael. "Balancing China: How the United States and its Partners can Check Chinese Naval Expansion." *War on the Rocks*, November 15, 2017; and Heginbotham and Samuels, "Active Denial," *International Security*.

conventional strategies of denial and control. Indeed, some of his ideas about strategy, operational concepts, and force posture — such as his call for preëmptive attacks against C4ISR targets and other "critical enablers, including other targets on the Chinese mainland" — have more in common with offensive or control-oriented strategies than they do with denial-oriented approaches.[78]

Historical examples and antecedents

Historical examples of control and denial approaches abound and can take different forms. These are useful in providing illustrations of different strategic approaches under various circumstances. Because we are primarily interested in deterrence strategy, we consider examples in which the practitioner pursues a defensive approach at the strategic level, as opposed to more offensive strategic objectives.

Strategies of control

Even when adhering to a defensive grand strategy, military strategies of control can emphasize activities at the operational level that are either defensive or offensive or a balanced combination of both.[79] Control strategies that rely primarily on defensive measures, for example, can be based on fortified zones along borders or demilitarized zones, such as those in Korea today. Even in these cases, at least some offensive capability is required to ensure that captured territory can be recaptured through counterattack. Often, offensive operations are employed by the strategic defender to keep the adversary off balance. During the American Civil War, the South fought a primarily defensive war of control to prevent any significant loss of territory. In addition to defending forward, it undertook offensive operations within its own territory to discomfit Union armies and force their retirement.

Strategies of control that are defensive at the strategic level may also incorporate offensive operations that extend beyond the practitioner's borders. Prior to World War I, France's war plan in the event of a German attack called for the rapid forward assembly of forces, to be followed by an assault on the German frontier.[80] Similarly, France's pre–World War II strategy, most famous for its reliance on the Maginot Line, also included a major push into Belgium by the French army's best mobile units. This push,

[78] Colby, Elbridge A. *The Strategy of Denial: American Defense in an Age of Great Power Conflict.* Yale University Press, 2021. 159. At a broader strategic level, we disagree with Colby over where the United States should draw its so-called defense perimeter. While Colby recommends expanding it to definitively include Taiwan, we argue that such a recommendation suffers from a dangerous underestimation of Beijing's resolve to prevent permanent separation of the island from the mainland. Such an explicit shift in U.S. strategy would likely undermine deterrence by making Beijing feel that the possibility of peaceful unification is no longer viable, thus backing the CCP leadership into a perceived corner. Conversely, Colby doubtless would disagree with some of our proposals in Chapter 6 for possible confidence-building measures and other political initiatives between the United States and China.
[79] Cooper, Zack. "Tides of Fortune: The Rise and Decline of Great Militaries." Ph.D. dissertation. Princeton University, 2016. https://dataspace.princeton.edu/handle/88435/dsp01k643b3645.
[80] Kennedy, P.M. *The War Plans of the Great Powers, 1880-1914.* London. Routledge, 1979; Hastings, Max. *Catastrophe 1914: Europe Goes to War*. Random House, 2013; and Sagan, Scott D. "1914 Revisited: Allies, Offense, and Instability." *International Security*, Vol. 11, No. 2, Fall 1986. 164-165.

the Dyle Plan, or "Plan D," opened France to the catastrophic defeat in 1940 as much as did its overreliance on static defenses elsewhere. This is because the push into Belgium included France's best troops and facilitated the German plan of encirclement by forces moving through the forests of the Ardennes[81] The U.S. AirLand Battle, outlined in the 1986 version of FM–100–5, called for offensive action by ground forces combined with the interdiction of Warsaw Pact forces several hundred kilometers behind the forward edge of the battle area.[82]

Strategies of denial

Denial strategies are focused on the husbanding of military resources, avoiding catastrophic defeat, and attriting the adversary until such time as the correlation of forces improves and more conventional operations can be undertaken. The German U–boat and surface raider campaigns during both world wars were efforts to deny Britain full exploitation of maritime superiority. During World War II, under circumstances of rough parity in the Mediterranean, British, and Axis forces sought to deny that body of water as a route to reinforce ground forces in North Africa, the former primarily with airpower based in Malta and surface fleets based at Alexandria and Gibraltar, and the latter with airpower based in Sicily, naval mines, and operations by German U–boats and the Italian surface fleet.[83]

On land, denial strategies have sometimes been called Fabian, after Roman General Quintus Fabius Maximus, who, during his campaigns against Hannibal, avoided battle with the Carthaginian main force but prevented the adversary from controlling and exploiting those areas not occupied by Carthaginian main force units. During the American Revolution, the Continental Army applied much the same strategy in an effort to erode British will and entice French intervention.[84]

The Battle of Britain is worth special notice, in that it was a denial battle fought primarily in the air as part of Britain's larger war of denial. In the strategic context, Britain rested its hopes on a long blockade of Germany and, ultimately, U.S. intervention. As prelude to the battle, Minister for Coordination of Defense Sir Thomas Inskip engineered a shift from overwhelming emphasis on bombers to fighters in 1937, noting, "The role of our Air Force is not an early knockout blow... but to prevent the Germans from knocking us out."[85] During the air combat in 1940, the United Kingdom adopted an aerial denial strategy after three years of preparing a resilient basing structure,

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[81] Doughty, Robert A. *The Seeds of Disaster: The Development of French Army Doctrine, 1919-1939.* Hamden, CT. Archon Books, 1986.
[82] Skinner, Douglas W. "Airland Battle Doctrine." Center for Naval Analysis, September 1988.
[83] O'Hara, Vincent P. *Six Victories: North Africa, Malta, and the Mediterranean Convoy War, November 1941-March 1942*. Annapolis, MD. Naval Institute Press, 2019.
[84] Fleming, Thomas. *The Strategy of Victory: How General George Washington Won the American Revolution*. New York, NY. Da Capo, 2017. 48.
[85] Deighton, Len. *Fighter: The True Story of the Battle of Britain.* New York, NY. Castle Books, 2000. xvi.

command-and-control system, and production industry, complete with ghost factories to distribute fighter production.[86]

Bases and fighter squadrons were arranged in depth, and the critical Spitfire squadrons were more heavily represented in the 12th Group, north of the front line, than they were in the 11th Group area, closest to France and Germany. Intercepting fighters were directed to focus their attacks against incoming bomber formations and to avoid German fighter sweeps when possible. And they were to do this in the smallest groups capable of such disruption, rather than in the "big wings" advocated by some critics.[87] All of this was intended to maintain the Royal Air Force as a "force in being" and to prevent high attrition rates, either from large-scale air-to-air combat or from bomber attacks that might have found British air wings on the ground refueling had the British flown in larger formations. As long as Britain maintained its air force in being, no German cross-channel invasion was feasible.

Conceptual distinctions and conditions necessary for success

What are the primary differences between strategies of control and denial, and what conditions are necessary for their success? Before laying out a proposed denial strategy for Asia, it is worth highlighting areas of conceptual difference between it and the control strategy in five areas: the nature of the deterrent signal sent; the military objectives and center of gravity should deterrence fail; the relative emphasis on offensive vs. defensive means; time horizons and the duration of conflict; the means of controlling escalation, and the force posture suggested by each. Because there is little cause or appetite for a strategy of deterrence by punishment, as noted earlier, we focus the comparative assessment on control and denial options but offer some remarks on the punitive strategy and its appeal in some allied camps at the end of this section.

Control strategy

The strategy of control looks to dominate all or most of the battle area and to deter by confronting an adversary with the prospect of rapid and relatively comprehensive defeat. To reduce the time required to make decisions and maximize the probability of success, the adversary's entire military system (and through that, his political calculations) would be the target of operations. Particularly in modern examples of control, heavy emphasis is placed on offensive action, to include deep strikes against a wide variety of targets. Escalation dominance — meeting any adversary expansion of the conflict with escalatory actions of one's own — is the answer to the threat of escalation. All of this requires the ability to mass forces and firepower forward during

[86] On the rapid increase in expenditures on air facilities between 1937 and 1939, see *The Royal Air Force: An Encyclopedia of the Inter-War Years, Vol. II, Re-Armament, 1930-1939.* 255-266. For additional details, see Higham, Robin D.S. *Bases of Air Strategy: Building Airfields for the RAF 1914-1945.* London. Airlife, 1998. 54-56.
[87] Deighton. *Fighter.* 125, 152; Bungay, Stephen. *The Most Dangerous Enemy: A History of the Battle of Britain.* London. Aurum Press, 2001. 236; and Correll, John T. "Their Finest Hour." *Air Force Magazine*, June 25, 2015.

peacetime or very soon after hostilities commence, highlighting the need either to protect those assets from attack or, with offensive action, to destroy the adversary's strike systems left of launch.

The U.S. military pursued an offensively oriented variant of control in its operational thinking after the end of the Cold War, and the AirSea Battle Concept introduced in 2009–10 was an important manifestation of that thinking as it might have unfolded in East Asia. As we observe in the section on the evolution of U.S. strategy, more recent doctrine is less purely oriented toward control, especially offensive control, but nevertheless adheres to many principles of the control strategy.

Denial strategy

A denial strategy seeks to prevent the adversary from gaining or consolidating full control over the battle area and deters the adversary by confronting it with the risks inherent in a prolonged fight and by the prospect that, ultimately, the correlation of forces will shift in favor of the defender. Implicit in this formulation is an acknowledgement that the adversary will gain temporary advantages (or even local control) in some areas. Active denial exploits the tactical benefits of defense and focuses its efforts on those elements of an adversarial force engaged most directly in offensive operations. It unfolds in a series of phases, with early action by dispersed forces looking to blunt initial attacks and attrite adversary forces before moving toward operations by more traditionally organized forces as circumstances permit. Rather than managing the threat of escalation through escalation dominance, it makes efforts to limit the scope of conflict and remove incentives for and vulnerability to escalation.

It is important to understand that denial strategy describes a peacetime deterrent approach and a strategy that would guide operations at the outset of conflict. However, the latter phases of most denial strategies (*e.g.*, the Yorktown campaign during the latter phases of the American Revolution) will look more control-oriented than earlier phases. In the case of East Asia, the positive shift in the correlation of forces and transition to more concentrated forms of action should occur progressively after the first weeks of combat, as U.S. forces flow into theater, rather than the years required in a guerrilla war.

Strengths, weaknesses, and conditions

The strategies of control and denial have different conditions necessary for their success, and both have different strengths and weaknesses, benefits, and costs.

Military strategies of control are more demanding, but when feasible, the benefits are significant. If they are perceived as credible, such strategies offer a more intuitive, and hence compelling, deterrent signal. Should deterrence fail but the control strategy

succeeds operationally, it limits the potential damage to the defender's economy by concluding hostilities quickly while minimizing the access of an attacker to one's own territory. Moreover, the strategy is applicable to a wide range of potential threats, from full-scale invasion, to the seizure of outlying territories, to blockade. Given these benefits, control is often the preferred strategy when the balance of economic resources permits and escalation potential is limited.

The strategy is feasible, however, only when the defender enjoys a wide margin of economic and military superiority. To execute a successful control strategy, superior force must not only be maintained; it must also be on hand at the outset of any potential conflict, or very quickly thereafter, under circumstances wherein the attacker can choose the time and place of attack. Moreover, friendly forces must be protected against preëmptive attack, lest their maintenance in forward areas simply encourage attack. When the strategy fails — because the side attempting it does not have the necessary means or skill to execute it properly — it is prone to fail catastrophically and with heavy losses.

The denial strategy risks higher economic losses than a successful control strategy since it will be drawn out and may allow the attacker access to parts of the defender's territory for some period of time. However, preparations for denial are far less resource-intensive, making it the preferred strategy of weaker parties confronting threats or security competition with more powerful foes. By promising to conduct protracted resistance — and making preparations to do so — even weaker states may gain significant deterrent leverage from the strategy. Significantly, in those cases wherein power is more evenly distributed, a denial strategy dampens security dilemmas and reduces incentives for first strikes that might be motivated by insecurity or uncertainty on the part of the adversary.

The success of a denial strategy is dependent, however, on two loosely interconnected conditions. First, there must be reasonable prospects for improvement in the balance of forces over time — or at least sufficient probability for such to discourage attack. This could come in the form of internal mobilization, friendly external assistance, or the attrition or fatigue of the adversary. Second, there must be sufficient conditions, in the form of societal attributes, terrain, or technology, to enable active and effective resistance until such time as the overall balance shifts. A fiercely independent or militarily skilled citizenry and inhospitable terrain will be more conducive to a successful denial strategy than a defeatist population inhabiting gentle rolling hills with few forests. Nonetheless, since denial is often the default strategy of weaker parties, states may choose to pursue a denial strategy even when the necessary conditions are not clearly present. This is because so long as a plausible theory of victory remains, denial has some chance of success. Winston Churchill's hope for U.S. intervention looked dim to outsiders in June 1940, but it proved prescient.

Deterrence by punishment

Punishment strategies deter by threatening to inflict an unendurable level of damage on the potential attacker's population or economy. Against China, which lacks clear conventional superiority against the United States, the incentives for nuclear punishment are lacking, while the downsides and risks of such a strategy against a country equipped with robust nuclear forces are evident. A similar set of arguments can be made against most conventional punishment strategies, which would inflict less damage than nuclear strikes but risk not only retaliation in kind but also nuclear escalation.[88] For these reasons, there are few, if any, U.S. advocates of deterrence by punishment against China, and we do not consider that option here.

Nevertheless, U.S. officials should be alert to two potential problems. First, Beijing might regard certain types of strikes or activities as punitive. For example, Beijing would probably consider attacks on electrical systems that might affect the operation of dams counter-value attacks rather than counter-force, even if the intended effect were on a nearby air base.[89] These risks and dangers, with recommendations for how the United States can tailor its targeting to minimize the dangers of nuclear escalation, are further explained in Chapter 5. Second, as noted in our chapter on allies and partners, the discourse surrounding the acquisition of long-range strike capabilities in some allied states, especially Japan, suggests potentially punitive operational concepts — ideas that U.S. planners should question and challenge directly.

Evaluating the choices: The case for active denial

Given the evolving nature of military challenges in East Asia, the criteria for evaluating strategy, and the conditions necessary for the success of the strategies considered above, a form of denial strategy is the natural option, and by far the best, for the United States in East Asia today.

At the turn of the century, the emerging post–Cold War military tradition of U.S. offensive control was grafted onto U.S. East Asia strategy. Although the costs — including greater tensions with China and a spur to its military modernization — were not inconsiderable, this strategy likely could have succeeded in military terms because of overwhelming U.S. material superiority. According to estimates by the Stockholm International Peace Research Institute, in 2000, the U.S. military budget was 15 times that of China's, Japan's was two times as large, and Taiwan's was half of China's. Facing only nascent Chinese A2/AD capabilities, even those U.S. forces permanently deployed

[88] Chinese analysts have been clear that attacks on some types of counter-value targets could exempt Beijing from its no-first-use nuclear policy. Eric Heginbotham, et al. *China's Evolving Nuclear Deterrent*. RAND Corporation, 2017.
[89] Countervalue strikes are aimed against targets of high intrinsic value to the adversary, including civilian population centers, critical infrastructure, and sites of cultural or national significance, whereas counterforce strikes are targeted toward military forces and infrastructure.

forward in the Western Pacific could likely have dominated all offshore areas and conducted extensive operations within the PRC's airspace.

That situation has changed dramatically. China's defense budget is now more than five times Japan's and more than 20 times Taiwan's. Despite regional modernization efforts, China's military capabilities are now demonstrable and decisively stronger than those of its neighbors, a fact only partially offset by the defensive advantages against amphibious attack. The United States, with a military budget that remains more than twice China's, maintains military capabilities that are superior to those of China in a "cage match" (*i.e.*, in a hypothetical battle midway between China and the United States, wherein time and geography are irrelevant). But only a fraction of U.S. forces, roughly 10 percent to 15 percent of naval and air assets, are deployed in the Western Pacific — *i.e.*, in the ROK, Japan, Guam, or, rotationally, Australia.

On one hand, the new balance of power suggests that the United States and its allies would fight at a disadvantage during the early stages of conflict. Given the PLA's capability to wreak havoc with conventionally armed ballistic and cruise missiles, especially against air and naval elements that had not dispersed from bases, garrisoning more firepower forward would only invite greater losses unless forward-deployed units could be adequately protected, an expensive and probably unfeasible proposition. The peacetime massing of potent but vulnerable forces forward would also degrade crisis stability by creating first-mover advantages and incentives for both sides to strike first. Attacking missile batteries "left of launch" would likely require the capability to conduct sustained-presence operations in China's airspace early in a conflict, an option that would likely be prohibitively expensive.

On the other hand, the continuing quantity and quality of U.S. military forces outside of the Western Pacific theater more than adequately fulfills the most difficult requirement of the denial strategy — specifically, the requirement that there be prospects for a reversal in the correlation of forces during conflict. Indeed, in this case, the requirement is fulfilled so fully and demonstrably that it is all but guaranteed to give China considerable pause before contemplating military action. At the same time, because the bulk of U.S. forces would not be deployed forward and those that are deployed would be postured in a more resilient manner, the incentives for first strike by either side would be greatly reduced relative to the control strategy and crisis stability strengthened.

The other requirement of the denial strategy — that the circumstances provide a reasonable prospect for preventing the adversary from consolidating early gains — is also present, though it is worthy of additional consideration in the context of different scenarios. Below, we treat, in sequence, amphibious invasions, blockades, the seizure of offshore islands, and coercive missile attacks.

Invasion scenarios

From an attacker's perspective, occupying large islands has one significant advantage: Once occupied and consolidated, these features are relatively easily defended against counterattacks with anything other than overwhelming force. However, occupying large islands the size of Luzon, Taiwan, or Kyushu would entail enormous risks in the air and, especially, naval domains against opposition by allied and forward-deployed U.S. forces. Ground-based anti-ship and antiaircraft missiles, mines, and submarines launched by the defender could cause heavy losses to amphibious ships and degrade the cohesion and offensive power of the attacking ground force, if they did not defeat an offshore amphibious force outright.

Even if the attacker can land a substantial force, its problems would be far from solved. Historically, the successful occupation of key points on large islands has required one to several months when the attacker has full command of the air and sea and overwhelming superiority in ground forces.[90] Without those conditions, occupying key points, much less fully suppressing armed resistance, could require far longer or fail outright. U.S. reinforcements would begin to flow into the theater and degrade the PRC's sea and air control within days; U.S. forces would be present and capable of more substantial operations within several weeks — comfortably within these time frames.[91]

This assessment suggests two things: First, that the denial strategy is well-suited to deterring an invasion threat. Second, that the right division of labor between the United States and its allies will be essential, with any states threatened by outright invasion responsible for building resilient and survivable forces capable of extending a contest long enough for U.S. forces to shift the air and maritime equation and thereby isolate invasion forces. (We will consider this division of labor at length in Chapter 4.)

Blockade scenarios

For regional states, enthusiastically signing on to a program of denial against the threat of invasion — and adhering to a military division of labor with the United States — carries risks if the United States fails to provide support should war break out. Focusing on the invasion threat will produce forces that are suboptimal for addressing other contingencies, especially those that might occur in areas farther from the countries' core territories. As noted earlier in this chapter, a force comprised of warships, aircraft,

[90] The battle for Luzon in 1941-42 lasted 16 weeks until the fall of Bataan, the battle for Leyte in 1944 lasted 9 weeks, the battle for Luzon in 1944-45 lasted 8 weeks until the fall of Manila but was still continuing at the end of the war (8 months), and the battle for Okinawa lasted 11 weeks. The battle for Sicily lasted 5 weeks against the demoralized Italian and disorganized German resistance.
[91] Warning of an attack might come before the start of hostilities and allow the United States to begin flowing forces into the theater. Transit times for submarines and surface groups to areas off Japan are (roughly) 9 days from Honolulu, 12 from San Diego, 18 from Rota, Spain; and 26 days from Norfolk (the last for carriers, shorter for other ships). Based on the movement rates seen during the first Gulf War, the one USAF combat air squadron and an equal number of support squadrons moved roughly every day or two — provided there were facilities to receive them within the theater. Moving full loads of munitions and other equipment would take longer. *Gulf War Air Power Survey, Vol. III, Logistics and Support.*

or submarines could conduct a blockade at distances that would be difficult to counter with land-based surface-to-air or anti-ship missiles.

However, in the context of continued U.S. regional engagement and credible U.S. assurances, the denial strategy recommended here would provide a robust deterrent against the blockade threat. While a blockade has some advantages over invasion against a state with limited naval capabilities, it is extremely difficult to execute against one with comparable or superior capabilities. To have a more than symbolic effect, it needs to be maintained for an extended period — many months or possibly years — and for that period, it would require the maintenance of blockading forces far from China's coast, located between the target of the blockade and reinforcements arriving from the United States. All of this would make blockade elements vulnerable to counterattack by U.S. air, submarine, or surface forces.

Seizure of small islands as a fait accompli

Still another type of problem would be countering the seizure of one or more small, lightly defended islands, such as features in the South China Sea, East China Sea, or the thousands of similarly sized islands that belong to Japan, the Philippines, or other regional states. In the case of a well-planned PRC descent on any of these features, we should assume that a takeover would succeed quickly and relatively easily — the primary question being, What then?

Unlike the case of larger islands discussed earlier, only limited military capability could be deployed onto small features, and their defensibility against counterattack and recapture would therefore depend almost entirely on the location of the captured island and its proximity to China. Like the blockade, the PLA's occupation of an island far from the Chinese coast would sacrifice the value of China's strategic depth, perhaps its greatest asset in many larger but closer scenarios — and it would pit China's growing but still inferior air and naval capabilities directly against those of the United States. Against islands close to China, however, the force structure suggested by a denial strategy would be less effective than an offensively oriented strategy of control. Effectively, the problem would be similar to attacking China itself.

Where is the dividing line between near and far? While the impact of distance should be considered on a continuum, the biggest drop-off in China's ability to control small islands against attack would occur beyond about 100 or 150 kilometers from the mainland — the distance covered by the dense network that constitutes an integrated air defense system.[92] To be sure, the PLA could project power with combat aircraft or ships

[92] The effective range of SAM systems against maneuver targets (*e.g.*, combat aircraft) is considerably shorter than the theoretical maximum range against non-maneuver, ingressing targets. Moreover, air defense systems are most effective when deployed in-depth and can engage targets from multiple (and preferably unanticipated) directions. By employing aircraft and high-end SAM systems, China can project air defense beyond 100 km, but its influence would be weaker than air defenses within its airspace over continental areas.

to provide air defense for more-distant islands, but China's power projection is significantly weaker than its capabilities at home.

The problem would thus be severe only in the case of Taiwan's small islands immediately off China's coast, the Kinmen, Wuqiu, and Matsu Islands. Although in theory, offensive control strategies may fare better in defending or recapturing these islands, the force requirements to execute sustained operations a handful of miles off China's coast would be prohibitive, and the operations themselves would entail serious escalation risks. So while the strategy might theoretically be superior in these cases, it would still likely be subject to failure. Whatever Washington's larger Taiwan policy, small offshore islands that are of negligible strategic or political significance would not be worth that wager — especially since those islands were not included in the original 1954 mutual defense treaty between Washington and Taipei, nor in the Taiwan Relations Act passed in 1979, after Washington canceled that treaty.[93]

Coercive attacks and joint firepower strikes

A final type of military scenario against which to evaluate the denial strategy is a coercive firepower attack. This differs from the previous three scenarios in that it does not entail efforts to seize and hold territory, whether large or small. Nor does it require sustained air and naval presence, like a blockade. Rather, such an attack would likely entail standoff missile strikes against targets, especially strategic sites or civilian infrastructure. Such an attack, were it launched, would be an example of an offensive punishment strategy. The most typical example of such attacks would be joint firepower strikes by PRC missiles launched from ground, air, and/or naval platforms.

However, strategic bombing of this sort rarely succeeds in practice, a fact well documented in the historical record and one that China is likely to understand.[94] It risks major psychological and political blowback, which often steels the defenders' resolve rather than persuading them to submit. Thus, we do not believe China is likely to use this tactic against any U.S. ally or Taiwan, except perhaps in combination with one of the other attacks described above, as it would risk pushing China's actual political objective (such as cross–Strait unification) further beyond its grasp. Indeed, the reputational costs to China would likely stretch well beyond the immediate target of its attack.

However, if Beijing did opt for this path, the basic principles of a denial strategy could still be used to counter it. Specifically, the beleaguered population would need to

[93] If the United States is to deter attacks against or defend Taiwan, one of the thorniest political and military problems would be how to prevent attacks against or defend the Penghu Islands, which do not fit neatly into any of the three scenarios discussed. Those islands lie on the western side of Taiwan. They are large enough—and close enough to Taiwan—to be consequential militarily to Taiwan's defense and small enough to make their defense by Taiwanese forces difficult, even with U.S. assistance. A full assessment of that single case is beyond the scope of this overview, but we believe the problem warrants further study.
[94] Pape, Robert. *Bombing to Win: Air Power and Coercion in War.* Ithaca, NY. Cornell University Press, 1996.

withstand attack long enough to give the United States and other countries time to provide assistance or retaliate. Although denial capabilities are not ordinarily intended for retaliation, they could be repurposed for that function if need be. Alternatively, a selective and tightly focused distant blockade could be employed against Chinese shipping. Such options would likely be part of a broader strategy for deterring repeat strikes, which could entail the threat of economic and diplomatic punishments designed to shift Beijing's cost-benefit calculations.

Summary of scenarios

The denial strategy is particularly well suited to the most important category of strategic problem, the defense of regional states against the threat of conquest. It is adequate in addressing the threat of blockade and coercive attack. And it is clearly inferior only to an offensively oriented control strategy in the case of limited island seizures in areas very close to China. While the denial strategy is not, in principle, optimized against blockades, faits accomplis against small features, or coercive attacks, China would sacrifice the advantage of proximity and strategic depth in most of these scenarios, and the overall balance of power is such that the military problem would be manageable if U.S. leaders determined that the stakes were high and worth fighting for.

An active denial strategy for Asia

Having discussed the broad choices open to the United States, we now turn to a more detailed treatment of the particular form of denial we advocate in East Asia, a strategy we term active denial, and its primary components. Overall, the active denial strategy for Asia would be designed to deter a PRC attack by maintaining the capability to blunt an offensive punch while minimizing friendly losses and allowing for the arrival of additional forces that could defeat potential aggression by China.

The active denial strategy would have several characteristics: phased operations; an emphasis, particularly at the outset, on resilience; a largely defensive operational posture, but with tactical offensive actions focused primarily on adversary forces actively engaged in offshore operations; a division of labor between U.S. and allied forces, and an effort to limit the scope of conflict and avoid vertical and horizontal escalation. (See Figure 2.5.)

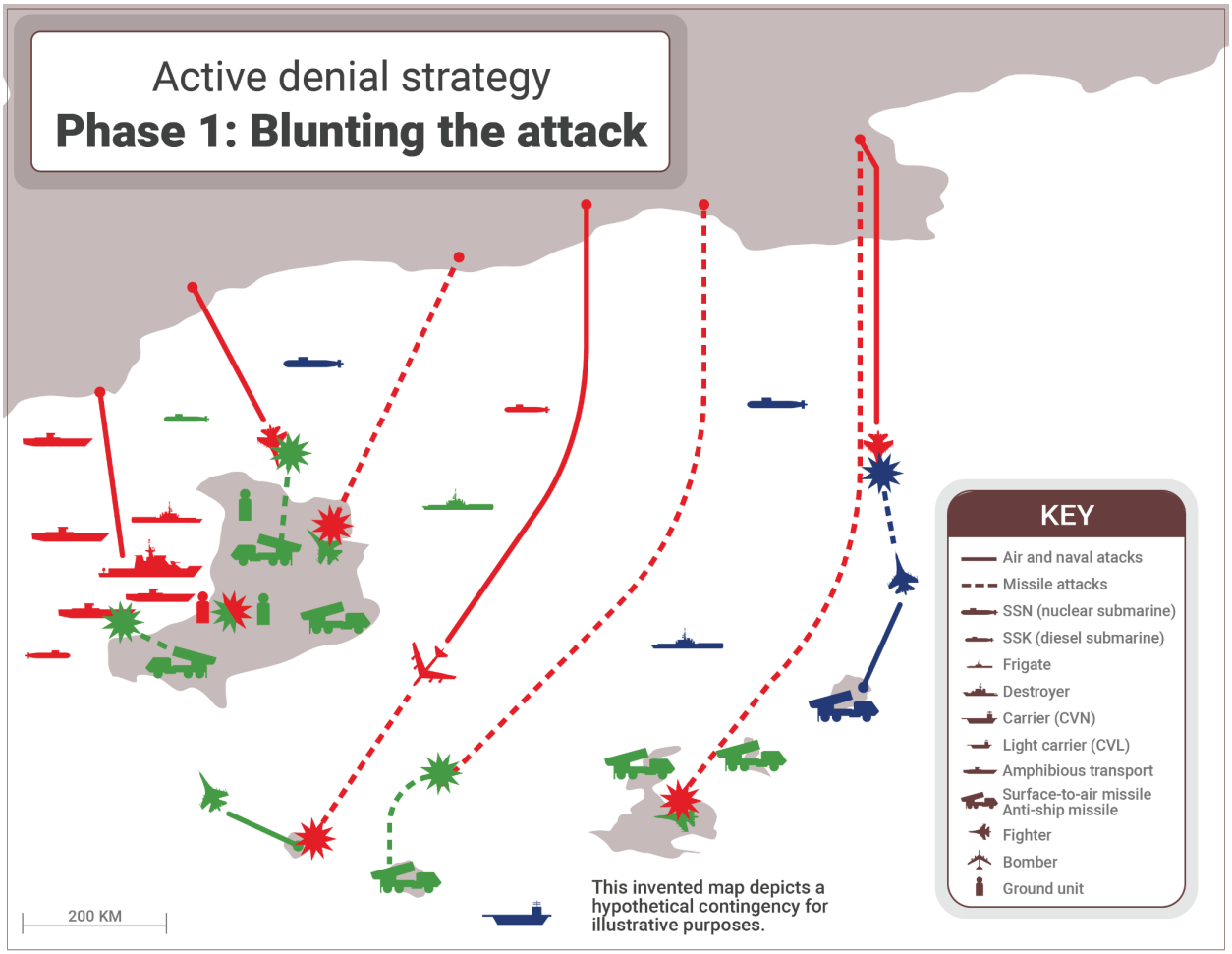
Figure 2.5: Key components of an active denial strategy for Asia

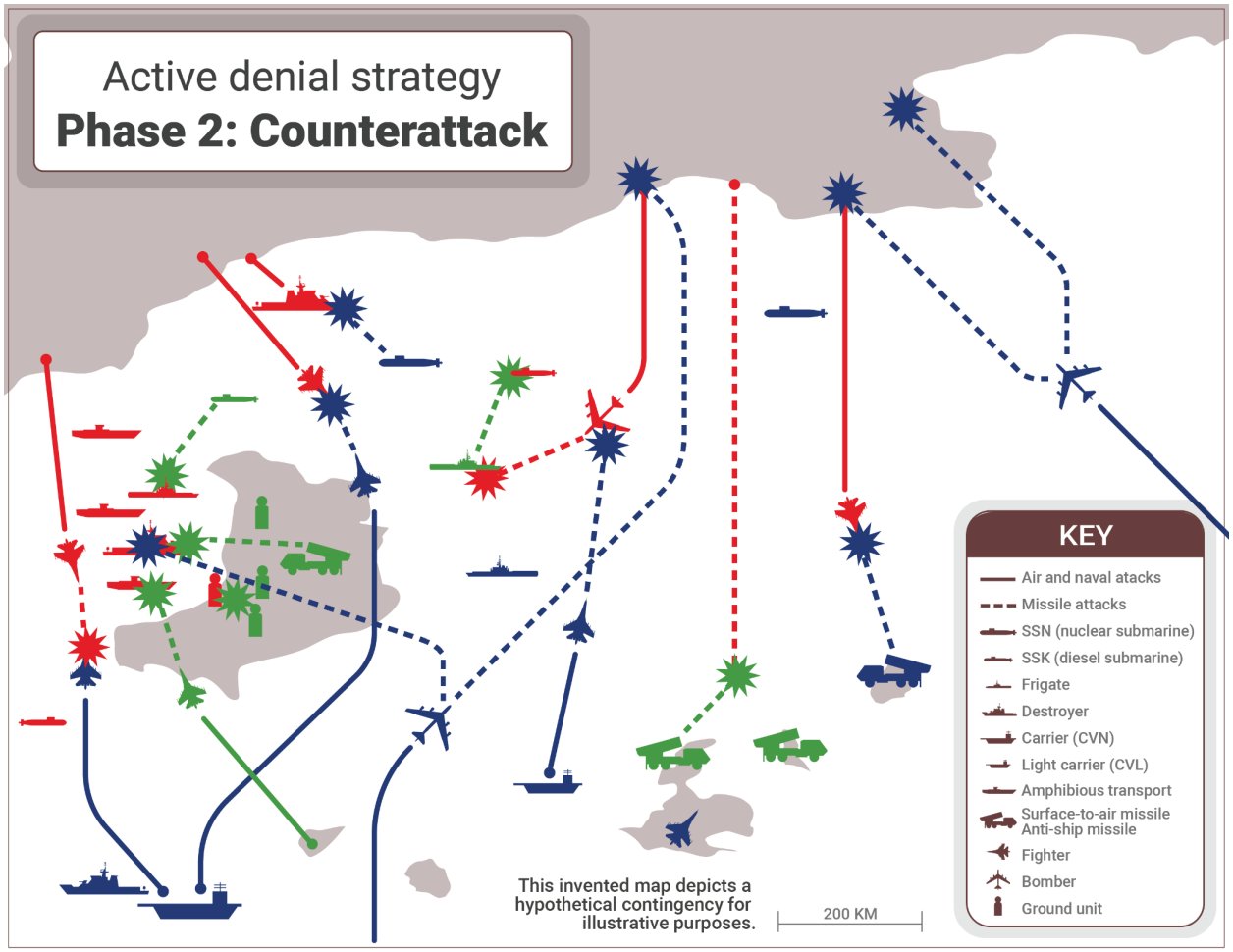
Phased operations

Virtually all successfully executed denial strategies transition to more traditional operations during the latter stages of conflict. The active denial strategy in Asia would unfold in partly overlapping phases as conditions and the correlation of forces shift. Initial operations by forces in theater or reinforcing shortly thereafter would be focused on denying adversary control of the battle area, blunting attack, engaging encroaching adversary forces, and waging the ISR and counter–ISR battle. Meanwhile, additional forces organized along more traditional lines would assemble outside the primary threat rings and prepare for larger and more concentrated counterattacks as conditions permit. (See Figure 2.9 below.)

Compared with strategies that depend solely upon the attrition of adversary main forces, the shift in the balance of forces in theater would depend primarily on the arrival of U.S. forces and would therefore unfold much faster — in weeks rather than years. Nevertheless, even with the addition of U.S. forces, the nature of modern air and naval systems, combined with the proximity of most scenarios to China and a desire to limit escalation, would dictate that elements of denial would remain in place with a heavy and continuing emphasis on resilience and limitations on certain types of offensive action. (See Figures 2.6 and 2.7.)

Figures 2.6 and 2.7: Phases of conflict in an active denial strategy





Priority on resilience, especially at the outset

Forces in theater would be optimized at the outset for resilience, meaning the ability to withstand attack, even while conducting effective operations to attrite and blunt an adversary's attack. Measures to achieve resilience would include:

- *Dispersion and depth*. U.S. forward-deployed forces would be postured in a dispersed manner in peacetime, with the balance of forces farther away from China than they are currently located. However, small elements would continue to operate at or near current locations to contest forward areas, deny adversary ISR, and provide ISR to friendly forces. At the outset of a conflict, air assets would move to small dispersal bases (see Figure 2.8.) and ships would leave port.

- *Mobility.* Forces operating in high-threat areas would be organized for mobile operations designed to complicate adversary planning and ISR. Small air and ground elements would operate from civilian facilities, austere locations, and

prepared military locations for short periods of time before moving to new locations. (See Figure 2.8.)

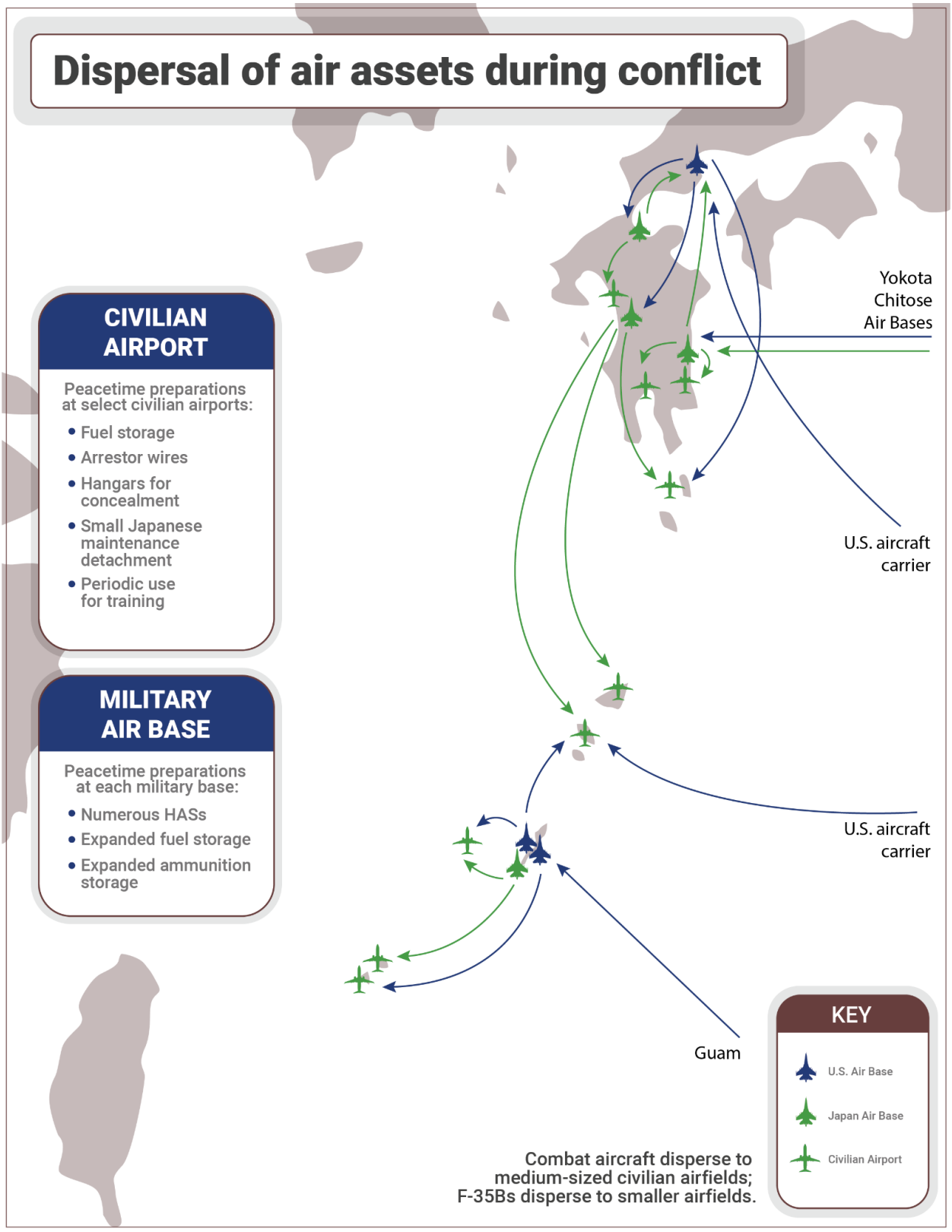
- *Infrastructure preparation, hardening, and rapid repair.* Hardening facilities in advance during peacetime, to include the construction of concrete aircraft shelters, hardened or underground munitions and fuel storage, and preparation for rapid repair of critical infrastructure, would greatly diminish the effectiveness of adversary attack and provide friendly forces with the necessary materials and support to continue operations.

- *CC&D.* Camouflage, concealment, and deception would further complicate an adversary's ISR challenges. The construction of redundant shelters and "hides" where aircraft can be obscured from surveillance would see CC&D employed synergistically with mobility and infrastructure improvements. A variety of more or less high-tech decoys could be used to encourage China to expend scarce missile stocks on false targets and to create delays and confusion in its targeting.

- *Active defenses.* Air and missile defenses are expensive, but they contribute directly to resilience by intercepting and destroying attacking missiles. (See Figures 2.6 and 2.8.) Moreover, if used selectively and relocated strategically, they can have outsized effects, particularly when combined with the measures discussed above.

Not only do these measures enhance deterrence by denial while reducing incentives for first strike, but, in combination, they can also significantly shift cost-exchange ratios, contributing to the fiscal sustainability goal of our defense strategy, as discussed further in Chapter 3.

Figure 2.8: Dispersal of air assets in southwest Japan during a conflict



Emphasis on defensive operations and localized strike

To some extent, the range and accuracy of modern long-range missiles blur the distinction between offensive and defensive operations. And given the effectiveness of these missiles against certain types of targets, it would be unrealistic to forswear their use even against some targets on mainland China. Nevertheless, distinctions can be made about the positioning of major platforms (the shooters), the adversary's center of gravity to be attacked, and the nature or depth of specific targets.

In these aspects, the active denial strategy is less forward-leaning than current strategy or other alternatives. It regards the adversary's attack — and the military elements directly involved in offensive operations — as the center of gravity and primary target, rather than the adversary's larger military or political system.

In thus defining the operational focus, the strategy seeks to capitalize on the defensive advantages associated with evolving technologies and the region's geography, as discussed above. One of the greatest advantages stems from advances in anti-ship missile technologies, which can be used to defeat invasion fleets or naval blockades. Anti-ship cruise missiles can be launched from trucks, ships, or aircraft at significant distances. Tactical aircraft today can carry anti-ship missiles with ranges that greatly exceed the effective range of the most capable surface-to-air missiles.[95] And in contrast to the six Argentine AM39 Exocet Missiles that kept the British fleet at bay for several weeks in the 1982 Falklands War, the United States will, by 2026, have some 500 LRASM air-launched anti-ship missiles, 1,600 ship-launched SM–6 missiles (with anti-ship as well as anti-missile capability), and 1,800 Tomahawk Block V missiles (modified for anti-ship capability).[96] Although ship defenses have also improved since the Falklands War, those defenses remain highly vulnerable to large salvos of anti-ship missiles.

The air defense problem is more complex, as most U.S. regional allies lack the territorial depth to create the same network of ground-based defenses that China might employ against aircraft attempting to fly deep into PRC airspace. Nevertheless, airspace can provide a different sort of depth, within which ISR and other support aircraft can fly behind a forward screen of fighter aircraft. Both can capitalize on whatever radar, command and control, and missile systems are deployed on land features. U.S. qualitative advantages in combat aircraft and, especially, support systems (AEW and tankers) would provide an additional edge in this defensive air battle. And as long as the

[95] The AM39 Exocet had a range of between 50 and 70 kms, while today's U.S. air-launched Long Range Anti-Ship Missile can fly in excess of 400 kms (the CBO estimates 600 km). SAM ranges have also increased. The newer variants of the S-300, for example, have a range of 200 km. But unlike anti-ship missiles, which are effective against ships out to their full maximum range, SAM ranges would be substantially less—perhaps half of their maximum—against maneuvering tactical aircraft.
[96] "Offensive Anti-Surface Warfare Increment 1 (Long Range Anti-Ship Missile)." RCS: DD-A&T(Q&A) 823-449; U.S. Department of Defense. "DoD Fiscal Year 2022 Budget Estimates, Navy, Justification Book Volume 1 of 1, Weapons Procurement." https://www.secnav.navy.mil/fmc/fmb/Documents/22pres/WPN_Book.pdf; Grady, John. "Entire Navy Tomahawk Missile Arsenal Will Upgrade to Block V." *USNI News*, January 22, 2020. https://news.usni.org/2020/01/22/entire-navy-tomahawk-missile-arsenal-will-upgrade-to-block-v.

United States and its allies remain on the strategic defensive, PRC forces would have to project power, placing attacking forces outside of China's ground-based air defenses and making them vulnerable to attack.

Although the active denial strategy would emphasize defensive operations, it would not entirely forswear strikes on targets within China but would, rather, limit the type, depth, and nature of such attacks. As noted in the discussion of the offense-defense balance, modern strike systems present a potent threat to fixed targets, particularly air bases, and eschewing strike entirely would cede the advantages of such attack to China, while allowing China to mass its own airpower forward. Hence, the United States should maintain the capability to attack PRC bases along the coast. China's tactical aircraft are, like their U.S. counterparts, limited in range, but unlike U.S. airpower, its aircraft are not supported by a large number of high-capacity tanker aircraft. Strikes on air bases along the coast would effectively prevent China from capitalizing on superior numbers of aircraft.

Despite maintaining significant strike capability, however, the strategy would have a very different look and feel from U.S. operations during the immediate post–Cold War period, as well as those associated with AirSea Battle. It would not be aimed at paralyzing the adversary's entire national command and control structure, at least not through kinetic means, and would not seek to conduct sustained operations in airspace over mainland China. Those missions would necessarily beget other difficult and expensive tasks, such as the wholesale destruction of China's air defense network.

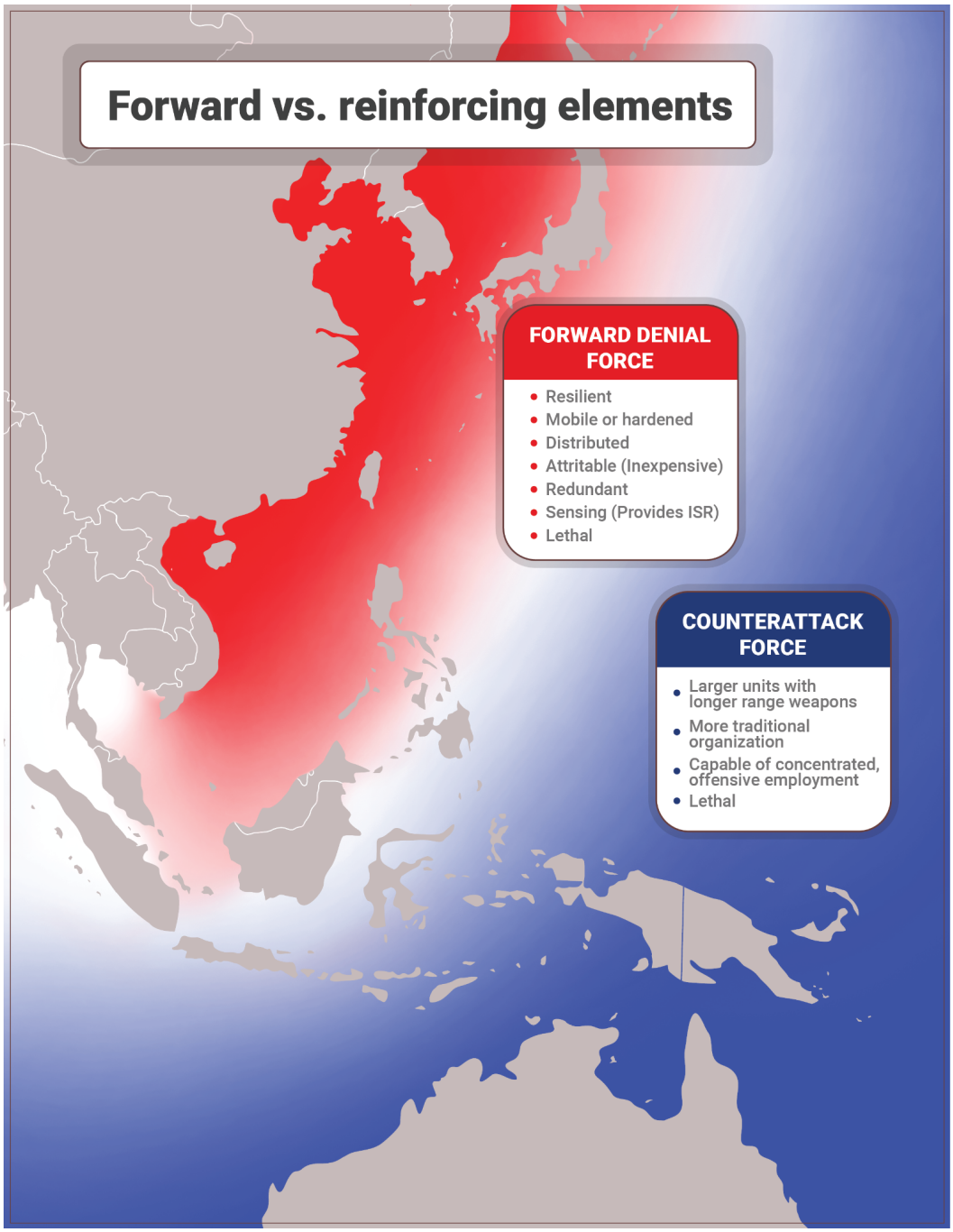
Instead, under active denial, U.S. forward forces would be responsible primarily for air defense, ISR, and counter–ISR, and strikes against encroaching naval forces. Given relatively small numbers forward at the outset, they would prioritize missions and execute their tasks selectively — *e.g.*, defensive combat air patrol or ship strike missions. If PLA missiles and aircraft struck U.S. bases, then U.S. bombers flying from out of theater — Guam, Alaska, Hawaii, or Australia — could at least neutralize fixed targets located near China's coast with missile salvos from outside the range of PRC air defenses. Chapter 5 further explores how targeting should be calibrated to limit risks of nuclear escalation.

Division of labor with allies and among forward-deployed and U.S.–based units

Specialization of labor — and the rational division of roles and missions — between the United States and its allies can improve the efficient allocation of scarce defense resources and the effectiveness of defense and deterrence. There are two arguments for a disciplined approach to the division of labor. The first relates to phases of conflict. Different types of forces and organization will be required for different phases of the battle. The forces of allied states or other partners, especially those that might themselves become battle areas, will be present in the battle area from the outset and should be optimized for the type of conflict most likely to occur at the first stages of a

conflict. In other words, they should be designed for denial operations. Viewed from this perspective, the specialization of labor is not entirely by state, but rather by the positioning and posture of forces. Forward-deployed U.S. forces should ideally be organized and equipped for similar types of operations.

Figure 2.9: Characteristics of U.S. and allied forces in different areas of threat



The second and perhaps more straightforward rationale for a disciplined division of labor has to do with defense production and maintenance. Modern military systems are famously expensive, and the smaller the production run, the more expensive those weapons are on a per platform basis. Even if U.S. allies and partners spent as much on defense as the United States as a proportion of GDP, attempts to replicate U.S. force structure in miniature will result in low production runs and the inefficient expenditure of scarce defense resources. Moreover, individual states have different comparative advantages in defense production and operational capability, in some cases the product of decades-old military traditions. Japan, for example, has traditionally been strong in submarine and anti-submarine warfare, as well as counter-mine capability. The Japan Air-Self Defense Force has long studied air-to-air warfare and may be somewhat weaker in the area of strike.

As noted previously, purely defensive denial capabilities, especially those intended to defeat an invasion of core territories, are not ideally suited to counter other sorts of threats, especially blockades, coercive attacks, or the seizure of outlying territories — *e.g.*, small islands some distance from larger land masses. Hence, regional states will naturally look to balance their own forces and resist calls for a strict division of labor, resistance that will be further bolstered by considerations of prestige. Their acquisition of large platforms with offensive capabilities will, however, not only undermine the larger allied deterrent effort but also undermine crisis stability, since they will incentivize adversary first strike by providing a small but expensive target set — and one that can be relatively easily found.

If, however, U.S. security assurances are solid and credible, there is a greater likelihood that allies will agree to more defensive hedgehog strategies and force structures around which the United States can operate in ways that exploit U.S. advantages in air and naval warfare. Hence, balancing assurances with necessary conditionality will be a critical task for U.S. leaders and diplomats. We provide specific recommendations as to how the United States can mobilize key allies and partners and Taiwan to reform their force structure and posture around a strategy of active denial in Chapter 3.

Restrained approach to escalation and limits on the scope of battle

War between the United States and China would represent a failure of policy by one side, or more likely by both, but it will remain in their mutual interests to limit the scope of the violence that results. Despite the ever-present temptation in war to find additional leverage or advantage by escalating, the active denial strategy recommends a strong emphasis on limiting the scope of conflict. The focus on resilience and survivability would, by limiting the incentives for escalation within the theater, serve this end. The emphasis on limiting escalation is also implicit in the focus on defeating adversary forces directly involved in offensive action, rather than more ambitious goals, such as paralyzing the larger Chinese military system.

We suggest that the United States should also refrain from other forms of horizontal escalation, even those that would impose a degree of pain with minimal risk to U.S. forces, such as an organized distant blockade of Chinese shipping or attacks on Chinese positions elsewhere in the region — *e.g.*, against bases in the South China Sea. And rather than leaving these nonactions open to Beijing's interpretation or misinterpretation, the United States should, during conflict, explicitly announce its general intentions to keep the conflict limited and, just as importantly, the specific measures that it will not take and any conditions attached to that restraint. This would encourage Beijing to weigh carefully its own decisions about the scope of conflict and would mitigate the possibility of misperception and unintended escalation, without the United States having to forgo the option to respond to aggression.

If China does escalate horizontally in ways that materially affect U.S. interests, the United States should meet escalation with a proportional, and preferably closely linked response. For example, in response to sabotage of the Suez or Panama canals, the United States might take action against Chinese shipping elsewhere. And the United States would continue to communicate explicitly about the logic of its actions and its continued restraint in other areas, rather than letting the actions speak for themselves — which, history and exercises show, seldom works as intended.

End goal: Defeating aggression, not subjugating the adversary

Against a major nuclear power, and one with 300 brigades of active-duty ground forces, there will be no U.S. victory parade in Beijing regardless of which strategy the United States pursues. The active denial strategy is clearer than alternatives about the desired outcome of U.S. participation in conflict, should deterrence fail — specifically, defeating aggression and restoring the status quo ante, which will inevitably require a negotiated settlement. The strategy does not seek to expand conflict, enact regime change, inflict gratuitous losses, or prevent the restoration of military capabilities after conflict. More expansive goals would court uncontrolled conflict escalation.

Despite limited operational aims, however, several considerations ensure that active denial provides deterrent leverage. First, in the air and maritime domains, operational defeat is often stark, and that would be particularly true in the case of amphibious invasion. The fate of the Athenian expedition against Syracuse, the Spanish Armada, Napoleon's invasion of Egypt, the ANZAC forces in Gallipoli, and the Argentine occupation of the Falklands all illustrate the magnitude of loss — both military and political — that can accompany the failure of such operations. As the fate of the Argentine junta and the defeat of Athens make clear, the loss of an expedition can be fatal to the sponsoring regime. The prospect of large numbers of Chinese prisoners of war being corralled in Taiwan or the loss of a blockading fleet in the Philippine Sea east of the Ryukyu Islands should provide robust deterrence without the threat of escalation or regime change.

At the same time, circumstances particular to Asia, and specifically China, make it unlikely that a war would continue long after the failure of offensive operations. Specifically, China's dependence on maritime trade, and especially energy imports, would make protracted international war an extremely risky proposition from China's perspective. With the defeat of its naval and air forces, its military options would also be limited, and although it could pursue firepower strikes in an effort to demonstrate defiance, the leadership would be unlikely to view this as a viable long-term strategy. On the other hand, neither the United States nor its allies would be any more eager than Beijing to continue the contest, given the risk of escalation and the limited gains to be had from continuing past the restoration of the status quo. Hence, we suggest that Washington should maintain lines of communication with Beijing and be prepared to negotiate terms during conflict.

An assessment of current strategy

Where does the U.S. military stand today? The answer depends largely on how one considers concepts of operation, force structure, or posture, which should, in principle, be linked closely but are not necessarily so linked in practice. It also depends on whether one limits consideration to certified doctrine and programs of record or whether a broader set of documents, articles, and views from within the military are included. In the sections immediately below, we examine, first, the recent evolution of U.S. military strategy in Asia and, second, the current state of strategy and forces. Overall, we find that the military has shifted its thinking considerably and moved away from some of the most forward-leaning aspects of post–Cold War strategy. At the same time, there remain many unanswered questions about priorities and considerable ambivalence about adopting new forces and posture to match strategy.

U.S. military operational concepts: From AirSea Battle to JAM–GC

Broadly, the Department of Defense and military leaders have begun to accept that an approach similar to the one we describe as active denial is more viable than alternatives. New concepts have been developed and deployed to operationalize denial. Indeed, it is hard not to be impressed by the intellectual ferment that characterizes new military thinking among mid-level officers and within the halls of military academic institutions. The U.S. Marine Corps' Force Design 2030 is an example of such thinking at the institutional level. However, many new concepts remain nascent and controversial, and there remains considerable resistance within the bureaucracy. The litmus test for real change is whether the dollars follow, and there has been relatively little movement toward building and posturing forces in ways that are consistent with the denial approach.

That change is slow should not be surprising, given the deep roots of forward-leaning, offensive action in U.S. military history and institutional culture and the fact that any bureaucratic organization, particularly one charged with national security, will tend toward the tried and true. The contemporary U.S. approach to warfare has roots that stretch back to the efficient application of force practiced by Ulysses S. Grant and updated, during World War II and since, to the age of airpower. Throughout, U.S. military leaders have sought the early and rapid battlefield annihilation of adversaries.[97] The circumstances of the immediate post–Cold War period — which witnessed unparalleled U.S. preëminence — reinforced the U.S. emphasis on offensive doctrine and the efficient application of U.S. power. Airpower has been particularly salient in this approach, with "sortie maximization," aided by access to large and well-equipped main operating bases outside of high-threat areas, a key metric in the ability to generate power.

The U.S. military in East Asia remains structured and postured for a strategy of control and offensive operations. U.S. forces and force posture today are largely an historical legacy of the postwar occupation of Japan, the Korean War, and the Cold War. U.S. forces are overwhelmingly concentrated in a few main operating bases that, by accident rather than design, are located close to China. By the early 2000s, a variety of analysts had noted the vulnerability of these bases and their associated capabilities. The notion that the PRC's evolving capabilities constituted a form of anti-access, area denial capability that would limit U.S. capability and action became widely accepted.[98]

An initial military response, the AirSea Battle Concept, first articulated in 2009 and adopted as an official Air Force and Navy concept of operations in 2010, sought answers that would maintain U.S. freedom of action and, in the process, preserve its ability to control and dominate the battle through offensive action. In a document published by the Air–Sea Battle Office, authors declared, "The ASB Concept's solution to the A2/AD challenge in the global commons is to develop networked, integrated forces *capable of attack-in-depth* to disrupt, destroy and defeat adversary forces...."[99] Most of the provided examples of specific capabilities required for ASB involved the networking of sensors and shooters to attack targets in an A2/AD environment.

Although the ASB Concept was regarded by many in academia and the media as signaling a shift to offensive strategy, most of the Air–Sea Battle Office's work appears to have centered on ways to synchronize assets from different services to maintain offensive capabilities already inherent in established U.S. practice. To underscore this

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[97] Alan Vick provides a vivid description of the post-Cold War U.S. way of war in "Challenges to the American Way of War." Conference Paper, Global Warfare Symposium, November 17, 2011. https://secure.afa.org/events/natlsymp/2011/scripts/AFA-111117-Vick.pdf. For the original formulation, upon which Vick builds, see Weigley, Russell F. *The American Way of War: A History of United States Military Strategy.* Bloomington, Indiana. Indiana University Press, 1977.

[98] See Krepinevich, Andrew F., Barry Watts, and Robert Work. "Meeting the Anti-Access and Area-Denial Challenge." Center for Strategic and Budgetary Assessment, 2003. https://csbaonline.org/uploads/documents/2003.05.20-Anti-Access-Area-Denial-A2-AD.pdf; Shlapak, David A., David T. Orletsky, and Barry A. Wilson. *Dire Strait? Military Aspects of the China-Taiwan Confrontation and Options for U.S. Policy.* RAND Corporation, 2000. https://www.rand.org/pubs/monograph_reports/MR1217.html.

[99] *Air-Sea Battle: Service Collaboration to Address Anti-Access and Area Denial Challenges.* U.S. Naval War College, Current Strategy Forums, May 2013. 2. https://digital-commons.usnwc.edu/csf/1/.

point, ASB was framed as a supporting concept nested under the Joint Operational Access Concept, JOAC, a related but broader organizing concept advanced in the 2012 Defense Strategic Guidance that established general principles for how jointness could be leveraged to overcome new obstacles to U.S. military access globally.[100] A sympathetic "point of departure operational concept," drafted by the Center for Strategic and Budgetary Assessment, made clear that achieving the broader goal would have been an extraordinarily expensive endeavor, had it been possible at all.[101]

The next iteration of doctrinal response was very different. In 2016, the Joint Concept for Access and Maneuver in the Global Commons replaced the ASB Concept. Though seen by some as the same wine in a different bottle, several of those charged with its creation highlighted key differences.[102] In contrast to ASB, which would systematically defeat A2/AD, they wrote, "JAM–GC is focused on defeating an adversary's plan and intent" and does not rely "on a 'disrupt, destroy, defeat' approach to specific A2/AD capabilities." This, they explain, "represents an acknowledgment that A2/AD capabilities evolved more quickly than anticipated and could only be dismantled at high levels of risk."[103] Among other things, JAM-GC would not focus on attacking China's ground-launched missiles left of launch. Unlike ASB's heavy focus on technology, JAM–GC "also recognizes the limits of technology and the need to integrate low-tech options where and when appropriate."

While the specific contours of JAM–GC are classified, subsequent discussions of it — in service doctrine, for example — reveal certain principles. A key concept is the distinction between operations conducted by forces in high-threat areas, the "inside force," and those conducted by forces operating in more secure areas, the "outside force."[104] The former would operate in a highly distributed manner and provide the ability to maintain contact with and attrite the adversary, while providing ISR to a more concentrated outside force.

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[100] U.S. Department of Defense. *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense.* Washington, D.C. January 2012. https://www.globalsecurity.org/military/library/policy/dod/defense_guidance-201201.pdf; U.S. Department of Defense. *Joint Operational Access Concept (JOAC),* Version 1.0. Washington, D.C. January 17, 2012. https://dod.defense.gov/Portals/1/Documents/pubs/JOAC_Jan%202012_Signed.pdf. For more on how Air-Sea Battle was envisioned as a joint force concept, see Greenert, Jonathan W., and Norton A. Schwartz. "Air-Sea Battle." *The American Interest*, February 20, 2012, https://www.the-american-interest.com/2012/02/20/air-sea-battle; "Air-Sea Battle: Service Collaboration to Address Anti-Access and Area Denial Challenges." U.S. Naval War College.

[101] Van Tol, Jan, Mark Gunzinger, Andrew Krepinevich, and Jim Thomas. *AirSea Battle: A Point-of-Departure Operational Concept.* Center for Strategic and Budgetary Assessments, 2010. https://csbaonline.org/research/publications/airsea-battle-concept.

[102] LeGrone, Sam. "Pentagon Drops Air Sea Battle Name, Concept Lives On." *U.S. Naval Institute News*, January 20, 2015. https://news.usni.org/2015/01/20/pentagon-drops-air-sea-battle-name-concept-lives.

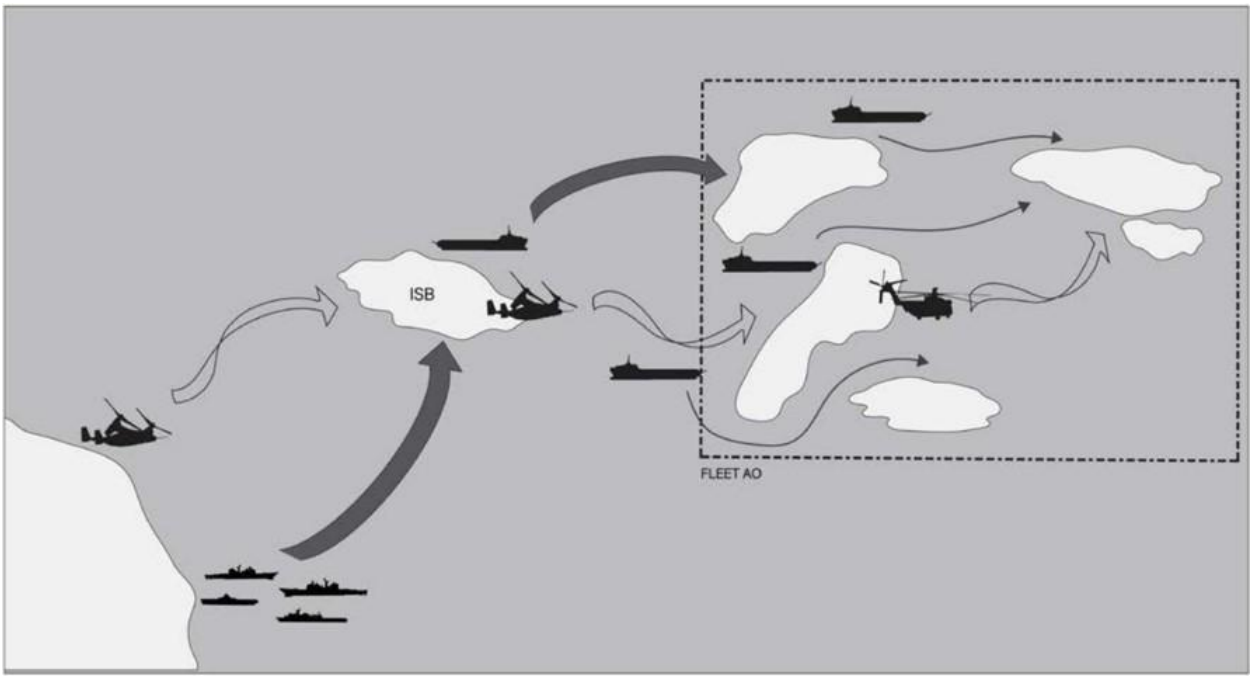
[103] Hutchens, Michael E., William D. Dries, Jason C. Perdew, Vincent D. Bryant, and Kerry E. Moores. "Joint Concept for Access and Maneuver in the Global Commons: A New Joint Operational Concept." *Joint Forces Quarterly*, October 2017. https://ndupress.ndu.edu/Media/News/article/1038867/joint-concept-for-access-and-maneuver-in-the-global-commons-a-new-joint-operati/.

[104] For an explanation of the JAM-GC concept, see Department of Defense. "Expeditionary Advanced Base Operations (EABO) Handbook: Considerations for Force Development and Employment," Version 1.1. June 1, 2018. https://mca-marines.org/wp-content/uploads/Expeditionary-Advanced-Base-Operations-EABO-handbook-1.1.pdf.

Each of the military services has unveiled operational concepts that are compatible with the new joint doctrine. Some were in the works well before the development of JAM–GC:[105]

- The Air Force's Agile Combat Employment, ACE, adopted in 2019, "leverages networks of well-established and austere air bases, multi-capable airmen, pre-positioned equipment, and airlift to rapidly deploy, disperse and maneuver combat capability throughout a theater."[106]

- The U.S. Navy's Distributed Maritime Operations, DMO, aims to reduce vulnerability by dispersing assets while employing networking to maintain the ability to concentrate fires.[107]



Expeditionary Advanced Base Operations is a form of expeditionary warfare that involves the employment of mobile, low-signature, operationally relevant, and relatively easy to maintain and sustain naval expeditionary forces from a series of austere, temporary locations ashore or inshore within a contested or potentially contested maritime area in order to conduct sea denial, support sea control, or enable fleet sustainment. (Image via marines.mil).

- The U.S. Marine Corps has seized on its role as the inside force with relish, unveiling a concept of Expeditionary Advanced Base Operations, EABO, that

[105] Examples include Geiger Fury, Rapid Raptor, and Distributed Lethality. Schanz, Marc V. "Rapid Raptor Package." *Air Force Magazine*, September 26, 2013. https://www.airforcemag.com/box092613rapid/. The concept may have been employed in Northern Edge 2009.
[106] Adamson, Scott D., and Shane "Axl" Praiswater. "With Air Bases at Risk, Agile Combat Employment Must Mature." *Defense News*, November 12, 2020. https://www.defensenews.com/opinion/commentary/2020/11/12/air-bases-are-at-risk-without-the-agile-combat-employment-approach/. The ACE concept grew out of experiments involving small detachments of aircraft supported by C-17s at austere locations; Rapid Raptor and Agile Eagle exercises.
[107] Much of the Distributed Maritime Operations' thinking on distributed operations derived from early thinking about the promise of networked sensors and weapons. Commander, Naval Surface Forces. *Surface Force Strategy: Return to Sea Control.* 2016; U.S. Navy Chief of Naval Operations. *A Design for Maritime Superiority, Version 2.0.* December 2018. (Version 1.0 of the same document was released on January 2016.)

would see small units, roughly battalion-size, paired with antiaircraft or anti-ship systems to conduct mobile operations from temporary bases close to adversary forces.[108]

- The U.S. Army, with the smallest equities in China-related scenarios, has perhaps the least-developed doctrinal answer in its nascent Multi–Domain Task Force concept, MDTF, which resembles the Marine's EABO concept but which suffers from the Army's lack of institutional ties to the U.S. Navy and recent historical experience with amphibious operations.[109]

Most of the operational concepts that have been published at the joint and service levels since 2016 are broadly consistent with a denial approach to defense and deterrence. Some individuals who developed those ideas, especially JAM–GC, were motivated in part by a desire to develop operational concepts more conducive to crisis stability, but the receptiveness of the broader military community has been predicated more on technical considerations and on the lack of viable alternatives. The lack of a more comprehensive framework partly explains residual inconsistencies and a somewhat ad hoc approach that embraces technical possibilities wherever they can be found. For example, after an anti-radiation missile seeker head designed by the Army for an anti-ship system was found effective against emitting SAMs, the Army's director for artillery modernization hailed it as a tool with which the service could further the all-domain fight by "blasting a path for airstrikes" against mainland targets — a throwback to earlier more offensive doctrine.[110]

We take the new operational concepts as a positive starting point. They are sure to evolve, but they represent adaptive innovation and, as such, suggest an impressive degree of institutional ferment and flexibility within the U.S. military.

Failure to launch? U.S. force structure and posture adjustment

Military organizations that are open to innovation and new ideas do not always implement them or do so effectively. In 1940, the British Army, which had first developed and deployed the tank during World War I, found itself at a severe disadvantage in armored warfare against a German army that systematically experimented with the right mix of infantry, artillery, and tank battalions in its armored divisions.[111] During World War

[108] *Expeditionary Advanced Base Operations (EABO) Handbook: Considerations for Force Development and Employment.* Version 1.1, June 1, 2018. https://mca-marines.org/wp-content/uploads/Expeditionary-Advanced-Base-Operations-EABO-handbook-1.1.pdf; Eckstein, Megan. "Marines Begin Experimentation to Refine Manual for Expeditionary Advanced Base Operations." *USNI News*, April 15, 2021. https://news.usni.org/2021/04/15/marines-begin-experimentation-to-refine-manual-for-expeditionary-advanced-base-operations.
[109] Congressional Research Service. *The Army's Multi-Domain Task Force (MDTF)*. Updated April 13, 2021; Barnett, Jackson. "Army Stands up First Multi-Domain Task Force in Washington State." *FedScoop*, February 17, 2021. https://www.fedscoop.com/army-multi-domain-task-force-washington-state/.
[110] Freedberg Jr., Sydney J. "Army Tests PrSM Seeker to Hunt Ships and SAMs." *Breaking Defense*, June 4, 2020. https://breakingdefense.com/2020/06/army-tests-prsm-seeker-to-hunt-ships-sams/.
[111] Orgill, Douglas. *The Tank: Studies in the Development and Use of a Weapon.* Portsmouth, New Hampshire. Heinemann, 1970; Howard, Michael. *The Theory and Practice of War*. London. Cassell, 1965.

II, the Imperial Japanese Navy, after pioneering the use of massed aircraft carriers, hung onto the idea that battleships could play a central role in the decisive battle, while the U.S. Navy, with its battleships sunk at Pearl Harbor, transitioned more thoroughly to a carrier-centric doctrine.[112] Nor has the U.S. military been immune from failure to launch; cavalry officers reasserted the dominance of the horse and saber over tanks and mechanized units after World War I.[113]

Implementing doctrinal change often means shifting resources from one type of unit and weapons set to another. Existing force structure will inevitably have a large core of heavily invested senior officers, and reallocating resources may be difficult without exceptional circumstances — such as the treaty limits on the German army between the wars or the loss of the U.S. surface fleet at Pearl Harbor. Opposition may not only be vested (that is, tied to command positions or resources), but may also be a function of early acculturation in a particular branch of the military and its ways and logic — or simply conservatism in a field where failure can be catastrophic.

Transition to more defensive forms of warfare may be particularly difficult, as a wide variety of analysts have observed a general military preference for offensive over defensive doctrines. Historically, denial strategies are a tough sell, even with the military's civilian overseers, and they often prevail only when alternatives fail or no reasonable alternatives are apparent. Fabius's denial operations proved unpopular in Rome, and it was only after other approaches ended in defeat at the battles of Geronium and Cannae that his reputation and position were restored. Similarly, Britain's decision in 1937 to prioritize air defenses was vigorously contested by Bomber Command. Hugh Dowding's parsimonious approach to air defense (which historians later vindicated) was opposed by more forward-leaning rivals, and shortly after the successful conclusion of the Battle of Britain, Dowding's rivals engineered his unceremonious dismissal.[114]

To execute JAM–GC and the associated service concepts with full effectiveness — and more broadly to cope with the challenges evident in Asia — we should expect to see broad changes to procurement and force structure. Yet, although the military leadership ostensibly united behind the new concepts, there is — with the exception of the Marine Corps — little evidence of dramatic change in programs or organization. In part, this may be attributed to the fact that, although the new concepts are official and "validated," they remain somewhat experimental. In most discussions of them, the need for war-gaming and experimentation to clarify key questions is highlighted. There can never be enough validation, however, and the need for further testing can be an excuse for inaction — a tie-breaker of sorts — when there are intraservice disputes about resource allocation.

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[112] Even after Midway, battleship commanders had precedence over carrier commanders, so that, for example, Nagumo and his carrier strike force fell under the command of Vice Admiral Kondo Nobutake, commander of the Advance Force at the Battle of Santa Cruz in October 1942. Prados, John. *Islands of Destiny: The Solomons Campaign and the Eclipse of the Rising Sun.* New York, NY. New American Library, Caliber, 2012. 127. See also Asada, Sadao. *From Mahan to Pearl Harbor: American Strategic Theory and the Rise of the Imperial Japanese Navy*. Annapolis, MD. U.S. Naval Institute Press, 2021.

[113] Clemens, John. "Waking Up from the Dream: The Crisis of Cavalry in the 1930s." *Armor*, May-June 1990.

[114] Bungay. *The Most Dangerous Enemy: A History of the Battle of Britain*. 59; and Dixon, Jack. *Dowding and Churchill: The Dark Side of the Battle of Britain*. Barnsley, Gloucestershire, United Kingdom. Pen and Sword, 2008.

U.S. Marine Corps

The U.S. Marine Corps has embraced change more wholeheartedly than the other services and has instituted a corps-wide set of changes to force structure, organization, and operational practice.[115] In response to the 2018 National Defense Strategy and war-gaming conducted in 2018 and 2019, Marine Corps Commandant General David Berger issued a document to guide this change, Force Design 2030. The Marine Corps was to be reoriented from forced entry against regional powers, and its recent role in the inland counterinsurgency wars of the Middle East, to littoral combat and integration into a Navy-centric scheme of warfare.

As in the other services, the USMC continues to experiment with the right formulas, but it has moved more energetically than the others. In September 2020, it announced that it would transition the 3rd Marine Regiment in Kaneohe Bay, Hawaii, into the 3rd Marine Littoral Regiment and use it as a test bed for the development of future MLRs capable of conducting Expeditionary Advanced Base Operations.[116] Within six months, the Marine Corps had announced plans to create three MLRs for combat in the Pacific.[117] These units will be smaller, 1,800 to 2,000 personnel vs. 2,200 for traditional regiments, but they will have more embedded logistics capability, as well as antiaircraft and anti-ship missile systems.

The Marine Corps has also been most willing, thus far, to sacrifice existing capabilities to resource its reorganization and the acquisition of new systems designed for a different type of fight. As part of the change, the Corps is giving up a portion of its artillery and vehicles — and all of its tanks— and is doing so Corps-wide and early in the process.[118] It will trim the size of infantry battalions, cut one regimental headquarters, and do away with 16 of 21 cannon artillery batteries.[119] In April 2021, one Marine officer published an article in a key Navy journal tellingly titled, "Marine Aviation Is Naval Aviation."[120]

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[115] Commandant of the Marine Corps. *Force Design 2030*. March 2020. https://www.hqmc.marines.mil/Portals/142/Docs/CMC38%20Force%20Design%202030%20Report%20Phase%20I%20and%20II.pdf?ver=2020-03-26-121328-460; Snow, Shawn. "The Marines Want to Get Rid of Their Tanks. Here's Why." *Marine Times*, March 26, 2020. https://www.marinecorpstimes.com/flashpoints/2020/03/26/the-marines-want-to-get-rid-of-their-tanks-heres-why/; and South, Todd. "Goodbye, Tanks: How the Marine Corps Will Change, And What it Will Lose, By Ditching its Armor." *Marine Times*, March 22, 2021. https://www.marinecorpstimes.com/news/your-marine-corps/2021/03/22/goodbye-tanks-how-the-marine-corps-will-change-and-what-it-will-lose-by-ditching-its-armor.

[116] Athey, Philip. "Corps to Launch 3-Year Marine Littoral Regiment Experiment Using Hawaii Marines. *Marine Times*, September 22, 2020. https://www.marinecorpstimes.com/news/your-marine-corps/2020/09/22/corps-to-begin-3-year-marine-littoral-regiment-experiment-using-hawaii-marines/.

[117] Stashwick, Steven. "U.S. Marine Planning Three Specialized Units for Island Fighting." *The Diplomat*, February 10, 2021. https://thediplomat.com/2021/02/u-s-marines-planning-three-specialized-units-for-island-fighting/.

[118] Between March 2020 and March 2021, the Marine Corps divested itself of 323 of its 452 tanks, transferring them to the Army, and has plans to transfer all remaining tanks by 2023. South. "Goodbye, Tanks: How the Marine Corps Will Change, And What it Will Lose, By Ditching its Armor."

[119] Commandant of the Marine Corps. *Force Design 2030*.

[120] Lauterbach, Nathaniel T. "Marine Aviation Is Naval Aviation: Marine Corps and Navy Aviation Must Team up for the Maritime Campaign." *Proceedings*, April 2021. 26-30. https://www.usni.org/magazines/proceedings/2021/april/marine-aviation-naval-aviation.

U.S. Air Force

Air Force experimentation leading up to the adoption of the Agile Combat Employment concept, ACE, goes back more than a dozen years and represents a remarkable case of military innovation. ACE reintroduces the concept of operational maneuver for air and space forces in a contested environment and recalls the maneuver that characterized the Pacific theater during World War II.[121]

A U.S. Air Force F-22 Raptor assigned to the 525th Fighter Squadron, completes Agile Combat Employment maneuvers in support of Architecture Demonstration and Evaluation 5.2 during Operation Pacific Iron 2021 at Northwest Field, Guam, July 26, 2021. (US Air Force photo by Senior Airman Alexandra Minor).

Nevertheless, although organizational adjustments have been made to accommodate ACE, these have not matched the dramatic departure in operating practices that the concept might suggest. Perhaps more importantly, ACE has not resolved issues such as whether, to what extent, and when offensive action might be undertaken in adversary airspace. This is not a criticism of the ACE concept per se; it is merely to observe that a concept for operational maneuver does not answer all questions related to larger issues of strategy or force structure. Hence, while it is a valuable construct for operational

[121] Killough, Brian M. "The Complicated Combat Future of the U.S. Air Force." *The National Interest*, February 9, 2020. https://nationalinterest.org/feature/complicated-combat-future-us-air-force-121226.

concepts that might be particularly useful at the outset of hostilities, it does not provide a guide to how a larger conflict might unfold and how the Air Force can best contribute.

Most of the Air Force's ACE–related organizational changes to date involve rearranging or reimagining maintenance or logistical assets. For example, the Air Combat Command is breaking individual aircraft-maintenance squadrons, which are responsible for air wing maintenance, into several smaller "fighter generation squadrons," each designed to pair with and support a single combat aircraft squadron — flattening the maintenance organization and, on balance, boosting the role of squadrons relative to the wing.[122] In its enlisted ranks, the Air Force has also emphasized the development of "multi-capable airmen," able to do multiple jobs.[123] This will better enable smaller groups of support personnel — deploying on cargo aircraft together with munitions, fuel, and spare parts — to support small detachments of combat aircraft at austere bases.

To date, however, the Air Force has left its organization and personnel allocation largely unchanged, despite changes to operational concepts, and it is only beginning to address procurement adjustments. And although some additional flexibility has been introduced to the air tasking order (which provides centralized management of aircraft allocation during operations), more needs to be done to achieve "centralized control, distributed authorities, and decentralized execution" in the event that communications are disrupted. Although maintenance has been adjusted, virtually no change in the scale of the support force to combat force has been undertaken, despite the likelihood of significant losses to missile attacks in a high-end conflict. Base hardening, the orphan with no significant command "constituency," has been neglected —though Air Force Secretary Frank Kendall recently highlighted the need to rectify this problem.[124] The program of record for future procurement is only now being reconsidered in light of the service's radical makeover in operational concepts, though that now faces challenges from vested interests in Congress.

There is no set standard for implementing innovation, and Air Force leaders, like those of the other services, are charged with a wide variety of missions that stretch well beyond Asia, or even high-intensity conflict. As one commentator has said of the USMC's radical approach to redesign, "The fact that the U.S. Army of 1965 was designed to fight Soviet tank armies in Europe did not stop President Johnson from sending it to Vietnam to fight insurgents and regional power."[125] On the other hand, creating a force designed

[122] Sweeney, Destinee. "20th AMXS Reorganizes to Increase Agility, Readiness." *Shaw Air Force Base*, March 3, 2020. https://www.shaw.af.mil/News/Article-Display/Article/2100528/20th-amxs-reorganizes-to-increase-agility-readiness/. In the future, the Air Combat Command will evaluate air base squadrons that can rapidly deploy and command and control capabilities. U.S. Air Force. "ACC to Align Fighter Squadron Operations, Maintenance." April 2, 2021. https://www.af.mil/News/Article-Display/Article/2559362/acc-to-align-fighter-squadron-operations-maintenance/.
[123] Hudson, Amy. "Coming Soon: 'Multi-Capable Airmen' for Combat Deployments." *Air Force Magazine*, March 19, 2020. https://www.airforcemag.com/coming-soon-multi-capable-airmen-for-combat-deployments/; Capuno, JaNae. "Raging Gunfighter Creates Multi-Capable Airmen." Mountain Home Air Force Base, February 17, 2021. https://www.nellis.af.mil/News/Article/2506832/raging-gunfighter-creates-multi-capable-airmen/.
[124] Weisgerber, Marcus. "Air Force Must Harden Pacific Bases Against Missiles, Secretary Says." *Defense One*, January 19, 2022. https://www.defenseone.com/threats/2022/01/air-force-must-harden-pacific-bases-against-missiles-secretary-says/360924.
[125] Comments by Mark Cancian (Col., retired, USMC) in South. "Goodbye, tanks: How the Marine Corps Will Change, and What it will Lose, by Ditching Armor."

for all contingencies can leave it unready for the most important, as the British Army's focus on colonial policing between the wars left its organization and training unsuited for the high intensity combat of World War II.

The Air Force, in particular, should be optimized for potential conflict in East Asia. It is, together with the Navy, the most important service in deterring conflict in East Asia, and, if deterrence fails, in prevailing. To his credit, Air Force Chief of Staff General Charles Q. Brown, Jr., has made "Accelerate Change or Lose" the mantra of his tenure.[126]

U.S. Navy

The Navy has seen a wide-ranging discussion of new operational concepts, weapons systems, and organization. The U.S. Naval Institute and its flagship publication, *Proceedings*, a publication with no true parallel in the other services in terms of quality or breadth, have provided venues for officers of all ranks, as well as interested outsiders, to contribute to that discussion. This innovative ferment generated, among other ideas, the above-mentioned concept of Distributed Maritime Operations, which aligns well with our recommended active denial strategy. Nevertheless, the Navy remains deeply conflicted about many proposed changes, and entrenched groups associated with existing systems have thus far ensured that changes to force structure have occurred only at the margins.

In December 2016, the Navy published a plan for a 355–ship force, which became the official 30–year plan under the FY 2018 National Defense Authorization Act. The 355–ship program included the addition of frigates but did not fundamentally alter the trajectory of the Navy. The fleet would still be built around 12 large aircraft carriers.[127] However, Mark Esper, then the defense secretary, believed the 355–ship program would not produce the numbers or type of force necessary for distributed operations in Asia, and he directed the Navy and the Cost Assessment and Program Evaluation, CAPE, office in the Office of the Secretary of Defense to undertake a Future Naval Force Study.[128]

[126] Brown, Jr., Charles Q. *Accelerate Change or Lose.* August 2020. https://www.af.mil/Portals/1/documents/csaf/CSAF_22/CSAF_22_Strategic_Approach_Accelerate_Change_or_Lose_31_Aug_2020.pdf.
[127] Congressional Research Service. *Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress*. April 22, 2021. https://crsreports.congress.gov/product/pdf/RL/RL32665/335.
[128] Shelbourne, Mallory. "CAPE Nominee: SECDEF Esper Blocked Shipbuilding Plan to Congress Because it Lacked 'Credible Pathway' to 355-ship Fleet." *USNI News*, August 4, 2020. https://news.usni.org/2020/08/04/cape-nominee-secdef-esper-blocked-shipbuilding-plan-to-congress-because-it-lacked-credible-pathway-to-355-ship-fleet.

Philippine Sea (November 08, 2018) The aircraft carrier USS Ronald Reagan (CVN 76), left, and the Japanese helicopter destroyer JS Hyuga (DDH 181), right, sail in formation with 16 other ships from the U.S. Navy and Japan Maritime Self-Defense Force (JMSDF) during Keen Sword 2019. (U.S. Navy photo by Mass Communication Specialist 2nd Class Kaila V. Peters).

The study ultimately produced a report in December 2020 that outlined what came to be known as Battle Force 2045.[129] The Navy's response to the plan was mixed, and the 355–ship plan remains the program of record. Nevertheless, the existence of two comprehensive proposals is unique among the services and allows for side-by-side comparisons. Under Battle Force 2045, the Navy would procure:

- A mix of large aircraft carriers, CVNs and light aircraft carriers CVLs;
- A larger number of attack submarines, SSNs than under the 355 plan;
- Fewer large surface combatants — cruisers and destroyers;
- More small surface combatants — frigates;
- Fewer large and more small amphibious ships;
- More combat logistics force ships;
- Many more unmanned and optionally manned ships.[130]

The total number of ships, including unmanned vessels, under the Battle Force 2045 plan would be 525 to 688. The average cost of each ship would be less than those in the 355 plan. Nevertheless, the Congressional Budget Office concluded that, overall,

[129] Office of the Chief of Naval Operations Deputy Chief of U.S. Naval Operations (Warfighting Requirements and Capabilities – OPNAV N9). *Report to Congress on the Annual Long-Range Plan for Construction of Naval Vessels*." Washington, D.C. 2020.
[130] Congressional Research Service. "*Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress*." March 2021.

shipbuilding costs under the Battle Force 2045 plan would be significantly higher than for the 355–ship fleet – which was already higher than will be sustainable.[131]

U.S. Army

The U.S. Army arguably has the least incentive to make widespread changes in response to challenges in Asia. Even when fighting ground wars in Asia at the height of the Cold War, Army leaders viewed defense and deterrence in Europe as the proper driver of Army force structure, organization, and doctrine. Although, as we have seen, the balance of power in Europe is now vastly better than it is in Asia — and entirely different from most of the Cold War period — Europe and the Middle East remain areas where the Army fills roles that would be indispensable to any independent U.S. action, a contrast to the niche role it would play in China-related scenarios in Asia.

The Army's bureaucratic interests are torn between demonstrating relevance to the Defense Department's "pacing threat" (China and China-related scenarios) and playing to its strengths, which are related to large-scale ground war. Nevertheless, for a decade or more, the Army has studied the prospects for deploying missile systems that might enable it to contribute more in the Pacific, an interest that was spurred further by the termination of the Intermediate-Range Nuclear Forces Treaty in 2019.[132] The Army's Multi-Domain Task Force pilot program, MDTF, which was launched in 2017, was built around I Corps' (Pacific Army's) 17th Field Artillery Brigade, equipped with HIMARS, a truck-mounted system capable of firing land-attack ballistic missiles (MGM–140 ATACM missiles) roughly 300 kilometers.

The MDTF construct is being refined, and a second task force was activated in Europe in September 2021.[133] As we discuss further below, the Army has made deep-strike capabilities the centerpiece of MDTF. It has explored a variety of technologies to field new missiles for the HIMARS, with new seekers that could function against ships at sea or air defenses (homing on radar signals), and with ranges that may eventually reach in excess of 1,000 kilometers.[134]And, together with the Navy, the Army is developing the long-range hypersonic weapon, LRHW, a boost-glide system that is purported to have a range of 2,775 kilometers.[135]

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[131] Presentation by Eric J. Labs. U.S. Congressional Budget Office. *Navy Shipbuilding: Prospects for Building a Larger Fleet.* January 15, 2021.
[132] U.S. Army website. "Army to Build Three Multi-Domain Task Forces Using Lessons from Pilot." October 15, 2019. https://www.army.mil/article/228393/army_to_build_three_multi_domain_task_forces_using_lessons_from_pilot.
[133] U.S. Army website. "Lightning Edge 21: 25th Infantry Division Exercises Multi-Domain Task Force Capabilities." May 14, 2021. https://www.army.mil/article/246417/lightning_edge_21_25th_infantry_division_exercises_multi_domain_task_force_capabilities; U.S. Army website. "Multi-Domain Task Force Activates in Wiesbaden." September 17, 2021. https://www.army.mil/article/250357/multi_domain_task_force_activates_in_wiesbaden.
[134] Roque, Ashley. "Congress Doles out USD88.1 million for U.S. Army's Mid-Range Missile Development." *Janes*, December 30, 2020. https://www.janes.com/defence-news/news-detail/congress-doles-out-usd881-million-for-us-armys-mid-range-missile-development; Ong, Peter. "New PrSMs Variant Could be a Game Changer for the U.S. marine Corps' HiMARS." *Naval News*, April 21, 2021. https://www.navalnews.com/naval-news/2021/04/new-prsms-variants-could-be-a-game-changer-for-the-u-s-marine-corps-himars/.
[135] "Army Discloses Hypersonic LRHW Range of 1,725 Miles; Watch Out China." *Breaking Defense*, May 12, 2021. https://breakingdefense.com/2021/05/army-discloses-hypersonic-lrhw-range-of-1725-miles-watch-out-china/. The Navy's version will be the Intermediate-Range Conventional Prompt Strike weapon. Topping the missiles is an unpowered hypersonic boost-glide vehicle, known as the Common Hypersonic Glide Body. Trevithick, Joseph. "Navy Wants Triple-Packed Hypersonic Missile Modules

The focus on deep strike, and especially the role of the LRHW, raises a number of questions about MDTF. Will allied countries welcome such missiles on their own soil? Why should allies not supply such capabilities themselves? In a land-attack role, why incur the risks that ground-based missiles pose to crisis stability, rather than employing air-launched or sea-launched missiles, which are less likely to incentivize first strike and which are more flexible for use in crisis signaling?[136] How will dwindling strategic sealift be able to transport the necessary units into the theater, and how will tactical lift be able to move them once there? Other questions derive from the Army's differences from the Marine Corps. If the two have similar concepts for the prosecution of the battle inside primary threat areas, is the Marine Corps, with its history of amphibious operations and close relationship with the Navy (which owns means of transportation), not better positioned to execute the concept?

Summary

The evolution of U.S. military doctrine over the past decade has incorporated a more realistic view of the evolving military balance and how the United States can respond to this changed circumstance. It has moved the military from an unabashedly offensive variant of a control strategy toward a mixed strategy that appears to embrace a somewhat more defensive strategy of control and, in its conception of inside and outside forces, one that also incorporates elements of denial — all without abandoning hope for ambitious offensive action that might have the potential to paralyze the adversary and its command-and-control system.

Arguably, the U.S. military's somewhat decentralized — perhaps entrepreneurial — approach to doctrinal innovation has accelerated change. Mid-level Air Force officers drove experimentation with concepts of operation that became Agile Combat Employment, while mid-level Marine officers have driven similar ferment in their service. At the same time, the decentralized nature of this system, where many organizations and offices have a voice, also helps explain the ad hoc and inconsistent application of doctrinal ideas in force planning and posture. The Navy is reluctant to surrender its large carriers and plans for a follow-on cruiser, while Air Force plans continue to reflect a hope that significant and possibly sustained operations might be possible in adversary airspace. The Army's push for long-range boost-glide systems, meanwhile, is arguably an opportunistic bid for relevance in the Asia–Pacific region.

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on its Stealthy Zumwalt Destroyers." *The Drive*, March 19, 2021. https://www.thedrive.com/the-war-zone/39867/navy-wants-triple-packed-hypersonic-missile-modules-on-its-stealthy-zumwalt-destroyers.

[136] Heim, Jacob L. "Missiles for Asia? The Need for Operational Analysis of U.S. Theater Ballistic Missiles in the Pacific," RAND Corporation, 2016. https://www.rand.org/pubs/research_reports/RR945.html; Morgan, Forrest E. "Crisis Stability and Long-Range Strike: A Comparative Analysis of Fighters, Bombers, and Missiles." RAND Corporation, 2013. https://www.rand.org/pubs/monographs/MG1258.html.

Chapter 3: Recommended U.S. Force Structure

Eric Heginbotham was the lead author of this chapter, with Steven Kosiak as the lead author of the budgetary assessment section. Brian Killough and Brad Martin also made significant contributions to the chapter, with additional contributions from Rachel Esplin Odell.

In the previous chapter, we explained the basic principles behind a defense strategy of active denial — and why the United States needs such a strategy in the Western Pacific. We explained that although the U.S. military has begun to embrace some denial-oriented operational concepts, it has not yet articulated a comprehensive denial strategy. Nor has it developed a coordinated effort to redesign its force structure around the innovative denial concepts emerging from the services. In this chapter, we recommend ways that U.S. force structure needs to be modified. These changes would yield a lighter, more resilient, and more dispersed U.S. force posture. They also hold the potential to buttress deterrence and limit the incentives for escalation within a more constrained budget environment — our three key criteria for U.S. defense strategy. We provide more detailed recommendations for posturing this force in the next chapter, which focuses on how the United States can work together with allies to implement an active denial strategy.

Regarding the third of the key criteria, fiscal sustainability, these changes should allow the United States to hold defense spending, on average, at or modestly below 2021 budget levels in real terms over the next decade and a half, rather than growing the defense budget by 10 percent or more, as would have been required to execute the last Trump administration plan. This would mean annual savings of some $75 billion by 2035 compared with that plan. However, such savings could be safely generated only if changes in current plans are approached strategically, and with the understanding that investments in some areas should be increased and all foreign policy arms of the U.S. government coordinated. As noted in Appendix A, moreover, additional savings vis-à-vis 2021 budget levels could be achieved if the United States were willing to trim its security commitments and adjust its strategy in other parts of the world, such as the Middle East and Europe.

Implementing these changes to U.S. force structure will require the military services and Congress to set aside parochial concerns in the interest of developing a more effective military force that is more rationally structured to bolster deterrence while limiting the dangers of rapid escalation. This will, in turn, require strong civilian leadership from the U.S. president and secretary of defense, who will need to establish a clear vision as to why these reforms are needed to promote U.S. interests in peace and stability in a way that is fiscally responsible. Such leadership will be key to overcoming some of the

entrenched bureaucratic, congressional, and defense-industrial interests that have kept the United States wedded to a path of inertia in its recent budgets and acquisitions.

Broad priorities and principles

If the United States is to maintain the capability to deter potential aggression against U.S. interests and allies in Asia, it must establish clear priorities. It will not have the slack to pursue other military goals that may be less central to national security. Accordingly, before outlining changes within each of the individual services, we suggest that the following broad principles or priorities should shape overall military change.

Downsizing ground maneuver forces, emphasizing air and naval capabilities

Current force structure is a legacy of the Cold War, when the primary front was set in continental Europe, as well as of the "Global War on Terror," fought primarily in the Middle East. Unless the United States makes changes to its grand strategy that are beyond the scope of this report, ground forces will still be required to meet commitments in Europe, for potential contingencies in the Middle East, and for possible conflict on the Korean Peninsula. But the force requirements for these contingencies are modest in size and largely fungible with one another. Going forward, the United States should place a stronger emphasis on air and naval capabilities in its force-structure design to respond to the much greater challenge posed by the large and growing power imbalance between China and other regional countries in Asia, as considered in the previous chapter. Consistent with this shift in emphasis, the bulk of the savings generated by the changes in force structure recommended in this report come from reductions in Army and, to a lesser extent, Marine Corps forces.

Reduction of overhead and command redundancy

The increased lethality of modern weapons systems and shifting strategic requirements have resulted in significant changes to U.S. military organization. In general, the primary combat elements have moved to lower echelons, a change that is likely to continue with the increased need for agility, particularly in the Asia–Pacific theater. Yet in terms of administrative structure, few higher echelons, if any, have been streamlined. For example, while the Army now organizes deployments, combat power, and command through Brigade Combat Teams, it nevertheless maintains divisional structures that function more as administrative than command organizations. The divisional level is redundant, as BCTs can be coordinated directly by corps headquarters. Similarly, the Air Force's Numbered Air Forces, NAFs, and wings sit within the hierarchy of command organizations between the major commands and squadrons, which are increasingly the

primary combat command organization. Redundant command levels should be eliminated to free resources for other military requirements and enhance operational efficiency and to bring the overall military budget down.

Introduction of lighter, more attritable systems

Active denial will require a more mixed force and a greater proportion of light elements than the U.S. military currently maintains. During operations, the mix of forces required (their so-called task organization) would differ, based on whether the force were to act inside high-threat areas or on the periphery of those threat rings, as well as on the phase of the conflict in which they were operating. On the distinction between forward denial and counterattack forces, see Figure 2.9; on the phases of conflict, see Figures 2.6 and 2.7.

Operations within high-threat areas and operations during the first phase of operations will require a lighter force mix, while those operating farther away or during the counterattack phase will more closely resemble systems currently maintained in the inventory. Ideally, light forces will be capable of operating individually or in small units, providing ISR, disrupting and attriting adversary forces, and be relatively inexpensive. In the case of the Navy, such forces would be composed of smaller task forces, comprised of ships that are themselves smaller than today's destroyers and cruisers. In the case of the Air Force, change would be more to organization and the ability to operate in smaller, more mobile packages, though, with greater relative emphasis on the offshore fight and less on operations within adversary airspace, the aircraft inventory should also include a mix of more and less exquisite (and expensive) aircraft. Marine and Army force structure should include elements that can contribute to the maritime and, especially, air defense effort.

More emphasis on logistics and expeditionary packaging and less on platforms

Conducting agile, distributed operations will require adjustments to relative expenditure on platforms and sustainment. Distributed forces will operate farther from established main operating bases, and increased mobility will require a relatively greater investment in logistical capabilities to sustain them. While this may be partly reflected in an expanded U.S. Transportation Command, TRANSCOM, it will also require changes to force-packaging and the incorporation of enhanced logistical capabilities within the force packages of each service.

At the same time, the lethality of modern weapons, combined with the paucity of base access in areas closest to China, will reduce the scale of forces that can be safely and productively deployed there. While it will be necessary to maintain forces capable of

replacing losses and operating against the large air and naval forces maintained by the PLA, current inventories in some categories — such as fighter aircraft — exceed reasonable expectations of what might be employed in an Asian conflict.[137]

Preparation of the battlefield (infrastructure preparation)

To execute the kind of denial strategy discussed above, preparation of infrastructure in allied states will be necessary. Specifically, advance construction is required to harden bases, prepare the alternative sites necessary for dispersion, and ensure survivable and redundant connectivity — all in the service of mobility, survivability, and resilience. Infrastructure preparation will cost money, and overall funds allocated to military construction in the Pacific could therefore increase exponentially for some period of time, but the sums in question are small in the context of the overall defense budget. They would be offset many times over by the cuts discussed above and below. Moreover, preparation of infrastructure would reduce losses in conflict and enable a smaller force structure to achieve the same results as larger ones, paying for itself in the process.

Critical evaluation of starkly binary solutions

While the point of any military review is to suggest adjustments to priorities — resulting in the relative downgrading of some elements — military strategy must consider possible adversary responses, the action-reaction dynamic of competition, and the possibility of future technological evolution. Occasionally, an entire category of military systems, such as mounted cavalry or the battleship, will become obsolete, but a few cautionary notes should be kept in mind before discarding categories of capability.

Becoming overly dependent on one type of "promising" capability can leave one vulnerable to catastrophic failure if it does not live up to expectations or if the adversary, now free to concentrate on a single problem, finds an effective countermeasure. Contrary to expectations, the bomber did not "always get through" during the first stages of World War II. Even tanks, which lived up to expectations when packaged in the right proportions with other forces, failed abysmally when employed alone against combined arms forces, as when the British armored attack at Arras met with defeat at the hands of Rommel's artillery in May 1940.

In our own day, analysts note the vulnerability of forward air bases and surface fleets, with some suggesting more fundamental reliance on submarines and long-range bombers. But while some adjustment in proportions may be sound, overreliance on those systems would leave U.S. forces vulnerable to technological breakthroughs or,

[137] In a conflict that stretched beyond several months, a scenario we believe unlikely, though not impossible, the inventory may be insufficient. The best way to address that scenario would be to stockpile equipment, rather than increase force structure, as losses to aircraft would exceed losses to air crews.

perhaps more likely, concepts of operation that would diminish the effectiveness of those capabilities.

U.S. Air Force changes out to 2035

Alongside the Navy, the Air Force will provide the most critical elements of a denial-based deterrent in East Asia. Bombers provide optimal means for the delivering large salvos of cruise and hypersonic missiles that are best able to destroy landing fleets and their covering forces. They can base outside the theater and, under the right conditions, can launch their weapons from outside the range of air defenses. Forward-deployed fighter aircraft, meanwhile, can contest air superiority during the early phases of conflict and establish air superiority as the campaign progresses. Without at least contested air superiority, many other types of U.S. operations would be impossible or far more hazardous: U.S. submarines would be more vulnerable to airborne anti-submarine warfare, ASW, assets, surface forces would be more susceptible to detection and attack, and bombers would be at greater risk. With friendly air superiority, the adversary would suffer the same problems.

Even more than in the case of the Navy, however, regional and technological change present challenges to the service's traditional methods of conducting operations. Air Force doctrine and concepts of operation are, as noted in the preceding chapter, being adapted to meet those challenges, but the force structure, organization, and posture of the service has been slower to change. In the meantime, the Air Force is burdened by an increasingly aged, expensive, and unreliable air fleet.

Most of the recommendations below are intended to create an Air Force that can operate more nimbly and with greater resilience in Asia's high-threat environment. In some areas, especially fighter procurement, we concur with tentative Air Force plans to trim and rejuvenate the force, but we note that those plans face stiff headwinds in Congress, where many are loath to see even short-term loss of defense-industry or military base-related jobs in their districts. In other areas, such as organization and infrastructure, Air Force culture itself acts as a brake on change. Air Force leaders should employ a "system of systems" approach to airpower, with basing and support as essential parts of the larger weapons system. Our recommendations include the following, to be achieved by the 2035-to-2040 time frame:

- A greatly rejuvenated fighter force built around fifth–, sixth–, and new 4.5–generation aircraft. The fleet would include fewer aircraft in 2040, but their average age would be closer to 10 years, rather than the current 30 years, and the force would be well-positioned for further adjustment, whether that be growth in numbers or qualitative evolution.
- A bomber force of roughly 180 aircraft in 2040, including B–52s and B–21s, with a larger, longer-range follow-on to the B–21 entering procurement.

- Reorganization, especially of combat support, to make it more modular, to execute agile operations, and to make it better able to cope with losses of equipment and personnel on the ground.
- Base hardening and other infrastructure improvement in East Asia to enable the Air Force to execute ACE and reduce potential losses.
- Formation of a tight archipelagic partnership with the Army.

The net savings resulting from these recommended changes would be modest, probably on the order of $5 billion annually by 2035, compared with the last Trump administration plan.

A fighter force for the future

We recommend that the Air Force take a deliberate, long-term approach to regenerating its fighter forces and concur with Air Force Chief of Staff Charles Q. Brown's assessment that renewal and modernization will be best served by divesting the force of old aircraft and limiting acquisition of current designs to retain the budgetary flexibility necessary for acquiring aircraft purpose-built for the emerging challenges. This will produce a short-term decline in inventory, an acceptable risk to improve capability in the longer term. Despite a relative shift in the Asian balance of power toward China, there is not currently a crisis in deterrent capability, but the growing challenges out 10 to 20 years are such that playing the long game is the sensible approach.

In 2018, the Air Force outlined a plan that would have moved dramatically in the other direction by expanding U.S. Air Force fighter inventories. In 2018, the Secretary of the Air Force presented a proposal, The Air Force We Need, that outlined a goal of 386 operational squadrons by 2030, a 24 percent increase over the 312 squadrons then in service. The number of fighter squadrons would have increased from 55 to 62.[138] The expansion would have been achieved by maintaining the legacy fleet through service-life extension programs, while maximizing receipt of F–35A aircraft.

In addition to questionable budgetary math — the numbers were never viable short of continuous, steep, and long-term budget growth — the 386–squadron plan would have exacerbated, rather than fixed, the problem of aging airframes.[139] Since the end of the Cold War, the U.S. Air Force's fighter force has aged markedly, the average age in the inventory climbing from about 10 years in 1991 to 28 years today — a function of the

[138] Secretary of the Air Force. "The Air Force We Need: 386 Operational Squadrons." U.S. Air Force Public Affairs, September 17, 2018. https://www.af.mil/News/Article-Display/Article/1635070/the-air-force-we-need-386-operational-squadrons/.
[139] See Freedberg, Jr., Sydney J. "CSIS Expert Calls out USAF: 386 Squadrons and $13B Space Force are Guesswork." *Breaking Defense*, September 20, 2018. https://breakingdefense.com/2018/09/csis-calls-bs-on-usaf-386-squadrons-13b-space-force-are-guesswork/; Losey, Stephen. "The Air Force we can Afford: The 386-Squadron Goal Appears out of Reach. *Air Force Times*, February 24, 2020. https://www.airforcetimes.com/news/your-air-force/2020/02/24/the-air-force-we-can-afford-the-386-squadron-goal-appears-out-of-reach/.

cyclical nature of procurement combined with the technical issues and delays that have plagued the F–35 program. The aging fleet, combined with technical problems in the F–35 force, has steadily pushed mission-capable rates lower.[140]

In the longer term, the plan also would have left the fighter force overwhelmingly invested in the F–35. In April 2009, the Air Force announced plans to acquire 1,763 F–35As.[141] With a total fighter inventory (excluding A–10s) of about 1,800 aircraft, an F–35 buy of anywhere close to that magnitude would leave little leeway to pursue a next-generation fighter. The F–35 is expensive to fly and sustain.[142] An April 2021 Government Accountability Office report found that "since 2012 the F–35 program's sustainment cost estimates have increased by more than $150 billion, and these costs are already preventing the services from reaching their respective readiness objectives."[143] Moreover, although the F–35 has proven to be a capable air-to-air fighter as well as strike aircraft, it has drawbacks in the Asia–Pacific theater. While its range is comparable with that of fourth-generation fighters when using internal fuel, unlike legacy aircraft it cannot carry fuel externally on combat missions, and its internal weapons load remains modest.[144]

The Air Force's new if still tentative plan is better calculated to produce a more capable force in 2035 and beyond. The new plan for the fighter fleet has four elements, all of which are included in the Department of Defense's FY 2022 budget request:

- More rapid retirement of legacy aircraft, starting with the F–15 C/D and older model A–10s;
- Continued procurement of the F–35 at a rate reduced from the plans of several years ago;
- The development of a next-generation air-dominance fighter, NGAD;
- The introduction of new 4.5–generation aircraft (sometimes also referred to as "5th- generation minus") fighters.

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[140] Losey, Stephen. "Aircraft Mission-Capable Rates Hit New Low in Air Force, Despite Efforts to Improve." *Air Force Times*, July 26, 2019. https://www.airforcetimes.com/news/your-air-force/2019/07/26/aircraft-mission-capable-rates-hit-new-low-in-air-force-despite-efforts-to-improve/; Hitchens, Theresa. "F-35A, B-21 Buys Must Continue, but Where's the $$, Says CSIS." *Breaking Defense*, October 29, 2019. https://breakingdefense.com/2019/10/f-35a-b-21-buys-must-continue-but-wheres-the-says-csis/.

[141] Congressional Research Service, *F-35 Joint Strike Fighter (JSF) Program.* Updated May 27, 2020. 2.

[142] Although maintenance costs have come down, direct hourly cost comparisons are somewhat misleading in that the expected lifespan of an F-35, measured in flight hours, is only one-third that of an F-15EX. Tirpak, John S. "Lockheed, Government Negotiating New 'Skinny' F-35 Sustainment Deal." *Air Force Magazine*, February 23, 2021. https://www.airforcemag.com/lockheed-government-negotiating-new-skinny-f-35-sustainment-deal/.

[143] U.S. Government Accounting Office. *F-35 Sustainment: Enhanced Attention to and Oversight of F-35 Affordability Are Needed.* April 22, 2021. 20. https://www.gao.gov/assets/gao-21-505t.pdf.

[144] The F-15 can carry roughly 1,900 gallons with conformal fuel tanks with limited impact on performance, in addition to drop tanks. The F-35, with Block 4 modifications, can carry 600 gallons in drop tanks for ferry work only. Rogoway, Tyler. "It's Back to the Future for U.S. F-15 Eagles and Conformal Fuel Tanks." *The Drive*, February 5, 2018. https://www.thedrive.com/the-war-zone/18259/its-back-to-the-future-for-u-s-f-15c-eagles-and-conformal-fuel-tanks; Mizokami, Kyle. "Here Are All the F-35's New Upgrades." *Popular Mechanics*, January 18, 2019. https://www.popularmechanics.com/military/weapons/a28087978/f-35-new-features/. For a positive evaluation of the F-35s air-to-air combat capability, see U.S. Air Force. "Hill AFB Airmen, F-35 a Lethal Combo at Red Flag." February 19, 2019. https://www.af.mil/News/Article-Display/Article/1760228/hill-afb-airmen-f-35-a-lethal-combo-at-red-flag/.

Retirement of older aircraft. The early retirement of old fourth-generation fighters (including 234 F–15C/Ds, 124 F–16C/Ds, and 63 A–10s by 2026) will greatly reduce the average age of the fleet and reduce maintenance costs and burden. Although new fighters will be procured, end-strength will drop by 117 aircraft by 2026.[145] The Air Force's proposed budget plan for FY 2022 includes the reduction of 48 F–15C/Ds, which would result in the loss of two fighter squadrons within the year.[146]

Continued but slower procurement of F–35. The new plan calls for the acquisition of 220 F–35As by 2026, or an average of 44 aircraft per year.[147] The average would be lower than the 48 requested annually since at least FY 2020, and significantly lower than the 60 ultimately authorized by Congress for FY 2021. Conspicuously, the Air Force's FY 2022 budget request eliminated additional F–35 procurement from its "unfunded priorities" list, which provides indicators of what it would purchase with additional funds were Congress to make them available, but added the F–15EX to that list.[148]

Development of the NGAD. Driving much of the Air Force's new thinking is optimism on the development of the NGAD. In September 2020, the USAF acquisition chief revealed that a full-scale prototype of the NGAD had flown years ahead of schedule.[149] With the NGAD as replacement, the Air Force has indicated it could retire the F–22 as early as the mid–2030s. One senior Air Force official said that, while the Air Force could take risks in some areas, air superiority "is not one of them."[150] More broadly, faith in a superior NGAD reflects a belief in new forms of digital engineering that employ the parallel and synergistic use of digital models and their physical twins.[151] It will, however, be a far more expensive airplane than even the F-35.[152]

New "4.5/5th–generation-minus" aircraft. The Air Force took delivery of its first F–15EX in March 2021 and is committed to procuring more 4.5– or 5th–generation-minus aircraft. Exactly what type of 4.5/5th–generation-minus fighter it will procure, and in what numbers, is perhaps the least certain component of the Air Force's new plan. Much of the uncertainty is driven by the relative importance of different motivations.[153] Possible

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[145] Tirpak, John A. "Future Fighter Force." *Air Force Magazine*, July 22, 2021. https://www.airforcemag.com/article/future-fighter-force/.
[146] Wolfe, Frank. "U.S. Air Force Could Lose Two Squadrons of F-15C/Ds in 2022." *Defense Daily*, June 1, 2021.
[147] Tirpak. "Future Fighter Force." https://www.defensedaily.com/u-s-air-force-lose-two-squadrons-f-15c-ds-fiscal-2022/air-force/.
[148] Insinna, Valerie. "U.S. Air Force Wish List Includes More F-15EX Jets but no F-35s." *Defense News*, June 2, 2021. https://www.defensenews.com/congress/budget/2021/06/02/air-force-asks-for-more-f-15ex-jets-in-fy22-unfunded-wish-list-not-f-35s/.
[149] Insinna, Valerie. "The U.S. Air Force has Built and Flown a Mysterious Full-Scale Prototype of its Future Fighter Jet." *Defense News*, September 15, 2020. https://www.defensenews.com/breaking-news/2020/09/15/the-us-air-force-has-built-and-flown-a-mysterious-full-scale-prototype-of-its-future-fighter-jet/.
[150] Tirpak. "Future Fighter Force."
[151] Roper, Will. "The Air Force's Secret New Fighter Jet Uses F1-Style Engineering." *Popular Mechanics*, January 12, 2021. https://www.popularmechanics.com/military/aviation/a35193710/air-force-secret-new-fighter-jet-digital-engineering/; Wolfe, Frank. "Digital Twins to be New Hallmark for U.S. Air Force Weapons Systems." *Aviation Today*, May 3, 2021. https://www.aviationtoday.com/2021/05/03/digital-twins-new-hallmark-us-air-force-weapons-systems/.
[152] Losey, Stephen. "Future NGAD Fighter Jets Could Cost 'Hundreds of Millions' Apiece." *Defense News*, April 28, 2022. https://www.defensenews.com/air/2022/04/28/future-ngad-fighter-jets-could-cost-hundreds-of-millions-apiece.
[153] F-15EXs are being procured, and both the F-16 and a new design have been mentioned by Air Force officials as possible future acquisitions. Air Force Chief of Staff Brown prefers a new design with open architecture for regular software updates.

motivations include the rejuvenation of the fleet, lower cost, and the capability of such aircraft to conduct less demanding missions (*e.g.*, counterinsurgency) more cheaply than exquisite fifth–generation aircraft.

Depending on the specific aircraft, the new models may also contribute significantly to higher- end scenarios. If cost is the overwhelming driver, an aircraft such as the single-engine F–16, with its lower acquisition and maintenance cost, would be appropriate, whereas, if the motivation is more mixed, then an aircraft such as the F–15EX, with its longer range and greater weapons load (especially at longer ranges), might be a better choice. The F–15EX could, for example, conduct standoff strike missions in a high-end Asia scenario. The current plan is to acquire 84 F–15EXs by 2026 and 144 overall, while developing a new F–16–like aircraft — provisionally dubbed the Multi–Role-X, or MR–X — using the same digital design technology employed in the development of the NGAD.

These new tentative Air Force plans for the fighter fleet are sound, and Congress should refrain from forcing it to retain unwanted and aged aircraft (*e.g.*, A–10s and F–15s) or to acquire F–35s at a faster rate than desired. (See Figure 3.1.) As the USAF develops MR–X and NGAD requirements, we urge it to think operationally as well as tactically and to emphasize range. With the MR–X, planners should consider the important role that less-than-exquisite aircraft can play in East Asia. In developing the MR–X, planners should prioritize the acquisition of aircraft that have either significant payload capacity or modest stealth features. Such "fifth- generation-minus" or "fourth-generation-plus" aircraft will not be capable of handling all missions, and developing a worthy NGAD will remain critically important, but they should also not be limited to minor or niche roles — particularly in the context of a denial strategy, wherein the center of gravity will be outside of China's air defense bubble.

NGAD procurement will depend on cost and should be closely linked to operational concepts that ensure they are not destroyed wholesale on the ground. Our recommended sixth–generation force structure is, therefore, contingent and may be scaled back in favor of additional fifth–generation aircraft or, alternatively, the development of a sixth–generation fighter that does not cost several times that of existing fighters.

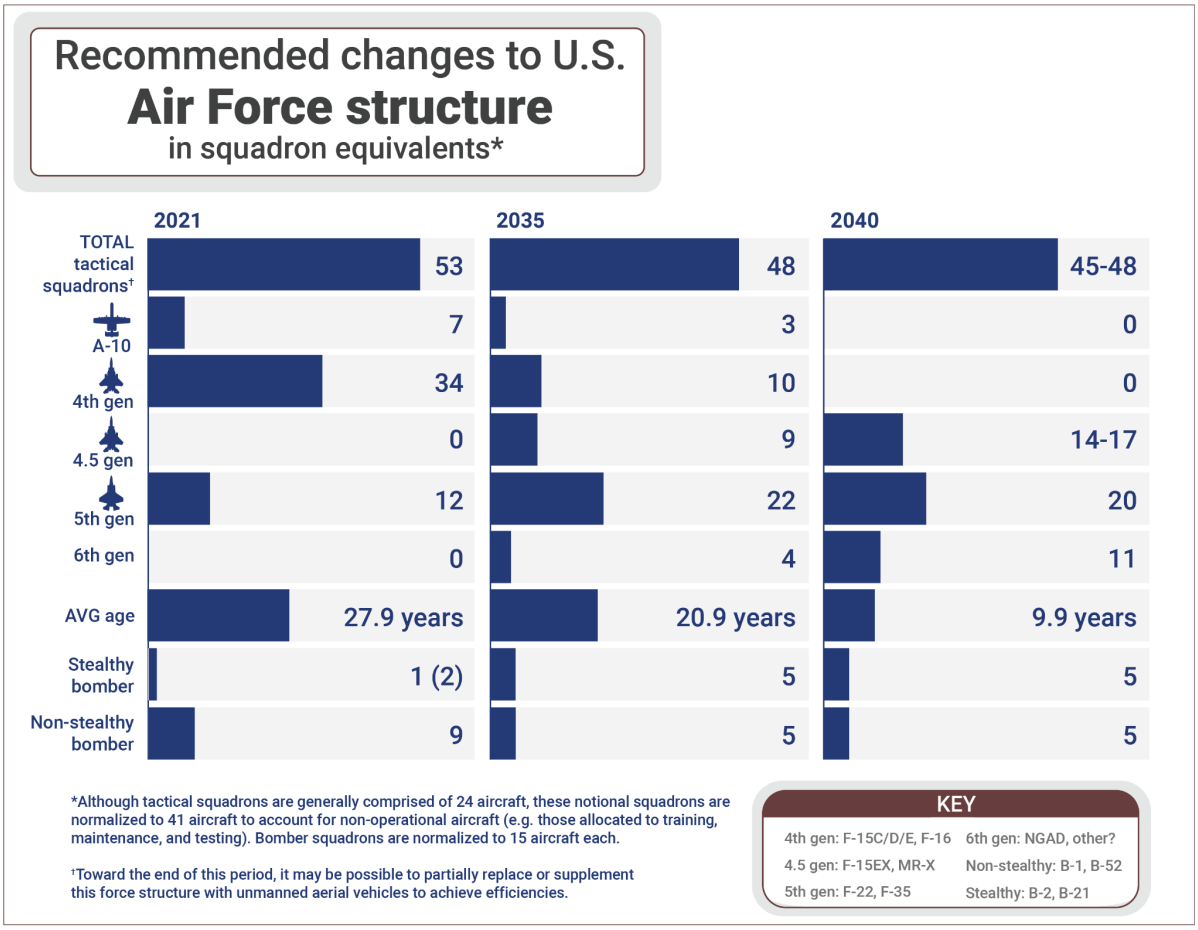
Given the vulnerability of forward operating bases to missile attack and the likelihood of extremely high aircraft (but not pilot) attrition rates in the opening phase of a conflict with China, the Air Force should also consider the option of making at least some modest additional reductions in its fighter-force structure and using the savings to purchase war-reserve stocks of aircraft. All told, the cost of keeping a single F–35A wing, comprising 72 aircraft, equipped and operating over the long term is of the order of $4.5 billion annually. This means that cutting a single F–35A wing could yield total savings of some $60 billion from 2022 to 2035. At about $115 million a copy, that would in theory be sufficient to procure more than 500 F–35As. In practice, storage and

maintenance costs would absorb some of the savings. Moreover, it might make more sense to combine purchases of aircraft with purchases of support equipment. But some mix of reserve aircraft and support equipment might, in the event of a war with China, prove to have far more marginal utility than 15 years of force structure containing one more F–35A wing.

Several caveats or notes should be appended to these recommendations. First, current U.S. global strategy imposes requirements on the U.S. Air Force that would be difficult to execute with the force outlined below, and we therefore presuppose greater restraint in U.S. strategy more broadly — particularly, as noted earlier, in Europe and the Middle East. Second, the Air Force will need to address issues related to the pilot pipeline and ground maintenance personnel as changes to the force structure occur, particularly if squadron numbers are to dip and once again rise. In the case of maintaining pilots, the Air Force might consider increasing the use of simulators or increasing the ratio of pilots to aircraft in operational units, which generally declined during the 2010s as the Air Force experienced difficulties in retaining pilots.[154] In the end, however, renewing the air fleet is the best way to ensure that pilots currently in the force receive adequate flying hours and that the readiness rate is restored to reasonable levels.

[154] On the strengths, weaknesses, and complexities of these and other possibilities, see Robbert, Albert A. et al. *Reducing Air Force Pilot Shortage*. RAND Corporation, 2015. https://www.rand.org/pubs/research_reports/RR1113.html.

Figure 3.1: Recommended changes to U.S. Air Force structure



Bombers and missiles

Bombers, paired with long-range standoff missiles, would provide critical leverage in high-end Asia scenarios. The Air Force recognizes this potential and is preparing dramatically to increase its missile inventories while rationalizing its bomber force. However, while the USAF's plans for missiles and bombers will produce marked improvements in capability, we believe there are outstanding questions with regard to the emphasis placed on the B–21 and the relative allocation of resources to anti-ship, as opposed to land-attack, cruise missiles.

The promise of the bomber standoff missile team

The combination of bombers and standoff missiles provides critical capability to deliver large salvos of missiles. Unlike submarines, which might fire a dozen or so cruise missiles and then have to reload days later, bomber squadrons might deliver hundreds

of missiles in a single attack and return the following day to deliver hundreds more.[155] Against attacking or blockading naval task forces, with their limited supply of defensive missiles, bombers armed with large numbers of anti-ship cruise missiles represent a potent asymmetric capability.[156]

Bombers can fly from outside the theater to deliver their munitions, and, depending on operational circumstances, even legacy (non-stealthy) bombers may launch munitions from beyond the range of air defenses, as B–52s did during the first days of Operation Allied Force in Kosovo.[157] With a range of more than 900 kilometers, for example, the JASSM missile has a range far in excess of the most capable surface-to-air missiles. As noted earlier, however, bombers are not a single-source solution to U.S. or allied problems in Asia. While they can launch missiles from beyond the range of surface-to-air missiles, even stealthy bombers would face large risks penetrating the screen of fighter aircraft, backed by tankers and airborne ISR, that China might be able to deploy in the absence of U.S. tactical airpower.

USAF bomber plans

The Air Force's current plans for the bomber force follow the same general principles of its intentions for the tactical fighter force. It would divest itself of most older bomber types, including the B–1 and B–2, while further extending the life of its B–52 fleet (with, among other things, new engines) and acquiring "at least 100" new B–21 Raiders — with some U.S. Air Force studies suggesting 145 aircraft.[158] While the bomber fleet urgently needs recapitalization, and implementing the plan would undoubtedly greatly improve the Air Force's capability to execute an active denial strategy, questions remain about the B–21.

The B–21 has impressive features and could play a significant role in China-related scenarios. It could safely approach closer than legacy bombers to PLA Navy fleets or the Chinese coast and would therefore be able to execute some operations that a B–52, for example, could not.[159] On the other hand, it is less clear whether it could penetrate into PRC airspace during the critical early phases of conflict — at least not without significant risk.[160] In any case, the active denial strategy does not rely on large-scale penetration of adversary airspace, and public discussions of JAM-GC also leave it

[155] B-52s are capable of carrying 20 JASSM-sized missiles, and the B-2 is capable of delivering 16. The B-21 is somewhat smaller than the B-2 and may have a significantly smaller payload. Nevertheless, a strike by 10 bombers could thus deliver well in excess of 100 missiles without straining the aircraft.
[156] Deptula, David A. "Maritime Strike." *Air Force Magazine*, September 1, 2019. https://www.airforcemag.com/article/maritime-strike/.
[157] Lambeth, Benjamin S. *NATO's Air War for Kosovo: A Strategic and Operational Assessment*. RAND Corporation, 2001. https://www.rand.org/pubs/monograph_reports/MR1365.html.
[158] Tirpak, John A. "The Raider Comes out of the Black." *Air Force Magazine*, February 19, 2021. https://www.airforcemag.com/article/the-raider-comes-out-of-the-black/.
[159] A stealthy aircraft would, for example, be less likely to be found by roving fighter patrols or air defense surface action groups (warships) moving around China's periphery.
[160] It is almost certainly not supersonic. It lacks anything resembling extremely high altitude capability, and without long-range fighters (and air superiority), the bomber would lack fighter escort.

unclear whether penetrating China's airspace with U.S. aircraft (as opposed to missiles) is required.

To say that the B–21 would have uses in Asia is not to say that it is the optimal aircraft. Many of the B–21's specifications remain classified, but it is a significantly smaller aircraft than the B–2 and is likely to carry a little more than half the ordnance (and even less compared with the B–52's capacity).[161] More important, even if the B–21 has the range of the B–2 — a big "if," given its small size — it would lack the range (and probably the onboard toilet) of the B–52. While improvements to engines may reduce fuel consumption, it would likely not reduce tanker demand as much as a more conventional design, paired with similar engine upgrades. As a 2015 study of bomber options indicated, the B–21, without a robust capability or a requirement to penetrate PRC airspace, would be an excessively small and expensive standoff platform.[162]

If our assumptions about range and capacity prove true, we would recommend procuring a smaller number of B–21s (60 to 80) than the Air Force currently wants and developing a "clean sheet" standoff bomber, similar in function to the B–52. (See Figure 3.2.) General Timothy Ray, while serving as chief of the Air Force Global Strike Command, floated the possibility of such an aircraft.[163] A new standoff bomber would be consistent with a denial strategy that looks to deter PRC offensive action beyond its borders, and a new design would allow for the orderly replacement of the B–52 if and when it is no longer possible or economical simply to replace pieces of airframes that are now more than 60 years old. Especially for such a standoff platform, an unmanned aircraft that would reduce operating cost might be considered.

Missiles

As noted in Chapter 2, the proliferation of long-range missiles has undermined escalation stability at the conventional level and made it more likely that local conflict will widen geographically. On the other hand, by making it more difficult for ships and aircraft to mass forward, missiles also contribute to an enhanced degree of defensive advantage, particularly against amphibious assault. Moreover, as we have discussed, weapons can be fungible, and standoff strike can be employed in lieu of more expensive penetrating bombers against high- priority targets. Finally, standoff strike is already an established feature of modern military operations; China has invested heavily in ballistic and cruise missiles since the 1990s.

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[161] Tirpak. "The Raider Comes out of the Black."
[162] Rozsa, Jordan. *Improving Standoff Bombing Capacity in the Face of Anti-Access Area Denial Threats.* RAND Pardee Graduate School Dissertation, 2015.
[163] Tirpak, John A. "A New Bomber Vision." *Air Force Magazine*, June 1, 2020. https://www.airforcemag.com/article/strategy-policy-9/. Note that much of the debate over standoff bombers has revolved around so-called "arsenal aircraft," and much of the analysis of such aircraft has assessed the employment of transport aircraft in the role of missile platforms. We have avoided the term "arsenal aircraft," as it tends to be polarizing, but note, as others do, that a B-52-type aircraft is essentially consistent with the vision—a low cost alternative for delivering large volumes of ordnance to areas around an adversary's periphery. See May, T.J., and Mike Pietrucha. "We Already have an Arsenal Plane: It's Called the B-52." *War on the Rocks*, June 26, 2016. https://warontherocks.com/2016/06/we-already-have-an-arsenal-plane-its-called-the-b-52/.

The active denial strategy advocated here urges restraint in the nature and geographic location of targeting but would employ standoff missiles to strike assets directly engaged in offensive operations. By employing missiles against air bases nearest to operational areas, the United States and its allies could deny China's ability to mass airpower forward without penalty.[164] And by maintaining the capability to strike surface ships (*e.g.*, amphibious operations or a naval blockade), missiles can have a powerful effect in deterring offensive war. We therefore concur on the investment in missiles, but would shift emphasis toward greater (though not exclusive) emphasis on anti-ship systems.

Confirming the importance of standoff strike to U.S. Air Force thinking about conflict with near peer competitors — and arguably sharpening doubts about its intent to employ bombers in a penetrating role — the U.S. Air Force is massively increasing its holdings of cruise missiles and is developing a range of hypersonic missiles. A large majority of these will be ground-attack systems, though the Air Force will also acquire more anti-ship missiles.

After converting a few hundred nuclear-armed missiles to conventional air-launched cruise missiles, CALCMs, during the late 1990s and employing them during the Gulf War, the Air Force began development of the JASSM, a missile that currently has a range of more than 900 kilometers and weighs roughly 2,200 pounds.[165] Production began in 2001, and by the end of 2016, 2,000 JASSMs had been delivered to the Air Force.[166] In 2019, the Air Force announced that it intended eventually to procure 10,000 JASSMs, up from its earlier intention of 4,900.[167] The Air Force has also announced a plan to acquire a small number (starting with 40) of the JASSM–D, formerly the JASSM–XR, or JASSM–Extreme Range, with a range of about 1,900 kilometers (and weight 5,000 pounds).[168] Production will begin in 2022.[169]

Despite two test failures, the Air Force has also requested funds in its FY 2022 budget request for the ARRW missile, an air-launched, boost-glide hypersonic missile.[170] Such a system would be dropped from a large bomber and, once ignited, follow a ballistic

[164] Both sides have different relative advantages in conducting missile attacks. China has continental scale and more airbases within range, but with inferior aircraft and pilots (on average), it needs to mass more airpower forward. And while China deploys ballistic missiles in ground units, that approach is more resource intensive than the U.S. approach of delivering missiles primarily from aircraft, which does not require additional force structure.
[165] The current version is the JASSM-ER ("extended range"), but we have shortened to JASSM in the text since all of the original non-extended range missiles were upgraded to extended range capability.
[166] "Lockheed Delivers 2,000th JASSM." *Air Force Magazine*, September 8, 2016. https://www.airforcemag.com/lockheed-delivers-2000th-jassm/.
[167] Everstine, Brian W. "USAF Inks Munitions Contracts, Eyes 'JASSM-D' in Bigger Missile Buy." *Air Force Magazine*, October 1, 2019. https://www.airforcemag.com/usaf-inks-munitions-contracts-eyes-jassm-d-in-bigger-missile-buy/.
[168] Assuming that bombers approached to between 600 and 750 km of the coast to launch, the standard JASSM might have the range to attack targets 100 to 300 km deep inside of China (or roughly 5 to 10 percent of its land area), whereas the JASSM-D might attack targets 1,200 or more km deep (or closer to 50 percent of China's land area).
[169] Everstine, Brian W. "USAF to Start Buying 'Extreme Range' JASSMs in 2021." *Air Force Magazine*, February 14, 2020. https://www.airforcemag.com/usaf-to-start-buying-extreme-range-jassms-in-2021/.
[170] Insinna, Valerie. "After Latest Flight Test Failure, U.S. Air Force Hopes to Keep First Hypersonic Missile on Track for Production." *Defense News*, August 4, 2021. https://www.defensenews.com/air/2021/08/04/after-latest-flight-test-failure-us-air-force-hoping-to-keep-first-hypersonic-missile-on-track-for-production/.

trajectory during its boost phase, then skim along the atmosphere after burnout to extend its range and gain a degree of maneuverability. The ARRW is reputed to have a range of 1,600 kilometers. Its operational advantage is a much faster flight time and terminal speed, which is only marginally slower than a standard ballistic missile. The Air Force is also closely following development of DARPA's scramjet (air-breathing) hypersonic testing and may seek development of such a system in the near future.[171]

The Navy has the lead on the long-range anti-ship missile, LRASM, which is a derivative of the JASSM designed to attack ships at sea.[172] However, the Air Force is also acquiring the missile and announced in 2019 it would increase acquisition of LRASM missiles from 110 to a total of 400.[173] Notably, the range of the LRASM, roughly 500 kilometers, is somewhat more than half the JASSM's, while its cost is about twice the JASSM's, the differences driven by the size and weight of the missile's seeker head.[174] However, since the target for the LRASM is ships at sea, which will necessarily be either at or beyond the coast, these targets will not be as deep in the battle area.

A U.S. navy aircraft launches a Long Range Anti-Ship Missile, or LRASM (via navair.navy.mil.)

While we believe U.S. missile inventories are likely to have a powerful deterrent effect, this will be particularly true of anti-ship missiles. And because the Navy does not maintain heavy bombers, with their ability to launch large salvos, we would recommend

[171] Insinna, Valerie. "The U.S. Air Force Wants to Develop a Hypersonic Cruise Missile. *Defense News*, April 30, 2020. https://www.defensenews.com/industry/techwatch/2020/04/30/the-air-force-wants-to-develop-a-hypersonic-cruise-missile/.
[172] Although the missile has the same general size and profile, it has more elaborate sensors and its range is roughly half that of the JASSM.
[173] Everstine. "USAF Inks Munitions Contracts, Eyes "JASSM-D" in Bigger Missile Buy."
[174] Trevithick, Joseph. "Here Is What Each of the Pentagon's Air-Launched Missiles and Bombs Actually Cost." *The Drive*, February 18, 2020. https://www.thedrive.com/the-war-zone/32277/here-is-what-each-of-the-pentagons-air-launched-missiles-and-bombs-actually-cost.

a relaxation of the division of labor between the Navy and Air Force and a relatively greater Air Force investment in anti-ship missiles (and attendant ISR). At the same time, the United States should pursue discussions with China about negotiating treaty limits on certain types of long-range systems. Although Beijing has resisted considering such limitations to date, it may be more receptive in the future because the era in which it has a monopoly on, for example, conventionally armed ballistic missiles is coming to an end.

Tankers, AEW aircraft, and surveillance assets

Like combat aircraft, the U.S. Air Force's substantial fleet of high-value airborne assets, HVAA — tankers, AEW aircraft, and surveillance assets — is old and expensive to maintain, yet critical in the expansive western Pacific theater. The average age of the Air Force's fleet of KC–135 tankers is more than 60 years, and the average age of its E–3 airborne warning and control system, AWACS, is more than 40 years.[175] Complicating the issue of recapitalizing the HVAA fleet is the question of how to defend these aircraft against PRC aerial "sniper attacks" — attacks by fighters, particularly stealth fighters, armed with long-range air-to-air missiles.[176]

The tanker fleet is critical for transporting reinforcements to Asia during a crisis or conflict, enabling bombers to fly from out-of-theater locations on strike missions, and sustaining fighter aircraft on strike missions and defensive counter-air missions. Because they do not have the large electronic signature of AEW aircraft, tankers are less vulnerable to air attack, and the current plan to purchase at least 179 KC–46s to replace retiring KC–135s and KC–10s should be executed as future options are considered. The Air Force's fleet of E–3 AWACS is critical for command and control against air and cruise-missile threats, but, like the tanker fleet, the E–3s are old. The commander of Pacific Air Forces has suggested replacing them with E–7 Wedgetails, a Boeing aircraft flown by the Australian, South Korean, Turkish, and British air forces. It is a reasonable approach.[177]

Currently, support aircraft can be defended either by combat aircraft or by adding jammers or decoys to the aircraft themselves, but these solutions are unlikely to be adequate into the future in a China-related contingency as PRC capabilities grow. The manned aircraft defending HVAA require fuel, and growing contingents of them would eat into the capacity of the defended tankers. A number of alternative solutions are possible. Unmanned but armed "defender" aircraft capable of shooting down enemy

[175] Tirpak, John A. "Average Age of USAF Aircraft Drops Slightly, but Eight Fleets Now Exceed 50 Years Old." *Air Force Magazine*, November 23, 2021. https://www.airforcemag.com/air-force-aircraft-mean-age-drops-slightly-but-eight-fleets-now-exceed-50-years-old/.
[176] Majumdar, Dave. "How Russia and China Could Strike the U.S. Air Force's 'Achilles Heel'." *The National Interest*, September 6, 2016. https://nationalinterest.org/blog/the-buzz/how-russia-china-could-strike-the-us-air-forces-achilles-17607; Makichuk, Dave. "PL-15E: China's Jet Fighters Just Got More Deadly." *Asia Times*, October 14, 2021. https://asiatimes.com/2021/10/pl-15e-chinas-jet-fighters-now-have-the-tools-to-kill/.
[177] Everstine, Brian W. "PACAF Boss Calls for E-7s to Replace Aging E-3 AWACS." *Air Force Magazine*, February 24, 2021. https://www.airforcemag.com/pacaf-boss-calls-for-e-7s-to-replace-aging-e-3-awacs/.

radar-guided missiles could be acquired.[178] These would have long loiter times and would not require regular refueling. Procuring unmanned tankers would reduce the risk to crews, and stealthy tankers similar to the Navy's MQ–25 could shuttle back and forth between conventional tankers farther to the rear and fighters on-station near the battle area.

Here, it should be observed that, although the cost for recapitalizing the USAF's force multipliers will not be any less than was building the force we have now, the costs of an HVAA fleet designed for the denial strategy will be far less than a fleet designed to support a more offensive strategy. Any strategy that requires persistent air presence within PRC airspace would require not only stealthy tankers, but also aircraft that are much larger and more capable than the MQ–25, which carries less than one-tenth the fuel of the KC-46. Meeting that requirement, if it were possible at all, would cost far more than tankers built heretofore.

For wide-area, persistent ISR, the USAF deems the non-stealthy MQ-4 Global Hawk too vulnerable and is replacing it with the stealthy RQ–180, which is said to be about the same size (roughly 30,000 pounds) and has the same mission radius, 3,700 kilometers. An alternative or complementary concept advanced by Thomas Hamilton and David Ochmanek of the RAND Corporation is the use of much smaller (600 to 6,000 pound), cheaper, and reusable UAVs that could operate without the benefit of runways to create an "ISR mesh."[179] Against naval targets, these UAVs might suffer significant attrition, but only at the cost of large numbers of onboard missiles. And the smallest UAVs might be acquired for $500,000 each; an entire squadron of 300 aircraft would cost roughly the same as one or two RQ–180s.

Repackaging the force

In terms of the organization of major combat elements, the U.S. Air Force is largely unchanged from 1991, when it fought the Gulf War. Logistically, it remains organized along the lines established in 2000, when it adopted the Expeditionary Air Force concept to facilitate the rotational deployments characteristic of post–Cold War, low-intensity conflict. However, the military problems confronting the U.S. Air Force in Asia today are entirely different. As a recent RAND study of adaptive basing concluded, "the design of current force packages is ill-suited for executing AB (adaptive basing) concepts."[180]

[178] Rogoway, Tyler, and Joseph Trevithick. "General Atomics Wants to Give Aerial Tankers Their Own Missile-Laden Loyal Wingman Drones." *TheDrive.com*, March 1, 2020. https://www.thedrive.com/the-war-zone/32401/general-atomics-wants-to-give-aerial-tankers-their-own-missile-laden-loyal-wingmen-drones.

[179] Hamilton, Thomas, and David Ochmanek. *Operating Low-Cost, Reusable Unmanned Aerial Vehicles in Contested Environments: Preliminary Evaluation of Operational Concepts*. RAND Corporation, 2020.

[180] Patrick Mills et al. *Building Agile Combat Support Competencies to Enable Evolving Adaptive Basing Concepts.* RAND Corporation, 2020. 64. https://www.rand.org/pubs/research_reports/RR4200.html.

Organization should reflect the kind of conflict that the force is designed to deter and the type of challenges that would arise in that conflict. In the Asian context today, these include:

- Vulnerability of bases to accurate attack by air– and ground-launched missiles, which would likely result in:
  - Far more aircraft losses on the ground than at any time since at least World War II;
  - Far more losses to U.S. Air Force ground personnel than at any time since World War II (and possibly ever);
  - Unprecedented disruption to air base operations.[181]
- A challenging competitor in air-to-air combat, which would likely produce losses in air combat unseen since at least the Korean War.

It stands to reason that the operational responses to these challenges will have implications for organization and force presentation. As noted in Chapter 2, the Agile Combat Employment concept is predicated on the potential of distributed operations. ACE operations would be characterized by:

- Flexible employment of mixed basing, including:[182]
  - Traditional main operating bases,
  - "Drop-in bases" (military or dual-use civilian facilities with permanently stationed personnel but not combat units),
  - "Dispersal (or flex) bases" (civilian dual-use facilities or unoccupied austere locations, with no permanent personnel);
- Rapid movement among bases, and occupation and evacuation of locations as needed;
- Employment of small aerial detachments, operating with a minimal footprint and essential, short-term support;
- The employment of camouflage, concealment, and deception, CC&D.

Logistical and support considerations have loomed large in Air Force discussions of distributed operations.[183] Thus far, however, organizational changes have been relatively modest and include, for example, breaking centralized maintenance squadrons into much smaller "fighter generation squadrons," each associated with a specific combat aircraft squadron and, separately, the cultivation of multi-capable airmen. Moreover, while the Air Force has conducted research on the changes necessary to implement

[181] On these points, see Heginbotham, Eric et al. *The U.S.-China Military Scorecard.* Chapter 3, "Scorecard 1: Chinese Capability to Attack Air Bases." See also Appendix B, the results of the Quincy Institute wargame run in conjunction with this project.
[182] For more on the three "ideal-type" bases listed here, see Mills et al. *Building Agile Combat Support Competencies to Enable Evolving Adaptive Basing Concepts*; and Priebe, Miranda, Alan J. Vick, Jacob L. Heim, and Meagan L. Smith. *Distributed Operations in a Contested Environment: Implications for USAF Force Presentation.* RAND Corporation, 2019. https://www.rand.org/pubs/research_reports/RR2959.html.
[183] The exercises designed to test potential concepts of operation have necessarily included or been focused on support elements. RAND's Project Air Force has conducted at least two major studies of the issues involved. Priebe, Vick, Heim, and Smith. *Distributed Operations in a Contested Environment: Implications for USAF Force Presentation*; Patrick Mills et al. *Building Agile Combat Support Competencies to Enable Evolving Adaptive Basing Concepts*.

ACE, it is less clear if the implications of high equipment and personnel casualties on the ground have been studied.

More modular approach to force structure and presentation

The transition to an Expeditionary Air Force during the 2000s produced a modular system for deployment.[184] But the force packages imagined for rotational deployments at that time were larger than those that would be maneuvered under the ACE concept. Agile combat support for ACE will require greater flexibility and would benefit from a fine-grained modularity. This would enable small packages of aircraft to deploy and maneuver relatively seamlessly with appropriate support. It would also enable more flexible responses to battlefield losses. One RAND study has also recommended decoupling aircraft elements from associated maintenance elements, and breaking maintenance elements themselves into component parts, for a fuller achievement of modularity, an idea that seems eminently sensible.[185]

Relatively more resources for combat support

Agile operations, while necessary, cannot be as efficient as centralized operations from main operating bases when measured solely in terms of sortie generation.[186] Improved modularity, multi-capable airmen, and other measures can be used to mitigate the loss of efficiency, but conducting agile operations from collections of airfields, many of which are civilian facilities or austere locations, will necessarily result in lower efficiency regardless of how well-trained or organized the force. Moreover, the expectation of significant losses to enemy attack — even if reduced by measures to improve resilience — will require a degree of redundancy in support capabilities.

Hence, we recommend a relative, if modest, shift in the overall allocation of USAF resources from combat forces to support capabilities, combined with organizational innovations to support this shift. The need for more combat service support under current circumstances is, according to one specialist, "akin to a fourth law of thermodynamics," but the idea has not gained traction in the Air Force, where the focus is overwhelmingly on maintaining aircraft and squadron numbers rather than on building resilient maintenance or air base support units.[187] Operating from a greater number of more dispersed air bases will require new types of base operations units, designed to step in and run facilities that can be used as temporary air bases, in addition to redundant maintenance capability. Current contingency response wings, CRWs, are configured to evaluate potential forward bases and identify requirements, but these

[184] Under the existing system, deployable elements are given "unit type codes" (UTCs), and the UTCs are, in turn, mapped to one another to create packages. For example, 12 F-16s of the 55th Fighter Squadron might constitute one URC, its maintenance assigned another, and text notations would indicate that they should be deployed together. Patrick Mills et al. *Building Agile Combat Support Competencies to Enable Evolving Adaptive Basing Concepts*.
[185] Patrick Mills et al. *Building Agile Combat Support Competencies to Enable Evolving Adaptive Basing Concepts*.
[186] We use the term "efficient" in a limited sense, since a system that is subject to destruction by the adversary will not be efficient or effective under combat conditions.
[187] Interview, August 20, 2021.

might be expanded and reconfigured to conduct operations at austere or temporary operating locations.

Reconfiguring and streamlining command arrangements

The Air Force has experimented with a variety of adjustments that empower squadron commanders and make the squadron more clearly the primary operational unit. It has, for example, experimented with eliminating functional "groups" within wings and having squadron commanders report directly to wing commanders.[188] The Air Force should accelerate efforts to make the squadron the primary echelon for force employment (combat).

The shift to a squadron-centered structure effectively pushes primary command responsibilities down one level, and the squadron may require more command-related resources as it controls smaller detachments that may operate semi-independently from satellite or austere air bases. Wings will remain important in sustaining the force, but greater autonomy for squadron commanders will facilitate the shift from "centralized control, decentralized execution" to "centralized command, distributed control, and decentralized execution."[189] The Numbered Air Forces, however, have become largely redundant elements, and the Air Force should consider eliminating them.

Hardening and other infrastructure improvements to forward bases

Improvements to forward infrastructure are essential to resilience, as well as to nimbler and more dynamic operations. Hardening would reduce vulnerability to missile attack, while preparation of alternative facilities would enable the rapid and effective dispersion of aircraft, as well as rapid and unpredictable movement between sites, complicating an adversary's targeting problem.

Studies dating back more than a decade have validated the efficacy of base hardening.[190] In a review of historical lessons on defensive countermeasures to air base attack, RAND's Alan Vick writes that hardening and other passive measures, such as camouflage, dispersion, and recovery operations, "reflect enduring military principles

[188] Losey, Stephen. "No more Group Commanders? Air Force Tests New Wing Design that Gives Squadron Commanders more Leeway." *Air Force Times*, May 21, 2018. https://www.airforcetimes.com/news/your-air-force/2018/05/21/no-more-group-commanders-air-force-tests-new-wing-design-that-gives-squadron-commanders-more-leeway/.

[189] U.S. Air Force. "Air Force Rewrites Basic Doctrine, Focuses on Mission Command, Airpower Evolution. April 22, 2021. https://www.af.mil/News/Article-Display/Article/2581921/air-force-rewrites-basic-doctrine-focuses-on-mission-command-airpower-evolution/.

[190] Vick, Alan J. *Air Base Attacks and Defensive Counters: Historical Lessons and Future Challenges*. RAND Corporation, 2015. https://www.rand.org/pubs/research_reports/RR968.html; Stillion, John. "Fighting Under Missile Attack." *Air Force Magazine*, August 2009; Rehberg, Carl, and Mark Gunzinger. *Air and Missile Defense at a Crossroads: New Concepts and Technologies to Defend America's Overseas Bases.* Center for Strategic and Budgetary Assessments, 2018. https://csbaonline.org/research/publications/air-and-missile-defense-at-a-crossroads-new-concepts-and-technologies-to-de; Hagen, Jeff, Forrest E. Morgan, Jacob L. Heim, and Matthew Carroll. *The Foundations of Operational Resilience—Assessing the Ability to Operate in an Anti-Access/Area Denial (A2/AD) Environment: The Analytical Framework, Lexicon, and Characteristics of the Operational Resilience Analysis Model (ORAM).* RAND Corporation, 2016. https://www.rand.org/pubs/research_reports/RR1265.html.

and offer a sound framework for air base defense planning today."[191] Carl Rehberg and Mark Gunzinger, former Department of Defense officials, argue that "technologies are sufficiently mature to field new passive defenses that could shelter or otherwise harden base infrastructure."[192]

Yet, judged against other, sometimes far more expensive USAF adjustments made to improve deterrent capabilities against China, very little has been done to harden bases. During the 1970s and 1980s, the United States built roughly 1,000 hardened aircraft shelters, HASs, primarily in Europe but also in frontline areas of Asia, such as Misawa Air Base in northern Japan and in South Korea. With minor exceptions, the United States has undertaken very little hardening since the 1980s, and bases in central and southern Japan remain largely unhardened. There is no natural constituency within the Air Force for concrete and construction, and when given a menu of options — such as that presented in the Pacific Deterrence Initiative — the Air Force has opted to emphasize other requirements. Kadena Air Base, the largest U.S. air base in southern Japan and lynchpin to U.S. air strategy in most China-related scenarios, is equipped with only 15 HASs.[193] China, for its part, is steadily hardening its bases.[194]

Twenty new hardened aircraft shelters on Kunsan Airbase, Republic of Korea, July 31, 2020. (U.S. Air Force photo by Tech Sgt. Will Bracy).

[191] Vick, *Air Base Attacks and Defensive Counters: Historical Lessons and Future Challenges*.
[192] Rehberg and Gunzinger. *Air and Missile Defense at a Crossroads: New Concepts and Technologies to Defend America's Overseas Bases*.
[193] Lewton, David. "The Dragon Pours Concrete." *Air Force Magazine*, November 26, 2014. https://www.airforcemag.com/article/the-dragon-pours-concrete.
[194] As of 2014, China had built an average of 20 hardened shelters every year on its airbases, and it continues to build. Lewton. "The Dragon Pours Concrete."

Expense is sometimes cited as a rationale for inaction, with a figure of "billions of dollars" sometimes cited as the potential cost of hardening.[195] This argument, however, does not account for the range of options available, both in terms of hardening as well as the overall mix of measures that can be combined with hardening. Hardening can include everything from berms around aircraft to super-hardened shelters and can be designed to protect different parts of the air base or its equipment (*e.g.*, fighters, large aircraft, petroleum storage, petroleum distribution, command and control, etc.).[196] Rejecting hardening based on simple cost arguments also ignores the costs of not hardening in terms of potential losses and in terms of vulnerability to first strike and, consequently, diminished crisis stability.

In the Asian context, constructing shelters capable of defeating submunitions, or bomblets, but not large unitary warheads, may be among the most cost-effective strategies. Because adversary missiles may be equipped with clusters of submunitions that can blanket tens of thousands of square meters, each attacking missile might destroy any number of unsheltered aircraft, depending on the density of aircraft at an air base. However, even a modestly hardened HAS would be capable not only of protecting aircraft from submunitions, but would also need to be struck with one or more missiles (with a default expectation of two missiles) equipped with unitary warheads, which would increase the difficulty and cost to China of attacking the base considerably.

The acquisition cost of a USAF tactical aircraft was roughly $115 million in 2020, and due to the munitions, equipment, and personnel requirements of operating a squadron, the per-aircraft cost of a unit will be far higher, even before considering life cycle costs. Robust HASs, at a cost of roughly $7 million each and requiring only modest maintenance, can greatly reduce the loss of those aircraft, which deliver the squadron's capability.[197] To be sure, a simple cost-exchange ratio of missiles to aircraft would still give a significant efficiency advantage to the former, though not by as much as might be imagined. While it is impossible to estimate accurately the cost of PRC missiles, the closest comparable system in the West, the Pershing II medium-range ballistic missile, cost roughly $16 million per copy in 2019 in inflation-adjusted dollars.[198] Moreover, the missiles themselves are relatively inexpensive compared with the force structure (especially personnel) required to launch them, which would more than double the life cycle cost of the system.[199]

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[195] Stillion, John. "Base Hardening: Can America and its Allies 'Play Fort' Against China?" *The National Interest*, October 27, 2014.
[196] See Hagen, Morgan, Heim, and Carroll. *The Foundations of Operational Resilience—Assessing the Ability to Operate in an Anti-Access/Area Denial (A2/AD) Environment: The Analytical Framework, Lexicon, and Characteristics of the Operational Resilience Analysis Model (ORAM)*.
[197] The ROK recently funded the construction of 20 hardened aircraft shelters (HASs) on the U.S. Kunsan Air Base for $125 million, or a little more than $6 million per shelter. Bracy, Will. "Hardened Aircraft Shelters Constructed at Kunsan." Kunsan Air Base website, August 4, 2020. https://www.kunsan.af.mil/News/Article/2301980/hardened-aircraft-shelters-constructed-at-kunsan/. The Indian Air Force has built 108 HASs for roughly the same unit cost. "Indian Air Force Plans Building 108 Hardened Aircraft Shelters." *DefenseWorld.net*, July 3, 2017. https://www.defenseworld.net/news/19740/Indian_Air_Force_Plans_Building_108_Hardened_Aircraft_Shelters#.YF0WXR17IT4.
[198] Cohen, Jacob, Timothy A. Walton, Adam Lemon, and Toshi Yoshihara. "Leveling the Playing Field: Reintroducing U.S. Theater-Range Missiles in a Post-INF World." Center for Strategic and Budgetary Assessment, 2019. https://csbaonline.org/research/publications/leveling-the-playing-field-reintroducing-us-theater-range-missiles-in-a-post-INF-world.
[199] Heim, Jacob. "It's Your Move: Force Planning in the New Era of Strategic Competition." *Inkstick*, March 26, 2020.

Hardening would not be conducted in isolation, but in conjunction with other defensive mechanisms, such as mobility, camouflage, and concealment, which hardening would greatly assist, and active defenses provided by surface-to-air missiles. The combination of these measures would vastly complicate an adversary's targeting problem. Uncertainty, compounded by the number of variables in play, would be likely to contribute to either underestimating or overestimating required missile salvos against U.S. bases, leading to missile wastage and less- effective adversary operations.

Moreover, the cost-effectiveness of hardening should not be measured by calculations comparing the expense of shelters and missiles alone, but also by the contribution and offensive power of the system being protected. U.S. aircraft, protected by hardening, dispersion, and other means, would conduct air-to-air combat or strikes of their own to balance the score. To use an analogy from ground combat, the fact that a bullet is cheaper than both soldiers and body armor does not imply that body armor should not be procured for soldiers.

We recommend that the main U.S. operating bases be hardened and that the Air Force should do so expeditiously. It should not wait for allies to foot the bill. While such assistance would be welcome — and South Korea paid for the last significant base hardening, at Kunsan Air Base — the benefits of base hardening are well worth the marginal cost to the United States.[200] We also recommend that the U.S. Air Force strongly encourage allies to harden their own facilities and consider selectively hardening civilian airfields that might be employed as dispersion fields during conflict. This approach — with allies relieved of housekeeping duties for U.S. forces but expected to improve their own capabilities — is consistent with our consideration of allies and partners in the next chapter.

An archipelagic partnership with the Army

East Asia's mixed geography places a premium on jointness and the ability of all services to conduct joint operations. Unlike the Navy–Marine Corps team, the Air Force and the Army have important gaps that are difficult if not impossible to close with their own single-service capabilities. They do have, however, complementary capabilities that make them natural partners in Asia, a subject we consider in more detail below in our discussion of the Army.

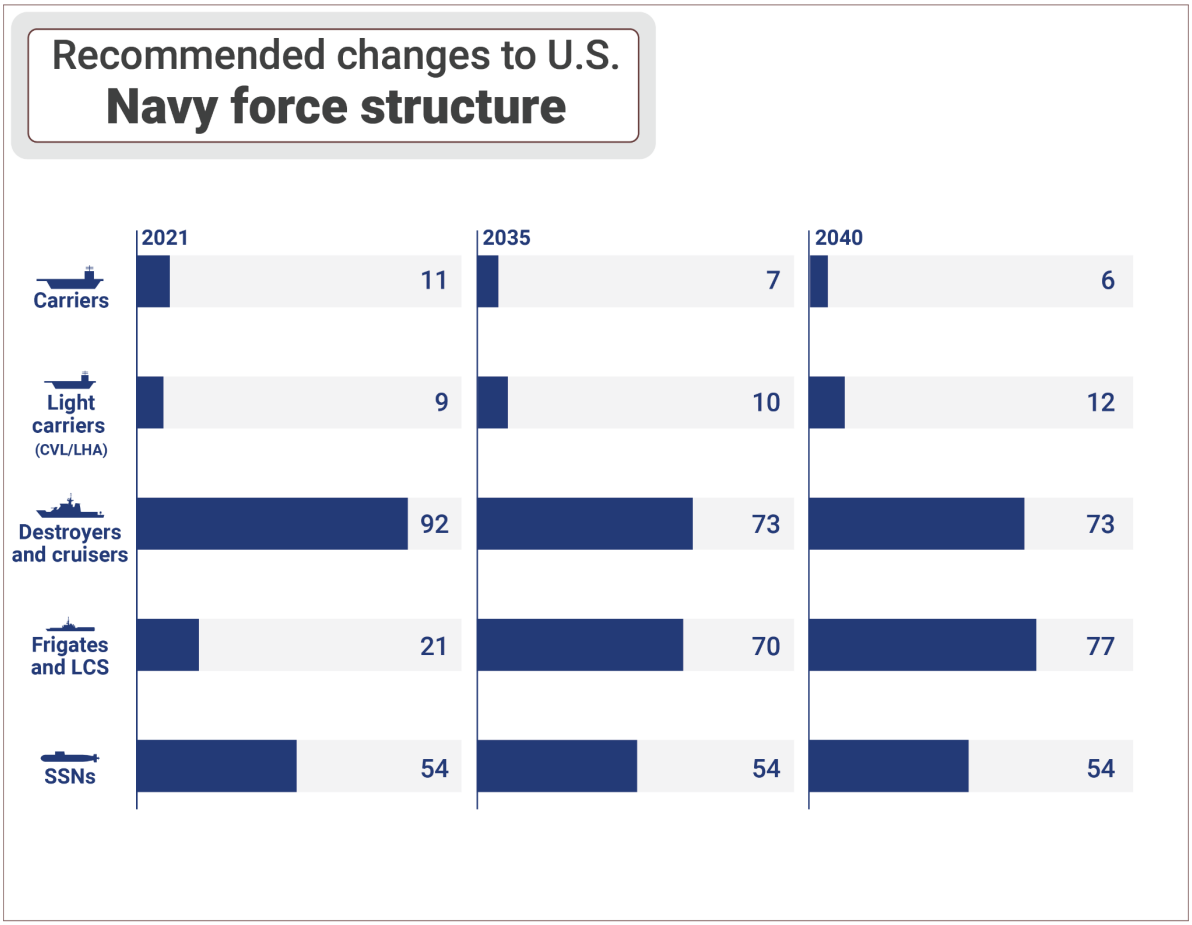
[200] Fisher, Franklin. "New Shelters Promise Brighter Days Ahead for Osan Mechanics." *Stars and Stripes*, March 30, 2004. https://www.stripes.com/news/new-shelters-promise-brighter-days-ahead-for-osan-mechanics-1.18211; Bracy. "Hardened Aircraft Shelters Constructed at Kunsan."

U.S. Navy Out to 2035

Our recommended adjustments to Navy force structure are intended to create a nimbler force that is better equipped to execute distributed maritime operations as part of a denial strategy. Distributed operations would allow the component parts of a fleet or task force to operate from widely separated locations but continue to function as a unified whole. This would be particularly important at the outset of conflict, when individual picket ships or submarines might provide ISR to other elements farther from the adversary fleet, potentially allowing them to strike from those distant positions.

The Biden administration has inherited the 355–ship program, which remains policy, and the Battle Force 2045 outline. Our own recommendations are more in line with the latter but are adjusted to reflect the principles of an active denial strategy and to make them consistent with what we consider are budgetary realities. Assuming the military is entering a more budget-constrained environment, the adjustments to the Navy are intended to be budget neutral, if not less expensive. The figures given for numbers of ships in specific classes are intended to be suggestive of priorities and emphases rather than exact, and they would be further refined based on more-accurate cost estimates. Although larger than the savings associated with the changes to the Air Force recommended in the preceding section, the net savings resulting from these recommended changes in the Navy, at some $10 billion annually in 2035, would also be relatively modest compared with the last Trump administration plan.

Figure 3.2: Recommended changes to U.S. Navy force structure



Aircraft carriers and amphibious assault ships

To implement an active denial strategy effectively, the Navy's force of aircraft carriers should evolve toward a mix of large-deck carriers, or CVNs (100,000–ton class), and light carriers, or CVLs (~45,000–ton class), at a roughly 1 to 2 ratio.[201] This approach will create a more usable force that is more capable of deterrence and warfare in the Asia–Pacific theater and more conducive to crisis stability. Overall, this redesigned carrier force would consume less of the Navy's resources, freeing resources for a more balanced fleet with additional surface and subsurface assets and to include unmanned systems.

[201] A number of serious studies have been undertaken of the relative merits of smaller aircraft carriers, but as late as 2017, the Navy's reception has been quite cool. See Martin, Bradley, and Michael E. McMahon. *Future Aircraft Carrier Options.* RAND Corporation, 2017; and Freedberg, Sydney J. Jr. "Small Aircraft Carriers: RAND Report Won't Convince McCain." *Breaking Defense*, October 20, 2017. https://breakingdefense.com/2017/10/small-aircraft-carriers-rand-report-wont-convince-mccain/. Since the release of Battle Force 2045, and perhaps with the growing realization of carrier vulnerability sinking in, opposition has been less united.

	2021	2035	2040
Large-deck carriers	11	7	6
Landing helicopter assault/ landing helicopter deck	9	0	0
Light carriers	-	10	12

Large-deck carriers — including the current Nimitz-class and Ford-class ships — provide platforms for the efficient generation of naval air power, as measured by fighter-sortie generation rates; unlike smaller carriers, these carriers can also support medium-sized support aircraft. However, using efficiency as the sole critical metric of effectiveness, without considering vulnerability and the potential loss of the platform, is a deeply flawed approach in the context of conflict with near-peer states armed with long-range precision-strike capabilities.[202] Each large carrier is massively expensive, with hardware procurement alone running some $12 billion to $13 billion for the ship and an additional $5 billion to $8 billion for aircraft.

Large carriers are manifestations of national power. The potential loss of even one, together with the crew of 4,500 (including the air wing), would be a blow that would discourage forward use of other carriers at the outset of a conflict with China, while also likely leading to rapid escalation of the conflict. While there is a probability that any ship at sea may be discovered by adversary ISR, the large concentration of airpower flying from the deck of the large carrier, together with the larger size of the escort that might accompany it, would likely create a more distinctive tell. This could also prove destabilizing by creating an incentive for the adversary to conduct a first strike to deliver an early and debilitating blow.

Distributing naval air power among more ships will complicate an adversary's ISR and targeting, make U.S. naval airpower more usable in the event of major power conflict, and reduce escalation pressures. And although smaller carriers will generate fewer sorties (and fewer sorties per aircraft), the range and lethality of anti-ship missiles can nevertheless make those platforms and their aircraft a potent force. At a third to half the cost of Ford-class carriers, they can provide some of their capability while saving resources that may be invested in other parts of the fleet.

Large-deck carriers will still have a role in U.S. strategy, for potential conflicts involving less-capable states and also for the latter stages of conflict against near-peer competitors. While the emphasis will be on denial at the outset, regaining control of any areas lost will ultimately be required, and large carriers can be useful in that endeavor. The active denial strategy would therefore halt construction of the Ford-class while continuing to retire carriers on their planned schedule. This would keep seven CVNs in the fleet by 2035 and six by 2040, a reduction of five from today. In the meantime, the

[202] The vulnerability of carriers has been addressed by professionals and analysts alike for years, though many in the Navy also contest that view. See Patch, John (Commander, USN, Retired). "Fortress at Sea? The Carrier Invulnerability Myth." *Proceedings*, January 2019, Vol. 136. https://www.usni.org/magazines/proceedings/2010/january/fortress-sea-carrier-invulnerability-myth.

longer-term future of large-deck carriers should be explored, with consideration of potential designs that might be more cost-effective than the Ford-class.

Complementing the large carriers would be a fleet of CVLs. One option, at least as an interim measure, would be to use the America-class landing helicopter assault, or LHA, or a variant of that class as a CVL, since construction of the LHA class is currently underway.[203] CVLs would be optimized for air operations and would therefore — like the LHA 6 and 7 — dispense with the well deck found in other variants. The fleet of CVLs would eventually stabilize at 12, replacing the Wasp-class landing helicopter decks (LHD) as the latter retire.[204] The CVLs would carry a smaller and more limited air wing, with 25 F–35Bs and a handful of helicopters, versus roughly 45 combat aircraft (including E/A–18G "Growlers") and about 30 other support aircraft on the large-deck carriers.[205]

An F-35B Lightning II aircraft attached to Marine Operational Test and Evaluation Squadron 1 takes off aboard amphibious assault ship USS Tripoli, Mar. 31, 2022. U.S. Marine Corps photo by Seaman Maci Sternod.

Our recommendation for building up the CVL fleet is ambitious. It includes use of the first two America-class LHAs as CVLs, the conversion of planned LHAs to CVLs, and,

[203] A modified America-class would presumably be the easiest from a design perspective and would generally be appropriate to a denial strategy, but its boxy design (a function of its origins as an amphibious assault ship) limits speed, and a new design could be faster and thus, more survivable. Eckstein, Megan. "Light Carrier Studies Already Underway as Navy Considers Role for CVLs in Future Fleet." *USNI News*, February 1, 2021. https://news.usni.org/2021/02/01/light-carrier-studies-already-underway-as-navy-considers-role-for-cvls-in-future-fleet.
[204] For cost figures, see Martin and McMahon. *Future Aircraft Carrier Options*.
[205] Martin and McMahon. *Future Aircraft Carrier Options*. 30.

eventually, the introduction of a new-design CVL. It also assumes that capacity at Newport News or elsewhere that would have been allocated to building large carriers can instead be employed in the production of CVLs. If this construction and conversion schedule proves too ambitious, it may be necessary to keep one or two additional CVNs in the force, pending the construction of an adequate number of CVLs.

Perhaps the CVL's biggest limitation is that its shorter deck could not accommodate the E–2D early-warning aircraft.[206] There are a number of ways to mitigate this problem. In an archipelagic environment such as East Asia, the most obvious would be to have shore-based E-2Ds provide AEW, much as the Japan Maritime Self–Defense Force's E–2s now provide in the Japanese context. Another solution, either alone or in combination with shore-based E-2Ds, would be either AEW helicopters (similar to the British Sea King MK7), or, preferably, an AEW variant of the V–22, the so-called EV–22, a tilt-rotor aircraft capable of vertical and/or short-takeoff-and-landing, which could fly higher and for longer duration than helicopter candidates. Unmanned aircraft may also be an option for parts of this mission.

Although optimized for air operations, the CVLs could nonetheless be configured and used for amphibious operations, though Marines would have to fly ashore using helicopters or tilt-rotor V–22 aircraft. Separate LHAs or LHDs with well decks (internal spaces that can be flooded to permit hovercraft and other landing craft to depart fully loaded from within the ship) would not be acquired or maintained after the retirement of the Wasp-class LHD as these reach their service lives beginning in roughly 2028.

Amphibious well deck operations

Although CVLs will not possess well decks, the Navy would still retain the ability to carry out well-deck operations with the legacy force of LPD–17 class and the LXR class projected as a one-for-one replacement of the LSD–41.49 class. We do not envision cutting or adding to this force. The USMC thus will retain the ability to carry out ship-to-shore movement at a Marine expeditionary unit and above scale. While we do not see operations at this scale as feasible in highly contested environments, such as those likely in a China-related contingency, we see the potential value in less-contested circumstances. The Marine Corps has also proposed that the Navy develop and deploy the Light Amphibious Warship, which would operate in support of expeditionary advance bases. We will consider this in a later section on logistics ships and connectors.

[206] Airborne early warning (AEW) provides early warning of air and missile attack. It enables aircraft to vector toward the threat, and, when networked with ship-based missile defenses, allows the early engagement of incoming missiles and a shoot-look-shoot doctrine that maximizes the effective use of defensive missiles. Most observers agree that the British lack of carrier-borne AEW during the Falklands War was its biggest single military weakness, a point made by senior participants, Sandy Woodward and Sharkey Ward, as well as analysts of naval strategy. See Speller, Ian. "Delayed Reaction: UK Maritime Expeditionary Capabilities and the Lessons Learned of the Falklands Conflict." *Defense and Security Analysis* 18:4, 2002. http://mural.maynoothuniversity.ie/844/1/Speller.pdf.

Surface warfare: Cruisers, destroyers, frigates, and littoral combat ships

In contrast to today's fleet, which is overwhelmingly slanted toward large surface combatants (destroyers and cruisers) designed primarily to escort large carriers, the active denial strategy would aim to create a force with a more equal number of small surface combatants (frigates and corvettes) and large surface combatants.

		2021	2035	2040
Large surface combatants		**92**	**73**	**73**
	CG	22	3	0
	DDG	68	70	70
Small surface combatants		**21**	**70**	**77**
	FFG	-	35	42
	LCS	21	35	35

Typically, maritime denial forces have focused on submarines and smaller surface craft, such as the destroyers and patrol torpedo boats, the PT boats that populated "the slot" during the World War II Solomon Islands campaign — when major units of the U.S. Navy dared not loiter within those confined waters in the face of the Japanese surface threat — or the German offshore torpedo boats employed during both world wars. Modern technology adds new dimensions to the utility of smaller vessels, as platforms can be networked not only to one another, but also to weapons fired off board. The employment of small surface ships such as frigates for conducting pickets as part of an active denial strategy is indicated in Figures 2.6 and 2.7, which show the active denial strategy during different phases of conflict.

Large surface combatants remain an important component of the fleet, particularly as the centerpiece of carrier strike group defense. At the very large end, the Navy has encountered serious problems with its replacement for the 22 aging Ticonderoga-class cruisers, but the reliable Arleigh Burke-class destroyers perform many of the same functions, and the Arleigh Burke Flight III (9,700 tons) will bring further improvement. The active denial force would, therefore, allow the Ticonderogas to retire without replacements, while maintaining continuity and evolution in the destroyer fleet, producing enough of the Flight III variant to replace all of the existing ships prior to the Flight IIA, which were limited in their deck hanger space and would not be economical to upgrade, especially considering their age.[207]

In the realm of small surface combatants, the littoral combat ship, LCS, presents enormous dilemmas, while the new Constellation-class frigate will provide the right mix of capabilities in the role of multipurpose utility combatant. The 3,200–ton (Independence-class) and 3,500–ton (Freedom-class) LCSs were designed for another

[207] There are 28 Flight I and II ships. They were not designed with the same service life as later Burke-class ships, and upgrades would be more extensive. Larter, David B. "Cost of Upgrading Arleigh Burke Destroyers May not be Worth it, Says U.S. Navy." *Defense News*, March 17, 2020. https://www.defensenews.com/naval/2020/03/17/cost-of-upgrading-the-arleigh-burke-destroyers-may-not-be-worth-it-navy-says/.

era of lesser adversaries and are not well-suited to the Pacific. They have short cruising ranges, no vertical launch system (VLS) cells essential for firing advanced air-defense and land-attack missiles from mobile naval platforms, no long-range air defenses, no stealth, and, in the early models, weak radar and fire control. They also suffer from mechanical unreliability, with engines plagued by major breakdowns and extraordinarily high operating costs — 85 percent of the vastly more capable Arleigh Burke-class ships).[208]

The problem posed by retiring the LCS lies in the comparative youth of the hulls, the number that are already launched (21) or in production (11), and the possibility that upgrades might make them somewhat more suitable for high-intensity warfare.[209] But while current or planned improvements include radar derived from Aegis and deck-mounted naval strike missiles, even with these improvements the ship would remain a Frankenstein craft with inadequate firepower — a few deck-mounted NSMs are unlikely to overwhelm the defenses of any near-peer competitor's formations — and weak defenses.[210] At a minimum, the Navy should order no more of either class, cancel delivery of ships that are not near completion, and consider the future of existing ships only after a top-to-bottom review of operating costs. We therefore welcome the March 2022 announcement that most of the Freedom-class ships will be retired.

The Constellation-class frigate offers a more capable small surface combatant that can complement the Navy's existing fleet of Arleigh Burke-class destroyers and fill the need for more units capable of accompanying and protecting the Navy's large units (carrier battle groups and amphibious ready groups). With Aegis radar and 32 VLS cells, it will be a versatile ship. At a unit cost of roughly $1.2 billion per ship for the first 10, it is not cheap, but it is still one-third cheaper than the Burke ($1.8 billion) and has the future potential for further unit-cost reduction.[211] At 7,300 tons, however, the Constellation was more of a safe selection after the fiascos of the LCS and the DDG–1000 Zumwalt-class cruisers. The Constellation is, in other words, more of a reduced-size Burke-class ship rather than an attritable small ship that might sail into harm's way and prosecute JAM–-GC's "inside" battle.

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[208] Newdick, Thomas, and Tyler Rogoway. "Navy's 'Cheap' Littoral Combat Ships Cost Nearly as Much to Run as Guided Missile Destroyers." *The Drive*, April 12, 2021. https://www.thedrive.com/the-war-zone/40147/littoral-combat-ships-cost-nearly-as-much-to-run-as-guided-missile-destroyers; LaGrone, Sam. "Navy Calls Freedom LCS Propulsion Problem Class-Wide Defect, Won't Take New Ships Until Fixed." *USNI News*, January 19, 2021. https://news.usni.org/2021/01/19/navy-calls-freedom-lcs-propulsion-problem-class-wide-defect-wont-take-new-ships-until-fixed.

[209] Ziezulewicz, Geoff. "Despite Littoral Combat Ship's Myriad Issues, the CNO is 'Bullish' on their Future." *Defense News*, April 29, 2021. https://www.defensenews.com/news/your-navy/2021/04/29/despite-littoral-combat-ships-myriad-issues-the-cno-is-bullish-on-their-future/.

[210] McLeary, Paul. "Navy Unveils Surprise Plan for Littoral Combat Ships." *Breaking Defense*, April 29, 2021. https://breakingdefense.com/2021/04/navy-unveils-surprise-plan-for-littoral-combat-ships/.

[211] For unit costs over time, see Congressional Research Service, *Navy DDG-51 and DDG-1000 Destroyer Programs: Background and Issues for Congress.* Updated February 24, 2021; Shelbourne, Mallory. "CBO Says Navy Underestimated Cost of First Frigate by 40 Percent." *USNI News*, October 14, 2020. https://news.usni.org/2020/10/14/cbo-says-navy-underestimated-cost-of-first-frigate-by-40-percent.

Port Hueneme, Calif. (April 2, 2021) A cross-warfare center team, including Naval Surface Warfare Center, Port Hueneme Division, is developing a total ship Frigate Readiness Assessment Model (FRAM) for the new Constellation-class frigate, FFG 62, which is nearing completion of the design phase. (Artist rendering courtesy of Fincantieri Marine Group).

At the small end, then, the active denial Navy should complete procurement of the 20 planned Constellation-class ships, terminate the LCS program, consider decommissioning existing LCSs if sustainment costs appear excessive, invest in unmanned ships (discussed further below), and continue to shop for an appropriate close-in combatant. That ship might resemble Japan's new Mogami-class frigate, which, at 5,500 tons, is between the size of the LCS and the Constellation-class frigate. It has dramatically reduced radar cross-section, which enhances its stealth; a 16–cell VLS system; long-range air defenses, and a unit cost that is said to be roughly $500 million, or less than a third of the Burke's. No affordable vessel will have every desirable trait, but something like the Mogami, can provide the right combination of traits at an affordable price.

Connectors and logistics ships

Surface ships require refueling and replenishment, and providing this falls to the combat logistics force of the Military Sealift Command. We do not envision a requirement for a larger logistics force than the Navy currently plans, but we note that the demand for distributed operations will drive a need for versatile ships to support widely separated task forces and ships.

The Navy, in conjunction with the Department of Transportation's Maritime Administration, also maintains a fleet of strategic sealift ships intended for activation in the event of a major contingency. This fleet is central to the movement of assets for all services. In the run-up to the first Gulf War, although airlift delivered a higher percentage of tonnage than it had in past wars, sealift still accounted for 95 percent of the tonnage

delivered.[212] The readiness and advanced age of some of this force is a matter of concern, and it will need some recapitalization, although a conflict in Asia would not require the same tonnage that a ground war such as the Gulf War did.[213]

Intra-theater lift, which facilitates the operational and tactical movement of forces from all the services within the Western Pacific, is arguably an even more urgent issue. Individual services — the USMC with the Light Amphibious Warship and the Army with its fleet of watercraft — are addressing individual service requirements. But, as of now, neither any of the services nor any combatant command has taken the lead for providing the resources. Providing adequate intra-theater lift is likely to require extensive use of leasing and/or host-nation support, which U.S. forces should not assume to be forthcoming. There may, therefore, be value in creating a capability organic to the U.S. military for intra-theater lift, presumably under the direction of the Navy for manning and maintenance.

Meeting the waterborne, intra-theater lift requirement remains an unsolved problem, and the potential costs for resolving it should be weighed in evaluating and scoping Marine and Army plans for new forms of littoral combat operations. The potential scale for such operations will, unless lift issues are resolved, remain limited regardless of the ground elements created for this purpose.

Attack submarines

Submarines have, since their inception, been classic tools of denial. They were employed by the weaker naval powers of Europe during both world wars and by the United States in waters that it could not yet control during each phase of the Pacific War. Submarines remain the one U.S. asset that could likely operate in relative safety close to Chinese territory, even at the outset of a conflict. They would be critical in an active denial strategy. Submarines firing anti-ship cruise missiles are a powerful threat to any collection of surface ships, in particular those massing for an amphibious assault. Armed with land-attack cruise missiles, they can also influence events ashore as well as at sea through, for example, attacks on air bases along the coast.

The United States has long valued and invested in its SSNs, and the fleet currently includes 54 in service. Despite the utility of submarines, however, increasing the size of the already substantial U.S. submarine fleet would likely have declining marginal utility, and we therefore recommend continuing to modernize and maintain the fleet rather than dramatically increasing its size. Additional Virginia-class submarines would replace the four Ohio-class SSGNs and the Los Angeles-class SSNs as boats of those classes are retired.

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[212] "Commemorating 30th Anniversary of Operation Desert Storm." USTRANSCOM, January 15, 2021. https://www.ustranscom.mil/cmd/panewsreader.cfm?ID=474ED85F-020E-9C1A-D7935FD261434420&yr=2022.
[213] Martin, Bradley, and Roland J. Yardley. *Approaches to Strategic Sealift Readiness*. RAND Corporation, 2019. https://www.rand.org/pubs/research_reports/RR3049.html.

	2021	2035	2040
SSNs	54	54	54

There are several reasons for keeping the current fleet size and not dramatically increasing it.

- The rate at which submarines can prosecute attacks (*i.e.*, the frequency of attacks) on surface ships is too slow to make submarines, by themselves, a decisive factor in a high-intensity war in the Western Pacific. The number of targeted ships is in the hundreds, and because each submarine must be assigned a discrete (and generally substantial) patrol area to avoid fratricide, the speed with which submarines could find and safely attack adversary ships would be constrained. Although the PLA Navy's anti-submarine warfare capabilities are not at U.S. standards, the large and growing number of Chinese ASW platforms would likely further disrupt and slow attacks.[214] The primary requirement in countering the PRC fleet is a large volume of ordnance, not stealthy attacks on a few targets.

- At roughly $3.4 billion each, submarines are expensive assets.[215] They have limited ordnance capacity relative to other, less-expensive weapons-delivery platforms. The newest Virginia-class submarines (Block V) carry 65 weapons — a combination of torpedoes and Tomahawk missiles. Even full missile salvos by these most advanced boats are smaller and less likely to overcome adversary air defenses than the missile salvos that could be launched by a handful of bombers, each of which can carry 16 to 24 JASSM or LRASM missiles. A bomber costs far less than a submarine: The unit cost of a B–21 is $550 million. And unlike submarines, which can take days to return to port, reload, and move back to their patrol area, bombers can return to base and be reloaded within hours after each sortie.

[214] During the Falklands War, each British SSN patrolled an area roughly 100nm by 200nm. Even if the area is much smaller, only a limited number of the boats could deploy. Rader, Karl A. (USN Commander). *Forward… From the Sea Into the Torpedo Danger Zone: Blue Water ASW Doctrine in Shallow Water.* U.S. Army Command and General Staff College, 1995. 19 and footnote 63.
[215] Congressional Research Service. *Navy Virginia (SSN-774) Class Attack Submarine Procurement: Background and Issues for Congress.* January 10, 2022.

A Virginia-class submarine at sea (U.S. Navy photo/released).

- As missile shooters, submarines make themselves vulnerable, as missiles fired from a submerged submarine betray its location, putting it and its crew of 120 at significant risk, especially if it is near the adversary's coast. Torpedo attacks offer better security to the submarine, but they require patient stalking, are limited to attacks in patrol areas, and are the slowest form of attack. Although bomber attacks, too, are not without risk, their weapons can be launched from well outside of ground-based air defenses.

To be sure, submarines have some advantages relative to standoff bombers. For example, they can maintain more persistent presence, conduct their own local ISR, and visually discriminate between high-value targets, less-valuable targets, and outright decoys. However, they are not invulnerable when operated close to defended waters, and they deliver a limited ordnance load relative to the great expense associated with building and maintaining them. Adding submarines to the force structure would also strain an already challenged industrial base that is attempting to build two SSNs and the Columbia-class SSBN at the same time. While not impossible, it would create greater strain and expense, only to add capabilities that are present elsewhere in the joint force.

Unmanned surface vehicles and unmanned underwater vehicles

Given that unmanned surface vehicles, USVs, and unmanned underwater vehicles, UUVs, remain in the prototype stage, the greatest uncertainty in our proposed Navy force structure surrounds the extent and speed with which they should enter the inventory. Both have great potential, but we recommend a deliberate approach, particularly in the development and acquisition of larger craft. Smaller USVs, with a limited mission set and significant off-the-shelf technology, might be deployed sooner and in relatively larger numbers.

The U.S. Navy's USV program already varies greatly in size, with potential missions that are almost as varied as the manned surface fleet. In general, USVs offer the combination of low cost, high endurance, and, of course, low or no risk to the personnel operating them. The Navy also sees these ships as reconfigurable. It defines large USVs as 200 to 300 feet long with a full displacement of 1,000 to 2,000 tons — or roughly half that of the LCS. Medium-size USVs are 45 to 190 feet long, with a displacement of 500 tons. UUVs, for their part, have the potential to work with submarines and expand the network of undersea platforms considerably.

DARPA's Sea Hunter prototype provides an example of what medium USVs might offer in the relatively near term. Sea Hunter has a range of 10,000 nautical miles and an endurance of up to 90 days without resupply. Anticipated missions would include reconnaissance, decoy, and electronic warfare — that is, carrying onboard electronics to detect other battle fleets, spoof the signals of a standard warship, or jam sensors of adversary ships. With a targeted unit cost of $20 million, procurement would be 10 percent of the cost of a single P–8 ASW aircraft, or about 1 percent that of an Arleigh Burke destroyer.

However, determining the specific requirements and concepts of operation for large USVs and large UUVs will be more complex, and the craft themselves more expensive. Their mission set may include strike, supplementing traditional task forces, in addition to ISR. Given cost, uncertainty, and other potential means to increase the number of VLS systems at sea (*e.g.*, by equipping noncombatants with them), we concur with members of Congress who have suggested a more deliberate approach than the Navy initially suggested.[216]

[216] Congressional Research Service. *Navy Large Unmanned Surface and Undersea Vehicles: Background and Issues for Congress.* Updated March 17, 2021. See also, Shelbourne, Mallory. "Navy to Use Sea Hunter in Fleet Exercises as Unmanned Systems Experimentation Continues." *USNI News*, September 30, 2020. https://news.usni.org/2020/09/30/navy-to-use-sea-hunter-in-fleet-exercises-as-unmanned-systems-experimentation-continues.

U.S. Army changes out to 2035

Right-sizing the Army

The Defense Department has described PRC military capabilities as the pacing threat for the U.S. military. This is largely true for the Navy and the Air Force. China-related contingencies are not the only important scenarios for those services;but they also drive many, if not most, considerations of their operational concepts and force structure. Army requirements, on the other hand, are driven by a broader set of scenarios, many of which are outside of Asia. As James C. McConnville, the Army's chief of staff, said in June 2021, Europe is a "priority theater for the United States Army."[217] In the wake of the Ukraine invasion, the Army's focus on Europe will only increase. The Army has also had a leading role in the post–September 11th wars, and the 18th Airborne Corps remains America's "contingency corps," capable of deploying significant elements anywhere in the world on short notice.

Within Asia, the Army would be relevant to most plausible contingencies but less heavily taxed. Those involving war in Korea would be by far the most demanding in terms of large, traditional maneuver units. Even in these scenarios, though, the ROK Army should be able to bear the greatest brunt of the ground fight, as explained in Chapter 2. Under an active denial strategy, scenarios involving China would involve only relatively few — if specialized — U.S. Army forces, equipped with a range of advanced defensive and offensive missile systems optimized for denial missions.

National security is always a matter of balancing risk, and right-sizing the Army depends on evaluating the importance of maintaining a balance of power vis-à-vis China relative to ensuring robust capability elsewhere. While such an evaluation is to some extent beyond the immediate scope of this report, we explained in Chapter 1 and the introduction to Chapter 2 why the United States, in addition to adjusting force posture and structure in the Pacific, should reallocate defense resources towards the Asia–Pacific, where the balance of power is far more asymmetric and problematic for U.S. and allied interests than elsewhere.

In Appendix A, we establish a framework for making changes to U.S. ground-force maneuver units. Within that framework, we assume, conservatively, in our view, that the United States will want to maintain ground capability sufficient to execute six tasks simultaneously: (1) keep a forward presence in Europe and Asia, (2) conduct a large-scale military operation in one region, (3) conduct a smaller military operation in a second region, (4) sustain a major stability operation, (5) conduct major homeland-security operations, and (6) keep a strategic reserve. Based on our analysis of the forces needed to carry out these missions, including a possible defense against PRC

[217] Vandiver, John. "Europe is a 'Priority Theater' for U.S. Army, Top General Says." *Stars and Stripes*, June 17, 2021. https://www.stripes.com/branches/army/2021-06-17/US-Army-chief-of-staff-during-stop-in-Germany-calls-Europe-a-%E2%80%9Cpriority-theater%E2%80%9D-even-as-service-faces-budget-cuts-1715597.html.

military aggression, we estimate that the Army could make prudent reductions in its size by 2035 that would yield annual savings of roughly $46 billion.

We describe the force structure assumed to be required to perform each of these missions in Appendix A. For large ground operations, such as those that might be undertaken in Europe, the Middle East, or Korea, we assume that a ground force similar in size to Operation Iraqi Freedom would suffice — specifically, a force of 12 Army brigade combat teams and/or Marine Corps regiments. We assume all would be drawn from the active (i.e., non-reserve) component. We assume a smaller ground war would require roughly half as many forces, also from active duty forces. For stability operations, we assume five BCT and/or Marine regiments would likely be required, with five more recovering (returned to peacetime duty stations in preparation for further deployment).

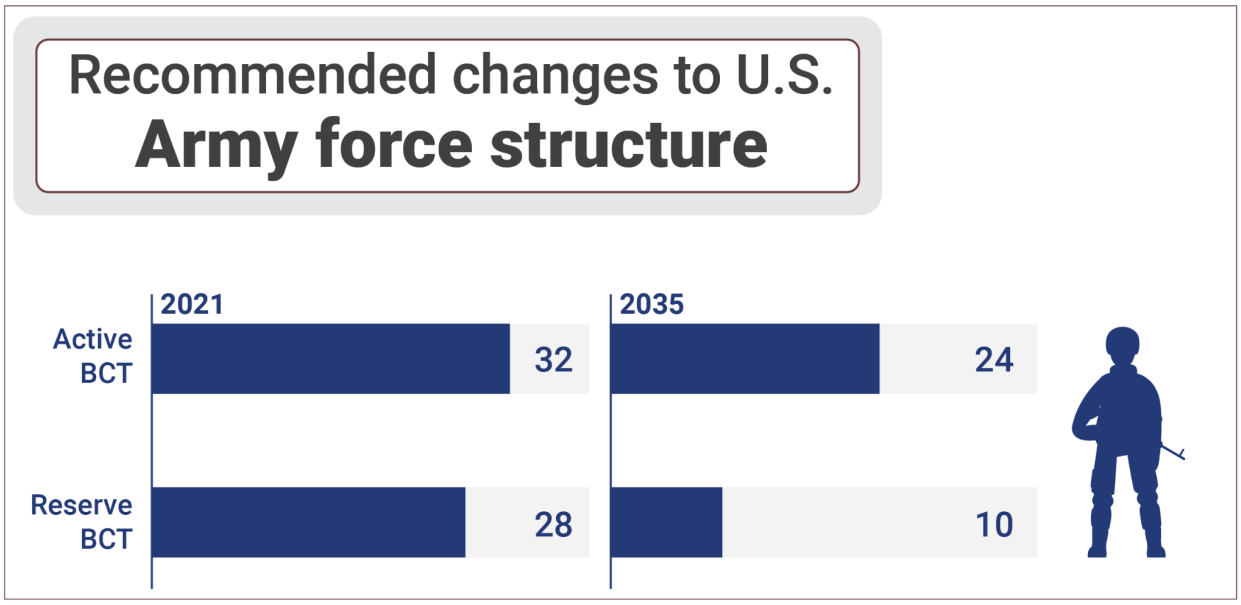
It is possible, of course, that some scenarios might demand greater forces, but in the case of European contingencies, NATO allies should be able to increase their own deployable forces from now to 2035. Moreover, by drawing upon the strategic reserve of 10 BCTs assumed in our proposal, as well as troops recently home from stability operations,[218] and including the minimum of one BCT assumed in our proposal to be stationed in Europe, the force total could be increased to as many as 28 BCTs. Our hypothetical stability operations are moderately sized. The five BCTs allocated would total roughly 50,000 troops, less than a third the number deployed to Iraq during the peak U.S. military presence, but roughly double the number deployed during operations in Somalia and Bosnia.[219]

If U.S. defense planners adopted these assumptions, we estimate that there is currently considerable slack in terms of U.S. ground forces. Of the 71 BCTs and regiments currently in the Army and Marine Corps force structure (active, reserve, and National Guard), a total of 26 (37 percent) could be cut. Of those cuts, we suggest that 22 BCTs and regiments should come from Army force structure — eight from the active force and 14 from the National Guard. (See Figure 3.3.)

[218] Although units rotating out of a stability operation would, ideally, have time to recover from those operations prior to deployment to another conflict, those forces would, in many ways, be in a readier state than other units, given their recent experience in operational deployments.

[219] Even if 100,000 were required, the U.S. military would still have the capability to deploy those forces and conduct one and a half OIF-sized military operations, though it would have to mobilize reserves to do so. However, such a large deployment would reduce by at least five the number from the strategic reserve otherwise available for other missions.

Figure 3.3: Recommended changes to U.S. Army force structure



While this reduction of 22 BCTs would come to 37 percent of the 60 BCTs currently active and in the National Guard, cuts to the overall Army budget would be somewhat smaller. In addition to BCTs, the Army maintains a variety of large, functionally specialized units, including, for example, 11 air-defense artillery brigades, 13 fire brigades (artillery and missiles), 20 military police commands and brigades, and 26 aviation brigades. Because many of these are task-organized as needed with BCTs, a significant portion of these would also be cut, but reduction of the non–BCT units will not be proportional to the reduction in BCTs. In light of the Russian invasion of Ukraine, our proposal would not begin any reduction in the size of the Army until 2025, to avoid sending the wrong signal to Russia or Ukraine and to give other NATO allies time to begin improving their own capabilities.[220]

As discussed further below, the Army's highest priority today is establishing multi–domain task forces, MDTFs, with current plans calling for the establishment of five such brigade-sized units. These MDTF would be amalgamated from precisely the non–BCT units mentioned immediately above, with fire brigades and air defense as their core elements.

[220] From a purely military standpoint, it is difficult to see why the situation in Ukraine would preclude the commencement of the proposed reductions beginning as early as 2022 or 2023, given the large ground force the United States would retain under its proposal for deployment in a possible war in Europe.

Multi-domain task forces: Supported or supporting forces?

All of the services face dilemmas in creating overarching concepts that may apply more to one theater than another but which can nevertheless be adapted to the circumstances of all. For the Army, the dilemma has been particularly acute. Much of its force structure is, for obvious reasons, better suited to large-scale land combat on relatively large land masses than to a primarily maritime environment.

The Army established its first experimental MDTF in 2017 in the Indo–Pacific Command and sees multi-domain operations, or the ability to use ground-based units to assist in air, maritime, cyber, and other domains, as key to its relevance in Asia. The general concept is to marshal long-range missiles in a distributed fires scheme, wherein dispersed units can coordinate and concentrate strikes. While the general concept is similar to the Marine's EABO, the Army appears to see a more scalable application of multi-domain distributed operations. According to one Army document, "Multi-Domain Battle demands formations able to conduct semi-independent, dispersed, mutually supporting, combined-arms operations with capabilities deployed to or accessible at the lowest practical tactical echelon…."[221] Current plans call for five MDTF brigades, and their importance is reflected in Army research, development, testing, and evaluation.[222]

Although the Army ostensibly places its multi-domain operations in the context of jointness and the emerging Joint Warfighting Concept, it appears to conceive of those operations in such a way that the Army's MDTF would be the supported arm, rather than the supporting arm. It lists six capability goals that it would like to achieve by 2035:

- Sustain the fight,
- Expand the battle space,
- Strike in depth across domains,
- Gain and maintain decision dominance,
- Create overmatch,
- Prevail in large-scale combat.[223]

As the list suggests, and Army discussions confirm, providing "long-range fires" (missiles) lies at the heart of Army plans and would effectively give the Army a semi-independent mission focus.

Perhaps not coincidentally, the first MDTF is a brigade-sized unit built around what had originally been an artillery brigade equipped with the HIMARS system, capable of launching the ATACM, a short-range land-attack ballistic missile. The Army has sought to

[221] *Multi-Domain Battle: Evolution of Combined Arms for the 21st Century, 2025-2040.* U.S. Army Training and Doctrine Command, 2017.
[222] In the Army's FY-2022 budget request, the Army accepted cuts to many programs to fund its "31+4" efforts, which are 35 systems "critical to realizing multi-domain operations." Kenney, Caitlin M. "Where the U.S. Army's Cut List and Wish List Overlap." *Defense One*, June 4, 2021. https://www.defenseone.com/policy/2021/06/where-us-armys-cut-list-and-wish-list-overlap/174483/.
[223] U.S. Department of the Army. *Army Multi-Domain Transformation: Ready to Win in Competition and Conflict.* Chief of Staff Paper #1, Headquarters, March 16, 2021. 6-9.
https://www.army.mil/article/244543/army_releases_information_paper_on_multi_domain_transformation.

extend the HIMARS' reach, first by extending the range of the ATACM to 300–-plus kilometers and, beginning in FY 2021, by procuring the precision strike missile, with an estimated range of 500 kilometers — also compatible with HIMARS.[224] The Army would like to extend the precision strike missile's range to 1,600 kilometers.[225] Together with the Navy, it is also developing the LRHW.[226]

To be sure, the Army's new missile inventory would not operate in a vacuum. Army documents indicate that future MDTF brigades may be comprised of one battalion each of intelligence, strategic fires, air defense, and support.[227] It appears, however, that the core capability would be strategic (or long-range) fires. Concepts of operation appear underdeveloped: The commander of MDTF–1 has said, "there is little doctrine for [MDTFs]."[228] But whereas the Marine Corps' EABO concept documents are explicit that it can support naval operations by, for example, providing ISR or deploying battalion-sized task forces built around surface-to-air missiles, the Army's discussion of its own multi-domain operations lacks diversity of purpose.

Our assessment is that strike is not the Army's natural comparative advantage in Asia — and certainly not its most important potential contribution. Naval and, especially, Air Force aviation can launch large, repeated salvos of missiles that can overwhelm defenders, whereas salvos launched by U.S. ground forces, operating from constrained island areas, would be limited in scale, with reattack dependent on resupply of munitions by air or sea. Deploying launch units would also require access from countries within the region that the United States may not receive. And perhaps most important, ground-based long-range attack weapons are more destabilizing than air– and sea-launched missiles from the perspective of crisis stability and structural stability, as their fixed nature limits one's ability to signal restraint during a crisis, while also driving anxieties in the adversary that the missiles will be used for a first strike.[229]

This is particularly true in the case of larger systems, such as the LRHW, which is similar to a ballistic missile in the early stages of flight and which is the same size as the Pershing II missiles deployed in Europe at the height of the Cold War. Without access to foreign territory, the missiles could be deployed in Guam, but Guam is already overcrowded and there is, in any case, little space there to maneuver and conceal movable missiles that, due to their size, cannot be considered truly mobile — and certainly not tactical. Moreover, placing these long-range missiles into Guam would invite preemptive attack by China's own ballistic missiles. Smaller, more mobile

[224] Office of the Under Secretary of Defense (Comptroller). *Procurement Programs (P-1).* May 2022. https://comptroller.defense.gov/Portals/45/Documents/defbudget/FY2022/FY2022_p1.pdf.
[225] Freedberg Jr., Sydney J. "Can the Army Triple the PrSM Missile's Range?" *Breaking Defense*, April 2, 2021. https://breakingdefense.com/2021/04/can-army-triple-prsm-missile-range/.
[226] Freedberg Jr. "Army Discloses Hypersonic LRHW Range of 1,725 Miles; Watch Out China." The Navy's version will be the Intermediate-Range Conventional Prompt Strike (IRCPS) weapon. Topping the missiles is an unpowered hypersonic boost-glide vehicle, known as the Common Hypersonic Glide Body (C-HGB). Trevithick. "Navy Wants Triple-Packed Hypersonic Missile Modules on its Stealthy Zumwalt Destroyers."
[227] Department of the Army. *Army Multi-Domain Transformation: Ready to Win in Competition and Conflict*. 12.
[228] Brading, Thomas. "First Multi-Domain Task Force Plans to be Centerpiece of Army Modernization." *Army News Service*, February 1, 2021. https://www.army.mil/article/242849/first_multi_domain_task_force_plans_to_be_centerpiece_of_army_modernization.
[229] Heim. "Missiles for Asia?"; Morgan. "Crisis Stability and Long-Range Strike."

systems, such as HIMARS, could be employed in agile operations that would distract and disrupt Chinese operations.

Thus, we conclude that the Army's overwhelming emphasis on strike, especially long-range strike within the MDTF framework, is misplaced, at least if the MDTF is to be the Army's signature contribution and investment to the Asia–Pacific region. We recommend against the United States or its allies deploying land-based ballistic and hypersonic missiles in or close to IRBM range, 3,000 kilometers and above, especially those designed to hit land-based targets, because of space limitations, cost, and especially escalation concerns.

On balance, the Army can make a larger contribution to a joint war effort by improving its provision of ground-based air defenses through the MDTF mechanism or, depending on how the MDTF is interpreted, separately. In all its endeavors, the Army might consider coordinating its efforts in the Pacific particularly closely with the Air Force to create an archipelagic air-land partnership. The Army provides all the U.S. military's ground-based, theater-level air and missile defenses. Yet, despite significant force structure devoted to air defense (11 Army air-defense brigades), air defense has been somewhat neglected, and developments in that area have not kept pace with either technical advances in other areas or with evolving operational concepts.

Currently, the Army fields two types of theater air and missile-defense systems, both of which are difficult to move and extremely expensive. Terminal High Altitude Area Defense, THAAD, is an antiballistic missile system, while the Patriot PAC–2 and PAC–3 systems are medium-range antiaircraft and antiballistic missile systems. Unlike the HIMARS surface-to-surface system, none of these air defense weapons can be transported using tactical (*e.g.*, C–130) airlift. Even a Patriot minimum engagement package, with just two launchers and support necessary to operate for 24 hours, requires five C–5As or seven C–17 aircraft to transport.[230] Moving the THAAD system is even more demanding.[231] Both systems are also extremely expensive; the most recent missiles for the PAC–3 cost $6 million to $8 million per interceptor.[232]

But although neither THAAD nor Patriot is well-suited to agile operations in an archipelagic environment, currently available technologies could be leveraged to provide solutions. During the 2000s, the U.S. Army, together with Germany and Italy, developed a derivative of the Patriot, MEADS, or medium extended air defense system, that could be moved by C–130s, though the Army ultimately decided not to procure the system.[233] While MEADS did not reduce cost, there are several ways to lower overall cost, especially

[230] U.S. Army. *Patriot Battalion and Battery Operations*, FM 3-01.85 (FM 44-85). May 2002.
[231] Early estimates cited by the Government Accountability Office suggest that to transport a full THAAD system with 40 interceptors into theater would require 18 C-5s or 26 C-17s. U.S. Government Accountability Office. *Ballistic Missile Defense: Issues Concerning Acquisition of THAAD Prototype System.* July 1996. https://www.gao.gov/products/nsiad-96-136.
[232] Cost for PAC-2 missiles designed to intercept aircraft or cruise missiles is somewhat less, at $2-3 million.
[233] The Medium Extended Air Defense Systems (MEADS) employed PAC-3 missiles with different launch vehicles and radar. Judson, Jen. "MEADS Team Looking Toward Contract With Germany in Early 2017." *Air Force Times*, October 11, 2016. https://www.defensenews.com/digital-show-dailies/ausa/2016/10/11/meads-team-looking-toward-contract-with-germany-in-early-2017/.

with respect to addressing the cruise-missile threat. Solutions would employ much smaller and cheaper interceptors — such as modified versions of the AIM–120 air-to-air missile, or the even smaller Peregrine missile — and would have a range perhaps one-third that of Patriot PAC–2 missiles. One such system, the national advanced surface-to-air missile system, NASAMS, uses the AIM–120 AMRAAM, originally an air-to-air missile, and is in service in six countries, including the United States, where it is limited to the defense of Washington.[234]

At the same time, research on newer, "game-changing" technologies, such as directed-energy weapons and rail guns should continue and, if one or more proves successful, should be incorporated into the platforms of all services as appropriate.

While air defense has, for the U.S. military, been a secondary mission and treated as distinctly less exciting than strike, it is a critical part of the larger air campaign and enables the effective execution of most other military tasks. In the context of agile, distributed operations, air defense should instead be regarded as a dynamic and demanding operational form, more akin to the mission of elite light infantry in 19th century warfare than to static defense. Moving concentrations of air defenses — or surface-to-air missile reloads, which would be easier to lift — to protect first one site and then another would, as noted previously, complicate the calculations of the attacker. And, depending on the geography, moving air defenses into unexpected locations where no protected infrastructure exists may allow the U.S. military to ambush adversary air (the so-called SAM–bush).

Ultimately, the U.S. Army's MDTFs will probably want to execute a variety of missions, and those operations will benefit from close partnership with the other services. Because the Army will provide the ground-based air-defense component of the air campaign, and because the U.S. Marine Corps will be tightly integrated into the Navy's larger scheme of maneuver, the Army may want to examine ways to form a practical partnership with the Air Force. This will necessarily be true in the area of air defense but might also be explored in strike and other MDTF mission sets.

U.S. Marine Corps changes out to 2035

In considering recommendations for the U.S. Marine Corps, we apply much of the same logic and many of the principles discussed in the section on the U.S. Army. However, the circumstances — and therefore our recommendations — differ in many important respects. Geography and association with the Navy has long given the USMC a stronger

[234] Trevithick, Joseph. "SAM System That Guards Washington DC Just Made its Lowest Ever Intercept of a Mock Cruise Missile." *The Drive*, September 24, 2020. https://www.thedrive.com/the-war-zone/36728/sam-system-that-guards-washington-dc-just-made-its-lowest-ever-intercept-of-a-mock-cruise-missile. The AMRAAM (AIM-120) is less than 350 pounds (vs. 2,000+ pounds for the MIM-104D) and costs roughly $500,000 (vs. $2 million+ for the MIM-104D, employed against cruise missiles). The Peregrine missile is roughly half the size of the AMRAAM.

association with and focus on East Asia. With the end of major operations in Afghanistan and Iraq, the Marine Corps has doubled down on East Asia and re-crafted concepts of operation and force structure to deter great-power conflict there, as described in Chapter 2.

We concur on most of those changes and recommend more modest adjustments than those we prescribe for the Army. However, we would still call for more serious study of how a reorganized Marine Corps would participate in contingencies in other regions. Whether or not the Corps can participate effectively in those contingencies will influence potential adjustments to other services, particularly those of the Army. Overall, we estimate that the changes to the Marine Corps proposed below would yield annual savings of some $11 billion by 2035.

U.S. Marines with 3d Battalion, 12th Marine Regiment, 3d Marine Division, execute a High Mobility Artillery Rocket System fire mission during Castaway 21.1 on Ie Shima, Okinawa, Japan, March 16, 2021. (U.S. Marine Corps photo by Lance Cpl. Ujian Gosun).

Consistent with JAM–GC and specific challenges in Asia, the USMC has developed and tested EABO, as discussed earlier, and is preparing to convert existing regiments to littoral regiments to execute EABO.[235] The general concept, established by USMC Commandant General David Berger (former commander of Marine Corps Forces, Pacific), has been to establish more nimble forces that are relevant to long-range

[235] "Expeditionary Advanced Base Operations (EABO) Handbook: Considerations for Force Development and Employment." June 1, 2018, Version 1.1. https://mca-marines.org/wp-content/uploads/Expeditionary-Advanced-Base-Operations-EABO-handbook-1.1.pdf; Eckstein. "Marines Begin Experimentation to Refine Manual for Expeditionary Advanced Base Operations.

maneuver and combat operations over archipelagic geography in place of the current large maneuver forces designed for so-called forcible entry.[236] These changes were outlined in the USMC's *Force Design 2030*.[237]

While EABO shares important features with the Army's evolving doctrine for MDTFs, the Marine Corps has important advantages in operationalizing concepts quickly and seamlessly. These advantages begin with a century of serious thinking about and experience with amphibious operations, as well as its close and symbiotic relationship with the Navy. The Marine Corps already had concepts and tools that could be adapted to the kinds of distributed operations now in demand. For example, it has long employed forward arming and refueling points, FARPs, in its air operations, a concept that can easily be adapted for distributed littoral operations.

The Marine Corps is integrating its new concepts tightly with joint doctrine and with the joint force, particularly the Navy. It has encouraged employment of amphibious assault ships and Marine aviation in the role of "lightning carriers," positioned its EABO squarely within the context of the inside force, and emphasized not just strike but also air defense, air, and ISR functions. The commandant has said the Corps would fight as an "extension of the fleet" and encouraged Marine officers to consider, for example, how best to integrate Marine and Naval tactical aviation.[238]

The Marines have spent a number of years testing new concepts of operation, and several features appear evident.[239] First, EABO elements would be kept small, generally a task-organized, battalion-sized force. Second, forces are often put ashore from a distance (sometimes delivered by air from ships hundreds of miles distant), limiting the exposure of the amphibious ships. Third, planners look to leverage synergies between different organic Marine elements, with, for example, F–35Bs providing ISR for HIMARS firing units.

Force Design 2030 outlines a comprehensive plan for force structural change, tightly tied to challenges faced by the U.S. military in the Pacific. One signal of serious intent is the acknowledgment that the USMC is overinvested in certain areas and a commitment to eliminate all of the Corps' tanks, five infantry battalions, one regimental headquarters, additional support battalions, some number of fighter aircraft, and 16 of 21 artillery batteries, as well as 12,000 Marines. With the savings achieved, which the Marine Corps estimates at $12 billion, it would invest in "equipment modernization, training

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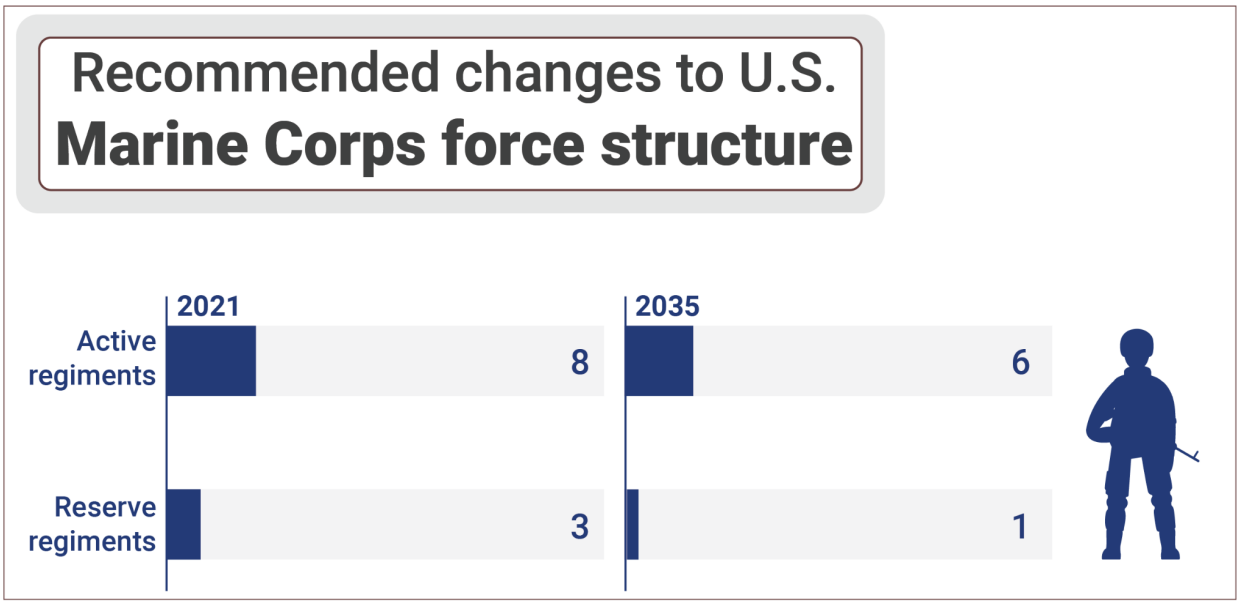
[236] Shelbourne, Mallory. "Marine Corps to Stand Up First Marine Littoral Regiment in FY 2022." *USNI News*, January 20, 2021. https://news.usni.org/2021/01/20/marine-corps-to-stand-up-first-marine-littoral-regiment-in-fy-2022.
[237] Commandant of the Marine Corps. *Force Design 2030.*
[238] "Marine Aviation is Naval Aviation." *Proceedings.*
[239] Eckstein, Megan. "How to Seize Islands, Set Up a Forward Refueling Point: Marine Corps Recipes for Expeditionary Operations." *USNI News*, September 13, 2019. https://news.usni.org/2019/09/13/how-to-seize-islands-set-up-a-forward-refueling-point-marine-corps-recipes-for-expeditionary-operations; Shelbourne, Mallory. "Marine Corps Ready to Conduct EABO Experiments with Allies in Indo-Pacific." *USNI News*, April 20, 2021. https://news.usni.org/2021/04/20/marine-corps-ready-to-conduct-eabo-experiments-with-allies-in-indo-pacific; U.S. Marines. "From Okinawa to Palau—Marines Exercise EABO During MEFEX 21." U.S. Marines website, February 10, 2021. https://www.marines.mil/News/News-Display/Article/2499735/from-okinawa-to-palau-marines-exercise-eabo-during-mefex-21/.

modernization, and force development." Equipment priorities include longer-range air defenses, strike systems, and UAVs.[240]

Of the four services covered here — the Space Force is too new to address comprehensively, though we discuss the space and cyber domains briefly in the next section — the USMC has moved with the greatest energy and commitment to bring about transformational change, and it is well-positioned to execute the intended adjustments. In many ways, the nature of the intended transformation is appropriate to the challenges faced in this very demanding theater. We largely support those changes, as reflected in Figure 3.4 and in our budgetary estimates below.

Figure 3.4: Recommend changes to U.S. Marine Corps force structure



There are, however, several questions related one way or another to whether the Marine Corps has adopted a balanced approach to the potential global mission set and how its own transformation should be balanced within the Defense Department's larger effort. We ask these questions despite the obvious contrast with our larger contention that the Asia–Pacific is relatively undervalued in the department's planning and force structure. But the single-minded focus of the Marine Corps nevertheless raises important questions that should be addressed in a larger context.

First, to what extent are EABO dependent on receiving access from allies and partners to deploy onto friendly islands or features, and what are the prospects for receiving

[240] Commandant of the Marine Corps. *Force Design 2030*.

relevant access? Access issues have been raised by scholars and soldiers alike, but the problem might be divided into two subcomponents.[241]

One issue is the positioning of units during peacetime. Only a handful of allies are currently willing to host U.S. units, so peacetime forward deployment would likely be limited to Japan and, possibly, Australia. Even these allies are unlikely to give carte blanche for all unit types and assets. Predicting where allies will draw the line is difficult, but elements that look more or less like maneuver units, even if they have some strike capability, will probably raise few red flags. Those that are built around large missiles, on the other hand, particularly intermediate-range or longer (3,000–-plus kilometers), may be more problematic, as they will raise serious objections from China and possibly from domestic populations.

Second, access aside, what number of EABO might be conducted or be under way simultaneously during a conflict in Asia, and how many units should transition to the MLR format? As noted above, the U.S. military faces considerable challenges in generating sufficient intra-theater lift capacity for employing EABO at significant scale. Given the potential vulnerability of forces moving to conduct EABO, each movement would also likely require significant preparation of the battle space to ensure no adversarial air or naval interference. Air sweeps, combat air patrols, strikes on bases, and electronic countermeasures in areas adjacent to the operation would likely need to be conducted in support. Whether U.S. air and naval power would be sufficient to support the conduct of numerous ongoing missions would, therefore, seem an important question. The problem is further complicated by the Army's plans for MDTFs, which would draw on similar support from air and naval forces.

Third, to what extent will restructuring the Marine Corps have an impact on its function in other major regional conflicts or stability operations, such as those we have seen in Afghanistan or Iraq? And is the secretary of defense's office adjudicating or balancing the needs of different theaters? Restructuring will have opportunity costs; it will eliminate much of the Corps' ground-based firepower. Although we have argued for greater strategic focus on the Asia–Pacific, there will still likely be requirements for the Marine Corps elsewhere. We outline our own rough estimates of those requirements in Appendix A, though other analysts will advocate either more restrictive or conservative definitions of interests and requirements for scenarios elsewhere in the world. Regardless of how and at what levels those requirements are based, the services will need to supply the requisite force.

The answers to these questions have an impact not on steps taken to date, but on the future evolution of the Marine Corps and the extent to which it should maintain more traditionally organized forces. The restructuring of the III MEF, headquartered at Camp

[241] See Ben Wan Beng Ho. "Shortfalls in the Marine Corps' EABO Concept." *Proceedings*, July 2020. https://www.usni.org/magazines/proceedings/2020/july/shortfalls-marine-corps-eabo-concept; David, George J. "Making it Work: Force Design 2030 and Access." *Issues and Ideas* (Marine Corps Association), 2020. https://mca-marines.org/wp-content/uploads/Making-it-Work-1.pdf.

Courtney, Okinawa, should proceed as organizational issues with regard to the MLRs are settled, but changes to the rest of the Marine Corps should be weighed against requirements in the rest of the world.

Space and cyber domains in an active denial strategy

Accustomed to the unchallenged use of space, the U.S. joint force has oriented its posture and capabilities in ways that make efficient use of space capabilities but also generate vulnerabilities. A portion of U.S. ISR and command and control relies on space-based systems, and it is likely that these will be disrupted in war and even prewar scenarios. An effective denial strategy relies in part on protecting space assets and finding effective mitigations when these are damaged or disrupted. Forces must be structured to prevent potential adversaries from harboring the hope they can win a decisive advantage by early and effective actions against space.

An RQ-4 "Global Hawk" armed drone in flight. (Photo via U.S. Air Force).

China's incentives to target U.S. satellites may not decrease as a result of an active denial strategy. Indeed, if the U.S. military employs smaller stand-in forces in the early stages of conflict, such a force might be heavily reliant on satellites for dispersed communications. The United States could mitigate risk by increasing redundancy and moving away from a few, exquisite systems to a more distributed architecture, increasing the use of commercial satellites, and improving its ability to launch satellites

on demand. It can also mitigate the threat by boosting the capability of airborne communications relays. Building redundancy in many military areas is expensive, but in space, the rapidly declining cost of space launch, the exploitation of lower-cost but increasingly effective off-the-shelf systems, and the potential for repurposing existing systems (*e.g.*, the RQ–4 for airborne communications relay) has the potential to reduce cost.

China, too, is becoming dependent on space for a variety of military functions. Indeed, the growing range of missile systems and the difficulty of flying beyond the first island chain with airborne reconnaissance assets may make the PLA more dependent on space for ISR than the U.S. military is. U.S. and allied active denial would further complicate China's ISR problems and elevate its dependence on space, as would any PRC move toward a launch-on-warning doctrine for its nuclear forces. These considerations may make the PLA less likely to take offensive kinetic action in space due to the risk that such operations would invite retaliation, and they might incentivize China to engage in more energetic and meaningful discussions on ways to limit counter-space capabilities or operations. PRC, U.S., and global dependence on low earth orbit for everything from agriculture to weather forecasting should also encourage caution and a search for solutions.

Cyber is in many ways similar to space in that much of the efficiency currently enjoyed by U.S. forces in compiling and disseminating information, as well as exercising command and control, lies in cyber systems. The U.S. joint force has reached a point such that it cannot operate without secure networks for everything from targeting to logistics. While militaries and intelligence agencies are generally capable of protecting their own secure networks, major challenges exist with respect to vulnerability of critical civilian systems that support military activity. Cyber attacks on air-traffic control systems, port tracking systems, fuel infrastructure, and commerce can have a near-immediate effect on military operations, even if the nation originating the attack is stopping short of the most catastrophic effects.

China is also vulnerable to cyber attacks. While its proximity to the most likely areas of a conflict could mitigate the impact of attacks on logistical networks, it is nevertheless dependent on the proper functioning of its rail network. Not only would this network provide the heavy lift necessary for military logistics, but it is also required to transport the coal that China still relies on for the majority of its electricity generation — with second-order effects on other military capabilities if disrupted. Moreover, the pervasive use of pirated software and more-limited computer literacy in the military system may also increase its vulnerability to attack. As in space, then, there may be grounds for both sides to work toward an international code of cyber conduct, with heavy emphasis on where the boundary would lie in wartime between operational and strategic uses of cyber warfare — and a search for agreement not to engage in the latter. At the same time, the United States cannot depend on the success of such a comprehensive

cyber-warfare agreement and will, therefore, need to develop a range of defensive and operational capabilities.

Overall budgetary impact

This study examines how U.S. military forces might be redesigned to achieve U.S. regional goals in Asia through an active denial strategy that would be more effective and more stabilizing than the current approach. Reducing the U.S. defense budget is not the primary objective of this report's recommendations, but achieving U.S. goals within sustainable levels is indeed our intent. As described elsewhere in this report, the United States faces a broad range of serious long-term fiscal, demographic, and economic challenges that will, among other things, place substantial pressure on U.S. military and other spending, as well as create pressure to increase tax revenues. Fortunately, the force outlined in this report would be sustainable at substantially lower cost than the current plan. Deterring war with China and, if need be, denying China victory in a future conflict, requires significant capability but does not preclude the capacity to achieve savings.

However, achieving savings requires that, rather than trimming the entire budget proportionally — which would greatly diminish the U.S. ability to execute military tasks in Asia — changes be made consistent with a strict set of priorities.

The 2021 Department of Defense budget totaled about $704 billion. According to the Congressional Budget Office, due to projected cost growth in pay, operations and maintenance, weapons acquisitions, and support of the department's force structure, modernization, and readiness plans — as they were at the end of the Trump administration — would require increasing the defense budget to $781 billion by 2035. (Unless otherwise noted, all cost and funding estimates provided below are expressed in 2021 dollars.)[242]

However, the findings and recommendations discussed in this report suggest that the U.S. military could maintain the capacity to carry out its major missions, including deterring China from engaging in offensive war against its neighbors and, if necessary, defeating any such effort, with a military composed of significantly smaller ground forces and air and naval forces that are reshaped better to meet the challenge.

Under the plan outlined in this chapter, throughout the 2022–35 period, funding for defense would be held at an average annual level roughly comparable with the level in 2021. As a result, under this plan, spending on defense would decline somewhat as a share of the economy. Compared with the last Trump administration defense plan,

[242] This includes, for example, the costs associated with existing nuclear modernization plans to develop and produce replacements for the Minuteman III intercontinental ballistic missile, or ICBM, and Ohio-class ballistic missile submarine, or SSBN. Arthur, David, and F. Matthew Woodward. *The Long-Term Implications of the 2021 Future Years Defense Program.* Congressional Budget Office, September 2020. 1. https://www.cbo.gov/publication/56554.

which, as noted above, would require annual funding to increase to some $781 billion by 2035, the plan recommended in this chapter would yield average savings over the next decade and a half of some $40 billion annually, reaching about $75 billion annually by 2035.[243]

The $75 billion figure represents savings of about 10 percent compared with the last Trump administration plan. The largest savings, some $46 billion and $11 billion respectively, would result from reduced requirements for Army and Marine Corps ground forces, with savings of perhaps an additional $5 billion and $13 billion respectively from reduced Air Force fighter requirements and various changes to the Navy.

Air Force

We estimate that compared with the last Trump administration plan, the changes to Air Force structure and plans outlined in this chapter would net annual savings of some $5 billion by 2035. This net estimate combines estimated gross savings of about $7 billion with offsetting additional costs of some $2 billion. Although we use the Trump administration program of record to assess implications of a revised plan, we note that savings would be significantly greater if compared with the cost of implementing proposals related to the "Air Force We Need" plan, which was floated in 2018 and would have kept old aircraft in the inventory longer while adding new ones.

The roughly $7 billion in gross savings would come primarily from the modest cuts proposed in Air Force fighter-force structure, primarily through rapid cuts of legacy aircraft. As noted above, under our proposal, the number of Air Force fighter squadrons would decline by about 10 percent — from about 53 to 48 squadrons — over the 2021–35 period.[244] By 2035 this reduction would yield average annual savings of about $4 billion in operations and support costs. Combined with perhaps another $1 billion to $2 billion in lower procurement costs resulting from the need to buy, arm, and support fewer aircraft due to the smaller force structure, we estimate that this change to Air Force fighter forces would result in overall annual savings of some $5 billion to $6 billion by 2035. We also assume that the planned buy of B–21 bombers would be reduced from some 100 aircraft to 80, yielding additional savings of some $1 billion to $2 billion annually. Altogether, these changes would lead to gross annual savings, compared with the last Trump administration plan, of some $7 billion by 2035.

Our recommendations to increase Air Force spending in several areas would partially offset these gross savings. We assume here that the Air Force would spend an average

[243] It is possible that even CBO's estimate might understate the cost of implementing the last Trump administration long-term defense plan (including, for example, the cost of acquiring new ICBMs and SSBNs). In that case, it may not be possible to keep average annual costs to 2021 levels over the 2022-2035 time period under our recommended plan. However, savings compared to the last Trump administration defense plan would still likely be on the order of 10 percent annually by 2035.
[244] It is assumed that under the last Trump administration plan, the number of Air Force fighter squadrons would have been held essentially flat at today's level through 2035.

of about $2 billion a year more than currently planned over the next decade and a half on increased base hardening and other infrastructure enhancements, improved combat support, related especially to operating fighter forces in a more modular and dispersed fashion, and development of a new, relatively low-cost standoff bomber — resulting in net annual savings for the Air Force of about $5 billion by 2035.[245] Given the rejuvenation of the force that these changes would bring about, these savings would come in conjunction with a major boost to capabilities relevant to Asia.

Navy

We estimate that compared with the last Trump administration plan, changes in Navy force structure and related plans outlined in this chapter would net annual savings of some $13 billion by 2035. This net estimate combines estimated gross savings of about $21 billion with offsetting additional costs of some $8 billion. Savings relative to the Battle Force 2045 plan, which was proposed in 2020 and would have greatly increased the number of ships in the Navy, would be considerably higher.

Under our recommended plan, compared with the last Trump administration plan, the Navy would operate three fewer CVNs in 2035. This would yield annual savings of some $6 billion by 2035, including lower operations and support costs and lower procurement costs. Additional savings of some $10 billion annually would accrue by 2035 as a result of the proposal to cut the number of large surface combatants in the fleet to 73, compared with 114 under the last Trump administration plan. Finally, savings of some $5 billion annually would result from reducing the number of amphibious assault ships in the fleet to only two by 2035, with both of these ships operated as CVLs.

These gross savings of some $21 billion would be partially offset by recommended increases totaling $8 billion annually by 2035. These plus-ups include increasing the number of small surface combatants from about 55 in 2035, under the last Trump administration plan, to 70 —with associated additional costs in that year of about $3 billion — and adding a force of eight new CVLs to the fleet by 2035 — resulting in further additional costs of about $5 billion annually by 2035. The other changes proposed for the Navy in this report would either have relatively modest budgetary impacts or be largely budget neutral over the long-term.

[245] This report makes no specific recommendations for how this additional funding, which would total some $30 billion over the next 15 years, should be allocated among these three different priorities. Doing so would require considerably more detailed analysis than is possible here. However, at least at first blush, the amounts appear substantial enough to provide a potentially significant boost in capabilities in each of the three areas. A simple three-way division of that funding would suffice to build more than 1,000 hardened aircraft shelters, provide $10 billion to develop a new standoff bomber, and provide $10 billion to help address additional requirements associated with operating U.S. Air Force combat aircraft in a more modular and dispersed manner.

Army

We estimate that compared with the last Trump administration plan, the changes in Army force structure and related plans outlined in the chapter would net annual savings of some $46 billion by 2035. These savings result from the recommendation to reduce the number of active Army BCTs from 32 today to 24 in 2035, and the number of National Guard BCTs from 28 to 14 over this same period. We estimate that savings of this magnitude are achievable, even assuming certain combat support and other Army elements are not cut proportionately to the reductions in active and National Guard BCTs proposed here. This would enable the modernization of the force and its partial reorientation around missions most relevant to East Asia.

Marine Corps

We estimate that compared with the last Trump administration plan, the changes in Marine Corps force structure and related plans outlined in this chapter would net annual savings of some $11 billion by 2035. These savings result from the recommendation to reduce the number of active Marine Corps regiments from eight today to six in 2035 and the number of reserve Marine Corps regiments from three to one over the same years. The ongoing transition of all regiments in the Marine Corps to littoral regiments complicates calculations, but we believe that the smaller number of units would produce a force of adequate size. All of these savings would result from cuts to ground forces and associated helicopter forces, since no reductions would be made to the tactical fighter component of the Marine Corps' force structure under the proposals in this report.

Uncertainty

Considerable uncertainty continues to surround the Biden administration's defense plans, programs, missions, and strategy, but as discussed in this and the preceding chapter, there are some indications that it will scale back and reshape some of the services' plans, perhaps significantly. As such, it is possible that compared with the last Trump administration defense plan, the Biden administration's plan will incorporate cuts of a magnitude similar to those recommended above for the Air Force and Navy — although almost certainly not the deep cuts proposed here for the Army and Marine Corps.

It is also worth noting that — as discussed in more detail in Appendix A — even greater savings than those recommended in this chapter might be achievable if U.S. policy makers were willing to focus on a narrower set of missions, outside of a China contingency, than those traditionally embraced by the U.S. national security community,

while still retaining the force structure needed to carry out the active denial strategy toward China recommended in this report.

The Pacific Deterrence Initiative

The PDI was created by Congress in the FY 2021 Defense Authorization Act to send a signal to China and U.S. allies about the U.S. commitment to the region and to consolidate funding for key programs and activities focused on deterring China, as well as to improve transparency in programming and budgeting. This mechanism might be a useful vehicle through which to fund some of the capability improvements identified in this chapter that would be especially helpful in a potential China contingency, such as expanded efforts to harden U.S. bases in the region.

Unfortunately, the Biden administration's first attempt to populate the PDI, in its FY 2022 request, has generated criticism from those who see it as failing to capture key programs while including others at best only tangentially related to a possible China contingency,[246] and from others who see it as a $5.1 billion slush fund or simply part of an effort to boost the Defense Department's top line.[247]

The intent of the PDI, at least as envisioned by the bipartisan leadership of the Senate Armed Services Committee, was clearly to fund "key capability gaps" such as "theater missile defense, expeditionary airfield and port infrastructure, fuel and munitions storage," and other important projects with no powerful constituency in the military system. It was not intended simply to provide additional resources for existing large-scale modernization programs such as the F–35 fighter.[248] And yet roughly three-quarters of the administration's FY 2022 request for the PDI is absorbed by programs that have little or no special connection to building resiliency or addressing gaps. Rather, it includes, among other things, funding for one destroyer, one fleet oiler and three programs related to the F–35.

Conversely, only $23 million of the PDI request — less than 1 percent — is for "force design and posture," efforts that could be critical to deterring PRC use of force.[249] Given the fungibility of many U.S. military capabilities, there will inevitably be a degree of arbitrariness in any formulation of the PDI — but the Defense Department needs to do a

[246] Walker, Dustin. "Congress Should Re-Write the Pentagon's Pacific Deterrence Budget Request." *Defense News*, June 2, 2021. https://www.defensenews.com/opinion/commentary/2021/06/02/congress-should-rewrite-the-pentagons-pacific-deterrence-budget-request/.
[247] See Lautz, Andrew. "We Should Scrap the Pentagon's New Anti-China Slush Fund." *Responsible Statecraft*, June 30, 2021. https://responsiblestatecraft.org/2021/06/30/we-should-scrap-the-pentagons-new-anti-china-slush-fund; Perry, Mark. "Joe Biden Waves the White Flag on the Defense Budget." *Responsible Statecraft*, March 5, 2021. https://responsiblestatecraft.org/2021/03/05/joe-biden-waves-the-white-flag-on-the-pentagon-budget/.
[248] Inhofe, Jim, and Jack Reed. "The Pacific Deterrence Initiative: Peace Through Strength in the Indo-Pacific." *War on the Rocks*, May 28, 2020. https://warontherocks.com/2020/05/the-pacific-deterrence-initiative-peace-through-strength-in-the-indo-pacific/.
[249] Walker, Dustin. "Congress Should Re-Write the Pentagon's Pacific Deterrence Budget Request." *Defense News*, June 2, 2021. https://www.defensenews.com/opinion/commentary/2021/06/02/congress-should-rewrite-the-pentagons-pacific-deterrence-budget-request/.

better job of addressing the problem in the future if it wants its requests for the PDI to be taken seriously.

While the PDI might be a useful vehicle for certain Pacific and China-focused programs, however, it is also important to understand the limitations of such a mechanism. Our plans and programs concerning China are — and need to be — thoroughly integrated into the broader defense budget, as well as the international affairs budget and other components of the U.S. national security tool kit. No matter how well designed, a mechanism such as the PDI will give the United States, as well as the leadership of other countries in the region, only a limited window into that planning and programming. As such, most of the changes described in this chapter are probably best reflected in and implemented through the budget development and execution processes of the individual services.

Chapter 4: Mobilizing Allies, Partners, and Taiwan

Mike Mochizuki was the lead author of this chapter, with significant contributions from Eric Heginbotham and Jessica Lee. Sarang Shidore also drafted some of the language in the India section.

The previous two chapters outlined our proposed changes to the conventional U.S. force structure and posture in Asia to support an active denial strategy in the region. They also underscored the importance of working closely with allies and partners to develop and implement that strategy. Such an approach would be more consistent with the strategic perspectives and domestic political constraints of allies and partners themselves — and therefore more realistic and attainable — than an attempt to restore U.S. military dominance, especially if this were to involve an offense-oriented approach that could destabilize the region. This chapter fleshes out the vital "partner" component of our proposed strategy. After summarizing the benefits and shortcomings of the U.S. network of allies and partners, it examines the strategic perspectives of these countries and their relevant domestic political circumstances. Based on this assessment, it then recommends concrete approaches and measures for mobilizing allies and partners on behalf of our active denial strategy.

A concluding section also contains a set of recommendations as to how Taiwan can implement a denial strategy of its own, parallel to that adopted by the United States and its allies and partners, and how the United States should seek to incentivize Taipei to do so. In accordance with the arguments laid out in the first chapter, this chapter deliberately treats Taiwan as distinct from other U.S. allies and partners. We argue that if Washington were more overtly to integrate Taipei into its regional network of allies and partners, or to treat Taiwan as a strategic asset to be wielded against Beijing, it would actually risk weakening deterrence. Such U.S. policy shifts would undermine the longtime approach of strategic ambiguity and thereby risk causing PRC leaders to believe they have no options other than the use of force to preserve what they view as one of China's most basic core interests, *i.e.*, the possibility of eventually unifying Taiwan with the mainland.

Notwithstanding this more prudent approach to the U.S. security relationship with Taiwan, successful deterrence of Beijing from attacking Taiwan under a strategic ambiguity framework also requires that the United States maintain a credible capability in the region — something that an active denial strategy oriented around the defense of U.S. treaty allies such as Japan already provides. And it also requires that Taipei make significant, urgent reforms to its defense strategy and capabilities, reforms it has only begun to embark upon. The concluding section of this chapter therefore emphasizes the ways the United States can help expedite those reforms.

Strategic benefits of the U.S. network of allies and partners

Bilateral treaty alliances established the basic framework for U.S. security strategy in the Asia–Pacific region after World War II. During and after the Cold War, these alliances presented the United States with more strategic assets relative to liabilities. The Biden administration is therefore correct to reaffirm the value of formal allies and to nurture emerging non-treaty security partnerships. At the same time, given the profound changes in the regional security environment and shifts in the balance of power, the alliance system requires a more fundamental restructuring beyond the evolution that has taken place during the last two decades. As some have argued, the United States should empower allies and partners, but this task raises the question of what the desirable direction and objective of this empowerment should be and how Washington should promote this transformation.[250]

After the North Korean invasion of South Korea in June 1950, Washington initially sought to create the "Pacific Pact," a multilateral collective defense pact modeled after NATO.[251] The United States eventually abandoned this idea because of active resistance from its potential members. Australia, the Philippines, the Republic of China, and the Republic of Korea were all eager for a defense commitment from the United States, but they were opposed to a collective defense alliance that would obligate them to help defend Japan given the aggression and atrocities that the Japanese military committed against their peoples during World War II. For its part, Japan did not want to become involved in another military conflict. Tokyo resisted direct military involvement in the Korean War and did not wish to be pulled into a military conflict between Chinese Communists and Nationalists across the Taiwan Strait. In consequence, the United States settled for a hub-and-spokes network of bilateral alliances that included Australia and New Zealand, Japan, the Philippines, South Korea, and Thailand. Although this alliance system fell short of the defense integration under NATO in Western Europe, it has nevertheless provided numerous benefits for U.S. defense policy and regional strategy.

First, the treaty alliances allow the United States to deploy military forces and maintain a network of permanent military bases in the region — especially in Japan and the Republic of Korea. This forward deployment helps to mitigate the disadvantage of distance that U.S. forces would face if the United States needed to intervene in a regional military contingency. American forces based in allied countries will be able to respond quickly to emerging crises; this presence also facilitates joining training with

[250] Denmark, Abraham M. *U.S. Strategy in the Asian Century: Empowering Allies and Partners*. New York. Columbia University Press, 2020.
[251] Limb, Ben C. The Pacific Pact: Looking Forward or Backward?" *Foreign Affairs* Vol. 29, No. 4, July 1951. https://www.foreignaffairs.com/articles/north-korea/1951-07-01/pacific-pact-looking-forward-or-backward; Cha, Victor. "Powerplay: Origins of the U.S. Alliance System in Asia." *International Security* Vol. 34, No. 3, Winter 2009/10. 158-196; Park, Junghyun. "Frustrated Alignment: The Pacific Pact Proposals From 1949 to 1954 and South Korea-Taiwan Relations." *International Journal of Asian Studies* Vol. 12, No. 2, July 2015. 217-237.

allied forces. U.S. overseas bases also serve as critical infrastructure for accepting additional military units from the United States or elsewhere, if required, as military contingencies unfold.

Second, formal defense treaties and the concomitant forward military presence reassure allies of the U.S. security commitment and signal to potential aggressors America's intention to defend its allies. This reassurance and the diplomatic leverage it offers also constrain allies from pursuing independent military policies and actions that might increase the risk of conflict and undermine U.S. interests. For example, the alliance arrangements have constrained the Republic of China and the Republic of Korea from provoking conflict across the Taiwan Strait and on the Korean Peninsula respectively. The alliance system can also help discourage U.S. allies from seeking to acquire nuclear weapons that would undermine U.S. nonproliferation policies. In the past, the alliances gave Washington decisive leverage to terminate clandestine nuclear weapons programs in Taiwan and South Korea. The U.S. security guarantee has also reinforced Japanese public opposition to nuclear weapons, thereby checking nationalist voices that advocate a more explicit nuclear hedge, such as a revision of the so-called Three Non-Nuclear Principles that Japan will not possess, manufacture, or allow the entry of nuclear weapons on Japanese territory. Moreover, the alliances could give the United States some influence to dampen moves by allies to acquire conventional long-range offensive strike weapons that could be destabilizing and escalatory.[252]

Third, alliances give the United States some influence to mitigate tensions and encourage cooperation among countries within the alliance system. For example, the alliance network provided a favorable context for Japan to achieve reconciliation about its militarist past with Australia and the Philippines and to promote the normalization of relations between Japan and the Republic of Korea. Since the Cold War's conclusion, there has been a trend toward multilateralizing the bilateral alliance system with the development of mini-lateral forms of security cooperation. These include the U.S.–Japan–Republic of Korea security dialogue, the U.S.–Japan–Australia trilateral security dialogue, the Quadrilateral Security Dialogue (Quad), and the Australia–U.K.–U.S. security partnership (AUKUS). The Quad is made up of India, Australia, the United States, and Japan.

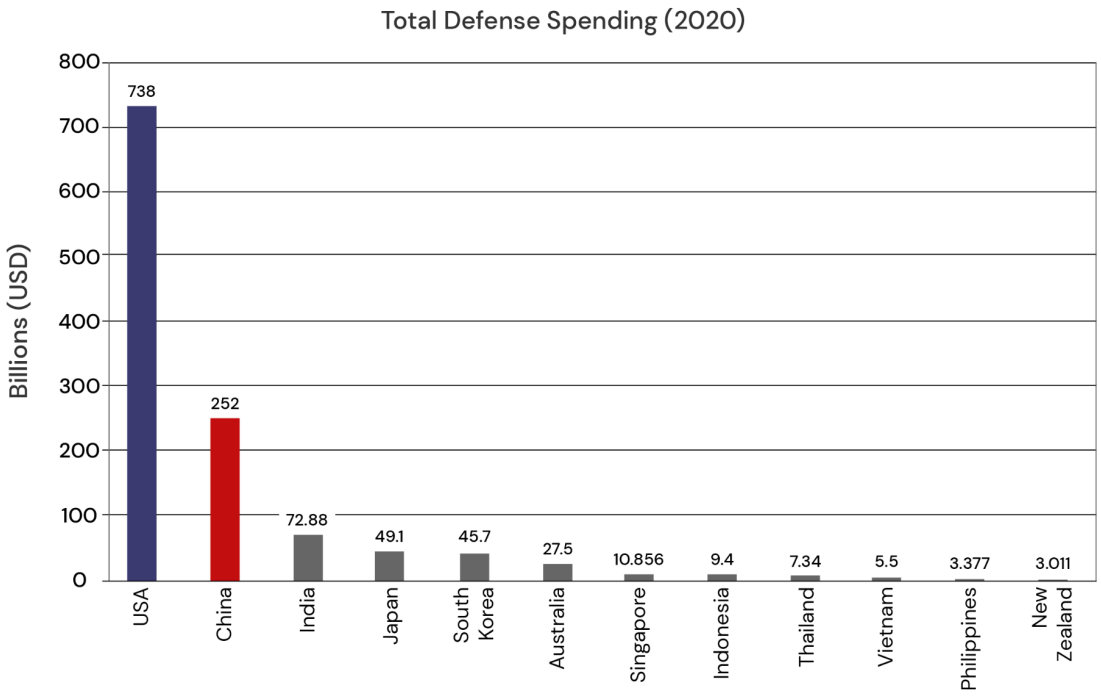
The United States has also been developing security partnerships in the region outside the network of treaty allies. For example, the U.S.–Singapore Strategic Framework Agreement of 2005 formalized U.S. naval and air force access to the island state and bolstered American logistical capabilities in the region. In establishing a U.S.–Indonesia Comprehensive Partnership in 2015, Washington and Jakarta announced plans to promote cooperation on maritime security and humanitarian assistance and disaster relief, HA/DR, collaborate on the development and production of defense equipment, and advance cooperative logistics. Vietnam became another non-treaty defense partner in Southeast Asia with the 2011 Memorandum of Understanding to Advance Bilateral

[252] Cha, Victor. *Powerplay: The Origins of the American Alliance System in Asia.* Princeton University Press, 2016. 65-160.

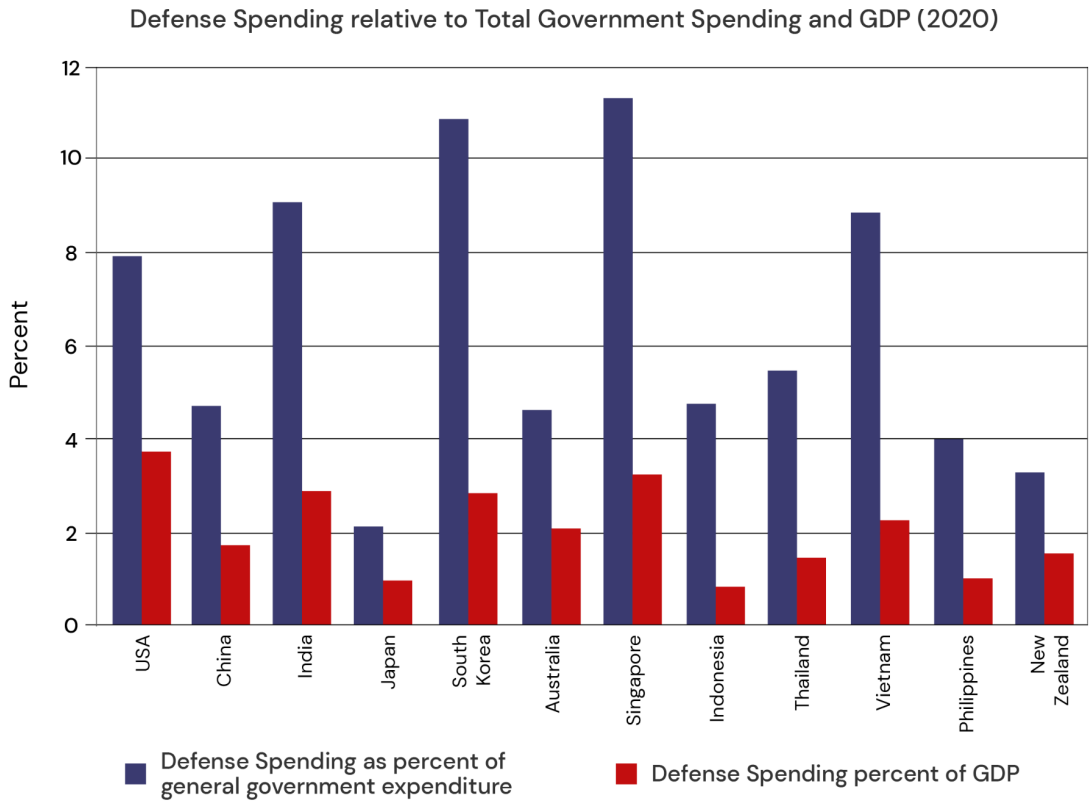
Defense Cooperation and the 2015 Joint Vision Statement on Defense Relations. As part of the Southeast Asia Maritime Security Initiative, Washington has been helping to improve Vietnam's maritime law-enforcement capabilities.

Although the U.S. alliance system in the Asia–Pacific continues to offer significant strategic benefits, it also has shortcomings and potential drawbacks. First, the U.S. security commitment has enabled some countries to contribute less than they could to common defense objectives. In an effort to reassure allies, the United States has tended to spend substantially more on defense relative to its economic capacity compared with all of its allies. Security reassurance can encourage allied cheap-riding on the United States.

Figures 4.1. and 4.2: Defense spending of the United States and select Asia-Pacific countries

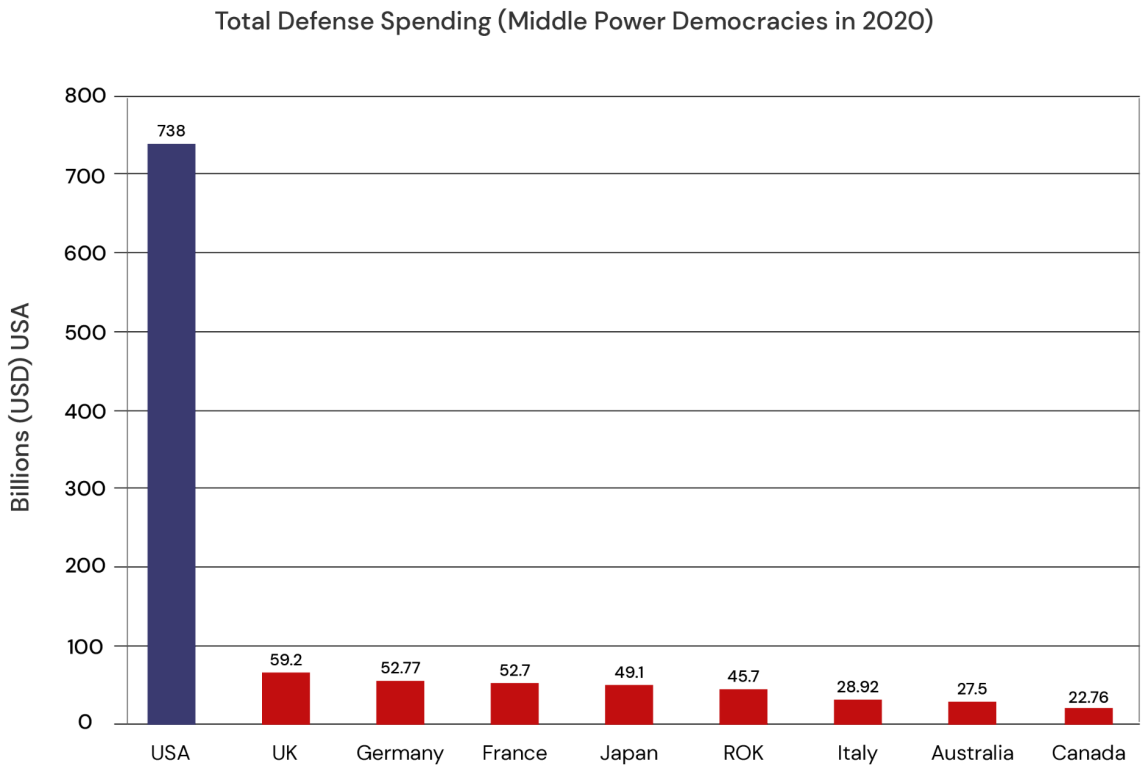


Stockholm Institute Peace Research Institute (SIPRI) Military Expenditure Database. 2020. https://www.sipri.org/databases/milex

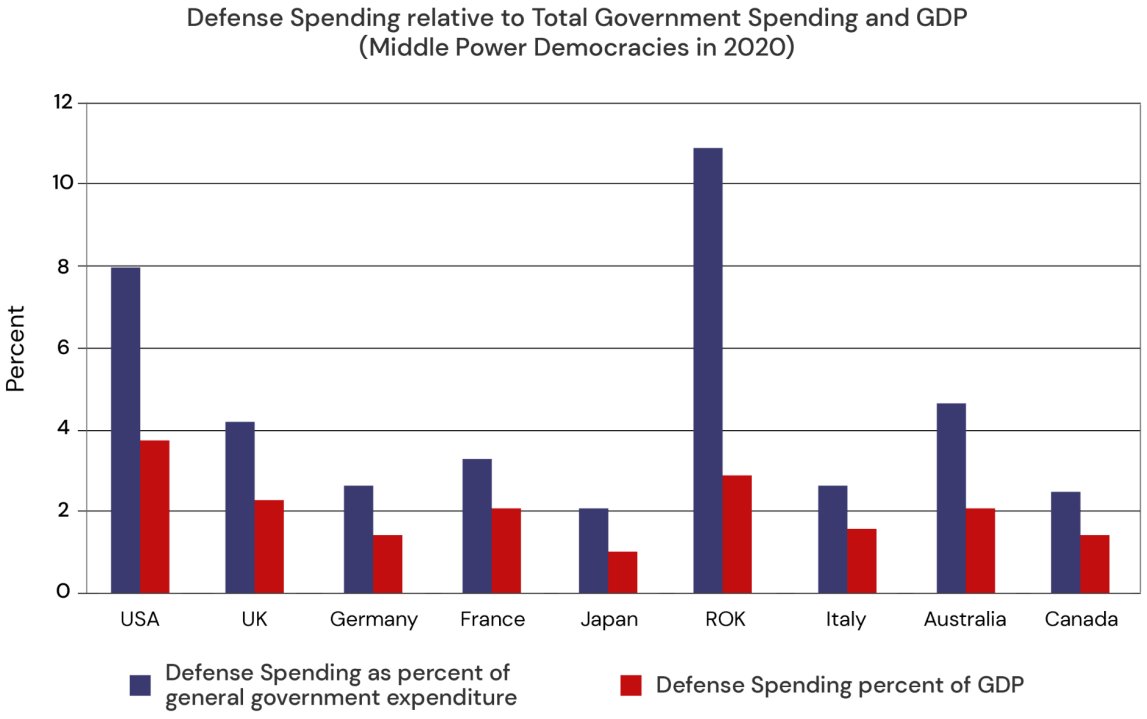


Stockholm Institute Peace Research Institute (SIPRI) Military Expenditure Database. 2020. https://www.sipri.org/databases/milex

Figures 4.3 and 4.4: Defense spending of select middle power democracies



Stockholm Institute Peace Research Institute (SIPRI) Military Expenditure Database. 2020. https://www.sipri.org/databases/milex



Stockholm Institute Peace Research Institute (SIPRI) Military Expenditure Database. 2020. https://www.sipri.org/databases/milex

Second, the logic of alliance credibility might compel the United States to commit itself in disputes in which it might prefer not to be involved or in which it has little material or strategic interest. This might include the Senkaku/Diaoyu Islands dispute between Japan and both Beijing and Taipei. When the United States transferred administrative control over the Senkakus to Japan as Okinawa reverted to Japanese sovereignty in 1972, Washington deliberately assumed a position of neutrality regarding the question of sovereignty over the Senkakus, and Tokyo and Beijing exercised mutual restraint to prevent the dispute from undermining their bilateral relations. Over time, however, the interaction of nationalistic activists from Japan, Taiwan, Hong Kong, and China aggravated the conflict, and the United States was compelled to make more explicit and forceful its treaty obligation to help Japan defend its administrative control over these uninhabited islets. While this dynamic may not be a case of alliance entrapment, it is an example of what Mira Rapp–Hooper calls "alliance dilation."[253] In contrast to treaty alliances, the United States has much less of a risk of entangling or dilating defense commitments with non-treaty defense partners.

Third, while an alliance system might contain conflicts among its members, it can heighten insecurity in the international system by exacerbating tensions with countries outside the alliance network.[254] Rather than stabilizing the region through deterrence, the network of alliances can potentially worsen emerging security dilemmas with potential adversaries, such as China, especially if it does not include credible reassurance efforts as well. As discussed in Chapter 6, China will view the tightening and strengthening of the U.S.–led alliance network as threatening and is likely to respond by beefing up its military capabilities and activities in the region — which, in turn, will heighten the threat perceptions of China among U.S. allies and partners. Mobilizing allies simply to enhance deterrence alone could thus aggravate conflicts and make them harder to manage diplomatically. For example, the historical legacy of Japanese colonial rule over Taiwan and aggression against China makes Beijing extremely sensitive to Japanese moves to become involved in the defense of Taiwan.[255] The historical origins of World War I also show how entangling alliances can contribute to the escalation of tensions to war.[256] In 1914, continental European states largely adhered to unconditional alliances, committing themselves immediately to aid allies with little regard for the circumstances fueling the conflict.[257] But as Michael Beckley has argued, after World War II the United States succeeded in mitigating the risks of alliance entanglement "by inserting loopholes into alliance agreements, shirking costly commitments, maintaining a diversified alliance portfolio that generates offsetting demands from different allies, and

[253] Rapp-Hooper, Mira. *Shields of the Republic: The Triumph and Peril of America's Alliances*. Cambridge, MA. Harvard University Press, 2020. 92.
[254] Weitsman, Patricia A. *Dangerous Alliances: Proponents of Peace, Weapons of War*. Stanford University Press, 2004. 173-175.
[255] Christensen, Thomas J. "China, the U.S.-Japan Alliance, and the Security Dilemma in East Asia." *International Security* Vol. 23, No. 4, Spring 1999. 49-80.
[256] Waltz, Kenneth. *Theory of International Politics*. New York. Columbia University's Saltzman Institute of War and Peace Studies, 1979. 167; Snyder, Glenn. *Alliance Politics.* Ithaca, NY. Cornell University Press, 1997. 328.
[257] Christensen, Tom, and Jack Snyder. "Chain Gangs and Passed Bucks: Predicting Alliance Patterns in Multipolarity," *International Organization*, Vol. 44, No. 2, Spring 1990. 147. https://sci-hub.se/https://www.jstor.org/stable/2706792.

using explicit alliance commitments to deter adversaries and restrain allies from initiating or escalating conflicts."[258]

Fourth, while alliance commitments may be effective in deterring outright aggression (*i.e.*, the actual seizing of territory), they are likely to be less effective in preventing assertive or coercive behavior that falls below that threshold.[259] In fact, alliances might even encourage such "gray-zone" activities by potential or actual adversaries to test alliance commitments and strain alliance relations. There are numerous examples of such activities, including the provocative North Korean use of limited force against South Korea, and China's assertive behavior to strengthen Beijing's maritime claims in the South China and East China Seas. While U.S. defense commitments and forward military presence may deter an escalation to all-out military conflict, they have not been effective in deterring gray-zone incursions.

Finally, the U.S.–led alliance network faces a fundamental challenge of translating peacetime defense cooperation into actual military coordination and cooperation at the operational level during demanding contingencies. On the one hand, to encourage Washington to maintain and even strengthen its defense commitments in the region, allies and partners are more willing to participate in joint exercises and training and forge intelligence-sharing agreements. On the other hand, such activities do not guarantee that allies and partners will actively participate in U.S.–led military operations when there is a regional military conflict. Direct involvement in U.S. operations is likely to make allies and partners vulnerable to attacks, and there will be a strong incentive to focus on defending their own territory rather than being integrated in a coherent collective-defense strategy.

Strategic perspectives and domestic politics among allies and partners

A key challenge of U.S. defense strategy vis à vis its allies and partners will be maximizing the strategic benefits that accrue from these relationships while minimizing the potential drawbacks of this network of treaty alliances and non-treaty security partnerships. Developing an optimal approach demands understanding and incorporating the strategic perspectives and domestic factors that shape the calculations and policies of allies and partners. Although allies and partners vary widely in these respects, they converge in three general ways.

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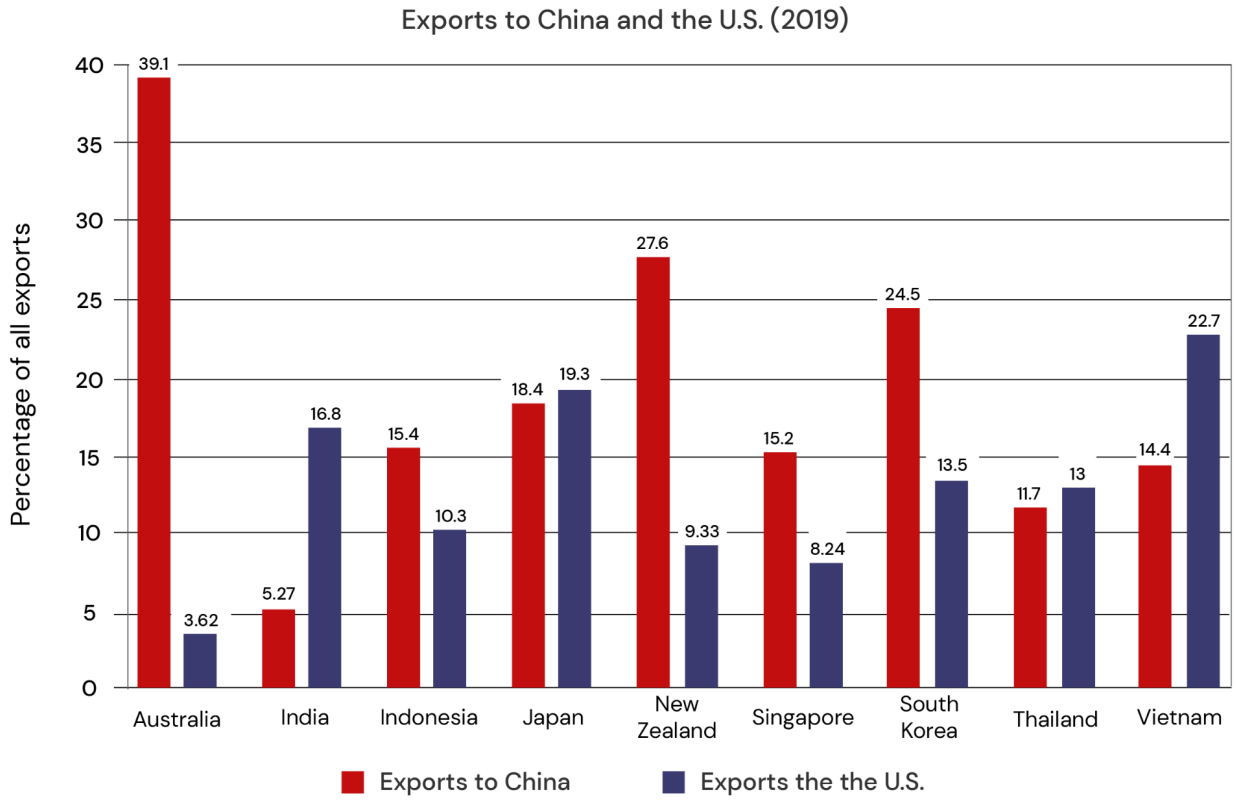
[258] Beckley, Michael. "The Myth of Entangling Alliances." *War on the Rocks*, June 9, 2015. https://warontherocks.com/2015/06/the-myth-of-entangling-alliances. See also Beckley, Michael. "The Myth of Entangling Alliances: Reassessing the Security Risks of U.S. Defense Pacts." *International Security*, Vol. 39, No. 4, Spring 2015. 7-48. https://direct.mit.edu/isec/article/39/4/7/12305/The-Myth-of-Entangling-Alliances-Reassessing-the.

[259] Mazarr, Michael J. et. al. *What Deters and Why: Applying a Framework to Assess Deterrence of Gray Zone Aggression.* RAND Corporation, 2021; Rapp-Hooper, *Shields of the Republic*, 147-155.

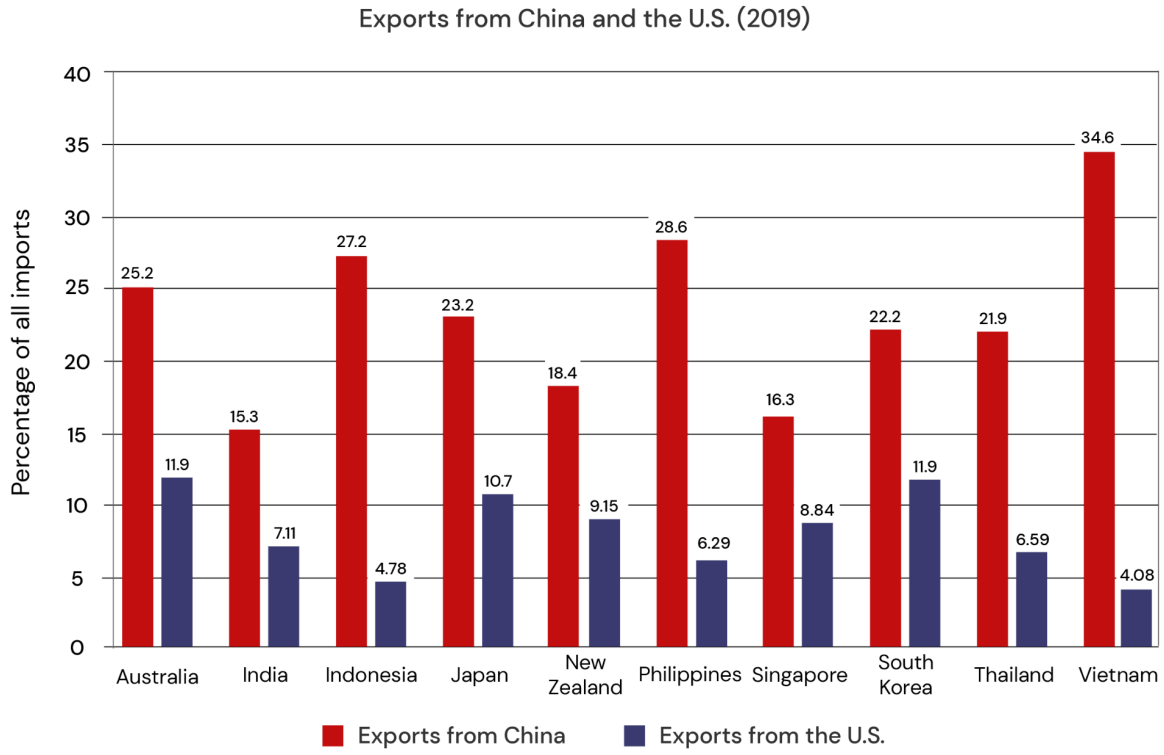
First, allies and partners are increasingly wary of China's military buildup, its assertive behavior in maritime and territorial disputes, and its use of economic coercion. Allies such as Australia and Japan are deeply concerned about China's actions in the South China Sea and its military activity in the Taiwan Strait, and they are troubled by its repressive measures in Xinjiang and Hong Kong. China's economic coercion against South Korea in response to the deployment of the THAAD missile-defense system cost South Korea at least $7.5 billion in economic losses in 2017 alone.[260] This episode had the effect of increasing South Korean negative views of China. While the perception of China as a growing security threat has increased, all allies and partners have deep economic linkages with China through trade and investments. As a consequence, they are reluctant to move toward an openly hostile relationship with China to protect their economic interests.

Figures 4.5 and 4.6: Select Asia-Pacific countries' trade with China and the United States



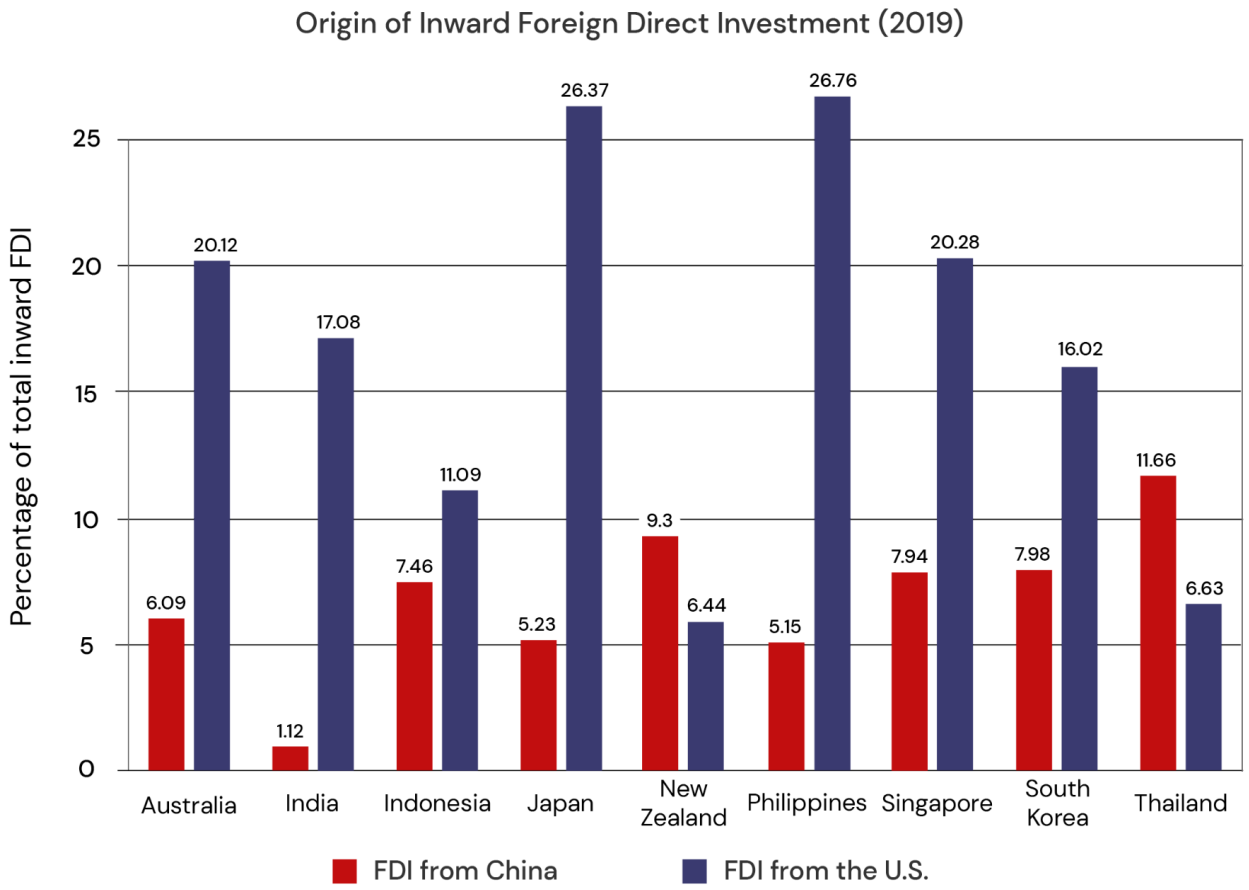
The Philippines is omitted because no export data was found on the databases used. **Source**: Observatory of Economic Complexity. https://oec.world/en

[260] Shin, Hyonhee, and Josh Smith, "Biden team's China focus puts S. Korea on the spot ahead of talks." *Nasdaq*, March 17, 2021. https://www.nasdaq.com/articles/analysis-biden-teams-china-focus-puts-s.korea-on-the-spot-ahead-of-talks-2021-03-17.



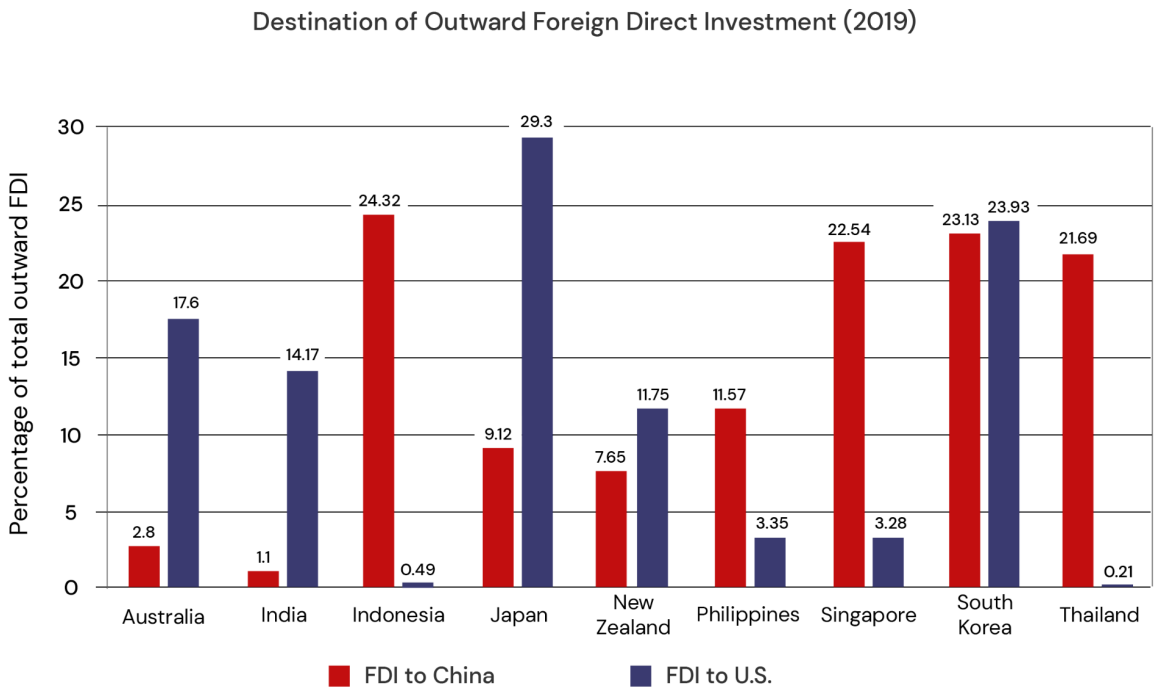
Source: Observatory of Economic Complexity. https://oec.world/en

Figures 4.7 and 4.8: Select Asia-Pacific countries' investment from and in China and the United States



Source: Data compiled from the Coordinated Direct Investment Survey (CDIS), published by the IMF. https://data.imf.org/?sk=40313609-F037-48C1-84B1-E1F1CE54D6D5

Beijing's recent use of its economic leverage to punish countries for acting in ways that run counter to Chinese interests has also steered many allies and partners to diversify their supply chains and become less economically dependent on China. Given the size of China's economy and the commercial opportunities it offers, however, most allies and partners will temper their policies and actions to balance against China. Countries that are in close geographic proximity to China will be cautious about becoming involved in security contingencies that risk a military retaliation from China, even if this causes friction in alliance relations.



Source: Data compiled from the Coordinated Direct Investment Survey (CDIS), published by the IMF. https://data.imf.org/?sk=40313609-F037-48C1-84B1-E1F1CE54D6D5

Second, allies and partners are concerned about the future of the U.S. security commitment and its military presence in the Asia–Pacific.[261] While these concerns predate the Trump administration, President Trump's open disdain for alliances reinforced them. Countries in the Asia–Pacific see how often U.S. diplomatic and security attention can be diverted to the Middle East and elsewhere despite repeated American statements about Asia's strategic importance. Some U.S. allies in the region believed that the Obama administration was slow and weak in responding to China's growing economic and military capabilities and its increasingly assertive behavior. Obama's "pivot to Asia," or rebalance policy, helped to mitigate some of the region's apprehension, but Asian allies remain sensitive to the shifting balance of power. Although Asian allies recognize America's historical ability to renew itself, they — like much of the rest of the world and many Americans — are concerned about the possibility that the United States' current political dysfunction and economic and social malaise are symptoms and/or agents of America's relative strategic decline. They also understand that China has the potential to overtake the United States in various dimensions of power over the coming decade in the Asia–Pacific region, especially in terms of economic and military power. In short, even if the United States recommits itself to the region in the post–Trump era, the days of U.S. economic and military predominance in the region are over. Finally, even though Washington has repeatedly

[261] Heginbotham, Eric, and Richard J. Samuels. "Vulnerable U.S. Alliances in Northeast Asia: The Nuclear Implications." *The Washington Quarterly* Vol. 44, No. 1, Spring 2021. 157-175. https://doi.org/10.1080/0163660X.2021.1894709.

reaffirmed its intention to remain militarily engaged in East Asia and has demonstrated this by incrementally increasing its regional military presence, U.S. allies across the Pacific are aware that the United States theoretically has the strategic option of withdrawing militarily from virtually the entire region without directly undermining its own territorial security.

Given the above assessment, while U.S. allies in the region see American commitment and engagement as critical to their security, they do not see the U.S. defense role as sufficient for the pursuit of their comprehensive interests, which include economic as well as military and territorial security. U.S. allies and partners also want to avoid getting entrapped in a Sino–American military conflict or a zero-sum strategic contest between Washington and Beijing. They therefore tend to look beyond the intensifying bipolar competition between the United States and China, and they have been promoting regional economic integration and institutional networks as means of managing and channeling that competition.[262] This trend toward regionalism began after the 1985 Plaza Accord, which caused a steep appreciation of the Japanese yen relative to the U.S. dollar and compelled Japan to expand and deepen its regional production networks. The 1997–98 Asian financial crisis and misgivings about Washington's response encouraged regional financial cooperation and dialogues promoted by Japan. While allies did not seek to exclude the United States from these regional initiatives, they focused on working with the Association of Southeast Asian Nations and other regional partners to expand and deepen a thick web of intra-regional ties. Examples of this trend in the economic sphere are the Comprehensive and Progressive Agreement for Trans–Pacific Partnership, CPTPP, finalized in March 2018 after the United States' withdrawal from the Trans–Pacific Partnership, TPP, and the Regional Comprehensive Economic Partnership, RCEP, signed in November 2020, both of which the United States is not a member.

Moreover, U.S. allies and partners have been pursuing a vast array of security dialogues and cooperative agreements among themselves, and with China, in addition to those involving the United States. Examples of regional political-security multilateralism include the Regional Cooperation Agreement on Combating Piracy and Armed Robbery Against Ships in Asia, forged in November 2004, the East Asia Summit inaugurated in 2005, the Trilateral Summit South Korea, Japan, and the PRC launched in 2008, and the Expanded ASEAN Maritime Forum, EAMF, created by ASEAN in 2012 with Japan's vigorous encouragement.[263] While responding to Chinese and U.S. assertiveness, these intra-regional initiatives have the potential to moderate U.S.–China competition.

The above overview highlights the need for a realistic assessment and expectations of how allies and partners could support the U.S. defense posture and strategy in the

[262] Feigenbaum, Evan A. "Asia's Future Beyond U.S.-China Competition." Carnegie Endowment for International Peace, September 9, 2020. https://carnegieendowment.org/experts/719; Masahiro, Akiyama, and Kawaguchi Yoriko, eds. *Ajia Taiheiyō no Mirai-zu* [*Future Map of the Asia Pacific*]. Tokyo, Japan. Chūō Keizaisha, 2017.
[263] Midford, Paul. *Overcoming Isolationism: Japan's Leadership in East Asian Security Multilateralism.* Stanford University Press, 2020. 142-160.

Asia–Pacific region. While welcoming American defense assistance and opportunities to participate in joint training and exercises as a counter to China's rise and assertiveness, allies and partners will in varying degrees circumscribe their military alignment with the United States to avoid having to choose between the United States as a security patron and China as an economic partner. Most countries in the region now see China as a regional power that is at least coequal with the United States. Even Japan, South Korea, and Australia, key treaty allies, will be reluctant to pursue confrontational policies that could heighten the risk of military conflict with China, although they may be willing to take some steps to balance against and check Chinese assertiveness. The contribution of allies and partners to collective defense operations in possible challenging military contingencies, such as a Sino–U.S. conflict over Taiwan or in the South China Sea, will be constrained by domestic political factors, external vulnerabilities, and interest-based trade-offs. Joint military exercises, reciprocal logistics support and information exchanges, training for HA/DR operations, and greater interoperability through the purchase of American defense systems contribute to the foundational infrastructure for defense cooperation. But the United States should be prudent and realistic as to how these peacetime modalities of cooperation can function and be extended during military crises and under wartime conditions.

The notion that Asia and the world are engaged in a Manichean contest between democracy and authoritarianism will have limited traction in the region. Therefore, an effective approach to allies and partners regarding regional security should avoid a simplistic bipolar perspective and an overemphasis on military tools to the neglect of the diplomatic, political, and economic dimensions of security policy. It should also avoid presuming that U.S. allies and partners all share the same threat perception of China and the same ideas as to how best to deal with Beijing. The U.S. network of allies and partners is certainly an asset for regional diplomacy that the United States can and should use more vigorously; but it is also important to recognize that China has strategic partnerships as well with many of these same countries in the region.

Table 4.1: China's strategic partnerships in Southeast Asia

Country	Type of partnership	Year established
Brunei	Strategic Cooperative Partnership	2018
Cambodia	Comprehensive Strategic Cooperative Partnership	2018
Indonesia	Comprehensive Strategic Partnership	2013
Laos	Comprehensive Strategic Partnership of Cooperation	2018
Malaysia	Comprehensive Strategic Partnership	2013

Myanmar	Comprehensive Strategic Cooperative Partnership	2012
Philippines	Relationship of Comprehensive Strategic Cooperation	2018
Singapore	Comprehensive Cooperative Partnership Progressing with the Times	2015
Thailand	Comprehensive Strategic Cooperative Partnership	2012
Vietnam	Comprehensive Strategic Cooperative Partnership in the New Era	2018
ASEAN	Strategic Partnership for Peace and Prosperity[264]	2003

Courtesy of David Shambaugh. This chart appears in Shambaugh, David. *Where Great Powers Meet: America and China in Southeast Asia*. (Oxford University Press: 2020), 143-144.

Mobilizing allies and partners for active denial

Properly framing the proposed active denial defense posture in the Asia–Pacific region will be essential for mobilizing the cooperation and contribution of allies and partners. Insofar as deterrence and defense through denial eschews an effort to restore U.S. military predominance in the region, some might mistakenly interpret this new posture as signaling a reduction of the U.S. security commitment and a future American military withdrawal from the region. We advocate neither. To avoid such a misunderstanding, it will be critical to explain how active denial provides effective deterrence without exacerbating a security dilemma between the United States and China. Moreover, the rationale for this new defense posture should emphasize how it still enables a robust military response should deterrence fail, without having the escalatory risks associated with a more offensive posture. If a U.S. policy shift is correctly framed, allies and partners should welcome it because it is more credible and economically and politically sustainable and because it would be sensitive to the conflicting pressures and trade-offs allies and partners face regarding the rise of China. A major part of correct framing involves the pairing of the active denial force posture with a set of policy stances and initiatives designed to reduce regional tensions, enhance inclusive, nonmilitary, positive-sum regional interactions; and generally dampen the workings of the security dilemma. (See Chapter 6 for some of these policy stances and initiatives.)

The United States should continue to move beyond the traditional hub-and-spokes bilateral network of alliances and encourage more cooperation among regional allies and partners. The aim would not be to create a closed security wheel churning against a rising China, but rather a flexible and adaptable lattice-like security network that

[264] In October 2021, this partnership was upgraded to the ASEAN-China Comprehensive Strategic Partnership. Hoang Thi Ha. "The ASEAN-China Comprehensive Strategic Partnership: What's in a Name?" *ISEAS-Yusof Ishak Institute Perspective*, No. 157, November 24, 2021. https://www.iseas.edu.sg/wp-content/uploads/2021/10/ISEAS_Perspective_2021_157.pdf.

encompasses the diversity of security perspectives and calculations among allies and partners. Some elements of this network, such as trilateral collaboration among the United States, Japan, and Australia, would become the operational locus of a denial strategy, while other segments would consist of hedging, in which states might play more subsidiary or residual roles. This security lattice would constrain military competition by enmeshing great powers as well as middle powers and smaller states in the region. It would also cultivate an open and inclusive diplomatic space for security dialogues and opportunities for confidence building and tension reduction. Washington should be supportive by participating more seriously in the inclusive political-security multilateral processes that already exist in the region and by having new groups such as the Quad engage China and explore areas of potential cooperation.

Although defense spending relative to a nation's GDP is a common way to measure the contributions of allies and partners, there should be greater emphasis on the roles and missions these countries are able to perform than the GDP ratio. The concrete and feasible roles and missions of allies and partners will depend upon their geographic location, their actual and potential capabilities, their assessment of their strategic interests, and their domestic political constraints. Defining appropriate roles and missions should incorporate assessments of how allies and partners might best contribute across different phases of military contingencies, as discussed in Chapters 1 and 2.

The active denial strategy seeks to exploit depth to reduce vulnerability at the outset of conflict, reduce the forces required in close proximity to China, and reduce crisis instability. Geographic factors, together with the political factors discussed above and the capabilities of regional states, shape the U.S. approach to the region.

Viewed geographically, one can describe three rough bands in Southeast Asia and Oceania, each progressively more distant from China. In the first and closest band are the small, poor states of Cambodia and Laos, and although they might desire greater engagement with the United States and other major states, they are highly dependent on and vulnerable to China. Laos's economy is just 1.7 percent the size of Indonesia's, Southeast Asia's largest economy. Neither Cambodia nor Laos is a candidate for any sort of strategic relationship with the United States, though Washington should explore improving diplomatic relations with them.

The second band includes states with a bit more distance between themselves and China and, coincidentally, includes states with somewhat larger economies. These are Vietnam, the Philippines, Malaysia, and Thailand — two of which, the Philippines and Thailand, are treaty allies of the United States. Three of these states, all but Thailand, have overlapping claims with China's in the South China Sea, though their political relations with Beijing are each distinct. These states, too, are potentially vulnerable militarily to China and are deeply interconnected with it economically. Although they have more room to maneuver politically than do Laos and Cambodia, they are hesitant

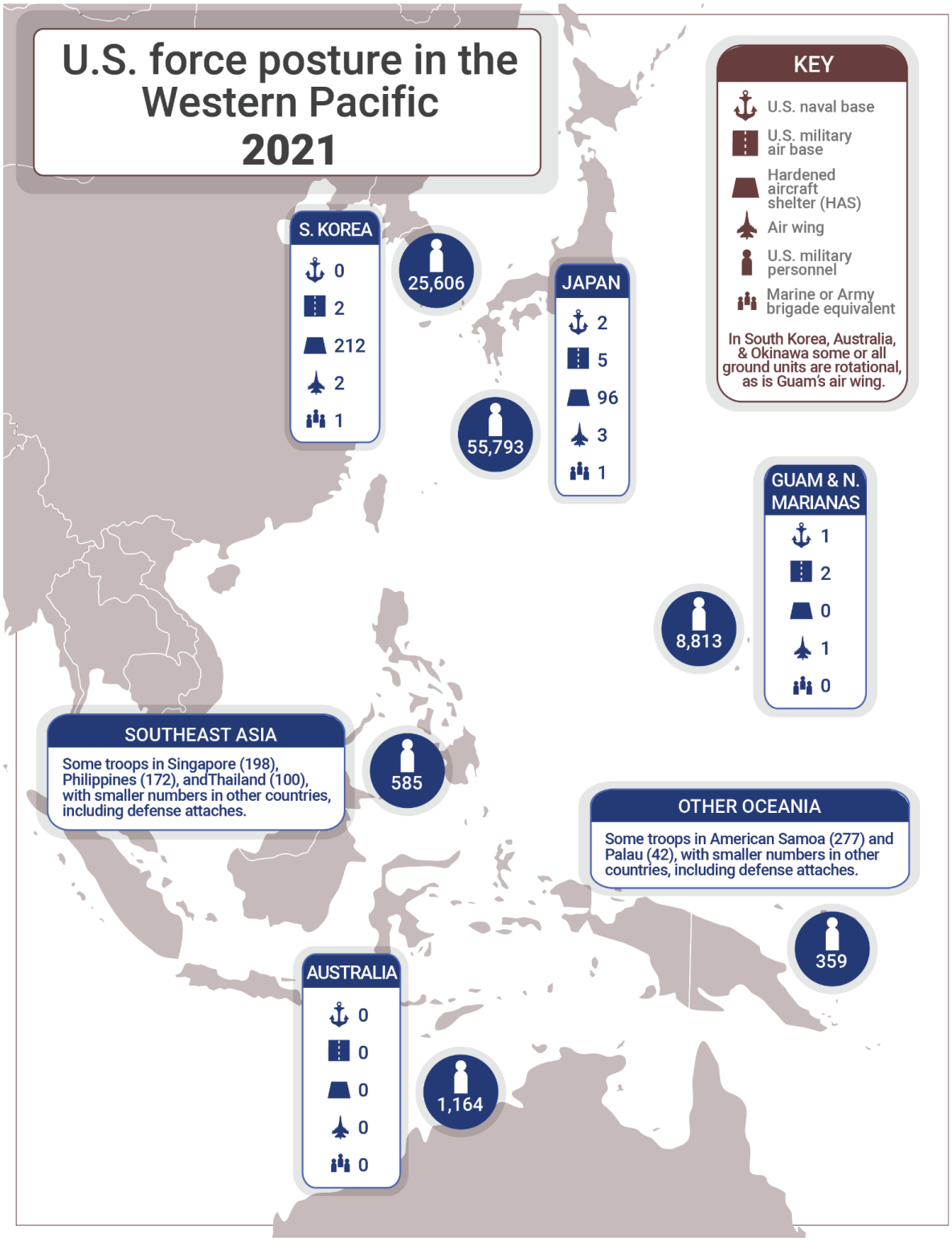
to balance openly against China, though they are committed to defending their sovereignty and interests.

The third band comprises Indonesia, Singapore, and Australia. Indonesia's economy is the largest in Southeast Asia, and Singapore and Australia enjoy high levels of per capita wealth. From a military perspective, they are outside the highest-threat areas as defined by aircraft and missile ranges. They also have the highest defense budgets in the region outside of Northeast Asia. Indonesia prides itself on being a leading member of ASEAN and a founder of the Non–Aligned Movement, but it has increased its defense budgets in recent years and built up those capabilities most relevant to self-defense against possible attack by China. Australia, too, has increased its defense budget and in 2021 signed the AUKUS agreement to deepen defense cooperation.

In considering how the United States should pursue political-military engagement within the region in the context of a denial strategy, the alliance status, politics, geographic position, and potential power of each country will be important. The United States should engage all countries politically and economically. In addition to Japan and South Korea in Northeast Asia, it should make the Southeast Asia and Oceania countries in the second and, especially, third band its priority. These countries are more secure from potential Chinese attack and, coincidentally, include the region's largest economies.

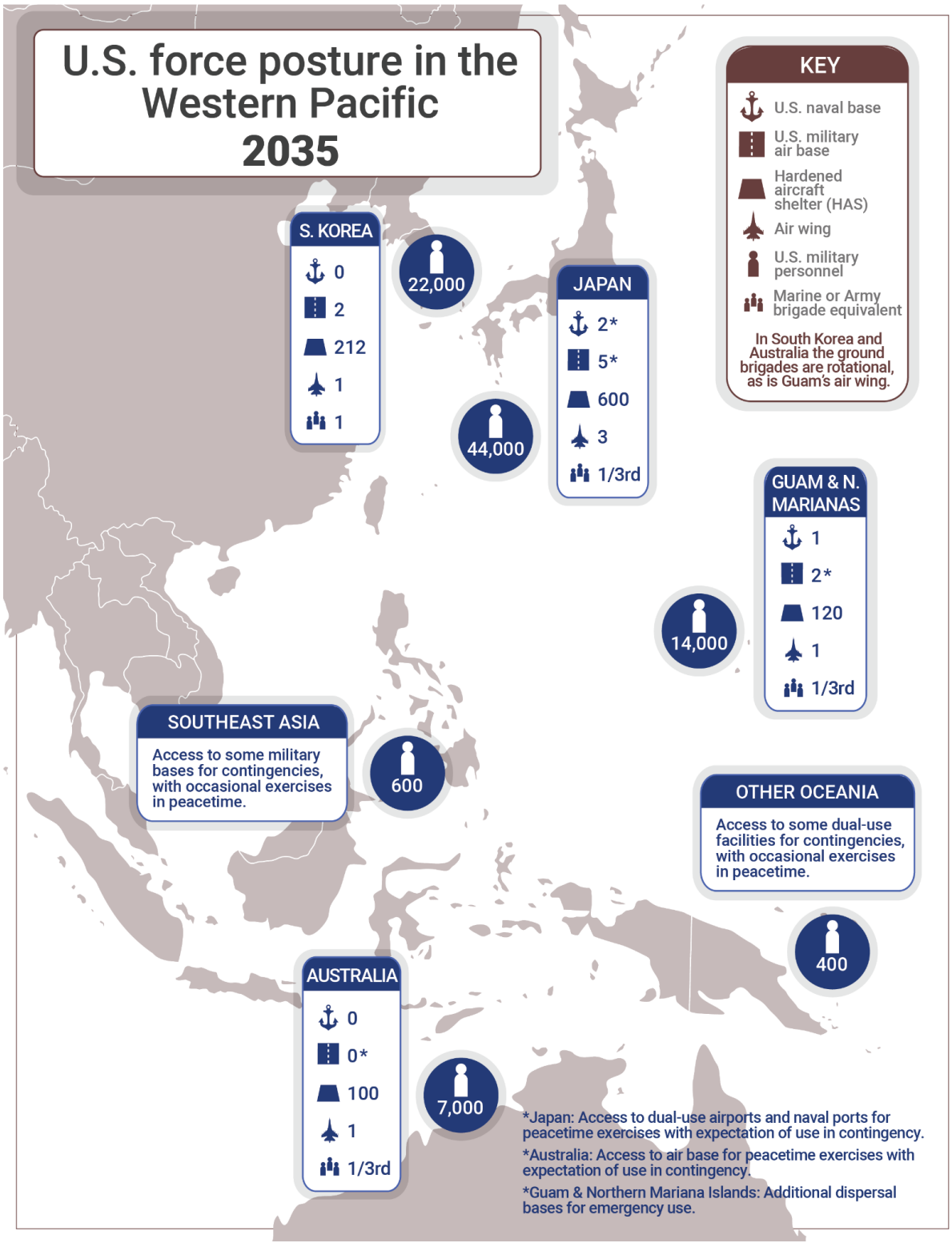
What follows is a survey of U.S allies and partners in the region that highlights the country-specific strategic perspectives and domestic political factors, potential role of each country in a U.S. active denial defense posture and strategy, and recommendations for engaging each ally or partner on behalf of this new posture and strategy. (See Figure 4.1 for an overview of U.S. military presence in the region today. Figure 4.2 encapsulates our recommended shifts by 2035.)

Figure 4.9: U.S. force posture in the Western Pacific in 2021



Source: Authors' calculation using annual averages of the quarterly data for the active duty and National Guard/Reserve categories in DMDC. *DoD Personnel, Workforce Reports & Publications.* 2021.
https://dwp.dmdc.osd.mil/dwp/app/dod-data-reports/workforce-reports

Figure 4.10: Recommended changes to U.S. force posture in the Western Pacific by 2035



Japan

Japan will be the most pivotal U.S. ally in implementing an active denial strategy in the region due to a combination of its national capabilities, geography, and regional relationships. A denial strategy is optimal for enhancing Japan's security as China's military power grows. It will enable Tokyo to adhere to its constitutional commitment to nonbelligerency, even while ensuring that its abilities to deter aggression and defend itself remain robust as the overall regional power balance shifts. Central to implementing this strategy will be improving the U.S.–Japan alliance division of labor and negotiating new terms within the alliance. This new deal should include a reduction in host-nation support payments, or redirection of those payments to base hardening and preparation, in exchange for increased and reallocated Japanese defense spending. It should also include a renegotiation of the Status of Forces Agreement to place Japan on par with NATO allies in training arrangements and an accelerated reduction of U.S. Marines in Okinawa in exchange for enhanced U.S. and Japanese preparation and training at more dispersed military and civilian airports.

Evolution of Japan's defense policy and regional security ties

Japan has become a more proactive security ally of the United States by relaxing self-imposed as well as constitutional constraints on defense policy.[265] This process began in the late 1970s and early 1980s, when Soviet–American relations deteriorated and the Soviet Union was enhancing its naval and air presence in the northwest Pacific. North Korea's nuclear weapons and missile programs and China's military buildup reinforced and accelerated this trend. Through a series of policy initiatives, new legislation, and changes in the U.S.–Japan Defense Cooperation Guidelines, Japan can now provide rear-area support, except for ammunition, for U.S. forces involved in regional contingencies that affect Japan's security. When certain conditions are met and policy procedures followed, Japan's Self–Defense Forces are permitted to use force to a limited extent even if Japanese territory proper has not come under attack. For example, a reinterpretation of the constitution in July 2014 and passage of security policy legislation in September 2015 inched Japan toward an embrace of collective defense. The JSDF may now help defend the United States and other countries with which Japan has close relations if the United States and other countries were attacked in any situation that "poses a clear risk of threatening Japan's survival and of overturning people's rights to life, liberty and pursuit of happiness fundamentally."[266]

[265] Hornung, Jeffrey W. *Japan's Potential Contributions in an East China Sea Contingency*. RAND Corporation, 2020; Smith, Sheila A. *Japan Rearmed: The Politics of Military Power*. Cambridge, MA. Harvard University Press, 2019; Schoff, James L. *Uncommon Alliance for the Common Good: The United States and Japan After the Cold War*. Washington, D.C. Carnegie Endowment for International Peace, 2017.
[266] Japan Ministry of Defense. *Defense of Japan 2021*. 235, 243.

In response to China's military buildup and increasing Chinese activity in the East China Sea, Japan shifted its focus from defending northern Japan to protecting the southwest island chain. Although Japan's defense budget registered yearly declines during the first decade of the 21st century, Shinzo Abe reversed this trend after returning to the prime ministership in December 2012. Defense spending has been increasing on average in the range of 1 percent to 2 percent each year since 2013. To extend its military reach, Japan is acquiring longer-range missiles such as the joint air-to-surface standoff missile-extended range, JASSM–ER, and the joint strike missile, JSM. It also plans to develop an anti-ship hypervelocity gliding projectile, HVGP, and to extend the range of its air-to-surface missiles, ASM–3s, to 200 miles. Japan also decided to convert its Izumo-class helicopter carrier into a light aircraft carrier capable of carrying the F–35B joint strike fighter.[267]

In addition to strengthening its alliance with the United States, Japan has been promoting security ties with various countries in the Asia–Pacific region. In 2007, Japan and Australia unveiled their Joint Declaration on Security Cooperation, which mandated cooperation in a broad range of areas including peace operations, exchange of strategic assessments, maritime and aviation security, HA/DR, contingency planning, personnel exchanges, and joint exercises and training. After signing an Acquisition and Cross–Servicing Agreement, ACSA, in 2015 and expanding it two years later, the two countries finalized negotiations in November 2020 on a historic Reciprocal Access Agreement, which provides a legal framework to facilitate mutual visits by their defense forces and assets. Japan and Australia signed their RAA on January 6, 2022.[268] Despite bilateral tensions regarding history-related issues, Japan has also pursued security cooperation with South Korea, given their shared concerns about North Korea and China. After several delays, Tokyo and Seoul finally signed, in 2016, the General Security of Military Intelligence Agreement, GSOMIA,[269] and they agreed to strengthen emergency communication between their defense ministries. The United States has bolstered Japan's bilateral security ties with Australia and South Korea by participating in trilateral security dialogues.

In Southeast Asia, Japan has been providing economic assistance and patrol vessels to enhance the Philippines' capacity to deal with disasters and challenges to maritime claims and dispatching Self–Defense Forces to help train Philippine military units. Regarding Vietnam, Japan has sold coast guard patrol vessels and will begin to export defense systems and technology, including patrol planes, underwater drones, amphibious assault vehicles, and mine-detecting and radar technology. Similarly, Japan has signed an agreement with Indonesia for transferring defense equipment and technologies. As part of its multilateral effort to counter Chinese assertiveness in the region, Tokyo has championed the Quad and the concept of a free and open Indo–Pacific. Japan has high-level 2+2 meetings with five countries in addition to the

[267] Japan Ministry of Defense. *Defense of Japan 2021*. 217.
[268] "Japan-Australia Reciprocal Access Agreement." January 6, 2022. https://www.mofa.go.jp/a_o/ocn/au/page4e_001195.html.
[269] Samuels, Richard J. *Special Duty: A History of the Japanese Intelligence Community.* Ithaca, NY. Cornell University Press, 2019. 200, 224-226.

United States, which involve simultaneous participation by foreign and defense ministers. In addition, it has GSOMIAs with seven nations, ACSAs with four countries, and bilateral military training with eight states. Moreover, Tokyo has capacity-building assistance programs with 15 nations and defense transfer arrangements with five.[270] In short, Japan is playing a key role in moving the region beyond the traditional U.S.–centered hub-and-spokes bilateral network of alliances by promoting security cooperation between regional allies and partners.

Defense hawks in Japan would like their country to take bolder steps to balance against China. Some advocate accelerating increases in defense expenditures so that Japan's defense budget increases to about 2 percent of GDP, putting Japan in line with other U.S. allies.[271] Others support reassessing Japan's adherence to the Three Non–Nuclear Principles and moving from nuclear latency to a more explicit nuclear hedge.[272] Vigorous defense advocates also endorse fully exercising the right of collective self-defense and shifting Japan from a strictly defensive defense doctrine to one that includes possible offensive retaliatory operations against the bases of states attacking Japan.[273] Some even favor amending Japan's adherence to its One China policy by passing legislation that might be comparable with the U.S. Taiwan Relations Act and developing closer security ties with Taiwan for geopolitical reasons.

Such hawkish views are gaining some traction because of public perceptions in Japan of China's aggressive behavior near the Senkaku Islands and its repressive policies regarding Hong Kong and Xinjiang. A perception that the United States wants Japan to move in this direction also bolsters these views in Japanese political discourse. Despite these drivers, however, there are significant countervailing constraints. China continues to be Japan's foremost trading partner and an attractive destination for Japanese direct investment. As a consequence, Tokyo has a strong incentive to stabilize ties with Beijing and avoid a stridently antagonistic relationship. One indicator of this moderation is how Tokyo has reframed the free and open Indo–Pacific concept to make it less exclusionary and to leave open the possibility of accommodating China.[274] Although pacifist sentiments have gradually weakened among the Japanese, a large segment of the public remains committed to Article 9 of the constitution, which prohibits the threat or use force by Japan to settle international disputes, and the Three Non–Nuclear

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[270] Harold, Scott W. et. al. *The Thickening Web of Asian Security Cooperation: Deepening Defense Ties Among U.S. Allies and Partners in the Indo-Pacific.* RAND Corporation, 2019. 19-70; Japan Ministry of Defense, International Policy Division, Bureau of Defense Policy. "Japan's Defense Capacity Building Assistance." February 2016. https://www.mofa.go.jp/files/000146830.pdf; Japan Ministry of Defense. *Defense of Japan 2020.* 341-382. https://www.mod.go.jp/en/publ/w_paper/wp2020/pdf/R02030301.pdf.
[271] Kaneko, Reito. "Japan ruling party seeks drastic defense budget rise amid China threat." *Japan Times*, May 25, 2021. https://www.japantimes.co.jp/news/2021/05/25/national/politics-diplomacy/defense-budget-rise/; Kobara, Junnosuke. "Japan to scrap 1% GDP cap on defense spending: Minister Kishi." *Nikkei Asia*, May 20, 2021. https://asia.nikkei.com/Editor-s-Picks/Interview/Japan-to-scrap-1-GDP-cap-on-defense-spending-Minister-Kishi.
[272] "Arguments Calling for a Revision of the Three Non-Nuclear Principles." *Foreign Press Center Japan -Magazine Articles of the Month*, November 24, 2017. https://fpcj.jp/en/j_views-en/magazine_articles-en/p=59811/.
[273] Kitaoka, Shinichi, and Mori Satoru, "Misairu bōei kara hangekiryoku e: Nihon no senryaku no minaoshi o" ["From Missile Defense to Counterattack Capability: Revising Japan's Strategy"]. *Chūō Kōron*, April 2021. 120-128; Akimoto, Daisuke. "Explaining Japan's Policy Debate on Strike Capability." *The Diplomat*, August 7, 2020. https://thediplomat.com/2020/08/explaining-japans-policy-debate-on-strike-capability.
[274] Hosoya, Yuichi. "FOIP 2.0: The Evolution of Japan's Free and Open Indo-Pacific Strategy." *Asia-Pacific Review* Vol. 26, No. 1, 2019. 18-28. https://www.tandfonline.com/doi/abs/10.1080/13439006.2019.1622868.

Principles; and they are likely to resist an offensively oriented defense doctrine and significant increases in defense expenditures. Japan's expanding public budget deficit and the demand for more spending on social-policy initiatives in the wake of the Covid–19 pandemic will make it politically difficult to provide for large increases in defense expenditures.

It is theoretically possible for Japan to cross the nuclear threshold and become a nuclear weapons state.[275] An abrupt withdrawal of the U.S. naval and air force presence in Japan in the context of a threatening China, continuing development of North Korea's nuclear and missile arsenals, and possible South Korean consideration of nuclearization would fundamentally change the political discourse in Japan. But barring such a drastic shift in the U.S. defense posture, public opposition to nuclear weapons and Japan's commitment to the nuclear nonproliferation regime, which is essential for its nuclear energy programs, will lead Japan to focus on conventional defense upgrades and eschew a nuclear weapons option.[276] We discuss issues related to extended deterrence in Northeast Asia in Chapter 5.

Japan's potential roles in Korean Peninsula and Taiwan contingencies

Because of its geographic proximity to potential flashpoints on the Korean Peninsula and in the Taiwan Strait, as well as its national capabilities, Japan will be the pivotal ally in implementing an active denial strategy. Although South Korean and U.S. military forces have primary responsibility for deterring and defending against North Korean aggression, Japan can assist that effort by providing rear-area logistical support in addition to allowing U.S. forces to use bases in Japan as possible staging areas for Korea-related military operations. Seven U.S. military bases in Japan are U.N.–designated facilities based on Security Council Resolution 84, adopted in July 1950, to repel the North Korean attack on South Korea.[277] When the San Francisco Peace Treaty was signed in September 1951, notes were exchanged that confirmed Japan's permission for continued operation of these bases. Therefore, during a Korean contingency, the U.N. Command–Rear located in Japan may use these bases to manage multinational force deployments to the Korean peninsula.[278] Japan has been striving to develop plans with South Korea regarding military-assisted evacuation of Japanese civilian nationals during a Korean military contingency, but tensions between Tokyo and Seoul over history-related issues have impeded such efforts.[279]

In a Taiwan contingency, Japan would be the critical partner for a U.S. active denial strategy aimed at supporting Taiwan's self-defense. But how Tokyo actually responds to

[275] Heginbotham and Samuels, "Vulnerable U.S. Alliances in Northeast Asia: The Nuclear Implications."
[276] Mochizuki, Mike. "Japan and Nuclear Nonproliferation" in Pekkanen, Robert J., and Saadia M. Pekkanen, eds. *The Oxford Handbook of Japanese Politics*. Oxford University Press, 2021.
[277] The seven bases are Camp Zama, Yokota Air Base, Yokosuka Naval Base, Sasebo Naval Base, Kadena Air Base, White Beach Naval Facility, and Futenma Marine Corps Air Station.
[278] United Nations. "Command-Rear Fact Sheet." https://www.yokota.af.mil/Portals/44/Documents/Units/AFD-150924-004.pdf; and United Nations Command. *United Nations Command – Rear.* https://www.unc.mil/Organization/UNC-Rear/.
[279] Heginbotham, Eric, and Dick Samuels. "With Friends Like These: Japan-ROK Cooperation and U.S. Policy." The Asan Forum, March 1, 2018. https://theasanforum.org/with-friends-like-these-japan-rok-cooperation-and-us-policy.

such a crisis will depend on the political leadership at the time and the way it addresses the procedural and legal issues that constrain Japan's defense policy.[280] For example, Tokyo would be able to invoke the security legislation approved in 2015 and put into force in 2016 to coordinate defense operations with the United States in a Taiwan contingency to help defend U.S. forces after they are attacked. But it is unclear that Japan would be able directly to defend Taiwan and its military forces because Japan does not officially consider Taiwan to be "a foreign country that is in a close relationship with Japan." Moreover, although U.S. use of its military bases and forces in Japan will be essential to helping defend Taiwan, Japan could insist that their use for combat operations not specifically focused on the defense of Japan would fall under the prior-consultation mandate Japan and the United States negotiated in 1960. In other words, Japan would have to give explicit consent.[281]

Nevertheless, because of Japan's geographic proximity to Taiwan, it could still contribute to active denial and deterrence by defending its own territory and territorial waters against aggression and enhancing the survivability and resilience of Japanese and American military bases and assets in Japan. Were China to threaten an attack on Japan during a Taiwan contingency, Japan, in exercising its right of individual self-defense, would be able to help interdict PRC forces involved in an invasion because these forces could pose an imminent danger to Japanese territory, especially its southwest island chain. This interdiction operation can be done without the capability to strike the mainland but through ground-based anti-ship and standoff, air-launched missiles and upgrades in naval capabilities. Japan's defense of its southwestern islands and the ability to control choke points along the island chain from Kyushu to Yonaguni will constrain the ability of Chinese naval forces to move beyond the first island chain to challenge U.S. naval forces seeking to move toward the theater of conflict.[282] Performing this interdiction and defense mission would buttress deterrence by making it more difficult for China to achieve its war aims. Japan does not need to adopt a defense doctrine of preëmptive or retaliatory attacks on PLA bases on the mainland.

Defense reforms needed for Japan to implement an active denial strategy

To enhance its ability to undertake these missions, Japan should modify its defense procurement plans to allocate more resources to the Maritime and Air Self–Defense Forces relative to the Ground Self–Defense Force. Regarding maritime forces, Tokyo should recalibrate its investments away from large surface combatants toward more small surface combatants with vertical launching systems, VLSs, such as the stealthy and less-expensive Mogami-class frigate. In addition to increasing its submarine fleet, the MSDF could maintain a fleet of four Izumo-class small carriers and consider the acquisition of additional fast transport ships to facilitate the movement of antiaircraft

[280] Hornung. *Japan's Potential Contributions in an East China Sea Contingency.* 91-94; Nakamura, Susumu. "The Japanese Response to a Taiwan Crisis – How to Prepare and Respond." *International Information Network Analysis -Sasakawa Peace Foundation*, June 15, 2021. https://www.spf.org/iina/en/articles/nakamura_01.html.
[281] Hornung. *Japan's Potential Contributions in an East China Sea Contingency.* 91-94.
[282] Hornung. *Japan's Potential Contributions in an East China Sea Contingency.* 65-67.

and anti-ship missiles to the southwestern islands. In terms of technical innovation, Japan could seek to develop unmanned or slightly manned vessels and slightly underwater movable missile batteries.

Japan can strengthen its air power, range, and mobility by increasing the number of combat aircraft and the size of its tanker fleet. The ASDF should also enhance its air defense capabilities by purchasing more reloads for its Patriot missile-defense batteries and developing an air transportable artillery rocket system similar to the American high mobility artillery rocket system, HIMARS. Japan should also acquire more standoff air and ship-launched missiles that can be fired from beyond the range of Chinese air defenses. Because of cost considerations, Japan has decided not to go ahead with the procurement of the U.S.–sourced long-range anti-ship missiles, LRASMs, but it will continue with the acquisition of precision-guided Joint Strike Missiles from Norway for the F–35A joint strike fighters purchased from the United States. Japan is also developing an advanced Type–12 missile that would be an upgrade of its indigenous surface-to-ship missiles, Type–12 SSMs. The advanced Type–12 missile would have stealth capability and a maximum range of 1,000 kilometers and could be launched from the air as well as the ground. Considering the need to evade an adversary's air defense systems, air-launched advanced Type–12 missiles could have an effective range of 600 kilometers.[283] This weapon enables Japan to support interdiction operations in the context of a U.S. denial strategy as well as better defend Japan's own territory from attack.

Theoretically, the advanced Type–12 missiles could be used for targeting missile or air bases on the Chinese mainland in a retaliatory, counterforce operation; but their utility for such a mission would be limited given that Japanese fighter jets would need to fly closer to PRC territory and face challenging air defenses. Rather than adopting a military doctrine of retaliatory offensive strikes against adversary bases, as advocated by some Japanese policymakers, an emphasis on interdiction missions through standoff missiles launched from the outer edges of China's A2/AD capabilities would make a more meaningful contribution to an active denial strategy. Similarly, Japanese investments in long-range hypervelocity gliding projectiles, HVGPs, could be used to interdict large surface ships rather than attack land targets.[284] From the perspective of an active denial strategy, Japanese acquisition of BGM–109 Tomahawk cruise missiles would not be an optimal use of limited defense funds and could unnecessarily exacerbate the security dilemma and increase escalatory risks.

In addition to reducing the percentage of the defense budget allocated to the GSDF, Japan should make organizational changes and refocus its priorities for ground forces. For example, to save money and address the demographic challenges of SDF

[283] Furukawa, Katsuhisa. "Japan's Stand-Off Weapon Programmes: New Counterforce Strike Capabilities?" Vienna, Austria. Open Earth Future, April 2021.
https://oneearthfuture.org/program/open-nuclear-network/publications/japan's-stand-weapon-programmes-new-counterforce-strike
[284] Liu Zhen. "Japan is working on a hypersonic anti-ship missile that may be a threat to Chinese navy activities." *South China Morning Post*, April 29, 2020.
https://www.scmp.com/news/china/military/article/3081967/japan-working-hypersonic-anti-ship-missile-may-be-threat.

recruitment, the GSDF could shift some of the personnel in its large ground divisions into a new reserve force. It should place greater emphasis on SAMs and anti-ship missile batteries. These units should be equipped with advanced systems with plenty of reloads and integrated into a larger joint air defense scheme. Building on its new amphibious rapid-deployment brigade, Japanese ground forces could develop smaller deployable force packages to complement the U.S. Marine Corps reorganization to smaller units and aim to undertake missions comparable with the Marines' expeditionary advanced base operations in its outer islands. Enhanced training with USMC counterparts would improve GSDF operational effectiveness and facilitate the reduction of the Marine Corps politically sensitive presence in Okinawa.

Given the close proximity of Okinawa to Taiwan, U.S. bases on this island prefecture — especially Kadena Air Base — would be central for a prompt American response during an emerging military crisis in the Taiwan Strait. At the same time, proximity makes U.S. military assets on Okinawa and the southwestern areas of Japan's main islands particularly vulnerable to PRC missile attacks. Therefore, an active denial strategy would place priority on base hardening and repair for survivability and resilience after potential attacks. U.S. and Japanese tactical air units would also need to disperse quickly. This requires that the United States and Japan develop and implement specific plans for U.S. and Japanese aircraft to deploy out of primary defense air bases in Japan to secondary defense and even civilian airfields during a crisis. In addition to the prepositioning of logistics at these alternative airfields, tactical air units would need to train and maintain readiness for rapid dispersal under crisis conditions.

To pay for the above recommendations, Japan would need to increase significantly its defense expenditures so that they are more in line with the standard of NATO allies and Australia, approximately 2 percent of GDP, and approach the higher level of South Korea, which spends 2.7 percent of GDP on defense. Attaining such a spending target will be politically difficult for any Japanese government given the enormous national debt and burgeoning social-welfare expenditures. Nevertheless, the Japanese government has begun to accelerate its increase in defense spending. Its November 2021 supplementary budget allocated an additional $6.1 billion for defense, bringing the total defense expenditure to about $53 billion for FY 2021. In December 2021, the Kishida Cabinet approved an initial defense budget of about $48 billion (5.4 trillion yen), which would entail an increase of more than 5 percent from the previous year. A combination of the supplementary and initial annual budget allocations for defense would bring Japan's defense expenditures to about 1.09 percent of GDP.[285]

A 'new deal' for the U.S.–Japan alliance

To facilitate a larger Japanese allocation of its resources to national defense, the United States should consider a gradual reduction of Japanese host-nation support for U.S

[285] "Japan to raise defense spending by $6.1bn this year." *Nikkei Asia*, November 19, 2021. https://asia.nikkei.com/Politics/Japan-to-raise-defense-spending-by-6.1bn-this-year; "Editorial: Rapid growth in defense spending a hard sell to the public." *Asahi Shimbun - Asia & Japan Watch*, January 4, 2022. https://www.asahi.com/ajw/articles/14514817.

military forces stationed in Japan as Tokyo appropriates more funds to defense. According to a March 2021 study by the Government Accountability Office, while the United States spent $20.9 billion for its military presence in Japan from 2016 through 2019, Japan provided $12.6 billion to support this presence during this period, or about 60.2 percent of the U.S. financial obligation.[286] This percentage has been substantially larger than the host-nation support contributions of U.S. allies such as Germany, Italy, and South Korea.[287] In December 2021, Japan and the United States began to move in the right direction by reforming the allocation of host-nation support funding. While reducing funds for the utility costs and recreational facilities of U.S. forces in Japan, Japan will increase support for improving U.S. facilities such as hangars for aircraft maintenance and procuring materials and equipment for joint U.S.–Japan defense drills.[288] A logical next step would be to use host nation support funding to enhance the resilience and survivability of U.S. bases consistent with the active denial strategy. As Japan does more for its own defense in conjunction with a U.S. denial posture and strategy, the United States could also reduce some of its forces in Japan.

Nevertheless, a forward presence in Japan remains central to the U.S. position in Asia. Although the alliance with Japan is robust, with an unusual degree of overlap in views of interests and threats, there are also elements of tension. Dissatisfaction on the part of local hosts, notably in Okinawa Prefecture, is particularly acute. There are no solutions that would fully satisfy all parties, but there are ways to mitigate local dissatisfaction and, potentially, to improve the resilience and force posture of forward-deployed forces. Doing so would require engaging Okinawa in discussions with an eye toward gaining the understanding of the local population and local authorities for a series of related changes. A "new deal" for Japan, the United States, and Okinawa would look to (1) maintain the most important assets currently located in Okinawa, (2) reduce elements that could be located elsewhere without compromising essential mission functions, and (3) improve the posture of remaining forces by enhancing access to dual-use facilities.

As discussed previously, tactical airpower is central to virtually all aspects of an active denial effort. Kadena, like all forward positions, is within the high-threat area and vulnerable to attack, but as long as aircraft and other critical assets are not left massed and vulnerable there, the base can serve as the central node in a network of distributed airfields. The Marine presence on Okinawa is a source of tension with the local community, and we recommend further reductions in that presence, as discussed below. There is reason, however, to maintain a meaningful Marine presence in Okinawa; and facilities for the 31st MEU might be maintained there, in part to maintain continuity

[286] U.S. Government Accountability Office. *Burden Sharing: Benefits and Costs Associated with the U.S. Military Presence in Japan and South Korea.* March 2021. 14-20. https://www.gao.gov/assets/gao-21-270.pdf.
[287] "Editorial: Host-nation deal raises prospect of funding in other guises." *Asahi Shimbun - Asia & Japan Watch*, December 23, 2021. https://www.asahi.com/ajw/articles/14508688.
[288] "Japan will increase U.S. troop support but not for bowling alleys." *Nikkei Asia*, November 18, 2021. https://asia.nikkei.com/Politics/International-relations/Japan-will-increase-U.S.-troop-support-but-not-for-bowling-alleys; "Japan, U.S. agree on ¥1.06 trillion for hosting U.S. forces over 5 years." *Japan News of Yomiuri Shimbun*, December 22, 2021. https://the-japan-news.com/news/article/0008121254.

with training areas in Okinawa and enable combined training with Japanese counterparts in operationally relevant areas.

The third aspect of adjustment in Okinawa would be the preparation of dual-use facilities, particularly civilian airfields, and the hardening and improvement of infrastructure on existing bases. The SDF is constructing cantonments and munitions bunkers on the Sakishima Islands at the end of the Ryukyu chain, and improvements to U.S. facilities would be consistent with the larger effort. Hardened aircraft shelters and fuel lines, munitions depots, and "hides" should be constructed at Kadena and at other U.S. bases in Japan. The United States should push for dual-use facilities to be equipped with arrestor gear and other infrastructure and, if necessary, manned by skeleton maintenance crews drawn from the SDF, or civilian workers. (See Figure 2.8. Base hardening and civilian airport preparations are considered in Chapter 2.)

All of these adjustments would require the U.S. military and diplomats to engage with the Japanese government in new ways. Tokyo would have to open a more substantive and inclusive dialogue with local officials, and Okinawan leaders would need to take greater account of security issues. There is, however, much for each of the three primary actors to gain, and Washington should encourage the evolution of this security engagement.

Implementing an active denial strategy will require more U.S. and Japanese training and readiness in Japan, which will impose new burdens on local communities and could provoke active resistance unless offsetting measures are also put into practice. One option would be to revise the U.S.–Japan Status of Forces Agreement so that there is greater Japanese input and transparency in developing regulations on peacetime training and ensuring that the U.S. military follows these regulations. The more the U.S.–Japan SOFA can replicate the SOFAs with NATO allies, the better.[289] For example, under the SOFAs with Germany and Italy, German and Italian authorities retain the right to approve U.S. military exercises, apply domestic laws to such exercises, enter U.S. military facilities, and initiate investigations regarding U.S. military aircraft accidents. Japanese authorities, however, do not have comparable rights.[290] A *Mainichi Shimbun* survey conducted in June 2020 revealed that 83 percent of the governors of Japanese prefectures supported a review of SOFA.[291]

Insofar as the Marine Corps' training in Okinawa and the main Japanese islands has tended to be the most onerous on local communities, another step would be to accelerate the planned reduction of Marine units out of Okinawa. Roughly 15,000 of the

[289] One impediment is the nature of Japan's legal system, which does not give sufficient rights to defendants during criminal investigations.
[290] Yamamoto, Akiko. "*Nichi-Bei Chi-i Kyōtei*" ["Japan-U.S. Status of Forces Agreement"]. Tokyo. Chūō Kōron, 2019. 141-174; "Japan-U.S. SOFA wildly different from U.S. agreements in Germany, Italy: Okinawa Prefecture." *Mainichi Japan*, April 22, 2018. https://mainichi.jp/english/articles/20180422/p2a/00m/0na/005000c.
[291] "83% of Japan's governors say Japan-U.S. forces pact needs reviewing: Mainichi poll." *Mainichi*, June 23, 2020. https://mainichi.jp/english/articles/20200623/p2a/00m/0na/010000c.

19,000 Marines currently in Japan are in Okinawa.[292] The 2006 Roadmap for Realignment, revised in 2012, provides guidelines for a relocation of 9,000 Marines from Okinawa to other parts of the Pacific. Under this plan, the III MEF headquarters will move to Guam and the 3rd MEB will be consolidated in Okinawa. The realignment plan rationalizes the Marine presence in the Western Pacific, but the continuing and substantial presence on the island will remain an ongoing irritant and places the larger alliance one incident away from serious crisis. We therefore recommend the relocation of additional Marine elements from Okinawa. Given the immediacy of the security challenges facing Japan and the evident interests Tokyo has in maintaining the alliance, the United States should work with Japanese leaders to find an alternative home for the remainder of the 3rd MEB elsewhere in Japan.

The Marine Corps Air Station at Futenma and the question of its replacement also remains a contentious issue. If the 3rd MEB can be relocated elsewhere within Japan, a nearby alternative site for Marine Air Group 36 and its MV–22s might also be sought. In particular, the current plan for the Futenma replacement facility at Henoko should be reëvaluated given the formidable technical challenges of completing the V–shaped landfill runways over a soft and deep seabed. The price tag of this project is ballooning, and local resistance as well as technical obstacles will inevitably cause further delays beyond the early 2030s. Even if the replacement facility at Henoko is completed as planned, the runways will require regular repair because of subsidence and will be especially vulnerable to missile attacks. A better approach might be to scale back the current landfill plan to a heliport primarily inside Camp Schwab that would be capable of hosting some of the helicopters and MV–22s now deployed at Futenma Air Station. And as an interim measure, the operations at Futenma could be dramatically curtailed to reduce the negative impact and danger to the local population while other options for deploying Marines in the region are being explored.

Republic of Korea

The Republic of Korea has been a treaty ally of the United States since 1953, the two sides having fought side by side in a war against North Korea and China. Often referred to as an alliance "forged in blood,"[293] there is a strong bond that sustains the U.S.–ROK alliance despite differences on specific policies, whether it is North Korea's nuclear threat or managing the risks associated with deepening U.S.–China strategic competition. Five million soldiers and civilians — mostly from North Korea, South Korea, and China, but also 40,000 U.S. troops — died in that war, which explains South Korea's

[292] 米軍の駐留人数（2019年3月31日現在.
https://www.pref.okinawa.jp/site/chijiko/kichitai/sofa/documents/us-mil-number201903-1.pdf
[293] Abrams, Robert B. "Statement of General Robert B. Abrams, Commander, United Nations Command; Commander, United States-Republic of Korea Combined Forces Command; and Commander, United States Forces Korea." House Armed Services Committee, March 27, 2019.
https://armedservices.house.gov/_cache/files/a/6/a6f7d93a-9fff-4301-867b-157b9f0b60ef/07E4AF018B25576DEC2342F2D0D50ED5.usfk-statement-for-the-record-hasc-final-27-march-2019.pdf.

support for policies that reduce tensions with North Korea and deter it from attacking the South.

Despite South Korea's rapid economic development and maintaining one of the world's largest militaries, a deep sense of strategic vulnerability has permeated its thinking on national security since the Three Kingdoms of Korea, Goguryeo, Baekje, and Silla, was founded in 676, driven by its small size and its experience with invasions and occupations by foreign powers. South Korea's turbulent history may explain the strong support for and commitment to the U.S.–ROK alliance since its inception in 1953. But its unique history also explains the South Korean people's long-term desire for greater sovereignty and autonomy over their own affairs, which is a recurring if often latent source of the tensions and fault lines within the alliance that will be considered below.

For the United States, the alliance with the ROK is important for ensuring that South Korea can counter potential threats from North Korea and maintain peace and stability on the Korean Peninsula. It is also essential to reassuring Seoul that it will remain secure without resorting to an indigenous nuclear capability. Given our support for maintaining peace on the Korean Peninsula and limiting further nuclear proliferation, we argue that maintaining and demonstrating strong support for ROK security is in the U.S. interest. However, the United States should be more willing to work with Seoul to engage in diplomacy with Pyongyang to advance progress toward a more stable long-term peace regime on the Korean Peninsula. Moreover, there are some adjustments that should be made in the U.S. military presence in Korea and in the U.S.–ROK alliance division of labor.

South Korean security policies and attitudes amid contested politics

The ROK faces external challenges that are, by many measures, more severe and complex than those facing Japan due to the unresolved status of the Korean War and its economic dependence on China. At the same time, Korean politics is highly dynamic, and progressives and conservatives have sometimes converged on how best to address many of those issues. While both conservatives and progressives have supported strong national defense, tight focus on peninsular security, a robust alliance with the United States, and engagement with North Korea and China, they have often disagreed on specific priorities. Progressives have favored more-expansive and less-conditional engagement with North Korea, strong and constructive relations with China, caution in Korea's relationship with Japan, and relatively greater autonomy in the security relationship with the United States. Conservatives give greater weight to deterrence, maintaining strong strategic relations with the United States, rapprochement with Japan, and more-conditional engagement with North Korea.

These dynamics are evident in the evolution of South Korea's approach toward relations with North Korea. Conservatives generally believe that deterrence and pressure should guide South Korean policy toward the North and tend to be skeptical of engagement

with North Korea. After Pyongyang's nuclear tests in 2006 and 2009, as well as the sinking of the *ROKS Cheonan* in 2010, the conservative government under Lee Myung-bak shifted toward a policy of "proactive deterrence" to raise the costs of a North Korean attack by moving beyond self-defense to rapid, retaliatory actions. At the same time, President Lee backed a policy called "Mutual Benefits and Common Prosperity" that emphasized economic cooperation and coexistence as a way to encourage denuclearization of North Korea and assuage Pyongyang's fear of unification by absorption.[294]

When the progressive Moon Jae-in came into the presidency in 2017, he placed greater emphasis on inter–Korean reconciliation and pursued more diplomatic engagement with Pyongyang. At the same time, he maintained his predecessor's more proactive defense policy and increased the ROK's defense budgets. Under its current five-year defense plan, announced in September 2021, South Korea is slated to spend $271.5 billion on defense through 2025, a 5 percent increase over an earlier version of the plan.[295] This planned increase in defense spending is faster than under any previous government. Currently, 2.7 percent of South Korea's GDP is allocated toward its defense, which is more than the defense budget of any G7 country other than the United States.

As to China, progressives and conservative administrations have sought to strike a balance in the bilateral relationship, though with varying strategies. For example, China protested strongly to the conservative government's announcement in 2016 of plans to deploy the THAAD missile defense system in Korea, though the system was oriented toward the growing missile threat from Pyongyang. In addition to mass protests in China and boycotts of South Korean companies, the PRC issued various regulatory bans on Korean products, entertainers, and tourism.[296] Moon went ahead with the deployment when he assumed the presidency a year later, but he agreed to strengthen communication between the Korean and Chinese militaries in response to China's concerns about THAAD. However, unlike his progressive predecessors, Moon did not seek to create a special or strategic relationship with China, and his government floated quiet feelers about joining the Quad, though this is unlikely to happen anytime soon.

Underlying this challenging balancing act in ROK relations with China has been a significant deterioration in South Korean public opinion toward China in recent years. Apart from Beijing's severe economic sanctions in response to the deployment of THAAD, China's ambivalent response to North Korean provocations — the *Cheonan*

[294] Suh Jae Jean. "The Lee Myung-bak Government's North Korea Policy." Korea Institute for National Unification, May 2009. http://repo.kinu.or.kr/bitstream/2015.oak/1372/1/0001396359.pdf.
[295] Young-bin, Lee. "The 2021-2025 Mid-term Defense Plan for the Successful Completion of Defense Reforms and a Strong Innovative Military." *Korea Institute for Defense Analyses*, Issue 225, September 9, 2020; Kim, Lami. "A Hawkish Dove? President Moon Jae-in and South Korea's Military Buildup." *War on the Rocks*, September 15, 2021. https://warontherocks.com/2021/09/a-hawkish-dove-president-moon-jae-in-and-south-koreas-military-buildup. "South Korea proposes USD271 billion defence plan," Janes, September 3, 2021. https://www.janes.com/defence-news/news-detail/south-korea-proposes-usd271-billion-defence-plan.
[296] Meick, Ethan, and Nargiza Salidjanova. "China's Response to U.S.-South Korean Missile Defense System Deployment and its Implications." U.S.-China Economic and Security Review Commission Staff Research Report, July 26, 2017. https://www.uscc.gov/sites/default/files/Research/Report_China%27s%20Response%20to%20THAAD%20Deployment%20and%20its%20Implications.pdf.

sinking, the shelling of Yeonpyeong Island — has also shifted South Korean views of China. In 2020, opinion polls indicated 75 percent of South Koreans held an unfavorable view of the PRC, vs. 41 percent in 2014 and 31 percent in 2002.[297]

At the same time, relations between Seoul and Tokyo are also strained, making security cooperation among the United States, South Korea, and Japan unlikely absent drastic change. Public opinion in South Korean and Japan consistently hovered around 20 percent to 30 percent positive from 2015 to 2021.[298] According to a 2021 poll, 25 percent of South Koreans had a positive impression of Japan.[299] Although South Korean progressives have tended to be more critical of Japan over historical issues, some of the history-related irritants in the relationship stem from South Korean court decisions on issues not directly related to Korea's partisan politics.

South Korea is also looking for ways to diversify and enhance its foreign relations beyond Northeast Asia. A case in point is Moon Jae-in's signature foreign policy initiative, the New Southern Policy, which is aimed at strengthening ties with ASEAN and India. In October 2021, South Korea and the United States agreed to form a working-level defense dialogue to promote synergies between the U.S.'s Indo–Pacific strategy and South Korea's New Southern Policy.

Another area of security policy where there are sharply contesting views, though not necessarily along purely partisan lines, is in attitudes toward nuclear weapons and nuclear deterrence. North Korea's rapid progress in nuclear proliferation since 2006 has increased South Korea's security dilemma and prompted more support for enhanced defense capabilities, including nuclear weapons. With faint prospects for nuclear disarmament in North Korea, conservative parties and many in the foreign and defense policy establishment, including a variety of former officials in progressive administrations, now support either significantly enhanced extended nuclear deterrence (*e.g.*, through redeployment of U.S. nuclear weapons to the Peninsula) or an indigenous nuclear program.[300] Mirroring surveys by other organizations, a December 2020 survey conducted by the Asan Institute, a South Korean think tank, indicated that a record 69.3 percent of South Koreans favored developing an indigenous nuclear weapon, while 61.3

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[297] Silver, Laura, Kat Devlin, and Christine Huang. "Unfavorable Views of China Reach Historic Highs in Many Countries." Pew Research Center, October 6, 2020. https://www.pewresearch.org/global/2020/10/06/unfavorable-views-of-china-reach-historic-highs-in-many-countries. Similarly, according to a May 2021 poll, only 26.4 percent of South Koreans had a favorable view toward China, a 12 percent decline from the end of 2018. Sang-Hun, Choe. "South Koreans Now Dislike China More Than They Dislike Japan." *The New York Times*, August 20, 2021. https://www.nytimes.com/2021/08/20/world/asia/korea-china-election-young-voters.html.

[298] Stokes, Bruce. "How Asia-Pacific Publics See Each Other and Their National Leaders." Pew Research Center, September 2, 2015. https://www.pewresearch.org/global/2015/09/02/how-asia-pacific-publics-see-each-other-and-their-national-leaders; "5th Japan-South Korea Joint Public Opinion Poll." The Genron NPO and East Asia Institute, July 2017. https://www.genron-npo.net/en/archives/170721_en.pdf; "The Japan-South Korea Joint Public Opinion Poll 2019." The Genron NPO, June 12, 2019. https://www.genron-npo.net/en/opinion_polls/archives/5489.html; Kudo, Yasushi. "South Korean attitudes toward Japan have worsened dramatically, annual survey finds." The Genron NPO, October 19, 2020. https://www.genron-npo.net/en/opinion_polls/archives/5562.html; "The 9th Joint Korea-Japan Public Opinion Poll." East Asia Institute, October 1, 2021. http://www.eai.or.kr/main/english/program_view.asp?intSeq=20810&code=54&gubun=program.

[299] Lee Dong Han. "주변국 호감도 – 2021년 4월 1주차] 중국 호감도 26.3도, 역대 최저치" ["Favorability of neighboring countries – 1st week of April 2021] 26.3 degrees of favorability in China, the lowest level ever"]. Korea Research Co., Ltd., April 8, 2021. https://hrcopinion.co.kr/archives/18012.

[300] Heginbotham and Samuels, "Vulnerable U.S. Alliances in Northeast Asia: The Nuclear Implications," 164-165.

percent favored reintroducing tactical nuclear weapons.[301] However, the country is not unified in this position, and leading progressive politicians are opposed. We discuss the risk of nuclear proliferation in Northeast Asia further in Chapter 5.

U.S.–ROK alliance dynamics

Both major parties in South Korea, Democratic Party and People Power Party, favor maintaining strong relations with the United States, and this is bolstered by strong public support for the alliance. Nevertheless, Washington and Seoul have often been at odds over broader strategic questions, such as how to deal with North Korea as well as the timing of transfer of operational control of the South's military in the event of war.

Washington has generally placed greater emphasis on the denuclearization of North Korea as a condition for negotiations than have progressive governments in South Korea, although President Trump met three times with North Korean leader Kim Jong Un hoping to reach a deal on Pyongyang's nuclear and missile programs. According to South Korean progressives, the U.S. emphasis on denuclearizing North Korea has stymied progress in political and diplomatic areas, despite the landmark Panmunjom Declaration, signed in 2018 by North and South Korea, as well as in the Singapore joint statement the United States and the DPRK signed two months later. Conservatives generally believe that deterrence and pressure should guide South Korean policy toward the North and tend to be skeptical of engagement with North Korea.

Another source of tensions in the U.S.–ROK alliance has been operational control of South Korea's military in wartime. After the 1953 mutual defense treaty was signed, the United States and South Korea signed a memorandum of understanding that gave the U.N. Command operational control over ROK forces. In 1994, peacetime operational control of Korean forces was transferred to Korea. In 2014, the two allies set conditions, not time-based, to fulfill the transition of wartime control of allied forces, known as operational control. In 2017, the United States and South Korea agreed to speed up OPCON transfer, though the issue of meeting the "security environment conducive to an OPCON transfer"[302] has continued to be a major barrier to progress, particularly since the collapse of talks between the United States and North Korea in 2018.[303]

[301] "Fundamentals of South Korean Public Opinion on Foreign Policy and National Security." *Asan Institute for Policy Studies*; "KINU Unification Survey 2021." Korea Institute for National Unification, July 2021. https://www.kinu.or.kr/pyxis-api/1/digital-files/87cb5812-a81a-4fdc-824c-8d359544e8f7.

[302] "Statement of General Robert B. Abrams, Commander, United Nations Command; Commander, United States-Republic of Korea Combined Forces Command; and Commander, United States Forces Korea before the House Armed Services Committee Fiscal Year 2022." House Committee on Armed Services Hearing on "National Security Challenges and U.S. Military Activities in the Indo-Pacific." March 10, 2021. https://docs.house.gov/meetings/AS/AS00/20210310/111316/HHRG-117-AS00-Bio-AbramsR-20210310.pdf.

[303] The risk of the United States unilaterally controlling U.S. forces in Korea is generally low due to the structure of the Combined Forces Command (CFC). The Military Committee is the conduit for all strategic decisions by the CFC leadership, meaning that neither the United States nor South Korea can deploy forces unilaterally. Creamer, Shawn. "Setting the Record Straight on OPCON Transition in the U.S.-ROK Alliance." The National Bureau of Asian Research, July 16, 2021. https://www.nbr.org/publication/setting-the-record-straight-on-opcon-transition-in-the-u-s-rok-alliance.

The South Korean public's support for the U.S.–ROK alliance has remained high over the years. A September 2021 survey taken by the Asan Institute found that more than 78 percent of the respondents supported either maintaining or strengthening the U.S.–South Korea relationship.[304] A July 2021 survey by the Korea Institute for National Unification found that more than 70 percent of respondents agreed with the statement, "Strengthening the ROK–U.S. alliance is more important than improving inter–Korean relations."[305]

Various events over the years have caused flare-ups of anti–Americanism, particularly on issues involving U.S. military personnel and the U.S.–Korean SOFA. Historically conscious South Koreans are aware of atrocities committed by U.S. soldiers during the Korean War and the use of Agent Orange along the Demilitarized Zone, which endangered South Koreans and Americans alike.[306] Chun Doo-hwan's coup d'état in May 1980 and the popular perception that U.S. Forces Korea were complicit in his takeover further sowed the seeds for South Korean resentment of USFK. Environmental pollution, crime, and accidents associated with the U.S. military presence in South Korea have also periodically exacerbated anti–American sentiments.[307] However, while perceptions about the U.S. military's overreach have at times boiled over into mass protests and calls for the withdrawal of U.S. troops, 83 percent of the South Korean public still either favors maintaining the U.S. military presence in the Asia–Pacific at its present level or increasing it.[308]

That said, a new source of tension arose in the U.S.–ROK security relationship in recent years, when the Trump administration demanded that South Korea quintuple its spending for U.S. bases in the country, to $5 billion a year. Although South Korea agreed to increase its contribution by more than 10 percent, to $890 million, in 2019,[309] the South Korean public was overwhelmingly opposed to the demand for a fivefold increase. Opinion polling showed that if no agreement could be reached, a slight majority of South Koreans would support reducing the number of U.S. troops in South

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[304] "Fundamentals of South Korean Public Opinion on Foreign Policy and National Security." *Asan Institute*.
[305] Sang Sin Lee and Tae-eun Min. "KINU Unification Survey." Korea Institute for National Unification, July 2021. 27. https://www.kinu.or.kr/pyxis-api/1/digital-files/87cb5812-a81a-4fdc-824c-8d359544e8f7.
[306] President Bill Clinton's administration launched a year-long investigation into the No Gun Ri incident, and Clinton expressed regret on behalf of the United States. See "No Gun Ri: Clinton's Statement." PBS, January 11, 2001. https://kr.usembassy.gov/wp-content/uploads/sites/75/2017/05/President-Clinton-Statement-on-No-Gun-Ri.pdf.
[307] Some prominent examples in the 2000s included news of USFK dumping toxins into the Han River and the deaths of two 14-year old South Korean girls who were struck and killed by a U.S. Army armored vehicle. As David Straub, who served as political section director at the U.S. Embassy in Seoul from 1999 to 2002 observed, anti-U.S. sentiments during this period was "multifactorial – a concentration of history, culture, politics, and other circumstances, some deeply rooted, others transitory." Lee, Charles. "U.S. army apologizes for Korean toxic dump." UPI, July 24, 2000. https://www.upi.com/Archives/2000/07/24/U.S.-army-apologizes-for-Korean-toxic-dump/4678964411200; Straub, David. "Anti-Americanism in Democratizing South Korea." Stanford University's Walter H. Shorenstein Asia-Pacific Research Center, 2015. 184.
[308] Friedhoff, Karl, and Suh Young Park. "Ahead of Biden-Moon Summit, South Koreans and Americans Align on China and North Korea." Chicago Council on Global Affairs, May 19, 2021. https://www.thechicagocouncil.org/research/public-opinion-survey/ahead-biden-moon-summit-south-koreans-and-americans-align-china-and.
[309] Lee, Hyonhee, and Josh Smith. "South Korea signs deal to pay more for U.S. troops after Trump demand." Reuters, February 10, 2019. https://www.reuters.com/article/us-usa-southkorea-troops/south-korea-signs-deal-to-pay-more-for-u-s-troops-after-trump-demand-idUSKCN1PZ03Q.

Korea.[310] In March 2021, the Biden administration announced that the two allies had reached a six-year Special Measures Agreement, covering the 2020–27 period, whereby South Korea would pay about $1 billion in 2021, the largest increase in contribution since 2004, and subsequent increases based on its defense spending growth rate.[311] While the multiyear agreement will shield the SMA from another pendulum swing, broader concerns about America's shifting views about allies will likely remain an issue, especially in South Korea, where the root causes of instability on the peninsula remain unaddressed, leaving South Korea with little option but to remain dependent on U.S. defense even if it means paying more toward it than what the public believes is a fair share.

Recommended adjustments to the U.S. military presence in Korea and the U.S.–ROK division of labor

There are currently about 26,000 U.S. military personnel in Korea, consisting largely of a combination of U.S. Army and U.S. Air Force personnel. This presence has decreased by 40 percent over the past three decades, from 43,000 in 1990.

Approximately 17,000 of the current number are U.S. Army soldiers. The Eighth Army operates in conjunction with the USFK and the U.N. Command in Korea and would operate under bilateral control if conflict were to break out on the Peninsula. Under the Eighth Army, the 2nd Infantry Division is headquartered at Camp Humphreys in South Korea. The division's BCTs are stationed in Fort Lewis, Washington, and, while there, are under the command of the 7th Infantry Division. They come under the 2nd Infantry Division when they rotate forward to Korea. At any one time, a single brigade of roughly 4,000 soldiers is rotationally deployed. The other major element belonging to the Eighth Army is the 19th Expeditionary Sustainment Command.

U.S. Army strength has been reduced over a period of three decades, and should now be maintained as a reasonable minimum force. It is currently limited to command echelons that would direct U.S. forces in the event of war, logistical elements necessary to support the flow of forces to the Peninsula during a contingency, and one rotational brigade of ground forces, the minimum strength necessary to conduct training and familiarization with ROK military forces. It would be difficult to trim the Army presence further as long as the United States retains a commitment to aiding South Korea in deterring and defending against North Korean attack.

The U.S. Air Force is also heavily represented in Korea, with more than 8,000 personnel in the country. There are currently two active USAF air bases in South Korea: Osan Air Base, near Pyeongtaek, 40 miles south of Seoul, and Kunsan Air Base at Gunsan Airport,

[310] Taylor, Adam. "Just 4 percent of South Koreans would meet Trump's demands to pay billions more for U.S. troops, new poll finds." *Washington Post*, December 16, 2019. https://www.washingtonpost.com/world/2019/12/16/just-percent-south-koreans-would-meet-trumps-demands-pay-billions-more-us-troops-new-poll-finds/.

[311] Paek Jae Ok. "Analysis of the 11th ROK-U.S. Special Measures Agreement (SMA) and Development Directions for the SMA." *Korea Institute for Defense Analyses* Issue 238, September 6, 2021.

on the west coast of the Peninsula 110 miles south of Seoul. Osan is the larger of these.[312] It currently hosts the 51st Fighter Wing, which comprises the 25th Fighter Squadron (A–10s) and the 36th Fighter Squadron (F–16s).[313] Kunsan, where 2,800 airmen, soldiers, U.S. civilians, and local nationals, and non-appropriated employees are located, is home to the 8th Tactical Fighter Wing.[314]

The U.S. air presence in Korea provides important firepower that could help neutralize artillery along the DMZ or, in the worst case, the potential nuclear threat from North Korea. But the major commitment of airpower to the Peninsula is also a legacy of an era when the ROK Air Force had limited capability. The scale of the commitment — two out of a U.S. Air Force total of 20 active fighter wings — is arguably disproportionate, particularly as South Korea's air force acquires F–35s and deploys a range of indigenously developed fighters and attack aircraft.

Meanwhile, because the ROK government has signaled it is unlikely to allow U.S. aircraft to participate in combat operations outside the Peninsula from bases in South Korea, the flexibility of aircraft stationed there and their deterrence leverage for scenarios not involving Korea is limited. Legally, U.S. forces in South Korea are limited to contingencies on the Korean Peninsula. The U.S.–ROK Mutual Defense Treaty does not stipulate that U.S. forces in Korea can be deployed off of the Peninsula for contingencies elsewhere, unlike the MDT between the United States and Japan.[315] We therefore recommend that, as U.S. air units convert to newer aircraft, one of the two wings currently in Korea be permanently rebased elsewhere in the Asia–Pacific. If more U.S. airpower beyond one wing is needed to aid in a Korean Peninsula contingency, it could fly in from elsewhere, since airpower is flexible over distances.[316] In fact, since U.S. aircraft based on the Peninsula would be more vulnerable than forces based off the Peninsula to attack by chemical weapons and missiles from North Korea, they may be of greater help if based farther away. Rebasing one of the two U.S. air wings might also help ameliorate some of the opposition from local residents with anti-war and anti-military sentiments, who view Osan and Kunsan air bases as symbols of the endless Korean War.[317]

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[312] Osan Air Base was built in November 1951, for U.N. ground forces to conduct combat operations in support of South Korea. The base was used to launch air superiority missions through the remainder of the war and provided post-tactical air power support until 1954. U.S. Air Force. *Osan Air Base In-Depth Overview.* https://installations.militaryonesource.mil/in-depth-overview/osan-air-base.
[313] U.S. Air Force. *Osan Air Base 51st Fighter Wing.* Accessed March 25, 2022. https://www.osan.af.mil/About-Us/Units/.
[314] Kunsan was built in 1938 by the Japanese as a fighter-interceptor base. At the end of World War II, the base was turned over to the U.S. Military Assistance Advisory Group in Korea, and subsequently turned over to the Republic of Korea Air Force. U.S. Air Force. *Kunsan Air Base Fact Sheet. Accessed March 25, 2022.*
https://www.kunsan.af.mil/About-Us/Fact-Sheets/Article/412721/kunsan-air-base/.
[315] When an exception was made for the Iraq War, President George W. Bush and President Roh Moo-hyun agreed on the framework of "strategic flexibility," where USFK forces can be deployed overseas for missions and the South Korean government is not obligated to provide support. Snyder, Scott, ed. *The U.S.–South Korea Alliance.* Boulder, CO. Lynne Rienner Publishers, 2012. https://www.cfr.org/excerpt-us-south-korea-alliance. However, such exceptions would probably be less likely in a China-related contingency due to South Korea's vulnerability to punishment and coercion from Beijing.
[316] It would be most helpful if U.S. aircraft based in Japan could participate in such a contingency. However, the involvement of U.S. air power based in Japan is likely to be subject to prior consultations with Japan, and Japanese approval should not be considered automatic. It would depend on the political conditions in Japan and the nature of the scenario.
[317] For example, in 2013, a group of local residents held a demonstration in front of Osan calling for the end of U.S.-ROK joint military exercises and a peace agreement ending the Korean War. In other instances, opposition was aimed at stopping a planned expansion of the air bases. In 2007, around 35 South Korean civic groups organized a protest outside of Kunsan to oppose the base's

Other adjustments to the alliance and roles and missions could further strengthen allied unity and enhance deterrence. Both sides should make whatever further adjustments are necessary to achieve OPCON transfer for wartime. A more sustainable long-term U.S. strategy demands an arrangement whereby South Korea is no longer a junior ally of the United States but the leading force in protecting its homeland, with the U.S. playing a supporting role. Although the Special Measures Agreement provides important funding for bases, the pot of money into which this falls should not determine the continuing legitimacy or efficacy of this unusual form of support, which is unique to Japan and the ROK among U.S. alliance partners. It should be progressively reduced in light of the ROK's already heavy defense burden, alongside the removal of one of the air wings currently in Korea.

In addition, Washington and Seoul should reevaluate the question of roles and missions in the alliance. In particular, the ROK should be encouraged to expand the size of its ground forces and the readiness of its reserves better to enable it to handle potential escalation by North Korea. Arguably, the ROK has underinvested in its crucial ground force capabilities relative to its robust recent investments in air and naval forces. As explained in Chapter 2, the ROK should be able to supply most of the ground forces necessary for a contingency on the Peninsula. South Korea could also take the lead in the air domain. Nevertheless, the United States can provide additional combat power, especially in niche capabilities in the air and naval domains.

U.S.–ROK coordination to enhance peace and stability on the Korean Peninsula

While South Korea does not need to be involved in a denial strategy vis-à-vis China, Washington and Seoul do need to coordinate closely to enhance regional peace and stability. Most importantly, the U.S.–ROK alliance should focus on reducing the threat of military conflict on the Korean Peninsula through effective deterrence and movement toward a peace regime. Seoul should play a leading role in diplomacy with Pyongyang to reduce tension on the Korean Peninsula, with the United States playing a supporting role by leveraging its diplomatic influence in international fora and with other regional countries to foster inter–Korean reconciliation and peaceful coexistence.

Over the long term, Washington should also be open to the possibility of not just normalization of relations but to a cooperative relationship with Pyongyang.[318] To get there, the United States and South Korea should address the root causes of instability

expansion. Noise and the potential for violence also drew protesters; in 1989, approximately 500 residents near Kunsan gathered at Kuni Range to protest live-bombing practices. Using shovels and axes, protestors destroyed 120 feet of fencing and shouted anti-U.S. slogans. "Inside U.S. Osan airbase where patriot missiles deployed; peace protest." AP Archive, August 5, 2013. https://www.youtube.com/watch?v=-UBjOWT3hDY; Norris, Jimmy. "Koreans plan protest outside Kunsan." *Stars and Stripes*, September 7, 2007. https://www.stripes.com/news/koreans-plan-protest-outside-kunsan-1.68580; U.S. Department of State. "Significant incidents of Political Violence Against Americans." *Bureau of Diplomatic Security,* 1989. https://www.ojp.gov/pdffiles1/Digitization/153344NCJRS.pdf.

[318] Halperin, Morton, Peter Hayes, Thomas Pickering, Leon Sigal, and Philip Yun. "From Enemies to Security Partners: Pathways to Denuclearization in North Korea." Nautilus Institute, July 6, 2018. https://nautilus.org/napsnet/napsnet-policy-forum/from-enemies-to-security-partners-pathways-to-denuclearization-in-korea/.

on the Korean Peninsula, such as the unresolved status of the Korean War and the growing military buildup between the two Koreas. In exchange for security guarantees, North Korea will need to take concrete, verifiable steps to declare facilities that manufacture and deliver nuclear weapons, as well as to move toward dismantling nuclear facilities. Rather than equate a political settlement of the Korean War with a unilateral withdrawal of all U.S. forces from South Korea, Washington should think of the peace and denuclearization process in phases, based on mutual cooperation in tension reduction and denuclearization.

Research shows there are tangible benefits to removing conditions for dialogue between Washington and Pyongyang. While the absence of provocation does not necessarily mean Pyongyang has stopped nuclear-weapons development, diplomacy has generally had a restraining effect on North Korea. According to the Center for Strategic and International Studies, negotiations between the United States and North Korea in bilateral or multilateral settings from 1990 to 2017 correlate with a decrease in the number of North Korean provocations.[319] Ultimately, a step-by-step diplomatic process based on realistic expectations and diligence in accountability on both sides will be critical for making tangible progress on the diplomatic and political sides of the relationship, which, in turn, will make costly miscalculations less likely.

Related to this, South Korea should consider mutual conventional force reduction as a form of tension reduction on the Peninsula. While denuclearization may not be achievable in the short term, a conventional inter–Korean arms-control agreement that focuses on transparency and mutual confidence-building measures could reduce tensions between North and South and create a pathway for a new security architecture that is more stabilizing and, in turn, less dependent on the presence of U.S. armed forces.

Australia and New Zealand

Australia and New Zealand signed the ANZUS Treaty with the United States in 1951. With the United Kingdom's declining ability to provide security protection, both countries sought such a treaty alliance with the United States. At the time, the two countries were concerned about a possible military resurgence of Japan and an aggressive China. Canberra and Wellington contributed to the alliance by supporting the U.S. military intervention in Korea and Vietnam. But during the 1980s, these two American allies began to diverge strategically; New Zealand expressed a desire for greater autonomy from U.S foreign policy, and its Labor government opted for a nuclear-free policy in defiance of the United States.[320]

[319] Collins, Lisa. "25 Years of Negotiations and Provocations: North Korea and the United States." *CSIS Beyond Parallel*, accessed March 25, 2022. https://beyondparallel.csis.org/25-years-of-negotiations-provocations/.
[320] Catalinac, Amy L. "Why New Zealand Took Itself out of ANZUS: Observing 'Opposition for Autonomy' in Asymmetric Alliances." *Foreign Policy Analysis*, Volume 6, Issue 4, October 2010. 317-338.

Evolution in Australia's strategic orientation

Three general factors have shaped Australia's strategic orientation. First is a close political and security relationship with the United States that is built upon shared liberal and democratic values and has been cemented through fighting together in numerous military conflicts, from the First and Second World Wars and the Vietnam War to, most recently, the two Persian Gulf wars. A second factor has been Australia's deepening Asia–Pacific identity, driven by geography, commercial ties, and Asian immigration. As part of this evolution, Australia has collaborated closely with Japan and the ASEAN states to develop regional institutions and dialogues such as the Asia–Pacific Economic Cooperation forum and the East Asia Summit. Third, growing economic links with China have influenced Australia's strategic outlook. In 2009, China became Australia's top trading partner, and Australia's economy is heavily dependent on exports of natural resources to China. In 2015, Australia became a founding member of China's Asian Infrastructure Investment Bank, a multilateral institution with, currently, more than 100 members.

Until recently, Canberra had little difficulty balancing among the above three factors — close relations with Washington, its Asia–Pacific identity, and its economic interdependence with China. The three legs of foreign policy were on the whole compatible and to a large extent mutually reinforcing. Recent developments, however, have begun to impose some trade-offs. Concerns about U.S. foreign policy during the Trump presidency and the relative decline of American power vis-à-vis China have encouraged some Australian defense analysts to advocate strategic hedging and even "bandwagoning" with China.[321] At the same time, growing concerns about Chinese political-influence operations in Australia and Beijing's coercive economic diplomacy have increased negative Australian views of China. This change in perceptions of China has been remarkable given Australia does not have a territorial dispute with China, and it is relatively distant from the China-related flashpoints in East Asia. In the context of intensifying U.S.–China strategic competition, Canberra has become more supportive of enhancing defense cooperation with the United States and more willing to tolerate to some degree a deterioration in relations with China. In terms of regionalism, Australia is now putting more weight on its cooperation with Japan and has become an enthusiastic participant in the Quad, originally a Japanese initiative.[322]

This trend in Australia's strategic perspectives has bolstered recent moves to strengthen the security relationship with the United States, Japan, and other like-minded countries. As part of the U.S. Force Posture initiative of 2011, Australia agreed to enhance bilateral air force cooperation and to host 2,500 U.S. Marine forces on a

[321] White, Hugh. *How To Defend Australia*. Carlton, Australia. La Trobe University Press, 2019; Townshend, Ashley, Brendan Thomas-Noone, and Matilda Steward. *Averting Crisis: American Strategy, Military Spending and Collective Defence in the Indo-Pacific.* Sydney, Australia. United States Studies Centre at the University of Sydney, August 2019. https://www.ussc.edu.au/analysis/averting-crisis-american-strategy-military-spending-and-collective-defence-in-the-indo-pacific.
[322] Chase, Michael S., and Jennifer D.P. Moroney. *Regional Responses to U.S.-China Competition in the Indo-Pacific: Australia and New Zealand*. RAND Corporation, 2020. 9-26; Congressional Research Service. *Australia: Background and U.S. Relations*. May 13, 2020. 8-10.

rotational basis. To implement this initiative, Australia and the United States finalized a Force Posture Agreement in 2014 and concluded a cost-sharing agreement in 2016. In February 2020, Canberra promised to upgrade RAAF Base Tindal in the Northern Territory at a cost of $1.1 billion, which would facilitate joint exercises and promote operational cooperation between the U.S. and Australian air forces. Australia is also committed to collaborating with the United States on ballistic-missile defense.[323]

AUKUS, the pact that Australia, the U.K., and the U.S. signed in September 2021, provides for Australia's acquisition of nuclear-powered submarines and cooperation on cyber capabilities, artificial intelligence, quantum technologies, and undersea capabilities. Canberra will also procure long-range strike capabilities. AUKUS, however, has been controversial even in Australia and has provoked sharp criticism from a number of former prime ministers. Paul Keating, in office from 1991 to 1996, criticized the plan to acquire nuclear-powered submarines as something akin to "throwing a handful of toothpicks at the mountain." Keating, a Labor Party member, cautioned Australia not to be dragged into a military conflict with China. Kevin Rudd, also from the Labor Party, who served as prime minister in 2007–10 and in 2013, warned that the absence of an indigenous civil nuclear industry would make Australia dependent on the United States and could compromise the country's sovereignty. Malcolm Turnbull, who was prime minister from 2015 to 2018, accused Prime Minister Scott Morrison, a fellow Liberal Party member, of double-crossing the French when he signed the AUKUS deal and declared that "there is a price to pay" for the deception.[324]

Since the 2007 Australia–Japan joint security declaration, the two countries have made major strides in promoting defense cooperation. Canberra and Tokyo have concluded agreements to share military information, provide logistical supplies, and transfer defense technology and equipment. In November 2020, the bilateral security relationship made another major leap by concluding the Reciprocal Assistance Agreement, the RAA. This agreement will establish the legal foundation for the two countries to promote joint exercises, interoperability, and the transportation of military systems and vehicles. Beyond its Quad partners, Australia has also expanded its security ties with Indonesia, the Philippines, and Vietnam.[325]

Australia has been strengthening security cooperation with both the United States and Japan because of its growing concerns about China. It has become an enthusiastic participant in the military activities of the Quad states, most prominently the Malabar exercise, which has become more complex and routinely practices China-centric missions such as interdictions and anti-submarine warfare. The 2020 and 2021 Malabar

[323] Congressional Research Service. *Australia: Background and U.S. Relations*. 8.
[324] McGuirk, Rod. "Former leader says sub deal protects U.S., not Australia." *Washington Post*, November 10, 2021; Plesse, Gregory, and Ruchika Talwar. "Scott Morrison signed AUKUS to look 'hairy-chested' on China challenge for domestic audience, says Kevin Rudd." *SBS French*, September 24, 2021. https://www.sbs.com.au/language/english/scott-morrison-signed-aukus-to-look-hairy-chested-on-china-challenge-for-domestic-audience-says-kevin-rudd; Detsch, Jack. "Turnbull: AUKUS Subs Deal Is an 'Own Goal'." *Foreign Policy*, October 21, 2021. https://foreignpolicy.com/2021/10/06/aukus-us-uk-australia-biden-morrison-turnbull-submarines.
[325] Harold, et. al., *The Thickening Web of Asian Security Cooperation: Deepening Defense Ties Among U.S. Allies and Partners in the Indo-Pacific*. 177-201.

naval exercises in which Australia participated took place in the Bay of Bengal, the Arabian Sea, and the Philippine Sea. But there are limits to how far Canberra is willing to go in militarily balancing against China given the importance of trade with China. For example, Australia is reluctant to participate in U.S. freedom of navigation operations because of doubts about the effectiveness of FONOPs in altering Chinese behavior and apprehension of Chinese retaliation.[326] It also resists being too forward-leaning in supporting the security of Taiwan.[327] Finally, despite the negative perceptions of China, Canberra remains committed to engaging Beijing and has been supportive of Chinese participation in regional institutions and processes.

Since 2012, the U.S. Marine Rotational Force–Darwin has deployed to train with and operate with Australian counterparts in Northern Australia. The force remains in Australia for roughly six months of the year and has increased in size over time. Since 2019, the deployment has been executed at regimental scale and has included roughly 2,200 Marines. The U.S. Air Force exercises regularly with Australian counterparts and dispatches fighters, tankers, and bombers for a variety of exercises, including the Talisman Sabre series, run once every two years off eastern Australia. U.S. and Australian naval forces also exercise together regularly, bilaterally and in multilateral settings. In 2020 and 2021, Australia joined India, Japan, and the United States in the Malabar naval exercises, thereby highlighting the Quad as a security partnership.

Australia's potential role in an active denial strategy

Australia is a key U.S. ally with capable military forces. Its participation in a conflict would not be guaranteed, but it has powerful strategic interests in the Asian balance of power and continued U.S. engagement in the region. Under a range of circumstances, it is therefore likely to join the United States in the defense of other allies and partners in the region. In the event that it does, it would provide valuable staging areas for U.S. forces, as well as bases that could potentially be employed operationally for longer-range aircraft, such as tankers, transport aircraft, and possibly bombers. And the prospect that it might join the conflict would serve as a powerful deterrent if Chinese leaders were to contemplate offensive action against U.S. regional allies and partners.

Given its modest population and long coastlines, Australia's ability to provide significant forces for contingencies elsewhere in Asia would be limited. Nevertheless, given its interest in cementing the U.S. alliance, and U.S. regional engagement more broadly, it has worked to maintain at least some power-projection capability, and the United States can support that effort by continuing a close partnership with it. In that context, Australia's efforts to modernize its air force and navy contributes to that goal. The AUKUS deal on nuclear submarines could have somewhat divergent effects. On the one hand, when these submarines become available in about 2040, Australia could participate in undersea missions to counter the naval operations of possible

[326] Chase and Moroney, *Regional Responses to U.S.-China Competition in the Indo-Pacific: Australia and New Zealand*. 71.
[327] Taylor, Brendan. "Taiwan flashpoint: What Australia can do to stop the coming Taiwan crisis." *Lowy Institute Policy Brief*, February 2020. 8-11. https://www.lowyinstitute.org/publications/taiwan-flashpoint-what-australia-can-do-stop-coming-taiwan-crisis.

adversaries, thereby contributing directly to a U.S. active denial strategy during military contingencies in Northeast Asia. On the other hand, the AUKUS nuclear submarine partnership could exacerbate a security dilemma by provoking China and Russia to cooperate even more closely to enhance their respective military capabilities.[328]

Given Australia's distance from the central theater of a possible Korea or Taiwan contingency, its primary role in an active denial strategy could be to serve as a less vulnerable staging area and a potential provider of additional military assets during later phases of a conflict. In addition, Australia can contribute immensely to ISR through its fleet of Wedgetail aircraft. Australia is also an excellent location for peacetime training for U.S. forces and those of allies and partners. Accordingly, Canberra and Washington should consider increasing the number and frequency of U.S. Marine Corps units rotating to Australia and engaging in training and exercises. To enhance U.S.–Australia–Japan defense cooperation and coordination, an additional step would be to have personnel from Japan's new amphibious rapid-deployment brigade, ARDB, also rotate into and train in Australia with U.S. and Australian forces. This type of trilateral joint training, combined with operational planning for potential regional contingencies, would contribute to a denial strategy. Such a move might also open the way to a further reduction of the U.S. Marine Corps presence in Okinawa.

As part of the U.S.–Australia Enhanced Air Cooperation initiative, EAC, the United States could also expand the rotational deployments of U.S. aircraft to Australia, tactical aircraft as well as bombers. In turn, Australian aircraft could rotate to U.S. air bases on Guam and in Japan, and perhaps even to Japanese SDF air bases. During a regional contingency such as Taiwan, Australian fighter aircraft could then operate as needed from Guam and air bases in Japan. Another potential Australian contribution might be the provision of air-to-air refuelers for U.S. and Japanese aircraft engaged in air-superiority missions. The development of new defense-related technologies such as hypersonics is another potential area of greater U.S.–Australian security cooperation. Washington could consider enhancing ways to import other innovative technologies by building on the experience of Project Wedgetail, which involved Australian acquisition of new airborne surveillance and early warning systems in cooperation with the United States and American defense contractors Boeing and Northrop Grumman.

New Zealand's strategic orientation

New Zealand has been a treaty ally of the United States since 1951 as part of the Australia–New Zealand–United States alliance, ANZUS. It is also a member of the Five Eyes alliance for signals-intelligence cooperation, which also includes Australia, Canada, the United Kingdom, and the United States. During the 1980s as part of its nuclear free policy, New Zealand opposed the port entry of U.S. naval vessels that were nuclear-powered or were carrying nuclear weapons. The United States responded by

[328] Goldstein, Lyle. "The unintended consequences of the AUKUS deal." *Defense News*, October 29, 2021. https://www.defensenews.com/opinion/commentary/2021/10/29/the-unintended-consequences-of-the-aukus-deal.

suspending its defense commitments to New Zealand,[329] but the two countries gradually repaired this rift in the alliance. The Wellington Declaration of 2010 trumpeted a strategic partnership based on "shared democratic values and common interests." After the 2012 Washington Declaration on Defense Cooperation, the United States ended its ban on visits by New Zealand naval ships to the United States. New Zealand cooperated with Australia to train Iraqi soldiers to fight the Islamic State, and it resumed its full participation in the Rim of the Pacific military exercises, RIMPAC, in 2012.[330]

New Zealand has close economic ties with China, which makes it reluctant directly to criticize China, much less confront it. At the same time, Wellington has become increasingly wary of China's external behavior, including its political-influence operations and Beijing's growing engagement with South Pacific island states. In response, New Zealand has energized its foreign aid and diplomacy toward those states and promoted security ties with them for peacekeeping and humanitarian aid/disaster relief operations.[331] New Zealand's 2018 Strategic Defense Policy Statement asserts that China is pursuing "an alternative model of development" that involves "a liberalizing economy absent liberal democracy" and that China's governance and values diverge from those of New Zealand. But the statement also declared that New Zealand "continues to build a strong and resilient relationship with China" and that "defence and security cooperation with China has grown over recent years."[332] In December 2020, New Zealand's Labor–Green Party government published a Maritime Security Strategy that called for a more comprehensive and coordinated approach to maritime security. The strategy's primary geographic focus is in the South Pacific and the Southern oceans, which indicates New Zealand's hesitance about becoming involved in the more contentious maritime regions to the north.[333] Not surprisingly, Wellington has been circumspect about its stance regarding AUKUS and has stressed the need to view AUKUS from a regional, Pacific perspective.[334]

[329] Huntley, Wade. "The Kiwi that Roared: Nuclear-Free New Zealand in a Nuclear-Armed World." *Nonproliferation Review*, Fall 1996. 1-16.
[330] Congressional Research Service. *New Zealand: Background and Relations with the United States*. Updated May 12, 2021. 5-9; "NZDF to participate in world's largest maritime military exercise." *New Zealand Defence Force*, June 19, 2018. https://nzdefenceforce.medium.com/nzdf-to-participate-in-worlds-largest-maritime-military-exercise-2417bfaccc0c.
[331] Baker, Maia. "New Zealand's Strategic Challenge: Responding to China's New Interventionist Foreign Policies." *Journal of Indo-Pacific Affairs*, Spring 2020. 26-29.
[332] Government of New Zealand. *Strategic Defence Policy Statement 2018*. Wellington, New Zealand. Ministry of Defence, July 2018. 14, 17. https://www.defence.govt.nz/assets/Uploads/8958486b29/Strategic-Defence-Policy-Statement-2018.pdf.
[333] Government of New Zealand. *Maritime Security Strategy: Guardianship of Aotearoa New Zealand's Maritime Water*s. Wellington, New Zealand. Ministry of Transport, December 2020. https://www.transport.govt.nz/assets/Uploads/Report/MaritimeSecurityStrategy.pdf.
[334] Ayson, Robert. "New Zealand and AUKUS: Affected without Being Included." PacNet 48, October 21, 2021. https://pacforum.org/wp-content/uploads/2021/10/PacNet49.2021.10.19.pdf.

Southeast Asia

The Philippines

The legacy of colonialism and domestic political challenges have deeply affected the strategic outlook of the Philippines and its place in the U.S. alliance system. The Philippines has a complex love-hate relationship with the United States dating back more than a century, starting with the U.S. annexation of the Philippines — and its harsh suppression of a nationalist insurrection — after the Spanish–American War of 1898, but followed by a close and lasting partnership forged in the fight against Japan during World War II.[335] Washington granted the Philippines independence after the war, but subsequent U.S. support for President Ferdinand Marcos — whose rule evolved into a dictatorship in the 1970s — renewed Philippine ambivalence about the United States. After his downfall, in 1986, anti–American nationalism fueled by opposition to Marcos prompted the Philippines to ask the United States to withdraw its military forces. In 1987, Manila adopted a new constitution that prohibited "foreign military bases, troops, and facilities" except under a treaty ratified by the Philippine Senate, which subsequently decided not to extend the U.S.–Philippines Military Bases Agreement even while preserving the U.S.–Philippines defense pact. As a result, the United States lost its two key military bases in Southeast Asia, Subic Bay Naval Base and Clark Air Base.[336]

After China's February 1995 occupation of Mischief Reef, which is claimed by the Philippines, Manila moved to revitalize the security relationship with the United States while remaining sensitive to domestic political constraints. In 1999, the Philippine Senate ratified a Visiting Forces Agreement with the United States that permits bilateral joint exercises, training and planning activities, cooperation on humanitarian assistance and disaster relief missions, and U.S. ship visits for refueling, resupply, and repairs. In 2014, the Philippines and the United States signed the Enhanced Defense Cooperation Agreement, EDCA, which increased the rotation of U.S. troops, broadened access to bases, and enabled the construction of new military facilities. These provisions, however, are limited to five bases of the Philippines Armed Forces and with the explicit consent of the Philippines government. Although some in the Philippines challenged the constitutionality of the EDCA, the Philippines Supreme Court upheld the agreement in January 2016, and public opinion polls indicate high favorability toward the United States and the alliance. The Philippines receives the largest amount of U.S. foreign military financing in Asia, as well as assistance via the Pentagon's Indo–Pacific Maritime Security Initiative.[337]

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[335] Capozzola, Christopher. *Bound by War: How the United States and the Philippines Built America's First Pacific Century*. New York, NY. Basic Books, 2020.
[336] Albert, Eleanor. "The U.S.-Philippines Defense Alliance." *Council on Foreign Relations Backgrounder*, October 21, 2016. https://www.cfr.org/backgrounder/us-philippines-defense-alliance; Cruz de Castro, Renato. "Philippine Strategic Culture: Continuity in the Face of Changing Regional Dynamics." *Contemporary Security Policy*, Vol. 35, No. 2, 2014. 253-263.
[337] Congressional Research Service. "The Philippines." *In Focus*, June 11, 2020. https://www.everycrsreport.com/files/2020-06-11_IF10250_2a2d178ffc9144d2d8a12b651416d24f5c001a39.pdf.

After the 2012 Scarborough Shoal incident, in which Chinese naval and coast guard forces effectively seized control of a maritime land feature that Beijing claims even though it is within the Philippines' exclusive economic zone, then–President Benigno Aquino sought international support for his country's maritime claims vis-à-vis China by filing an international arbitration case against Beijing under the United Nations Convention on the Law of the Sea. Although the international tribunal established for the case ruled in favor of the Philippines in 2016, Aquino's presidential successor, Rodrigo Duterte, shifted away from a policy of confrontation to one of accommodating China.[338] Duterte's negative views of the United States, along with frictions with the United States regarding his repressive actions to address domestic crime, jeopardized the gains made in U.S.–Philippine security cooperation during the Aquino years. Duterte has threatened to revoke the bilateral Visiting Forces Agreement on several occasions, and many of the concrete measures planned under the EDCA have been put on hold. In August 2021, Duterte agreed to continue the VFA in exchange for U.S. supplies of Covid–19 vaccines, demonstrating his transactional approach to bilateral relations.[339]

Duterte's successor Bongbong Marcos, elected on May 9, 2022, may seek to restabilize security ties with the United States and move more energetically to implement the EDCA. Nevertheless, Philippine security cooperation with the United States will remain constrained. Given its acute vulnerability to Chinese military and economic coercion and its keen interest in Chinese economic investments, Manila will be reluctant to pursue a stridently confrontational policy toward Beijing. While the Philippines will be willing to participate in bilateral and multilateral military exercises with the United States and will continue to welcome U.S. financial military assistance, its readiness to accept U.S. military deployments and engage in joint planning that explicitly targets China is likely to be ambivalent and inconsistent. Despite Washington's statements of reassurance, people in the Philippines will remain unsure about the robustness of the American security commitment, especially regarding Philippine maritime interests. Manila will thus have an incentive to explore constructive, nonconfrontational ways of managing the maritime disputes with China. The Philippines will also have a keen interest in continuing to develop its security partnerships with middle powers such as Japan and Australia.[340]

From a military perspective, the Philippines is too weak to contribute to a military campaign beyond its own territory and would be extraordinarily wary of active participation in a contingency that did not directly involve it. Even in scenarios beyond its own borders, however, the Philippines remains a potentially useful ally if it is willing to host intelligence-gathering activities or provide intelligence of its own. Should China

[338] Cruz de Castro, Renato. "Explaining the Duterte Administration's Appeasement Policy on China: The Power of Fear." *Asian Affairs* Vol. 45, 2019. 165-191.
[339] Strangio, Sebastian. "Duterte Claims that COVID-19 Vaccines Saved Crucial U.S. Defense Pact." *The Diplomat*, August 4, 2021. https://thediplomat.com/2021/08/duterte-claims-that-covid-19-vaccines-saved-crucial-us-defense-pact.
[340] Cruz De Castro, Renato. "The Role of Middle Powers in the Modernization of the Armed Forces of the Philippines (AFP): The Case of the Special Japan-Australia Strategic Partnership and the Philippines." *Korean Journal of Defense Analysis* Vol. 31, No. 1, March 2019. 145-163; Harold et. al. *The Thickening Web of Asian Security Cooperation: Deepening Defense Ties Among U.S. Allies and Partners in the Indo-Pacific*. 304-315.

undertake a military attack on the Philippines, the United States would presumably be able to respond from Philippine territory, and if this occurred in the context of a broader conflict, locations in the Philippines would be valuable for a range of operations.

Duterte's dalliance with Beijing has ended, and the Philippines has returned to its more traditional hedging policy. It is too vulnerable for balancing openly against China, but it is also wary of the threat that Chinese power poses to its interests, particularly in the South China Sea. The Philippines is clearly interested in improving its own military capabilities, starting with efforts to gain at least a rudimentary ISR capability to gain situational awareness of Chinese activities around its periphery. Tokyo and Manila signed an agreement in August 2020 for the former to supply $103 million worth of radar, Japan's first-ever overseas arms sale.[341] The U.S. State Department approved an agreement for the sale of $2.5 billion worth of arms in June 2021. The package includes 10 F–16C aircraft, two F–16D aircraft, as well as Harpoon and Sidewinder missiles.[342] The systems involved are small in number and will provide a modest boost in capability, but they are also more advanced than anything the Philippines has operated and will require significant U.S. support to be effectively integrated in the force structure. The United States should continue to work with the Philippines but should be realistic that its capabilities are modest at best.

The Philippines is in an ideal geographic location for a possible contribution to a U.S. active denial strategy regarding either Taiwan or the South China Sea. But its acute vulnerability to Chinese retaliation as well as its domestic political constraints will severely restrict Philippine contributions. Therefore, it would be better to focus on HA/DR training and exercises and on a gradual increase in U.S. rotational military deployments. Given the recent strides in Japan–Philippines security cooperation, the pursuit of trilateral U.S.–Japan–Philippine cooperation may be more acceptable to Manila. For example, the U.S. could consider joint exercises in the Philippines with Philippine counterparts, the USMC and Japan's Amphibious Rapid-Deployment Brigade (ARDB). This option might have the added benefit of reducing USMC deployments and activities in Japan.

Thailand

Thailand's status as a treaty ally of the United States stems from the fact that both countries were parties to the 1954 Manila Pact that established the now-defunct Southeast Treaty Organization, SEATO. The Manila Pact remains in force, and the U.S. promised to defend Thailand in the 1962 Thanat–Rusk communiqué. In 2003, the United States designated Thailand "a major non–NATO ally," and in 2020, the two

[341] Roblin, Sebastien. "Japan Strikes First Arms Export Deal – Can Tokyo Find More Buyers For its Pricey Weapons." *Forbes*, September 11, 2000. https://www.forbes.com/sites/sebastienroblin/2020/09/11/japan-strikes-first-arms-export-deal-can-tokyo-find-more-buyers-for-its-pricy-weapons/.

[342] "U.S. Approves Arms Sales to the Philippines." *Australian Defense Magazine*, June 29, 2021. https://www.australiandefence.com.au/defence/general/us-approves-arms-sales-to-the-philippines.

countries issued a Joint Vision Statement for the Thai–U.S. Defense Alliance.[343] Thailand upgraded its Utapao naval airfield in 2016 to support U.S. logistics, and it has hosted and participated in the annual multinational Cobra Gold military exercises, which provide opportunities to improve U.S.–Thai military coordination. Thailand purchases a significant amount of arms from the United States, including advanced helicopters, F–16 aircraft upgrades, and Harpoon and Sea Sparrow missiles, thereby strengthening bilateral interoperability.[344]

Despite these trappings of a formalized security alliance, Thailand's strategic perspectives diverge in some respects from that of the United States. Unlike Washington, Bangkok does not view China as a revisionist power and security threat and is disinclined to antagonize Beijing. It is also ambivalent about the U.S. security role in the region. U.S. criticisms of Thai domestic politics after the 2014 coup and the recurring episodes of authoritarian rule have further strained U.S.–Thai relations.[345] Hedging against a decline of U.S. influence in the region, Thailand has been diversifying its security relationships beyond Southeast Asia, such as with Japan and South Korea and even with China and Russia.[346]

Although Thailand is a U.S. treaty ally, it is also one of China's closest military partners. Bangkok is, if anything, proud of its hyperrealist tradition, its historical success in avoiding colonization, and its ability to navigate the hazards of the mid–20th century by first aligning with Japan and switching sides as the tide turned during World War II to avoid being labeled as an "enemy combatant" after the war. Thailand remains a useful U.S. partner in some contexts. Utapao provides a refueling base for flights from the Middle East, South Asia, and Central Asia, and Thailand and the United States have cooperated to combat drug trafficking and on humanitarian-assistance operations. But with a military government that shows few signs of surrendering power, the U.S. withdrawal from Afghanistan and a lack of convergence on overarching strategic goals, especially with regard to China, the relative value of Thailand as a strategic partner — and thus as a contributor to our active denial strategy — is marginal. Moreover, given that Thailand is relatively unconcerned about China's rise but is engaged in security dilemmas with other neighbors, additions to its power-projection capabilities may undermine rather than reinforce the region's ability to respond effectively to whatever threats China might pose in the future.

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[343] U.S. Department of State. "U.S. Relations with Thailand." Bureau of East Asian and Pacific Affairs, May 4, 2021. https://www.state.gov/u-s-relations-with-thailand/; Chongkittavorn, Kavi. "The Thailand-U.S. Defense Alliance in U.S.-Indo-Pacific Strategy." *Asia Pacific Issues of the East-West Center*, No. 137, March 2019. https://www.eastwestcenter.org/publications/the-thailand-us-defense-alliance-in-us-indo-pacific-strategy.

[344] U.S. Department of State. "U.S. Security Cooperation with Thailand." Bureau of East Asian and Pacific Affairs, April 22, 2021. https://www.state.gov/u-s-security-cooperation-with-thailand/; Sophal, Sek."The U.S.-Thailand Security Alliance: Growing Strategic Mistrust." *Australian Outlook*, October 2, 2020. https://www.internationalaffairs.org.au/australianoutlook/the-us-thailand-security-alliance-growing-strategic-mistrust/.

[345] Abuza, Zachary. "America Should Be Realistic about Its Alliance with Thailand." *War on the Rocks*, January 2, 2020. https://warontherocks.com/2020/01/america-should-be-realistic-about-its-alliance-with-thailand.

[346] Quayle, Linda. "Southeast Asian perspectives on regional alliance dynamics." *International Politics* Vol. 57, 2020. 232, 236.

Vietnam

Escalating tensions with China over maritime disputes in the South China Sea motivated Vietnam to develop security ties with the United States.[347] Hanoi has welcomed U.S. naval ship visits and participated in the 2018 RIMPAC naval exercises. The United States ended its prohibition of weapons sales to Vietnam in 2016 and began to help Hanoi improve its maritime capabilities.[348] During the 2009-2018 period, Hanoi also formed "strategic partnerships" with other countries in the region, including Australia, India, Indonesia, Japan, the Philippines, and South Korea. These regional security linkages have involved logistics support for peacekeeping and HA/DR operations, joint training and exercises, antipiracy cooperation, and security-related technology transfers.[349]

Vietnam, however, remains reluctant to antagonize China militarily or undermine its strategic autonomy. Hanoi has emphasized its four principles, its "Four No's," of not entering into military alliances, not siding with one country against another, not accepting foreign military bases or allowing the use of its territory for military activities against other countries, and not using force in international relations. Vietnam is willing to cooperate with other countries to improve its defense capabilities, but this would be done "on the basis of respecting each other's independence, sovereignty, territorial unity and integrity."[350] There are also limits on Vietnam's strategic confidence in, and thus readiness to cooperate with, its ASEAN neighbors — especially those with claims in the South China Sea that compete with Hanoi's as well as Beijing's. While Hanoi values its security ties with Washington to counter Chinese assertiveness in the South China Sea, it also seeks to maintain a "healthy defense relationship with China."[351] Hanoi has yet to buy weapons from the United States and prefers to purchase cheaper armaments from Russia, with whom it has a strong, longstanding relationship.[352]

Although Vietnam's trade with the United States has expanded, the Trump administration's withdrawal from the TPP — which Vietnam made significant economic policy concessions to join — jolted the bilateral economic relationship. China continues to be Vietnam's top trade partner; both countries are part of the RCEP, the mammoth regional trade agreement finalized in November 2020. Therefore, Hanoi's economic calculations will limit how far it is willing to align militarily with Washington to counter China. Possible American criticisms of Vietnam's authoritarian politics under a Communist regime also constrain Hanoi's embrace of Washington as a security

[347] Huong Le Thu. "Rough Waters Ahead for Vietnam-China Relations." *Carnegie Endowment for International Peace*, September 30, 2020. https://carnegieendowment.org/2020/09/30/rough-waters-ahead-for-vietnam-china-relations-pub-82826.
[348] Congressional Research Service. "U.S.-Vietnam Relations." *In Focus*, February 16, 2021. https://crsreports.congress.gov/product/pdf/IF/IF10209/12.
[349] Harold et. al. *The Thickening Web of Asian Security Cooperation: Deepening Defense Ties Among U.S. Allies and Partners in the Indo-Pacific*. 260-280.
[350] Socialist Republic of Viet Nam Ministry of National Defence. *2019 Viet Nam National Defence*. Hanoi, Vietnam. National Political Publishing House, 2019. 23-24. http://news.chinhphu.vn/Uploaded_VGP/phamvanthua/20191220/2019VietnamNationalDefence.pdf.
[351] Tu Lai. "Looking beyond symbolism in U.S.-Vietnam defence cooperation." East Asia Forum, April 18, 2020. https://www.eastasiaforum.org/2020/04/18/looking-beyond-symbolism-in-us-vietnam-defence-cooperation.
[352] Tran, Bich T. "Will We See a U.S.-Vietnam Strategic Partnership?" *The Diplomat*, July 15, 2020. https://thediplomat.com/2020/07/will-we-see-a-us-vietnam-strategic-partnership.

partner.[353] At the same time, Vietnam's sharp clashes with China regarding maritime disputes give Hanoi an incentive to explore further security links with the United States and Japan.

Indonesia

Although Indonesia does not have a territorial dispute with China, China's assertion of maritime rights in parts of Indonesia's EEZ and Chinese Coast Guard vessels' defense of what Indonesia views as illegal Chinese fishing in its EEZ have alarmed Jakarta and prompted it to respond by firing at encroaching Chinese vessels, rescinding a fishing agreement with China, and holding military exercises in the South China Sea.[354] Indonesia's democratization has also encouraged affinity with the United States and removed one of the impediments in U.S.–Indonesian military exchanges that had existed during the era of authoritarian politics. Since 2009, the U.S. and Indonesian Army have held annual joint exercises for jungle warfare training. In 2015, Jakarta and Washington agreed on a joint statement on "comprehensive defense cooperation" and followed up with bilateral agreements on military intelligence-sharing and communications interoperability. The United States has proposed $1.88 billion worth of military sales to Indonesia, including F–16 fighter aircraft, Apache helicopters, MV–22 tilt-rotor aircraft, and various missiles.[355]

Given its legacy as a leader of the Non–Aligned Movement and its priority of domestic economic development, however, Jakarta wants to avoid being drawn into an escalating U.S.–China rivalry. As the most populous country in Southeast Asia and the world's largest archipelago, Indonesia has sought to chart an alternative course for itself and the ASEAN states. President Joko Widodo has talked about establishing his country as a "global maritime fulcrum" in light of its location bridging the Pacific and Indian oceans. Rather than employing the Indo–Pacific concept to target and contain a rising China, Indonesia seeks to moderate great-power rivalry by bolstering ASEAN centrality. Jakarta took the lead in promoting the ASEAN Outlook on the Indo–Pacific, AOIP, which stresses inclusivity, economic cooperation, connectivity, and the rule of law.[356] Although the Indonesian public's views of China have become more wary, Indonesia engages in joint exercises with the PLA Navy, cooperates with Beijing's Belt and Road Initiative, and remains generally optimistic about bilateral relations with China.[357]

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[353] Mengzhen Xia, and Dingding Chen. "China and the U.S.: Who Has More Influence in Vietnam." *The Diplomat*, May 21, 2021. https://thediplomat.com/2021/05/china-and-the-us-who-has-more-influence-in-vietnam/; Tran. "Will We See a U.S.-Vietnam Strategic Partnership?"

[354] Kurlantzick, Joshua. "Keeping the U.S.-Indonesia Relationship Moving Forward." *Council on Foreign Relations Special Report* No. 81, February 2018. https://www.cfr.org/report/keeping-us-indonesia-relationship-moving-forward.

[355] U.S. Department of State. "Fact Sheet: U.S. Security Cooperation with Indonesia." Bureau of Political-Military Affairs, March 23, 2021. https://www.state.gov/u-s-security-cooperation-with-indonesia.

[356] Anwar, Dewi Fortuna. "Indonesia and the ASEAN outlook on the Indo-Pacific." *International Affairs* Vol. 96, No. 1, 2020. 111-129. https://academic.oup.com/ia/article-abstract/96/1/111/5697504; I Gusti Bagus Dharma Agastia. "Understanding Indonesia's role in the 'ASEAN Outlook on the Indo-Pacific': A role theory approach." *Asia and the Pacific Policy Studies*, Vol. 7, August 9, 2020. 293-305.

[357] Grossman, Derek. "Indonesia Is Quietly Warming Up to China." *Foreign Policy*, June 7, 2021. https://foreignpolicy.com/2021/06/07/indonesia-china-jokowi-natuna-sea-military-bri-cooperation-biden-united-states.

Indonesia is fast becoming a military middle power within the region, and it remains a central actor in ASEAN and regional politics. Jakarta's defense budget grew to more than $8 billion in 2020, up 250 percent since 2008. It has acquired advanced new frigates and corvettes from the Netherlands and new submarines from Korea, and it is considering the acquisition of two squadrons of new F–16 Block 72 fighters from the United States, to go with the older F–16s and Russian built Su–27s that it currently operates. Jakarta is unlikely to jeopardize its leadership position within ASEAN by openly aligning with the United States, but it is clearly wary of China's growing presence in the South China Sea, and the United States should make fostering closer strategic ties with Indonesia a top priority.

Washington will have minimal influence over the types of capabilities that Indonesia might wish to acquire, but its current efforts will support the state's ability to monitor, police, and defend its own maritime areas. Beyond that, Jakarta is not in a position to contribute actively to maintaining the larger regional balance of power, except perhaps through providing intelligence, overflight, and logistical support should the need arise and should Jakarta be so inclined.

Singapore

Singapore was the inaugural example of the "places, not bases" formula for developing security relationships between the United States and non-treaty partners. In 1990, motivated by a desire to keep the United States engaged in the Asia–Pacific region after the end of the Cold War, Singapore signed an agreement with Washington to provide U.S. forces access to Singaporean air and naval bases and logistical support for military units in transit. This bilateral agreement was renewed in 2005 and again in 2019. Singapore accepted the U.S. deployment of littoral combat ships and P–8 Poseidon aircraft and an enhanced defense-cooperation agreement as part of the Obama administration's Asia rebalance policy.[358] While facilitating the U.S. military presence in the region, Singapore nonetheless is determined to avoid having to choose between the United States and China.[359]

Like other Southeast Asian countries, Singapore is concerned about Chinese assertiveness in the South China Sea, but it also sees stable relations with China as essential to its national interests. Attitudes among elites have become more ambivalent, but the general public continues to be quite favorable toward China.[360] Soon after the 2019 renewal of the memorandum of understanding with the United States regarding the use of Singaporean military facilities, Singapore also reaffirmed its

[358] Parameswaran, Prashanth. "What's in the Renewed U.S.-Singapore Military Facilities?" *The Diplomat*, September 28, 2019. https://thediplomat.com/2019/09/whats-in-the-renewed-us-singapore-military-facilities-agreement.
[359] Choong, William. "Chinese-U.S. Split Is Forcing Singapore to Choose Sides." *Foreign Policy*, July 14, 2021. https://foreignpolicy.com/2021/07/14/singapore-china-us-southeast-asia-asean-geopolitics.
[360] Silver, Laura. "China's international image remains broadly negative as views of the U.S. rebound." Pew Research Center, June 30, 2021. https://www.pewresearch.org/fact-tank/2021/06/30/chinas-international-image-remains-broadly-negative-as-views-of-the-u-s-rebound.

defense arrangements with China regarding joint training, visiting forces, high-level security dialogues, and a hotline. To avoid antagonizing China, it has refrained from publicly endorsing the free and open Indo–Pacific concept and the Quad as promoted by the United States and Japan.[361]

Although concerned about Chinese assertiveness, Singapore is similarly concerned about the potential for an overly confrontational U.S. approach to China, or one that resists acknowledging the implications of the emerging balance of power in the Asia–Pacific — which inevitably imposes limits on U.S. power and preferences in the region. Prime Minister Lee Hsien Loong has asserted that this obliges Washington to pursue a constructive rather than an exclusively competitive relationship with Beijing in Asia.[362]

Nevertheless, Singapore remains a critical U.S. partner and provides logistical support that would be difficult, if not impossible, to find elsewhere in South or Southeast Asia. It is located at the hinge between those two regions and is an important political partner on issues ranging from terrorism to intelligence to maritime trade. Although it is cautious in its behavior, it also possesses economic heft and advanced military capabilities, and the United States should continue to cultivate the strategic relationship with the city-state.

India[363]

The clash in June 2020 between Indian and Chinese forces in the Galwan Valley, near the contested Sino–Indian border, and increasing concerns about Chinese maritime activities in the Indian Ocean and the South China Sea have reinforced New Delhi's shift from its traditional nonalignment policy to promoting security ties with the other three member states of the Quad. Indicative of this trend has been India's welcoming of Australia's participation in the November 2020 Malabar naval exercises. In its attempt to not alienate China given their border and other disputes, New Delhi had previously been reluctant to have Australia join these exercises. Also in June 2020, India and Australia concluded a mutual logistics sharing agreement that would enable reciprocal logistics access and thereby facilitate upgraded military exercises and improvements in interoperability. In September 2020, India signed a similar agreement with Japan for reciprocal provision of military supplies and services. India also finalized a series of agreements with the United States: on logistics exchange in 2016, on communications compatibility and security in 2018, and on the sharing of classified geospatial intelligence in 2020. These new arrangements give the Quad the potential to evolve into

[361] Choong. "Chinese-U.S. Split Is Forcing Singapore to Choose Sides."
[362] Lee Hsien Loong. "The Endangered Asian Century: America, China, and the Perils of Confrontation." *Foreign Affairs* 99, 4, July/August 2020. https://www.foreignaffairs.com/articles/asia/2020-06-04/lee-hsien-loong-endangered-asian-century.
[363] The authors are grateful to Sarang Shidore for his contributions to this section.

a more institutionalized security partnership, despite protestations to the contrary among Quad members.[364]

As part of its "Act East" policy and its embrace of the free and open Indo–Pacific vision, India has also been nurturing security ties with Southeast Asian countries such as Indonesia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam. New Delhi has even begun to deepen its commercial relations with Taiwan as part of a larger strategy of reducing India's economic dependence on China.[365]

In summary, India sees itself as being a "benevolent counterweight" and part of a loose coalition countering a rising and increasingly assertive China. At the same time, New Delhi is eager to preserve its strategic autonomy and not pursue an overly antagonistic policy toward China.[366] While accepting the Indo–Pacific framework, India will remain sensitive to the varying geopolitical and geo-economic characteristics of the different segments of this vast maritime area. As Shivshankar Menon has noted, in contrast to the seas adjacent to China and the western Pacific, the "Indian Ocean…has an open geography, and has therefore always been a trading highway rather than a battle space."[367]

India has historically prized its strategic autonomy. Since the beginning of this century, however, it has moved much closer to the United States, primarily due to the rise and assertiveness of China and the presence of an Indian–American diaspora of more than 4 million people.[368] The United States has ramped up its arms sales to India, which amounted to a total of approximately $20 billion by 2020, from almost zero in 2008.[369] Equipment provided includes P–8A Poseidon aircraft, AH–64 Apache and CH–47 Chinook helicopters, M777 howitzers, and various quantities and types of missiles and ammunition.

As noted, the U.S. and India have signed key military-interoperability agreements since 2016, and they conduct advanced exercises bilaterally — and more recently as a part of the Quad with the Malabar drill. Though both states deny that Malabar is a Quad exercise, this is essentially a matter of verbal finesse.[370]

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[364] Pant, Harsh V., and Premesha Sha. "India, China, and the Indo-Pacific: New Delhi's Recalibration IS Underway." *The Washington Quarterly* Vol. 43, No. 4, Winter 2021. 194-197; Harold, et. al. *The Thickening Web of Asian Security Cooperation: Deepening Defense Ties Among U.S. Allies and Partners in the Indo-Pacific*. 116-128.
[365] Pant and Sha. "India, China, and the Indo-Pacific." 194-195, 199-200; Harold et. al., *The Thickening Web of Asian Security Cooperation*, 128-144.
[366] Abhinandan, Netajee. "The Changing Power-Relations in the Indo-Pacific: Decoding New Delhi's Strategic Outlook." *Focus Asia*, February 2021. 6.
https://isdp.eu/publication/the-changing-power-relations-in-the-indo-pacific-decoding-new-delhis-strategic-outlook.
[367] Menon, Shivshankar. "India's Foreign Affairs Strategy." *Impact Series of the Brookings Institution India Center*, May 2020. 18.
https://www.brookings.edu/wp-content/uploads/2020/05/India27s-foreign-affairs-strategy.pdf.
[368] Mohan, C. Raja. *Impossible Allies: Nuclear India, United States, and the Global Order.* India Research Press, 2006; Talbott, Strobe. *Engaging India: Diplomacy, Democracy, and the Bomb.* Brookings Institution, 2006.
[369] U.S. Department of State. "U.S. Security Cooperation With India." January 20, 2021.
https://www.state.gov/u-s-security-cooperation-with-india.
[370] Shidore, Sarang. "The Quad's Perils Outweigh its Promises." *Responsible Statecraft*, September 27, 2021.
https://responsiblestatecraft.org/2021/09/27/does-the-quads-perils-outweigh-its-promises/.

The United States sees India as a vital part of the China-balancing coalition. As a major state from the Global South and putatively a democracy, its inclusion has substantial symbolic value. There are also material payoffs if India becomes what Washington calls a "net security provider" — *i.e.*, it is able to support U.S. missions beyond its own territorial defense and in more distant theaters. One concrete scenario involves major Indian assistance in potential interdiction or blockade operations in the Strait of Malacca. India's military facilities on the Andaman and Nicobar islands are located close to the Strait, and the Indian navy is a major, if not preponderant, presence in the Indian Ocean.

However, we judge that such scenarios of Indian military participation in the maritime domain are unlikely to transpire.[371] For one, India's defense budgets have more or less stalled over the past several years due to fiscal constraints,[372] with the navy's share actually decreasing.[373] Second, since the 2020 incidents on the Sino–Indian border and earlier aerial clashes with Pakistan, India faces a heavily militarized northern and western border — with a plausible prospect of a two-front war. China and Pakistan have further cemented their de facto alliance focused on India, and their gambits have forced New Delhi's attention to its continental borders and away from its maritime domain.[374] Indeed, this may have been China's intention when it conducted its surprise and largely successful intrusions on Indian-held territory in the spring of 2020.

India nonetheless continues to participate in Malabar and other maritime exercises with the U.S. and its partners. These drills are increasingly sophisticated, involving anti-submarine warfare and other China-centric maneuvers. But the more India deepens its involvement in U.S.–led military structures, the more further strategic surprises become likely on its continental borders. This is likely why India is quietly pushing the Quad to focus more on nonmilitary domains.

Though India's access agreements with the United States and other Quad partners could enable them to use Indian facilities such as ports and airfields for logistical purposes in a low-key manner, an Indian combat role in a U.S.–led denial strategy is unlikely. Even in the proximate Indian Ocean, Indian participation in direct military action opens it up to a Chinese (and potentially a Pakistani) response on its continental frontier, where New Delhi is highly vulnerable and where no other nation is likely to intervene militarily on India's side. An additional complicating factor is New Delhi's deep defense relationship with Moscow, which could trigger U.S. sanctions under the Countering America's Adversaries Through Sanctions Act, CAATSA, once India takes

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[371] Shidore, Sarang. "De-Risking the India Relationship: An Action Agenda for the United States." Quincy Institute Brief No. 10, March 10, 2021. https://quincyinst.org/report/de-risking-the-india-relationship-an-action-agenda-for-the-united-states/.
[372] Though the most recent defense budget saw an appreciable increase, most of it was for meeting existing liabilities and dealing with the contingency of the face-off with China. Raghuvanshi, Vivek. "India Releases Details of New Defense Budget." *Defense News*, February 2, 2021. https://www.defensenews.com/global/asia-pacific/2021/02/02/india-releases-details-of-new-defense-budget.
[373] Shukla, Ajai. "Declining budget: Navy Likely to Field about 175 Warships, not 200." *Business Standard*, December 4, 2019. https://www.business-standard.com/article/economy-policy/declining-budget-navy-likely-to-field-about-175-warships-not-200-119120400079_1.html.
[374] Rej, Abhijnan. "India's Frontier Paradox." *The Diplomat*, August 22, 2020. https://thediplomat.com/2020/08/indias-frontier-paradox/.

delivery of the S–400 missile-defense system by the end of 2022.[375] In sum, there are clear limits to how far India can go in the direction of U.S. preferences.

Given India's size, it is the only nation with the potential to emerge as a peer rival to China in Asia. A smarter and more realistic U.S. strategy in the 2035 time frame would be to help build up India as an economic and technological counterweight to China to achieve a multipolar Asia, while desisting from making a major issue of its ties to Moscow. Of course, New Delhi would have to do most of the heavy lifting in its internal transformation, but there are many ways the United States could help using bilateral and multilateral tools.[376]

Recommendations for Taiwan

As noted in the introduction to this chapter, Taiwan falls into a unique category. It is not a U.S. ally. Indeed, since 1979, the United States has not recognized it as an independent country. Nevertheless, the United States has deep cultural and economic ties with the people of Taiwan, a relationship that has been enhanced by the high levels of prosperity, education, and democratic governance that the people of Taiwan have achieved over the past several decades. The Taiwan issue is primarily a political issue and not a military one, though military issues — the focus of this report — are nevertheless very relevant. The authors of this report support continuing the established approach of strategic ambiguity with regard to Taiwan, neither committing the United States to coming to its defense under all circumstances nor forswearing the possibility under some. They also support providing equipment for the defense of Taiwan. At the same time, the most important military factors related to defense and deterrence involve Taiwan's own preparations. And Taipei's investments have neither been sufficient in magnitude nor targeted appropriately, though there has been some improvement in recent years.

Given the specific challenges facing Taiwan, and the enormous asymmetry in population and economy between Taiwan and China, Taipei should pursue a hedgehog strategy, much like those we describe for other regional states.[377] History suggests that subduing an island with the size and military resources of Taiwan would be a complex, difficult, and time-consuming process. Although Taiwan could probably not prevail without outside assistance, a hedgehog strategy would prolong the battle and buy time for outside intervention to succeed. From Beijing's perspective, even a modest risk that the United States might intervene to support Taiwan would serve as a powerful deterrent to military attack on the island, particularly if Beijing had no reliable path toward achieving a rapid fait accompli.

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[375] Juster, Kenneth I. "Remove a Sanctions Cloud from U.S.-Indian Relations." *War on the Rocks*, April 27, 2021. https://warontherocks.com/2021/04/remove-a-sanctions-cloud-from-u-s-indian-relations.
[376] Shidore, "De-Risking the India Relationship: An Action Agenda for the United States."
[377] The idea is not new, though it has become more urgent over time and gained traction in recent years. One early piece advocating the strategy is Murray, William S. *Revisiting Taiwan's Defense Strategy*. *Naval War College Review*, Vol. 61, No. 3, Summer 2008.

Given the threat of invasion and absorption to Taiwan, the specific attributes of a hedgehog defense for the island differ somewhat from those for other regional states, especially in the importance of ground forces. In extending the fight over Taiwan, defending ground forces would play a central role. Ground forces must be of sufficient size to populate frontline battle areas (the lodgment area around chosen invasion beaches) and to defend other key entryways (ports, air bases, and civilian airports) that airborne or air assault troops might target. Force numbers should not only account for the terrain to be defended, but also for losses that would be sustained by the defender. Given the short distances between invasion beaches and key political and military targets, to include Taipei, these ground units must also be of sufficient quality to conduct local counterattacks.

Taiwan's transition to a volunteer army, implemented in 2009, resulted in large cuts to army force structure, much of which was transferred to the reserves, and Taiwan's army has been unable to recruit sufficient volunteers to fill the ranks even of the remaining force structure.[378] Having embarked on the transition to a volunteer force, it is imperative to raise the pay, living standards, and status of soldiers to complete the transition. At the same time, far more attention must be paid to raising the quality of reserve organizations. We would suggest that the number of Category A reserve organizations — those with substantial full-time cadres — should be increased from 6 to 20, and refresher training should be made monthly.[379]

Apart from increasing the size and capabilities of its ground forces, Taiwan can best deter attack by investing in survivable air defenses and anti-ship capabilities. Taiwan cannot hope, by itself, to gain air superiority. Indeed, its aircraft are unlikely to survive long against a combination of air base attacks and large Chinese fighter sweeps to destroy surviving aircraft in the air. Rather, heavy emphasis on ground-based air defense, capable of denying full air superiority to China, is likely to offer the best solution, with aircraft operating from hardened bases playing an auxiliary role.[380] At a minimum, large numbers of ground-based SAM systems will force the PLA Air Force to respect the threat by operating at greater distances and allocating more sorties to the suppression of enemy air defenses mission, SEAD, diminishing the effectiveness of PRC aircraft against transportation routes and high value assets — *e.g.*, headquarters, helicopters, and supply and transportation nodes.

As noted in Chapters 2 and 3, existing technology could be exploited to design and produce new and cheaper SAM systems, with better capabilities than shoulder-launched

[378] Huang, Paul. "Taiwan's Military is a Hollow Shell." *Foreign Policy*, February 15, 2020. https://foreignpolicy.com/2020/02/15/china-threat-invasion-conscription-taiwans-military-is-a-hollow-shell/.
[379] On Taiwan's reserve forces, see "Republic of China Army (ROCA): Reserve Forces." GlobalSecurity.org., accessed on November 11, 2021. https://www.globalsecurity.org/military/world/taiwan/rf.htm; Hunzeker, Michael A., and Alexander Lanoszka. "A Question of Time: Enhancing Taiwan's Conventional Deterrence Posture." Center for Security Policy Studies, Schar School of Policy and Government, George Mason University, November 2018. https://csps.gmu.edu/wp-content/uploads/2018/11/A-Question-of-Time.pdf.
[380] Lostumbo, Michael J. et al. *Air Defense Options for Taiwan: An Assessment of Relative Costs and Operational Benefits*. RAND Corporation, 2016. https://www.rand.org/pubs/research_reports/RR1051.html.

systems but smaller than Patriot batteries. If such systems were supplied to Taiwan, it would greatly assist its ability to expand the SAM force and hide capable air-defense assets throughout the island. In the area of anti-ship capabilities, it is questionable whether Taiwan alone could cause sufficient destruction to PRC fleets offshore to defeat an invasion, but large numbers of ground-launched anti-ship missiles could disrupt Chinese efforts and complicate planning. Likewise, employment of mines in the maritime approaches to Taiwan, particularly in its ports, would provide a cost-effective denial capability against an invasion fleet.[381]

Historically, Taiwan has preferred a defense strategy organized for forward, or even offshore, defense, emphasizing the acquisition of surface warships and advanced aircraft, all of which would be highly vulnerable during early stages of conflict. In 2017, however, Taiwan adopted an overall defense concept that appeared to move it closer to adopting the hedgehog strategy consistent with our definition of active denial.[382] Many of Taiwan's recent defense purchases are also consistent with the strategy. In addition to developing its own anti-ship missiles, for example, Taiwan and the United States agreed to the purchase of roughly 100 Harpoon anti-ship missile launchers and 400 missiles.[383] In addition, Taiwan will upgrade a portion of the roughly 400 Patriot missiles it has purchased in past years and will purchase new Patriot PAC–3 missiles.[384] Under the overall defense concept, Taiwan also moved to acquire smaller coastal patrol craft and an indigenously built submarine.

[381] Timbie, James, and James O. Ellis Jr. "A Large Number of Small Things: A Porcupine Strategy for Taiwan." *Texas National Security Review*, vol. 5, no. 1, Winter 2021/2022. 83-93. https://tnsr.org/2021/12/a-large-number-of-small-things-a-porcupine-strategy-for-taiwan.
[382] Thompson, Drew. "Hope on the Horizon: Taiwan's Radical New Defense Concept." *War on the Rocks*, October 2, 2018.
[383] Stone, Mike. "U.S. State Department Approves $2.4 Billion More in Potential Arms Sales to Taiwan: Pentagon." Reuters, October 26, 2020. https://www.reuters.com/article/us-usa-taiwan-arms/u-s-state-department-approves-2-4-billion-more-in-potential-arms-sales-to-taiwan-pentagon-idUSKBN27B2N3.
[384] Lee, Yimou. "Taiwan to Buy New U.S. Air Defense Missiles to Guard Against China." Reuters, March 31, 2021. https://www.reuters.com/article/us-taiwan-defence/taiwan-to-buy-new-u-s-air-defence-missiles-to-guard-against-china-idUSKBN2BN1AA; "U.S. Approves $620 million Missile Upgrade Package for Taiwan." Reuters, July 9, 2020. https://www.reuters.com/article/us-taiwan-usa-defence/u-s-approves-620-million-missile-upgrade-package-for-taiwan-idUSKBN24B024.

The Royal Danish Navy's Mobile Missile Battery which was in service from early 90's capable of firing Harpoon missiles for coastal defense. (Photo via Marinens Biblioteks Arkiv).

However, the fate of the overall defense concept is uncertain, and there are competing interpretations of it. The publication in March 2021 of a Quadrennial Defense Review, for example, laid out a vision of "engaging the enemy on their home turf, striking the enemy at sea and annihilating the enemy on the landing beaches."[385] While even this can be interpreted in different ways, it appears to emphasize long-range capabilities that should not be the focus of a denial strategy. The United States should continue to emphasize the importance of transitioning to a more resilient strategy and should limit arms sales to those capabilities that would be most relevant.

[385] Lu Li-shih. "Defense Policies Need Fresh Ideas." *Taipei Times*, July 18, 2021. https://www.taipeitimes.com/News/editorials/archives/2021/07/18/2003761028.

Chapter 5: Limiting Nuclear Dangers

Eric Gomez was the lead author of this chapter, with contributions from Mike Mochizuki and Jessica Lee on the risks of nuclear proliferation in Japan and South Korea.

Introduction

This chapter addresses the impact our proposed shift in U.S. military strategy in East Asia — away from dominance or control and toward active denial — would have on nuclear deterrence in the region. Questions of nuclear deterrence and escalation control are growing more salient as China and North Korea expand their nuclear arsenals. While the force posture and strategy changes described in this report are first and foremost intended to create a new conventional U.S. military strategy, they also have important implications for nuclear deterrence and stability.

Relative to a control-oriented military strategy, a denial-oriented strategy lowers the overall risk of nuclear escalation in a U.S.–China conflict. There are some ways in which an active denial strategy might increase specific escalation risks, but in the aggregate a shift from control to active denial would reduce escalation risks. The active denial strategy provides a way for the United States to uphold existing security commitments while reducing the likelihood of U.S.–China conflict going nuclear.

Active denial carries lower nuclear escalation risks by changing the U.S. approach to conventional deterrence. It does so by changing the kinds of PRC targets that the United States would need to attack, which slows the pace of conventional strikes against sensitive targets on China's mainland. By emphasizing survivability of stand-in forces and targeting adversary air and naval capabilities engaged in combat operations, our active denial strategy offers a way to stymie PRC offensive actions in ways that carry lower risks of nuclear escalation than the control strategy, especially in the early phases of a conflict. Put somewhat differently, active denial offers a theory of conventional deterrence that makes nuclear escalation less likely because it does not require early, large-scale U.S. offensive strikes against Chinese mainland targets to frustrate the attacker.

Our denial strategy also has benefits for reducing deliberate nuclear escalation incentives by providing a better way to signal limited U.S. military objectives during a war. Active denial still leaves room for offensive U.S. operations against mainland China, but these occur at a later stage of a conflict and provide an opportunity for Washington and Beijing to find a diplomatic off-ramp before the fight escalates further.[386] In other

[386] While denial creates a potential for an off-ramp, in the event of a conflict it would be monumentally difficult for the countries to back down once fighting starts. See Kai Quek and Alastair Iain Johnston. "Can China Back Down? Crisis De-escalation in the Shadow of Popular Opinion." *International Security* 42, no. 3, Winter 2017/18. 7-36.

words, under a U.S. active denial strategy China would not be faced with a quick decision between large-scale conventional defeat and limited nuclear use.[387]

Shifting to an active denial strategy could create opportunities for the United States to adjust its nuclear forces and/or posture. However, since the goal of this report is to maintain existing commitments in a more sustainable, less escalatory way, we recommend that the United States not make any significant adjustments to minimize the risk of allies seeking their own nuclear weapons to make up for a perceived lack of U.S. commitment to their defense. Closer U.S. consultation with its allies on nuclear planning will likely be necessary to assure them, undercut nuclear proliferation risks, and mitigate escalation risks stemming from allied conventional operations.[388]

The active denial strategy is not without potential downsides. Some of the operational changes associated with the strategy could create new escalation pressures or deepen existing ones. The strategy outlined in this report calls for a phased approach to operations. The likelihood of nuclear escalation is low in initial phases, but it could increase in later phases of a conflict depending on which Chinese targets U.S. forces attack as they roll back Chinese gains. This and other potential downsides are outweighed by active denial's benefits, but it is important to consider the strategy's potential shortcomings so that policymakers could address or reduce any negative impacts.

On balance, we judge that adopting our active denial military strategy in East Asia would improve nuclear stability in the region by reducing the likelihood of U.S.–China nuclear escalation in a conventional conflict. In any conflict between nuclear-armed great powers there will be some risk of nuclear escalation. Furthermore, significant losses of Chinese warships and military aircraft in a scenario wherein the United States implements active denial could prompt Beijing to consider nuclear use. However, relative to the control strategy, active denial reduces the likelihood of nuclear escalation because, in the early stages of conflict, it prioritizes attacking targets that are less closely entangled with China's nuclear forces compared with the control strategy.

The U.S.–China nuclear balance and escalation pathways

Before examining how an active denial strategy would offer less escalatory approaches to conventional deterrence, it is useful first to set forth some basic information about the U.S.–China nuclear balance and identify potential nuclear escalation pathways in the relationship.

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[387] Castillo, Jasen J. "Deliberate Escalation: Nuclear Strategies to Deter or to Stop Conventional Attacks" in *Coercion: The Power to Hurt in International Politics.* Greenhill, Kelly M., and Peter Krause, eds. New York, NY. Oxford University Press, 2018. 304-305.
[388] Zhao, Tong. "Conventional Long-Range Strike Weapons of U.S. Allies and China's Concerns of Strategic Instability." *The Nonproliferation Review* 27, nos. 1/2, 2020. https://www.tandfonline.com/doi/full/10.1080/10736700.2020.1795368.

The U.S.–China nuclear (im)balance

The U.S.–China relationship features an imbalance in nuclear forces that strongly favors the United States. The 2020 annual Department of Defense report on China's military power estimated that China had a nuclear stockpile "in the low–200s" compared with the approximately 1,400 nuclear warheads that the United States deploys under the rules of the New Strategic Arms Reduction Treaty.[389] America's advantage in warhead numbers is even more pronounced than the New START number suggests because the treaty counts nuclear-capable U.S. bombers as only one "warhead." The 2021 Nuclear Notebook published by the *Bulletin of the Atomic Scientists* estimates that the United States has approximately 1,800 deployed warheads (400 on silo-based intercontinental ballistic missiles, 1,000 on submarine-launched ballistic missiles, 300 at bomber bases, and 100 tactical nuclear weapons deployed to European bases), 2,000 warheads in storage, and 1,750 retired but intact warheads awaiting dismantlement.[390] By comparison, the 2021 Nuclear Notebook on China's nuclear forces estimated that it possesses approximately 350 nuclear warheads.[391]

China's small nuclear arsenal is also governed by a relatively conservative nuclear strategy that has long emphasized no first use and assured retaliation — maintaining the ability to mount a successful second strike after being attacked with nuclear weapons first.[392] The size and general posturing of China's nuclear arsenal makes it a poor candidate for implementing aggressive strategies such as damage limitation.[393]

China's nuclear arsenal and strategy is not static, however, and ongoing changes are attracting greater attention and concern among U.S. defense officials, analysts, and policymakers. These changes can be broadly divided into two categories: material and strategic.

Material changes to China's nuclear forces include an increase in total warheads, greater use of missiles armed with multiple warheads, and the addition of new dual-capable delivery systems such as the DF–26 intermediate-range ballistic missile.[394]

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[389] On the PRC warhead stockpile, see *Military and Security Developments Involving the People's Republic of China 2020*. Office of the Secretary of Defense, September 2020. 85. The United States reported 1,376 deployed warheads in its 2020 report on New START Treaty implementation. The report was published in January 2020, but the number it included was current as of September 1, 2019. See U.S. Department of State. "Annual Report on Implementation of the New START Treaty—2020," Bureau of Arms Control, Verification, and Compliance, January 31, 2020. https://www.state.gov/annual-report-on-implementation-of-the-new-start-treaty-2020/.

[390] Kristensen, Hans M., and Matt Korda. "Nuclear Notebook: United States Nuclear Weapons, 2021." *Bulletin of the Atomic Scientists* 77, no. 1, 2021. 43-44. https://thebulletin.org/premium/2021-01/nuclear-notebook-united-states-nuclear-weapons-2021/.

[391] Kristensen, Hans M., and Matt Korda. "Nuclear Notebook: Chinese Nuclear Forces, 2021." *Bulletin of the Atomic Scientists*, November 15, 2021. https://thebulletin.org/premium/2021-11/nuclear-notebook-chinese-nuclear-forces-2021.

[392] Cunningham, Fiona S., and M. Taylor Fravel. "Assuring Assured Retaliation: China's Nuclear Posture and U.S.-China Strategic Stability." *International Security* 40, no. 2, October 2015. 13. http://hdl.handle.net/1721.1/101390.

[393] Logan, David C. "Testimony before the U.S.-China Economic and Security Review Commission." June 10, 2021. https://www.uscc.gov/sites/default/files/2021-06/David_Logan_Testimony.pdf.

[394] Gould, Joe. "China Plans to Double Nuclear Arsenal, Pentagon Says." *Defense News*, September 1, 2020. https://www.defensenews.com/congress/2020/09/01/china-planning-to-double-nuclear-arsenal-pentagon-says/; Long, Austin. "Myths or Moving Targets? Continuity and Change in China's Nuclear Forces." *War on the Rocks*, December 4, 2020. https://warontherocks.com/2020/12/myths-or-moving-targets-continuity-and-change-in-chinas-nuclear-forces/.

The newly developed DF-26 medium-range ballistic missile as seen after the military parade held in Beijing to commemorate the 70th anniversary of the end of WWII. (IceUnshattered via wikimedia commons).

China's total nuclear warhead count has received particularly close media attention in recent months. The 2021 Department of Defense report on China's military power paints a worrying picture on China's arsenal size. It states, "The accelerating pace of [China's] nuclear expansion may enable [China] to have up to 700 deliverable nuclear warheads by 2027. [China] likely intends to have at least 1,000 warheads by 2030, exceeding the pace and size the DoD projected in 2020."[395] This new estimate replaces a previous judgment that China's arsenal could double in 10 years, but even with this new estimate, Washington would still have roughly 800 more total deployed warheads than Beijing, assuming no reductions to U.S. deployed warheads.

The most worrisome material changes to China's nuclear forces, recently discovered via commercial satellite imagery, are three intercontinental ballistic missile silo fields in China's interior provinces. As of the summer of 2021, all three sites were in the very early stages of construction, which makes it difficult to estimate how many silos will ultimately be built.[396] Analysts from the Middlebury Institute of International Studies and the Federation of American Scientists estimate that, based on current construction and

[395] U.S. Department of Defense. *Military and Security Developments Involving the People's Republic of China, 2021*. 2021. VIII.
[396] O'Connor, Sean. "Questions Remain over Identification of China's Missile Silos." *Janes*, August 6, 2021.

road layout, the silo fields near the cities of Yumen and Hami could eventually host up to 120 and 110 silos respectively.[397] A third potential field, near Hanggin Banner (a banner is equivalent to a county), could have approximately 30 silos, though this site is not as far along in its development as the Yumen and Hami fields.[398] In March 2022, the commander of U.S. Strategic Command testified to the House Armed Services Committee that each silo field will have approximately 120 silos.[399]

While it is unclear how many new ICBM silos will eventually be constructed and filled with nuclear-armed missiles, the discovery of these sites lends credence to U.S. government statements that China is quickly expanding its nuclear arsenal. The new ICBM silo fields will improve the survivability of China's silo-based nuclear forces against conventional attack because silos are harder to destroy with conventional weapons and the fields are located deep in China's interior, placing them beyond easy reach of many U.S. strike platforms. Silos cannot survive a nuclear attack, but they can improve the survivability of China's mobile nuclear capabilities by forcing the United States to devote more of its own warheads to targeting the silo fields.

The strategic implications of the new silo fields beyond improved survivability are murky and dependent on other Chinese decisions. If China ends up constructing the maximum estimated number of 360 silos and fills each one with an ICBM equipped with multiple warheads, then China could adopt a more aggressive nuclear strategy that assigns a more prominent role to targeting land-based U.S. nuclear forces in first strikes. U.S. nuclear ballistic missile submarines are more survivable against such potential strikes compared with ICBM silos and air bases. Such a shift would be a significant departure from China's long-held strategy of assured retaliation, but China was not understood to possess a nuclear arsenal capable of implementing a more aggressive strategy until the discovery of the under-construction silo fields.

Adopting a damage limitation strategy would be at one extreme end of the more aggressive options that Beijing could adopt with a larger arsenal. Other examples of strategies that lie between the status quo approach of assured retaliation and damage limitation include limited first-use of nuclear weapons, nuclear coercion or blackmail, and using a stalemate at the nuclear level to engage in more aggressive conventional

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[397] On the Yumen site, see Warrick, Joby. "China is Building More Than 100 New Missile Silos in its Western Desert, Analysts Say." *Washington Post*, June 30, 2021. https://www.washingtonpost.com/national-security/china-nuclear-missile-silos/2021/06/30/0fa8debc-d9c2-11eb-bb9e-70fda8c37057_story.html. On the Hami site, see Korda, Matt, and Hans Kristensen. "China is Building a Second Nuclear Missile Silo Field." Federation of American Scientists, July 26, 2021. https://fas.org/blogs/security/2021/07/china-is-building-a-second-nuclear-missile-silo-field/.

[398] Lee, Rod. "PLA Likely Begins Construction of an Intercontinental Ballistic Missile Silo Site near Hanggin Banner." China Aerospace Studies Institute, August 12, 2021. https://www.airuniversity.af.edu/CASI/Display/Article/2729781/pla-likely-begins-construction-of-an-intercontinental-ballistic-missile-silo-si/.

[399] U.S. Senate Armed Services Committee. "Statement of Charles A. Richard, Commander, United States Strategic Command, Before the Senate Armed Services Committee." March 8, 2022. 5. https://www.armed-services.senate.gov/imo/media/doc/2022%20USSTRATCOM%20Posture%20Statement%20-%20SASC%20Hrg%20FINAL.pdf.

operations.[400] Any of these options, or potentially a combination of them, is theoretically possible if China fields a much larger nuclear arsenal. However, examining every potential strategy stemming from a larger PRC nuclear arsenal is beyond the scope of this chapter.

However, it is also plausible that China will not adopt a more aggressive nuclear posture despite having a larger arsenal. Some American analysts have pointed out that China could apply camouflage, concealment, and deception techniques to the new silo fields and leave most of the new silos as decoy targets or move a small number of missiles among many silos in a shell game to complicate U.S. targeting.[401] China already makes extensive use of CC&D tactics to protect its mobile nuclear forces. While China's new silo fields could give it more options for aggressive nuclear strategies, it is impossible to say with certainty what its nuclear strategy will be only by examining changes to its capabilities.

Strategic changes to China's nuclear forces include increased attention among Chinese strategists and experts on a more expansive role for nuclear weapons than just deterring nuclear attack or coercion. Christopher Twomey of the Naval Postgraduate School provides the following examples of topics that are currently up for discussion and debate in authoritative Chinese military documents: "how to address [U.S.] conventional strikes against [Chinese] nuclear targets, the demand for early warning, how to train for rapid implementation of a nuclear attack, discussions of launch-on-warning postures, [and] the potential for nuclear weapons to deter conventional war."[402] Taken together these material and strategic changes could signal a new Chinese approach to nuclear deterrence, but they could also be interpreted as steps to maintain an assured retaliation strategy as the U.S.–China relationship deteriorates and threats to the survivability of a smaller nuclear arsenal grow.[403]

Chinese strategists are particularly worried about nonnuclear capabilities that could reduce the effectiveness of assured retaliation by holding China's nuclear forces at risk. Examples of such capabilities include ballistic-missile defense, precise conventional strike weapons, and the ISR systems that support both.[404] Stated differently by Fiona Cunningham and M. Taylor Fravel, "China's strategic community views the U.S. development and deployment of ballistic missile defense capabilities as the most serious threat to China's nuclear deterrent."[405] On the danger of precise conventional weapons, Twomey points out, "Increasingly, in Track 1.5 meetings Chinese semi-official

[400] For more detailed discussions of other potential aggressive strategies, see Denmark, Abraham, and Caitlin Talmadge. "Why China Wants More and Better Nukes." *Foreign Affairs*, November 19, 2021. https://www.foreignaffairs.com/articles/china/2021-11-19/why-china-wants-more-and-better-nukes; Radzinsky, Brian. "Chinese Views of the Changing Nuclear Balance." *War on the Rocks*, October 22, 2021. https://warontherocks.com/2021/10/chinese-views-of-the-changing-nuclear-balance/.
[401] Acton, James M. "Don't Panic about China's New Nuclear Capabilities." *Washington Post*, June 30, 2021. https://www.washingtonpost.com/politics/2021/06/30/dont-panic-about-chinas-new-nuclear-capabilities/.
[402] Twomey, Christopher P. "China's Nuclear Doctrine and Deterrence Concept" in *China's Strategic Arsenal: Worldview, Doctrine, and Systems.* Smith, James M., and Paul J. Bolt, eds. Washington, DC. Georgetown University Press, 2021. 52, 53-57.
[403] Cunningham and Fravel. "Assuring Assured Retaliation." 9-10.
[404] Logan. "Testimony before the U.S.-China Economic and Security Review Commission." 8.
[405] Cunningham and Fravel. "Assuring Assured Retaliation." 16-17.

and even official interlocutors have signaled that [conventional U.S. attacks on Chinese ICBM silos] would constitute a crossing of the nuclear threshold."[406]

The expansion of nonnuclear threats to China's nuclear forces creates an important linkage between American conventional capabilities and warfare strategies on the one hand and nuclear escalation risk on the other.

Potential escalation pathways

There are two broad pathways to nuclear escalation in a U.S.–China conflict: deliberate and inadvertent. Deliberate escalation is the intentional use of nuclear weapons to achieve some kind of coercive benefit. This encompasses several categories of nuclear use, but this report assumes the most salient form of deliberate escalation is limited nuclear use when facing conventional defeat to signal resolve and try to force an end to the conflict. Put differently by Jasen Castillo:

> "A country [could] reach for these [limited nuclear options] after exhausting all conventional alternatives. The strategy allows states to signal their resolve to risk further nuclear escalation if a conventional conflict does not end… [Limited nuclear options] not only impose costs piecemeal but also communicate the increasing and shared risk of an uncontrollable all-out [nuclear] exchange between a regional power and its conventionally superior opponent."[407]

In contrast, inadvertent escalation occurs as a result of conventional military operations that either destroy the nuclear forces of or reduce the effectiveness of nuclear second-strike options within the country coming under attack. A key feature of inadvertent escalation is that the attacking country does not intend to disrupt the target's nuclear forces. Instead, it is carrying out military operations primarily for conventional goals or purposes that have unintended nuclear consequences.[408] Facing conventional threats to its nuclear forces, the targeted state may face pressure to use its nuclear forces before they are degraded further, fearing that too long of a delay would result in the effective negation of their ability to carry out nuclear operations in the future. This is frequently referred to as the "use or lose" dilemma[409] The targeted state could also increase the alert level of its nuclear forces or send warning signals to the attacker to cease its conventional campaign.[410] The danger of such a signal is that it could be misinterpreted by the attacker as an offensive sign of deliberate escalation rather than a defensive signal meant to prevent further conventional attacks against the

[406] Twomey. "China's Nuclear Doctrine and Deterrence Concept." 53.
[407] Castillo. "Deliberate Escalation." 303-304.
[408] Posen, Barry R. *Inadvertent Escalation: Conventional War and Nuclear Risks.* Ithaca, NY. Cornell University Press, 1991. 14.
[409] For a detailed examination of the "use or lose" dilemma and how it can lead to nuclear escalation, see Logan, David C. "The Varied Roads to Armageddon: Unpacking the Use-It-Or-Lose-It Dilemma." Working Paper, July 23, 2020. https://scholar.princeton.edu/sites/default/files/dlogan/files/logan_david_-_the_varied_roads_to_armageddon_-_july_2020.pdf.
[410] Posen. *Inadvertent Escalation.* 3.

target's nuclear forces. There are two potential, dangerous consequences of such a misinterpretation. First, the attacking state could redouble its conventional efforts in a bid to end the war, thereby deepening the danger of nuclear use by the targeted state. Second, the attacker could engage in deliberate nuclear escalation in an attempt to limit damage against what it regards as an imminent nuclear attack by the targeted state.

While the likelihood of either form of escalation is low in absolute terms, understanding the relative risk of these two forms of escalation is important in assessing the active denial strategy's effectiveness compared with the status quo or control strategy. We focused on evaluating nuclear escalation risks in a U.S.–China conflict over Taiwan, reflecting our judgment that such a scenario would carry considerably higher risks of nuclear escalation than other potential U.S.–China conflict scenarios given the high stakes involved.[411]

Deliberate escalation

The likelihood of deliberate nuclear escalation in a U.S.–China fight over Taiwan is low, though it could increase depending on how military operations unfold.

Neither the United States nor China would feel strong pressure to use nuclear weapons intentionally in the opening stages of a conflict, primarily because both states possess very capable conventional forces. Deliberate nuclear escalation is primarily a tool for consideration by states that either lack the capacity to defend themselves from conventional attack or invasion with just their conventional forces or lose that capacity over the course of a conflict.[412] However, this absence of a deliberate escalation incentive only holds if both China and the United States are confident of their conventional forces. If either country is put on its back foot in a conventional fight, then limited, deliberate nuclear use could become an option.

Deliberate nuclear escalation incentives could arise for either the United States or China. Beijing is probably more susceptible to limited nuclear use as a means to prevent looming conventional defeat because a U.S.–China conflict will take place in and/or close to China's territory and probably over an issue Chinese leaders deem vital to territorial sovereignty, national unity, and regime legitimacy. China can contest U.S. military superiority in the Western Pacific, but it cannot hold the U.S. homeland at risk with conventional weapons to the same extent that Washington is able to threaten Chinese territory. The consequences of a rapid loss of China's conventional military capabilities in East Asia would be acutely felt by China's leadership because without an effective conventional military presence the immediate risks to Chinese territory and population would become high, in the Chinese view. If there is little or no prospect of

[411] Talmadge, Caitlin. "Would China Go Nuclear? Assessing the Risk of Chinese Nuclear Escalation in a Conventional War with the United States." *International Security* 41, no. 4, Spring 2017. 50-92.
[412] Castillo. "Deliberate Escalation." 302-303. For the North Korean context, see Allard, Léonie, Mathieu Duchâtel, and François Godement. "Pre-empting Defeat: In Search of North Korea's Nuclear Doctrine." European Council on Foreign Relations, November 22, 2017. https://ecfr.eu/publication/pre_empting_defeat_in_search_of_north_koreas_nuclear_doctrine/.

protecting China's homeland with conventional forces, resorting to nuclear weapons in a bid to stop the war from continuing further — likely either in the form of demonstration detonations or limited attacks on regional targets — could be Beijing's least-bad option.[413] China's no-first-use doctrine should in theory reduce the likelihood of deliberate escalation, but NFU is a very difficult concept to make credible in the eyes of an opponent, especially as both China's nuclear arsenal and nonnuclear threats to its arsenal continue to grow.[414]

Pacific Ocean (March 26, 2008) An unarmed Trident II D5 missile launches from the Ohio-class ballistic missile submarine USS Nebraska (SSBN 739) off the coast of California. (U.S. Navy photo by Mass Communication Specialist 1st Class Ronald Gutridge/Released).

The United States could also face incentives for deliberate nuclear escalation should it be put on its back foot in a conventional conflict with China, but there should be relatively less pressure on the United States. A Chinese victory over U.S. military forces in East Asia would increase the vulnerability of some American states and territories such as Guam, Hawaii, and the Aleutian Islands, but the United States would retain a great deal of military power for protecting these areas and the homeland. While China can threaten some U.S. territory with conventional attack, Beijing does not possess the capabilities to threaten large-scale conventional damage against the vast majority of U.S. territory. Therefore, the likelihood of U.S. deliberate escalation to prevent

[413] Castillo. "Deliberate Escalation." 303-305.
[414] Twomey. "China's Nuclear Doctrine and Deterrence Concept." 53.

large-scale conventional defeat that would leave the United States vulnerable to further conventional attacks is low.

The more likely pathway to deliberate nuclear escalation by the United States is a looming conventional defeat that causes Washington to fear for the credibility of its alliance commitments in East Asia. This is highly dependent on U.S. perceptions of the stakes of the conflict. If Washington thinks that it could reassure allies despite a conventional defeat, then deliberate escalation would not be necessary or wise given the risk of Chinese retaliation. However, if Washington fears a wholesale unraveling of its position in the region, then the stakes of defeat are higher and deliberate nuclear escalation as an option of last resort in a conventional conflict that the United States is losing could look attractive.[415]

There is also a high risk of deliberate nuclear escalation if the United States and China adopt damage-limitation strategies to gain decisive nuclear advantage over each other. Damage limitation uses a mix of offensive and defensive capabilities to target the adversary's nuclear weapons to achieve victory in a nuclear exchange.[416] The United States and Soviet Union employed damage-limitation strategies in the later years of the Cold War, investing considerable resources and effort in the ability to target and destroy one another's nuclear forces.[417] Mutual damage-limitation strategies carry a high risk of intentional (and inadvertent) nuclear escalation because each state can only win by attacking first.

However, deliberate nuclear escalation caused by mutual damage-limitation strategies is not a pressing concern in the U.S.–China relationship. Although China is updating and expanding its nuclear arsenal, there are currently no indications that it plans to adopt a damage-limitation strategy, which would require many more warheads, vastly improved missile-defense capabilities, and fundamental change in nuclear strategy. China does have the capacity to build such capabilities over the long term, but open-source evidence does not indicate that Beijing wants to adopt a damage-limitation strategy. In a 2016 study of the feasibility of a U.S. damage-limitation strategy against China, scholars Charles Glaser and Steve Fetter stated, "The United States was until recently capable of destroying the vast majority of China's relatively small strategic nuclear force… [but] China's nuclear modernization… is changing this nuclear equation."[418] In other words, while the United States possesses some capacity to implement a damage-limitation strategy against China, the latter's growing arsenal will strain America's ability effectively to carry out damage limitation into the future.

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[415] The 2018 Nuclear Posture Review states that the United States could use nuclear weapons to deter or defeat a large-scale conventional attack against itself or its allies. Office of the Secretary of Defense. *Nuclear Posture Review 2018*. Department of Defense, February 2018. https://dod.defense.gov/News/SpecialReports/2018NuclearPostureReview.aspx.
[416] Glaser, Charles L., and Steve Fetter. "Should the United States Reject MAD? Damage Limitation and U.S. Nuclear Strategy toward China." *International Security* 41, no. 1, Summer 2016. 54-62; Payne, Keith B. "The Great Divide in U.S. Deterrence Thought." *Strategic Studies Quarterly* 14, no. 2, Summer 2020. 27-28.
[417] Long, Austin, and Brendan Rittenhouse Green. "Stalking the Secure Second Strike: Intelligence, Counterforce, and Nuclear Strategy." *Journal of Strategic Studies* 38, nos. 1-2, 2015. 38-73.
[418] Glaser and Fetter. "Should the United States Reject MAD?" 62.

In summary, the risk of the United States and China taking a deliberate path to nuclear escalation is low. Both countries possess large and capable conventional forces that give them options for deterrence and escalation control below the nuclear threshold, and there is low likelihood that a mutual damage-limitation relationship will emerge. If the United States wishes to minimize the likelihood of deliberate nuclear escalation, it should consider adopting a conventional military strategy that prevents either the U.S. or China from facing rapid, lopsided defeat. The active denial strategy outlined in this report is one such strategy.

Inadvertent escalation

The second nuclear escalation pathway that we examined is inadvertent escalation. This would occur as the result of conventional military operations that unintentionally degraded a target's ability to use its secure second-strike nuclear forces effectively.[419] Destruction or degradation of nuclear forces that occurred without the attacker crossing the nuclear threshold would put the targeted party in a difficult position. As stated by Caitlin Talmadge: "The key question would not be whether the target state expected to suffer complete nuclear disarmament at the hands of a nuclear or conventional counterforce attack. Rather, the issue would be whether the target state feared the erosion of its nuclear capabilities past some key threshold considered vital to its security."[420] In the inadvertent escalation scenario, a targeted state resorts to nuclear weapons because it fears that this "key threshold" is about to be crossed.

A targeted state could use nuclear weapons if it believes that the degradation of its ability to conduct a secure second strike is the opening stage of a broader damage-limitation strategy. If more conventional, or potentially nuclear, attacks against the targeted state's forces are likely, then the targeted state could see escalating sooner rather than later as the only way to end the conflict before losing it. This would be a risky proposition as it opens the door to nuclear retaliation, but states with small and vulnerable nuclear forces would have few better options for preventing the loss of its secure second strike.

Nuclear use could also come about because of escalation spirals and misinterpreted warnings. In this scenario, the targeted state takes steps to improve the survivability of its remaining nuclear forces, but the attacker perceives these steps as preparations for nuclear use. The attacker is then put in a position of accelerating its strikes, which could increase the targeted state's incentives to increase its warning or potentially use its nuclear weapons, or backing down. As David C. Logan outlines, "Authoritative Chinese texts and experts specify that PLA troops should take a number of potentially escalatory steps to demonstrate resolve in a crisis… [including] raising the alert status of missile systems, dispersing road-mobile missiles toward pre-established launch sites, and conducting 'test launches of medium and long-range strategic missiles armed with

[419] Posen, Barry R. *Inadvertent Escalation*. 1-4.
[420] Talmadge. "Would China Go Nuclear?" 58.

conventional warheads for focused live fire intimidation.'"[421] Logan further states that observing such signals in the midst of a U.S.–China conventional conflict could create "tremendous pressure to act" among U.S. leaders.

The relative risk of inadvertent escalation in any conflict varies depending on the nuclear strategies and force postures of the countries involved, the targets of a conventional campaign, and the perceptions and signals of the actors. Countries with counterforce doctrines — the use of nuclear weapons to target an adversary's nuclear forces as opposed to populations or industrial centers — would be more likely to escalate in response to conventional degradation of their nuclear forces because their theory of victory requires large, well-coordinated attack options.[422] Countries that possess relatively small, vulnerable nuclear arsenals are also prime candidates for inadvertent escalation because the inadvertent loss of a relatively small number of nuclear forces or the ability to marshal those forces affects a larger proportion of the country's secure second strike. The targets that a conventional campaign destroys are also closely linked to inadvertent escalation. Destroying nuclear forces with conventional weapons carries the most obvious danger, but other sensitive targets include dual-capable missiles, strategic ISR capabilities, and command-and-control systems.[423]

The late–Cold War period featured a significant danger of inadvertent escalation primarily due to the superpowers' damage-limitation strategies that emphasized early counterforce strikes. As Barry Posen wrote in his 1991 book on inadvertent escalation, "What might ordinarily seem an accidental or ambiguous conventional threat to one's own strategic forces is more likely to be seen as deliberate and direct if one's adversary is believed to have a counterforce nuclear doctrine."[424] As noted earlier, the contemporary U.S.–China nuclear balance is not characterized by mutual damage-limitation strategies, which should be good news for nuclear stability. However, the United States has a much stronger damage-limitation capability against China than vice versa. If Beijing believes that the United States seeks nuclear dominance, then China's leadership will likely be highly sensitive to conventional attacks on its nuclear forces because full-scale damage limitation may not be far behind.[425] Furthermore, there are some worrying trends in both countries that point to an increasing danger of inadvertent escalation in a future conflict, including U.S. perceptions of China shifting to a more aggressive nuclear strategy as its arsenal grows and the increasing entanglement of China's nuclear and conventional capabilities.[426]

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[421] Logan, David C. "Are They Reading Schelling in Beijing? The Dimensions, Drivers, and Risks of Nuclear-Conventional Entanglement in China." *Journal of Strategic Studies*, 2020. 38.
[422] Posen. *Inadvertent Escalation.* 3.
[423] Posen. *Inadvertent Escalation.* 3. Also see Acton, James M. "Escalation through Entanglement: How the Vulnerability of Command-and-Control Systems Raises the Risks of an Inadvertent Nuclear War." *International Security* 43, no. 1, Summer 2018. 56-99.
[424] Posen. *Inadvertent Escalation.* 9.
[425] The perceptions of the target are essential for gauging inadvertent escalation risks. See Logan. "Are They Reading Schelling in Beijing?" 33-38; Talmadge. "Would China Go Nuclear?" 87-88.
[426] Logan. "Are They Reading Schelling in Beijing?"

Inadvertent nuclear escalation triggered by a U.S.–China conventional conflict is a more likely pathway to nuclear use compared with deliberate escalation, but the United States can reduce this danger through the changes to its conventional military strategy that this report proposes.

Control vs. denial: Competing theories of conventional deterrence and their nuclear implications

Understanding how the contending control and active denial strategies approach conventional deterrence is essential for determining the attendant nuclear escalation risks of each strategy. Moreover, since inadvertent nuclear escalation in a U.S.–China conflict is more likely than deliberate escalation, changes in U.S. conventional strategy can directly affect nuclear escalation risks.

A variety of factors and variables go into the conventional deterrence calculus, but at its core conventional deterrence succeeds by convincing an adversary that it either cannot achieve its military objective at all or that the costs of victory will outweigh the benefits. In other words, conventional deterrence is primarily focused on defeating or stymieing an adversary's attack. Eliminating or reducing the likelihood of rapid, low-cost military victory by the attacker is a strong foundation for successful conventional deterrence, though it may not be sufficient given nonmaterial considerations such as an adversary's political will to absorb costs, which could be a key factor in China's case.[427] A defender can accomplish this task in several ways, but two broad approaches are punishment (inflicting a high level of damage on the attacker) and denial (making the attacker doubt that it will succeed).[428] The control and active denial strategies create conventional deterrence by denial in the sense that both strategies are focused on preventing China from achieving its war aims rather than inflicting punishment. However, the control strategy sets a much higher threshold of costs that must be inflicted on China for the strategy to succeed.

Shifting from a control strategy to an active denial strategy would reduce the likelihood of inadvertent nuclear escalation in a U.S.–China conflict because active denial approaches conventional deterrence in less escalatory ways. This does not mean that active denial is completely devoid of inadvertent escalation risks, but it contains generally lower nuclear-escalation risk than the control strategy.

[427] Mueller, Karl P. "Conventional Deterrence Redux: Avoiding Great Power Conflict in the 21st Century." Also see Mearsheimer, John J. *Conventional Deterrence*.
[428] Mueller, "Conventional Deterrence Redux: Avoiding Great Power Conflict in the 21st Century." 80-81.

Conventional deterrence in a control strategy

The control strategy's theory of conventional deterrence falls within the broad category of denial, but it requires the United States to inflict a high level of damage on a wide variety of Chinese targets to succeed. Inflicting the requisite level of damage on China's military forces requires the United States to maintain a large forward presence of air and naval forces that can quickly destroy those Chinese defenses that would otherwise impede U.S. command of the commons. These Chinese defenses are frequently referred to as anti-access/area-denial or A2/AD capabilities.[429]

Fighting through China's A2/AD capabilities would strongly incentivize the United States to attack military targets on the PRC mainland very early in a conflict.[430] Prime target sets for these U.S. strikes would be command-and-control systems, strategic ISR capabilities, and air defense — these in addition to Chinese ships and aircraft.[431] The control strategy places a high priority on targeting command and control, strategic ISR, and air defense because they enable other components of China's A2/AD systems that threaten U.S. forces. Taking away the eyes and ears of China's precision-strike complex would improve the survivability of U.S. forces, allowing them to carry out follow-on attacks against other targets while being more protected themselves.

As explained in Chapter 2 (see Figure 2.4), control is one type of deterrence-by-denial strategy, as opposed to strategies of deterrence-by-punishment, because it seeks to convince China that it will be unable to achieve its military objectives. If the United States can fight through China's A2/AD capabilities, China will be unable to block the U.S. military's freedom of action and will therefore not win the conventional fight. Where control distinguishes itself from the active denial strategy that this report advocates is in the requirements for success. Control works best if the United States can rapidly destroy Chinese military targets on the mainland that hinder the projection of U.S. air and naval power. Such an approach to conventional deterrence carries a relatively high risk of inadvertent escalation due to the target sets the United States faces incentives to destroy — namely, strategic ISR, early warning capabilities, command-and-control systems, and the air defense networks that protect them. China's nuclear delivery systems will not be intentionally targeted, but these three target sets affect China's ability to protect and effectively marshal its nuclear forces.[432] In other words, they are dual-use capabilities, useful for conventional and nuclear missions. The United States has an incentive to target these capabilities for conventional reasons, but their destruction has nuclear implications.

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[429] Gholz, Friedman, and Gjoza. "Defensive Defense: A Better Way to Protect U.S. Allies in Asia." 172-173.
[430] Caitlin Talmadge's 2017 *International Security* article on potential nuclear escalation risks in a U.S.-China fight over Taiwan provides an excellent overview of what a U.S. conventional campaign against China could look like. See Talmadge, "Would China Go Nuclear?" 64-73.
[431] Gomez, Eric. "U.S. Conventional Intermediate-Range Missiles in East Asia: Can They Deter Without Being Destabilizing." *On the Horizon Vol. 3: A Collection of Papers from the Next Generation.* Younis, Reja, ed. Center for Strategic and International Studies, February 23, 2021. 93-94.
[432] Talmadge. "Would China Go Nuclear?" 78-79.

Moreover, the control strategy also entails the destruction of dual-capable, regional ballistic missiles such as the DF–26 and variants of the DF–21. The ability of these missile forces to attack U.S. bases and large surface warships makes their destruction or suppression essential to the success of a control strategy, but it is also increasingly difficult to differentiate between nuclear and conventional units that use the same missiles.[433] In the case of the DF-21, for example, different launch brigades operate conventional and nuclear variants of the missile, so it is theoretically possible for the United States to target only the bases that support conventional DF–21s. However, once the DF–21s are fielded it becomes much harder — and potentially impossible — to tell a nuclear-armed missile from a conventional variant given similar launch sites and overlapping areas of operation.[434] The DF–26 further complicates the targeting challenge by being able to swap out the warhead sections of the missile while in the field.[435] Without very precise information about the armament of individual dual-capable missiles, which is all the more difficult to obtain once a conflict starts, the United States runs the risk of destroying a nuclear-armed DF–21 or DF–26 that it believes is conventional.

The control strategy could also increase the risks of deliberate nuclear escalation, even if such risk would be smaller relative to inadvertent escalation. As mentioned earlier, China could face a deliberate escalation incentive if its conventional military is rapidly and soundly defeated, leaving limited nuclear use as a least-bad option for seeking to end the conflict prior to outright defeat. The ability of a control strategy to inflict such a high level of damage on China's conventional forces is questionable, but the strategy's intent is clearly aimed at inflicting widespread, significant damage as quickly as possible.

The control strategy's approach to conventional deterrence would require a military campaign that rapidly destroys sensitive targets on the PRC mainland. From the U.S. perspective, these targets are essential components of China's A2/AD system, and destroying them would be fair game as part of a conventional fight. From China's perspective, however, losing these capabilities could reduce the effectiveness of its nuclear secure second strike, thus increasing the likelihood of inadvertent escalation. China would retain the majority of its nuclear weapons, especially silo-based ICBMs, but the loss of command-and-control networks and strategic ISR capabilities would reduce the ability of Chinese leaders to marshal and coordinate Beijing's nuclear forces effectively, thereby making them more vulnerable to offensive counterforce attacks and missile defenses. If China was diligent about maintaining separate systems for nuclear command and control, then the inadvertent escalation risk could be attenuated.

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[433] Logan. "Are They Reading Schelling in Beijing?" 24-25.
[434] Talmadge. "Would China Go Nuclear?" 74-75.
[435] Pollack, Joshua H., and Scott LaFoy. "China's DF-26: A Hot-Swappable Missile?" *Arms Control Wonk*, May 17, 2020. https://www.armscontrolwonk.com/archive/1209405/chinas-df-26-a-hot-swappable-missile/; Singer, P.W., and Ma Xiu. "China's Ambiguous Missile Strategy is Risky." *Popular Science*, May 11, 2020. https://www.popsci.com/story/blog-network/eastern-arsenal/china-nuclear-conventional-missiles/.

To summarize, the control strategy advances a theory of conventional deterrence by denial that requires the United States to fight through and negate China's A2/AD capabilities and seize decisive advantage as quickly as possible. This approach to conventional deterrence carries a high risk of inadvertent escalation because it requires the destruction of sensitive, nuclear-relevant capabilities to enable effective U.S. conventional military operations. The objective of these attacks would not be the degradation of China's ability to conduct assured nuclear retaliation, but the effect of the attacks would be a reduction in the effectiveness of China's nuclear forces.

Conventional deterrence in an active denial strategy

Compared with the control strategy, implementation of an active denial strategy in a U.S.–China conflict would carry lower risks of inadvertent and deliberate nuclear escalation. This lower risk is due to active denial's lower requirements for successful conventional deterrence, especially in the early phases of a conflict. Active denial still has some attendant nuclear escalation risk, but on the whole it is a less escalatory strategy than control.

Like the control strategy, active denial's theory of conventional deterrence focuses on preventing China from achieving its war aims. However, active denial requires the destruction of a more-limited set of targets to succeed. Instead of fighting through and tearing down Chinese A2/AD capabilities in a bid to seize a dominant conventional position, our strategy emphasizes a smaller and more survivable U.S. forward presence. In other words, U.S. forces would be fighting within A2/AD instead of trying to remove it. Destruction of enabling capabilities on the mainland could improve U.S. military effectiveness, but such attacks would not make the difference between victory and defeat in the early stages of the conflict. The United States would want the ability to attack Chinese ships and aircraft that go on the offensive, but compared with the control strategy, active denial needs to inflict a lower level of damage on a narrower set of Chinese forces to be effective.

The relative danger of inadvertent escalation is lower in the active denial strategy compared with the control strategy primarily due to a different target set for U.S. forces. In the active denial strategy, U.S. conventional operations go after a smaller set of Chinese targets in the initial phase of conflict — namely, air and naval forces that are directly engaged in offensive actions. Some degradation of sensitive Chinese targets is possible, but since active denial does not place a premium on eliminating A2/AD, there is not as great of a need to go after such targets to enable other U.S. operations. There is less need for the United States to destroy China's strategic ISR capabilities, for example, if the United States protects its forward-deployed forces via hardening and dispersal instead of blinding China's precision strike capabilities. Preventing China from achieving command of the battle space and projecting its air and naval power is a

relatively easier task than establishing U.S. military dominance over China in the latter's backyard.

Avoiding the destruction of sensitive and dual-use Chinese capabilities in the early stages of a conflict, since targeting them is not a prerequisite for the United States to resist an offensive push, reduces the risk of inadvertent nuclear escalation. Active denial also reduces the likelihood of deliberate nuclear escalation caused by fears of looming conventional defeat. While active denial destroys Chinese power-projection forces, the costs it must impose in order to succeed are lower compared with the control strategy. If Chinese conventional losses accrue slowly, Beijing should retain confidence in its military's ability to provide adequate defense without resorting to nuclear use.

The active denial strategy leaves the door open for U.S. attacks against a wider set of mainland targets in later phases of a conflict, but a slower conventional escalation process would provide opportunities for Beijing and Washington to find diplomatic off-ramps before a conflict escalates further. An active denial strategy makes it easier to convey limited U.S. military objectives, which, in turn, reduces the probability of intentional Chinese nuclear escalation resulting from conventional defeat.

Although an active denial strategy is better for U.S.–China nuclear stability than control, it has some potential downsides that are important to note.

First, while the active denial strategy carries low risk of inadvertent escalation in the early phases of a U.S.–China conflict, this lower danger may not last if the conflict drags on. The active denial strategy allows for a phased escalation of U.S. conventional operations, which could include more extensive attacks against Chinese military forces on the mainland.[436] If those attacks destroy sensitive targets such as those mentioned earlier, then the relative danger of inadvertent escalation would increase. In other words, active denial's advantages in reducing inadvertent escalation are real in the early phases of a potential conflict, but these advantages may not be durable if a conflict drags on. However, even though inadvertent escalation risks could increase over time in an active denial strategy, these risks are no greater than those associated with a control strategy.

Second, active denial's focus on making a smaller, stand-in American military presence more survivable could prompt an expansion of regional missile-defense capabilities. A more robust regional missile-defense architecture would help meet active denial's goal of resiliency, but it may complicate nuclear deterrence by encouraging Chinese counteractions. Stronger U.S. missile-defense capabilities could potentially increase Beijing's anxieties about the effectiveness of its nuclear deterrent in ways that make it more likely to resort to nuclear signaling or even limited nuclear first use, at least at the

[436] For a similar discussion of this phased approach, see Heginbotham and Samuels. "Active Denial: Redesigning Japan's Response to China's Military Challenge." 168.

margin. Furthermore, an expansion of U.S. missile defense in East Asia could make it harder to engage China on arms control.

March 6, 2017: U.S. Forces Korea installing a Terminal High Altitude Area Defense (THAAD) on the Korean Peninsula as the first elements of the THAAD system arrived in the ROK. (Seventh Air Force Public Affairs).

China's reaction to U.S. missile-defense deployments could depend on what kinds of capabilities the U.S. deploys. The missile-defense systems that Beijing has most vocally opposed in recent years are those that have stronger peacetime surveillance capabilities, such as the THAAD system the United States fielded in South Korea in 2017. A 2016 report summarizing a U.S.–China strategic-stability dialogue that occurred after the THAAD announcement but before its deployment noted that multiple Chinese delegates said Beijing was "more concerned with U.S. [missile defense] radars than the interceptors themselves."[437] Moreover, the TPY–2 radar associated with the THAAD system has been used to provide early tracking data in tests of the ground-based midcourse defense system, the primary U.S. capability for defense against ICBM attacks on the homeland.[438]

The United States could use less-capable missile-defense systems with weaker associated sensing capabilities if it wishes to improve force protection under an active

[437] Twomey, Christopher et al. *U.S.-China Strategic Dialogue, Phase IX Report*. Monterey, CA. Naval Postgraduate School, December 2016. 6.
[438] Grego, Laura, George N. Lewis, and David Wright. *Shielded from Oversight: The Disastrous U.S. Approach to Strategic Missile Defense*. Cambridge, MA. Union of Concerned Scientists, 2016. 6—7. Also see Swaine, Vogel, Heer et al. "The Overreach of the China Hawks: Aggression Is the Wrong Response to Beijing."

denial strategy. China may not welcome Patriot deployments, for example, but Beijing also has not fervently opposed such deployments or sales to U.S. allies on strategic-stability grounds. However, the technical characteristics of missile-defense systems will make it difficult to deploy only the less-capable systems while also ensuring that they are as effective as possible. Missile-defense systems are most effective when they are integrated with one another, and improving integration is a top priority of U.S. missile-defense development.[439] A recent example of integration occurred during an October 2020 intercept test, wherein a TPY–2 radar associated with the THAAD system was able to share data with a Patriot interceptor.[440] This significantly expands the area where a Patriot battery could engage a target because the TPY–2's radar has greater range and provides higher quality targeting data than a Patriot's standard radar.[441] In other words, while it is possible to deploy larger numbers of less-capable missile-defense systems, doing so without integrating the deployed systems with more capable — and, to China, more destabilizing — sensor capabilities would reduce the ability of the deployed systems to provide the level of protection that the active denial strategy seeks.

The introduction of more-capable regional missile-defense systems such as THAAD and Aegis Ashore in East Asia as part of an active denial strategy will likely make U.S.–China nuclear stability more tenuous. Based on China's reaction to THAAD deployment in South Korea, future deployments of more-capable systems will likely prompt strategic and operational counteraction from Beijing. The strategic reaction would likely take the form of continued, or potentially accelerating, efforts to expand China's nuclear arsenal and inject further ambiguity as to the specifics of nuclear posture. Operationally, China could improve its ability to reduce missile- defense effectiveness by engaging in early conventional attacks on both ground-based and space-based sensors.[442] Such attacks would carry some risk of inadvertent escalation because forward-deployed missile-defense sensors also play a role in providing early warning of nuclear attack against the United States.[443]

In sum, U.S. missile-defense capabilities create a dilemma for the active denial strategy. On the one hand, theater missile-defense systems are valuable for improving the survivability of active denial's smaller stand-in forces, but, on the other hand, expanding these systems will likely complicate U.S.–China nuclear diplomacy and confidence building and could increase nuclear escalation risks.

The most important way for the United States to deal with this missile-defense dilemma is to address the growing entanglement of theater and homeland missile-defense

[439] Mattes, Peter W. "What is a Modern Integrated Air Defense System." *Air Force Magazine*, October 1, 2019. https://www.airforcemag.com/article/what-is-a-modern-integrated-air-defense-system/.
[440] Judson, Jen. "MDA and Army See Successful Patriot and THAAD Test after Failure." *Defense News*, October 1, 2020. https://www.defensenews.com/land/2020/10/01/mda-and-army-see-successful-patriot-and-thaad-test-after-failure/.
[441] Judson, Jen. "So Patriot and THAAD Will Talk. What Does that Really Mean?" *Defense News*, October 10, 2018. https://www.defensenews.com/digital-show-dailies/ausa/2018/10/10/so-patriot-and-thaad-will-talk-what-does-that-really-mean/.
[442] Zhao, Tong, and Li Bin. "The Underappreciated Risks of Entanglement" in *Entanglement: Chinese and Russian Perspectives on Non-Nuclear Weapons and Nuclear Risks*. Acton, James, ed. Carnegie Endowment for International Peace, 2017. 58-59.
[443] Acton. "Escalation through Entanglement."

capabilities. The dividing line between what constitutes a theater vs. a homeland defense system is blurring over time.[444] To retain the ability to strengthen theater missile defense in East Asia while also being sensitive to China's concerns about strategic stability, the United States could offer either to cap or to roll back its homeland missile-defense capabilities as part of a broader arms-control process while allowing for theater deployments.[445] China would not like an expansion of theater missile defense, but in a world where U.S. homeland defenses are formally limited, the United States would not be able to break out of nuclear vulnerability, thereby maintaining a degree of overall strategic stability.

Finally, a shift in U.S. military strategy could create new challenges for alliance management and extended deterrence if friendly capitals perceive the shift as a sign of waning U.S. conventional power relative to China. While our vision of a denial strategy calls for allies to develop their own militaries in ways that can support or mirror the new U.S. approach as outlined in the previous chapter, there is no guarantee that allies will follow America's lead. Australia, Japan, and South Korea are at various stages of developing precise conventional strike capabilities that could be used to attack the sensitive Chinese targets mentioned earlier.[446] Should such attacks take place, especially early in a conflict, active denial's reduction of early inadvertent escalation risk, a major benefit of the strategy, would come undone.

Close political consultation between the United States and its allies on matters of nuclear and conventional strategies would be Washington's primary tool for steering friendly capitals in the desired direction. Such political mechanisms already exist and would likely be expanded and/or held more frequently were the United States to adopt the active denial strategy.[447] Similar to the potential for greater inadvertent escalation risk created by an expanded U.S. regional missile-defense system, the dangers of inadvertent escalation stemming from more aggressive conventional strategies among allies is real but could be mitigated.

Compared with the control strategy, active denial's theory of conventional deterrence reduces the risks of deliberate nuclear escalation and inadvertent escalation in the early stages of conflict. The reduction of inadvertent escalation risk is primarily due to the narrower set of Chinese targets that must be destroyed in the opening stages of the

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[444] Gomez, Eric. "Technical Inevitability, Strategic Headache? Missile Defense in the 2021 Budget Request." Cato Institute, February 27, 2020. https://www.cato.org/blog/technical-inevitability-strategic-headache-missile-defense-2021-budget-request.

[445] Gomez, Eric. "It Can Get You into Trouble, but It Can't Get You Out: Missile Defense and the Future of Nuclear Stability" in *America's Nuclear Crossroads: A Forward-Looking Anthology.* Dorminey, Caroline, and Eric Gomez, eds. Cato Institute, 2019. 25-28. Not all of this report's authors support limiting national missile defense capabilities as part of a negotiated arms control process; in particular, Brian Killough opposes such limits.

[446] "Australia to Produce Its Own Guided Missiles as Part of Billion-Dollar Defence Manufacturing Plan." *ABC News* (Australia), March 30, 2021. https://www.abc.net.au/news/2021-03-31/government-weapons-facility-guided-missiles-made-in-australia/100039990; Kelly, Tim. "Japan to Consider Strike Capability to Replace Missile Defense System." Reuters, June 25, 2020. https://www.reuters.com/article/us-japan-defence-kono/japan-to-consider-strike-capability-to-replace-missile-defence-system-idUSKBN23W10Y; Pollack, Joshua H., and Minji Kim. "South Korea's Missile Forces and the Emergence of Triangular Strategic (In)Stability." *The Nonproliferation Review* 27, nos. 1-2, 2020. https://doi.org/10.1080/10736700.2020.1809156.

[447] Frühling, Stephan, Andrew O'Neil, and David Santoro. *Escalating Cooperation: Nuclear Deterrence and the U.S.-Australia Alliance*. Sydney, Australia. United States Studies Centre, November 7, 2019. https://www.ussc.edu.au/analysis/escalating-cooperation-nuclear-deterrence-and-the-us-australia-alliance.

conflict and the strategy's focus on preventing China from achieving military objectives rather than inflicting punishment on a wide set of targets. This operational restraint reduces the likelihood of U.S. conventional attacks on sensitive targets that are important for China to retain confidence in its assured- retaliation posture, among the components of which are dual-capable missile forces, strategic ISR, and command-and-control networks. These capabilities could be attacked in later phases of a conflict, which could, in turn, increase the risk of inadvertent escalation. Yet compared with control, active denial enjoys a clear benefit in reducing the danger of nuclear escalation in a U.S.–China conflict.

The impact of China's growing nuclear arsenal

In the summer of 2021, open-source imagery analysts located three potential ICBM silo fields in China's interior provinces with space for an estimated 360 silos. It is unclear if China will develop all the silo fields to their full capacity, but the discovery is sounding alarm bells in the United States about the future of the U.S.–China nuclear balance and deterrence.

If the U.S. nuclear arsenal remains stable and the latest available open-source estimates of China's arsenal size are correct, Beijing would have to field approximately 1,500 additional warheads to reach parity with the United States. China could accomplish this by constructing all the 360 silos and filling each with an ICBM capable of carrying four warheads. China is also working on developing its next generation of nuclear ballistic-missile submarines and a new strategic bomber, but as yet neither capability has been seen publicly.

While it is impossible to say with certainty that China will end up in a position of nuclear parity with the United States, the silo field discovery is an unsettling reminder that China possesses the technical capacity to do so if it wishes. China is clearly expanding its nuclear arsenal, but it is far too early to say whether it will, in fact, desire to reach parity or if it is content with a relatively smaller expansion. If the Department of Defense's warnings about a doubling of China's nuclear arsenal in the next 10 years remain accurate, an active denial strategy would still have benefits for reducing nuclear escalation risks. However, there would be somewhat different dynamics in play that are worth mentioning.

Deliberate nuclear escalation would remain relatively less likely than inadvertent escalation, but could increase somewhat depending on other potential changes to China's nuclear strategy. The United States would find it much harder to implement a damage-limitation strategy against an expanded Chinese nuclear arsenal. Sustaining a highly competitive nuclear strategy would require the United States to abandon bilateral arms control with Russia and spend significant resources on building up offensive and

defensive capabilities. This would be a very costly approach, strategically and financially.

From China's perspective, a nuclear arsenal that is twice its current size would not be large enough to conduct counterforce attacks against the U.S. arsenal that eliminate the United States' ability to retaliate, so deliberate escalation to limit damage is unlikely. The primary deliberate escalation concern generated by a larger Chinese nuclear arsenal comes from how China might make nuclear threats. Beijing might have stronger confidence in its ability to conduct conventional escalation, for example, if it could use a larger and more survivable nuclear arsenal as a shield against potential counter escalation. Using nuclear forces in this way would be a sharp break from China's long-held strategy of assured retaliation, and such a change should not be considered inevitable. Yet it would be prudent for U.S. policymakers to consider the possibility, because intent can change faster than capabilities.

If China does adopt such an approach, the active denial strategy's benefit of reducing deliberate escalation risk by not putting China on the conventional back foot would be reduced because China would have an expanded ability to conduct limited nuclear operations. To be clear, this does not mean that control would be a better strategy than active denial in such a scenario. Both strategies would see the risk of deliberate escalation increase due to a more aggressive Chinese nuclear strategy.

The impact of a larger Chinese nuclear arsenal on inadvertent escalation risks is harder to predict because the risk will change based on other Chinese decisions. A larger Chinese arsenal would likely reduce the risk of inadvertent escalation by improving the survivability of China's secure second strike. Remember that inadvertent escalation would occur if the attacker uses conventional forces for what it thinks is solely a conventional mission but destroys targets that have nuclear implications. Dual-capable mobile missile units are good targets for causing inadvertent escalation because it is very difficult, if not impossible, for an attacker to know whether the missile is conventional or nuclear. This is not the case with ICBM silos. There would be clearly defined nuclear consequences for targeting an ICBM silo with a conventional weapon, and the attacker would know this ahead of time.

Moreover, increasing the overall size of China's secure second strike would make the inadvertent destruction of a small number of nuclear forces less threatening to China's overall ability to retaliate. For example, the inadvertent loss of three nuclear-armed missile units out of a total arsenal of 300 is much more threatening than the loss of the same number of units in an arsenal of 600. The risk of inadvertent escalation exists in both cases, but having a larger arsenal buys China more time to ride out some losses before its arsenal is degraded below what Caitlin Talmadge calls the "key threshold considered vital for its security."

However, the inadvertent escalation consequences of U.S. attacks against other sensitive targets could increase if China also adjusts its nuclear strategy to go along with its larger arsenal. The Department of Defense has long warned that China is considering moving to a launch-on-warning posture as its arsenal grows. Putting the likelihood of such a change aside, shifting to a Launch-on-Warning (LOW) posture would improve the survivability of a future silo-based ICBM force against a disarming nuclear attack. However, LOW would also require strategic ISR and strong command-and-control links to provide early detection of incoming attacks and get the ICBMs launched before their silos are destroyed.

A Chinese LOW posture would therefore be more reliant on strategic ISR and command-and-control than the current, assured-retaliation posture. Conventional U.S. attacks against these systems, which are highly likely under a control strategy and less likely in the active denial strategy only during the early stages of conflict, would therefore carry much higher risks of prompting a nuclear response. Beijing could reduce this danger by fielding entirely parallel systems responsible for carrying out LOW, but current trends point to greater rather than lesser entanglement of nuclear and conventional systems. In other words, a larger Chinese nuclear arsenal could reduce the risk of one inadvertent escalation pathway, conventional attacks against nuclear forces, but increase the risk of another, conventional attacks against strategic ISR and command and control, depending on whether China adopts new nuclear strategies to accompany its larger arsenal.

The risk of nuclear proliferation in South Korea and Japan

Preventing the proliferation of nuclear weapons has been a longstanding goal of U.S. foreign policy, and as previewed in the introductory chapter, this report continues to endorse this goal. During the 1970s, the United States pressured the Republic of Korea and the Republic of China (Taiwan) to stop their incipient nuclear weapons programs. Japan, by contrast, resisted American efforts to deploy nuclear weapons on its main islands and insisted that the U.S remove its nuclear weapons from Okinawa when it returned sovereignty over the territory to Japan in 1972. Before Okinawa's reversion, Japan enunciated its Three Non–Nuclear Principles of not possessing, manufacturing, or allowing the entry of nuclear weapons.[448]

North Korea's nuclear tests and missile launches, as well as China's military buildup, have provoked a new round of debate in Japan and South Korea about nuclear weapons. In Japan, two former Japanese defense ministers have spoken openly of reëxamining its nonnuclear policy; one of them has raised the possibility of relaxing the third nonnuclear principle to allow the entry of nuclear weapons. Some Japanese

[448] Mochizuki, Mike. "Japan and Nuclear Nonproliferation" in *Oxford Handbook of Japanese Politics.* Oxford University Press, 2021.

security commentators have supported a revitalized nuclear energy program after the Fukushima nuclear power plant disaster in 2011 to maintain a nuclear weapons option as a security hedge. Nevertheless, the political threshold for a Japanese nuclear breakout remains high.

First, the Three Non–Nuclear Principles are not only a matter of policy: They are part of the Japanese national identity. According to opinion surveys conducted by the liberal *Asahi* newspaper, public support for the three principles increased from 78 percent in 1988 to 82 percent in 2014.[449] Even a poll by the conservative nationalist Sankei–FNN media organization, taken in September 16–17, 2017, right after a North Korean test of what Pyongyang claimed to be a thermonuclear device and during a time of multiple North Korean missile launches, showed the Japanese public continuing to be strongly opposed to nuclear weapons. Only 17.7 percent thought that Japan should possess nuclear weapons in the future, while 79.1 percent were opposed. Moreover, only 26.9 percent favored the introduction of U.S. nuclear weapons in Japan, while 68.9 percent were against.[450] According to a survey conducted in December 2019 by NHK, the national broadcasting network, 65.9 percent favored Japan joining the Treaty on the Prohibition of Nuclear Weapons, while only 17.1 percent opposed.[451] An opinion poll by the Japan Association for Public Opinion Research in July 2021 yielded a similar result. Despite U.S. opposition to the nuclear weapons ban treaty, 71 percent supported Japan's participation in this agreement, while only 27 percent were opposed.[452]

Second, powerful economic and political actors in Japan are likely to serve as "veto players" to block elite moves toward nuclearization. They include the economic ministries, regulatory commissions, industrial groups, and prefectural governments that have a stake in the country's nuclear-energy program and the international nuclear nonproliferation regime.[453] Moreover, a push to develop or possess nuclear weapons would break apart the fundamental political bargain that was struck with the antinuclear movement, that the pursuit of nuclear energy is linked to opposition to nuclear weapons.

Finally, despite some concerns about the robustness of the U.S. security commitment, most Japanese policymakers still believe that U.S. extended deterrence remains adequate enough to continue to eschew nuclear weapons. Japanese defense policymakers therefore focus more on investing in conventional defense capabilities. Furthermore, NHK opinion surveys indicate a remarkable increase in the percentage of

[449] "Shūdan-teki ji'eiken, kōshi yōnin hantai 63% sakunen yori zōka: Asahi Shimbun yoron chōsa" ["63% against collective self-defense and approval of its exercise –Asahi newspaper public survey"]. *Asahi Shimbun*, April 7, 2014. 1, 11; "Shitsumon to kaitō: Bō'ei mondai: Asahi Shimbun yoron chōsa shōhō" ["Questions and responses: Defense issues: Asahi Shimbun opinion survey full report"]. *Asahi Shimbun*, November 6, 1988. 11.
[450] Masanori, Sase. "'Hi-kaku ni-gensoku' e no tenkan o mezase" ["Aim for a Change to 'Two Non-nuclear Principles'"]. *Sankei Shimbun*, September 27, 2017. 7.
[451] "2019-nen 12-gatsu Seiji Ishiki Getsurei Chōsa" ["December 2019 Monthly Political Attitude Survey"]. Nihon Hōsō Kyōkai (NHK). https://www.nhk.or.jp/bunken/research/yoron/political/pdf/ y201912.pdf.
[452] "Heiwa yoron chōsa: Kaku heiki kinshi jōyaku 'sanka o' 71%" ["Peace Public Opinion Research: 71% for Participation in Treaty on Prohibition of Nuclear Weapons"]. *Tokyo Shimbun*, August 1, 2021. 2,4.
[453] Hymans, Jacques E.C. "Veto Players, Nuclear Energy, and Nonproliferation: Domestic Institutional Barriers to a Japanese Bomb." *International Security* 36, no. 2, 2011. 154-189.

Japanese who see the U.S. nuclear umbrella as unnecessary for Japanese security: from 34.8 percent in 2010 to 48.9 percent in 2015. The percentage of those who believe the nuclear umbrella to be necessary dropped from 20.8 percent in 2010 to 10.3 percent in 2015.[454]

In summary, as long as the U.S.–Japan security treaty remains in force and the U.S. 7th Fleet is based in Japan, Japan is likely to forgo nuclear weapons.

Compared with Japan, the nuclear threshold in South Korea appears lower due to the lack of institutionalized "veto players" who serve as counterweights to the federal government and industry interests. Historically, support for the return of U.S. tactical nuclear weapons to South Korea or South Korea's development of its own nuclear arsenal has been limited to fringe groups and was not considered mainstream. In recent years, these views gained greater currency, in part in reaction to the Trump administration's transactional approach to the U.S.–ROK alliance, the abiding threat of North Korea's nuclear weapons capability, and concerns about the reliability of the U.S. nuclear umbrella. In 2019, Song Min-soon, a former negotiator in the six-party talks with North Korea and a former minister of foreign affairs and trade, made headlines when he warned at the *JoongAng Ilbo*–CSIS Forum that after decades of failed North Korea policies, a growing number of South Koreans wanted Seoul to take matters into its own hands to create a "nuclear balance" on the Peninsula.[455] In May 2022, President Biden and new South Korean President Yoon Suk-yeol pledged to deploy strategic U.S. military assets to South Korea "as necessary."[456]

South Korean public support for nuclear weapons — either U.S. nuclear forces deployed in South Korea or an indigenous nuclear arsenal — has varied, ranging from 38 percent to 68 percent in the 2010–19 period.[457] However, most surveys do not include the possible negative economic or security consequences that could result from South Korea building its own nuclear weapons. They also do not take into account the potential for U.N. Security Council sanctions triggered by violating the Non–Proliferation Treaty, to which South Korea is a signatory. The surveys also likely downplay or ignore the impact that the South's nuclearization would have on the North's resolve for further development of nuclear weapons.

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[454] Nishi, Kumiko. "Genbaku tōka kara 65 nen—kienu kaku no kyōi" ["65 years since the dropping of the atomic bombs—the nuclear threat that does not disappear"]. *Hōsō-Kenkyū to Chōsa*, October 2010. 62-74; Miki, Masaki. "Genbaku tōka kara 70 nen—surer kioku, dō katari tsugu" ["70 years since the dropping of the atomic bombs—how to hand down fading memories"]. *Hōsō-Kenkyū to Chōsa*, November 2015. 2–15.

[455] Min-soon, Song. *JoongAng Ilbo-CSIS Forum 2019*: Navigating Geostrategic Flux in Asia: The United States and Korea. Center for Strategic & International Studies, September 30, 2019. https://www.csis.org/events/joongang-ilbo-csis-forum-2019.

[456] United States-Republic of Korea Leaders' Joint Statement. The White House, May 21, 2022. https://www.whitehouse.gov/briefing-room/statements-releases/2022/05/21/united-states-republic-of-korea-leaders-joint-statement/; Yonhap. "Yoon says he will request redeployment of U.S. tactical nukes in case of emergency." *The Korea Herald*, September 22, 2021. http://www.koreaherald.com/view.php?ud=20210922000310.

[457] Dalton, Toby, and Ain Han. "Elections, Nukes, and the Future of the South Korea–U.S. Alliance." Carnegie Endowment for International Peace, October 20, 2020. https://carnegieendowment.org/2020/10/26/elections-nukes-and-future-of-south-korea-u.s.-alliance-pub-83044.

Additionally, redeploying U.S. nuclear weapons to South Korea in close proximity to a nuclear adversary would expose the weapons to unique dangers. Kunsan Air Base, home of the 8th Fighter Wing, which used to be assigned the nuclear strike mission, is only about 200 kilometers from the North Korean border. Osan Air Base, which used to store U.S. nuclear bombs and could potentially house them again, is only 50 miles from the border.[458] Redeployment of U.S. nuclear assets would also have serious implications for broader regional security issues because it would likely be seen by China and Russia as increasing the nuclear threat against them. In short, the costs outweigh the benefits of South Korean nuclear armament.

Because nuclear use in Asia (or anywhere in the world) would have a devastating effect on civilian populations as well as weaken norms against their use in future conflicts, sustained diplomacy is needed to address the underlying drivers of nuclear armament in Northeast Asia.

Potential adjustments to U.S. declaratory policy

Shifting to an active denial strategy could create an opportunity for the United States to adjust its nuclear declaratory policy and force posture in a more conservative, constrained direction, but any U.S. adjustments would have to be considered alongside alliance-management questions. Adopting either a sole-purpose or NFU nuclear doctrine would be consistent with active denial's objectives of reducing defense spending and nuclear escalation risks, but making such an adjustment would likely create challenges in other areas, especially alliance management and, particularly in the case of NFU, conventional deterrence.

Specifically, significant adjustments to U.S. nuclear posture that occur simultaneously with a shift in U.S. conventional defense strategy to active denial could make it harder to persuade allies to adopt their own denial strategies. Instead, they would likely press Washington to provide reassurances that the nuclear umbrella would remain viable despite significant changes in U.S. nuclear and conventional postures. This would distract attention from active denial's other strategic goals.

How allies react to a U.S. shift to an active denial strategy will be an important factor weighing on declared U.S. policy and nuclear force posture options. While the risk of nuclear proliferation among U.S. allies will be attenuated by the continuation of U.S. security commitments, allies will likely call for greater political cooperation and consultation on matters of extended deterrence. This could place pressure on Washington to consider changes in its declared nuclear policy and force posture that are geared more toward reassuring allies but make it harder for the active denial strategy to achieve its other goals: deterring conflict at lower levels of defense spending

[458] Kristensen, Hans M., and Robert S. Norris. "A history of U.S. nuclear weapons in South Korea." *Bulletin of the Atomic Scientists*, Vol. 73, No. 6, 2017. 355.

and reducing the risks of U.S.–China nuclear escalation. Furthermore, getting allies to embrace a U.S. active denial strategy or persuading them to adopt similar strategies may require Washington to expend greater energy on nuclear reassurance efforts, especially if allies perceive the U.S. shift in military strategy as evidence of its waning military power vis-à-vis China.

A sole-purpose nuclear doctrine would stipulate that U.S. nuclear weapons' sole purpose is to deter nuclear attack on itself and allies. This would be different from current U.S. nuclear strategy, which states that nuclear weapons could be used for a wider variety of objectives, including deterrence of large-scale conventional attack.[459] Adopting a sole-purpose doctrine should reduce the risk of deliberate nuclear escalation by the United States in a conflict with China because it sets a higher bar for what would prompt U.S. nuclear use. Practiced in conjunction with an active denial strategy, sole purpose would also have a lower likelihood of triggering inadvertent nuclear escalation, but this would result more from active denial's alternative approach to conventional deterrence than from the sole-purpose doctrine itself.

Sole purpose would, however, still permit the United States to threaten or engage in deliberate first strikes against China's nuclear forces to deter or preëmpt China's nuclear first use against the United States or its allies. In other words, sole purpose narrows the role of U.S. nuclear forces to deterring a nuclear attack, but it is agnostic on the question of going first or second. A damage-limitation strategy, albeit one that is likely less ambitious, could be consistent with a declared sole-purpose policy. The United States would thus have an incentive to retain a large and diversified nuclear arsenal, which would cut against the active denial strategy's goal of providing effective deterrence at lower levels of defense spending. Further, U.S. allies could respond to sole purpose's narrower set of triggers for U.S. nuclear use by pushing for an expansion of low-yield nuclear weapons to serve as a hedge against uncertainty.

Adopting an NFU doctrine would theoretically have greater benefits in terms of cost savings and improved nuclear stability, but it would be very difficult for the United States to make NFU credible to China, and it would also have a high likelihood of prompting stronger backlash from allies. Nuclear stability should be very easy to achieve in a dyad wherein both states adopt NFU doctrines. As the U.S. experience with China demonstrates, however, it is very difficult to convince an adversary that one's NFU doctrine is credible.[460] Making such a posture believable would likely require a massive build- down of the U.S. nuclear arsenal. This would quickly reduce U.S. military spending, but at the cost of triggering intense worry in allied capitals that are currently under the U.S. nuclear umbrella. One of the goals of the active denial strategy is to get allies to bolster their conventional defenses. Shifting U.S. nuclear posture to NFU could make accomplishing this goal more difficult if allies react by focusing on replacing U.S.

[459] Office of the Secretary of Defense, *Nuclear Posture Review 2018*.
[460] McLeary, Paul. "'I Don't Believe China' is Serious About Nuke No First Use: DASD Nukes Soofer." *Breaking Defense*, September 2, 2020. https://breakingdefense.com/2020/09/i-dont-believe-china-is-serious-about-nuke-no-first-use-dasd-nukes-soofer/.

extended deterrence with their own nuclear forces, thereby diverting resources for conventional force improvements.

Moreover, to the extent that the United States retains extended deterrence commitments elsewhere in the world, it also needs to account for Russia's nuclear arsenal and strategy. Reducing the U.S. nuclear arsenal to make NFU credible toward China would make it harder for the United States to maintain its extended deterrence commitments in Europe unless Russia significantly reduced its nuclear arsenal.

These cost-benefit calculations could change, depending on the broader grand strategy goals that accompany a U.S. active denial strategy. If the United States has a different set of strategic goals, there is little risk to itself in adopting more restrictive nuclear doctrines and a smaller nuclear force posture. For example, if the United States closes its nuclear umbrella, drops its opposition to allied nuclear proliferation, and backs out of the extended deterrence business, moving to an NFU posture and reducing the size of the nuclear arsenal would be sensible steps. If the United States is still broadly committed to preventing nuclear proliferation and the defense of its current alliance commitments, shifts to U.S. declaratory policy and nuclear posture, especially toward an NFU policy, carry greater potential downsides because of the role of nuclear weapons in providing extended deterrence.

In light of this report's endorsement of nuclear nonproliferation and its support for maintaining existing alliance commitments, many of this report's authors would favor the United States adopting a sole-purpose nuclear doctrine (but not NFU) as part of a transition to the active denial strategy. However, we also note that the most significant improvements in U.S.–China nuclear stability are due to active denial's alternative approach to conventional deterrence and warfare, rather than a declared U.S. nuclear policy. Therefore, while most of the report's authors support moving to a declared sole-purpose policy, we do not consider it essential for realizing the nuclear escalation benefits associated with the active denial strategy.

The North Korea challenge

An active denial strategy has clear benefits for reducing the risk of nuclear escalation in a U.S.–China conflict, but these benefits will be more difficult to realize in a U.S.–North Korea scenario. This is due to different structural factors — namely, geography and the adversary's nuclear strategy. The United States could apply an active denial strategy in a defense of South Korea that reduces the likelihood of nuclear escalation, but doing so would be difficult.

If general deterrence fails, North Korea would likely undertake deliberate nuclear escalation much faster than China. Pyongyang's nuclear strategy is thought to be more aggressive than Beijing's. While the latter's nuclear strategy has long been characterized

by assured retaliation and proclaimed adherence to NFU, North Korea's strategy appears to embrace deliberate, rapid escalation to preëmpt a conventional or nuclear U.S. attack. During the prolonged U.S.–North Korea crisis of 2017, Pyongyang conducted several ballistic missile exercises and issued statements indicating its intention to use nuclear weapons preëmptively should it detect U.S. actions suggesting an imminent attack.[461] North Korea's reliance on deliberate nuclear escalation is partly a result of its weakness in modern conventional military capabilities compared with the United States and South Korea.[462] In the event of a conflict, this unfavorable military balance will pressure North Korea to resort to nuclear weapons early because it lacks the ability to ensure its survival using only its conventional forces.[463]

There are military and political steps the United States could take to nudge North Korea away from its deliberate escalation strategy, but implementing these steps will be challenging.

Militarily, the United States could adopt a denial strategy to defend South Korea. This strategy would focus on stymieing North Korean attacks close to the demilitarized zone and eschew attacks against North Korea's nuclear weapons and command-and-control networks. The intention of such an approach would be to reassure North Korea's leadership that U.S. war aims are focused on restoring the status quo ante instead of regime change.

Such a strategy would be very difficult to implement in practice, primarily due to alliance-management issues. Seoul's proximity to the DMZ means there is not much space that could be traded for time when blunting a North Korean offensive. American and South Korean forces would be hard pressed to win quickly along the DMZ to limit casualties to themselves and the city of Seoul, and that would be much easier if they could use superior air forces that were not limited by targeting restrictions.[464] South Korea is investing in offensive and defensive capabilities to better protect Seoul from North Korea's conventional artillery, which would also buttress a denial strategy.[465] However, Seoul is also fielding long-range conventional missile systems capable of quickly attacking North Korea's leadership and, potentially, nuclear-armed missile

[461] Ahn, J.H. "North Korea Says It Will Nuke U.S. at First Sign of Pre-Emptive Strike." *NK News*, April 11, 2017. https://www.nknews.org/2017/04/north-korea-says-it-will-nuke-u-s-at-first-sign-of-pre-emptive-strike/; Allard, Duchâtel, and Godement. "Pre-empting Defeat;" Lewis, Jeffrey. "North Korea Is Practicing for Nuclear War." *Foreign Policy*, March 9, 2017. https://foreignpolicy.com/2017/03/09/north-korea-is-practicing-for-nuclear-war/.

[462] For a comprehensive overview of North Korea's conventional military capabilities, see Hackett, James, and Mark Fitzpatrick, eds. *The Conventional Military Balance on the Korean Peninsula*. London. IISS, June 11, 2018. https://www.iiss.org/blogs/research-paper/2018/06/military-balance-korean-peninsula.

[463] Castillo. "Deliberate Escalation." 305.

[464] Barnett, D. Sean et al. *North Korean Conventional Artillery: A Means to Retaliate, Coerce, Deter, or Terrorize Populations*. RAND Corporation, 2020. https://www.rand.org/pubs/research_reports/RRA619-1.html.

[465] Jeong, Jeff. South Korea Develops Artillery-Locating Radar." *Defense News*, April 24, 2017. https://www.defensenews.com/industry/techwatch/2017/04/24/south-korea-develops-artillery-locating-radar/; Smith, Josh. "S. Korea to develop 'Iron Dome'-style defense system to counter North's artillery." Reuters, June 28, 2021. https://www.reuters.com/world/asia-pacific/skorea-develop-iron-dome-style-defence-system-counter-norths-artillery-2021-06-28/.

forces.[466] Minimizing the likelihood of nuclear escalation would require the United States to persuade South Korea's leaders not to employ these capabilities in a conflict, which would be very difficult to accept given the danger to South Korea's capital.

Politically, making assurances of limited U.S. aims credible to Pyongyang would likely require fundamental changes in the U.S.–North Korea relationship. The material factors undergirding North Korea's nuclear strategy are sticky. Neither a rapid improvement in North Korean conventional capabilities nor a devolvement of U.S. and South Korean capabilities is likely. Therefore, the burden of shifting the relationship will lie with diplomatic or political adjustments. Examples of such adjustments could include negotiating a formal end to the Korean War and lifting sanctions put in place in response to North Korea's nuclear program. But the recent history of the relationship shows that changes in U.S. administrations and difficulty in getting North Korea to take reciprocal actions make such breakthroughs unlikely.

The United States should be looking for ways to reduce the likelihood of nuclear use on the Korean Peninsula, and adjusting its military strategy toward denial could provide some risk- reduction opportunities. However, North Korea's deliberate nuclear escalation strategy and the conventional threat to Seoul given its proximity to the DMZ will make it difficult for the United States to implement a denial strategy on the Peninsula effectively. Furthermore, even if the United States can make the shift, getting South Korea to follow suit will be challenging.

The United States should not overlook opportunities to adjust its conventional military strategy on the Korean Peninsula in ways that make nuclear escalation less likely. The recent growth of South Korea's conventional military power creates some breathing room for the United States to consider adjustments to its conventional posture without triggering fears of general deterrence failure.[467] Combined with a concerted effort at diplomatic engagement, it may be possible for the United States to encourage North Korea to move away from a deliberate escalation strategy. A denial strategy could have escalation-reduction benefits in a U.S.–North Korea scenario, but it will be harder for the United States to turn these potential benefits into reality given the different structural factors at play.

Prospects for U.S.–China nuclear arms control

Another potential tool for reducing nuclear dangers in the U.S.–China relationship beyond changes to U.S. conventional military strategy is nuclear arms control. The United States has successfully used arms control to improve strategic stability with

[466] Bowers, Ian, and Henrik Hiim. "South Korea, Conventional Capabilities, and the Future of the Korean Peninsula." *War on the Rocks*, February 11, 2021. https://warontherocks.com/2021/02/south-korea-conventional-capabilities-and-the-future-of-the-korean-peninsula/.
[467] Jeong, Andrew, and Chieko Tsuneoka. "South Korea Bulks Up Military Might While Preparing for Peace." *The Wall Street Journal*, June 13, 2018. https://www.wsj.com/articles/south-korea-bulks-up-military-might-while-preparing-for-peace-1528895163.

Russia since the 1970s. Arms control agreements do not eliminate the possibility of nuclear escalation, but they can help reduce incentives to engage in arms-racing behavior, push back on threat inflation by providing greater insight into adversary capabilities and intentions, and build a degree of mutual trust.

While U.S.–China nuclear arms control would be valuable for improving strategic stability, there are significant obstacles to reaching such agreements. Shifting the United States to a military strategy of active denial could create some opportunities to move forward on bilateral or even trilateral (U.S.–China–Russia) arms control, but moving forward will still be a very difficult task even if U.S. military strategy changes.

The difficulty of mutual limitations

Washington's interest in engaging Beijing on nuclear arms control has increased as the general bilateral relationship has deteriorated. The Trump administration wanted to bring China into a trilateral discussion with the United States and Russia as the two largest nuclear powers, Russia and the U.S., negotiated to extend the New Strategic Arms Reduction Treaty.[468] Beijing turned down this offer, citing the stark imbalance between the U.S. and Russian nuclear arsenals and China's smaller force.[469]

China's reaction to the New START proposal demonstrates the difficulty of getting Beijing to join an agreement that limits warheads and launchers. China understandably wants to avoid committing to an agreement that would prevent its nuclear arsenal from growing while allowing the United States to maintain a larger arsenal, and the United States would not want to negotiate a treaty that would require it to build down to China's level. A significant expansion of Beijing's nuclear arsenal that reduces the current imbalance with the United States might make China more comfortable with negotiating a New START–style arms control agreement. Washington, however, is likely to see such expansion as threatening and use it to support nuclear modernization efforts rather than as an opportunity to engage in arms control diplomacy.[470] Getting the United States and China to adopt an arms control treaty that places limitations on one another's nuclear forces is unfeasible due to the current imbalance of nuclear forces and Washington's likely reaction should Beijing attempt to close the gap.

Bringing China into a New START–style arms control agreement would still be strategically difficult even if political conditions in Washington and/or Beijing unexpectedly changed, because such an agreement would not address the sources of

[468] Reif, Kingston, and Shannon Bugos. "Trump Still Wants Multilateral Arms Control." Arms Control Association, April 2020. https://www.armscontrol.org/act/2020-04/news/trump-still-wants-multilateral-arms-control.
[469] Associated Press. "China Rejects Prospect of Joining Arms Control Talks with U.S." *ABC News*, July 10, 2020. https://abcnews.go.com/U.S./wireStory/china-rejects-prospect-joining-arms-control-talks-us-71710331.
[470] Grady, John. "STRATCOM: China's Pursuit of Nuclear and Hypersonic Weapons Adds Urgency to U.S. Deterrence." *U.S. Naval Institute News*, August 26, 2021. https://news.usni.org/2021/08/26/stratcom-chinas-pursuit-of-nuclear-and-hypersonic-weapons-adds-urgency-to-u-s-deterrence; Kroenig, Matthew. "China's Nuclear Silos and the Arms-Control Fantasy." *The Wall Street Journal*, July 7, 2021. https://www.wsj.com/articles/chinas-nuclear-silos-and-the-arms-control-fantasy-11625696243.

strategic instability in the U.S.–China relationship. New START builds on a general pattern of U.S.–Russia arms control treaties established during the Cold War, when the major source of strategic instability between the United States and Soviet Union was the reciprocal fear of surprise attack.[471] Both superpowers feared a first strike, especially one that could destroy the target's capacity for nuclear retaliation. The best way for both countries to improve their chances of winning a nuclear exchange would be to strike first.

This dynamic encouraged arms racing and made crises very unstable. Larger nuclear arsenals offered defensive (harder to destroy) and offensive (more weapons available to attack) advantages. Crises were fraught because they could rapidly escalate into a large-scale nuclear exchange if the United States and Soviet Union had incentives to resort to nuclear forces in the initial stages of a conflict, lest they be on the receiving end of a first strike. U.S.–Soviet arms control treaties tried to address the reciprocal fear of surprise attack through mutual reductions in nuclear weapons, increasing transparency — albeit slowly — and restricting missile defense. This approach reduced the number of nuclear targets while also reducing the number of weapons each side could use to conduct disarming attacks. The inability to field a large missile-defense system made it impossible for either side to gain a decisive advantage over the other by building up its defenses while the other side reduced its offensive capabilities.

The sources of strategic instability between Washington and Beijing today have relatively little to do with the nuclear arsenals and strategies of either country. Instead, as addressed earlier, nuclear escalation is more likely to result from the interaction of conventional military strategies that can threaten nuclear retaliatory capabilities, and from differing perceptions about how nuclear escalation can or cannot be controlled.[472] American adoption of an active denial strategy will improve U.S.–China strategic stability by implementing a military strategy that can generate conventional deterrence in less escalatory ways.

The United States could use arms control to build upon a general improvement in U.S.–China nuclear stability. Cooperative policies that reduce U.S.–China nuclear risks exist and could be implemented in the right political conditions. However, given the arsenal imbalances and different drivers of nuclear instability mentioned above, these arms control measures are unlikely to be the same as those found in the U.S.–Russia relationship.

[471] Schelling, Thomas C. *The Reciprocal Fear of Surprise Attack*. RAND Corporation, 1958. https://www.rand.org/content/dam/rand/pubs/papers/2007/P1342.pdf.
[472] Cunningham, Fiona S., and M. Taylor Fravel. "Dangerous Confidence? Chinese Views on Nuclear Escalation." *International Security* 44, no. 2, Fall 2018. 61-109.

Advancing U.S.–China arms control

U.S.–China arms-control efforts have two basic paths forward. The first entails strategic trades initiated by the United States that signal U.S. acceptance of mutual nuclear vulnerability and create opportunities to advance more ambitious arms-control measures. While this could result in an arms control treaty, this path is more likely to produce confidence-building measures or political agreements that fall short of a ratified treaty, such as the 2015 cyber espionage agreement.[473]

The second path for advancing U.S.–China arms control would focus on scientific and technical cooperation to improve China's capacity to be involved in future arms-control arrangements. The objective of such cooperation would be to build and maintain a minimum level of contact and trust between the nuclear enterprises of both countries even if higher-level engagement is politically untenable.

These two potential paths forward are not mutually exclusive. Some combination of strategic trades and technical cooperation will have a higher probability of success than an approach that relies on one or the other. The chief obstacle to either path, however, is the increasingly malignant relationship between Washington and Beijing and the domestic political incentives it creates to avoid further cooperation. Effective arms control will require both countries to be willing to compromise; there must be some give and take by both parties. Because this report is primarily concerned with making changes to U.S. military strategy in Asia, the policy recommendations outlined below will focus on changes to present U.S. policy. Chinese reciprocity will be essential to moving beyond Washington's opening moves and making real progress.

Path 1: Strategic trades and confidence-building measures

The primary strategic obstacle to U.S.–China arms control is the asymmetric nuclear balance. Beijing understandably fears that the United States could use its nuclear superiority to threaten or coerce it. Resisting nuclear coercion by stronger states was among the primary motivating factors behind China's decision to develop nuclear weapons in the first place.[474] Chinese leaders will therefore be very suspect about any arms control effort that codifies a lopsided nuclear balance that favors the United States.

[473] Segal, Adam. "The U.S.-China Cyber Espionage Deal One Year Later." Council on Foreign Relations "Net Politics," September 28, 2016. https://www.cfr.org/blog/us-china-cyber-espionage-deal-one-year-later.
[474] Fravel, M. Taylor, and Evan S. Medeiros. "China's Search for Assured Retaliation: The Evolution of Chinese Nuclear Strategy and Force Structure." *International Security* 35, no. 2, Fall 2010. 60-61.

On 31 July 1991, the U.S. President, George Bush (sitting on the left), and General Secretary of the Communist Party of the Soviet Union, Mikhail Gorbachev (sitting on the right), signed the START I Agreement for the mutual elimination of the two countries' strategic nuclear weapons.

Beijing may feel less reluctant to engage in strategic arms control as its nuclear arsenal grows. A U.S.–China nuclear balance that is closer to numeric parity puts China in a more secure position to negotiate. That China would build up its nuclear forces only to trade them away later in an arms-control agreement is not outside the realm of possibility. This was the logic behind the "dual-track" U.S. policy in the late 1970s and 1980s, when Washington deployed larger numbers of intermediate-range nuclear forces to NATO allies while also engaging the Soviets in negotiations that would result in said forces being abolished.[475] Currently, however, it is unclear if China will use its expanded nuclear arsenal as a reason to engage in strategic arms control. While a larger Chinese arsenal could create opportunities for strategic arms control by increasing Beijing's confidence in its nuclear position vis-à-vis the United States, such an outcome is not guaranteed.

A swing-for-the-fences approach to advancing U.S.–China arms control that has high risks but high potential rewards would require the United States to take steps to underscore that it does not seek to escape mutual nuclear vulnerability with China. Two ways in which the United States could send such a signal is by acknowledging mutual nuclear vulnerability and placing limits on missile-defense capabilities.

[475] Anderson, Justin V., and Amy J. Nelson. "The INF Treaty: A Spectacular, Inflexible, Time-Bound Success." *Strategic Studies Quarterly* 13, no. 2, Summer 2019. 92-96.

Acknowledging a state of mutual nuclear vulnerability with China would indicate that Washington is sensitive to Beijing's concerns about U.S. efforts to escape vulnerability. The United States has long resisted making such a statement because doing so could convey the message that China's nuclear weapons have deterrent power over the United States and could raise fears amongst allies about U.S. extended nuclear deterrence.[476] Yet U.S.–China mutual nuclear vulnerability is a fact of life. In a 2016 analysis of America's ability to implement a damage limitation strategy against China, Charles Glaser and Steve Fetter concluded: "Over the longer term… China has excellent odds of prevailing in a contest between its retaliatory capabilities and the United States' damage-limitation capabilities."[477] Importantly, Glaser and Fetter's analysis was done before the 2021 revelation of new ICBM silo field construction, which will further improve China's ability to resist U.S. attempts to hold its nuclear forces at risk.[478] Mutual vulnerability is not the same as symmetric vulnerability; China is more vulnerable to the United States than vice versa given the imbalance of nuclear forces, but this is a difference of degree, not of kind.

The other major concession the United States could put on the table is limitations to its missile- defense capabilities. Chinese concern about the impact of U.S. missile defense on its retaliatory nuclear forces is serious and long-running.[479] American missile-defense capabilities are not the only thing influencing China's nuclear-modernization plan, but Chinese strategists, Track 1.5/2 dialogue participants, and leaked nuclear doctrine documents have repeatedly flagged missile defense as a threat that must be overcome. However, China's threat perceptions about missile defense do not reflect the reality of U.S. capabilities. The missile-defense systems that would protect the U.S. homeland against ICBM–range missiles have questionable reliability, limited stocks of interceptors, and a checkered past of program management. The gap between threat perception and technical reality has long been a feature of Chinese, and Soviet/Russian, concerns about U.S. missile defense.

Putting missile-defense limitations on the table as part of a broader push to advance U.S.–China arms control would send a similar signal as acknowledging mutual nuclear vulnerability: The United States is aware of Chinese fears about one-sided vulnerability and is taking steps to address those fears. The United States was willing to limit missile defense during the Cold War via the Anti–Ballistic Missile Treaty, which set caps on the number of sites and interceptors that the United States and Soviet Union could deploy. A modern-day limitation could imitate the ABM Treaty's cap on capabilities rather than an outright ban. Washington would likely want to structure a limitation in a way that restricts expensive and unreliable homeland missile defense but leaves regional

[476] Talmadge, Caitlin. "China and Nuclear Weapons." Brookings Global China, September 2019. 6. https://www.brookings.edu/wp-content/uploads/2019/09/FP_20190930_china_nuclear_weapons_talmadge-1.pdf.
[477] Glaser and Fetter. "Should the United States Reject MAD?" 97.
[478] For an argument about the benefits of acknowledging mutual vulnerability, see Tong Zhao. "Why Is China Building Up Its Nuclear Arsenal?" *The New York Times*, November 15, 2021. https://www.nytimes.com/2021/11/15/opinion/we-need-to-pay-attention-to-chinas-nuclear-build-up.html?smid=tw-share.
[479] Cunningham and Fravel. "Assuring Assured Retaliation."

defense capabilities untouched, especially given active denial's emphasis on the resiliency of smaller, distributed stand-in forces.[480]

The strategic goal of acknowledging mutual nuclear vulnerability with China and limiting U.S. missile-defense deployments is to set a ceiling on nuclear competition and create political breathing room for arms control. Both of these courses of action would raise thorny questions about timing *(e.g.*, Does the United States make these concessions unilaterally or as part of a negotiated process?), follow-on measures, and alliance management (*e.g.*, Does mutual vulnerability make allies nervous about extended deterrence?). Acknowledging mutual vulnerability and limiting missile defense make good strategic sense if the United States wants to get serious about arms control with China, but getting the political support for such actions will be difficult.

Given the challenges of the strategic trades mentioned above, the United States should look for ways to use less ambitious confidence-building measures to set the stage for progress later. One means of pursuing such progress would be to revive the U.S.–China Track 1.5 dialogue on nuclear issues. Track 1.5 dialogues have a mix of government and non-government participants. The Defense Threat Reduction Agency (DTRA) supported a U.S.–China Track 1.5 dialogue from 2004 to 2019 to build U.S. knowledge about China's nuclear thinking and share perspectives on nuclear deterrence, arms control, and strategic stability.[481] DTRA ended its financial support for the dialogue in 2019, citing several reasons, including "the loss of forward momentum and the apparent declining value of new policy insights generated by each event, China's refusal to agree to Track 1 dialogue, and an assessment that the United States needed to make good on its threats to terminate Track 1.5 rather than accept it as a permanent alternative to Track 1."[482] Although the United States should not abandon its goal of creating a Track 1 nuclear dialogue with China, refusing to support Track 1.5 dialogue is unlikely to force China into elevating the discussions to the Track 1 level, which would involve only government officials. While the Track 1.5 dialogue has its limitations, reviving it would restore a valuable venue to discuss the significant developments in China's nuclear-force posture that have taken place since 2019. Moreover, the United States should push to expand the topics up for discussion at the Track 1.5 level. Nuclear stability should remain the core focus, but the dialogues should expand into additional areas that affect strategic stability broadly defined, especially emerging technology.

Another arena where confidence-building measures could be valuable is in reducing the gap between missile-defense threat perceptions and technical realities. Such CBMs could include reciprocal visits to missile-defense sites and sending observers to one

[480] Gomez. "It Can Get You Into Trouble, but It Can't Get You Out." 25-28.
[481] Roberts, Brad, ed. *Taking Stock: U.S.-China Track 1.5 Nuclear Dialogue.* Livermore, CA. Center for Global Security Research, Lawrence Livermore National Laboratory, December 2020. 5. This dialogue series has occasionally produced summary reports of the discussions, which have been a valuable resource for non-government researchers. See Twomey et al. *The U.S.-China Strategic Dialogue Phase IX Report*.
[482] Roberts. *Taking Stock.* 26.

another's missile-defense exercises or tests.[483] Since China's missile-defense program is much smaller than the U.S. program, the United States would probably seek an alternative to purely reciprocal missile- defense site visits. Instead, the United States could put missile-defense site visits on the table in exchange for visits to China's missile production sites or nuclear reactor and reprocessing facilities that produce material for China's nuclear weapons. The United States has offered such visits before, but China has refused.

A related topic for CBM dialogues could be the growing entanglement of nuclear and nonnuclear technologies and systems in both countries. Such CBMs may not be able to reduce entanglement, but they could focus on communicating each side's red lines so there is mutual clarity about the escalation consequences of destroying certain systems.[484] By themselves, CBMs are unlikely to address the root causes of U.S.–China nuclear instability and threat perceptions, but they can help prevent further deterioration in nuclear stability. In other words, CBMs are necessary but not sufficient for advancing U.S.–China arms control, and it will be better to have more of them than fewer.

Path 2: Technical cooperation

In addition to considering the bolder political steps outlined in the previous section, the United States should look for ways to engage China in technical and scientific cooperation. The primary goal of this kind of engagement is to improve China's familiarity with arms-control verification practices and increase Beijing's capacity to implement more complex arms-control measures in the future. Successful technical, scientific, and policy expertise cooperation will not be enough to improve U.S.–China nuclear stability significantly, but in a highly contentious political environment it is a realistic starting point for U.S.–China arms control.

The U.S. nuclear enterprise has experience conducting technical cooperation with its Chinese counterpart. The two countries established a technical exchange program in the mid–1990s between their respective nuclear weapons laboratories. The three primary objectives of this program were to provide technical contributions to arms control and nonproliferation efforts through joint development of technology, to explore new technical means for building mutual trust, and to establish professional relationships between scientific experts in both countries.[485] A 1999 report issued by Lawrence Livermore National Laboratory on this lab-to-lab program stated that it "has carried out workshops on export controls for [China Academy of Engineering Physics] scientists, atmospheric modeling, and monitoring and verification technologies."[486] The

[483] Colby, Elbridge A., Abraham M. Denmark, and John K. Warden. *Nuclear Weapons and U.S.-China Relations: A Way Forward*. Center for Strategic and International Studies, March 2013. 24-25. https://csis-website-prod.s3.amazonaws.com/s3fs-public/legacy_files/files/publication/130307_Colby_USChinaNuclear_Web.pdf.
[484] Zhao, Tong. *Narrowing the U.S.-China Gap on Missile Defense: How to Help Forestall a Nuclear Arms Race*. Carnegie Endowment for International Peace, 2020. 8-9. https://carnegieendowment.org/files/Zhao_USChina_MissileDefense.pdf.
[485] Prindle, Nancy. "The U.S.-China Lab-to-Lab Technical Exchange Program." *The Nonproliferation Review* 5, no. 3, Spring/Summer 1998. 111.
[486] Di Capuna, Marco S. *The Cox Report and the U.S.-China Arms Control Technical Exchange Program*. Livermore, CA. Lawrence Livermore National Laboratory, September 1, 1999. 10.

program also produced a bilingual technical publication on nuclear-materials protection, control, and accountability.[487] Despite its early successes, the U.S.–China lab-to-lab exchange program was short-lived. In 1999 a congressional select committee released a report — commonly known as the Cox Report — accusing China of using the program, along with other methods, to acquire secret information about U.S. nuclear weapons.[488]

The lab-to-lab exchange program ceased shortly thereafter, but this was not the end of U.S.–China technical cooperation. The Obama administration was particularly active in restarting technical cooperation via multiple Nuclear Security Summits. Hu Jintao, China's president at the time, agreed at the 2010 summit to establish a Center of Excellence on nuclear security, and in 2011 the Department of Energy signed an agreement with Beijing to help fulfill Hu's commitment.[489] The United States and China have used the COE to deepen their cooperation on securing nuclear materials.[490] While nuclear-material security is not the same as arms control and will not directly improve U.S.–China nuclear stability, the success of the COE program demonstrates that U.S.–China technical cooperation on nuclear issues is possible and mutually beneficial.

Another potential avenue for technical cooperation between the United States and China entails improving Chinese familiarity with arms control verification practices, an important component of formal treaties and agreements. The strengths and weaknesses of the verification measures in New START and the Iran nuclear accord have come up in political debates about those agreements.[491] If the United States wants to implement an arms control treaty or another deal with China, addressing verification concerns must be a top priority. China has some familiarity with arms-control verification. For example, the lab-to-lab exchange program included a project on "atmospheric monitoring related to [Comprehensive Test Ban Treaty] verification."[492] However, the United States has much more experience in this area than China due in large part to nearly 50 years of negotiating nuclear arms reduction treaties with the Russians.

One way to improve China's familiarity with arms-control verification practices would be to invite Chinese officials and experts to participate in mock New START inspections.[493]

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[487] Di Capuna. *The Cox Report and the U.S.-China Arms Control Technical Exchange Program*. 10.
[488] The full report is titled "Report of the Select Committee on U.S. National Security and Military/Commercial Concerns with the People's Republic of China." https://www.govinfo.gov/content/pkg/GPO-CRPT-105hrpt851/pdf/GPO-CRPT-105hrpt851.pdf.
[489] U.S. Department of Energy. "U.S., China Sign Agreement to Establish Center of Excellence on Nuclear Security." January 19, 2011. https://www.energy.gov/articles/us-china-sign-agreement-establish-center-excellence-nuclear-security.
[490] Stone, Richard. "U.S.-China Mission Rushes Bomb-Grade Nuclear Fuel out of Africa." *Science*, August 31, 2017. https://www.science.org/content/article/us-china-mission-rushes-bomb-grade-nuclear-fuel-out-africa.
[491] Gordon, Michael R. "Verification Process in Iran Deal Is Questioned by Some Experts." *The New York Times*, July 22, 2015. https://www.nytimes.com/2015/07/23/world/middleeast/provision-in-iran-accord-is-challenged-by-some-nuclear-experts.html; Gottemoeller, Rose. "The New START Verification Regime: How Good Is It?" *Bulletin of the Atomic Scientists*, May 21, 2020. https://thebulletin.org/2020/05/the-new-start-verification-regime-how-good-is-it/.
[492] Prindle. "The U.S.-China Lab-to-Lab Technical Exchange Program." 114.
[493] Zhao, Tong. "Practical Ways to Promote U.S.-China Arms Control Cooperation." Carnegie Endowment for International Peace, October 7, 2020. https://carnegietsinghua.org/2020/10/07/practical-ways-to-promote-u.s.-china-arms-control-cooperation-pub-82818. Also see Logan, David C. "Trilateral Arms Control: A Realistic Assessment of Chinese Participation." Stimson Center, August 9, 2021. https://www.stimson.org/2021/trilateral-arms-control-a-realistic-assessment-of-chinese-participation/.

This would allow the United States to share best practices about verification procedures without revealing sensitive information about its nuclear forces. The United States could also reach out to Russia to see if it would be willing to partner on a mock inspection to allay any Chinese concerns about the United States providing bad information on purpose to get a leg up on competition.

Technical and scientific U.S.–China nuclear cooperation, such as reviving a lab-to-lab exchange program, expanding cooperation on nuclear-material security, and inviting Chinese participation in mock New START inspections will not solve the problem of U.S.–China nuclear instability, but these measures can set some groundwork for bigger changes in the future. Moreover, although technical cooperation has low immediate rewards, it also carries low risks. And while America's focus on competition with China creates domestic political hurdles to implementing these policies, technical cooperation — unlike acknowledging mutual nuclear vulnerability — is unlikely to stoke concern among U.S. allies about the viability of U.S. extended-deterrence commitments.

The United States should give scientific and technical cooperation a chance to improve China's capacity to implement future, more complex arms control agreements and to encourage positive-sum interactions in a time of growing mistrust.

Table 5.1: Sensitive target sets and inadvertent escalation risk in denial vs. control strategies

Target Set	Likelihood of Inadvertent Destruction, Denial Strategy	Likelihood of Inadvertent Destruction, Control Strategy	Inadvertent Escalation Risk of Destroying the Target
Stationary Land-Based Strategic Nuclear Forces (silos)	Low	Low	High
Mobile Land-Based Strategic Nuclear Forces (DF-31AG)	Low	Medium (if patrol areas overlap with regional nuclear forces)	High
Sea-Based Strategic Nuclear Forces (SSBNs)	Medium low initially, but grows as conflict enters later phases	High	Medium (but growing as China expands this part of the arsenal)

Nuclear-Supporting Command and Control	Medium low initially, but grows as conflict enters later phases	High	High
Nuclear-Supporting ISR Capabilities	Low initially, but grows as conflict enters later phases	High	Medium
Nuclear-Capable Regional Forces (DF-26, DF-21)	Low initially, but grows as conflict enters later phases	High	Medium
Nuclear Warhead Storage Facilities	Low	Low	High

Chapter 6: Preventing Crises and Managing Strategic Competition

Michael Swaine was the lead author of this chapter, with contributions from John Culver.

The previous chapters have outlined our proposal for an active denial strategy in Asia as the best defense of U.S. and allied security interests in the region. Active denial would enhance deterrence against possible PRC aggression in a fiscally sustainable way, while limiting the incentives for first strikes and rapid escalation. We have described the operational concepts entailed in an active denial strategy, recommended the conventional force structure and posture changes needed to implement this strategy, and highlighted the crucial role that U.S. allies and partners should play in implementation of the strategy.

In addition, in the immediately preceding chapter, we analyzed the benefits of active denial for nuclear stability and suggested ways to further enhance strategic stability. That analysis considered how the PRC would likely react at an operational level to active denial operational concepts as they relate to the nuclear domain. It also provided recommendations for how the United States and China can enhance strategic stability through confidence-building measures that would lay the groundwork for possible arms-control efforts in the future.

In this chapter, we build on that analysis in the conventional military realm and the broader political or strategic realms with two efforts. First, we assess how China is likely to perceive the changes to U.S. defense strategy, force structure, and force posture that we recommend. We find that although Beijing will likely view active denial as less threatening than alternative, more forward-leaning, offensive strategies of control, an active denial strategy will not on its own fundamentally alleviate China's longstanding fears of U.S. encirclement and containment. Second, as a result, we include several proposals for directly engaging China alongside the implementation of active denial strategy to manage strategic competition, prevent crises, and promote U.S. interests in peace and stability in Asia.

U.S. strategy and PRC perceptions

Changes in U.S. military strategy, force structure, and force posture in Asia can have a significant impact on regional perceptions of U.S. strategy, motives, and behavior. This is especially true among PRC civilian and military leaders, who closely track U.S. military behavior and doctrine. By shaping perceptions, such changes thus can exert a significant influence on China's security policy.

Ideally, such force-posture changes should enhance long-term regional stability by reducing PRC and U.S. incentives to a) deploy certain destabilizing levels or types of weaponry, b) employ military force in a conflict in highly destabilizing and dangerous ways, *e.g.*, via a first or deep strike), c) assume the worst about the motives and intentions of the other side, which would make crises and conflicts more likely, and d) inadvertently escalate or miscalculate in a political-military crisis.

Given the deepening strategic distrust and rising threat perceptions between China and the United States, producing such positive effects through changes in U.S. force posture is becoming increasingly important, yet at the same time increasingly difficult. This is especially true in the absence of corresponding political and strategic initiatives to reduce the volatility of future sources of conflict in the region, particularly regarding Taiwan.

Under existing conditions, steps that Washington and its allies might view as stabilizing efforts to create such positive effects through improved (yet arguably less costly and escalatory) military deterrence measures, Beijing might view simply as merely more U.S. attempts to contain and weaken China or lessen the PLA's ability to deter Washington in various areas. Conversely, Beijing could read some changes in U.S. force posture as desperate efforts by Washington to shore up its weakening overall stance in Asia.

Without credible U.S. attempts to preëmpt or counter such impressions, Beijing might respond by taking further efforts to strengthen its military position in ways that the U.S. would regard as threatening, whether out of an increased sense of threat, or a perception of an opportunity to capitalize on America's decline. Either way, the result could be a further cycle of escalation, with inadequate attention paid to slowing the process or otherwise reducing the potential for crises or conflicts.

But even in the absence of a worsening security environment driven by differing U.S. and Chinese views of U.S. force structure changes, the deepening level of strategic distrust between Washington and Beijing on its own justifies taking a hard look at what might be done to reduce the danger of regional instability.

Accordingly, this chapter assesses the possible military, civilian, and broadly strategic or political actions toward or with Beijing that Washington should consider undertaking to mitigate any negative consequences of the restructuring of U.S. forces we recommend, or simply to reduce Sino–U.S. tensions and avert crises and conflict in any event.

We begin with an assessment of how China has viewed and responded to U.S. and allied force deployments in Asia in the past, as well as an assessment of the dangers, from U.S. and Chinese perspectives, emerging from larger changes in the regional balance of power and policies toward hotspots such as Taiwan.

We then identify the most critical U.S. and allied force-structure changes recommended herein that would likely draw Beijing's attention, and examine possible changes in Chinese force structures and policies that might result from those U.S. and allied changes.

Finally, we examine and recommend possible initiatives in three areas designed to mitigate tensions, crises, and conflict, whether linked to force-posture changes or simply the overall worsening security environment:

- Standard military-to-military deconfliction, tension-reduction, or incident-avoidance mechanisms and procedures, as well as possible conventional arms-control agreements;

- More-extensive crisis avoidance or management mechanisms that would include military and civilian officials;

- Broader changes in policy or messaging in respect of potential hotspots that might prove feasible and effective in mitigating tension and avoiding conflict.

China's overall strategic perceptions and intentions

Beijing's basic approach to rivalry with the United States through 2035 and beyond is underscored by President Xi Jinping's assertions since June 2018 that "the world is undergoing changes not seen for a century."[494] Xi's phrase conveys the Chinese Communist Party's core assumptions regarding the key dynamics of the global order today, and it sharpens the difference between Beijing's and Washington's visions of the 21st century. For Xi and the party-state he leads, this concept conveys several mutually reinforcing meanings.

Xi's point of reference is World War I and the upheavals in the European political order that altered the global power balance and led inexorably to World War II, the Cold War, and the period of U.S.–led unipolarity that followed. The 1914–19 period saw not only the largest loss of life in Europe since the Black Death, from war and pandemic, but also the collapse of multiple European empires, the emergence of the United States as a global power, the rise of Japan as a potential hegemon in Asia, and the rise of ideology as a driving force in international relations. Xi is observing that now, as the 21st century unfolds a generation after the Cold War, the geostrategic tectonic plates that define world orders, the balance of economic and military power, and the fate of states great and small are again shifting disruptively with speed and violence and great uncertainty.

[494] Xi Jinping speech to Central Conference on Work Relating to Foreign Affairs held in Beijing. June 22-23, 2018. http://www.xinhuanet.com/english/2018-06/24/c_137276269.htm.

Just as the United States rose to global prominence in the early 20th century, China is now rising as new, epoch-defining forces reëmerge.

Xi uses this century-encompassing summation to look forward, not back. Beijing sees the need and the opportunity to respond to this volatile environment in ways that will bolster China's security and advance its global position. While publicly rejecting the U.S. idea that the global order is now marked by a largely zero-sum great-power competition, China nonetheless views itself as engaged in a struggle to resist U.S. hegemony and containment and to reform global governance in ways that it believes better reflect the interests of developing states and weaken the influence of Western liberal values and some elements of the U.S.–defined rules-based order. As the U.S. works to recover from what Washington characterizes as a temporary downturn in its fortunes, and predicts brighter days ahead for a likely less-influential yet still dominant nation, China under Xi Jinping and his colleagues are forecasting major shifts in the geostrategic climate for the foreseeable future. The CCP's centenary goals — to be a wealthy, unified, technologically advanced power possessing a world-class military — rely only partially on the success of the regime's current policies and agency.[495] The CCP assesses that "historical forces," a continued decline in America's relative influence and power, and a shift in global norms and values toward accommodating Chinese preferences are at least equally determinative.

China's views on the U.S.–allied force structure in Asia

Beijing believes that the U.S. force structure and alliances in Asia are designed primarily to support a hegemonic U.S. military and political position that requires neutralizing, or at the very least minimizing the PLA's ability to enforce China's territorial claims, prevent Taiwan independence, and protect China's maritime rights.[496] PRC leaders likely believe that this U.S. objective not only threatens China's ability to defend itself against possible U.S. and allied attacks on the mainland, but also that this erodes China's ability (a) to deter, through a credible threat of military action, any attempt by Taiwan (presumably with U.S. support) permanently to separate itself from mainland China, (b) to defeat U.S. military intervention against a Chinese effort to compel Taiwan to negotiate unification, and (c) if (b) fails, to coerce Taiwan into submission or seize the island outright. It is likely this fear also applies to other disputed territories China claims along its maritime periphery, including land features in the East and South China Seas.

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[495] Zheng, William. "China growth model shows Xi Jinping's vision will outshine that of Deng Xiaoping, and the world can profit." *South China Morning Post*, November 2, 2017. https://www.scmp.com/comment/insight-opinion/article/2117886/china-growth-model-shows-xi-jinpings-vision-will-outshine.

[496] 2019 China Defense White Paper. http://www.xinhuanet.com/english/2019-07/24/c_138253389.htm; 2015 China Defense White Paper. http://www.china.org.cn/china/2015-05/26/content_35661433.htm.

More broadly, given Beijing's strong focus on the wider strategic dynamic of Sino–U.S. rivalry, the U.S. effort to counter Chinese military capabilities is also seen as a form of overall containment of China, as part of a U.S. attempt not only to weaken the PRC's efforts to protect or advance its vital national security interests in or near China, but also to undermine Beijing's ability to protect critical sea lines of communication and advance PRC political, economic, and diplomatic leverage and influence across Asia and beyond.[497]

Looking to the future, PRC civilian and military leaders probably view U.S. incentives to increase such containment efforts as inevitable over time, given Beijing's strong belief that Washington thinks it must retain military hegemony in Asia in the face of a rising Chinese challenge. In other words, Beijing likely views the U.S. as simultaneously in relative decline and yet still very powerful and probably an increasing threat to China.[498]

This indicates that any apparent increase in U.S. military capabilities of any kind, whether as part of a denial-oriented or a control-oriented strategy, would almost certainly be viewed by Beijing as a core element of Washington's efforts:

- At the very least, to prevent China from using its military to reinforce essential deterrence messaging toward the U.S., Taiwan, Japan, and other Asian powers in response to what Beijing would view as escalating confrontations by those powers over Taiwan, etc., or simply in response to present trajectories that do not favor China;

- Or at worst, to keep China subject to American dictates and preferences over a wide range of security issues but at lower cost for the U.S.

This basic PRC view toward the U.S. and U.S. military capabilities also suggests that arguments about the more stabilizing, less escalatory, and less provocative features of a U.S. denial strategy would, on their own, likely not prove terribly reassuring to Beijing. Indeed, in commenting on the U.S. discussion of a denial strategy, Chinese analysts seem to focus most on the supposedly improved deterrence functions of the strategy and the threat they pose to China — for example, via force dispersion and an increased reliance on ballistic and cruise missiles — and not on its reassuring aspects.[499] Such Chinese perceptions are especially likely under conditions of a worsening Sino–U.S.

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[497] 2019 China Defense White Paper.
[498] Hass, Ryan. *Stronger: Adapting America's China Strategy in an Age of Competitive Interdependence*. Yale University Press, 2021. 103.
[499] 沈志雄 (Shen Zhixiong). "Trend in America's Asia-Pacific policy and China's military security" [美国亚太政策走向与我国军事安全]. *World Affairs* [世界知识], issue 2, 2017. 17-20; 郭晓兵 (Guo Xiaobing) and 龙云 (Long Yun). "An Analysis of the Relationship between the INF Treaty and Global Strategic Stability" [《中导条约》与全球战略稳定论析]. *International Security Studies* [国际安全研究], vol. 38, no. 2, March/April 2020. 49-72; Zhang Tuosheng. "Strengthening crisis management, the most urgent task in current China-U.S. and China-Japan security relations." *China International Strategic Review*, March 19, 2021.
As discussed in previous chapters, ballistic missiles are not a major element of our recommendations for an active denial force posture. We argue that such capabilities—especially ground-based, land-attack ballistic or hypersonic missiles—should be de-emphasized in favor of anti-ship and anti-air missiles.

strategic rivalry and repeated U.S. statements about the dire overall threat Beijing poses and the aggressive nature of its military actions in Asia.

It is also possible that, on its own, Beijing would view a denial force posture as confirmation of a kind of fallback position for a declining U.S., and, in particular, as a possible forced withdrawal from efforts at sustaining U.S. military primacy in the Western Pacific, and hence as an effort to do more with less in threatening Beijing.

Either way, Beijing would likely view a denial strategy, if combined with U.S. calls for conventional arms-control agreements, as an attempt to limit Chinese military modernization and hence the ability to send credible deterrence signals to Taiwan and the U.S., as noted above. Beijing would also possibly view the strategy as an effort to prevent China from becoming the dominant military power in Asia, or from modernizing its military as a global force, if U.S. assumptions are correct that China harbors those ambitions. This is probably especially true regarding any efforts by the U.S. to discuss limits on anti-satellite weapons, cyber warfare, long-range missiles, submarines, and large surface combatants. Moreover, it is possible that Beijing will resist such arms-control agreements because it wants to convey a certain level of unpredictability regarding its military deployments toward Taiwan, or elsewhere in Asia, as a potent deterrence signal. At the very least, it would certainly want to sustain or increase the assumed deterrent power of its military capabilities under current circumstances.

In addition, denial-oriented efforts to bring Japan closer into a defense network with the U.S. and to increase the overall defense capabilities of Taiwan and other places would likely add to Beijing's negative assessment of an active denial strategy, especially in the absence of any accompanying political actions intended to reduce tensions. This could prompt, for example, enhanced efforts by Beijing to dissuade or compel Tokyo not to accept U.S. attempts under a denial strategy to integrate or more closely link Japanese and American military systems.

Despite the likely suspicions and resistance noted here, we do not believe that Beijing would categorically resist all types of dialogues or agreements with the United States or its allies intended to lower tensions and avoid miscalculations and inadvertent escalation by either side. Although some Chinese defense analysts seem to assume that an accidental Sino–U.S. political-military crisis almost certainly would not escalate to all-out war, PRC military and civilian leaders are reportedly sensitive to the dangers of such a crisis and wish to prevent it.[500]

Beijing almost certainly recognizes that increasing numbers of ships and aircraft operating in the Western Pacific, and especially in disputed areas, could increase the chances of inadvertent incidents leading to conflict. Indeed, senior Chinese leaders have publicly endorsed the idea of crisis-management and communication mechanisms

[500] Interviews over many years with Chinese civilian and military scholars and officials, partly in connection with a Sino-U.S. crisis management project led on the U.S. side by Michael D. Swaine and Alastair Iain Johnston at Harvard University.

and dialogues, and such interactions with the U.S. and other Asian powers already exist at Track 1 and Track 2 levels.[501] U.S. allies such as Japan and South Korea also recognize the dangers of inadvertent crises and escalation in their neighborhoods. For example, Japanese analysts have called for multilateral guidelines on how to manage incidents between forces.[502]

We also judge that Chinese civilian and military leaders might be receptive to the notion that both sides should develop certain types of more defense-oriented capabilities that decrease incentives for escalatory and dangerous first strikes, intensified arms racing, or early-on deep strikes into enemy territory in a conflict. For example, the more defensively oriented denial strategy described in this report could be presented to Beijing as a way of reducing the likelihood of nuclear escalation in a crisis, especially if combined with a formal U.S. acknowledgement and acceptance of the reality of mutual nuclear vulnerability with China, as discussed in the previous chapter. This is a difficult yet advisable action.

Therefore, while PRC and U.S. acceptance of the obvious need to avoid crises and reduce incentives for nuclear escalation and arms racing would probably not lead — at least in the short to medium term — to substantive conventional arms-control agreements — *e.g.*, regarding numbers or types of weapons platforms deployed in the region — such acceptance nonetheless increases incentives on both sides for new tension-reduction and crisis-management measures. Moreover, such measures could also increase receptivity on both sides to certain changes in policy toward potential regional hotspots to reinforce the stabilizing elements of a U.S. denial posture.

But even in the absence of such a denial strategy, measures to reduce tension, crisis-management mechanisms, and policy changes are advisable and should be attempted, especially given the current trajectory of U.S.–China relations. Some of these measures could be taken either with Beijing or unilaterally by Washington, with or without reciprocal PRC actions.

China's views on regional dangers or hotspots

Regarding broader policy views toward Asian hotspots such as Taiwan, North Korea, and the maritime disputes in the East and South China Seas, Beijing generally believes that the overall U.S. posture toward these issues is becoming more deeply linked to Washington's overarching desire and perceived need to contain and limit Chinese

[501] "Chinese President Xi Jinping Speaks with U.S. President Joseph Biden on the Phone." Foreign Ministry of the People's Republic of China, September 10, 2021. https://www.fmprc.gov.cn/mfa_eng/zxxx_662805/t1906035.shtml; CICIR China-US Relations Research Group. "《现代院报告》：相互尊重、平等互利、和平共处——在复杂性中探索中美关系新框架" ("CICIR Report: Mutual Respect, Equality and Mutual Benefit, and Peaceful Coexistence——Exploring a New Framework for Sino-US Relations in Complexity"). China Institutes of Contemporary International Relations, November 5, 2021. http://www.cicir.ac.cn/NEW/opinion.html?id=87fd9211-4b89-41f7-9443-054d97718f37.

[502] Interviews with Japanese analysts.

regional influence.[503] In Beijing's view, the U.S. has become more openly supportive of China's opponents in maritime sovereignty disputes and has engaged in military provocations and confrontations in the South China Sea — *e.g.*, through the use of more frequent, close-in, publicly declared U.S. freedom of navigation operations, FONOPs, against China,[504] while backing Japan more explicitly in its disputes with Beijing over the Senkaku/Diaoyu Islands in the East China Sea.[505] Perhaps most significantly, Beijing sees Washington as attempting to increase defense and political ties with Taiwan in ways that violate previous U.S. commitments or understandings.

Beijing likely sees Washington as moving dangerously close to declaring unambiguously and publicly that the United States would militarily defend Taiwan against a Chinese attack regardless of the circumstances, *i.e.*, a position of so-called "strategic clarity." If this shift in U.S. policy were to occur, it would end the longstanding U.S. approach of "strategic ambiguity" regarding whether and how Washington would react to such a crisis.[506] Such an action would amount to treating Taiwan like a security partner and strategic ally, thus forcing Beijing to push back in what has already become a vicious circle of almost exclusively deterrence-based signals of resolve by both sides, with little in the way of credible reassurances. This question of openly stated intent is separate from whether the United States actually would defend Taiwan, which most PRC leaders likely assume would occur. The issue hinges instead on how openly Washington is willing to commit itself and how that affects pro-independence sentiment in Taiwan, Beijing's view of Washington's continued support for its One China policy, and hence China's calculations regarding the use of force.

[503] Cordesman, Anthony, and Steven Colley. *Chinese Strategy and Military Modernization in 2015: A Comparative Analysis.* Center for Strategic and International Studies, October 10, 2015. 145-146. https://www.csis.org/analysis/chinese-strategy-and-military-modernization-2015-comparative-analysis.
[504] Power, John. "U.S. freedom of navigation patrols in South China Sea hit record high in 2019." *South China Morning Post,* February 5, 2020. https://www.scmp.com/week-asia/politics/article/3048967/us-freedom-navigation-patrols-south-china-sea-hit-record-high.
[505] Wu Shicun. "South China Sea: expect more instability in 2021 as the U.S. encourages 'lawfare' and conflict." *South China Morning Post*, January 23, 2021. https://www.scmp.com/comment/opinion/article/3118715/south-china-sea-expect-more-instability-2021-us-encourages-lawfare.
[506] "U.S. kidnaps and controls Taiwan's future." *Global Times*, October 2, 2020. https://www.globaltimes.cn/content/1202607.shtml; Hua, Zhang, and Yin Maoxiang. "Strategic ambiguity or clarity? China's power will crush all U.S.' Taiwan calculations." *Global Times*, August 8, 2021. https://www.globaltimes.cn/page/202108/1230861.shtml.

February 16, 2021: 7th Fleet Destroyer conducts Freedom of Navigation Operation in South China Sea. (Via 7th Fleet Public Affairs).

Adding to Beijing's growing suspicion of Washington is a longstanding PRC view that the U.S. actually wants the Taiwan situation to remain unstable and dangerous so as to keep Beijing focused close at home, to justify the continued deployment of large U.S. forces along China's periphery, and possibly (in recent years) to provoke Beijing into taking actions that would justify increasing U.S. forces still further.[507]

Meanwhile, underlying these concerns about Washington's Taiwan policy is deep anxiety in the PRC about trends in Taiwan itself, as the Kuomintang, Beijing's preferred interlocutor, seems to be losing traction and as younger generations in Taiwan identify more as citizens of Taiwan than as Chinese. Observing these trends, many in the PRC who perceive Taiwan to be "working down the road towards independence, emboldened by the United States."[508] Beijing has refused to start a dialogue with President Tsai

[507] Interviews with Chinese scholars and defense analysts. "After all, the U.S. uses the island of Taiwan only as long as it can affect China's development." Wang Yunfei. "For U.S., Taiwan Matters no more than Afghanistan." *Global Times,* August 23, 2021. https://www.globaltimes.cn/page/202108/1232199.shtml; "Being fully aware that the Taiwan question concerns China's core interests, the U.S. government, which has been obsessed with regarding China as a potential challenger to its pursuit of hegemony in the Asia-Pacific, has habitually played the 'Taiwan card' as an old cheap trick to suppress China." Zhao Wencai. "U.S. Arms Sales to Taiwan – dirty deal, dangerous provocation." *Xinhua,* August 6, 2021. http://www.xinhuanet.com/english/2021-08/06/c_1310111856.htm; "如此种种，企图利用台湾这个筹码和棋子分散中国大陆发展的力量，减缓中国奋起追赶美国的速度，保持美国在世界上的"霸主"地位." ("These are all attempts to use Taiwan as a bargaining chip and a chess piece to distract China's development and slow its efforts to catch up with the United States, and maintain American hegemony in the world.") "美国再称"台湾非国家"，害怕为"台独"买单." *Taiwan Network,* December 10, 2019. http://www.taiwan.cn/plzhx/plyzl/201912/t20191210_12224391.htm.

[508] Inskeep, Steve. "China's ambassador to the U.S. warns of 'military conflict' over Taiwan." *NPR Morning Edition*, January 28, 2022. https://www.npr.org/2022/01/28/1076246311/chinas-ambassador-to-the-u-s-warns-of-military-conflict-over-taiwan.

Ying-wen's Democratic Progressive Party government, demanding that Taipei must first reaffirm the 1992 Consensus[509] between the two sides, which, in Beijing's view, would amount to Taipei's acceptance of its One China principle. At the same time, Beijing continues to assert that the "one country, two systems" approach to Taiwan is the only possible formula for cross–Strait unification, despite the fact that it has been rejected by the vast majority of Taiwan's citizens, largely due to its repressive application in Hong Kong.

Regarding North Korea, Beijing has to a great extent returned to the view that Washington rather than Pyongyang is the main obstacle to an improvement of conditions on the Peninsula, due to its continued emphasis on sanctions and unwillingness to offer more support to the efforts of Moon Jae-in, during his just-ended presidency, to engage Pyongyang and offer it security assurances.[510] Some Chinese analysts believe that growing U.S.–China hostility makes it much more difficult for Beijing to work with the U.S. on the North Korea issue and limits Beijing's support for putting pressure on Pyongyang.[511] In fact, Beijing is probably more inclined to support North Korea and any South Korean government supportive of dialogue with the North as twin counters to U.S. rigidity, despite Pyongyang's provocations and harsh language.

These Chinese views toward Asia's hotspots, in the context of the worsening Sino–U.S. relationship, confirm a vital need to undertake political and military actions to lower tensions by reassuring all sides that their worst suspicions are unjustified, and to strengthen the ability of all sides to engage in effective crisis management. Given the obvious dangers presented by current trends, we believe that Beijing would see the value of such undertakings, even if it is not likely to see the value of an active denial posture for U.S. forces.

The active denial strategy through China's eyes

From Beijing's perspective, the most notable features of our proposed denial force posture would likely include the following:

First, it would serve as an indication of a U.S. rejection of the need for a clear level of military predominance in China's periphery in order to protect its interests in the Asia-Pacific.

As described in Chapter 2, the active denial force-posture proposal is intended to prevent escalating conflict through the deployment of a defensively oriented set of

[509] The so-called 1992 Consensus refers to a supposed 1992 agreement between Taipei and Beijing that the latter believes signaled Taiwan's recognition of China's understanding of its One China principle. Taiwanese authorities have disputed this interpretation, but the former KMT government led by Ma Ying-jeou used the concept to improve relations with the PRC government.
[510] "DPRK FM lashes out at U.S. policy toward Pyongyang." *People's Daily,* June 12, 2020. http://en.people.cn/n3/2020/0612/c90000-9700116.html.
[511] Yang Sheng. "China, NK stress need to safeguard regional peace as U.S. envoy urges Pyongyang to talk." *Global Times*, June 21, 2021. https://www.globaltimes.cn/page/202106/1226741.shtml.

capabilities focused primarily on interdicting PRC forces offshore and thereby denying them the ability to achieve their objectives, not controlling the battle space and offensively taking the battle to the mainland in a major way — *i.e.*, beyond possible limited strikes on Chinese air bases and ports near China's coast. This type of mission does not require the U.S. to possess a clear level of military primacy along China's maritime periphery. Nor does it necessarily require the U.S. to maintain clear military dominance beyond the first island chain.

Second, it would indicate a reduction in U.S., and ideally Chinese, incentives for a preëmptive or preventive conventional first strike and a deep strike in a Sino–U.S. conflict, and hence reduce the need to escalate rapidly.

Since this force posture does not require U.S. and/or allied control of the battle space, it also would most likely not require the early destruction of Chinese ISR and command-and-control assets deep within China. In fact, it would most likely not require such attacks at any time in a conflict, although it might require attacks on coastal military locations such as ports and missile bases, as noted above. In other words, a focus on interdicting offshore PRC air and naval assets, with possibly zero or at most only limited strikes on coastal assets, would produce more rungs on the escalatory ladder and thus reduce the chances of rapid escalation in a conflict.

Third, the proposed denial force posture would be seen by Beijing as preventing a PRC win or success long enough to allow out-of-theater U.S. assets to be brought in to dislodge Chinese forces from any gains they have made, and to ensure the denial of Chinese military objectives overall.

This force posture does not rely on major, probably provocative future increases in forward-deployed U.S. forces to provide adequate deterrence. It thus allows for a relatively low overall U.S. force profile along China's maritime periphery, compared with a heavy forward presence, which would be more provocative and less politically and financially feasible. If circumstances permitted, it could also serve as the basis for significant U.S. force reductions beyond the period covered in this report.

Four, the denial force posture conveys the likelihood, in the event of Chinese attacks on U.S. bases in Japan, of full Japanese support alongside the U.S. in the first phase of resisting Beijing. It also indicates the likelihood of the U.S. bringing more forces in during the later phases of any conflict.

Japan would in essence do more with enhanced but still limited and defensive capabilities, including closer U.S.–Japanese communication and coordination. This would necessarily include Japan's willingness to endure sustained Chinese attacks on targets in Japan.

Fifth, Beijing would view specific changes in the U.S. and allied force posture in Asia as including:

- Greater dispersal of forward-deployed tactical aircraft at bases in Japan, Australia, and Guam;
- Major increases in the resilience of staging and basing areas, via hardening and air/missile defense;
- Much greater use of camouflage, concealment and deception, CC&D;
- Forward deployment of one or more smaller, less expensive and individually less capable aircraft carriers in place of the large carrier based in Japan;
- Deployment of land-based, long-range, anti-ship missiles in Japan and possibly the Philippines, and assistance to Taiwan fielding such missiles on its own;
- More submarines and long-range air strike assets in the theater;
- Reduction in forward-deployed ground troops;
- Greater attention to logistics to support distributed U.S. and allied operations;
- Less or possibly even zero reliance on U.S. forces based in South Korea in China-related contingencies.

Six, the proposed force posture does not assume some future breakthrough in a specific technology or technologies that would give either the U.S. and/or allied or Chinese side a long-lasting advantage. The posture assumes that such developments are unlikely at best.

There are few available, unclassified sources for making a reliable assessment of how Beijing might respond to these specific features of the proposed active denial force posture. As noted, most sources on an overall denial force structure mainly summarize U.S. studies with little reference, if any, to anything that could drive specific changes in PRC force planning. This might reflect the view that a denial force posture poses few new threats to Beijing, if any given China's existing force development plans, and offers no new opportunities for reducing those threats. Or it could mean that any discussion of how Beijing might respond resides entirely in the classified realm.

In any event, as clearly indicated above, restructuring U.S. forces around an active denial strategy alone is unlikely to produce many positive changes in China's own force posture or military development programs. Some notable positive responses are possible, however. The less provocative and escalatory features of the active denial force posture might encourage Beijing to avoid early and rapid escalation in a conflict, especially in the form of direct attacks on Guam, Japan, Hawaii or mainland U.S. territory. In addition, as with other proposed U.S. force structures in Asia, the possible deployment of significant numbers of land-based missiles on allied territory and Guam could cause the PLA to increase its capabilities in missile defense, hardening, and its missile inventory, thus adding to the overall financial burden involved in countering U.S. and Japanese capabilities.

However, an active denial force posture would also likely cause Beijing to take several decidedly negative military and nonmilitary actions in response, including the following:

- U.S.–led efforts to disperse military assets across the Asian littoral will likely prompt PRC efforts to counter this by putting political, economic, and possibly military pressure on, *e.g.*, the Philippines, Japan, and Australia to refuse such efforts.

- U.S. efforts to strengthen Japanese integration with and support for U.S. forces operating in the Western Pacific could prompt Beijing to exert economic and diplomatic pressure on Tokyo to resist such efforts. They could also cause China to augment existing PRC military capabilities relevant to Japan, to include broadening the target set for Chinese ballistic and cruise missiles arrayed against Japan. As an enticement, the PRC leadership might also signal to Tokyo that China would not attack Japan in a Taiwan conflict if Tokyo were to refuse permission for the use of U.S. bases and not employ its own forces against China. Such actions could place Tokyo in a difficult position, as discussed in Chapter 4.

- The active denial posture's reliance on the U.S. and its allies holding on until major U.S. forces can be brought into a conflict from outside the theater could conceivably increase PRC incentives in favor of a rapid, fait accompli attack on Taiwan, thus increasing the likelihood of rapid escalation. On the other hand, as stated in Chapter 2, by increasing U.S. and allied resilience and not front-loading U.S. power, the active denial strategy could on balance discourage preëmption. Moreover, a preëmptive fait accompli attack would almost certainly require early strikes on U.S. forces based in Japan, thus guaranteeing Japanese entry into the conflict.

Most of these developments could increase the level of tension in East Asia above its already high level, thus reinforcing the need to take concerted action to reduce such tension and avert any possible negative consequences that might result from our proposed active denial force posture. In other words, a variety of measures aimed at reducing tension, building confidence, and lowering the chances of miscalculation must accompany the force posture to secure its overall benefits in stabilizing Asia.

Possible U.S. initiatives toward China in three areas

Thus far, U.S. interactions with China to maintain military stability and avoid conflict in a changing power relationship across Asia have covered five areas:

- Formal military-to-military agreements and rules of engagement to avoid accidents and unwanted escalation and increase the predictability of interactions between local operators at sea and in the air;[512]

- Formal efforts to improve military-to-military understanding and predictability, via high-level dialogues and lower-level functional discussions;[513]

- Transparency agreements, including mutual notification and observation of major military exercises;[514]

- Limited efforts to improve crisis communication through the establishment of a hot line between civilian and military leaders and the initiation of a military-to-military crisis communication dialogue;[515]

- Holding of Track 1.5 and Track 2 dialogues on crisis management and nuclear stability, with links to each side's government.

There have been no formal discussions or agreements covering conventional or nuclear arms control between the U.S. and China.

The track record regarding these measures has been mixed. On the positive side, partly as a consequence of some of the above-noted agreements on rules-of-engagement, a reasonably high level of professionalism and predictability has emerged over time along China's maritime periphery between the two sides in military, operator-to-operator interactions. This has occurred despite persistent PRC criticism of the U.S. military presence and the frequency of U.S. military activities near China, including ISR operations, as the primary source of Sino–U.S. military-to-military tensions. In addition, progress has arguably been made at the Track 1 and 1.5 levels in deepening mutual understanding and reaching informal agreements on aspects of crisis communication and management.[516]

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[512] "Memorandum of Understanding Between the Department of Defense of the United States of America and the Ministry of National Defense of the People's Republic of China Regarding the Rules of Behavior for Safety of Air and Maritime Encounters." https://digital.library.unt.edu/ark:/67531/metadc949788/.

[513] U.S. Department of Defense. "Military and Security Developments Involving the People's Republic of China, 2020: Annual Report to Congress." Office of the Secretary of Defense, September 1, 2020. https://media.defense.gov/2020/Sep/01/2002488689/-1/-1/1/2020-DOD-CHINA-MILITARY-POWER-REPORT-FINAL.PDF.

[514] The United States Department of Defense and the People's Republic of China Ministry of National Defense. "Memorandum of Understanding on Notification of Major Military Exercises Confidence Building Measures Mechanisms." https://dod.defense.gov/Portals/1/Documents/pubs/141112_MemorandumOfUnderstandingOnNotification.pdf.

[515] "U.S., China agree to establish military hotlines, rules for air-to-air encounters." *Taipei Times*. September 17, 2015. http://www.taipeitimes.com/News/front/archives/2015/09/27/2003628681; "Chinese, U.S. military chiefs hold crisis communication, says China defense ministry." Reuters. October 29, 2020. https://www.reuters.com/article/us-china-usa-military/chinese-u-s-military-chiefs-hold-crisis-communication-says-china-defence-ministry-idUSKBN27E1XJ.

[516] "U.S., Chinese military officials hold frank, in-depth talks"—Pentagon." Reuters, September 29, 2021. https://www.reuters.com/world/us-chinese-military-officials-hold-frank-in-depth-talks-pentagon-2021-09-30/.

Then-Defense Secretary Mark T. Esper meets with China Minister of Defense Wei Fenghe during the 6th Association of Southeast Asian Nations Defense Ministers' Meeting-Plus on Nov. 18, 2019. (DoD photo by Army Staff Sgt. Nicole Mejia)

Nonetheless, significant shortcomings also exist. These include: a) the frequent suspension of military-to-military dialogues and interactions due to obstacles encountered in the overall U.S.–China relationship, b) the nonuse or inadequate use of the hot line in past crises, c) operators' occasional neglect of established agreements regarding operator-to-operator interactions or notifications of exercises and explanations of certain U.S. ISR activities, and d) the failure to formalize, extend, and deepen crisis-management dialogues and practices. In addition, some deconfliction mechanisms, such as the Military Maritime Consultation Agreement, MMCA, have become primarily a forum for mutual complaints, according to interviewed experts familiar with the process.

Moreover, in some areas, such as cyber and space, one or both sides have unilaterally issued policies and strategies without seriously considering the reaction of the other side.[517] And on the U.S. side, policy initiatives toward Beijing have too often been characterized as efforts to "shape" Chinese views, which Beijing often sees as patronizing, and which arguably inhibits more productive forms of engagement. Moreover, these shaping efforts will probably become less feasible as China becomes

[517] Private interviews with U.S.-China technology experts.

stronger and less subject to their influence. Similarly, as suggested by Sino–U.S. interactions in the maritime realm, the U.S. has failed to clearly distinguish between actions that it deems necessary to safeguard U.S. and international rights and those that simply antagonize China without producing any evident benefits.[518]

Military-to-military arms control and deconfliction efforts

As indicated above, we judge that any formal arms control agreements, in the form of limiting numbers and/or types of weapons systems or support capabilities, are very unlikely to occur under current and probable near– to medium-term circumstances. This is for several reasons, including the depth of mutual suspicion between Beijing and Washington, the perceived Chinese need for greater levels of military deterrence toward Taiwan, and the arguably growing uncertainty and perhaps lack of U.S. confidence on one hand, and rising Chinese confidence on the other hand, resulting from the ongoing shift in relative regional military capabilities.

That said, we speculate that some types of arms-control measures might be possible in a decade or so, if dangerous forms of arms racing develop and accelerate, near-miss crises occur, and financial pressure to curtail military spending intensifies in one or both countries. These could increase incentives to limit arms racing or to reduce the chance of early or rapid escalation in a crisis, or, in general, to stabilize existing trends in military developments and deployments in Asia through some forms of arms control, whether formal or tacit. For example, there is potentially room for discussion on limiting the role of artificial intelligence in some systems or regions and the use of unmanned weapons platforms because of the danger of inadvertent attacks and escalation in a conflict.

Regarding deconfliction, both sides need to recognize more explicitly and formally the expanding likelihood of potentially dangerous interactions between PRC and U.S. and allied forces as all actors operate increasing numbers of military platforms in the region. This is especially the case regarding growing efforts to practice military capabilities and engage in deterrence-oriented signaling in close proximity to one another.

Civilian and military CBMs, crisis-avoidance and crisis-management initiatives

U.S. initiatives to build confidence and more effectively avoid and manage political-military crises with China are the most likely area for advancing Sino–U.S. understandings or agreements that could mitigate the chance of increased tensions or

[518] Odell, Rachel Esplin. *Promoting Peace and Stability in the Maritime Order Amid China's Rise.* Quincy Brief No. 15, July 30, 2021. https://quincyinst.org/report/promoting-peace-and-stability-in-the-maritime-order-amid-chinas-rise; Odell, Rachel Esplin. "*Mare Interpretatum:* Continuity and Evolution in States' Interpretations of the Law of the Sea." Ph.D. dissertation, Massachusetts Institute of Technology, 2020.

conflict in Asia, either with or without an active denial force posture. We recommend several types of initiatives.[519]

First, the two sides could increase the efficacy and reliability of hot lines, including opening additional crisis communication channels. Options include directly linking the U.S. Indo–Pacific Command and the U.S. National Military Command to the Central Military Committee Operations Bureau under the CMC Joint Staff, or linking INDOPACOM to the southern and eastern military theaters, or the PLA Navy and U.S. Navy headquarters. Such direct military communications links would increase the clarity of signals in a crisis, reduce uncertainties, minimize misperceptions about military actions on both sides, enable an exchange of views on how best to implement existing agreements, such as the 2014 memorandum of understanding on notification of major military exercises and Code for Unplanned Encounters at Sea, CUES, and build military-to-military trust. As with the established hotline, it would be necessary to establish protocols for the use of these links before or during a crisis and to test them on a regular basis. In particular, such a military-to-military channel could prove extremely useful and feasible if there was prior agreement to use it only to address purely military-related, local aspects of a crisis incident. Senior civilian leaders on both sides, and especially in China, would not want military channels to be used to convey high-level civilian-leadership views in a political-military crisis.

Second, the two sides should explore an explicit prior agreement to use certain high-level channels only for authoritative crisis communication between designated civilian leaders. In a Track 2 crisis-management event explicitly designed to identify the best type of high-level channel among several, the one most frequently recommended by both sides was between the director of the General Office of the Central Foreign Affairs Commission, currently Yang Jiechi, the Politburo member responsible for foreign affairs, and the U.S. national security adviser, currently Jake Sullivan. Such a clearly recognized channel would remove any ambiguity regarding the authority and reliability of a message and ensure that the highest civilian authorities would receive any messages sent.

Third, an explicit prior agreement could be reached to create an authoritative but unofficial "non-conversation" channel between trusted individuals with some level of personal familiarity and acceptance, to augment official channels such as the one proposed between the U.S. national security adviser and the director of the General Office of the Central Foreign Affairs Commission. Such a channel would allow for greater give-and-take in communicating and discussing messages and thereby create room for greater flexibility in managing a crisis. Possible topics for such a channel during a crisis would include the intentions, motives, and concerns of both sides, potential areas of misunderstanding, possible reactions to specific actions, if taken, and

[519] For a discussion of existing U.S.-China crisis management mechanisms, see Odell, Rachel Esplin. "How Nongovernmental Actors Can Improve Crisis Management in U.S.–China Relations" in "Finding Firmer Ground: The Role of Civil Society and NGOs in U.S.–China Relations." The Carter Center, February 2021. 48–50, 58–61. https://us-china.report/wp-content/uploads/2021/02/Finding-Firmer-Ground-Report-PDF.pdf.

possible reassurances that could be conveyed at the outset of a crisis, such as a mutual desire not to take advantage of the situation.

March 14, 2022: National Security Advisor Jake Sullivan met today with Chinese Communist Party Politburo Member and Director of the Office of the Foreign Affairs Commission Yang Jiechi in Rome, Italy. (Photo via U.S. Embassy Italy).

Four, the two sides should consider Track 1.5 discussions on nuclear issues in a crisis that would present the proposed active denial force posture as a way of reducing the likelihood of nuclear escalation in a crisis. This could prove to be particularly useful if combined with efforts to reduce strategic and tactical nuclear arms racing, which could include, if possible, formal U.S. acknowledgment of mutual nuclear vulnerability and the inclusion of ballistic-missile defense systems in the nuclear dialogue. A mutual no-first-use posture, wherein the United States moves closer to China's stated nuclear posture, could also be part of this process. However, for reasons discussed in Chapter 5, U.S. extended-deterrence commitments make such a shift difficult and China would have good reasons to doubt its credibility. A declared policy of sole purpose may be a less risky and more credible alternative.

Five, the two sides could jointly establish a group of professional crisis managers in key decision-making or policy bodies. Trained in crisis-management techniques, these experts would provide advice to top leaders and possibly arrange practice exercises for some top officials to familiarize them with the dangers and pitfalls involved in crisis management. This could also involve exercises to increase the ability of decision-makers to see a crisis from the other side's perspective.

Six, crisis communication could be placed on the agenda of other bilateral military and civilian dialogues. Some Chinese participants in Track 2 dialogues have suggested that crisis-management problems and techniques should be on the agenda of the MMCA, with topics including crisis assumptions, escalation control, and crisis termination.

Broad political or strategic initiatives regarding potential sources of conflict in Asia

Several types of political or strategic initiatives to reduce the volatility of potential conflict hotspots on Taiwan, the Senkaku Islands, the Korean Peninsula, and in the South China Sea are also worth considering. As in the case of CBMs and crisis-management efforts, these would need to include military and civilian officials. Diplomatic negotiation between contesting parties, supported and encouraged by the United States, will be essential in these disputes for preventing conflict, mitigating gray-zone activities, and achieving eventual peaceful resolution. Indeed, diplomacy is often one of the best means for preventing gray-zone coercion, which is, by definition, designed to stay below the level of the use of force and thus tends to be less susceptible to countering through military posturing.

First, regarding Taiwan, efforts to temper or freeze the current, dangerous vicious circle between Washington and Beijing must form an essential complement to our proposed active denial strategy. These efforts should include, alongside deterrence signaling, more credible U.S. policy statements or signals to reassure Beijing of the continued U.S. commitment to its One China policy. Such actions could include clear, publicly stated limits on the level and type of leadership contacts and defense ties between Washington and Taipei, and an explicit prohibition on the deployment of U.S. combat forces to the island, joint military exercises with Taiwan, or visits by U.S. warships.[520]

The U.S. should avoid any actions or statements that reinforce or suggest the idea that Taiwan is a vital U.S. strategic asset to be kept out of PRC hands, or that Japan's security requires that Taiwan remain entirely separate from China. Both viewpoints are contrary to the One China policy, which clearly implies that both the U.S. and Japan would not oppose the peaceful, unforced unification of Taiwan with mainland China. And stating perspectives opposed to the One China policy would likely provoke Beijing to increase its own deterrence measures, thus further undermining, rather than strengthening, regional stability. Washington should also reaffirm clearly to the people and leadership of Taiwan, as it has done in the past, that it remains opposed to any unilateral effort by any Taiwan leader to assert or move toward the permanent separation of the island from mainland China.

Moreover, as discussed in Chapter 4, the United States should increase its efforts to encourage or even compel Taiwan to invest more in its own defense, possibly by

[520] This assumes that Beijing, for its part, would provide more credible assurances of its commitment to the search for peaceful unification as a top priority.

threatening to withhold specific arms sales unless Taipei undertakes certain improvements in capability. The development of a credible and sustained Taiwan capacity to deflect any Chinese attempt to seize the island for at least two weeks is essential to the success of deterrence under an active denial force posture. Taiwan's enhancements of its defense capabilities, and improvements in the ability of the U.S. and Japan to come to the aid of the island through an active denial force posture, should also be combined with more robust nonmilitary ways — *i.e.*, political, diplomatic, and economic — of placing high pressure on Beijing if it were to choose to coerce or attack Taiwan militarily.[521]

Second, to reduce Chinese suspicions that Washington supports Japan's sovereignty claims, the U.S. should clearly reaffirm that, while the U.S.–Japan mutual defense treaty applies to Tokyo's administrative control of the Senkaku Islands, the U.S. takes no position on the sovereignty dispute over the islands between Tokyo and Beijing. This would suggest that Washington recognizes that there is such a dispute, although Japan's government has explicitly insisted since 1992 that there is no territorial dispute with China. Such a U.S. statement could reduce Chinese suspicions by clarifying Washington's stance toward Tokyo's position on the dispute. The U.S. should also take specific actions to prevent the further militarization of the dispute over the Senkaku Islands by either side, including support for commitments by both sides not to build facilities or permit personnel to land on the islands.

Third, the United States should also take diplomatic measures to promote stability in the South China Sea region, another area of potential military confrontation and even conflict between the U.S. and China. This potential arises largely from four factors: a) Washington has expressed a strong interest in the disputes between China and other claimants over land features and waters within the area, b) the U.S. fears that an ever-stronger China could resort to force to resolve its disputes with its neighbors or to limit commercial and/or military transit across the region, c) the U.S. opposes any coercion and use of force by any claimant and has made a commitment to intervene militarily if the Philippines, a formal U.S. ally, is attacked, and d) China believes that U.S. diplomatic intervention and military involvement in the South China Sea disputes undermines stability and the eventual peaceful resolution of the issue.

Although the chance of significant military conflict between the U.S. and China in the South China Sea is arguably not as great as in Northeast Asia, it is certainly not zero. And even a minor Sino–U.S. military confrontation or clash in the area could have serious ripple effects elsewhere in the Asia–Pacific, such as increasing the danger of clashes over Taiwan or the Senkaku Islands or deepening overall Sino–U.S. hostility in ways that profoundly alarm other Asian nations and pressure them to take sides. Moreover, other arguably more likely contingencies short of an actual military crisis could occur in the region that would also raise tensions. These could include

[521] Porter, Patrick, and Michael Mazarr. "Countering China's Adventurism Over Taiwan: A Third Way." Lowy Institute, May 20, 2021. https://www.lowyinstitute.org/publications/countering-china-s-adventurism-over-taiwan-third-way.

gradual Chinese efforts at military and political coercion or intimidation of local states to create a greater acceptance of PRC control in the area. Therefore, initiatives to reduce the likelihood of such outcomes, whether or not these are related to a future denial strategy, are highly advisable.

Political or strategic initiatives to reduce the possibility of military conflict in the South China Sea could include the following:

- A unilateral U.S., and perhaps allied, effort to reduce the frequency, location, or at least the level of publicity given to U.S. FONOPs. Alternatively, the U.S. could undertake efforts to reach an agreement with China regarding naval transits along the lines of the EEZ Group 21 proposal,[522] or, since Beijing has never claimed a right to control navigation in the South China Sea, it could reaffirm that position publicly, possibly in exchange for the U.S. reducing the frequency of its FONOPs.[523]

- The U.S. could undertake efforts, following on the 2002 Declaration on the Conduct of Parties in the South China Sea, to obtain a formal NFU pledge by Beijing and other claimants regarding the use of conventional military force or other coercive measures critically to degrade or dislodge rival claimants from the South China Sea features they currently possess, except in response to attacks from those rival claimants. This could be presented as part of overall U.S. support for a formal code of conduct among all claimants, currently under negotiation, or as a stand-alone measure.

- The U.S. could more openly recognize the continued interactive nature of many of the moves taken by China and other territorial claimants in the South and East China Seas, as well as by the United States. At present, U.S. statements on the dangers associated with these maritime disputes place virtually sole emphasis on the threats resulting from PRC aggression and the neglect of international law. Washington gives little consideration to the possibility of an interactive dynamic at work among the parties, including the actions of the United States.

- Finally, CBM for engagements among the coast guards of all claimants would reduce uncertainty and miscalculations over any possible use of force by coast guard vessels.

[522] EEZ Group 21. "Guidelines for Navigation and Overflight in the Exclusive Economic Zone." Ocean Policy Research Foundation, September 26, 2005. https://nippon.zaidan.info/seikabutsu/2005/00816/pdf/0001.pdf; "Principles for Building Confidence and Security in the Exclusive Economic Zones of the Asia–Pacific." Ocean Policy Research Foundation, October 30, 2013. https://www.spf.org/_opri_media/publication/pdf/2014_03_02.pdf.

[523] Beyond adjusting Freedom of Navigation Operations in the South China Sea as part of a CBM, the United States should also consider reducing the huge number of its routine ISR flights and sailings along the Chinese coast, which average up to 2000 per year. See Odell, *Promoting Peace and Stability in the Maritime Order Amid China's Rise*.

Fourth, regarding the Korean Peninsula, the United States could reduce the likelihood of a severe crisis or conflict with China by continuing its efforts to engage Beijing on deconfliction procedures in the event of a military incident on the Peninsula that could draw both powers into military confrontation. Although Beijing has resisted such a dialogue at the official level to avoid the risk of provoking Pyongyang, there has been progress at the Track 2 level. This should continue and connect more directly to official crisis-communication discussions.

Another U.S. initiative worth considering is a renewed effort to engage Beijing more fully, in consultation with Seoul and Pyongyang, on a possible dual-track road map for tension-reduction and stabilization. This could involve capping and eventually eliminating all nuclear weapons and a major reduction in conventional weapons on the Peninsula alongside efforts to move forward with building a peace regime, beginning with a declaration on the end of the Korean War. Although undoubtedly difficult to conclude in the current, harsh Sino–U.S. climate, Beijing, Washington, and the two Koreas have a strong interest in developing such a process.

Fifth, the United States should clearly establish the purpose of the Quad arrangement among the U.S., Japan, Australia, and India as a mechanism to strengthen regional security in nontraditional areas such as pandemics, climate change, and economic chaos or collapse, thereby opening the door to engaging China constructively through the Quad mechanism. The members of the Quad have already stated their support for such a purpose and insisted that their arrangement is not intended to contain China.

Final Comments

The above analysis suggests that although Beijing is unlikely to respond to the denial force posture proposed in this report by engaging Washington over at least the short to medium term in formal arms-control agreements, many types of crisis avoidance, crisis management and tension-reducing CBMs, as well as policy changes or reaffirmations regarding regional hotspots, are possible and should be considered.

Beijing undoubtedly recognizes the dangers of the currently deepening security competition between the United States and China in the Western Pacific and has an incentive to create conditions that reduce the likelihood of bilateral miscalculations and crises, if not conflict. While the active denial force posture proposed in this report would likely reduce the danger of such outcomes, to be fully effective as a source of stability, it would need to be augmented by many of the specific mechanisms and dialogues considered above.

Conclusion: Avoiding the Potentially Catastrophic Harms of a U.S.–China War

A U.S.–China war would have potentially catastrophic consequences. In the first place, in terms of U.S. troop losses, such a war would almost certainly be much more devastating than the post–September 11 wars, potentially even in the very early days or weeks of a conflict. Almost as many sailors and airmen could die in the sinking of one U.S. aircraft carrier as U.S. troops have died in all the post–September 11 wars combined. Damages inflicted by PRC missiles on forward-deployed tactical aircraft currently massed at a handful of vulnerable U.S. air bases in the region in the earliest stages of a conflict would likely be the greatest losses for the U.S. Air Force since the Vietnam War. These are reasons our denial strategy road map calls for a decisive move away from large carriers toward smaller and more- maneuverable light carriers and for a more resilient and distributed presence for U.S. tactical aircraft in the region. Losses to the forces of East Asian entities involved in the conflict, including China and U.S. allies, as well as Taiwan, could be even greater.

Such a conflict would also likely inflict widespread harm on civilians.[524] This could include collateral damage from errant missiles aimed at bases in the region, cyber attacks on critical dual-use or civilian infrastructure, and counter-space attacks that could destroy the civilian satellites used in myriad applications that the global economy depends upon, including many modern agricultural systems vital to feeding the planet. Civilian harms could also involve massive economic and humanitarian damage from sea blockades or from other drastic disruptions to global supply chains, production networks, trade, and financial systems stemming from the conflict. These harms would accrue to all sides of the conflict, while also reverberating far beyond the parties actually involved in the fighting.

Although a U.S.–China war would perhaps be quick and sharp, this is not guaranteed. It could drag on for weeks, months, or more, requiring the mobilization of each nation's industrial complexes to generate matériel for the fight. This would prolong the ruinous destruction of human life and infrastructure and lengthen the impact of global economic disruptions. The carbon emissions from such a protracted conflict — even from a shorter, sharp conflict — would also likely be immense, setting the world's progress toward reduction of carbon emissions back by years or decades.

[524] Mahanty, Daniel. "Even a Short War over Taiwan or the Baltics Would Be Devastating." *Foreign Policy*, July 29, 2021. https://foreignpolicy.com/2021/07/29/war-taiwan-china-united-states-russia-baltics-nato-military-civilians-deaths-losses-casualties.

All of these costs would accrue even if the war managed to stay below the nuclear threshold. And yet such a condition is by no means guaranteed. The risks of inadvertent and deliberate nuclear escalation are real, especially in light of the growing fundamental misperceptions and mistrust on each side.

The strategy recommended in this report is intended to minimize the chances of such a catastrophic war with China by making war less likely in the first place and by limiting escalation were a war to occur. This requires a defense strategy of denial capable of effectively deterring potential PRC aggression through less-escalatory concepts of operations and in a fiscally sustainable manner. It also requires the United States to leverage Taiwan and U.S. allies and partners to increase their self-defense capabilities. At the same time, this strategy must be coupled with the essential corollary of political and diplomatic measures to mitigate the security dilemma and pursue nonmilitary solutions to nonmilitary challenges, including through self-restraint, collaboration with partners and allies, and direct or multilateral negotiations with Beijing. Only through the combination of these various elements can the United States preserve its interests in the Asia–Pacific region and beyond.

Postscript: Implications of Russia's Invasion of Ukraine for an Active Denial Strategy in Asia

Russia invaded Ukraine as we were about to publish this report, an event that will have broad and long-lasting implications for the world and for U.S. strategy. The Ukraine invasion reminds us that war, including coercive wars and wars of conquest, remain a threat to international stability and welfare. It highlights the continuing relevance of deterrence, as well as wise policies and diplomacy that can mitigate the incentives for conflict. Although this report goes to press soon after the invasion and before it is clear where events will lead, there are some potentially important and immediate implications for the subjects covered in this report.

U.S. position in Europe

War, the most extreme manifestation of great-power competition, came to Europe before America's European NATO allies had done much to address their own military weaknesses. While there will continue to be hot debates within NATO over a range of issues — and now with greater consequences — the invasion of Ukraine is likely, on balance, to unify the alliance and to significantly increase the motivation and seriousness with which allies address their military capabilities. Germany, for example, has announced an upfront infusion of $100 billion in defense spending and plans to increase its defense spending to 2 percent of GDP, up from 1.5 percent. Apart from NATO, the European Union has for the first time agreed to send weapons to a state outside its borders. Within the time horizons of our study, therefore, we expect that Europe will pick up a greater share of the defense burden more quickly than we anticipated.

Balanced against this, however, is the fact that U.S. military requirements in Europe for helping to bolster NATO's security are likely to remain high, or even increase, in the short term. Significant cuts to U.S. ground forces may have to be delayed until NATO's post-invasion future in Poland and other parts of Eastern Europe, and the military results of Russia's operations, are clearer. Regardless, in the long term the United States will almost certainly not need to retain its current level of ground forces to sustain its alliance commitments in Europe. Our recommendations to make significant cuts to ground forces to prioritize air and naval forces for the Asia–Pacific theater thus continue to hold. However, whatever the strategic merits of making reductions, it could

send the wrong signal politically to Europe and Russia to start implementing these reductions in the near term.

In a closely related vein, the Ukraine invasion highlights the important U.S. role in extended nuclear deterrence, as discussed in the Asia context in Chapters 4 and 5, particularly if Washington values nonproliferation and favors continued European restraint in the development of its own nuclear weaponry. Extended nuclear deterrence will, in turn, require that the United States remain politically engaged in Europe and that some portion of its conventional forces remain in Europe and exercise regularly with NATO counterparts. At the same time, a core observation of this report — that Europe is far better positioned to provide the bulk of material resources for defense and deterrence than are Asian allies and partners — continues to hold.

Political implications

Beijing's abstention on the U.N. Security Council resolution condemning Russia's invasion of Ukraine supports the notion that Beijing and Moscow are broadly aligned but not necessarily in lockstep. Although wariness regarding Beijing's future direction is clearly in order — and deterrence will remain one pillar of U.S. Asia strategy — Washington should continue to engage China on political issues, to pursue mutually beneficial trade, to cooperate in those areas that are not zero-sum, and to discuss measures that might mitigate crisis instability. The world is not divided into two camps — at least it is not yet so divided — and the United States should pursue policies that will make that outcome less likely.

U.S. China policy will need continuous evaluation and recalibration as events unfold. If Beijing substantially undercuts the sanctions regime against Russia, then its partnership with Moscow could solidify further and the United States should consider countermeasures. Conversely, if Russia emerges from the current conflict weaker and more isolated, Beijing may recalibrate its partnership with Moscow and new opportunities may emerge for the United States in its dealings with Beijing. In addition, depending on the outcome of the war in Ukraine, Asian allies might gain additional incentives to seek nuclear weapons and may require additional reassurance to prevent them from doing so.

Security and military lessons

The military geography, forces, and political circumstances pertinent to Russia's invasion of Ukraine are dramatically different from those of Asia, and considerable circumspection should be exercised in drawing lessons from the European theater for the Western Pacific. Some possible lessons might, however, be noted.

Not for the first time, we saw that, when faced with possible attack, modern states are extremely reluctant to mobilize reserves and take other measures that would help them in the event of war. Before an actual attack, political leaders may fear that taking even defensive measures could exacerbate tensions and make attack more likely. They are reluctant to inconvenience citizens and disrupt their daily routines, and they worry that demonstrating concern might rattle markets and damage the economy.

Given this pattern, reluctance of this sort must be built into the understanding of the military balance. The defender may not, in fact, have reserve forces available for defense at the outbreak of war. This carries some implications for potential defenders in Asia — most notably Taiwan. Taipei should restore some of the cuts it has made to its regular forces and do more to ensure that reserves, once called, can mobilize quickly and provide meaningful capabilities. Likewise, it should discreetly conduct, during peacetime, the engineering work that would be necessary in war, such as the pre-chambering of bridges, ports, and other infrastructure for demolition. In its interactions with Taiwan, Washington should impress upon Taipei the urgency of such reforms, in addition to those already mentioned in Chapter 5. More generally, this pre-conflict reluctance to mobilize underscores the need, discussed above, for the United States, its allies and partners, and Taiwan to take measures to protect and disperse military assets on the assumption that only limited time, if any, may be available for that purpose during a crisis.

It is also plainly evident that the laws of physics continue to apply to military operations. Logistics, the size of the battle area, operational competence, the scale of available forces, the available quantity of munitions, and a host of other factors discussed in this report continue to operate. Russia's invasion of Ukraine demonstrates that the defender continues to enjoy certain advantages, although those advantages are relative rather than absolute and can only offset a degree of material inferiority. The poor planning and operational incompetence of the Russian forces, as well as the savvy of Ukrainian defenders, may also provide a somewhat distorted picture of the magnitude of those advantages. Nevertheless, defensive advantages should be greater in defense against amphibious assault. The course of the Ukraine war, therefore, should bolster confidence in the active denial strategy this report describes.

Finally, this conflict demonstrates that the will to fight remains a critical element in the military balance and that military competence, in turn, affects willpower. The apparent paucity of motivated Russian infantry, and the willingness of Ukrainian infantry to engage aggressively, largely explain the extent of Russian armor's vulnerability to anti-tank fire during the early stages of the war. Historically, tanks without proper infantry support have been highly vulnerable to anti-tank fire, and although the proliferation of small but sophisticated anti-tank weapons has made them even more so, a primary cause of Russian problems also seems to have been the impact of low morale on infantry operations.

While Ukraine has demonstrated that democratic states can fight ferociously when attacked, this may not necessarily carry over to all Asian states, or to Taiwan, and to other circumstances. Ukraine's military has been sharpened by eight years of war and by reforms introduced after Russia's 2014 occupation of Crimea. In Taiwan, on the other hand, it is not clear whether the new combination of volunteers and conscription requiring very short service, four months, will produce units capable of similar operations. Almost all of the militaries of East Asia, including China's, Taiwan's, and Japan's, lack significant combat experience, and many face demographic and other challenges that have undermined their ability to man and motivate the force. While allies in Asia cannot by themselves maintain the military balance without U.S. support, U.S. officials should ensure that they take measures to make their forces combat-capable, not merely paper formations.

Appendix A: Budgetary Implications

Steven Kosiak was the lead author of this appendix.

The intent of this report is to propose an active denial strategy and force structure for the U.S. in East Asia that would be capable of effectively deterring, and, if necessary, countering and defeating possible aggression by China, while at the same time — compared with the current approach — would be less risky in terms of the potential for escalation and more affordable, and thus economically and politically sustainable. Addressing the force structure and cost-savings portions of this goal is complicated by the fungibility of the U.S. military's force structure. The fact that the same forces might be used for more than one mission makes it impossible to estimate the costs or savings associated with any changes in the strategy and force posture adopted by the U.S. military vis-à-vis China without also making assumptions about the U.S. military's strategy and force posture in other parts of the world. Fortunately, while conducting a detailed analysis of the U.S. military's strategy and force structure requirements for conflicts involving countries other than China is well beyond the scope of this report, even a relatively cursory consideration of that strategy and those requirements — combined with this report's findings concerning a China-focused strategy and requirements — suggests room for potentially significant reductions in U.S. military force structure and associated budgetary savings.

This appendix consists of two main parts. The first provides a brief assessment, suggestive rather than definitive, of the U.S. military's missions and force structure requirements globally and exclusive of a China contingency. Using an admittedly simplified and somewhat generic approach, this assessment allocates three major elements of the U.S. military's force structure — Army brigade combat teams and Marine Corps regiments, Air Force, Navy and Marine Corps fighter squadrons (including fighter and attack aircraft), and aircraft carriers — to the set of missions commonly attributed to the U.S. military as requirements, including all those outside of a China contingency. While this assessment fully allocates all of the aircraft carriers, it leaves a substantial number of fighter squadrons and, especially, BCTs and Marine Corps regiments unallocated. In other words, according to our assessment, the U.S. military has significantly more tactical air and, especially, ground force structure elements than it needs to carry out its missions effectively, exclusive of a defensive war with China, even using relatively conservative planning assumptions.

The second part of this appendix, relying on the findings described in detail elsewhere in this report, examines the impact of a China contingency on the U.S. military's force structure requirements — in other words, it focuses on what adding a China contingency does to those requirements. In brief, it concludes:

- **Ground forces.** The mission of countering possible PRC aggression in Asia would, if anything, likely require fewer ground forces than a major military operation conducted by U.S. forces elsewhere in the world. This suggests that the Army and Marine Corps ground forces that were left unallocated in the assessment of other missions are, in fact, excess to the U.S. military's global requirements.

- **Air forces.** On the other hand, the analysis of force structure requirements for a China contingency discussed in this report suggests that most of the fighter squadrons left unallocated in the assessment of other missions, though not all of them, might be needed in the event of China contingency — among other things, due to the potential for extremely high attrition rates in such a conflict. Thus, savings among these forces, while possible, are likely to be relatively modest.

- **Naval forces.** The analysis in this report confirms that aircraft carriers would play a key role in a potential war with China, but it suggests that they would be more able to survive and more deployable if reshaped and reorganized — from the current focus on large-deck carriers into a mix of a smaller number of large-deck carriers and a large number of smaller, light carriers. Here, too, while some savings are possible, they are likely to be relatively modest.

From the perspective of the U.S. defense budget these findings taken together indicate that the need to prepare for a possible war with China does not preclude the capacity to make significant reductions in overall spending. The FY 2021 Department of Defense budget totaled about $704 billion. According to the Congressional Budget Office, due to projected cost growth in pay, operations and maintenance, and weapons acquisition costs — including, for example, the costs associated with developing and producing replacements for the Minuteman III ICBM and Ohio-class SSBN — supporting the department's force structure, modernization, and readiness plans as they existed at the end of the Trump administration would require increasing the defense budget to $781 billion by 2035. (Unless otherwise noted, all cost and funding figures included in this appendix are expressed in 2021 dollars.)[525]

However, the findings summarized above and discussed in more detail below suggest that the U.S. military could maintain the capacity to carry out all of its major missions, including a war to defend against possible PRC aggression, with a military composed of significantly smaller ground forces and slightly smaller (in terms of personnel, if not necessarily force structure) and reshaped air and naval forces.

Under the recommended force structure plan outlined in Chapter 3 and described further in this appendix, funding for defense during the 2022–35 period would be held at

[525] Arthur, David, and F. Matthew Woodward. *The Long-Term Implications of the 2021 Future Years Defense Program*. U.S. Congressional Budget Office, September 2020. 1.

an average annual level roughly comparable to the level in 2021. Compared to the last Trump defense plan, which, as noted, would require annual funding to increase to some $781 billion by 2035, our recommended plan would yield average savings over the next decade and a half of some $40 billion annually, reaching about $75 billion annually by 2035.

The roughly $75 billion in annual savings that would be achieved by 2035 under our plan represent savings of about 10 percent compared with the last Trump administration plan. (See Table A.1.) This would include savings of some $46 billion and $11 billion, respectively, resulting from the reduced requirements for Army and Marine Corps ground forces, and perhaps an additional $5 billion and $13 billion respectively from reduced Air Force fighter requirements and various changes to the Navy.[526]

Although considerable uncertainty continues to surround the Biden administration's defense plans, programs, missions, and strategy, there are some indications that it will scale back and reshape some of the services' plans, perhaps significantly. These indications include, for example, tentative plans to retire some Air Force fighters earlier than previously projected[527] and reduce force-level goals for some Navy ships.[528] As such, it is possible that compared with the last Trump administration defense plan, the Biden administration's new plan will incorporate cuts of a magnitude similar to those recommended above for the Air Force and Navy — although almost certainly not the deep cuts proposed here for the Army and Marine Corps.

Table A.1: Savings from revised defense plan (2021 dollars, in billions)

	2021	2035
2020 Department of Defense (DoD) Plan	**704**	**781**
Recommended changes (annualized savings, 2035)		
Army		-46
Navy		-13
Marine Corps		-11
Air Force		-5
Total annualized savings		**-75**
Revised DoD plan (consistent with new China strategy)		**706**
Further reduced force structure requirements		
Stability operations cut to 25,000 troops		-20

[526] These estimates also include a share of savings associated with cuts to some defense agencies that would accrue as a result of the report's recommended changes to the services (*e.g.*, within the Defense Health Program).
[527] Tirpak, John A., and Tobias Naegele. "First Peak at USAF's Fighter Road Map: Fewer Jets and Types." *Air Force Magazine*, June/July 2021. 30. https://www.airforcemag.com/app/uploads/2021/06/Almanac2021_Fullissue-1.pdf.
[528] For a discussion of the Biden Administration's preliminary shipbuilding plans, see Congressional Research Service. *Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress*. August 3, 2021. 6-9. https://fas.org/sgp/crs/weapons/RL32665.pdf.

1/2 war requirement eliminated	-43
Total annualized savings from further reductions	**-63**
Combined total annualized savings	**-138**
Revised DoD plan with further reductions	**643**

* Total does not add due to rounding.

For those less persuaded by the relatively broad and, arguably overly ambitious, set of missions traditionally embraced by the U.S. national security community, or willing to accept some additional risk, even greater reductions in defense spending may be possible, while still retaining the force structure needed to carry out the robust denial strategy toward China recommended in this report. Indeed, total savings of as much as 18 percent, or $138 billion on an annual basis, again compared with the last Trump administration defense plan, could be achievable if the United States were, for example, to be satisfied with a significantly less robust capacity to conduct stability operations and forego the capacity to carry out a second, smaller military operation at the same time it is engaged in a war with China or another major competitor. (See Table A.1.) Programmatic cuts of this magnitude would allow defense budgets to be reduced below today's levels, to some $643 billion by 2035. Further savings could also be achieved through modifications to current nuclear-modernization plans or to U.S. nuclear strategy. For example, in 2017 the CBO estimated that eliminating the ICBM leg of the U.S. nuclear triad would yield savings of about $4 billion annually out to 2046.

Last, the savings generated by the recommendations in this report would be even higher, of course, if the point of comparison used is not the last Trump administration plan but proposals to grow the U.S. defense budget by as much as, for example, 3 percent a year in real terms. Increases of that magnitude would bring the Defense Department's budget to more than a trillion dollars by 2035.[529] Such proposals are often divorced from specific programs, plans, and strategies. But a sustained increase of this magnitude would clearly entail a significant expansion of U.S. forces and modernization plans. As detailed throughout this report, however, such an expansion is neither necessary nor prudent as a means of deterring or defending against potential PRC aggression.

[529] Compared to such a plan, which would lead to a Department of Defense budget of nearly $1.06 trillion in 2035, the recommendations included in this report would yield annual savings of some $350 billion (in 2035), while the deepest cut option noted above would result in annual savings of about $420 billion. *Average* annual savings over the next decade-and-a-half, compared to such a plan, would be roughly half as large.

U.S. military missions and force-structure requirements

To establish baseline force-structure requirements for budgetary analysis, this report uses as its reference point established U.S. defense strategy in all other parts of the world outside of a China contingency. It also incorporates current plans for nuclear modernization and recapitalization. This approach is adopted purely for analytical reasons, not prescriptive ones. Many analysts have argued persuasively, including in other Quincy Institute reports, that the United States' defense commitments around the world, particularly in the Middle East and Europe, are too broad.[530] These analysts point to the much greater relative capacity of European powers to provide for their own defense as compared with Asian powers, as well as the relatively limited extent of U.S. interests in the Middle East today, to advocate that the United States adopt a more restrained strategy and lighter military footprint in those areas. Some have also called for scaling back nuclear modernization plans or even eliminating ICBMs entirely, reducing the current U.S. nuclear triad to a dyad composed of bombers and SSBNs.[531] Engaging with those arguments in detailed terms is beyond the scope of our analysis, and some of the authors of this report expressly disagree with those recommendations, but we will provide some preliminary analysis below that illustrates how adjustments to some U.S. strategic goals outside of Asia could enable further reductions in U.S. defense spending. As a starting point, however, we deduce the military requirements for existing U.S. defense strategy more clearly in order to isolate the budgetary implications of our recommended strategy and force-structure changes for the Pacific theater.

Given the imprecision and vagueness often used to describe U.S. defense strategy and the major missions of the U.S. military in official testimony and documents, defining and describing the current strategy and those missions with the level of concreteness

[530] For some examples regarding the Middle East, see Gholz, Eugene. "Nothing Much to Do: Why America Can Bring All Troops Home From the Middle East." Quincy Paper No. 7, June 24, 2021. https://quincyinst.org/report/nothing-much-to-do-why-america-can-bring-all-troops-home-from-the-middle-east; Blagden, David, and Patrick Porter. "Desert Shield of the Republic? A Realist Case for Abandoning the Middle East." *Security Studies*, vol. 30, no. 1, 2021. https://www.tandfonline.com/doi/abs/10.1080/09636412.2021.1885727; Logan, Justin. "The Case for Withdrawing from the Middle East." *Defense Priorities*, September 2020. https://www.defensepriorities.org/explainers/the-case-for-withdrawing-from-the-middle-east; Manning, Robert A., and Christopher Preble. "Rethinking U.S. military policy in the Greater Middle East." Atlantic Council New American Engagement Initiative, June 24, 2021. https://www.atlanticcouncil.org/content-series/reality-check/reality-check-8-rethinking-us-military-policy-in-the-greater-middle-east. For arguments regarding the potential to reduce U.S. military commitments in Europe, see Posen, Barry. "Europe Can Defend Itself." *Survival*, vol. 62, no. 6, 2020. https://www.tandfonline.com/doi/full/10.1080/00396338.2020.1851080; Shifrinson, Joshua R. "The Dominance Dilemma: The American Approach to NATO and its Future." Quincy Brief No. 8, January 28, 2021. https://quincyinst.org/report/the-dominance-dilemma-the-american-approach-to-nato-and-its-future.

[531] Perry, William J. "Why It's Safe to Scrap the ICBMs." *The New York Times*, September 30, 2016. https://www.nytimes.com/2016/09/30/opinion/why-its-safe-to-scrap-americas-icbms.html; Snyder, Ryan. "The Future of the ICBM Force: Should the Least Valuable Leg of the Triad Be Replaced?" Arms Control Association, March 2018. https://www.armscontrol.org/policy-white-papers/2018-03/future-icbm-force-should-least-valuable-leg-triad-replaced. For a more transitional or middle-ground argument, see Hinck, Garret, and Pranay Vaddi. "Setting a Course Away from the Intercontinental Ballistic Missile." *War on the Rocks*, February 16, 2021. https://warontherocks.com/2021/02/setting-a-course-away-from-the-intercontinental-ballistic-missile; Perkovich, George, and Pranay Vaddi. *Proportionate Deterrence: A Model Nuclear Posture Review*. Carnegie Endowment for International Peace, 2021. https://carnegieendowment.org/2021/01/21/proportionate-deterrence-model-nuclear-posture-review-pub-83576.

needed to provide meaningful planning guidance requires the application of some judgment. That said, a strategy that focuses on the six missions listed below appears strongly consistent with various official pronouncements of recent administrations and discussions within the national-security community, as well as the historical record of the recent past.

- Maintain a forward presence in Europe and South Korea.[532]
- Sustain a major stability operation.
- Conduct a large-scale military operation in one region.
- Conduct a smaller military operation, or deter a potential aggressor, in a second region.
- Conduct major homeland security operations.
- Maintain a strategic reserve.

Consistent with the approach previewed above, the first part of this appendix focuses on the U.S. military's force-structure requirements for these six missions — excluding consideration of a potential conflict with China. Generally, a conflict with China is assumed to fall squarely within the third mission listed above — the capacity to conduct a large-scale military operation in one region — and is assumed to be the most demanding contingency for this mission. But in keeping with the approach previewed above, in the first part of this appendix the potential challenges the U.S. military might have to counter in carrying out such a mission are instead focused on other possible adversaries, such as Russia, North Korea, or Iran.

Even removing a possible China contingency, the six missions listed above represent a very ambitious set of missions — perhaps significantly more ambitious than is necessary or even prudent. But assuming that the ability to carry out these six missions effectively, either simultaneously or in rapid succession, represents a reasonable goal for the U.S. military, what size and type of force structure would be needed to accomplish them — again, assuming for the moment the absence of a potential China contingency? Like questions about the appropriate set of missions the U.S. military should be capable of carrying out, this is a question about which reasonable minds can differ. But even using relatively conservative planning assumptions, something like the force structure and force posture described below might reasonably be thought sufficient.

[532] Of course, the U.S. military also has a forward presence in Japan, but that is considered as part of a China-related contingency and denial strategy.

Force structure required for U.S. military missions globally — excluding a China contingency

As noted earlier, this report takes a simplified approach to estimating force-structure requirements for missions other than a potential defensive war with China. Specifically, the approach focuses on Army BCTs and Marine Corps regiments for ground forces, Air Force, Navy, and Marine Corps fighter squadrons (tactical fighter and attack) for air forces, and aircraft carriers for naval forces. While simplified, this approach is sufficient to provide a rough but useful first-order estimate of the overall force-structure requirements and costs associated with a defense strategy capable of performing the six missions specified above. To the extent that this list is derived from official pronouncements, it draws primarily from the Obama and Trump administrations, as the Biden administration is still formulating some major elements of its national-security and defense strategies.

Maintaining a forward presence in Europe and South Korea

At present, during peacetime, the U.S. military has two BCTs permanently stationed in Europe[533] and one in South Korea.[534] Additional units are frequently rotated through both locations on temporary deployments. In addition, there are substantial fighter deployments in Europe and South Korea. The size of the squadrons into which fighter aircraft are organized varies considerably within and between the services. For the sake of consistency, in this report all fighter squadrons are normalized into notional units consisting of 12 primary aircraft authorizations, PAAs.[535] Grouped in this fashion, during peacetime there are typically about 12 Air Force fighter squadrons stationed in Europe and eight in South Korea.[536]

Here it is assumed that, in wartime, this presence would be maintained at no fewer than one BCT and five fighter squadrons each in Europe and South Korea. In other words, in the event of a war in the Middle East or Europe, for example, one of the two BCTs and seven of the 12 fighter squadrons stationed during peacetime in Europe, and three of the eight fighter squadrons permanently stationed in South Korea, could be deployed to a conflict. But the single BCT permanently deployed to South Korea could not be moved. The logic here is that, even in the event of a major conflict elsewhere, the U.S. would

[533] McInnis, Kathleen J., and Brendan W. McGarry. "*United States European Command: Overview and Key Issues.*" Congressional Research Service, August 4, 2020. 1.
[534] *The Military Balance, 2021*. International Institute for Strategic Studies, February 2021. 61.
[535] PAA levels reflect the number of aircraft a unit is intended to be able to operate at all times. It a subset of the—often much larger—total aircraft inventory, which also includes aircraft used for training and testing, undergoing maintenance and repair, or available as an attrition reserve.
[536] In terms of actual squadron organizations, the U.S. Air Force typically has six fighter squadrons stationed in Europe (*The Military Balance, 2021*. IISS. 57) and four fighter squadrons stationed in South Korea (Units, 7th Air Force, https://www.7af.pacaf.af.mil/units/ and 8th Operations Unit, Kunsan Air Base, https://www.kunsan.af.mil/Units/8th-Operations-Group/). The smaller number of squadrons reflects the fact that, as noted in Chapter 3, in practice, the Air Force generally organizes its fighter aircraft into 24-aircraft squadrons.

need to maintain a presence in these two critical regions to help deter any opportunistic aggression.

In sum, it is assumed here that the requirement to maintain a minimum forward deployment in Europe and South Korea would absorb a total of two active BCTs and 10 fighter squadrons.

Sustaining a major stability operation

The Obama and Trump administrations reduced the priority put on large-scale, prolonged stability operations. Nevertheless, history suggests that the U.S. military might once again become involved in such operations. It seems unlikely that the U.S. military would start a major stability operation after it has become involved in a major conflict in another region. However, it is possible that the U.S. military would become involved in a major stability operation at some point and, subsequently, face a crisis or war in one or more regions. Since, for logistical and policy reasons, the U.S. military might not be able to disengage quickly from a major stability operation, here it is assumed that the U.S. must have sufficient force structure to sustain such an operation through at least the initial phase of any large-scale and/or smaller military conflict in which it might unexpectedly become engaged. Again, this assumption is not included to suggest that the United States ought to be engaging in these operations; rather, it is made to establish a conservative baseline for analytic purposes.

For the purposes of this estimate, we assume that the stability operation the U.S. military would need to be capable of sustaining would involve some 50,000 troops. This is about one-third and one-half the number of troops the U.S. military had deployed in Iraq and Afghanistan respectively during the peak years of those engagements, but significantly larger than the earlier U.S. deployments to, *e.g.*, Somalia, Bosnia, and Kosovo. As such, as a planning requirement, it appears roughly consistent with the diminished priority given to stability operations by the Obama and Trump administrations.

It is assumed here that this force of 50,000 troops would be organized around five BCTs, or some combination of Army BCTs and Marine Corps regiments,[537] but that sustaining the operation on an ongoing basis would take a total of 10 BCTs off the table in terms of availability for rapid deployment to a major regional conflict, or a war with China. This is because we assume that for every BCT deployed in-country, another would be back in the United States recovering from a recently completed rotation. We assume that a total of four Air Force fighter squadrons would be deployed in support of the stability

[537] In the analysis in this section, for simplicity, no distinction is made between Army and Marine Corps ground units. Unless otherwise noted, references to "BCTs" may refer to Army BCTs or Marine Corps regiments.

operation,[538] in-country and in-theater, and that another four would be back in the U.S. recovering from recently completed rotations.

In sum, we assume here that the requirement to sustain or be capable of sustaining a medium-sized stability operation, or two or more smaller ones, would absorb a total of 10 BCTs and eight fighter squadrons. We also assume that all 10 BCTs would be active-duty units.

Conducting a large-scale military operation in one region other than against China

The Obama and Trump administrations called for the capacity to conduct a large-scale military operation in one region while simultaneously denying the objective of or deterring an opportunistic aggressor in another region. Here we assume that to carry out this mission against a major adversary other than China — such as Russia, North Korea, or Iran — the U.S. military would need essentially the same size forces it employed in the opening, conventional phase of Operation Iraqi Freedom, OIF. Those forces consisted of about 12 Army and Marine Corps BCTs[539] and 55 Air Force, Navy, and Marine Corps fighter squadrons.[540] Because these forces might need to be rapidly deployed, here, too, we assume that all 12 Army and Marine Corps BCTs would be active-duty units. In terms of naval forces, we assume that five carrier battle groups would be deployed, along with their associated air wings.[541]

In practice, the mix of forces required to conduct such a large-scale military operation could vary significantly, depending on, among other things, where and against which particular country the U.S. military would be fighting. That said, the forces specified here would offer, for any of these contingencies, a substantial U.S. military capability from which to draw. In the unlikely event that additional forces would be required to carry out this mission, the U.S. military could also draw on the strategic reserve we assume it would maintain, as discussed below, and potentially other forces allocated to what might be considered lower priority missions, to bring the total number of BCTs to as many as 22 to 27, and the number of fighter squadrons to perhaps as many as 67.[542]

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[538] This estimate is consistent with RAND analysis of force package requirements for stability operations, historically. Vick, Alan J., Paul Dreyer, and John Speed Meyers. *Is the USAF Flying Force Large Enough*. RAND Corporation, 2018. 77.
[539] Holtz-Eakin, Douglas, director of the Congressional Budget Office. "The Ability of the U.S. Military to Sustain an Occupation in Iraq: Statement before the House Armed Services Committee." November 3, 2003. 4.
[540] Authors' estimate derived from Mosely, T. Michael. "Operation Iraqi Freedom—By the Numbers." U.S. Air Forces Central, April 30, 2003. 6-7.
[541] Of the 11 U.S. Navy aircraft carriers, it assumed that a total of seven could be deployed during the initial phase (*i.e.*, within 90 days) of a conflict, with the other four carriers undergoing maintenance or training. Talaber, Adam. *The U.S. Military's Force Structure: A Primer, 2021 Update*. Congressional Budget Office, May 2021. 54. Of these seven available carriers, it is assumed that five would be deployed to large-scale military operations (the number deployed to OIF).
[542] Drawing on the strategic reserve (discussed later in this section) would allow the U.S. military to increase the number of BCTs available to conduct a large-scale military operation to 22. If it were also, for example, willing to deploy BCTs that might be recovering from deployments to stability operations, it could increase the number available to 27. In addition, drawing on the strategic reserve would allow the U.S. military to increase the number of fighter squadrons available for a large-scale military operation to 67. These measures would result in U.S. forces substantially in excess of what was deployed in OIF, even including the three allied BCTs and 6 or 7 allied fighter squadrons deployed in that conflict.

Conducting a smaller military operation in a second region

In addition to the capability to conduct a large-scale military operation in one region, as noted above, the Obama and Trump administrations called for forces sufficient simultaneously and effectively to deny or deter — rather than decisively defeat — another opportunistic regional aggressor. In this case, too, the size and type of forces that would be needed to accomplish this mission are highly uncertain. Absent a better proxy for the capability that might be required, here we assume that the U.S. military would need forces one-half the size of those it deployed during the initial, conventional phase of Operation Iraqi Freedom — specifically, six BCTs and 28 fighter squadrons. And, once again, since these forces might need to be rapidly deployed, here too, we assume that all six BCTs would be active-duty units. For naval forces, we assume that two carriers would be available to be deployed in support of the operation.

Homeland security operations

For the homeland security mission, we assume here that the U.S. military would need to maintain a minimum of five National Guard BCTs[543] and 16 Air Force fighter squadrons.[544] Any other non-deployed active-duty or National Guard and reserve units could also be used to provide additional capability.

Strategic reserve

For the purposes of this assessment, we assume that the U.S. military would maintain a strategic reserve consisting of 10 National Guard BCT equivalents and 12 land-based Air Force or Marine Corps fighter squadrons. These forces, which constitute roughly 15 percent of the current force structure for ground forces and 10 percent for land-based fighters, would be used to fill any unexpected gaps in mission coverage that might emerge, or to replace or relieve units attrited in performance of one of the other missions.

[543] This estimate is the same as that assumed, for example, in the Army's *2009 Total Army Analysis* (TAA). Larson, Eric V. "Force Planning Scenarios, 1945-2016." RAND Corporation, 2019. 208.
[544] Combined with other non-deployed squadrons, this force would be sufficient to deploy roughly the same number of fighters for defense of the homeland as the USAF did at the end of the Cold War.

Existing vs. required force structure: Adding a China contingency

The above assessment of the force-structure requirements associated with the set of missions described earlier suggests significant excess force structure in the U.S. military in the cases of ground forces and tactical air forces. Specifically, it suggests that the U.S. military may currently contain some 26 more active-duty (10) and reserve (16) Army BCTs and Marine Corps regiments and 27 more fighter squadrons than it is likely to need to carry out those missions. (See Table A.2.) But, of course, the set of missions discussed above specifically excludes the need to prepare for a possible war with China — probably the most demanding contingency the U.S. military could face in coming years.

The second part of this appendix, drawing on the findings described in detail elsewhere in this report, focuses on what adding a China contingency does to the U.S. military's force-structure requirements. It examines the question of whether adding a possible war to defend against PRC aggression in the Western Pacific to the set of missions for which the U.S. military must be prepared significantly changes the tentative assessment of force-structure requirements provided above and, if so, in what ways and with what budgetary implications. The three tables at the end of this appendix summarize the force-structure assumptions described earlier for each mission and the impact of adding consideration of a China contingency to the large-scale military operation.

The section below summarizes the major force-structure changes recommended in this report and provides estimates of the budgetary savings those changes are projected to yield — compared with the last Trump administration defense plan — for ground, air, and naval forces. As noted earlier, the CBO projected the cost of executing the last Trump administration plan to increase from about $704 billion to $781 billion from 2021 to 2035. When fully implemented, the changes recommended in this report would yield annual savings of some 10 percent, or $75 billion, compared with that plan. (See Table A.1.) Although the savings would likely be somewhat less compared with the emerging Biden administration plan, they would remain significant.

Ground forces

We assume in the above assessment that the U.S. military would need to deploy 12 BCT equivalents in the event of a large-scale military operation fought against Russia, North Korea, Iran, or another major regional competitor, though substantially more could be made available by drawing up the strategic reserve or units recovering from stability operations. By contrast, the detailed analysis in Chapter 3 of this report of China-focused force-structure requirements finds that at most six BCT equivalents, and possibly far fewer, are likely to be employed in a major war to defend against PRC aggression.

Ground forces could prove critical in some China-focused scenarios, most obviously a Chinese invasion of Taiwan. However, Taiwan has sizable ground forces, as do other regional friends and allies, including Japan. In the case of a major war with China, the critical value-added assets of the U.S. military are air and naval forces; the need for U.S. ground forces would be minimal.

Given that six BCT equivalents are half the number assessed as likely to be needed, and thus required to be available under the planning assumption described earlier, for a large-scale military operation elsewhere against a different adversary, adding the China contingency to the mix does nothing to provide a rationale for the 10 active and 16 reserve BCT equivalents unallocated in the above assessment of other missions. As such, we assume here that those unallocated ground forces could be eliminated without an adverse impact on the U.S. military's capacity to carry out effectively a large-scale military operation against China, or any other potential adversary, or perform any of the other five missions described earlier.

For the purposes of estimating potential savings from the last Trump administration plan, we assume that of the eliminated units, 22 would be BCTs taken from the Army — eight active and 14 National Guard — and four would be regiments taken from the Marine Corps, two active and two reserve. In general, we assume that other Army combat and support elements would be cut in proportion to these reductions. However, consistent with the report's recommendations, some Army forces, including Patriot air defense batteries, would be protected from cuts. On net, we estimate that, by 2035, these changes would yield total annualized savings of about $57 billion compared with the last Trump administration plan, consisting of savings of $46 billion for the Army and $11 billion for the Marine Corps. While the savings might be somewhat less compared with the Biden administration's plans for these two services, they would almost certainly remain large, as to date the new administration has given no indication that it plans to make cuts of anything like this magnitude to U.S. ground forces.

Air forces

In contrast to the case with ground forces, wherein adding a China contingency to the mix of potential large-scale military operations the United States must be prepared to carry out simply highlights the degree to which the U.S. military is currently overinvested in those forces, in the case of tactical air forces, adding a China contingency explains the need for some of what would otherwise appear to be excessive tactical air force structure. As discussed in detail in Chapters 2 and 3, there are significant concerns as to how U.S. fighter forces are organized, related in large part to the vulnerability to missiles of large main operating bases on land and large-deck aircraft carriers at sea. These and other considerations also place practical limits on how many fighter squadrons could be effectively deployed to the region during a conflict. Likewise, the

great distances that distinguish parts of the Pacific theater from other potential war zones increases the utility of bombers relative to fighters for various roles.

Nonetheless, U.S. fighter aircraft would likely play a critical role in a potential war to defend against PRC aggression. Among other things, they are likely to be needed to defend or open up airspace against Chinese fighter forces and for denial missions in which a fast response time is crucial to blunt initial assaults. Moreover, although some of the measures recommended in Chapters 2 and 3 (*e.g.*, for greater dispersal of U.S. tactical air forces) would help reduce U.S. losses, in a high-intensity war with China, losses could be severe — potentially in fighter aircraft and ground-support crews and equipment. Even with these China-specific considerations taken into account, the overall size of U.S. tactical air forces appears somewhat excessive — but substantially less so than suggested in the assessment of force-structure requirements absent a potential China contingency. Reflecting this judgment, we assume in this report that the U.S. military could safely eliminate a total of 16 land-based Air Force fighter squadrons — or eight, assuming 24–aircraft squadrons.[545] This is slightly more than half the number of fighter squadrons unallocated in the assessment of force-structure requirements exclusive of a potential China contingency.

In contrast to the case with U.S. Air Force and Marine Corps fighter forces, for which Chapter 3 recommends a relatively modest downward adjustment, in all other major components of land-based air power, it recommends holding relatively close to current plans. Air Force mobility forces, both airlift and tanker support, are critical for effective operations in the Pacific, and also for allowing for the rapid deployment and redeployment of U.S. forces should it prove necessary to carry out multiple missions simultaneously or in rapid succession — *e.g.*, a large-scale military operation against China and a second, smaller war in another region. Similarly, bomber forces would likely prove highly useful in the event of a war with China. Although Chapter 3 raises questions about some of the technical and performance characteristics of the Air Force's planned new bomber, as well as associated escalation risks, in the cases of Air Force mobility and bomber forces the report assumes the planned levels of force structure and investment are generally appropriate. Nor does the report recommend any major changes in Air Force C4ISR, special operations, or other capabilities that would be likely to yield significant budgetary savings. Moreover, a number of the recommendations included in the report — for example, to reorganize tactical air forces into smaller units, to increase aircraft shelter hardening and concealment measures, and to develop a new standoff bomber — would increase costs compared with the current plan.

As such, it is estimated that the net savings resulting from the changes to the Air Force's structure and programs recommended in this report would be far more modest than in the case of ground forces. Altogether, we estimate that, compared with the last

[545] As explained earlier, for the sake of consistency across the services, this appendix uses notional 12-aircraft squadrons **as** the units of account in its analysis. This differs from the discussion of Air Force fighter squadrons in Chapter 3, which uses notional 24-aircraft squadrons—reflecting that, in practice, the Air Force generally organizes its fighter forces into squadrons of that size.

Trump administration plan, once fully implemented the changes to the Air Force's plans recommended in this report would yield net annual savings of about $5 billion. Until the Biden administration provides more details concerning its long-term plans for the Air Force, it is impossible to estimate the savings deriving from these recommendations compared with the new administration's plans. However, as noted earlier, there are indications that its plans for the Air Force will be at least modestly less expansive and costly than the last administration's, suggesting that this report's recommendations for the Air Force might be essentially budget neutral compared with the Biden administration's plans for the service.

Table A.2: U.S. force-structure requirements

(A) U.S. force-structure requirements exclusive of a China contingency

	Current forces	Required forces	Unallocated force structure
Ground forces			
Active Army BCTs & MC rgmts	40	30	10
NG & reserve BCTs and rgmts	31	15	16
Fighter squadrons (all services)*	164	137	28
Aircraft carriers (CVNs)	11	11	0

(B) Additional U.S. force structure for a China contingency

Ground forces	Additional forces	Unallocated force structure
Active Army BCTs & MC rgmts	0	10
NG & reserve BCTs & rgmts	0	16
Fighter squadrons (all services)*	+12	16
Aircraft carriers (CVNs/CVLs)	–5/+12	NA

Total U.S. force-structure requirements (A+B)

	Current forces	Total required forces	Excess force structure
Ground forces			
Active Army BCTs & MC rgmts	40	30	10
NG & reserve BCTs & rgmts	31	15	16
Fighter squadrons (all services)*	165	149	16
Aircraft carriers (CVNs/CVLs)	11/0	6/12	NA

* Primary aircraft authorizations, PAAs, standardized into 12–aircraft fighter squadron equivalents.

Naval forces

The analysis in Chapters 2 and 3 confirms, unsurprisingly, that U.S. naval forces would play a key role in any effort to defend against PRC military aggression in the Western Pacific. More so than in the case of the Air Force, the report recommends a reshaping and reorganization of naval forces. Although larger than the savings proposed for the Air Force, the net savings these changes would yield compared with the Trump administration's plan are, unlike those proposed for ground forces, still relatively modest.

The most significant change recommended for the U.S. Navy is the report's proposal to move from a fleet of 11 large-deck aircraft carriers to a more dispersed force consisting of six large-deck carriers and 12 smaller, light carriers, CVLs, to enhance the survivability and deployability of its sea-based aviation. Compared with the Trump administration's 355–ship Navy plan, the report also recommends reducing the number of large surface combatants, increasing the number of small surface combatants, and holding the number of attack submarines at today's level rather than increasing the size of the SSN fleet.

Once fully implemented, compared with the Trump administration's 355–ship Navy plan, these changes would generate net annual savings of some $13 billion. Although these savings are greater than those estimated earlier for the Air Force, as in the case of the recommendations contained in Chapter 3 for that service, it is unclear whether these proposed changes for the Navy would yield savings compared with the Biden administration's plans. As with its plans for the Air Force, the current administration's plans for the Navy are not yet fully fleshed out, but they include some potentially significant reductions from the Trump administration's 355–ship Navy plan. As a result, it is possible that the changes proposed for the Navy in this report might also be essentially budget-neutral compared with the plan finally proposed by the Biden administration. The savings would be substantially greater if, rather than the last Trump administration plan, the recommendations for naval forces included in this report are compared with proposals to expand the Navy — such as the Navy's *Battle Force 2045* proposal[546] and recommendations made by the Hudson Institute in its report *American Sea Power at a Crossroads: A Plan to Restore the U.S. Navy's Maritime Advantage*.[547] According to a CBO study, the proposed new Navy plan would cost some $6 billion a year more to sustain over the long term than the Navy's program of record submitted with the last, FY 2021, Trump administration defense budget request.[548] This suggests

[546] Formally known as the Future Naval Force Study, the proposal was submitted to Congress in December 2021.
[547] Clark, Bryan, Timothy A. Walton, and Seth Cropsey. *American Sea Power at a Crossroads: A Plan to Restore the U.S. Navy's Maritime Advantage*. Hudson Institute, October 2020. https://s3.amazonaws.com/media.hudson.org/Clark%20Cropsey%20Walton_American%20Sea%20Power%20at%20a%20Crossroads.pdf.
[548] Labs, Eric. "An Analysis of the Navy's December 2020 Shipbuilding Plan." Congressional Budget Office, April 2021. 5. https://www.cbo.gov/system/files/2021-04/57091-Shipbuilding.pdf.

that, compared with that plan, the recommendations for the naval forces included in this report would save an average of some $16 billion annually.

Deeper cuts and larger savings may be possible

Some will argue that the detailed assessment in this report concerning U.S. force-structure requirements for a major war with China and, perhaps particularly, the much more simplified and somewhat generic force-structure estimates made in this appendix for other missions substantially understate those requirements and associated costs. But one can equally argue that the set of missions identified in this appendix for the U.S. military is overly ambitious and that, even accepting those missions as necessary and appropriate, the force-structure requirements specified in the earlier assessment are in some cases excessive. In either case, the above estimates may significantly understate the force-structure cuts and budgetary savings that may be achievable while still providing the U.S. military with a robust capability to counter potential PRC aggression in a large-scale military operation.

The ways in which the missions discussed above might be deemed overly ambitious include the need to carry out stability operations that would still be much larger than those the U.S. military carried out for the three decades between the Vietnam War and Operation Iraqi Freedom, the need to conduct a second, smaller war, when already engaged in a large-scale military operation, and the need to maintain such a large strategic reserve. Such requirements might easily be considered excessive if the United States were to shift toward a more restrained grand strategy, trimming defense commitments in Europe and the Middle East. One might also question the assumption that Army BCTs and Air Force fighter squadrons brought back from deployments to stability operations would be unavailable for deployment to other unanticipated military operations — even, in some cases, after having spent several months or more at home recovering. For those willing to accept some additional risk or who are less convinced of the need for simultaneity or near-simultaneity in the performance of all of the U.S. military's major missions, a smaller overall military force structure might also suffice.

As an illustration of what could be possible, it might be useful to consider the impact of modifying just two of the assumptions just highlighted. If, for example, the requirement to sustain 50,000 troops in a major stability operation was downsized to a requirement for 25,000 troops, the force structure required could be cut by five active BCTs and two fighter squadrons. Once fully implemented, reductions of this magnitude would yield additional annualized savings of some $20 billion. Similarly, if the requirement to be able to wage a second, smaller war while already engaged in a large-scale conflict was eliminated, it might be possible to cut six active BCTs and perhaps 20 fighter squadrons.[549] This change would ultimately result in annualized savings of roughly

[549] This estimate assumes that, under this option, only the ground forces and land-based (Air Force and Marine Corps) fighter squadrons required to perform this mission would be eliminated, not the aircraft carrier air wings (and carriers) associated with it. If

another $43 billion. (See Table A.2.) Adjusting requirements in this way could be done without affecting the forces needed to deter and counter possible PRC aggression as recommended in this report. It would, however, require more prioritization in U.S. grand strategy and a greater degree of U.S. restraint in places such as Europe and the Middle East, coupled with increased defense contributions and diplomatic engagement by countries within those regions.

Taking both of these measures together would yield annualized savings by 2035 of some $63 billion. Adding these cuts to the $75 billion in savings described earlier would result in total annualized savings of about $138 billion by 2035. These reductions would, in turn, drive down the long-term funding requirements for the U.S. military to some $643 billion, about 18 percent below the projected average annual costs of the last Trump administration defense plan. Programmatic cuts of this magnitude would allow defense budgets not only to be held flat, but to be reduced below today's levels. And all of this could be done without affecting our ability to deter China from engaging in aggression.

Finally, it is worth noting that changes to U.S. nuclear modernization plans or nuclear strategy could permit additional cuts to defense spending, given the heavy price tag of current plans. For example, in 2017, the CBO estimated that eliminating the ICBM leg of the triad would yield savings of about $120 billion over the next 30 years, resulting from lower acquisition costs, since no new ICBM would be procured, and lower operations and support costs, since the current ICBM force would be deactivated, or an average of some $4 billion a year in savings through 2046.[550] Short of ICBM elimination, savings could also be achieved by foregoing some current recapitalization plans and extending the lifespan of currently deployed Minuteman missiles, pending further progress toward new arms-control agreements.[551] However, these proposals for changes to nuclear modernization plans are beyond the scope of this report and not supported by all of this report's authors.

Conclusion

This report argues that a China-focused strategy of active denial would be a more effective means of deterring and, should war come, countering and ultimately defeating an aggressive China than the current strategy of control. This appendix shows that such a strategy could be implemented — through the recommended changes in force structure, modernization plans, organization, and other areas contained in this report — within top line defense-spending levels that are lower than would be required to execute

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the two carriers and air wings associated with the mission were also eliminated, annual savings would increase to some $40-45 billion.

[550] U.S. Congressional Budget Office. *Approaches for Managing the Cost of US Nuclear Forces, 2017-46*. October 2017. 4. https://www.cbo.gov/system/files/115th-congress-2017-2018/reports/53211-nuclearforces.pdf.

[551] Hinck and Vaddi. "Setting a Course Away from the Intercontinental Ballistic Missile;" Perkovich and Vaddi. *Proportionate Deterrence: A Model Nuclear Posture Review*.

the last Trump administration defense plan, or the plan that, at least at present, appears to be emerging from the Biden administration.

That said, the budgetary savings described in this appendix stem primarily from its assessment of the force-structure requirements associated with U.S. military missions other than that of defending against a military challenge from China. The China-focused changes that are the focus of this report's recommendations primarily concern U.S. air and naval forces and yield only relatively modest savings, compared to the last Trump administration plan, and may even be budget-neutral compared to the emerging Biden administration plan. In all cases, by far the largest share of any budgetary savings result from the relatively deep cuts made to ground forces, the element of the U.S. military's force structure that, overall, has the least relevance to a potential war with China.

Nonetheless, this analysis demonstrates that even in the air and naval domains, there is no need to increase U.S. military spending to compete with China, as some have advocated — including Mark Esper, the former defense secretary, in the *Battle Force 2045* proposal. Rather, a much smarter and more efficient allocation of funding in each service, especially in the Navy, can help ensure that the United States is able to maintain an effective deterrent against possible PRC aggression.

Additional tables

Table A.3: Force structure requirements, ground forces

Current Army BCTs and Marine Corps regiments			
Active	**40**		
National Guard and reserve	**31**		
required BCTs and regiments excluding a China contingency			
Active Army and Marine Corps			
	Committed	**Recovering**	**Total**
Forward presence	2	0	2
Homeland security	0	0	0
Stability operations	5	5	10
OIF–size military operation	12	0	12
Half OIF–size military operation	6	0	6
Total	**25**	**5**	**30**
Unallocated BCTs and regiments (current, required)			**10**

Army National Guard and Marine Corps reserve

	Committed	Recovering	Total
Homeland security	5	0	5
Strategic reserve	10	0	10
Total	**15**	**0**	**15**

Unallocated BCTs and regiments (current, required)	**16**
Additional BCTs and regiments for a China contingency	
Active:	**0**
National Guard reserve	**0**
Excess force BCTs and regiments	
Active (unallocated, additional)	**10**
National Guard and reserve (unallocated, additional)	**16**

Table A.4: Force structure requirements, fighter forces

Current Air Force, Navy, and Marine Corps fighter squadrons*

Total (active, reserve, National Guard)	**165**

* Each squadron includes 12 primary aircraft authorizations

Required Air Force, Navy, and Marine Corps fighter squadrons

	Committed	Recovering	Total
Forward presence	10	0	10
Homeland security	12	0	12
Stability operations	4	4	8
OIF–size military operation	55	0	55
Half OIF–size military operation	28	0	28
On non-deployed carriers	0	12	12
Strategic reserve	12	0	12
Total	**122**	**16**	**137**

Unallocated fighter squadrons (current, required)	**28**
Additional fighter squadrons for a China contingency	**12**
Excess fighter squadrons (unallocated, additional)	**16**

Appendix B: War Game Design and Implications

Eric Heginbotham and Matthew Cancian authored this appendix.

In support of the project, the authors of the report, together with members of the working groups, conducted two operational war games. The war games served multiple functions. The first and perhaps most important was informative and was intended to provide a common baseline for understanding major elements of the military challenges in Asia. The games helped participants understand the nature of the military forces involved, their relative numbers, basing, speed of movement, and effective ranges. A second was analytic and was intended to better understand how the various parts of a conflict might relate to one another, as well as to help assess whether the forces described in the report could meet military requirements in the 2035 time frame.

Scenarios and game design

The scenarios were designed to challenge U.S. forces in a high-intensity conflict and were not selected as the most likely to occur. One involved a clash between Japan and China over the control of the Senkaku/Diaoyu Islands that escalated to draw in a broader array of U.S., Japanese, and Chinese forces. A second involved a PRC attempt to occupy Taiwan by force. Both were set in 2035, and player teams included groups controlling the military forces of China, the United States, and Japan. The teams were permitted to engage in political discussions, and basing decisions by the Japanese team were critical in the Taiwan scenario, but the groups primarily modeled theater commands and the objectives given to them by the white cell were primarily operational, since the games were intended to consider military forces and their functions.

The assumptions about U.S. force development were largely consistent with the recommendations of this report. We did not postulate an increase in military budgets or larger force structures. Emphasis was on relatively smaller systems and more agile concepts. There were, therefore, as many light carriers as large-deck carriers, more frigates and fewer cruisers, and the U.S. Air Force was capable of conducting distributed operations. However, we did not assume a significant increase in infrastructure preparation on the part of allies, *e.g.*, building new hardened aircraft shelters, which would almost certainly have improved outcomes considerably.

Before describing the game play and outcomes, it is important to note that war games are essentially campaign models that pause the action at regular intervals to allow human players to redirect forces and issue orders. The map covered Northeast Asia, from the northern Philippines to central China to Guam and Hokkaido, and depicted

military facilities, including air and naval bases, hardened and underground shelters, and key aspects of civilian infrastructure. The game contains more than 2,500 individual counters to represent ground forces, aircraft, warships, surface-air-missiles, and land-attack missiles. Matthew Cancian and Eric Heginbotham established unit parameters and mechanics following months of operations research on the elements of a potential U.S.–China war in the western Pacific. Results from war games should not be taken as "real" — how technology will perform in future war is highly uncertain — but the values chosen were generally consistent with professional estimates and historical precedent.

Game No. 1: Senkaku/Diaoyu Islands, 2035

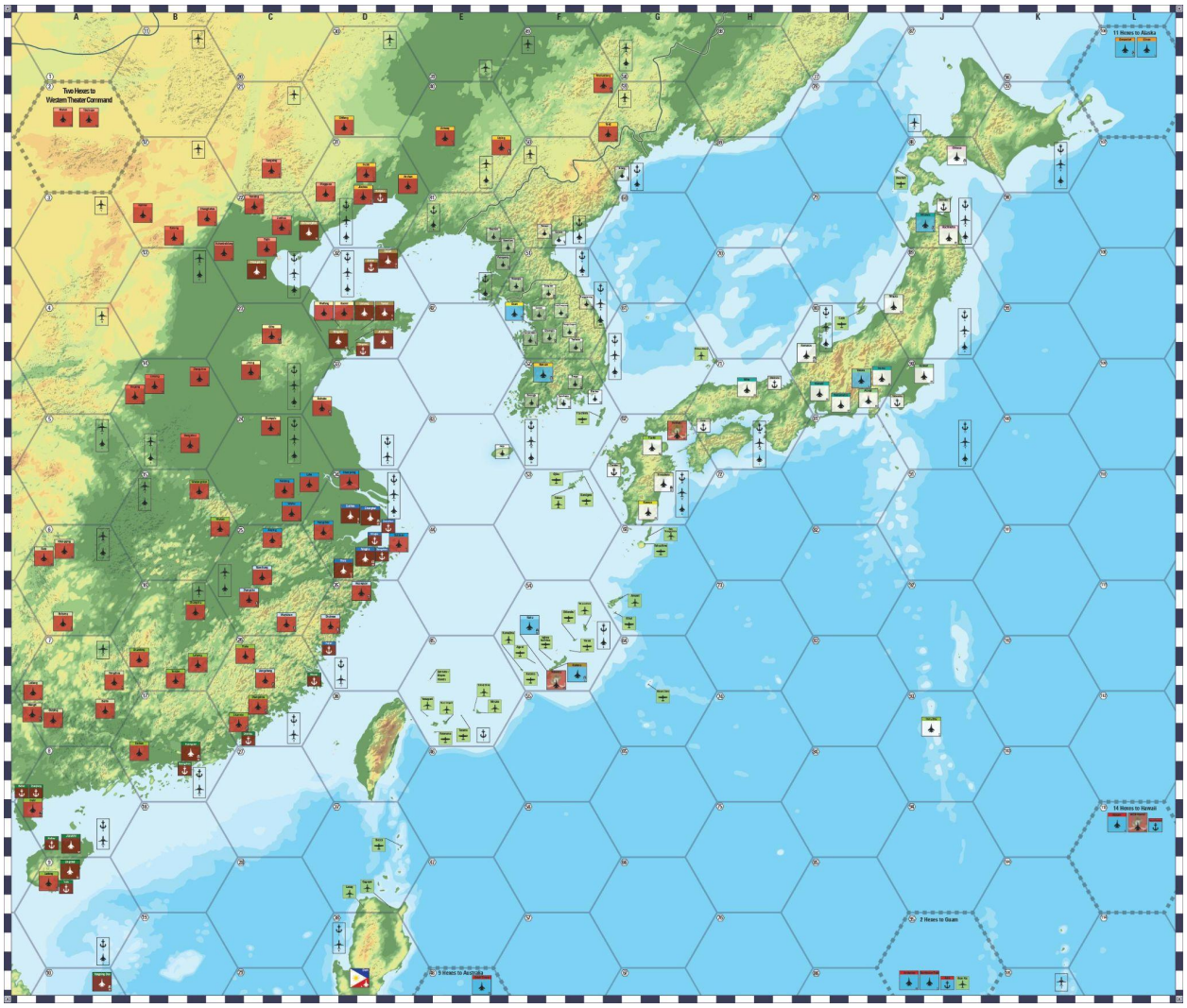
The scenario depicts a world in which PRC gray-zone activity has increased and tensions between Japan and China have sharpened. Following a fatal collision between Japanese and Chinese aircraft, China declares that its Coast Guard will, for the safety of all, take full control of the Diaoyu Islands and issues a Notice to Airmen (NOTAM) instructing all non–PRC shipping and aircraft to stay out of the vicinity. A Chinese surface action group, SAG, moves into the waters around the Senkaku Islands. Japan challenges the exclusion zone, and clashes occur as China engages Japanese aircraft. Japan gains the upper hand in the immediate vicinity of the Senkakus and China decides to escalate. It strikes the Japanese air base at Naha, a dual-use field that also functions as Okinawa's main international airport. Japan opts to fight, and the United States backs its ally.

Course of conflict

During the first several days of conflict, U.S. and Japanese forces dispersed aircraft to civilian fields and mixed their aircraft at military bases, while running combat sorties down to the end of the Ryukyu chain. China expands its missile strikes to encompass U.S. bases on Okinawa, Kadena and Futenma. U.S. aircraft then launch salvos of LRASMs at the PLA task force off the Senkaku Islands, while Japan, having issued preparatory orders days earlier, dispatches part of its rapid amphibious brigade by MV–22 to occupy the Senkaku Islands, with combat aircraft running escort. Several PRC submarines, which had been picked up acoustically by underwater sensors running the length of the Ryukyu chain and trailed, were destroyed, though others were known to have escaped their trails.

Having taken significant air and naval losses, China further expanded the conflict with strikes on Japanese bases on Kyushu, now housing U.S. as well as Japanese aircraft, inflicting significant losses on aircraft on the ground. These air bases are less well-protected by surface-to-air missiles than those on Okinawa. China also launches air strikes on the Japanese SAG that has moved near the Senkaku Islands to support

Japanese ground troops there, and it begins to move several naval task forces, including carriers, toward the Senkakus. The United States and Japan move light carriers to positions immediately behind the Ryukyu Islands to buttress air defenses, though the United States opts to leave its large carriers farther to the rear, keeping them out of the fight.



Game board image courtesy of Eric Heginbotham and Matthew Cancian.

As combat continues, China expands missile strikes to encompass bases on Honshu, Japan's largest island, to destroy U.S. and Japanese support aircraft and disrupt or destroy the concentrations of U.S. tactical aircraft that are entering the theater through bases on Honshu. The United States and Japan launch waves of air-launched missile attacks at Chinese SAGs and carriers approaching the Senkakus. To destroy or push back Chinese airpower, U.S. bombers launch missiles at PRC air bases along the coast. Despite losses, Chinese naval units were able to push through to the Senkakus and land troops there. Japan, however, also reinforced its presence.

At the end of the exercise, Japanese and Chinese ground forces were in combat on the Senkaku Islands. Losses to both sides were heavy. Both sides lost more than 200 aircraft, though U.S. and Japanese losses came mostly on the ground, so there were fewer casualties among pilots. The PRC fleet lost 34 major surface combatants, while the U.S. and Japanese navies lost a combined total of 18. While losses were heavy on both sides, the trend line was clearly improving for the allies as the exercise closed. At the end of the exercise, the U.S. and Japan were establishing more reliable air superiority and had far more fleet units at sea, while China's supply of ground-launched ballistic and cruise missiles was approaching exhaustion.

Game No. 2: Invasion of Taiwan

The second scenario postulated that China invaded Taiwan with minimal warning after an election in Taiwan in which candidates explicitly rejected the 1992 Consensus. The scenario generally made assumptions favorable to China, *e.g.*, assuming that it could mobilize some of its forces ahead of the attack without prompting Taiwan's mobilization, and assumed that it would be able greatly to expand its air– and sealift capability from now to 2035.

Course of conflict

Rather than conducting a lengthy preparatory bombardment of Taiwan, which would have given Taiwan more time to mobilize its reserves, the PLA commander opted to launch the invasion in conjunction with near-simultaneous attacks on airfields, bridges, and other key infrastructure. PLA missile and air attacks put most of the Taiwan air force out of commission within the first several days. Taiwan's SAMs survived longer but ran out of ammunition within the first week. They were later resupplied by the United States and continued to cause problems for China, despite gradual attrition.

The Japan team explicitly modeled a moderate Japanese leadership not eager to get drawn into war. At the outset, it expressed ambivalence about providing additional basing to the United States. However, China attacked U.S. bases in Japan early in the conflict, drawing Tokyo fully into the conflict. Thus, although PLA missile strikes destroyed more than 100 U.S. aircraft on the ground in the first days, Japan's air force more than made up the difference.

The PRC was able to land four brigades by sea on Taiwan during the first several days of the conflict, and it was subsequently able to capture a civilian airfield using airmobile troops. It continued to score periodic successes, such as a decapitation strike on Taiwan's leadership 10 days into the conflict. Nevertheless, China's invasion faced problems at sea and on land, and these were apparent from early in the conflict.

Group members conduct war game at MIT's Wargaming Lab, June 2021. (Photo courtesy of Rachel Esplin Odell).

Taiwan's Harpoon missiles, followed by salvos of LRASMs fired by U.S. bombers, caused serious losses to escorting surface combat vessels and both civilian and military vessels during the first, three and a half-day turn. China continued to reinforce its fleet off of Taiwan's coast, but losses were serious throughout the game and the rate at which it could reinforce forces ashore declined rapidly. The captured airport was quickly isolated and pressured by Taiwan's ground forces, and U.S. air strikes put the runways out of action.

In addition to employing bombers armed with LRASMs against China's fleet, the United States and Japan also employed tactical aviation armed with the shorter-range JSM. The United States was somewhat more aggressive with its light carriers than it had been in the first game, sending them on raids toward Taiwan. The U.S. fleet and air forces suffered significant losses, including two light carriers and some escorting ships, but the PRC fleet was all but destroyed. Within the first 20 days, China lost roughly 50 surface vessels, including virtually all modern frigates and destroyers that were not undergoing repairs, and 72 military and civilian amphibious ships and transports.

The PRC pulled back its fleet to reconstitute an escort and assemble additional transports and, in the meantime, sought to resupply its entire force by air. Despite the large size of the PLA air forces, its air fleet was overtaxed with multiple missions: CAP over Taiwan and the PRC coast, close air support for ground forces, and escort for interdiction, strike, airborne, and resupply missions. Hence, by the end of the exercise, China's hold on the air over Taiwan had weakened significantly and it was losing more aircraft in the air. Having failed to resupply its forces by air, pockets of Chinese forces began to surrender. We estimate that the PRC suffered 20,000 casualties and 25,000 of their soldiers and sailors were taken prisoner.

Takeaways

While caution should be exercised in drawing conclusions from war games, the group derived some tentative findings from the exercise:

- The challenges that would confront China in projecting power against opposition would be substantial. This would be particularly true if it needed to dispatch its fleet and maintain it on-station for any period of time. U.S. and allied anti-ship missiles would pose a lethal threat to any Chinese invasion fleet, and that is unlikely to change anytime soon, though technology could provide breakthroughs in the future.

- The war game results would not suggest that the United States must undertake any sort of comprehensive military buildup to deter China. The forces employed in the game would be more than enough to induce extreme caution on the part of Beijing.

- On the other hand, although we did not test an independent defense of Japanese outlying islands or Taiwan without U.S. assistance, the margin in scenarios that did include the United States would suggest that prospects would be very poor without the U.S. intervention.

- That said, allies and partners could contribute more to their own defense than they are. In most cases, that would involve increasing defense spending. As important would be shifting priorities, such that an efficient division of labor could be achieved between local militaries and U.S. forces.

    - In the Japanese case, shifting funding from the ground forces, which only made an appearance in battalion size, to air and naval forces would improve overall capabilities for these scenarios.

    - In the case of Taiwan, a larger active-duty ground force or a more credible reserve would greatly improve confidence in outcomes. Although Taiwan's

ground forces proved adequate in the game, they were spread thin on the ground and might have been overwhelmed if China had been able to land twice as many brigades as it did.

- Chinese missiles pose a daunting challenge, especially to U.S. airpower that could derail U.S. deterrent efficacy unless countermeasures are undertaken. The problem could be greatly mitigated by a variety of measures, including hardening, active defenses, the preparation of dispersal fields, these to include hardening, and CC&D.
    - Hardening would provide perhaps the most direct counter and would have greatly reduced losses in both games.
    - Missile defenses had an unexpectedly large impact. Perhaps more than their direct impact, through shooting down incoming missiles, was the uncertainty they caused in Chinese targeting, which led to wastage in the employment of China's missile inventory.
    - Aerial-tanking capability should also be regarded as an indirect countermeasure, since it would allow airpower to be based at a greater distance from the threat and still engage over operationally relevant areas.
    - The impact of a package of countermeasures would be larger than the sum of the parts, given their compounding effects on adversary targeting.

Author Biographies

Rachel Esplin Odell was a research fellow at the Quincy Institute for Responsible Statecraft in 2020–21. She received her Ph.D. in political science from the Massachusetts Institute of Technology, where her dissertation studied the politics of how countries interpret the U.N. Convention on the Law of the Sea. She is the author of "Promoting Peace and Stability in the Maritime Order Amid China's Rise," a Quincy Institute brief, and, together with Michael Swaine and Jessica Lee, a coauthor of the Quincy Institute paper, "Toward an Inclusive & Balanced Regional Order: A New U.S. Strategy in East Asia." Odell previously worked as a research analyst in the Asia Program at the Carnegie Endowment for International Peace and served in the China Affairs bureau of the Office of the U.S. Trade Representative. Odell's writings have appeared in *Foreign Affairs*, *War on the Rocks*, *The New York Times*, *The Washington Post*, *The National Interest*, and *The Diplomat*, among other publications. She has received fellowships from the Belfer Center for Science and International Affairs at Harvard Kennedy School, the National Science Foundation, the Smith Richardson Foundation, Waseda University, and MIT's Center for International Studies. Her research on the relationship between maritime power and international law received the Alexander George Award from the Foreign Policy Analysis Section of the International Studies Association. She has advanced proficiency in Mandarin and Spanish.

Eric Heginbotham is a principal research scientist at MIT's Center for International Studies and a specialist on Asian security issues. Before joining MIT, he was a senior political scientist at the RAND Corporation. At RAND, he led war-gaming and research efforts and was lead author of *China's Evolving Nuclear Deterrent* (RAND, 2017) and *U.S.–China Military Scorecard* (RAND, 2015). At MIT, Heginbotham has continued to execute research projects and serves as the faculty advisor for the Wargaming Working Group at MIT's Center for International Studies. He and Joshua Eisenman are coeditors of *China Steps Out: Beijing's Major Power Engagement with the Developing World* (Routledge, 2017), and he is coauthor, with George J. Gilboy, of *Chinese and Indian Strategic Behavior: Growing Power and Alarm* (Cambridge University Press, 2012). Heginbotham has published dozens of articles in *Foreign Affairs, International Security, The Washington Quarterly*, and elsewhere. He is currently working on a book on the prospects for a stable balance of power in East Asia.

John K. Culver retired from the CIA in April 2020 as a senior intelligence officer with 35 years' experience as a leading analyst of East Asian affairs, including security, economic, and foreign-policy dimensions. As national intelligence officer for East Asia from 2015 to 2018, he drove the intelligence community's support of top policymakers on East Asian issues and managed extensive relationships inside and outside of government. Culver produced a large body of sophisticated, leading-edge analysis and mentored widely on analytic tradecraft. He routinely represented the intelligence community to senior U.S. policy, military, academic, private-sector and foreign

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Eric Gomez is director of defense policy studies at the Cato Institute. His research focuses on the U.S. military budget and force posture, as well as arms-control and nuclear-stability issues in East Asia. In 2020, Gomez was a member of the Project on Nuclear Issues Nuclear Scholars Initiative program, where he conducted research on the impacts of U.S. intermediate-range missiles on U.S.–China strategic stability. He also participated in the 2019 Strategic Force Analysis Boot Camp hosted by Georgetown University and Sandia National Laboratories. Gomez is the coeditor, with Caroline Dorminey, of *America's Nuclear Crossroads: A Forward–Looking Anthology*. Released by the Cato Institute in July 2019, the anthology examines a wide variety of pressing issues in nuclear deterrence and arms control confronting U.S. policymakers at the dawn of a new era of great-power competition. Gomez received a B.A. in international relations from the State University of New York–College at Geneseo and an M.A. in international affairs from the Bush School of Government and Public Service at Texas A&M University.

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Steven Kosiak is a nationally recognized expert on the U.S. defense and international affairs budgets, with extensive experience in national-security planning and budgeting. At present, he is a partner with ISM Strategies, a Washington-based consulting firm that provides high-value counsel, expert assessments, and other strategic support to a range of clients working in the defense and international affairs fields. Kosiak is also an adjunct senior fellow in the defense program of the Center for a New American Security and an adjunct faculty member at American University's School of International Service. Prior to joining ISM Strategies in the fall of 2014, Mr. Kosiak served for five and a half

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Brad Martin is a senior policy researcher at the RAND Corporation, where he has worked since November 2012. His areas of research include readiness and sustainment, ship maintenance, force-structure alternatives, naval-force concepts, Marine Corps and Navy requirements, and budget and planning processes. Prior to joining RAND, he served in the U.S. Navy as a surface warfare officer, retiring as a captain after 30 years of service. During his time in the Navy, he commanded a coastal mine hunter, an amphibious dock landing ship, an amphibious ready group, and the Naval Expeditionary Task Force for Europe and Africa. In addition to his command tours, he served on the staff of Naval Forces Central Command, U.S. Forces Japan, the chief of Naval Operations staff as an operations researcher, and as the Navy coordinator for participation in joint staff and Office of the Secretary of Defense requirements-and-resources fora. His subspecialties

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Mike Mochizuki holds the Japan–U.S. Relations Chair in Memory of Gaston Sigur at the Elliott School of International Affairs at The George Washington University. An expert in Japanese politics and foreign policy, U.S.–Japan relations, and East Asian security, Mochizuki was director of the Sigur Center for Asian Studies from 2001 to 2005 and associate dean for academic programs at the Elliott School from 2010 to 2014. He codirects the Memory and Reconciliation in the Asia–Pacific research and policy project of the Sigur Center. Previously, he was a senior fellow at the Brookings Institution. He was also codirector of the Center for Asia–Pacific Policy at RAND and has taught at the University of Southern California and Yale University. Mochizuki has published or edited four books on East Asian security and the U.S.–Japan alliance, in addition to numerous peer-reviewed articles in such journals as *The American Interest, Asia Pacific Review, Foreign Affairs, International Security, Japan Quarterly, Journal of Strategic Studies, Nonproliferation Review, Survival*, and *The Washington Quarterly*. He is currently completing a book entitled Allies and Rivals*: the U.S.–Japan Alliance and the Rise of China*. He holds a Ph.D. in government from Harvard University.

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