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Active Denial

Redesigning Japan's Response to China's Military Challenge

Eric Heginbotham
and
Richard J. Samuels

Japanese strategists confront a difficult and highly uncertain international environment. The Chinese military threat has increased dramatically, both for Japan and for its alliance with the United States.¹ Japan has responded to uncertainty by assuming a more muscular mien and by loosening self-imposed fetters on its military.² Tokyo's defense budget increases since 2013 have been modest, however, and Japan has only marginally slowed a shifting balance of power. The impressive capabilities embedded in some newer weapons obscure the larger context: an overall force structure that is aging and losing advantage. Further efforts will be required to improve the effectiveness of Japanese forces. Those efforts will need to follow from a clear strategy, one that maximizes the deterrent value of the force (even in the absence of clear superiority) without exacerbating instability. In this article, we parse three ideal-type strategies (forward defense, denial, and punishment) and evaluate each in light of the evolving strategic circumstances facing Japan.³

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1. Eric Heginbotham et al., *The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996–2017* (Santa Monica, Calif.: RAND Corporation, 2015); and Evan Braden Montgomery, "Contested Primacy in the Western Pacific: China's Rise and the Future of U.S. Power Projection," *International Security*, Vol. 38, No. 4 (Spring 2014), pp. 115–149, doi:10.1162/ISEC_a_00160. The PLA is not, of course, without significant weaknesses. See Roger Cliff, *China's Military Power: Assessing Current and Future Capabilities* (New York: Cambridge University Press, 2015); and Michael S. Chase et al., *China's Incomplete Military Transformation: Assessing the Weaknesses of the People's Liberation Army (PLA)* (Santa Monica, Calif.: RAND Corporation, 2015).

2. Richard J. Samuels and Corey Wallace, "Japan's Pivot in Asia," *International Affairs*, forthcoming; Christopher W. Hughes, *Japan's Foreign and Security Policy under the "Abe Doctrine": New Dynamism or New Dead End?* (London: Palgrave Macmillan, 2015).

3. These ideal-type deterrent strategies are synthesized from a variety of sources, including William W. Kaufmann, *The Evolution of Deterrence* (Santa Monica, Calif.: RAND Corporation, 1958); Glenn H. Snyder, *Deterrence and Defense: Toward a Theory of National Security* (Princeton, N.J.: Princeton University Press, 1961); John J. Mearsheimer, *Conventional Deterrence* (Ithaca, N.Y.: Cornell University Press, 1983); Jonathan Shimshoni, *Israel and Conventional Deterrence: Border Warfare from 1953 to 1970* (Ithaca, N.Y.: Cornell University Press, 1988); Michael S. Gerson, "Conventional Deterrence in the Second Nuclear Age," *Parameters*, Vol. 39, No. 3 (Autumn 2009), pp. 32–58; and William S. Murray, "Revisiting Taiwan's Defense Strategy," *Naval War College Review*, Vol. 61, No. 3 (Summer 2008), pp. 12–38.

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Japanese strategy has immediate relevance to larger U.S. and regional issues. It will inevitably influence the United States' own thinking about its role in Asia and the world. Academic debates about a more restrained U.S. security policy—"offshore balancing"—have challenged widely held preferences for a continued global military commitment and have engaged the U.S. political and policymaking communities.⁴ Key questions center on whether U.S. allies contribute sufficiently to the common defense and whether those allies might drag the United States into conflicts not central to its own interests. Although the pros and cons of engagement are debated, the modalities of alliance strategy are seldom addressed.

U.S. military dominance following the Cold War—the "unipolar moment"—allowed U.S. and allied strategists to ignore the distinction between military dominance and deterrence. The rapid modernization of China's military capabilities, however, has challenged U.S. military dominance around China's periphery. There is little evidence that this situation can be reversed anytime soon, despite the best efforts of U.S. planners.⁵ Fortunately, as U.S. Cold War strategy demonstrated, however, deterrence does not necessarily require decisive military superiority.⁶ Deterrence without dominance requires not only innovative thought about the deterrence problem in general, but also increased attention to the military strategies of U.S. partners in Asia, such as Japan, which provide the bulk of allied forces in the Western Pacific.

4. Academic advocacy for offshore balancing or restraint includes Barry R. Posen, *Restraint: A New Foundation for U.S. Grand Strategy* (Ithaca, N.Y.: Cornell University Press, 2014); John J. Mearsheimer and Stephen M. Walt, "The Case for Offshore Balancing: A Superior U.S. Grand Strategy," *Foreign Affairs*, Vol. 95, No. 4 (July/August, 2016), pp. 70–83; and Stephen M. Walt, "The End of the American Era," *National Interest*, November/December 2011, <http://nationalinterest.org/article/the-end-of-the-american-era-6037>. For a critique of the offshore balancing position, see Stephen G. Brooks, G. John Ikenberry, and William C. Wohlforth, "Don't Come Home, America: The Case against Retrenchment," *International Security*, Vol. 37, No. 3 (Winter 2012/13), pp. 7–51, doi:10.1162/ISEC_a_00107.

5. The U.S. Department of Defense has launched two major efforts to reclaim military dominance in contested areas. The first effort was the AirSea Battle Concept, later folded into the Joint Concept for Access and Maneuver in the Global Commons (JAM-GC). JAM-GC seeks to combat anti-access/area denial (A2/AD) by improving synergies among the services. The second effort, the Third Offset Strategy, looks to restore over-match—the ability to overwhelmingly defeat adversaries—by accelerating the development of game-changing technologies. Neither offers a persuasive road map for reversing the relative decline of U.S. capabilities in areas close to China at a reasonable cost. Jan Van Tol et al., *AirSea Battle: A Point-of-Departure Operational Concept* (Washington, D.C.: Center for Strategic and Budgetary Assessments, 2010); and U.S. Department of Defense, "Deputy Secretary: Third Offset Strategy Bolsters America's Military Deterrence" (Washington, D.C.: U.S. Department of Defense, October 31, 2016).

6. Most analysts did not assume that NATO could maintain decisive conventional superiority during the Cold War—or that it needed to do so in order to deter attack. For an application of conventional deterrence theory to NATO's defense, see Mearsheimer, *Conventional Deterrence*, pp. 165–202. See also Richard L. Kugler, *The Great Strategy Debate: NATO's Evolution in the 1960s* (Santa Monica, Calif.: RAND Corporation, 1991).

In addition to providing more or less deterrence leverage, Tokyo's strategy will also influence regional crisis stability and escalation potential. Flash points in East Asia have multiplied in recent years: overlapping territorial claims have taken on increased urgency with the adoption of the United Nations Law of the Sea; prevalent gray-zone conflict (i.e., the use of coercive measures that do not rise to the level of war) indicates a significant degree of risk acceptance by participants; and the development of People's Liberation Army (PLA) power projection capabilities has placed Chinese and other forces in frequent proximity.⁷ If an incident or crisis should occur, military strategies can increase or decrease escalatory potential, depending on the incentives they present for preemptive attack or escalation.⁸ The intrinsic importance of Japanese strategy is magnified by the state's geostrategic position and national power.

We assess each of Japan's primary strategic options in the context of the balance of power, exogenous (non-bilateral) factors, and the nature and level of potential conflicts. We conclude that Japan's current strategy—a forward defense strategy that emphasizes traditional force-on-force capabilities—was appropriate immediately after the Cold War but is a poor choice today. It leaves Japanese forces highly vulnerable to attack at the outset of conflict and fails to leverage the U.S.-Japan alliance's collective assets for deterrent purposes. We conclude that a more appropriate strategy for dealing with evolving military challenges is a variant of denial, one updated for the era of precision strike.⁹ This “active denial” strategy would marry a resilient force posture and the maintenance of a mobile “force in being” with limited but nevertheless potent counterattack capabilities.

The remainder of this article is organized into five sections. The first section

7. See, for example, the essays in Robert S. Ross and Øystein Tunsjø, eds., *Strategic Adjustment and the Rise of China: Power and Politics in East Asia* (Ithaca, N.Y.: Cornell University Press, 2017). On gray zone conflict, see Michael Green et al., *Countering Coercion in Maritime Asia: The Theory and Practice of Gray Zone Deterrence* (New York: Rowman and Littlefield, May 2017). The trend lines are not all negative, and there have been a smattering of agreements about incidents at sea, such as the Code for Unplanned Encounters at Sea.

8. For an overview of the topic, see Keir A. Lieber and Daryl G. Press, “Escalation during Conventional Wars,” Report No. 2015-02 (Colorado Springs: Project on Advanced Systems and Concepts for Countering WMD, U.S. Air Force Academy, February 2015). On conventional activities that increase the risk of nuclear escalation, see Barry R. Posen, *Inadvertent Escalation: Conventional War and Nuclear Risks* (Ithaca, N.Y.: Cornell University Press, 2013).

9. For an application of denial strategies to broader East Asian security issues, see Michael Beckley, “The Emerging Military Balance in East Asia: How China's Neighbors Can Check Chinese Naval Expansion,” *International Security*, Vol. 42, No. 2 (Fall 2017), pp. 78–119, doi:10.1162/ISEC_a_00294. For an application to U.S. Asia strategy, see Eric Heginbotham and Jacob L. Heim, “Deterring without Dominance: Discouraging Chinese Adventurism under Austerity,” *Washington Quarterly*, Vol. 38, No. 1 (Spring 2015), pp. 185–199, doi:10.1080/0163660X.2015.1038189.

summarizes the rapidly changing balance of power in East Asia and the measures Japan has taken to mitigate the threat. The second evaluates potential approaches to conventional deterrence in light of current strategic circumstances and concludes that a denial strategy is Japan's best option. The third sketches out the contours of an updated denial strategy, one suitable to the evolving balance of power, geography, and modern technology. The fourth addresses obstacles to the execution of such a strategy and how they might be addressed. We conclude with a discussion of the relationship between Japanese military strategy and regional security and stability.

Throughout this analysis, we limit our focus to conventional forces and to the challenge posed by China, but recognize that Japan has a well-developed nuclear weapons hedge and that North Korea deserves separate analysis.¹⁰ We assume that the U.S.-Japan alliance will remain in force and credible, although we return to this assumption in the conclusion.

Shifting Balance of Military Power and Japan's Responses to Date

The balance of power in Northeast Asia has shifted with startling speed, and Japan now finds itself facing a potential adversary with growing advantages in numerous capability areas. Tokyo has responded with several measures to relax restrictions on its military and gain military efficiencies, but it will need to pursue additional adjustments and, most importantly, reconsider its strategy.

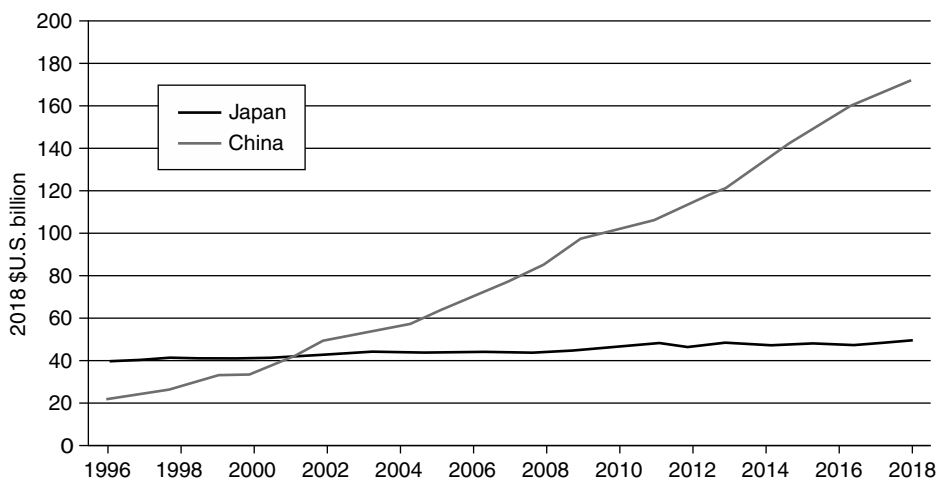
DIFFERENTIAL GROWTH AND MILITARY MODERNIZATION

In analyses of the changing balance of power between Japan and China, aggregate gross domestic product (GDP) tells only part of the story but is nevertheless a useful starting point. In 2005, Japan's GDP (measured according to market exchange rates) was roughly twice that of China's. By 2017, China's GDP had grown to 2.4 times that of Japan's. To be sure, Japan's GDP per capita is still four times China's, and Chinese growth has slowed significantly over the last several years. Nevertheless, Japan's economy also faces severe hurdles—including an aging (and now declining) population, high levels of public debt, and stubborn structural rigidities.

Differential economic growth rates have impinged directly on Japanese security. In step with economic expansion, Chinese military budgets grew, in real

10. For more on Japan's nuclear hedge, see Richard J. Samuels and James L. Schoff, "Japan's Nuclear Hedge: Beyond 'Allergy' and Breakout," in Ashley J. Tellis, Abraham M. Denmark, and Travis Tanner, eds., *Strategic Asia 2013–14: Asia in the Second Nuclear Age* (Seattle, Wash.: National Bureau of Asian Research), pp. 233–266.

Figure 1. Japanese and Chinese Defense Expenditures, 1996–2018



NOTE: The figure shows official defense budgets converted to 2018 U.S. dollars. Constant defense budget figures are first converted into 2018 yen or yuan using the International Monetary Fund's gross domestic product deflator for each country, then converted to U.S. dollars using the February 2018 market exchange rate.

terms, by 724 percent from 1996 to 2018, to some \$173 billion.¹¹ Japan's defense budget, in contrast, grew by 24 percent in real terms (see figure 1) and, at \$49 billion, is less than one-third of China's. The need to keep systems in the inventory longer has resulted in a growing ratio of operations and maintenance spending to procurement funds, creating a negative feedback loop, slowing acquisition, and accelerating the aging of hardware.¹² Under Prime Minister Shinzō Abe, Japan has demonstrated a commitment to make at least some additional effort, and the 2018 budget will be some 10 percent higher than that of 2012 in nominal terms—or roughly 5 percent higher in real terms.

The Chinese military appears to understand its own strengths and weaknesses and has generally spent its budgets on sustainable and cumulative improvements. Development of what has been labeled in the West as its “antiaccess/area denial” (A2/AD) capabilities—long-range and highly accurate ballistic and cruise missiles, submarines, sophisticated air defenses, and

11. Most defense budgets fail to capture important defense-related categories. Chinese figures do not include paramilitary forces or foreign defense purchases, and Japanese figures omit pensions, the coast guard, and intelligence functions. Although acknowledging uncertainty, we estimate that the two defense budgets undercount defense-related expenditure by roughly comparable amounts.

12. Procurement spending was 125 percent more than operations and maintenance spending in 1990; by 2017, it was only 2 percent more.

counterspace systems—could complicate U.S. operations in East Asia.¹³ The PLA's conventionally armed missiles, in particular, pose a serious threat to Japan's military infrastructure and bases, a problem we discuss further below.¹⁴ China's submarine force, numbering roughly 40 modern boats, represents a significant challenge to U.S. naval operations in waters off China.

Today, the PLA is no longer a one-trick, A2/AD, pony; over the last ten years, China has also built large conventional maneuver forces. It now has, for example, almost 850 fourth-generation fighter aircraft in its inventory—as well as an initial squadron of stealth fighters. It is developing a stealthy long-range bomber and a larger tanker aircraft. Its navy is equipped with 133 warships over 1,500 tons, and it is moving quickly from a primarily frigate force to one formed around destroyers. Indeed, the Type 055 destroyer (of which 1 has been launched and 3 are under construction) is an estimated 10,500 to 13,000 tons, larger than Japan's most modern Atago-class destroyers.¹⁵

The PLA is now moving rapidly to plug remaining weaknesses in its conventional warfighting capabilities. It has, for example, unveiled a range of new anti-submarine warfare assets to address historical weaknesses in that area, as well as large, modern underway replenishment ships, amphibious lift, and heavy-lift aircraft to buttress transport and sustainment capability. Chinese training and operational competence does not match U.S. standards, but the PLA is also addressing training weaknesses.¹⁶ Similarly, PLA structural reforms have streamlined command; improved jointness; elevated the navy, air force, and missile forces; and given greater scope for cyber, space, and special operations functions.¹⁷

The overall useful force structure of a given country represents roughly the

13. See, for example, Cortez A. Cooper, "Joint Anti-Access Operations: China's 'System-of-Systems' Approach," testimony presented before the U.S.-China Economic and Security Review Commission, Washington, D.C., January 27, 2011 (Santa Monica, Calif.: RAND Corporation, 2011); and Roger Cliff et al., *Entering the Dragon's Lair: Chinese Antiaccess Strategies and Their Implications for the United States* (Santa Monica, Calif.: RAND Corporation 2007). For a recent treatment, see Yves-Heng Lim, "Expanding the Dragon's Reach: The Rise of China's Anti-Access Naval Doctrine and Forces," *Security Studies*, Vol. 40, Nos. 1–2 (2016), pp. 146–168, doi:10.1080/01402390.2016.1176563.

14. Stephen Biddle and Ivan Oelrich argue that the challenges posed by A2/AD weapons are generally overstated, especially at longer ranges, but acknowledge that ballistic missiles pose a lethal threat to fixed targets, including most military infrastructure. See Biddle and Oelrich, "Future Warfare in the Western Pacific: Chinese Antiaccess/Area Denial, U.S. AirSea Battle, and Command of the Commons in East Asia," *International Security*, Vol. 41, No. 1 (Summer 2016), pp. 7–48, doi:10.1162/ISEC_a_00249.

15. "Construction of China's Type 055 Forges Ahead," *Jane's 360*, April 26, 2017.

16. Chase et al., *China's Incomplete Military Transformation*; Cliff, *China's Military Power*; and Lyle J. Morris and Eric Heginbotham, *From Theory to Practice: People's Liberation Army Air Force Aviation Training at the Operational Unit* (Santa Monica, Calif.: RAND Corporation, 2016).

17. Joel Wuthnow and Phillip C. Saunders, *Chinese Military Reform in the Age of Xi Jinping* (Washington, D.C.: National Defense University, 2017).

last twenty years of production, and China's force structure does not yet reflect its current budget or production rates, which are dramatically higher today than they were a decade or two ago. From 2004 to 2010, China added 40 modern fighter aircraft per year to its inventory; from 2011 to 2017, the rate of increase was 60 per year—with further acceleration likely. It launched an average of 1 destroyer every two years from 2005 to 2011, but averaged 2.5 destroyers annually since then. Even if growth in military budgets were to fall dramatically, the PLA's inventory of modern equipment would continue to grow for another decade.

Japanese military modernization has been more mixed—and more limited. Despite budgetary stagnation and higher operations and maintenance costs, the Self-Defense Force (SDF) has improved its capabilities in some areas. After commissioning 4 Aegis-equipped Kongo-class destroyers from 1993 to 1998, it added 2 improved Aegis-equipped Atago-class destroyers in 2007 and 2008. The Maritime Self-Defense Force (MSDF) has also commissioned 5 flat-decked ships—2 helicopter destroyers (DDHs) and 3 landing ship tanks (LSTs)—with dimensions similar to those of the small aircraft carriers operated by Italy or Spain. Japan announced in 2011 that it would purchase 40 fifth-generation F-35A fighters, taking delivery of the first aircraft in September 2016.¹⁸ It has added missile defenses and operates both the Patriot Advanced Capability (PAC-3) and Aegis SM-3 systems.¹⁹ The Air Self-Defense Force (ASDF) also maintains a network of land-based active electronically scanned array (AESA) radars, which it continues to modernize.²⁰

Given its budgetary constraints, however, Japan has had to make difficult choices. In most categories, its inventory numbers (both of systems and munitions) have remained stable or decreased. The SDF has sometimes forgone even relatively inexpensive improvements to existing equipment. Japan is modernizing its F-15 radar, but it has chosen a relatively inexpensive—and ineffective—mechanical radar poorly suited to defending Japan against cruise missile attacks. This half measure will leave its pilots not just outnumbered, but also at a technological disadvantage against Chinese aircraft equipped with jamming pods and more capable AESA radar.²¹ Japan has not pur-

18. Chris Pocock, "Japan's First F-35 Rolls Off Lockheed Martin Production Line," *Aviation International News*, September 29, 2016, <https://www.ainonline.com/aviation-news/defense/2016-09-29/japans-first-f-35-rolls-lockheed-martin-production-line>.

19. Riki Ellison and Ian Williams, "Japan: Priorities for Missile Defense Development and U.S. Partnership" (Alexandria, Va.: Missile Defense Advocacy Alliance, April 2015).

20. James Simpson, "Japan's Radar Network," *Japan Security Watch* blog, January 17, 2011, <http://jsw.newpacificinstitute.org/?p=4011>.

21. Japanese Ministry of Defense, "Waga Kuni no Bōei to Yosan: Heisei 21 Nendo Yosan no Gaiyō" [Our national defense and budget: FY 2009 outline] (Tokyo: Japanese Ministry of Defense, 2009), slide 3, <http://www.mod.go.jp/j/yosan/2009/yosan.pdf>. The twenty-year-old APG-63(V)1 remains the most advanced radar in Japan's F-15 inventory.

chased adequate reloads for its anti-aircraft and anti-missile systems. More broadly, 40 percent of key defense acquisition targets outlined in the current five-year plan, ending in 2018, will not be achieved.²²

Some of Japan's circumstances, however, are more promising; unlike China, Japan has a powerful ally.²³ Even in the alliance context, however, U.S. and Japanese commanders face daunting challenges. U.S. forward-deployed forces west of Hawaii represent a small part of total U.S. military strength, and reinforcements would have to flow from bases thousands of miles away. The military geography in Japan's immediate vicinity limits access to critical areas, and many of China's A2/AD capabilities are well suited to exacerbate the impact of that geography by threatening the infrastructure there.

JAPAN'S RESPONSES TO DATE

Before assessing how Japan might best adjust its strategy in response to these challenges, it is worth reviewing the measures Japan has already taken to improve its strategic position. The Japanese government has, over the last decade, worked to buttress its alliance with the United States, sought new security partners, adjusted its force structure, and undertaken bureaucratic reforms to improve military efficiency. The list of critical measures it has not taken is at least as long, however.

BUTTRUSSING THE U.S. ALLIANCE. Japan has built its national security doctrine on the foundation of U.S. primacy.²⁴ Even in the context of a rising China—and amid concerns that U.S. capabilities could one day slip below U.S. commitments—Japan's leaders have doubled down on the alliance. In 2015, Diet legislation enabled conditional collective self-defense, expanding the range of circumstances under which the SDF can assist U.S. forces under attack. Washington and Tokyo updated their "Guidelines for Defense Cooperation," agreeing to cooperate on broader regional security issues, integrating space-based surveillance, and establishing an alliance coordination mechanism.²⁵ Nevertheless, Japan's embrace of its U.S. ally is hardly un-

22. "Nearly Half of Japan's Defense Priorities Underfunded," *Nikkei Asian Review*, January 6, 2018, <https://asia.nikkei.com/Politics-Economy/Policy-Politics/Nearly-half-of-Japan-s-defense-priorities-underfunded>.

23. The Seventh Fleet is headquartered at Yokosuka, and an aircraft carrier (with its air wing) and 9 destroyers are homeported there. The U.S. Air Force maintains roughly 65 fighter and fighter-bomber aircraft, as well as a modest number of airborne warning and control systems, tankers, and airlift aircraft in Japan. Much of the III Marine Expeditionary Force (together with its air wing) is located in Okinawa.

24. See Richard J. Samuels, *Securing Japan: Tokyo's Grand Strategy and the Future of East Asia* (Ithaca, N.Y.: Cornell University Press, 2007).

25. See Japanese Ministry of Foreign Affairs, "The Guidelines for Japan-U.S. Defense Cooperation" (Tokyo: Japanese Ministry of Defense, April 27, 2015); Paul Kallender, "Japan's New Dual-Use Space Policy: The Long Road to the 21st Century," *Asie.Visions*, November 2016, <https://>

problematic. Some Japanese question the extent of the U.S. commitment to the defense of the Senkaku Islands (known as the Diaoyu Islands in Chinese), despite U.S. assurances, and U.S. officials ponder the risks of entanglement.

SEEKING NEW PARTNERS. Japan's military realists are also hedging against uncertainty by seeking to develop new partners—Australia and India, in particular. Japanese and Australian forces regularly participate in the Red Flag (Alaska) and Cope North Guam exercises and occasionally also conduct bilateral exercises. An acquisition and cross-servicing agreement between the two entered into force in 2013.²⁶ Japan has cultivated its military relationship with India and became a permanent member of the Malabar exercise group in 2015.²⁷ With the lifting of Japan's arms export ban, these relationships have expanded to explore arms sales, such as the possible sale of amphibious US-2 aircraft to India.²⁸ Tokyo has also accelerated a decade-long program to foster security relationships in Southeast Asia.²⁹

ADJUSTMENTS TO FORCE STRUCTURE. Japan has made adjustments to its force structure and posture since the end of the Cold War. The SDF has shifted the deployment of ground forces from the country's northeast to its southwest. It has increased the mobility of its forces; improved intelligence, surveillance, and reconnaissance capabilities; and developed some limited power projection and support capabilities. It has reduced the size of its armored forces and has created an amphibious warfare element, and it has reorganized defense research and development, including outreach to universities to elicit cooperation in dual-use and weapons technology development.³⁰

LOOSENING SDF FETTERS. Japan has also steadily sliced away at self-imposed constraints. In the 1980s, it committed itself to defend sea-lanes to 1,000 nautical miles and permitted transfer of dual-use technology to the United States. In

www.ifri.org/en/publications/notes-de-lifri/asie-visions/japans-new-dual-use-space-policy-long-road-21st-century; and Adam P. Liff, "Policy by Other Means: Collective Self-Defense and the Politics of Japan's Postwar Constitutional Reinterpretations," *Asia Policy*, July 2017, pp. 139–172, doi:10.1353/asp.2017.0035.

26. Tomohiko Satake and John Hemmings, "Japan-Australia Security Cooperation in Its Quadri-lateral Context," *International Affairs*, forthcoming; and Rohan Mukerjee, "An India-Japan Alliance?" *International Affairs*, forthcoming.

27. Vivek Raghuvanshi, "Japan to Join Malabar as Permanent Participant," *Defense News*, October 13, 2015.

28. Morimoto Satoshi, *Buki Yushutsu Sangensoku wa Dōshite Minaosareta no Ka* [Why were the three principles on weapons exports reexamined?] (Tokyo: Kairyusha, 2014).

29. Rachel Armstrong, "Vietnam Expects Japan Coastguard Ships Next Year," Reuters, June 1, 2014; "Coast Guard Acquires New Ship for West Philippine Sea Patrol," *CNN Philippines*, August 19, 2016, <http://cnnphilippines.com/news/2016/08/18/Coast-Guard-new-ship-West-Philippine-Sea-patrol.html>; and "Maritime Security: Japan Coast Guard's 'New Maritime Training Program' for Malaysia, Thailand, and Indonesia" (Istanbul: Turkish Asian Center for Strategic Studies, June 29, 2009).

30. Crystal Pryor, "Japan's New Approach to Defense Technology," *Diplomat*, November 24, 2015, <https://thediplomat.com/2015/11/japans-new-approach-to-defense-technology/>.

the 1990s, it dispatched minesweepers in the Persian Gulf and passed legislation allowing SDF participation in United Nations peacekeeping. In the 2000s, Japan deployed MSDF destroyers and tankers to Diego Garcia and sent SDF soldiers into Iraq. During the current decade, Tokyo has dispatched MSDF elements for anti-piracy operations in the Gulf of Aden, constructed naval facilities in Djibouti, ended the arms export ban, and reinterpreted the constitution to allow for collective self-defense, under prescribed conditions.³¹ Institutional reforms, too, have occurred. The Japanese Defense Agency was elevated to ministry status in 2007; a National Security Council—with significantly enhanced intelligence capabilities—was created in 2013.³²

UNFINISHED BUSINESS. Japan's defense-related achievements over the last decade are impressive, but an equal number of critical problems remain unaddressed—and we discuss them later in the context of implementing strategy. The most urgent order of business, however, is to reevaluate military strategy.

Forward Defense, Active Denial, or Punishment?

We now turn to the problem of military strategy and deterrence, outlining broad ideal-type approaches to deterrence, enumerating the conditions under which each might be appropriate, and evaluating those conditions against the historical and current circumstances faced by Japanese defense planners.

THREE DETERRENCE STRATEGY OPTIONS

Deterrence theories generally differentiate two types of deterrent strategies: punishment and denial.³³ Punishment approaches rely on the ability to inflict unacceptable losses on an attacker's valued assets, often in its home country, whereas denial seeks to deny an attacker the benefits of conquest, either through defeating its military attack in set-piece battles (what we call "forward defense") or through prolonged, active resistance (what we call "active denial").

FORWARD DEFENSE. Forward defense concepts place primary emphasis on the ability of the state's conventional forces to defend the state at or near its border, generally through the use of concentrated maneuver forces.³⁴ Forward

31. See Samuels, *Securing Japan*; and Sheila A. Smith, *Intimate Rivals: Japanese Domestic Politics and a Rising China* (New York: Columbia University Press, 2015).

32. Adam P. Liff, "Japan's Defense Policy: Abe the Evolutionary," *Washington Quarterly*, Vol. 38, No. 2 (Summer 2015), pp. 79–99, doi:10.1080/0163660X.2015.1064711.

33. See, for example, Kaufmann, *The Evolution of Deterrence*; and Snyder, *Deterrence and Defense*. The classification we use here draws on distinctions made previously in the literature of strategic studies, but the terms as used and defined here will not correspond to all past usage.

34. In the debate over NATO strategy during the 1980s, forward defense (identified with NATO's

defense may be more or less static, and it often relies on offensive action at the operational level. The objective is to defeat adversary forces quickly and thoroughly before they can gain entry into the country—or, failing that, shortly thereafter. In the case of an island nation such as Japan, forward defense will look to thwart potential invasion well beyond the coast by rapidly and decisively defeating the adversary's main naval strength. The instruments of such a maritime forward defense will be fleets that can sustain and defend themselves in open ocean areas, as well as efficiently organized packages of air-power operating from well-serviced, centralized main operating bases.

ACTIVE DENIAL. Students of conventional deterrence theory suggest that deterrence is likely to hold when a potential aggressor sees little prospect for a short, reasonably predictable victory.³⁵ Even when the defender is unable to muster clearly superior forces capable of prevailing quickly in force-on-force encounters, it may devise a strategy designed to ensure prolonged resistance and heightened risks to an aggressor. Such “denial strategies” often involve defense in depth and yielding some ground at the outset of battle. The primary distinction between this approach and forward defense is functional, however, not geographic. The denial strategy looks to maintain a force in being and continue the fight until exogenous conditions (discussed below) tip the balance. It does not look for an immediate decisive engagement, which may place friendly forces at risk of annihilation.

Switzerland's “armed neutrality” and its ability to mobilize a large portion of its population for defense in depth is a prototypical case, and all guerrilla (or “Fabian”) strategies can be regarded as a subset of denial.³⁶ There are also examples in the maritime domain that go back at least to Themistocles' decision to abandon Athens and retreat with Athens' population and fleet to Salamis Island.

Britain prepared for and, during July–October 1940, fought an air and maritime denial campaign against Germany. Prewar civilian leaders enabled suc-

Active Defense doctrine) was differentiated from maneuver warfare (identified with AirLand Battle). Here we make no such distinction and would label both as forward defense concepts, given their focus on conventionally organized maneuver forces designed to operate near the inter-German border. See James A. Blackwell Jr., “In the Laps of the Gods: The Origins of NATO Forward Defense,” *Parameters*, Vol. 15, No. 4 (Winter 1985), pp. 64–75; and John J. Mearsheimer, “Maneuver, Mobile Defense, and the NATO Central Front,” *International Security*, Vol. 6, No. 3 (Winter 1981/82), pp. 104–122.

35. See Mearsheimer, *Conventional Deterrence*; Shimshoni, *Israel and Conventional Deterrence*; and Snyder, *Deterrence and Defense*. For a conceptual treatment of deterrence by denial, see Gerson, “Conventional Deterrence in the Second Nuclear Age.” William Murray has proposed a “porcupine strategy” for Taiwan's defense. See Murray, “Revisiting Taiwan's Defense Strategy,” p. 15.

36. On the debate over the deterrent impact of Swiss military preparations, see Rudolf Jaun, “The Military National Defence, 1939–1945,” in Georg Kreiss, ed., *Switzerland and the Second World War* (London: Frank Cass, 2000), pp. 194–211.

cess, prioritizing fighter production over bombers.³⁷ Britain established a resilient air infrastructure, including redundant air bases, repair and logistical facilities, command and control, and “shadow factories.”³⁸ Once the contest was joined, Fighter Command’s Hugh Dowding sought to disrupt German air attacks, but prioritized the survival of his forces over maximizing destruction of enemy forces.³⁹ The Royal Navy maintained a fleet of small naval and civilian craft to watch the southern coasts, while heavy units (battleships and cruisers) were kept in readiness and protected against air attacks at Scapa Flow, off the northern coast of Scotland. Some thirty hours steaming time from the English Channel, the heavy units could not have intervened against an initial German landing, but could have halted resupply, smashed follow-on forces at sea, and isolated German troops ashore.⁴⁰

PUNISHMENT STRATEGIES. Punishment strategies threaten to inflict greater pain than an adversary is willing to bear, while demonstrating a willingness to accept the requisite damage or costs to one’s own side.⁴¹ They are often associated with nuclear weapons, given the awesome destructive potential of those weapons; however, conventional airpower, conventional missiles, special forces, cyberwarfare, or even maneuver units can, in theory, provide the instruments for punitive attack directed at military or civilian targets.⁴² For decades, Israel has practiced a conventional punishment strategy (albeit one backed by an undeclared nuclear capability).⁴³ South Korea moved in this di-

37. Barry R. Posen, *The Sources of Military Doctrine: France, Britain, and Germany between the World Wars* (Ithaca, N.Y.: Cornell University Press, 1986), pp. 141–178.

38. The number of military air bases in the United Kingdom increased from 60 in 1935 to 280 in 1940. These establishments were not cheap, costing £300,000 per airfield (including associated buildings) at a time when a Spitfire cost roughly £10,000 per aircraft. See Ian M. Philpott, *The Royal Air Force: An Encyclopedia of the Inter-War Years*, Vol. 2: *Re-Armament 1930–1939* (Barnsley, U.K.: Pen and Sword Aviation, 2008), pp. 253–310. The resiliency of the air infrastructure was regarded as essential to withstanding German attack. See, for example, “British Strategy in a Certain Eventuality,” report by the Chiefs of Staff Committee, W.P. (40) 168, May 25, 1940, annex, paragraph 12, National Archives, Kew, United Kingdom.

39. Fighter squadrons were dispersed, with many held far from the action. Intercepts were conducted with small packages—to the frustration of more aggressive commanders but with gratifying strategic results. See Robert Wright, *Dowding and the Battle of Britain* (London: Book Service, 1969); and Jack Dixon, *Dowding and Churchill: The Dark Side of the Battle of Britain* (Barnsley, U.K.: Pen and Sword Military, 2009).

40. See Anthony J. Cumming, *The Royal Navy and the Battle of Britain* (Annapolis: Naval Institute Press, 2010), p. 115; and Robert Forczyk, *We March against England: Operation Sea Lion 1940–41* (London: Osprey, 2016), pp. 258–261.

41. For the classic work on nuclear deterrence and its conventional antecedents, see Thomas C. Schelling, *Arms and Influence* (New Haven, Conn.: Yale University Press, 1966).

42. During the mid-1980s, Samuel P. Huntington called for revamping NATO forces to threaten conventional retaliation in Europe. See Huntington, “Conventional Deterrence and Conventional Retaliation in Europe,” *International Security*, Vol. 8, No. 3 (Winter 1983/84), pp. 32–56, doi:10.2307/2538699.

43. Dmitry (Dima) Adamsky, “From Israel with Deterrence: Strategic Culture, Intra-war Coercion,

rection with the adoption of a “proactive deterrence” doctrine in 2011 and the acquisition of conventionally armed ballistic missiles with ranges of 800 kilometers (km).⁴⁴

KEY VARIABLES

Several variables bear on the advisability of the three strategies outlined above—most importantly, the relative strength of the antagonists, the potential benefits of exogenous factors to one side or the other, and the level of threatened conflict. Rational assessments do not always prevail, and it is important to be cognizant of other influences, particularly bureaucratic ones, and their potential influence on strategy.

RELATIVE STRENGTH. Forward defense is well suited to deterrence when the practicing side has the capacity to deploy military forces superior to those that a potential aggressor might bring to bear in an attack. Under such circumstances, forward defense will be preferred to denial strategies. The latter requires a longer conflict and may allow an adversary temporary entry to air, sea, or even land areas, risking a greater degree of loss and damage to the civilian economy. When the state suffers from inferior war-making potential, on the other hand, denial or punishment strategies may be preferred, as they offer a “theory of victory” even to the weaker side, whereas forward defense will fail rapidly and catastrophically when deterrence does not succeed.⁴⁵ As Alexander Hamilton wrote in 1777 about what he called the Continental Army’s “Fabian strategy” against Britain: “The loss of even one general engagement may effectually ruin us, and it would certainly be folly to hazard it, unless . . . our strength was so great as to give certainty of success.”⁴⁶

EXOGENOUS FORCES AND EVENTS. Forward defense relies on the likelihood of victory in a rapid set of force-on-force clashes to deter and is not, therefore, heavily dependent on positive exogenous forces. Denial strategies, on the other hand, are best suited for circumstances in which exogenous factors are reasonably believed to, over time, work against an attacker.⁴⁷ Examples of such

and Brute Force,” *Security Studies*, Vol. 26, No. 1 (2017), pp. 157–184, doi:10.1080/09636412.2017.1243923.

44. At the heart of proactive deterrence is the notion of rapid punishment in the event of North Korean provocation. See Abraham M. Denmark, “Proactive Deterrence: The Challenge of Escalation Control on the Korean Peninsula” (Washington, D.C.: Korea Economic Institute, December 2011), pp. 7–18.

45. See Ivan Arreguín-Toft, “How the Weak Win Wars: A Theory of Asymmetric Conflict,” *International Security*, Vol. 26, No. 1 (Summer 2001), p. 107, doi:10.1162/016228801753212868; and Sam J. Tangredi, *Anti-Access Warfare: Countering A2/AD Strategies* (Annapolis: Naval Institute Press, 2013), p. 21.

46. Thomas Fleming, *The Strategy of Victory: How General George Washington Won the American Revolution* (New York: Da Capo, 2017), p. 48.

47. Sam Tangredi describes “extrinsic events” as key variables in the success of antiaccess cam-

factors are domestic vulnerabilities of the attacker (e.g., financial constraints or the possibility of domestic unrest); the likelihood of external (allied) support to the defender; or world opinion that may limit the ability of an attacker to continue hostilities. In 1777, the American revolutionaries were confident of eventual intervention by France or other third countries, and in 1940, Prime Minister Winston Churchill was hopeful about the United States' ultimate entry into the war and its supply of weapons in the meantime.⁴⁸

LEVEL OF CONFLICT. States may face aggression at various levels, from existential (e.g., conquest) to limited (e.g., occupation of a small piece of territory). Forward defense is the most flexible of the three strategies, because conventionally organized forces can address challenges at all levels, assuming capabilities that are superior to the adversary. Denial strategies have traditionally been viewed as applicable only to deterring large-scale attack, given that smaller *faits accomplis* may require a concerted counterattack to reverse.⁴⁹ Specific geographic and technological circumstances, however, may change this equation. For example, maritime lodgments might be countered by isolating them with submarines or missiles attacks, rather than early major offensive operations. Punishment strategies are most credible in the face of high-level challenges and may not be credible when they require the defender to escalate against low-level aggression, especially when the defender does not have escalation dominance.

BUREAUCRATIC INFLUENCES. Military strategy is also subject to non-strategic influences. Given the professionalized nature of the military enterprise, bureaucratic preferences maybe the most ubiquitous of these. Organizational theorists have advanced a compelling case that professional militaries tend to prefer offensive military doctrines. Offensive doctrines enable military officers to plan according to their own script, rather than reacting to an adversary. They also minimize the civilian participation that would come from a long war on home territory, enhancing the prestige of the military caste.⁵⁰ For status quo powers, bureaucratic influences will tend to privilege operationally offensive variants of forward defense strategies or punishment over more inherently de-

paigns. These campaigns look to delay adversary victory by preventing the adversary from deploying into the theater of operations. See Tangredi, *Anti-Access Warfare*, p. 21.

48. Stephen Bungay, *The Most Dangerous Enemy: A History of the Battle of Britain* (London: Aurum, 2000), p. 15.

49. Mearsheimer, *Conventional Deterrence*, pp. 53–56; and Charles L. Glaser and Chaim Kaufmann, "What Is the Offense-Defense Balance and Can We Measure It?" *International Security*, Vol. 22, No. 4 (Spring 1998), pp. 44–82, doi:10.1162/isec.22.4.44.

50. For more on these issues, see Posen, *The Sources of Military Doctrine*, pp. 41–46; Stephen Van Evera, "The Cult of the Offensive and the Origins of the First World War," *International Security*, Vol. 9, No. 1 (Summer 1984), pp. 58–107, doi:10.2307/2538636; and Jack Snyder, "Civil-Military Relations and the Cult of the Offensive, 1914 and 1984," *International Security*, Vol. 9, No. 1 (Summer 1984), pp. 108–146, doi:10.2307/2538637.

fensive denial strategies—even when strategic circumstances might make the latter a compelling candidate.

Particular historical, social, or political circumstances can lead to other outcomes. Successful insurgent armies may, for example, view “people’s war” as part of their identity and legacy, and the militaries of thoroughly defeated “aggressor states” may be reincarnated in a more defensive mold. Organizational theory would predict, however, that even in such exception cases, military leaders may welcome a return to more offensive doctrines as subsequent generations of officers climb through a professionalized system. Regardless of military proclivities, civilian leaders may take an active hand in setting military strategy when the threat is particularly pressing—as exemplified, again, in civilian intervention in favor of Fighter Command in Britain during the late 1930s.⁵¹

EVOLUTION OF JAPANESE STRATEGY SINCE 1954

Japanese strategy since the establishment of the SDF in 1954 has been a hybrid of denial and forward defense approaches, with the balance between the two shifting gradually but steadily toward forward defense. The evolution away from Japan’s early “hedgehog strategy”—one that abjured offensive capabilities—has been broadly consistent with changes in Japan’s external security situation. Strategic trends also accord, however, with the predicted bureaucratic proclivities of a professional military—leaving open the question of how adaptive Japanese military strategy will be if, as we argue below, strategic and bureaucratic imperatives are diverging.

FROM DENIAL TO FORWARD DEFENSE, 1954–2010. Japan began to rearm before it articulated a clear strategy beyond relying on the U.S.-Japan alliance and the “gradual” development of defense capabilities at the “minimum necessary level,” a term that has since expanded in scope.⁵² The Second Defense Plan (adopted 1961) stipulated that Japan should be “capable of effectively dealing with aggression [or attack] of limited scale.”⁵³ The Third Defense Plan (1966) kept the same standard of sufficiency and noted that the MSDF should be able to defend “the coast, straits, and other surrounding waters.”⁵⁴

Japanese forces were organized to execute a denial strategy designed to de-

51. Posen, *The Sources of Military Doctrine*, p. 75.

52. See *Kokubō no Kihon Hōshin* [Basic policy for national defense] (1957); and Japanese Cabinet Resolution, *Daiichiji Bōeiryoku Seibi Keikaku* [First defense plan] (1957).

53. Japanese Cabinet Resolution, *Dainiji Bōeiryoku Seibi Keikaku* [Second defense plan], July 18, 1961, <http://www.asagumo-news.com/hbdl/bouei/1-4jibou/2ji-bou.pdf>.

54. Japanese Cabinet Resolution, *Daisanji Bōeiryoku Seibi Keikaku* [Third defense plan], November 29, 1966, <http://www.asagumo-news.com/hbdl/bouei/1-4jibou/3ji-bou.pdf>.

lay and harass an invader until U.S. forces could arrive. The ground forces were organized around “district corps” in direct control of infantry regiments distributed throughout the Japanese isles. A single “combined brigade” provided a small mobile reserve. After 1962, the Ground Self-Defense Force (GSDF) was reorganized into small infantry divisions, with only marginally more mobile elements than the regiments had before them. Similarly, the navy was organized primarily in regionally distributed escort flotillas.⁵⁵

During the late 1960s and 1970s, Japanese strategy began to place greater emphasis on forward defense, as Japan gained the material means to acquire more capable weapons and as the United States began to demand greater burden sharing. The Fourth Defense Plan (1972), engineered by then Defense Minister Yasuhiro Nakasone, emphasized the development of capabilities designed to defend the sea and air space around Japan.⁵⁶ In 1981, Prime Minister Zenkō Suzuki committed Japan to defend sea-lanes out to 1,000 nautical miles.

By the end of the Cold War, Japanese forces were largely organized for forward defense. Under the 1976 National Defense Program Guidelines (NDPG), the fleet was reorganized into ten regionally based escort divisions and four mobile escort flotillas, with the latter holding the largest and most capable ships. The number of regional divisions was progressively reduced, and as of 2016, four mobile flotillas operated a total of 32 warships, while the five regional divisions comprised 14 older and smaller ships.⁵⁷ The GSDF organization, too, was mixed. It remained largely regionally organized, but was disproportionately deployed in Hokkaido, opposite the Soviet amphibious threat, with enhanced firepower.⁵⁸ The ASDF moved from being a short-range fighter force to one with limited strike capabilities.

After the Soviet Union’s collapse, the trend toward forward defense continued. With the possibility of a large land invasion greatly diminished, the number of infantry divisions was reduced from twelve to five. The mobility and responsiveness of the force improved, however, with the establishment of a Central Readiness Force in 2007 and the creation of new mobile ground force units (which under the 2014 NDPG was to include three rapid deployment di-

55. James E. Auer, *The Postwar Rearmament of Japanese Maritime Forces, 1945–1971* (New York: Praeger, 1973).

56. Japanese Cabinet Resolution, *Daiyōji Bōeiryōku Seibi Keikaku* [Fourth defense plan], February 8, 1972, http://www.clearing.mod.go.jp/hakusho_data/1976/w1976_9106.html.

57. Figures totaled from individual flotilla and division pages on the MSDF website, <http://www.mod.go.jp/msdf/>. For the organization of 1st Flotilla, for example, see <http://www.mod.go.jp/msdf/ccf1/about/hensei/index.html>.

58. Of the five regional commands, only the Northern Army (Hokkaido) was allocated four divisions (of a total of thirteen full divisions). One of those was the 7th Division, Japan’s only armored division.

visions, four rapid deployment brigades, one armored division, one airborne brigade, and one amphibious rapid deployment brigade).⁵⁹ In response to North Korean missile advances, the cabinet issued a decision to develop and deploy missile defenses in 2003.⁶⁰

This trend toward forward defense between the 1950s and 2010 was broadly consistent with shifts in the strategic variables described earlier. With the barest minimum of defense capability in the mid-1950s, Japan's best option was a denial approach. By the end of the Cold War, Japan, with the world's third largest defense budget, could have conducted an initial (and powerful) forward defense against Soviet attack until U.S. air and naval reinforcements arrived.⁶¹

NEW STRATEGIC IDEAS, 2010-18. Within twenty years after the 1989 collapse of the Berlin Wall, dramatic improvements to Chinese military capabilities had altered Japan's security landscape, forcing Japanese planners to think anew about military strategy. Under the 2010 NDPG, the SDF replaced the Basic Defense Force Concept, which had been in place since 1976 and was designed to repel limited-scale aggression, with the Dynamic Defense Force.⁶² Rather than planning around the size of the force, as the Basic Defense Force did, dynamic defense emphasizes the qualities the force should possess: "readiness, mobility, flexibility, sustainability, and versatility" backed by capable and responsive intelligence, surveillance, and reconnaissance (ISR).⁶³

Discussions of the Dynamic Defense Force emphasize its applicability to gray zone conflict, and Japanese defense ministry strategists acknowledge that dynamic defense is not a strategy for addressing larger conflicts. There has been no clear guidance on how best to deter attack or avert escalation to large-scale warfare. In some ways, Japan's dynamic defense concept institutionalizes the shift from a primarily denial-oriented to a primarily forward-oriented deterrent posture. The overwhelming bulk of Japan's defense budget remains committed to capabilities consistent with a forward defense strategy—maintaining large fighter, destroyer, and ground maneuver forces. Both

59. Japanese Ministry of Defense, "National Defense Program Guidelines for FY 2014 and Beyond" (Tokyo: Japanese Ministry of Defense, December 17, 2013), http://www.mod.go.jp/j/approach/agenda/guideline/2014/pdf/20131217_e2.pdf.

60. Toki Masako, "Missile Defense in Japan," *Bulletin of the Atomic Scientists*, January 16, 2009, <https://thebulletin.org/missile-defense-japan>.

61. James E. Auer, "Article Nine of Japan's Constitution: From Renunciation of Armed Force 'Forever' to the Third Largest Defense Budget in the World," *Law and Contemporary Problems*, Vol. 53, No. 2 (Spring 1990), p. 179.

62. See Bjørn Elias Mikalsen Grønning, "Japan's Shifting Military Priorities: Counterbalancing China's Rise," *Asian Security*, Vol. 10, No. 1 (2014), p. 4, doi:10.1080/14799855.2013.870157.

63. National Institute for Defense Studies, *The East Asian Strategic Review 2011* (Tokyo: National Institute for Defense Studies, 2011), p. 239.

military exercises and doctrinal documents indicate a preference for rapid and large-scale counterattack in the event that Japanese territory is compromised.⁶⁴

At the same time, some pieces of a potential denial campaign have been introduced. Japan's decision to enlarge its submarine fleet from 16 to 22 in 2010, the positioning of radar on the southwestern islands, and rehearsals for the deployment of Type-88 (Harpoon-like) anti-ship cruise missiles to the outer islands indicate renewed interest in denial approaches.⁶⁵ Still, the reintroduction of measures to strengthen denial is piecemeal and runs against the larger trend toward forward defense, and there is no evidence of a strategy that looks to use time, distance, and mobility concepts to frustrate an attacker.

EVALUATING JAPAN'S STRATEGIC CIRCUMSTANCES TODAY

How should Japan adjust strategy and prioritize resource allocation to deal with the Chinese threat? To assess these questions, we return to the three strategic variables discussed earlier: the relative strength of both sides; exogenous factors; and the scale of potential conflict.

RELATIVE STRENGTH. Chinese conventional military capabilities exceed Japan's in several categories. Provided the United States maintains a significant forward presence and commits to flow reinforcements into the theater, China does not have the capacity to invade Japan's four main islands. China does, however, have the means to attack bases throughout Japan, and as far as Guam (roughly 3,500 km from China).⁶⁶ By employing attacks by cruise and ballistic missiles, together with a growing force of traditional air and naval assets, Beijing could challenge the alliance's command of the air and sea at the outset of a conflict and inflict substantial losses. Given the wide range of Chinese systems reaching series production, this situation is likely to grow worse. The occupation of islands at the southwestern end of the archipelago is becoming a realistic possibility, though the PLA would likely struggle to maintain a lodgement there. Hibako Yoshifumi, former GSDF chief of staff, stated

64. For SDF doctrinal documents related to the defense and/or recapture of islands in Japan's southwestern island chain, see Konishi Makoto, *Jieitai no Tōsho Sensō: Shiryōshū* [The SDF's outer island war: Collected materials] (Tokyo: Shakai Hihyosha, 2017).

65. See, for example, "Miyakojima ni Taikan Misairu Tenkai, Jieitai Kunren de Hajimete" [Anti-ship missiles deployed to Miyako Island, first time in SDF training], *Sankei Shimbun*, November 11, 2013, <http://www.sankei.com/politics/news/131106/pl1311060006-n1.html>.

66. On China's ability to strike bases in Japan and elsewhere in the Western Pacific, see Heginbotham et al., *The U.S.-China Military Scorecard*; Montgomery, "Contested Primacy in the Western Pacific"; Jordan Wilson, "China's Expanding Ability to Conduct Conventional Missile Strikes on Guam" (Washington, D.C.: U.S.-China Economic and Security Review Commission, May 10, 2016); and Toshi Yoshihara, "Chinese Missile Strategy and the U.S. Naval Presence in Japan: The Operational View from Beijing," *Naval War College Review*, Vol. 63, No. 3 (Summer 2010), pp. 39–62.

flatly in 2014, “The security environment surrounding Japan now is worse than it was during the Cold War.”⁶⁷

EXOGENOUS FACTORS. At least three exogenous factors might work against China during a protracted conflict. The first is the prospect of U.S. reinforcements. Forward-deployed U.S. forces are vulnerable to attack early in a conflict, but U.S. reinforcements would likely swing the balance in a longer fight. U.S. forces not only enjoy qualitative advantages, but also operate more platforms than China. Second is the “Malacca Dilemma” and China’s vulnerability to blockade.⁶⁸ China imports more than 60 percent of its oil, and 75 percent of that travels through the Strait of Malacca. Those supplies might be disrupted by U.S. blockade, and Beijing has only limited capacity to mitigate vulnerability.⁶⁹ The third exogenous factor is sociopolitical. Chinese leaders remain deeply concerned about domestic instability, and a protracted war would introduce new uncertainties. In the 2013 *Science of Military Strategy*, Chinese strategists argue that the PLA’s “warfighting endurance capability” has declined, in part because of the social “contradictions, frictions, and struggles produced in the course of reform.”⁷⁰

CHALLENGES AT DIFFERENT LEVELS OF CONFLICT. Japan faces challenges from China at three distinct levels of military conflict: gray zone, limited or local conflict, and general conflict. Gray zone conflict, in which Chinese forces probe, transit, or loiter in areas off Japan, has attracted the most official attention.⁷¹ Such activities drain Japanese resources by forcing the JSDF and Japan Coast Guard to respond, and, in the case of the Senkaku Islands, to contest ad-

67. Yoichi Shiraishi, “Japan’s Security Environment: ‘Worse Than It Was during the Cold War,’” *Washington Post*, February 15, 2014.

68. See, for example, T.X. Hammes, “Offshore Control: A Proposed Strategy for an Unlikely Conflict” (Washington, D.C.: International Institute for Strategic Studies, National Defense University, June 2012). Chinese analysts, too, are aware of the vulnerability. See “Shi Jiping: Maliujia Kunju Shi Zhongguo Zuida Dilu Zhanlüe Tiaozhan” [Shi Jiping: The Malacca Dilemma is China’s greatest geo-strategic challenge], Phoenix Television, November 27, 2015; and “Dui ‘Mliujia’ Yu Zhongguo Youqi Anquan de Zaisikao” [Rethinking China’s oil and gas security and the “Malacca Strait dilemma”], *Zhengce Yanjiu* [Policy research], November 2010, pp. 17–22.

69. Less than 15 percent of China’s imported oil comes from Russia and Central Asia (the only sources from which oil does not come by sea), and its strategic petroleum reserve constitutes only twenty days of consumption at current levels (or perhaps thirty to forty days with rationing). See Nick Cunningham, “The Battle for China’s Oil Market,” *OilPrice.com*, July 15, 2015, <https://oilprice.com/Energy/Crude-Oil/The-Battle-For-Chinas-Oil-Market.html>; Adam Rose and Chen Aizhu, “China’s Strategic Oil Reserves Double to 190mmb—Stats Bureau,” Reuters, December 11, 2015; and “China Oil Demand to Grow 4.3 Percent in 2016; CNPC Research,” *CNBC*, January 26, 2016, <https://www.cnbc.com/2016/01/26/china-oil-demand-to-grow-43-percent-in-2016-cnpc-research.html>.

70. Xiaosong Shou, *Zhanlüe Xue* [Science of military strategy] (Beijing: Academy of Military Science Press, 2013), p. 111.

71. The concept of “gray zone conflict” was included in Japan’s 2010 NDPG and began to assume a more prominent place in the security discourse after the passage of new security laws in 2015.

ministrative control. Local or limited conflict might see Japanese and Chinese forces engage in combat in the East China Sea if, for example, Chinese nationalists landed on the Senkaku Islands and were then supported by military force. Finally, a mid-sized or general conflict could follow from the escalation of localized conflict. Such expanded conflict might see Chinese missile and air force strikes against Japanese bases, ports, or other logistical facilities to neutralize Japanese capabilities and bring Tokyo to terms.

IMPLICATIONS FOR JAPANESE STRATEGY. Given that the correlation of forces in a relatively short war increasingly favors China, that exogenous forces could work to Tokyo's advantage in a longer conflict, and that Japan faces potential scenarios at various levels of conflict, a mixed strategy, but one that places primary emphasis on denial, is the best approach to deterrence. The operational goals of this strategy would be to ensure that Japanese forces can absorb attacks and continue to fight effectively, preventing China from achieving a *fait accompli* until U.S. reinforcements arrive and a combined counterattack can be organized on promising terms. Modified to reflect the alliance context and a more capable array of adversary strike systems, the Japanese situation would have been familiar to the British Chiefs of Staff in 1940, when they wrote that as long as the Royal Air Force remains "in being," then the Navy and Air Force "should be able to prevent Germany carrying out a serious sea-borne invasion of this country."⁷²

An Active Denial Strategy for the Precision Strike Era

Whereas the basic principles of a denial strategy are timeless, specific characteristics will vary depending on the technology, weapons, and geography involved. The wide separation between the small islands of the Ryuku chain, the distance of those features from bases on Japan's main islands, and the accuracy and range of modern weapons demand a more mobile and energetic approach than the one Japan pursued during the early Cold War against the Soviet threat. The label "active denial" thus implies a model that is both more mobile and more tactically offensive than past practice.

Broadly, the active denial strategy has two mutually reinforcing elements.⁷³ The first is a resilient posture, capable of absorbing strikes while continuing to operate effectively. The second is a phased approach to operations that places clear priority on isolating and attriting adversary lodgments over quick

72. Quoted in Correlli Barnett, *Engage the Enemy More Closely: The Royal Navy in the Second World War* (New York: W.W. Norton, 1991), p. 186.

73. Heginbotham and Heim, "Deterring without Dominance," pp. 185–199.

counterattack—a sequence of priorities that should guide both operational practice and procurement. Before addressing each of these elements in more detail, we turn to specific features of Japan’s military problem.

THE MILITARY PROBLEM

Japan’s current strategic focus is on gray zone activities and localized clashes. Given China’s ability to gain at least temporary advantages in a more general conflict, however, Japanese strategists would do well to focus attention on how to deter escalation during war. To do that, they will need to optimize Japan’s ability to prevail in wider conflicts. The most likely flash point is the Senkaku Islands, but an expanded military campaign could see air, missile, and maritime activities play out over a much wider area—to include strikes against targets from areas just off Taiwan to Okinawa (and possibly even Kyushu and Honshu).

Although Japan cannot compromise on sovereignty, much of what Tokyo defines as “gray zone” activity is not illegal and is therefore virtually impossible to deter.⁷⁴ Military attempts to counter these activities play to China’s strengths and excessively burden Japanese forces.⁷⁵ In 2016, the ASDF flew 851 intercept missions against Chinese aircraft operating in its air defense identification zone, up from 96 in 2010.⁷⁶ This level of activity represents an extraordinary effort for the 40 Japanese F-15s based in Okinawa.⁷⁷ MSDF shadowing of Chinese flotillas transiting the Japanese archipelago also consumes growing and disproportionate military resources. Tokyo should consider economical answers to gray zone challenges, such as tracking Chinese activities with ISR assets and taking a more selective approach to intercepts.⁷⁸

74. Japanese definitions often include, for example, Chinese military flights within Japan’s air defense identification zone but outside its territorial airspace, as well as naval transits through the Miyako Strait (and other narrower straits). These activities may pressure Japan, but they are not illegal.

75. For a discussion of how other sorts of gray zone conflict might be deterred, see Green et al., *Countering Coercion in Maritime Asia*.

76. Japanese Ministry of Defense, “Heisei 24 Nendo no Kinkyū Hasshin Jisshi Jōkyō ni Tsuite” [Information about 2012 scrambles] (Tokyo: Japanese Ministry of Defense, April 17, 2013); and Japanese Ministry of Defense, “Heisei 28 Nendo no Kinkyū Hasshin Jisshi Jōkyō ni Tsuite” [Information about 2016 scrambles] (Tokyo: Japanese Ministry of Defense, April 13, 2017).

77. The fighter unit at Naha in Okinawa was reinforced in January 2016 with a second squadron of F-15s joining the original one. The unit, redesignated the 9th Air Wing, numbers roughly 40 F-15s. See Japanese Ministry of Defense, “Heisei 28 Bōei Hakusho” [2016 defense white paper] (Tokyo: Nikkei Insatsu, 2016), p. 181.

78. On Japan’s intelligence, surveillance, and reconnaissance capabilities, see Desmond Ball and Richard Tanter, “The Transformation of the ASDF’s Intelligence and Surveillance Capabilities for Air and Missile Defense,” *Security Challenges*, Vol. 8, No. 3 (Spring 2012), pp. 19–56; and Desmond Ball and Richard Tanter, *The Tools of Owatsumi: Japan’s Ocean Surveillance and Coastal Defense Capabilities* (Canberra: ANU Press, 2015).

Japanese forces are currently best suited for low-end military conflict, such as a localized skirmish or set-piece battle in the skies or waters immediately around the Senkaku Islands. Japan has been operating Aegis-equipped warships for twenty-four years and fourth-generation fighters for thirty-five years, and its exercises with U.S. forces demonstrate that its operators are proficient in the employment of both.⁷⁹ Japan's advantage would be particularly marked if its forces were backed by U.S. ISR and support assets. China, however, is narrowing the qualitative gap in its ability to prosecute localized warfare, especially with improvements to equipment, training, command and control, and ISR. In some areas, such as electronic warfare, the PLA has moved ahead of Japan in both equipment and technique.⁸⁰ The SDF will have to work to maintain tactical advantage.

An even larger problem is that China has escalatory options that might give it temporary advantage in a more general conflict—a fact that raises serious concerns about stability at the lower rungs of the escalation ladder. For many years, China prioritized the development of capabilities designed to compensate for weaknesses in conventional combat capability. Most relevant to Japan is China's large and sophisticated force of ballistic and cruise missiles that could target air bases and other critical infrastructure. At present, most of China's roughly 1,300 conventionally armed ballistic missiles cannot reach Japan, but an increasing number can (see table 1). Between 150 and 500 ballistic missiles can strike targets in Japan (of which between 50 and 140 could strike anywhere in Japan), together with all of China's long-range cruise missiles (numbering between 500 and 1,400 missiles).

These systems are highly accurate and could close runways and destroy air defenses, paving the way for follow-on attacks by Chinese aircraft. Modeling of runway attacks indicates that just 16 ballistic missiles equipped with penetrating submunitions could close Kadena Air Base to fighter operations for four days or close the same base to tankers and airborne early warning and control aircraft (AWACs) for eleven days.⁸¹ Alternatively, cruise missiles could be used to attack hardened shelters, aircraft in the open, fuel storage facilities,

79. Every year since 2003, ASDF fighter pilots have participated in Red Flag air combat exercises held in Alaska, often bringing a complete package of aircraft, including F-15Js, E-767 AWACS, C-130s, and KC-767 tankers. Submarine and surface ships also train regularly with their U.S. counterparts, often "cross-decking" to gain the perspective of allied ships and boats.

80. Virtually all Chinese air, naval, and ground exercises model combat in a "complex electromagnetic environment"—that is, assuming enemy use of jamming. Many Chinese aircraft employ digital radio frequency memory jammers, and the PLA Air Force is deploying an electronic warfare aircraft (designated the J-16D) much like the E/A-18 Growler. See Jeffrey Lin and P.W. Singer, "China Builds Its Own 'Wild Weasel' to Suppress Air Defenses," *Popular Science*, December 29, 2015, <https://www.popsci.com/china-builds-its-own-wild-weasel-to-suppress-air-defenses>.

81. Heginbotham et al., *The U.S.-China Military Scorecard*, p. 60.

Table 1. Estimated Number of Ballistic and Cruise Missiles Capable of Targeting Okinawa or Mainland Japan

Missile Class	Initial Operating Capability	Range (kilometers)	Number
DF-26 (IRBM)	2015	3,000–5,000	16–32
DF-21C (MRBM)	2010	2,000	36–108
DF-16 (SRBM)	2015	800–1,000	24–48
DF-15B (SRBM)	2009	800	81–324
DH-10 (GLCM)	2007	2,000	500–1,400
CJ-10 (ALCM)	2007	2,000 (from launch)	

SOURCES: International Institute for Strategic Studies (IISS), *IISS Military Balance 2017* (London, IISS, 2017), provides launcher numbers for ballistic missiles (16 DF-26; 36 DF-21C; 12 DF-16; and 81 DF-15B). We assume 1–2 missiles per intermediate-range ballistic missile (IRBM) launcher; 1–3 missiles per launcher per medium-range ballistic missile (MRBM) launcher; and 2–4 missiles per short-range ballistic missile (SRBM) launcher. Cruise missile numbers assume 200–500 missiles in 2010 and a production rate of between 50 and 150 per year since. The 2010 estimate of 200–500 DH-10 and CJ-10 cruise missiles is the most recent for which numbers are available and comes from Office of the Secretary of Defense, *Military and Security Developments Involving the People's Republic of China 2010* (Washington, D.C.: U.S. Department of Defense, 2010), p. 66. Note that GLCMs refer to ground-launched cruise missiles and ALCMs are air-launched cruise missiles.

or other high-value targets. According to one estimate, 53 cruise missiles armed with a combination of unitary warheads and submunitions could attack all aircraft shelters and aircraft parking ramps on Andersen Air Force Base in Guam.⁸² Fewer would be required for similar attacks on the ASDF's bases, which tend to be smaller.

Although China's air and naval forces have historically been less sophisticated than Japan's, this situation is changing rapidly. At the same time, the PLA's advantage in scale is growing (see table 2). China now flies three times as many modern fighter aircraft as Japan (853 vs. 281).⁸³ Interviews with Japanese defense planners suggest that they place inordinate faith in the delivery of F-35 aircraft to restore the air balance.⁸⁴ But if Chinese missile forces struck Japanese bases to disrupt support or destroy aircraft on the ground, PLA aircraft might be able to find success against the ASDF. This would be particularly true if a general conflict centered on peripheral areas along Japan's southwest, limiting the number of bases from which Japanese or U.S. aircraft could fly.

Although an invasion of mainland Japan is beyond China's capability, the military geography surrounding the southwestern islands would negate many

82. *Ibid.*, pp. 62–65.

83. Equipment figures are from International Institute for Strategic Studies (IISS), *The Military Balance 2017* (London: IISS, 2017).

84. Authors' interviews with senior Japanese defense planners, Tokyo, April 2016.

Table 2. Estimated Number of Modern Military Systems in Service with Chinese, Japanese, and U.S. Militaries, Selected Categories and Locations

	2004				2011				2018				2025 (est.)		
	SDF	USFJ+ Guam	PLA	SDF	USFJ+ Guam	PLA	SDF	USFJ+ Guam	PLA	SDF	USFJ+ Guam	PLA	SDF	USFJ+ Guam	PLA
Combat AC	170	148	154	289	98	435	277	114	847	190	80	1,260	80	80	1,260
4th gen	—	—	—	—	—	—	4	28	6	52	60	140	60	60	140
5th gen	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Warships*	33	9	5	35	10	13	38	11	23	46	12	42	12	12	42
DD/CG	21	—	58	16	—	62	9	—	98	6	—	91	—	—	91
Frigates	16	2	7	18	3	34	19	4	43	22	5	52	5	5	52
SS/SSN**	—	1	—	—	1	—	—	1	1	—	1	2	—	—	2
CV/CVN	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

SOURCES: Figures for 2003 to 2017 are from International Institute for Strategic Studies (IISS), *IISS Military Balance* (London: IISS, various dates).

NOTE: SDF stands for Japan Self-Defense Forces, USFJ for U.S. Forces Japan, and PLA for China's People's Liberation Army.

* Destroyer and cruiser figures represent the number of surface combatants over 4,500 tons (loaded); frigates are defined as surface combatants from 1,500 to 4,999 tons.

** Includes only modern submarines; does not include Han-class or Ming-class boats.

Table 3. Approximate Distances of Selected Islands in the Ryukyu Island Chain from the Senkaku Islands, the Chinese Mainland, and Each Other

Feature	Land area (square km, km ²)	Distance from PRC territory	Distance from Okinawa Island	Distance from Kyushu Island
Senkaku Islands	7 km ²	345 km	410 km	905 km
Ishigaki Island	229 km ²	465 km	416 km	990 km
Okinawa Island	1,210 km ²	655 km	—	530 km

SOURCE: Distances measured from nearest coastlines (or center of mass in case of Senkaku Islands using Google Earth).

of the situational advantages Japan might enjoy defending its main islands. Sustaining forces would be progressively more difficult farther southwest. The Senkaku Islands are closer to China (roughly 350 km) than they are to Okinawa Island (410 km) or Kyushu (905 km), making it more difficult to count on the arrival of sustaining forces from Okinawa and the main islands (see table 3). For perspective, the islands are also significantly closer to mainland China than the British landing site at San Carlos Bay (Falklands) was from the closest point on mainland Argentina (550 km) in 1982—when a small force of mostly light Argentinian aircraft flying from bases on mainland Argentina was able to inflict severe losses on the British fleet. There are some twenty-nine PLA Air Force and Naval air bases within unrefueled fighter range (roughly 1,000 km) of the Senkaku Islands, but only four U.S. and Japanese bases within the same distance (and only two that currently host fixed-wing combat aircraft).⁸⁵

To some extent, assets on the southern Ryukyu islands of Ishigaki or Miyako could support operations around the Senkaku Islands, but the former islands are small and are themselves distant from the more substantial bases on Okinawa Island. Their size would limit the ability of surface-to-air missile (SAM) and anti-ship missile (ASM) systems to maneuver and would greatly ease the Chinese ISR burden in supporting attacks on them. And although Okinawa Island itself would play a critical role as a forward staging area, it too is lightly garrisoned during peacetime. The entire Ryukyu chain, running more than 1,000 kilometers from Kyushu, is host to fewer than 8,000 JSDF and 26,000 U.S. military personnel. Almost 75 percent of the latter are U.S. Marine Corps infantry, useful for ground defense but less relevant to an air-sea battle.

China's advantages, to the degree they exist, extend only to midrange con-

85. On Chinese military airfields, see "Armed Forces Overviews: China Air Force," *Scramble*, n.d., <http://www.scramble.nl/orbats/china/airforce>.

flicts of relatively limited duration. Should a more protracted conflict develop, then the balance would again tilt toward the alliance as more U.S. forces arrived, especially if forward-deployed U.S. elements and Japanese forces are not destroyed outright. The key point for escalation stability, though, is that if Japanese forces were winning a strictly localized conflict, Chinese leaders might well see incentives to strike the Japanese military installations upon which the SDF's success depended, especially in the context of a campaign centering on Japan's southwestern islands. Maintaining the ability to survive, fight, and ultimately prevail in a general conflict, therefore, should be the focus of Japanese military strategy—with the aim of deterring escalation from a limited conflict to a more general war. A strategy with a heavy denial component offers the most promising means to this end.

RESILIENT POSTURE

The most important characteristic of the active denial strategy is a resilient force posture. To achieve this, Japan should enhance the survivability of its military elements, even at the expense of some offensive force-on-force capability. Indeed, the apparent trade-off is illusory, given that more concentrated Japanese forces capable of optimizing immediate offensive potential may be subject to heavy loss against a capable adversary armed with precision strike and geographic advantage. Improving resiliency will best be served by a portfolio of measures, including dispersion of key assets across expanded basing structure; mobility and deception; improved recovery capabilities; and balanced active and passive defenses.⁸⁶

IMPROVED AND EXPANDED BASING INFRASTRUCTURE. Resilience will require an expanded basing structure, though not necessarily one with full-service capabilities at every location. By preparing and rehearsing the use of civilian airports for dispersed ASDF operations, the ASDF can greatly reduce its vulnerability. Today, the ASDF operates from some fifteen air bases, including several that are colocated with civilian airports. There are 138 airfields in Japan, however, including some eighty with runways longer than 6,000 feet and capable of supporting Japanese fighters.⁸⁷ Some preparation of the airfields would be required, and locations on Kyushu and the Ryukyu Islands should receive priority.

Maritime advocates often boast of naval fleets' mobility at sea, contrasting

86. For an analytical methodology to evaluate portfolios of defensive measures in a dynamic competition, see Jeff Hagen et al., *The Foundations of Operational Resilience—Assessing the Ability to Operate in an Anti-Access/Area Denial (A2/AD) Environment* (Santa Monica, Calif.: RAND Corporation, 2016).

87. Data are from the Airport Nav Finder database, <http://airportnavfinder.com/>.

that with the fixed and therefore vulnerable nature of land-based airpower. Fleets, however, are tied to port-based logistics that are themselves vulnerable and are, in some ways, less amenable to wartime dispersion. Currently, for example, the reloading of vertical missile cells must be done in port.⁸⁸ Dispersing potential fleet supply locations will boost the Japanese fleet's survivability. If establishing new locations is prohibitively costly, the allies might instead consider the joint use of U.S. facilities at other locations in the Western Pacific. Additional fuel and ammunition storage for all services should also be expanded in the southwest, hardened, and dispersed.

MOBILITY AND DECEPTION. Mobility and deception can greatly enhance the effectiveness of dispersion and further complicate and undermine adversary operations. The U.S. military is experimenting with new mobility concepts for fighter forces, and Japan could employ similar methods. U.S. Marine aviation maintains and exercises a capability to operate conventional fighters from expeditionary airfields, and the U.S. Air Force has developed a "Rapid Raptor" concept for dispatching small elements of four F-22 fighters, each supported by a C-17 with fuel and supplies, to austere airfields for combat operations.⁸⁹ More broadly, "untethered operations" might see small packages deploy to existing airfields for one or more sorties.⁹⁰ In 2017, U.S. Air Force elements joined with ASDF units to exercise what the Air Force now calls "Agile Combat Employment."⁹¹

Mobility enhancements are also central to maintaining coherent defenses in the Ryukyu Islands. Japan is establishing anti-ship and antiaircraft missile sites on the outer islands. The elements there are small, however, and the positions will be vulnerable to attack. To give them meaningful wartime potential, the overall system must be made sustainable and self-healing, in other words, ca-

88. The issue is being addressed, but even if ship-to-ship replenishment becomes possible, reloading operations will require sheltered harbors. See "Navy Planning to Bring Back At-Sea Missile Reload Capability," *Navy Times*, August 1, 2017; and Nick Myhre, "VLS At-Sea Reloading," *U.S. Naval Institute Blog*, July 30, 2015, <https://blog.usni.org/2015/07/30/vls-at-sea-reloading>.

89. See Rebecca Grant, "Growth at Guam," *Air Force Magazine*, December 2013, p. 38; and Robert D. Davis, "Forward Arming and Refueling Points for Fighter Aircraft: Power Projection in an Antiaccess Environment," *Air and Space Power Journal*, Vol. 28, No. 5 (September/October 2014), pp. 5–28. See also discussion of distributed operations in U.S. Marine Corps, *Marine Corps Aviation Plan 2018* (Washington, D.C.: U.S. Marine Corps, n.d.), p. 144, <http://www.aviation.marines.mil/Portals/11/2018%20AvPlan%20FINAL.pdf>.

90. Charles Q. Brown Jr., Bradley D. Spacy, and Charles G. Glover III, "Untethered Operations," *Air and Space Power Journal*, Vol. 29, No. 3 (May/June 2015), pp. 17–28.

91. Greg Erwin, "Tropic Agile Combat Employment Observers Collaborate on Fueling the Future" (Joint Base Pearl Harbor–Hickam, Hawaii: Pacific Air Forces, September 15, 2017), <http://www.pacom.mil/Media/News/News-Article-View/Article/1313343/tropic-agile-combat-employment-observers-collaborate-on-fueling-the-future/>.

pable of quickly and efficiently plugging gaps in the defenses opened by adversary attacks.

In 2014, Japan's ministry of defense conducted a major survey of the southwest islands, ports, and airfields and recommended new forms of public-private partnerships to build maritime transport capacity.⁹² The SDF has since conducted a number of exercises designed to rehearse the flow of additional assets to the islands.⁹³ Generally, this involves the progressive staging of assets, first from Japan's northeast to Kyushu and then from Kyushu to the outer islands.⁹⁴ It is, however, unclear how robust this system would prove under attack. War games that include attacks on transport systems over the course of an extended campaign could test the sufficiency of mobility assets (including civilian lift) and the adequacy of local depots—both of which appear doubtful today.⁹⁵

RAPID RECOVERY. The ability to quickly repair damaged logistical infrastructure is also central to denial operations in high-intensity missile combat. Japan will need to invest in rapid runway repair and explosive ordinance disposal.⁹⁶

BALANCED ACTIVE AND PASSIVE DEFENSES. Finally, active defenses against air and, especially, missile attack will be required, but their evaluation should be placed in the context of the larger resiliency effort. Active missile defense looms large in the public imagination, and it plays a role in complicating adversary calculations. It also, however, absorbs inordinate amounts of the budget when mobility, dispersion, and concealment may sometimes be more economical and effective. Luring China to fire missiles at empty shelters or low-value targets would have the same effect on China's inventory as shooting

92. Japanese Ministry of Defense Joint Staff Office, "Jieitai no Kidō Tenkai Nōryoku Kōjō ni Kakwaru Chōsa Kenkyū, Chōsa Kenkyū Hōkokusho" [Survey research report: Research on improving the SDF's deployment capabilities], March 13, 2014, partially reprinted in Konishi, *Jieitai no Tōsho Sensō*, pp. 296–332.

93. See, for example, "Jieitai, Miyako ni Chitaikan Misairu Hatsuhaibi, Ritō Dakkan Kunren De" [SDF, first deployment of anti-ship missiles to Miyako Island for exercise on recapturing outer island], *Ryūkyū Times*, November 7, 2013.

94. The SDF has experimented with the use of high-speed civilian ferries, in addition to standard military lift assets, to transport missile batteries and other equipment during exercises. See "Miyakojima ni Taikan Misairu Tenkai, Jieitai Kunren de Chūgoku no Kaiyō Shinshutsu Kensei" [Deployment of anti-ship missiles to Miyako Island during SDF training, restraining China's ocean advance], *Sankei Shimbun*, November 6, 2013.

95. Much of the existing supply depot infrastructure remains in Hokkaido, at the opposite end of the archipelago. Redundant and hardened logistical and command and control capacity should be established on the outer islands and in Kyushu. Additional surface-to-air and anti-ship missile reloads should be acquired and, to the extent possible, positioned on Kyushu.

96. Craig Mellerski and Craig Rutland, "The New Face of Rapid Airfield Repair" (Wright-Patterson Air Force Base, Ohio: Air Force Research Lab, August 2009).

down missiles or penetrating Chinese airspace to destroy missiles prior to launch, but may be much cheaper.

HIERARCHY OF PRIORITIES: DEFEND, ISOLATE, AND COUNTERATTACK

Unless Japan's leaders are prepared to double or, preferably, triple its defense budget—and we acknowledge that Tokyo is far from ready for that—conventional forward defense independent of the United States will become untenable, if it is not already.⁹⁷ The priority in a denial strategy will, therefore, rest on maintaining a force in being and continuing effective resistance—that is, demonstrating that Japanese defense remains a viable enterprise—until U.S. reinforcements arrive. Accordingly, the hierarchy of mission priorities would be, first, defending key assets that enable the government and military to continue functioning; second, isolating and striking adversary forces that land on Japanese territory; and third, counterattacking to retake lost territory after U.S. reinforcements shift the overall correlation of forces.

Currently, Japan is pursuing all three missions, but with a costly and risky emphasis on the third. This is no small issue, as the hierarchy of mission will affect the type of equipment required, the force posture that might be possible, and the prospects for maintaining a force capable of surviving initial attacks. Washington has encouraged Japan to take the early lead in the defense of peripheral areas. Tokyo has embraced the mission, which has been broadly interpreted as undertaking early counterattack to retake islands occupied in a potential Chinese *fait accompli*.⁹⁸ The SDF has therefore invested heavily in systems designed for offensive amphibious operations, including the large LSTs and helicopter carriers mentioned earlier.

Although Japan will ultimately have to retake lost ground, a premature Japanese counterattack against Chinese forces on the Senkaku Islands—or on small islands at the southwestern end of the Ryukyu chain—would court military disaster. The Senkaku Islands are small but could (as the Japanese attack

97. A scholar at the Japanese Defense Academy suggests that replacing U.S. forces in Japan would double the defense budget, whereas an unnamed ministry of defense official estimates the cost of autonomous defense at three times Japan's current budget. Even assuming that the budget were tripled as a percentage of GDP over a decade, however, Japan's spending would still be 50–60 percent the size of China's, assuming the latter grew at 5 percent per year. See Takeda Yasuhiro, *Kosuto wo Shisan! "Nichibei Dōmei Kaitai": Kuni wo Mamoru no ni, Ikura Kakaru no ka?* [Try the calculation! "U.S.-Japan alliance collapse": How much would it cost to defend the country?] (Tokyo: Mainichi Shimbun, 2012); "Beikoku Nuki ni Katarenai Nihon no Bōei Seisaku, Datsubei 'Jishu Bōei' no Genjitsu Aji wa Aru no ka?" [A defense policy without the United States is impossible: Are there prospects for independent defense?], *AERA*, December 11, 2016, <https://dot.asahi.com/aera/2016120800274.html?page=1>.

98. "Interview, Dennis Blair: China Containing Itself by Aggressive Actions in Region," *Asahi Shimbun*, June 26, 2014.

on the comparably sized Wake Island in December 1941 suggests) require substantial force to recapture.⁹⁹ Indeed, Japanese military writings, as well as recent SDF exercises involving 30,000–40,000 personnel, suggest that offensive operation in the Senkakus would be a major undertaking.¹⁰⁰ Descriptions suggest that a forward command element would be transferred to a nearby island (e.g., Ishigaki); combat air patrols (supported by tankers and AWACS) would be maintained over or beyond the target islands; and naval elements would include an amphibious group, an air defense surface action group, anti-submarine aircraft, and possibly separate gunfire support platforms.¹⁰¹

Not only would these forces be deployed into the highest threat rings presented by Chinese weapons systems and bases, but the nature of the operation would also magnify risks substantially. Opposed landings require not just the finely orchestrated application of force, but also the protracted maintenance of air and sea control in the immediate vicinity—turning mobile assets into fixed or semi-fixed targets for the adversary’s submarines, aircraft, and ground-launched missiles.¹⁰² Many of China’s short-range ballistic missiles that cannot reach Okinawa Island do have the range to attack Ishigaki, Miyako, and Yonaguni (i.e., potential forward support bases), and even more can strike whatever Japanese forces might land on the Senkaku Islands.¹⁰³ Japanese forward-deployed assets would be beyond the range of supporting Japanese SAM systems deployed on Ishigaki. And even if the Japanese air base at Naha, Okinawa, were left unscathed, a force of 40 fighters

99. In December 1941, Wake Island, with a garrison of 400 infantry and 12 aircraft—and no support from naval elements or offshore bases—sharply contested two assaults by 13 Japanese surface combatants, 2 aircraft carriers, and a force of 2,500 infantry.

100. The exercises have culminated in the “recapture” of an occupied island, but not all personnel would necessarily be directly involved in that portion of the operation. See “Irei no Zenmen Hikōkai Kunren” [Unusual exercise fully closed to public], *Jiji*, November 5, 2012; and “Jieitai ga 11 gatsu ni Tōsho Dakkan Kunren: Sanman yonsennin wo Dōin” [SDF to conduct recapture of outer island exercise: 34,000 to mobilize], *Sankei Shimbun*, October 23, 2013.

101. For a stylized graphic of various components and their roles, see Japanese Ministry of Defense, *Heisei 26 Nenban Bōei Hakusho* [Defense of Japan 2014] (Tokyo: Japanese Ministry of Defense, 2014), p. 189, figure III-1-1-6; and Evan S. Medeiros et al., *Pacific Currents: The Responses of U.S. Allies and Security Partners in East Asia to China’s Rise* (Santa Monica, Calif.: RAND Corporation, 2008), p. 54.

102. The vulnerability of naval forces supporting landing operations was always a paramount concern of U.S. commanders in the Pacific during World War II. The U.S. Navy lost 36 ships sunk and 386 ships damaged off Okinawa in mid-1945. During the Falklands War in 1982, the British fleet lost 6 ships sunk and 9 more badly damaged to an Argentine air force operating at a significantly greater distance from its bases and armed preponderantly with bombs and a handful of anti-ship ballistic missiles.

103. DF-15, DF-15A, and possibly DF-15B missiles (a total of 350–400 missiles) have a range of 600 kilometers. The Senkaku Islands are roughly 350 kilometers from the closest Chinese mainland, whereas Okinawa is about 650 kilometers distant.

there might sustain only 5–8 fighters on standing combat air patrol around the Senkaku Islands.

Fortunately for Japan, many of the problems that would afflict a Japanese counterattack would also challenge Chinese efforts to maintain forces on the Senkakus or other southwest islands. Japanese archipelagic geography favors the creation of mutually supporting firing positions, and Japan can develop capabilities to strike and isolate hostile lodgments, creating Japan's own miniature A2/AD zone.¹⁰⁴ Japan is developing a new family of anti-ship missiles with a range of 300 kilometers, sufficient to attack ships around the Senkaku Islands from islands in the Ryukyu chain.¹⁰⁵ Japan has deployed a radar unit to Yonaguni Island at the western end of the chain.¹⁰⁶ Additional radar, SAM elements, and anti-ship missile positions are being established on Amami Ōshima (southwest of Kyushu) and on Miyako and Ishigaki.¹⁰⁷ As noted previously, sustaining these Japanese forces and replacing losses sustained during combat would be challenging, depending on the local correlation of forces, but would nevertheless be easier and less risky than mounting offensive operations against the same odds.

The most immediate and important mission, the defense of key military and civilian assets, is associated with integrated air and missile defense, anti-submarine warfare, and anti-surface warfare tasks. The modernization and networking of legacy aircraft (especially Japan's F-15s) and SAMs will enhance integrated air and missile defense, and allow the small number of F-35s to serve as force multipliers for legacy systems.¹⁰⁸ The acquisition of additional 4.5-generation aircraft (e.g., F/A-18E/F or F-15SE) and reloads for SAM batteries would be still better. Japanese lawmakers have limited the number of refueling tankers given their image as offensive support systems, but tankers are

104. A variety of individuals have discussed this idea, though usually not in the broader context of denial. See, for example, Grant Newsham, Ryo Hinata-Yamaguchi, and Koh Swee Lean Collin, "Japan Should Steal a Strategy from China's Playbook," *National Interest*, May 11, 2016, <http://nationalinterest.org/feature/japan-should-steal-strategy-chinas-playbook-16159>.

105. Japanese Ministry of Defense, "Kuni no Bōei to Yosan" [Defense programs and budget of Japan] (Tokyo: Japanese Ministry of Defense, 2017), p. 34, <http://www.mod.go.jp/j/yosan/2017/yosan.pdf>.

106. "Yonagunijima, Rikujō Jieitai o Haibi, Chūtonchi de Shikiten Nanseishotō Bōei" [Ceremony marking establishment of GSDF position held on base at Yonaguni Island, defense of Southwest islands], *Asahi Shimbun*, March 28, 2016.

107. "Higashi Shinakai de Nihonban 'A2AD' Senryaku, Chūgoku Shinshutsu Fūjikome" [A Japanese version of "A2AD" strategy in the East China Sea: Sealing China's advance], Reuters, December 17, 2015.

108. See Justin Bronk, "Maximum Value from the F-35: Harnessing Transformational Fifth-Generation Capabilities for the UK Military," Whitehall report 1-16 (London: Royal United Services Institute for Defense and Security Studies, February 2016).

equally useful in a defensive context. According to the commander of the U.S. Air Mobility Command, without tankers, planners would need “quadruple the number of fighters to cover the same time period.”¹⁰⁹ Additional tankers would greatly increase the number of fighters that Japan could maintain on defensive combat air patrol at any one time.

In the maritime domain, Japan is already well positioned for anti-submarine and anti-surface warfare. It has increased the size of its submarine force, is overinvested in maritime patrol aircraft, and deploys some of the best warships in the world (including the 10,000-ton Aegis-equipped Atago-class). The defense ministry is now looking to supplement its fleet with a larger number of somewhat smaller and cheaper multifunction frigates. It has contracted bids for a class of 8 ships, each roughly 5,000 tons and costing 55 percent to 70 percent as much as full-sized destroyers. These ships will be capable of entering smaller harbors such as those found in Japan’s southwestern islands.¹¹⁰

Implementing an effective denial strategy would require new investments, but it would be far more affordable than any plausible alternative, and can likely be managed if Japan ever adopts the Liberal Democratic Party’s June 2017 recommendation that defense spending be raised to 2 percent of GDP. Savings can also offset costs, and may be achieved by reducing the emphasis on offensive forces, such as amphibious naval elements, as well as in missions that are distinctly secondary. Japan’s defense ministry issued a request for a proposal for what became the C-2 transport aircraft in 2001, at a time when Japan’s defense budget was still larger than China’s and when delivering peacekeeping forces loomed as an important SDF task. Cutting procurement of C-2 aircraft, which run \$80 million each and which provide strategic airlift, from 40 units to 15 or 20 could save several billion dollars. Finally, the GSDF’s tastes are particularly expensive, as exemplified by the purchase of Osprey aircraft, and more careful scrutiny of its budget might reveal potential savings.

LIMIT SCOPE AND PURPOSE OF LONG-RANGE STRIKE

Acquiring long-range strike capabilities has gained considerable currency in Tokyo, and monies for studying different options have been included in the 2018 budget request. Japanese discussions of strike are generally framed as a means to attack North Korean missile sites preemptively if they prepare for launch—a dubious proposition now that North Korea has a mobile missile ca-

109. Rebecca Grant, “Playing with Fire,” *Air Force Magazine*, July 2009, p. 32.

110. “Kaiji no Shingata Goeikan, 4 Nenkan de 8 Seki Kenzō e, Bōeishō Kankeisha” [MoD official: MSDF’s new frigate class, eight ships to be built over four years], Reuters, February 17, 2017.

pability. Long-range strike systems could, however, also be used in China scenarios, and some officials suggest privately that Japan should have the capability to strike back in the face of Chinese missile attack—hinting at a punishment strategy.¹¹¹ Two separate Liberal Democratic Panels have advocated long-range strike, and since March 2017, three former ministers of defense, as well as Prime Minister Abe, have spoken out in favor of the idea.

Short-range strike (such as the 300-kilometer-range anti-ship missiles mentioned earlier) would be an integral part of any outer island defense strategy; the debate therefore revolves around long-range strike. Some students of denial see the ability to conduct preemptive or disruptive attacks (e.g., Adm. Francis Drake's use of fire ships against the Spanish fleet at Gravelines in 1588) as an important component of the larger denial strategy.¹¹² Long-range missiles (with ranges in excess of 800 km) might provide Japanese strategists with the ability to disrupt adversary attacks at their point of origin, before they fully develop.

In evaluating the potential value of strike, however, it is necessary to specify what systems are being considered and the range of purposes to which they might be put. The most ambitious Japanese concept would be a complete package of capabilities designed to penetrate air defenses and find and attack mobile targets in real time. The package would include new surveillance and reconnaissance platforms and suppression of enemy air defense capabilities, as well as the actual weapons to strike targets once located. According to one Japanese estimate, a full package would cost tens of billions of dollars.¹¹³ Even for the U.S. military, with its much larger budget and extensive experience in suppressing air defenses, penetrating Chinese air defenses to conduct strike operations would be difficult. For Japan, it is simply not realistic.

A more modest approach would be restricted to acquiring long-range cruise missiles for use against a narrower range of targets. In December 2017, Defense Minister Itsunori Onodera announced that Japan would fund a study of acquiring U.S. joint air-to-surface standoff missile-extended range and long-range anti-ship missiles, both with ranges in excess of 900 kilometers.¹¹⁴ These cruise missiles would likely be carried on existing F-15s, and the missiles alone

111. Interview with senior official, Tokyo, April 28, 2016.

112. Tangredi, *Anti-Access Warfare*, p. 108.

113. "Nihon no 'Teki Kichi Kōgeki Nōryoku' Hoyū Beikoku to Suimenka no Semegiai" [Behind the scenes disagreement with U.S. over Japan's development of capabilities to strike enemy bases], Reuters, September 10, 2014.

114. Robin Harding "Japan to Buy Cruise Missiles Capable of Striking North Korea," *Financial Times*, December 8, 2017.

would cost roughly \$1.5 million each. A force of 300 missiles (for \$500 million) would give Japanese commanders options against Chinese bases or ports—roughly five attacks on the same scale as the U.S. strike on Shayrat Air Base in Syria in 2017. With accurate and timely intelligence, strikes on naval ports might disrupt Chinese amphibious operations or resupply, and selective attacks on airbases might destroy high-value assets, such as tankers or bombers.

Despite the potential value, Tokyo should clarify the intent of its strike ambitions, limit the scope of its efforts, and not pursue strike as a strategy of deterrence by punishment. Bureaucratic impulses may pull toward developing extensive offensive capability and exaggerate the value of such capability—witness the bomber lobby in Britain before World War II. There are, however, limits to the value Japan can derive from long-range strike.

First, China enjoys strategic depth, and it can deploy its ground, air, naval, and missile forces from a wide range of bases at a variety of distances from Japan. Acquiring targeting data against distant bases might be difficult, and long flight times for cruise missiles (up to an hour) will limit their value against mobile targets. The attacker must mass to attack, but China, as an adaptive opponent, can marshal its offensive forces at greater distances from Japan in response to the cruise missile threat. Alternatively, it might destroy Japan's ability to strike prior to launching amphibious operations by, for example, striking the bases from which missile-armed F-15s might launch. Given the asymmetric nature of the two countries' geography, missiles would not provide the same value for Japanese planners as they might for Chinese commanders.

Second, countervalue strikes against nonmilitary targets, undertaken in retaliation for Chinese attacks on Japan, might prompt escalation by China. If Japan targets dual-use facilities, such as ports or airports, the distinction might be lost on the Chinese side. China already has a large inventory of missiles and well-developed employment concepts, giving the PLA almost certain escalation dominance, even without resort to nuclear weapons. Under these circumstances, Japanese political approval for strikes against targets in China might be withheld, especially if important escalation thresholds had not been crossed. And third, the very existence of these systems could prove an enormous temptation to preemptive attack, as China might seek to destroy Japan's delivery systems prior to their use.

Japan may wish to arm itself with a limited inventory of long-range strike weapons on the understanding that these will give it new options. The benefits of acquiring a strike capability, however, will not scale up with size. Japanese

defense planners should, therefore, continue to gird for an extended—and largely defensive—military campaign, within which strike might play a subsidiary, if potentially important, role.

Obstacles to Implementing a Denial Strategy

As the discussion above indicates, some elements critical to a denial campaign are in place or under development within the SDF. Below, we discuss some of the obstacles that stand in the way of fully developing an active denial strategy.

UNDERSPENDING ON DEFENSE

Despite modest increases in Japan's defense budget since 2013 and a commitment by Prime Minister Abe that Japan's defense would no longer be bound by the unofficial limit of 1 percent of GDP, the defense budget remained just 4 percent larger (in nominal terms) in 2017 than it was in 1997. Tokyo still underspends, at a time when the United States expects greater burden sharing and when Chinese military improvements place a premium on combined effort. In the wake of Donald Trump's 2016 election, Japanese defense intellectuals suggested an increase to 1.2 percent of GDP, and a Liberal Democratic Party policy report called for Japan to match the NATO 2 percent target.¹¹⁵ Still, no formal budget proposal—even one touted as the “largest-ever”—has come near the latter figure.¹¹⁶

INADEQUATE ANALYTICAL SYSTEM

Japan's defense ministry lacks effective institutional mechanisms to translate specified objectives in Japan's new strategy documents into force structure requirements or to put different options in competition with one another in an operational context.¹¹⁷ Without such mechanisms, it is impossible to evaluate whether, for example, cruise missile defense is best served by fighter aircraft conducting combat air patrols, point defense by short range surface-to-air missiles, or attacks against adversary launchers. Within the U.S. Department of Defense, the planning, programming, budgeting, and execution process has

115. “The Trump Administration and Japan: Challenges and Visions for Japan's Foreign and Security Policy in the New Era” (Tokyo: Institute for International Policy Studies, January 2017).

116. “Cabinet OKs Largest-Ever 97.71 Tril. Yen Draft Budget for FY 2018,” *Mainichi Shimbun*, December 22, 2017.

117. In 2015, the Japanese ministry of defense established the Acquisition, Technology, and Logistics Agency to centralize procurement. Although a step in the right direction, this office focuses on procurement management, rather than requirements and analysis.

provided the structure for such analyses.¹¹⁸ Although any analytical system, including the U.S. one, will have flaws, the need for analytically based adjudication of service priorities should be obvious. Some military functions may be executed by different services, but not necessarily equally well or cheaply.¹¹⁹

GSDF STRANGLEHOLD ON SDF BUDGETS AND ORGANIZATION

The GSDF receives priority treatment within the SDF. As figure 2 shows, the military services have received an almost fixed share of the budget since at least 2000. Despite the primarily air and maritime nature of the Chinese threat—and Japan’s archipelagic geography—the GSDF receives 50 percent more funds than either the air force or navy (see figure 2). Its officers have maintained a disproportionate role in leading the joint staff, supplying fifteen of the thirty chiefs of staff since the SDF was established. Rather than reallocating funds between services as Japan’s defense problem evolved from a ground invasion from the north to an air and maritime threat to the south, the defense ministry has instead given the GSDF missions that might more logically belong to the other services, such as the command of Japan’s new amphibious infantry.

LACK OF A STANDING JOINT COMMAND

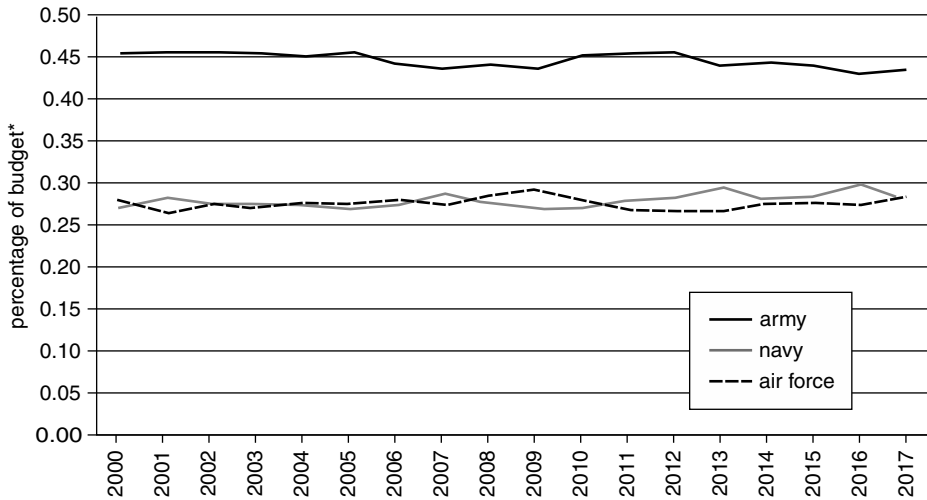
The SDF is also hobbled by the lack of a standing joint command. The Japanese Joint Staff, established in 2006, is not a command authority, and the chief of each service directs the activities of elements from that service alone.¹²⁰ The service’s geographic boundaries do not coincide. Indeed, the GSDF and ASDF divide their forces into a different number of regional commands (five vs. four, respectively). ASDF regional command boundaries neatly bisect those of the GSDF. In mid-2016, reports suggested that the Abe government was considering a permanent joint headquarters, modeled on the Permanent Joint Headquarters of the British military, but the idea may have fallen victim to service jealousies.¹²¹ Army officers often command joint exercises, even though

118. On the merits of such mechanisms, see Alain C. Enthoven and K. Wayne Smith, *How Much Is Enough? Shaping the Defense Program, 1961–1969* (Santa Monica, Calif.: RAND Corporation, 1971). On recent adjustments, see Michelle Shevin-Coetzee, “The Labyrinth Within: Reforming the Pentagon’s Budget Process” (Washington, D.C.: Center for a New American Security, February 2016).
119. This lack of adjudication helps explain why the GSDF and ASDF operate two very similar midrange SAM systems (the GSDF’s Chu-SAM and the ASDF’s Patriot MIM-104 systems). The ASDF also operates the Patriot PAC-3, which is primarily a point defense system against ballistic missiles.

120. The chief of the joint staff is an adviser to the minister of defense. See Katsutoshi Kawano, “Address by the Chief of Staff” (Tokyo: Japanese Ministry of Defense, February 17, 2016).

121. “‘Tōgō Shireibu’ Jōsetu wo Kentō, Jieitai Toppu ga Genkyū” [Examining establishment of permanent “Joint Command,” chief of SDF says], *Sankei Shimbun*, March 1, 2016; “Japan Eyes Per-

Figure 2. Service Budget Shares within Japan's Self-Defense Forces (SDF)



SOURCE: Japanese Ministry of Defense, *Waga Kuni no Bōei to Yosan* (Defense Programs and Budget of Japan), various years.

* This is the percentage of SDF funds allocated to the services; the calculation does not include other funds, such as those for the joint staff or intelligence headquarters.

archipelagic defense in the age of precision strike requires a joint approach and should be organized and led primarily by air and naval commanders.

USING MILITARY PRODUCTION TO SUPPORT INDUSTRY

For small states, there is always a tension between maintaining a defense industrial base and efficient military procurement. In Japan's case, defense production has often been harnessed to technoeconomic goals.¹²² Although Japan's shipbuilding industry has produced warships of outstanding design at reasonable cost, the same cannot be said of its aircraft industry.¹²³ To recoup development costs, Japan will procure some 70 domestically produced P-1 anti-submarine warfare aircraft for the MSDF and, as noted, 40 C-2 cargo aircraft for the ASDF.¹²⁴ The anti-submarine warfare mission is critical for

manent Joint HQ for SDF," *Japan Times*, March 13, 2016; and interview with Japanese military officers, November 15, 2017.

122. Richard J. Samuels, *"Rich Nation, Strong Army": National Security and the Technological Transformation of Japan* (Ithaca, N.Y.: Cornell University Press, 1996).

123. The F-2, a fourth-generation strike aircraft that Japan jointly developed with the United States during the 1990s, cost more per aircraft than the F-35, yet is routinely "massacred" in air-to-air combat exercises according to Japan-based U.S. fighter pilots. Authors' interviews, November 2017.

124. "Seigyo ni Hikari Fuaibaa, Jiki Shōkaiki P1 wo Nōnyū, Kawasaki Jūkō" [Delivery of next-generation P-1 patrol aircraft, with fiber-optic control], *Sankei Shimbun*, March 27, 2013.

Japan and some additional lift may be required, but the scale of these investments is disproportionate in the context of other underfunded priorities, such as the modernization of the F-15 fleet and additional aerial refueling tankers.

Japan has proven that it can address institutional weaknesses in its defense planning and execution. None of the problems identified above is beyond its capability to fix, but those efforts should not be delayed.

Conclusion

Japan faces an intensifying set of external security challenges, especially from an increasingly capable Chinese military. The Japanese military does, of course, face other threats and does have other tasks and missions, so it is worth briefly addressing how we might think about weighing these different requirements before returning to summarize our assessment of Japanese military strategy vis-à-vis China.

Some SDF tasks are not directly related to the defense of Japan. Given Japan's geology, disaster relief is an important military function, and the procurement of some specialized equipment is necessary. Large military platforms, however, are almost never the most cost-effective solutions to disaster relief problems. Given the magnitude of the military challenges facing Japan, big-ticket items should not be absolved from strict scrutiny for cost-effectiveness vis-à-vis direct defense needs, as they sometimes are today.¹²⁵ Similar logic should be applied to requirements associated with peacekeeping operations.

The most difficult dilemma concerns how many resources to allocate for defense against North Korean missiles. A nuclear-armed North Korea represents a terrible, if one-dimensional, threat. Given current missile defense technology, however, no amount of defense can protect population centers or bases with full confidence.¹²⁶ Under these circumstances, Japan's current approach, which allocates significant resources (roughly 5 percent of the defense budget) to ballistic missile defense but which does not pursue the illusory goal of airtight defense, seems reasonable. Japan's recent decision to add "Aegis ashore" as a less expensive alternative to additional ship-based systems is consistent with this

125. Japan paid roughly \$175 million for each of its 17 Osprey aircraft, a cost it justified, apparently without any strict cost-benefit calculation, largely on the grounds that the aircraft would be useful for disaster relief. There are clearly less expensive ways to deliver blankets and water to offshore islands. See Japanese Ministry of Defense, "Press Conference by the Defense Minister Onodera" (Tokyo: Japanese Ministry of Defense, July 11, 2014), <http://www.mod.go.jp/e/press/conference/2014/07/11.html>.

126. On recent tests, see, for example, Hans Nichols and Alex Johnson, "U.S. Missile Defense Test Fails off Hawaii, Officials Say," *NBC News*, January 31, 2018, <https://www.nbcnews.com/news/us-news/u-s-missile-defense-test-fails-hawaii-officials-say-n843486>.

approach.¹²⁷ In the longer term, Japan will want to jointly develop new technologies, such as systems capable of destroying missiles during boost phase (e.g., airborne or space-based systems) or capable of firing cheaper munitions (e.g., electromagnetic rail guns).¹²⁸

By far the most serious and broad-based challenges to Japanese security come from China, and Japan urgently needs to reconsider its basic approach to deterrence under rapidly evolving conditions. Consequently, we have explored several ideal-type approaches to conventional deterrence. Given the strategic circumstances confronting Japan—specifically the eroding military balance vis-à-vis China, the existence of a powerful but distant ally, and the nature of potential conflicts—we conclude that the optimal Japanese defense strategy is active denial. This strategy capitalizes on Japan’s geography and the defensive potential of modern weapons to produce the most effective and affordable defense.

To be sure, Japan will wish to maintain some maneuver forces capable of engaging in limited force-on-force encounters in open ocean areas. But even if Japan can prevail in naval or air “meeting engagements”—a proposition that will become increasingly dubious in the years ahead—it cannot effectively deter escalation to higher levels of conflict if its larger force structure cannot survive and operate under attack by precision strike. A central element of a successful denial effort would therefore be reducing the vulnerability of fixed assets through hardening, redundancy, deception, and (where practical) mobility. The new strategy would be based around survivable, mobile forces with the ability to isolate and strike an encroaching adversary.

This updated denial strategy is designed to function in the face of—and capitalize on—precision strike. But unlike a punishment strategy, which might rely on long-range systems to attack countervalue targets in an adversary’s homeland, active denial remains largely consistent with Japan’s continuing military policy of “defensive defense.” It is a military strategy that enhances stability by ensuring that an attack on Japan will become a protracted fight, thus enhancing deterrence, and by reducing the incentives for either side to strike first during a crisis. As we have noted, however, active denial may run counter to military interests in more conventional forms of defense and might therefore require the support of civilian experts and leaders.

127. Ryo Aibara, “Defense Ministry to Seek Record 5.25 Trillion Yen in FY18 Budget,” *Asahi Shimbun*, August 22, 2017.

128. On technical possibilities, see Sam LaGrone, “Navy Wants Rail Guns to Fight Ballistic and Supersonic Missiles Says RFI,” *U.S. Naval Institute News*, January 5, 2015; and Dean A. Wilkening, “Airborne Boost-Phase Ballistic Missile Defense,” *Science and Global Security*, Vol. 12, No. 1 (2004), pp. 1–67.

Japan's adoption of an active denial strategy presupposes a credible U.S. commitment to Japan's defense. An important strand of Japanese strategic thought has long supported autonomous defense. Its advocates would likely prevail if U.S. behavior brought the alliance into serious doubt.¹²⁹ Tokyo would assemble a full range of capabilities, including offensive forces and, probably, a nuclear deterrent.¹³⁰ This course would carry enormous risks. It is questionable whether Japanese nuclear armament would produce a stable nuclear equilibrium or make security competition with China less dangerous.¹³¹ It is just as likely to produce a broader competition in both the nuclear and conventional domains. China might instead seek escalation dominance in the former and superiority in the latter—and would be able to afford both.¹³²

The United States is, however, likely to remain in Asia for its own purposes. As of 2016, the aggregate GDP of the East Asian countries was some 37 percent greater than Western Europe's.¹³³ Within East Asia, China's economy is so out-sized (56 percent of the total) that the United States cannot remain aloof without risking the emergence of a regional hegemon. Even advocates of selective engagement acknowledge that the balance of power in Asia is exceptional; John Mearsheimer and Stephen Walt write, "In Asia, the United States may indeed be the indispensable nation."¹³⁴ And, as liberal internationalists and advocates of deep engagement argue, the economic benefits of the U.S. military presence are substantial.¹³⁵

Alliances and commitments carry costs and risks as well as benefits. To a

129. Narushige Michishita and Richard J. Samuels, "Hugging and Hedging: Japanese Grand Strategy in the 21st Century" in Henry R. Nau and Deepa M. Olapally, eds., *Worldviews of Aspiring Powers: Domestic Foreign Policy Debates in China, India, Iran, Japan, and Russia* (Oxford University Press, 2012), pp. 146–180.

130. On Japanese thinking about nuclear weapons, see Samuels and Schoff, "Japan's Nuclear Hedge."

131. There is some debate on the impact of nuclear weapons on stability, but the specific circumstances of the Sino-Japanese relationship are not conducive to the best outcomes. On the larger debate, see Kenneth N. Waltz, "The Spread of Nuclear Weapons: More May be Better," Adelphi Paper No. 171 (London: International Institute for Strategic Studies, 1981); and Michael Krepon, "The Stability-Instability Paradox, Misperception, and Escalation Control in South Asia" (Washington, D.C.: Stimson Center, May 2003).

132. China, embracing a form of minimum deterrence, has accepted a clearly inferior nuclear position vis-à-vis the United States and Russia, but it is less clear whether that would hold against a sprint for parity by Japan, a nuclear newcomer and historical adversary. See Eric Heginbotham et al., *China's Evolving Nuclear Deterrent: Major Drivers and Issues for the United States* (Santa Monica, Calif.: RAND Corporation, 2017), especially pp. 69–96.

133. Data and definitions of regional groupings are from the International Monetary Fund (IMF). See "GDP, Current Prices," IMF DataMapper (Washington, D.C.: IMF, 2018), <http://www.imf.org/external/datamapper/NGDPD@WEO/OEMDC/EAQ/WEQ/SEQ>.

134. Mearsheimer and Walt, "The Case for Offshore Balancing," p. 81.

135. Brooks, Ikenberry, and Wohlforth, "Don't Come Home, America"; and Joseph S. Nye Jr., "East Asian Security: The Case for Deep Engagement," *Foreign Affairs*, Vol. 74, No. 4 (July/August 1995), pp. 90–102, doi:10.2307/20047210.

significant extent, those risks vary with the choice of military strategy. A Japanese denial strategy would lessen the potential for moral hazard—risky actions by Tokyo that exploit the sharing of potential costs. Given the limited nature of power projection in the approach we have outlined, an active denial strategy will signal Japan's status quo objectives and should reassure its adversaries, the United States, and its own public that Tokyo will not initiate aggressive conflict. Indeed, public understanding of (and open insistence on) the defensive nature of strategy might render a larger Japanese defense effort more palatable. A less brittle (or more resilient) force posture that is primarily defensively oriented also increases crisis stability and reduces first-mover advantages and crisis instability.

Japanese denial works with a range of U.S. military strategies, but works better with some than others. Given the evolving balance of power, the most effective U.S. military strategy would include a phased approach to military operations, under which the United States would pursue a denial strategy similar to Japan's during the initial period of conflict before transitioning to more traditional operations as reinforcements arrive and Chinese inventories of long-range missiles are exhausted. Collectively, the alliance must maintain a counterattack capability that can recapture lost territory, but it does not necessarily require the ability to penetrate Chinese airspace on a grand scale to attack targets on the mainland. Nor does it require that offensive capability be available in Asia for immediate use. Maintaining counterattack capability farther offshore will also work to keep it secure from preemptive attack. Hence, this phased approach not only is efficacious for deterrence, but also diminishes first-strike incentives.

In closing, we are reminded of several metaphors that have been associated with the U.S.-Japan alliance: the Japanese hedgehog; the proverbial cork in the bottle; and the sword and shield division of labor. The active denial approach has echoes of each, but also important differences, and it derives not from loyalty to past practice but from current strategic circumstances. In some ways, those circumstances resemble early Cold War ones more than those of the early post-Cold War, a shift that brings new relevance to the concept of denial. At the same time, however, many circumstances are new, not least the state of military technology and the geographic locus of the threat. The concepts associated with active denial will, therefore, differ in shape and form.

In the face of a greatly increased threat, active denial reintroduces the emphasis on resilience and survivability implicit in the early Cold War "hedgehog" variant of denial, but it increases emphasis on mobility, as well as the lethality and flexibility of Japanese weapons. In the imperfect world of animal metaphors, Japanese defense would more closely resemble a porcupine, able

to inflict painful and costly wounds at limited distances, than the more purely defensive hedgehog. If the United States had been a cork in the Japanese bottle during the Cold War, today's strategic circumstances limit the incentives for both Japan and the United States to pursue adventure. The denial strategy is inherently one of restraint.

To an extent, the offensive and defensive division of labor of the sword and shield metaphor, which has diminished since the 1980s, would be revived. Nevertheless, the distinction—now in response to the efficacy of a phased approach to operations—will be less absolute than it was during the early Cold War. Both U.S. forward-deployed forces and Japan's Self-Defense Force would hold the shield at the outset, and both would participate in later counter-offensive action, albeit with U.S. forces having a larger role. Throughout the fight, offensive and defensive capabilities would, in any case, often be embedded in the same platforms. Adoption of an active denial posture would, in our view, make the hedgehog more lethal, recognize the central role of Japan in its own defense, and multiply the defensive and offensive options available to Japan's defenders.