



JEFFREY W. HORNUNG

Japan's Potential Contributions in an East China Sea Contingency



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Preface

This research report is part of a larger study on “Understanding and Optimizing Burdensharing: Developing a Deeper Understanding of Allied and Partner Contributions,” led by C. King Mallory and David Ochmanek.

The public summary of the U.S. National Defense Strategy (NDS) published by the U.S. Department of Defense (DoD) in 2018 highlights the need for U.S. allies and partners to help respond to challenges presented by strategic competitors and other security challenges. In the Indo-Pacific region, the United States’ alliance with Japan is the most relevant in this endeavor. The question of whether U.S. allies such as Japan are contributing enough to—or “sharing the burden of”—the collective defense has become a major topic of discussion in the United States. The Office of the Secretary of Defense asked the RAND Corporation to research what roles could and would Japan play should a high-end contingency erupt in the East China Sea that finds the United States engaged in major combat operations with China. This report explores Japan’s ability and willingness to contribute in this situation and identifies ways in which DoD might incentivize Japan to improve its contributions.

Using primary source documents of the Japanese government, this report shows that, despite Japan’s focus on self-defense, there are significant areas in which Japan’s Self-Defense Forces (SDF) can assist the United States. That assistance, however, is limited, both in terms of capabilities and existing legal restrictions. Importantly, much relies on Japan’s political decisionmakers, who, in a time of a crisis, will be challenged to ensure that their decision-making timelines are fully in sync with U.S. operational needs. In addition to assessing the strengths and weakness of the capabilities of each of the three SDF services—both current and expected over the next decade—against what would be relevant in a potential high-end East China Sea contingency, the report examines broader SDF strengths and challenges that are not service-specific but will matter for the United States during such a situation. The report also examines the legal permissions and interpretations associated with how those capabilities can be employed. This includes issues relating to the situations in which Japan would support the United States, allow the United States to access its bases for combat, and authorize the SDF to use force. The report concludes with recommendations for ways to manage—and overcome—some of the major challenges identified to ensure more effective and capable Japanese support. These include areas where Japan could better position itself to respond to a regional contingency, both for its own defense and in support of the United States as well as ways the United States could support Japan in these efforts.

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Summary

The public summary of the U.S. National Defense Strategy (NDS) published by the U.S. Department of Defense (DoD) in 2018 emphasizes the importance of maintaining “a robust constellation of allies and partners” to help respond to challenges presented by strategic competitors and other security challenges.¹ This constellation helps sustain American influence and ensure favorable balances of power to secure the current free and open international order. “When we pool resources and share responsibility for our common defense,” the NDS states, “our security burden becomes lighter.”² The question of whether U.S. allies such as Japan are contributing enough to—or “sharing the burden of”—the alliance has become a major topic of discussion in the United States.

In the Indo-Pacific region, the alliance the United States has with Japan is arguably its most important in pursuit of the objectives outlined in the NDS. Japan has a modern and advanced armed force, called the Self-Defense Forces (SDF), that is responsible for the defense of Japan. If a high-end contingency erupts in the East China Sea and the United States becomes engaged in major conventional combat operations with China, what roles can and might Japan play? This report seeks to answer these important questions; it concludes that, despite Japan’s focus on self-defense, there are significant areas in which the SDF can assist the United States. That assistance, however, is limited, both in terms of capabilities and existing legal restrictions. Importantly, much relies on Japan’s political decisionmakers, who, in a time of a crisis, will be challenged to ensure that their decisionmaking timelines are fully in sync with U.S. operational needs.

Japan’s “Shield and Spear” Strategy

Japan views China as a long-term challenge to both Japan’s security and the broader regional order. To counter malign Chinese influences, Japan has pursued several defense efforts to strengthen its ability to maintain Japan’s peace and security and ensure its survival should a threat reach Japan. It has also sought ways to improve the regional security environment by strengthening its alliance with the United States. This approach to defense has been characterized as a “shield-and-spear” relationship, with Japan acting as the shield defending Japan and U.S. forces stationed there, and the United States acting as the spear, striking out beyond Japan to shape the regional environment in a way conducive to American and Japanese interests.

¹ DoD, *Summary of the 2018 National Defense Strategy of the United States of America*, Department of Defense, January 2018, p. 1.

² DoD, 2018, p. 8.

This strategic bargain rests on the fundamental understanding that, in exchange for the U.S. security guarantee to support Japan's defense and the stability of the region, Japan will host forward-deployed U.S. forces. With similar equipment, concepts, and doctrines, as well as a relationship built over decades of cooperation, Japan is expected to defend itself and U.S. bases in Japan, as well as support U.S. forces responsible for any regional fight beyond Japanese territory. Close examination of each of the current and future capabilities of the three SDF services sheds light on how well positioned Japan is to contribute to a potential high-end East China Sea contingency.

Japan's Self-Defense Forces: Overview and Key Challenges

The Ground Self-Defense Force (GSDF) is the largest of the SDF services. For the majority of the GSDF's existence, its focus was on preventing a Soviet land invasion in Japan's north. This required a reliance on tanks and heavy artillery. Over the past decade, as provocations by China in the East China Sea have increased, the GSDF has reoriented itself to be more mobile and realigned its capabilities to respond to events in Japan's southwest. This has meant taking on anti-air and anti-ship functions and developing amphibious capabilities. Augmenting this push toward greater mobility has been an increase in the GSDF's footprint throughout the Nansei Shotō, or southwest island chain, where the GSDF did not historically maintain troops. The GSDF established camps on the islands of Yonaguni, Amami-Ōshima, and Miyako, and a fourth one is planned for Ishigaki. With these changes, the GSDF is transitioning to a better position to rapidly respond to a contingency in that region. Given that the GSDF maintains a robust helicopter fleet and plans to augment it with an Osprey fleet, the GSDF is well positioned to move soldiers and supplies throughout the Nansei Shotō during a contingency.

The GSDF's shifts toward greater mobility and dispersed posture have improved its ability to respond to an attack on Japanese territory and could be leveraged to help the United States in a regional contingency, particularly for operations on or near land, but critical challenges remain. One of the most fundamental questions is how the GSDF would operate in a crisis. This stems from questions over the paucity of GSDF intelligence-gathering assets and shaping capabilities, as well as a poor fire support doctrine. A second challenge is the nature of the GSDF's mobility. The GSDF is becoming more mobile, but there are questions over how quickly its forces can assemble, integrate, match troops with logistics, and deploy once conflict commences, as well as concerns about how well it can move from its bases to the battlespace. A final challenge is that, despite the increase in GSDF posture on four islands in the Nansei Shotō, there are no plans to further build out its presence on any additional islands, despite the strategic benefits that such a dispersed footprint would bring.

The Air Self-Defense Force (ASDF) is the second-largest SDF service. The ASDF's strengths are the advanced nature of its fighter capabilities, its skilled pilots trained for combat, and how well-suited it is for its primary mission of defending Japanese airspace. Reflecting this mission, the core of the ASDF's fleet is its fighter aircraft. The ASDF's focus over the past two decades has been acquiring capabilities to meet the increasing challenge posed by Chinese air assets in the East China Sea. A key part of recent modernization efforts is Japan's plan to acquire a total of 105 F-35As and 42 F-35Bs to replace its fleet of retiring F-4EJs. The ASDF is also planning on replacing its fleet of F-2s with a more advanced aircraft, although that process has proven problematic. The ASDF fighter fleet is augmented by air assets performing

intelligence, surveillance, and reconnaissance (ISR) and airborne early warning and control (AEW&C) missions

As robust as the ASDF's fleet is, there are notable challenges that could limit its effectiveness in a regional contingency. For example, the quality balance of ASDF fighters is unequal, as not all platforms are equally modernized. Similarly, the ability of the fighter fleet to operate in a heavily contested environment is questionable should China employ jamming capabilities, which it is almost certain to do. ASDF fighter aircraft also face physical constraints, in that Japan has only a limited number of airfields and facilities west of Okinawa that the ASDF can utilize. Likewise, as robust as the ISR and AEW&C assets are, Japan's satellite communications are not secure, leaving the information they gather vulnerable. Additionally, while the fleet can perform continuous ISR in peacetime, these platforms appear to be unarmed, and the ASDF continues to lack highly advanced ISR platforms that would be critical in a contingency. Finally, beyond these challenges, the ASDF does not appear to have adequate logistical support capabilities to perform in a contingency that is likely to require operations in airspace far from Japan's mainland. Not only does it lack a robust fleet of aerial refuelers, the ASDF's airlift platforms will be challenged in accommodating oversized cargo and in having to take off and land on islands with smaller runways. These are critical challenges that may hamper the ASDF during a contingency in the East China Sea area.

The Maritime Self-Defense Force (MSDF) is the smallest of the three SDF services in terms of manpower. The MSDF's greatest single strength is its ability to defend sea lines of communication, conduct chokepoint control, and perform anti-submarine warfare (ASW) using the MSDF's advanced destroyer fleet and submarine fleet. Additions and modernization plans will further strengthen these fleets in the years ahead. The MSDF also possess a superior minesweeping fleet that plays an important role for the alliance, and this fleet is also set to be improved in the years ahead with more modern ships. Augmenting the MSDF's surface and subsurface fleets is its aviation wing, which is composed primarily of a fleet of P-1s and P-3Cs, capable of performing both ASW and ISR operations. Together, MSDF forces are well postured to conduct a broad range of operations in Japanese waters and nearby regional waters.

Like its sister services, the MSDF faces logistical challenges that could limit the effectiveness of its assets in a contingency. The MSDF has a small number of oilers, both classes of which are relatively old, and there are no plans to increase these numbers anytime soon. As long as this is the case, there will be limits on how long MSDF destroyers and minesweepers can sustain operations far from MSDF ports. Similarly, the MSDF lacks an adequate number of sealift platforms capable of carrying oversized transport and assisting with amphibious operations and transportation operations. Should Japan find itself engaged in or supporting a conflict in the Nansei Shotō area or broader East China Sea, the paucity of these logistical assets will hinder MSDF activity, particularly the longer a conflict continues.

Broader SDF Issues and Japan's Self-Defense Orientation

The capabilities of each of the three services demonstrate that Japan has advanced military platforms, even though challenges exist. Apart from these service-specific strengths and challenges, the SDF as a force also maintains three broader strengths that are relevant to an East China Sea contingency. The first is high levels of interoperability with U.S. forces. Through the use of similar equipment, maintenance of regular bilateral exercises and training, sharing

of similar operational concepts and doctrines, and Japan providing maintenance support for U.S. equipment, U.S. and Japanese forces are able to enjoy high degrees of interoperability. The second is Japan's air and missile defense systems. Japan's missile defense system is made up of a two-tiered ballistic missile defense system connected and coordinated by a nationwide radar network and early-warning sensors operated by a joint task force. Its air defense system consists of nationwide placement of capabilities operated by all three services. Importantly, though challenges exist, Japan continues to improve these systems with more advanced interceptors, an expansion of surface-to-air missile (SAM) and anti-ship cruise missile (ASCM) batteries throughout the Nansei Shotō, and a heavy investment into acquiring standoff missile capabilities in the years ahead. The final strength is Japan's prioritization of the new domains of space, cyber, and the electromagnetic spectrum. Developments in these domains open more asymmetric means by which Japan can respond to a regional contingency.

Alongside these broader strengths of the SDF are three broader challenges that may prevent the SDF from fully leveraging its strengths in a contingency. The first is that the SDF lacks significant capabilities that would be relevant in a regional contingency. These include long-range strike capabilities, minelaying capabilities, electronic attack assets, and unmanned assets, both armed and unarmed. A second challenge is the SDF's inability to work together jointly as one force, even in its core task of defending Japan. This stems from several factors, such as different command-and-control structures among the three SDF services. The final challenge is falling recruitment levels and an aging force, which stem from the broader demographic decline in Japanese society. Recruitment problems coupled with an aging force are likely to negatively affect Japan's ability to support a regional contingency, particularly as these trends continue over time.

Understanding the SDF's capabilities is only part of the story. A second part is legal permissions and interpretations associated with how those capabilities can be employed. The report also examines these issues, with a focus on areas most relevant for a high-end contingency in the East China Sea that may or may not involve the defense of Japan. Given that the SDF has never been in combat, there are questions about the situations in which Japan would support the United States, allow the United States to access its bases for combat, and authorize the SDF to use force. Japanese officials understand that the United States will need to rely on bases in Japan to execute a regional operation, but, from the perspective of Tokyo, the United States is legally required to perform "prior consultation" with Japan before employing U.S. forces from these bases for combat operations if it is not for the defense of Japan. In addition, U.S. bases in Japan may not be the only facilities that the United States may want to use. In a regional contingency, it would be operationally beneficial for U.S. forces to have access to Japanese airfields and ports, both SDF and civilian. While U.S. access to SDF airfields and ports is generally considered to be guaranteed, U.S. access to civilian airfields and ports is more complicated but would be likely to occur following an armed attack on Japan or an anticipated armed attack situation. Finally, given Japan's constitutional restrictions on its armed forces, there is a question of whether and how the SDF's capabilities could be employed in a contingency. For Japan to move beyond rear-area, noncombat support to a situation where the SDF can use force, its political leadership must make several decisions about how an unfolding scenario affects Japan's security. For some situations, however, there is no consensus in Tokyo on what Japan may legally do.

Despite Japan's focus on self-defense, there are areas in which the SDF can act, both in its own defense and in support of the United States. That assistance, however, is potentially

limited, both in terms of capabilities and existing legal restrictions and political realities. To better position Japan to respond to an East China Sea contingency there are five areas where Japan may consider focusing its attention.

Recommendations to Increase the SDF's Ability to Burden-Share in a Contingency

Improve Mobility and Force Flow Capability

For a hypothetical contingency taking place near the Nansei Shotō or in the broader East China Sea area involving the United States and China, the theater of combat will likely be far from mainland Japan. The SDF's strengths for this include ISR, as well as ASW, air superiority, rear-area support, chokepoint control and, if China attacks Japan with a limited ballistic missile assault, its BMD system. These provide the alliance critical situational awareness and defense of key capabilities and facilities in Japan, thereby denying China a quick victory. Given the SDF's composition, however, such a contingency would severely stress Japan's ability to rapidly respond to the theater of operations and sustain that response over a long period of time, particularly after the SDF begins to lose key capabilities. This is because the SDF is deficient in key areas, including sealift capabilities, maritime oilers, aerial refueling, advanced/special mission ISR platforms, and electronic protection and assault assets. The SDF is also challenged by limited ranges in its anti-ship and anti-air capabilities; limited dispersion of forces and passive defense measures; unsecure satellite communications; and ongoing jointness issues among the three SDF services. Japan could better position itself for success in a contingency by working to fill in these critical gaps, prioritizing its defense spending on modernizing, and increasing more of these critical capabilities. In doing so, not only will Tokyo likely have to reconsider its artificial defense spending cap, it will also have to spend its finite resources more effectively.

Strengthen and Integrate SDF Air and Missile Defense Systems

Japan's current air and ballistic missile defense systems were built in response to the Soviet air threat and the North Korean ballistic missile threat. Given the air and missile threat posed by China, Japan needs to improve these systems. This requires, first, a focus on passive defense measures, including base/port and depot hardening, dispersion of forces and key assets, extensive use of dual use facilities, greater redundancy in key elements, and deception capabilities. Protection of its radar network should also be a high priority, including building greater redundancies into the existing network. The SDF could also distribute its posture throughout more islands, including a greater use of shelters and decoys. And as Japan develops its space, cyber, and electromagnetic capabilities, it should focus on platforms that enable it to knock out the guidance systems of enemy assets to prevent accurate targeting and/or delivery of these threats. Japan's ability to cope with an air and missile assault would be further increased by ensuring that its disparate air and missile defense systems are integrated. Finally, Japan's move toward stand-off missiles and renewed interest in strike capability after canceling the deployment of Aegis Ashore may present a good opportunity to consider a mix of missile capabilities that moves Japan slightly beyond its traditional exclusive defense focus. While significant costs are involved, one key benefit would be improving Japan's ability to hold an adversary's key assets at risk farther from shore, thereby improving Japan's deterrence ability. While not a substitute

for defensive systems, Japan will be best served by finding a balance between defensive and offensive capabilities—eschewing the term *offensive*—for an optimal deterrence posture.

Leverage Japan's Geography

Japan is made up of thousands of islands, yet only an extremely small number house SDF assets. Japan's efforts in recent years to expand the SDF's footprint on four islands in the Nansei Shotō are moves in the right direction, but more efforts may be necessary. Further expansions of the SDF's presence throughout the Japanese archipelago, and particularly in the East China Sea area, would benefit Japan's security and strengthen its ability to respond to a regional contingency in ways it cannot do today. Placing some rapidly deployable units that are specialized and critical for quick responses would be particularly beneficial because currently they are located far away. Additionally, deploying critical assets such as SAMs, Patriot Advanced Capability (PAC) units, and ASCMs throughout the Nansei Shotō to augment the strengths of the MSDF's submarine capabilities and well-laid sea mines could together help create critical chokepoints in Japan's anti-access/area denial (A2/AD) strategy to deny China freedom of maneuver. Finally, it may be helpful for Japan to think about other ways to strategically utilize its island geography, including dual-use facilities at civilian airfields; pre-positioning of supplies; housing rapidly deployable assets, decoys, and radars/sensors; and housing unmanned systems.

Strengthen Jointness Within the SDF

A fourth area is making a more dedicated effort toward jointness among the SDF services. Despite Japan having taken steps toward greater jointness, problems remain. At the most basic level, Japan needs to foster greater educational and personnel exchanges among its services. The Japanese Ministry of Defense (MOD) could also consider reviewing its acquisition process. For example, the MOD may find it useful to establish a construct whereby procurement decisions are subject to the collective review of the services and the authorities of the Joint Staff. Additionally, jointness could be strengthened through increasing exercises among the three services, particularly training relevant for an East China Sea contingency. Given the expected problems of the three services operating jointly in combat in a highly contested environment, the SDF needs to practice not just rapid staging and deployment and protection of these assets over large bodies of water, but also live firing, close air support, amphibious landings from distance, and sustainment operations over stretched air and sea supply lines. Working on joint command-and-control structures would also benefit how the SDF is expected to operate in a contingency.

Address SDF Personnel Challenges

How to maintain lethality as a force amid negative demographic trends remains one of the SDF's greatest challenges for the 21st century. Increasing retirement ages is the method the MOD has already pursued, and it is set to do so again. This ages the force, which is not without cost. The MOD and SDF have also utilized other means, such as raising salaries of enlisted personnel, and plan on seeking to diversify the SDF's applicant pool over the next decade. While not a new idea, tapping more heavily into Japan's female population could help address—although not resolve—recruitment challenges. Cutting the size of the GSDF and rebalancing the SDF toward a larger MSDF and ASDF is one idea yet to be pursued; to seriously consider this avenue, a thorough risk assessment and force posture review is required.

to better understand whether the current SDF is properly staffed and postured to defend and deter against the threats facing Japan.

How the United States Can Help

At the same time that Japan considers these changes, there are four specific areas where the United States could support Japan in these efforts.

Set the Conditions for Success in Prior Consultation

Working with Japan to set the conditions for success through prior consultation is enormously important. For any high-end regional contingency involving the United States and China, one expectation the United States will have of Japan is to access its bases for combat operations, even if Japan itself is not under attack. A U.S. strike launched from bases in Japan against a neighboring country would carry grave implications for Japan's national security, and it is assumed that the United States would engage in prior consultation with Japan before such an action. While the process of prior consultation itself is not onerous, the United States will need to focus on setting the conditions for Japan to agree, particularly if Japan has not yet been attacked. The first step is to consult Japan early and often to provide Japanese leadership with information to help them understand the nature of the pending threat and what the United States plans on doing. Second, given Japan's focus on self-defense, the United States should tie requests to Japan's defense and its survival. The closer the United States can tie operational threats to Japan's survival, the better the U.S. arguments for base access will resonate. Third, to get Japan to agree to U.S. armed forces using its bases in Japan for combat, the United States should take a more active role in protecting the Japanese civilian population. To be able to persuade a Japanese prime minister to make Japan an enemy belligerent of a force fighting the United States, the United States needs to demonstrate a commitment to bolster Japan's defense and reduce the risks for Japan as much as possible.

Focus Requests for Increased Alliance Contributions on Japanese Defense Spending

The United States could also help Japan by focusing requests for increased alliance contributions on Japanese defense spending. Japan's current 1 percent self-imposed limit on defense spending is an artifact of a political decision in the 1970s. If Japan's threat environment has gotten worse, and more needs to be done, as Japan declares, then it follows that Japan needs to do more. Asking the United States to do more while Japan adheres to the self-restraint of 1 percent sends a message that maybe the United States should not be as active either. It is unlikely that Japan will concurrently increase its defense budget and increase other alliance contributions in any significant way. The United States needs to resist the temptation to simply request spending increases across the board or to make broad comparisons to the NATO 2 percent standard. Instead, the United States needs to prioritize what alliance contributions it wants Japan to increase. Requesting Japan do more in terms of defense spending, or increase its contributions to the alliance, is more likely to receive a positive response from Tokyo when the requests are incremental, more targeted, and rationalized. Prioritized requests are more manageable and demonstrate an understanding of Japan's existing alliance contributions. It also helps Japanese leaders prioritize areas where Japan's finite resources could make the biggest impact. Given that Japan would be the front line in any regional contingency, the United

States should prioritize asking Japan to increase its defense spending domestically rather than to increase its direct or in-kind alliance contributions to U.S. presence in Japan or the region.

In many cases, it is budgetary or political constraints, rather than technical deficiencies, that prevent Japan from obtaining the capabilities it requires to defend Japan and support the United States. To support Japan in this effort, the United States and Japan should have a serious discussion about the roles and missions of the alliance. Doing so would demonstrate how some spending priorities may add critical strengths to the alliance, but others only contribute to capability at the margin.

Maintain Strong Political Ties with Tokyo

Washington also needs to maintain strong political ties with Tokyo. For all the operational requests that the United States is likely to submit to Japan in an East China Sea contingency and the associated need for Japanese leadership to decide on whether a scenario poses an “important influence on Japan” or a threat to Japan’s survival, much will depend on Japan’s political decisionmaking. Nothing is legally automatic. Nor is there a consensus on the specifics of how Japan’s laws will be interpreted. All these decisions are political, resting with the prime minister at any given moment. Because a contingency in which the United States asks Japan for both indirect and direct support has no historical precedent, it is unknown how long it might take to reach decisions during an unfolding crisis. Consequently, there is a chance that U.S. operational timelines will not align with Japanese political timelines, thereby posing a potential delay in U.S. response. Therefore, the United States should take steps in peacetime to set the conditions for more rapid Japanese political decisionmaking in a contingency. At the highest level, political leaders should seek to maintain amicable ties. At the working level, counterparts in the defense establishments need to discuss the issues covered in this report to reach some level of mutual understanding. Research and tabletop exercises on specific scenarios that test each side’s assumptions and expose gaps would also prove beneficial. Washington could help itself in this effort by being clear with Tokyo what kind of missions it expects the SDF to support.

Assist Japan in Its Efforts to Develop New Domains

The United States could also help Japan in its efforts to develop new domains. Japan’s push into the new domains of space, cyber, and the electromagnetic spectrum represent important steps forward in Japan’s defense thinking and strengthen Japan’s ability to respond asymmetrically. Although Japan’s capabilities likely lag behind those of China, it is attempting to go fast and far over the next decade. The problem, however, is that Japan needs assistance to quickly develop the capacity to deploy these capabilities in a meaningful way. It is in the interest of the United States to help Japan succeed. Toward this end, U.S. officials should engage Japanese counterparts as much as possible to exchange opinions, share information, train, and help Japan leapfrog its capabilities faster than if it pursued these initiatives in isolation. Beyond this, Japan needs help developing ideas on what capabilities are needed and the concepts necessary for how to employ them. In other words, the United States should help provide insight into how it uses these domains. Importantly, the United States should offer insight into the types of legal issues it faced when developing and deploying capabilities in these domains to help Japan overcome expected legal challenges when it deploys capabilities in these domains over the next decade.

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Abbreviations

A2/AD	anti-access/area denial
AA	anti-aircraft artillery
AAV	amphibious assault vehicle
AEW&C	airborne early warning and control
AOS	Auxiliary Ocean Surveillance
ARDB	Amphibious Rapid Deployment Brigade
ASCM	anti-ship cruise missile
ASDF	Air Self-Defense Force
ASM	air-to-ship missile
ASW	anti-submarine warfare
AWAC	Airborne Warning and Control System
BMD	ballistic missile defense
C2	command and control
CDG	Cyber Defense Group
CEC	Cooperative Engagement Capability
COU	Coastal Observation Unit
DD	destroyer
DDG	guided missile destroyer
DDH	helicopter destroyer
DE	destroyer escort
DoD	U.S. Department of Defense
DOTMLPF	doctrine, organization, training, materiel, leadership and education, personnel, and facilities
EA	electronic attack

EEZ	Exclusive Economic Zone
EP	electronic protection
ES	electronic warfare support
EW	electromagnetic warfare
FFM	multi-purpose frigate
FMS	Foreign Military Sales
FPS	Fixed Position System
FY	fiscal year
GCC	Ground Component Command
GDP	gross domestic product
GMTI	ground moving target information
GPS	Global Positioning System
GSDF	Ground Self-Defense Force
HVGP	hyper-velocity gliding projectile
ICBM	intercontinental ballistic missile
IRBM	intermediate-range ballistic missile
ISR	intelligence, surveillance, and reconnaissance
JADGE	Japan Aerospace Defense Ground Environment
JASSM-ER	Joint Air to Surface Standoff Missile—Extended Range
JDA	Japan Defense Agency
JSM	Joint Strike Missile
JTF	Joint Task Force
km	kilometer
LCAC	landing craft, air-cushion
LCU	landing craft utility
LRASM	Long Range Anti-Ship Missile
LST	landing ship, tank
MCL	minesweeper—controller
MOD	Ministry of Defense
MOFA	Ministry of Foreign Affairs
mph	miles per hour

MSC	minesweeper—coastal
MSDF	Maritime Self-Defense Force
MSE	Missile Segment Enhancement
MSO	minesweeper—ocean
MST	minesweeper—tender
MTDP	Medium Term Defense Program
NATO	North Atlantic Treaty Organization
NDPG	National Defense Program Guidelines
NDPO	National Defense Program Outline
NDS	National Defense Strategy
NEO	noncombatant evacuation operation
NISC	National center of Incident readiness and Strategy for Cyber Security
NSS	National Security Strategy
OPCON	operational control
OPIR	overhead, persistent, infrared
PAC	Patriot Advanced Capability
PED	processing, exploitation, and dissemination
PLA	People's Liberation Army
PLAAF	People's Liberation Army Air Force
PLAN	People's Liberation Army Navy
PNT	positioning, navigation, and timing
QZSS	Quasi-Zenith Satellite System
R&D	research and development
SACO	Special Action Committee on Okinawa
SAM	surface-to-air missile
SBIRS	Space-Based Infrared System
SDF	Self-Defense Forces
SLOC	sea line of communication
SSA	Space Situational Awareness
SSM	surface-to-ship missile

STOVL	short take-off and vertical landing
UAV	unmanned aerial vehicle
UUV	unmanned underwater vehicle

Introduction

The *National Defense Strategy* (NDS) published by the U.S. Department of Defense (DoD) in 2018 emphasizes the importance of maintaining “a robust constellation of allies and partners” to help respond to challenges presented by strategic competitors and other security challenges.¹ This constellation helps sustain American influence and ensure favorable balances of power to secure the current free and open international order.² “When we pool resources and share responsibility for our common defense,” the NDS states, “our security burden becomes lighter.”³ The question of whether U.S. allies such as Japan are contributing enough to—or “sharing the burden of”—the alliance has become a major topic of discussion in the United States.

In the Indo-Pacific region, the relationship between the United States and Japan is arguably the most important alliance in pursuit of the objectives outlined in the NDS. From an operational standpoint, the alliance provides the United States a crucial forward presence in the region and serves as a deterrent to regional rivals. Japan possesses an advanced armed force, called the Self-Defense Forces (SDF), that is responsible for the defense of Japan. Should a high-end contingency in the vicinity of Japan erupt in which the United States is engaged in major combat with China, what roles can and will Japan play?

This report addresses questions related to Japanese willingness and capabilities in burden-sharing, with a focus on the demands of a high-end conventional contingency in the East China Sea. Japan has expanded both the types of capabilities the SDF operates and the scope of its activities in recent years. Less understood is its ability and willingness to employ these in a high-end scenario that may not—at least initially—involve a direct attack on Japan. The report’s aim is therefore to shed light on Japan. The report considers a generic conventional contingency between the United States and China occurring in the East China Sea or spilling into that area from other parts of the region. I selected a potential contingency in this region given several ongoing issues that could trigger hostilities between the United States and China and potentially involve Japan. The report does not focus on a Taiwan scenario specifically, although a conflict that started over Taiwan may easily spread to an air and missile campaign over the Nansei Shotō, or southwest island chain, and possibly other parts of Japan. It does not explore the conditions leading up to the contingency, the objectives of the states involved, or whether other actors are involved or the target of attack. I acknowledge that these factors

¹ DoD, *Summary of the 2018 National Defense Strategy of the United States of America*, Department of Defense, January 2018, p. 1.

² DoD, 2018, p. 1.

³ DoD, 2018, p. 8.

matter and will carry implications for how and when Japan is involved, but the main purpose of this report is to help readers understand how effectively Japan could support the United States if it were engaged in high-end combat with China in the East China Sea. This also means that issues associated with gray-zone activities and the roles and capabilities of the Japan Coast Guard are not examined. I acknowledge that there is a strong likelihood of China engaging in gray-zone tactics prior to the onset of any East China Sea contingency, and that the Japan Coast Guard would be the primary actor at this stage, but these issues come prior to the focus of the report.⁴ Finally, while China has made significant gains in anti-access/area denial (A2/AD) capabilities—such as submarines and long-range ballistic and cruise missiles—that will complicate United States operations in the region, the report does not focus on A2/AD alone and the expected challenges the United States will face to surge forces into the region beyond what is already located in Japan. While much of the report speaks to ways to overcome or minimize some aspects of China's A2/AD challenge, it highlights areas of Japanese assistance for those U.S. forces already stationed in Japan.

The report shows that, despite Japan's focus on self-defense, there are significant areas in which the SDF can assist the United States in an East China Sea contingency. That assistance, however, is limited, both in terms of capabilities and existing legal restrictions. Importantly, much relies on Japan's political decisionmakers, who, in a time of a crisis, will be challenged to ensure that their decisionmaking timelines are fully in sync with U.S. operational needs. This opens the possibility of a delayed response should the United States wish to move at a pace faster than that of the government of Japan.

Structure

The remainder of this report is organized as follows. Chapter Two provides a brief examination of Japan's strategic thinking on security and defense affairs. Understanding this thinking helps to better situate the roles Japan can be expected to play in supporting the U.S. NDS. Chapters Three through Five examine the capabilities of the three SDF services—both current and expected over the next decade—that would be relevant in a high-end contingency in the East China Sea, and highlights the strengths and challenges associated with these capabilities. Chapter Three focuses on the Ground Self-Defense Force (GSDF), Chapter Four on the Air Self-Defense Force (ASDF), and Chapter Five on the Maritime Self-Defense Force (MSDF). Chapter Six examines broader SDF strengths, including interoperability with U.S. forces; air and missile defenses; and the attention on new domains as part of Japan's future priorities. Chapter Seven moves on to examine three broad SDF challenges: the absence of key capabilities, problems with jointness, and recruitment and aging in the force.

Understanding the SDF's capabilities is only part of the story. The other is the legal permissions and interpretations associated with how those capabilities can be employed. Chapter Eight examines these issues, with a focus on the issue of prior consultation and U.S. access-

⁴ For those interested in these issues, see Michael Green, Kathleen Hicks, Zack Cooper, John Schaus, and Jake Douglas, *Countering Coercion in Maritime Asia: The Theory and Practice of Gray Zone Deterrence*, Washington, D.C.: Center for Strategic and International Studies, May 2017; Lyle J. Morris, Michael J. Mazarr, Jeffrey W. Hornung, Stephanie Pezard, Anika Binnendijk, and Marta Kepe, *Gaining Competitive Advantage in the Gray Zone: Response Options for Coercive Aggression Below the Threshold of Major War*, Santa Monica, Calif.: RAND Corporation, RR-2942-OSD, 2019.

ing its bases in Japan for combat, the ability of the United States to access Japanese bases and ports, and the legalities associated with Japan's use of force and exercise of collective self-defense. Chapter Nine presents conclusions and ends with specific recommendations for ways to manage—and potentially overcome—some of the major challenges identified in this report. Ways in which Japan could better position itself to respond to an East China Sea contingency, both for its own defense and in support of the United States, include (1) putting greater emphasis on mobility and the ability to flow forces, (2) improving and integrating Japan's air and missile defense systems, (3) making greater use of Japan's geography, (4) making a more dedicated effort toward jointness, and (5) providing greater focus on resolving issues with SDF personnel numbers. Chapter Nine also presents four recommendations on specific ways in which the United States could support Japan in these efforts: (1) setting the conditions for success in prior consultation, (2) focusing requests for increased alliance contributions on Japanese defense spending, (3) maintaining strong political ties with Tokyo, and (4) assisting Japan in its efforts to develop capabilities in new domains.

Methodology

This report relied heavily on official documents and publications from the Japanese government. These included treaties and agreements, interpretations of those treaties/agreements, deliberations in the Japanese Diet, laws and policies, and documents—both public and received directly from the source—from numerous organizations within the Japanese government. I traveled to Japan for a week and a half, where I conducted 40 distinct interviews with Japanese politicians and officials from the Ministry of Defense (MOD), Ministry of Foreign Affairs (MOFA), and National Security Secretariat and personnel from the armed forces of both Japan and the United States—both current and retired. Because of the sensitivity of the topics discussed, these conversations were conducted anonymously and are identified in the report only by the interviewee's broad affiliation and date the interview was conducted. Many of these interviews included multiple people in small-group or roundtable-type settings, but all cited describing an individual source.

Broad judgments regarding the sufficiency of Japan's plans and forces for specific potential contingencies reflect the author's views based on discussions with Japanese officials, politicians, and security analysts; U.S. analysts; Japanese and American armed forces personnel; and strategic documents of the Japanese government. The data on capabilities, posture, and unit formations presented throughout the report are generally current up to August 2019 and the 2018 iterations of the MOD's *Defense of Japan*, *National Defense Program Guidelines* (NDPG) and the *Medium Term Defense Program* (MTDP) publications, with a few exceptions. I am aware that new versions of *Defense of Japan* were released in October 2019 and July 2020 with revised data, but due to RAND publication deadlines, I was not able to incorporate this updated data into the text. I am also aware that, at the time this report entered in to editing, in addition to the allies engaging in negotiations on Japan's alliance contributions and host nation support, Tokyo was also considering revising key strategic documents cited throughout this report to include the 2013 *National Security Strategy* (NSS), 2018 NDPG, and the 2018 MTDP. Any changes that resulted from these are not incorporated. Additionally, any changes in spending or defense priorities that resulted from the ongoing global COVID-19 pandemic

are not included. Finally, this report does not include any changes that may have occurred after the abrupt resignation of Japanese Prime Minister Abe Shinzō in August 2020.

The names in the main text of this report follow conventional name order in the country of origin. American names are presented as given name first, followed by family name. Japanese names are presented as family name first, followed by given name. Names in citations and references are per standard usage.

Japan's Defense Policy and Strategic Thought

Since the end of hostilities in World War II, Japan has adhered to maintaining an exclusively defense-oriented policy.¹ At the same time, Japan has helped support the maintenance of the region's peace and security through its close alliance with the United States. How it has supported the alliance has changed over time. Today, Japan looks to “play an even more proactive role as a major global player in the international community.”² This is critical because Japan exists in a volatile security environment undergoing profound changes. This chapter explores Japan's strategic environment and strategic priorities and how Japan views its role in this environment, beginning with key principles of Japan's strategy. It closes with an examination of Japan's approach to burden-sharing in its alliance with the United States.

Key Principles Related to Japan's Strategy

Discussion on Japan's strategic thinking and approach to burden-sharing needs to begin with a reminder of the region within which Japan exists. The majority of the Japanese population lives on the four main islands of Hokkaidō, Honshū, Shikoku, and Kyūshū, which are referred to collectively in this report as the Japanese mainland (Figure 2.1). Including these four islands, the Japanese archipelago is composed of a total of 6,852 islands within a claimed 4,470,000-square-kilometer (km) Exclusive Economic Zone (EEZ).³ The southwest island chain, called the Nansei Shotō in Japanese, defined from the southern tip of Kyūshū to the westernmost inhabited island of Yonaguni, is a vast maritime expanse stretching about 1,200 km and composed of 55 islands and islets (Figure 2.2).⁴ The distances between the islands are considerable. While Yonaguni sits 110 km from Taiwan's eastern shore, Yonaguni itself is 120 km west from Ishigaki which, in turn, is 130 km from Miyako.⁵ Miyako, in turn,

¹ Government of Japan, *National Security Strategy*, December 17, 2013, p. 3.

² Government of Japan, 2013, p. 1.

³ Japan Institute of Country-ology and Engineering, “海に囲まれている国、日本 [Japan, A Country Surrounded by Water],” 国土を知る / 意外と知らない日本の国土 [*Understand our National Territory/Unexpectedly Unknown Things of Japanese Territory*], undated-a; Japan Institute of Country-ology and Engineering, “東西南北に長い弓なりの国土 [National Territory that Stretches Far East-West-South-North],” 国土を知る / 意外と知らない日本の国土 [*Understand Our National Territory/Unexpectedly Unknown Things of Japan Territory*], undated-b. Some of the islands Japan claims as its own are either disputed or not recognized as islands with EEZs by other states.

⁴ Encyclopedia Britannica, “Ryuku Islands,” webpage, undated; Masaya Kato, “Japan Plugs Defense Gap in Southwest Islands with New Outposts,” *Nikkei Asia*, March 26, 2019.

⁵ Akira Sakamoto, 最強 自衛隊図鑑 [*Strongest SDF Illustrated Reference Book*], Tokyo: Gakken Plus, 2018, p. 41.

Figure 2.1
Map of the Japanese Archipelago



is 290 km south of Okinawa, separated by the Miyako Strait, an international strait often used by the Chinese military.⁶ Okinawa, in turn, sits approximately 300 km south of Amami-Ōshima.⁷ It is within this region that Chinese activity over the past decade has prompted Japan

⁶ Sakamoto, 2018, p. 41; Edmund J. Burke, Timothy R. Heath, Jeffrey W. Hornung, Logan Ma, Lyle J. Morris, and Michael S. Chase, *China's Military Activities in the East China Sea: Implications for Japan's Air Self-Defense Force*, Santa Monica, Calif.: RAND Corporation, RR-2574-AF, 2018.

⁷ "Amami Ōshima: Southern Island of Nature and Culture," Nippon.com, November 16, 2018.

Figure 2.2
Map of the Nansei Shoto



to pursue a number of new capabilities to counter largely maritime and airborne threats against the Japanese archipelago.

Japan, however, is self-restrained in what it can pursue. The foundation of Japanese thinking in its defense strategy is its constitution—particularly Article 9, which reads:

Aspiring sincerely to an international peace based on justice and order, the Japanese people forever renounce war as a sovereign right of the nation and the threat or use of force as means of settling international disputes.

In order to accomplish the aim of the preceding paragraph, land, sea, and air forces, as well as other war potential, will never be maintained. The right of belligerency of the state will not be recognized.⁸

⁸ Government of Japan, “Article 9,” *Constitution of Japan*, May 3, 1947.

The importance of Article 9 lies in the renunciation of war and the threat or use of force as a means of settling international disputes and the declaration to not maintain war potential. Pacifists and other opponents to the SDF have long cited Article 9 as a basis to claim the SDF is unconstitutional, but the government has interpreted it as renouncing *aggressive* war, not defensive war. In this view, Japan has a constitutional right to possess forces as long as they are for self-defense.⁹ This focus was enshrined by calling Japan's armed forces the Self-Defense Forces, not a military.¹⁰ It is for this reason its three services are not referred to by customary nomenclature of army, navy and air force. Instead, they are the Ground Self-Defense Force (GSDF), the Maritime Self-Defense Force (MSDF), and the Air Self-Defense Force (ASDF).

Derivative of Article 9 is the principle of *senshu bōei* (専守防衛), or exclusive defense-orientation. The idea of *senshu bōei* appears to have been first introduced in Diet debates in July 1955 by Director General Sugihara Arata of the Japan Defense Agency (JDA, the predecessor to today's MOD).¹¹ At that time, the concept was not officially defined, but its normative power was evident in decisions that avoided major rearmament. It was not until the JDA's first *Defense of Japan* in October 1970 that *senshu bōei* was defined as the main principle of Japan's defense strategy, elaborated in a section entitled "Senshu Bōei's Defense Capabilities" (専守防衛の防衛力).¹² The principle continues to be reflected in self-refraining decisions about the nature of the SDF, its weapons, and how it can use force. Everything is limited to the "minimum necessary level" (必要最小限度) for self-defense. Like the argument that the SDF is a defensive force, governments have argued that Japan has a right to maintain capabilities and use the "minimum necessary level" of self-defense; anything that exceeds this would be considered "war potential" and thus an Article 9 violation.¹³ It is for this reason that Japan historically has not possessed capabilities such as intercontinental ballistic missiles (ICBMs), intermediate-range ballistic missiles (IRBMs), long-range bombers, and aircraft carriers, as these have been identified by officials as exceeding the "minimum necessary level" of self-defense and thus, "war potential" prohibited by Article 9.¹⁴ After the Cold War, IRBMs are no longer included.¹⁵

⁹ Yoshida Shigeru, House of Councillors, Cabinet Committee, May 20, 1954. Also see numerous statements over the years by government officials in Asagumo Shimbunsha Shuppan Gyōumubu, "自衛隊の合憲性 [SDF's Constitutionality]," 防衛ハンドブック: 平成29年版 [*Defense Handbook: 2017 Edition*], Tokyo: Asagumo Shimbunsha, 2017, p. 647.

¹⁰ Asagumo Shimbunsha Shuppan Gyōumubu, "自衛隊と軍隊 [The SDF and Military]," *Defense Handbook: 2017 Edition*, p. 650.

¹¹ Sugihara Arata, House of Representatives, Cabinet Committee, July 9, 1955: "言葉は少し固苦しいかもしれませんが、専守防衛、もっぱら守る、これはあくまでも守る、こういう考え方でございます [The word may sound a little too formal, but my thinking is *senshu bōei*, exclusively defend, no matter what, defend]."

¹² The statement reads: "わが国の防衛は、専守防衛を本旨とする [The true aim of our country's defense is exclusive defense-orientation]." See "第2部 日本防衛のあり方 [Chapter 2: The Way of Japan's Defense]," 日本の防衛—防衛白書 [*Japan's Defense—Defense White Paper*] Tokyo: Japan Defense Agency, 1970.

¹³ Asagumo Shimbunsha Shuppan Gyōmubu, "自衛隊と戦力 [SDF and War Potential]," 2017, pp. 648–650.

¹⁴ Any weapon that can be used to directly attack an opponent is considered to go beyond the "minimum necessary level" for self-defense. A number of examples are presented in Asagumo Shimbunsha Shuppan Gyōmubu, "攻撃的兵器、防御的兵器の区分 [Demarcation Between Offensive Weapons and Defensive Weapons]," 2017, pp. 666–669. In particular, Diet testimony by then-JDA Defense Bureau Director General Kubo Takuya in the Lower House Cabinet Affairs Committee on May 15, 1971 (p. 667) and then-JDA Defense Bureau Director General Itō Yasunari in the Lower House Budget Committee on February 13, 1978 (pp. 667–668), in which these platforms are listed as having expansive destructive power or able to project power over long distances.

¹⁵ A Japanese security expert explained one possible reason behind the disappearance of IRBMs from the list of capabilities prohibited for SDF. ICBMs and IRBMs were both included in the 1970s, when conventional precision ballistic

Japan's Strategic Environment and Strategic Priorities

As of mid-2020, Japan's only NSS, released in 2013, describes three primary security challenges to the region:¹⁶ (1) characteristics of the regional strategic environment, (2) North Korea, and (3) China. Although not listed, Russia is also regularly raised as a security concern for Japan, given its activity in the Russian Far East, which includes deploying new capabilities, deploying new surface-to-ship missiles on islands claimed by Japan, and intensifying military activities in areas near Japan.¹⁷ These three countries mirror three of the four countries specified in the United States' NSS and NDS as revisionist powers or rogue states: Russia, China, and North Korea. Even though Tokyo recognizes these states as the region's security challenges, it does not view them equally.

Japan views North Korea as its primary near-term threat. North Korea's weapons of mass destruction, ballistic missiles, and provocative military actions are factors that increase tensions in the region.¹⁸ Japan also views North Korea's abduction of Japanese nationals as "a grave issue affecting Japan's sovereignty and the lives and safety of Japanese nationals."¹⁹ Tokyo views North Korea as posing "grave and imminent threats to Japan's security and significantly undermine peace and security in the region and the international community."²⁰

By contrast, Tokyo does not view Russia as an immediate threat. As mentioned above, it is absent from Japan's 2013 NSS despite consistently being listed in the MOD's annual *Defense of Japan* report alongside China and North Korea. In Japan's 2018 *National Defense Program Guidelines*, Tokyo simply says that "close attention . . . needs to be paid to [Russia's] developments."²¹ This is because Tokyo thinks of Russia as a declining power in the long term.²² Japan recognizes that Russia poses a threat to Europe, but it does not see Russia as posing a similar threat in the Indo-Pacific region. Japan does, however, expect Russia to continue to "bother" Japan and "pose a threat" to the United States in the short-to-medium term.²³ In particular, Japan is concerned about Russia's continuing force-modernization efforts that focus on its nuclear forces, and Russia's tendency to increase its military activities in the Far East.²⁴

missiles did not yet exist. Thus, "ICBM" and "IRBM" were taken to mean nuclear-tipped ballistic missiles, both of which considered offensive weapons whose objective is only to devastate an adversary's territory. Because that situation is no longer true, IRBMs are no longer prohibited because they can be considered constitutional if the objective is not to devastate an adversary's territory. Author correspondence with Japanese security/defense expert, October 4, 2019.

¹⁶ The NSS also lists six challenges in the global security environment: (1) Shift in the Balance of Power and Rapid Progress of Technological Innovation, (2) Threat of the Proliferation of Weapons of Mass Destruction and Other Related Materials, (3) Threat of International Terrorism, (4) Risks to Global Commons, (5) Challenges to Human Security, and (6) The Global Economy and Its Risks.

¹⁷ MOD, *Defense of Japan 2018*, Tokyo, 2018a, p. 29.

¹⁸ Government of Japan, *National Security Strategy*, 2013, p. 12.

¹⁹ Government of Japan, *National Security Strategy*, 2013, p. 12.

²⁰ MOD, *National Defense Program Guidelines for FY 2019 and Beyond*, December 18, 2018e, p. 6.

²¹ MOD, 2018e, p. 6.

²² MOFA official, RAND interview, March 25, 2019; MOFA official, RAND interview, March 26, 2019.

²³ MOFA official, RAND interview, March 26, 2019.

²⁴ MOD, *National Defense Program Guidelines and Medium Term Defense Program*, RAND document received, undated-d, p. 3.

Tokyo views China as a long-term security threat. The 2013 NSS describes Japan's concern with China as falling across many issues. This includes China's rapid advancement in military capabilities "in a wide range of areas through its continued increase in its military budget without sufficient transparency" and "actions that can be regarded as attempts to change the status quo by coercion based on their own assertions."²⁵ While most of Japan's strategic planners tend to believe that China will not directly attack Japan, it is seen as "*the* major security threat" facing Japan and the region.²⁶ China, after all, "has engaged in broad, rapid improvement of its military power in qualitative and quantitative terms with a focus on nuclear, missile, naval and air forces" and has attached importance to ensuring superiority in new domains and is improving missile defense penetration capabilities and amphibious landing capabilities.²⁷ This situation is made worse by the fact that China "engages in unilateral, coercive attempts to alter the status quo based on its own assertions that are incompatible with existing international order."²⁸

Japan's Strategic Role

Against this backdrop of "an increasingly severe security environment and confronted by complex and grave national security challenges," Japan, under the leadership of former Prime Minister Abe Shinzō (who resigned in August 2020), has come to see itself as a "proactive contributor to peace."²⁹ To fulfill this role, Japan describes three national security objectives: (1) strengthen the deterrence necessary for maintaining Japan's peace and security and for ensuring its survival and, should a threat reach Japan, defeat it; (2) improve the regional security environment and prevent the emergence of and reduce direct threats to Japan by strengthening its alliance with the United States, enhancing the trust and cooperative relationships with other countries, and promoting practical security cooperation; and (3) improve the global security environment and build a peaceful and stable international community by strengthening the international order by playing a leading role in the settlement of disputes.³⁰ This report focuses largely on the first of these objectives and on Japan's relationship with the United States in the second objective. These are spelled out in two primary documents, both released in 2018: the *National Defense Program Guidelines* (NDPG) and the *Medium Term Defense Program* (MTDP).

The NDPG sets the direction for Japan's defense policy and spending priorities, prescribing future defense forces and targeting desired defense force levels. In theory, this document is meant to set the development direction for the SDF for a decade; in practice, that has never been the case. The first NDPG, passed in October 1976 and called then the *National Defense Program Outline* (NDPO), lasted until a revised iteration was passed in November 1995. This second one, in turn, lasted until December 2004, when a third revision passed, introducing the current NDPG nomenclature. As Japan's security environment began to change, a fourth ver-

²⁵ Government of Japan, *National Security Strategy*, 2013, p. 12.

²⁶ MOFA official, RAND interview, March 26, 2019.

²⁷ MOD, 2018e, p. 5.

²⁸ MOD, 2018e, p. 5.

²⁹ Government of Japan, *National Security Strategy*, 2013, pp. 2–3.

³⁰ Government of Japan, *National Security Strategy*, 2013, p. 5.

sion was passed in December 2010, only to be replaced by a fifth revision in December 2013. Given the rapidly worsening security environment and the threat it posed to Japan's security, the government began the process to revise the NDPG even before the full ten years of the previous NDPG had finished.³¹ One of the motivating factors behind the revision, at least for some in the Japanese government, was a "brutal acknowledgement" that Japan may lose in a war with China if current force development trajectories continued unchanged.³² The result was the December 2018 iteration referenced throughout this report (as of writing, there are media reports that revisions are already being considered to this iteration). This sixth NDPG represents a culmination of Japanese defense responses to regional security challenges and a vision for moving forward. The NDPG is released alongside an MTDP. The MTDP is as important as the NDPG, in that it indicates five-year total expenditures and details the quantity of major procurement decisions to fulfill the NDPG.

The three iterations of the NDPG and the associated MTDPs prior to 2018 (2004, 2010, and 2013) recognized new threats, such as ballistic missiles and guerilla and special operations attacks, and pushed the SDF into a more multifunctional, mobile, and flexible force. Setting the framework for most of Japan's defense policies over the past decade, the NDPGs have shifted away from Japan's traditional Cold War-era focus on a northern Soviet land invasion to focusing on protecting Japan's southwestern islands from Chinese provocations. The 2018 NDPG continues this movement, describing the security environment as one in flux and becoming more severe because a "broadening and diversifying array of security challenges" made worse by technological advances in new domains.³³ The NDPG says Japan must ensure its efforts do "not lie on a linear extension of the past"; rather, it must combine a focus on new and old domains "to engage in a transformation at a pace that is fundamentally different from the past, completely shedding the thinking that relies on traditional division among land, sea, and air."³⁴

Consequently, while there are many familiar areas in the 2018 NDPG and MTDP, such as improving traditional SDF capabilities in the maritime and air domains, comprehensive air and missile defense capabilities, and improving interoperability with U.S. forces, there are also new lines of effort. These include a commitment to develop a fighter fleet that features short take-off and vertical landing (STOVL) aircraft and to acquire stand-off missiles that enable Japan to keep emerging threats further from Japan's shores. It also includes the retrofitting of Japan's largest class of ships—the *Izumo*-class helicopter destroyer—into a multipurpose destroyer capable of operating STOVL. Significantly, the 2018 NDPG and MTDP include attention on new asymmetric capabilities in the domains of cyber, space, and the electromagnetic spectrum. This focus on both traditional and new domains underlies Japan's effort to

³¹ Prime Minister's Office, "安全保障と防衛力に関する懇談会 [Roundtable Regarding National Security and Defense Capability]," August 29, 2018.

³² MOD official, RAND interview, March 29, 2019. According to this official, the Joint Staff Office led a SDF service-wide computer-based simulation running multiple scenarios involving China where Japan needed to hold out alone and wait for U.S. augmenting forces. None of them turned out well for Japan. The thinking was, "we're doomed" if Japan does not change in the next five to ten years.

³³ MOD, 2018e, p. 4.

³⁴ MOD, 2018e, p. 2.

create a Multi-Domain Defense Force.³⁵ Japan also wants to “expand and deepen cooperation” with the United States across all domains, traditional and new, and across all phases of war.³⁶

Taken together, the NDPG and MTDP represent a Japan recognizing a dramatically changing security environment and wanting to not only be more forward-leaning in dealing with these increasingly complex security challenges, but wanting to do more, both by itself and in cooperation with the United States.

Japan's Approach to Burden-Sharing

The U.S.-Japan Alliance

Today's U.S.-Japan alliance is based on the 1960 *Treaty of Mutual Cooperation and Security*. According to Article 5 of the treaty, both countries recognize that “an armed attack against either Party in the territories under the administration of Japan would be dangerous to its peace and safety and declares that it would act to meet the common danger.”³⁷ Accordingly, if another country instigates an attack on territories either controlled or administered by Japan, the United States and Japan will work together to counter that attack. While this commits the United States to the defense of Japan, the treaty does not legally necessitate Japan to come to America's defense. History has shown, however, that Japan has assisted the United States in noncombat operations even when Japan was not attacked.

This does not mean that Japan simply relies on the United States for its defense. The mission of the SDF is active defense of Japan. According to Article 3 of the *Self-Defense Forces Law*, the primary responsibility for Japan's defense lies with the SDF. Specifically, Article 3 states:

The SDF's primary responsibility is to defend our country in order to maintain the country's safety and protect the peace and independence of our country and respond when necessary to maintain the public order.³⁸

The only other two responsibilities mentioned are responding to situations that have an important influence on Japan's peace and safety and UN-centered activities to support international peace, including Japan's own peace and safety. These responsibilities are, however, revisions added after the Cold War. Nevertheless, all three demonstrate the focus of Japan's efforts as directly connected to peace and safety and largely on its own defense.

This notion of Japan being responsible for its own defense is elaborated in the 2013 NSS and 2018 NDPG. In a list of national security objectives, the NSS's first objective is to “strengthen the deterrence necessary for maintaining its peace and security and for ensuring its survival . . . [and] if by any chance a threat should reach Japan, to defeat such threat and

³⁵ MOD, 2018e, p. 10.

³⁶ MOD, 2018e, p. 14.

³⁷ Japan and the United States of America, “Article V,” *Treaty of Mutual Cooperation and Security Between Japan and the United States of America*, January 19, 1960a.

³⁸ Defense operations fall under the notion of “defend our country” while other operations, including public security operations, guarding operations, maritime security operations, anti-piracy operations, disaster relief dispatches, measures against violations of territorial airspace, and measures to rescue and transport Japanese nationals overseas falls under the notion of “maintain the public order.” Government of Japan, “第三条 [Article 3],” 自衛隊法 [*Self-Defense Forces Law*], 1954 Law No. 165.

to minimize the damage.”³⁹ The same message is in the NDPG where maintaining Japan's peace and security is stated as “the foremost responsibility that Japan must fulfill as a sovereign nation.”⁴⁰ In carrying out this responsibility, Japan will do so “on its own accord and initiative.”⁴¹ The NDPG states in no uncertain terms that Japan's national defense architecture is its means to protect, “by exerting efforts on its own accord and initiative, life, person and property of its nationals, territorial land, waters and airspace, and its sovereignty and independence.”⁴²

Taken together, the Japanese government clearly envisions a role for the SDF in any confrontation. The U.S.-Japan alliance is, however, also central to Japan's defense thinking. As stated in the 2013 NSS, “The Japan-U.S. Alliance is the cornerstone of Japan's security.”⁴³ This reliance on the United States was written into the *Treaty of Mutual Cooperation and Security*. Article 6 states that, “For the purpose of contributing to the security of Japan and the maintenance of international peace and security in the Far East, the United States of America is granted the use by its land, air and naval forces of facilities and areas in Japan.”⁴⁴ Importantly, Tokyo defines “the Far East” as including “the north of the Philippines, Japan, and its surrounding area which includes South Korea and the area governed by the Republic of China.”⁴⁵ This means that contingencies in Taiwan and Korea would be included.

This relationship is further clarified in the bilateral defense guidelines that define the roles and missions the two countries will play in different phases from peacetime to wartime. For example, in the case of an attack on Japan, the allies have explicitly agreed that:

Japan will maintain primary responsibility for defending the citizens and territory of Japan and will take actions immediately to repel an armed attack against Japan as expeditiously as possible. The Self-Defense Forces will have the primary responsibility to conduct defensive operations in Japan and its surrounding waters and airspace, as well as its air and maritime approaches. The United States will coordinate closely with Japan and provide appropriate support. The United States Armed Forces will support and supplement the Self-Defense Forces to defend Japan. The United States will take actions to shape the regional environment in a way that supports the defense of Japan and reestablishes peace and security.⁴⁶

This relationship has been characterized as a shield (盾) and spear (矛), with Japan acting as the shield defending Japan and U.S. forces stationed there, and the United States acting as the spear, striking out beyond Japan to shape the regional environment in a way conducive to American and Japanese interests. This relationship is evident in the composition of the individual SDF services. The SDF were initially organized in solely defensive roles as part of

³⁹ Government of Japan, *National Security Strategy*, 2013, p. 5.

⁴⁰ MOD, 2018e, p. 1.

⁴¹ MOD, 2018e, p. 1.

⁴² MOD, 2018e, p. 2.

⁴³ Government of Japan, *National Security Strategy*, 2013, p. 20.

⁴⁴ Japan and the United States of America, “Article VI,” 1960a.

⁴⁵ MOFA, “極東の範囲 (昭和35年2月26日政府統一見解) [Far East Range (February 26, 1960, Unified Government Opinion)],” 日米安保Q&A体制 [Japan-U.S. Security Treaty System Q&A], undated.

⁴⁶ Japan and the United States of America, *The Guidelines for Japan-U.S. Defense Cooperation*, April 27, 2015, pp. 10–11.

a denial strategy meant to delay and frustrate aggressors before U.S. forces could arrive in full force, but over time as Japan gained more capable weapons and as the United States began to demand greater burden-sharing, Japanese strategy changed from this denial strategy to place greater emphasis on forward defense.⁴⁷ While the bulk of Japan's defense capabilities today remain consistent with a forward defense strategy, such as fighter aircraft and destroyers, recent acquisitions that support an A2/AD strategy show that elements of a denial strategy are reemerging. Regardless of the strategy, the underlying shield-and-spear relationship in the alliance remains largely unchanged.

This strategic bargain rests on the fundamental agreement that in exchange for the U.S. security guarantee to support the defense of Japan—and the stability of the “Far East”—Japan will host forward-based U.S. forces.⁴⁸ The United States benefits from Japan's granting of bases, as it enables the United States continued forward-deployed, combat-ready forces in the region and the ability to reinforce those forces rapidly.⁴⁹ Providing the cement for this relationship is the nature of the SDF, as the force structure was built around supporting the alliance. With similar equipment, concepts, and doctrines, as well as a relationship built up over decades of cooperation, Japan is expected to defend Japan and operate in and out of Japanese territory to protect the arrival of U.S. forces and their bases in Japan for them to finish any regional fight.⁵⁰

Defense Spending

Japan's defense expenditures are usually presented in two ways. The first is Japan's defense expenditures as a total number, usually one that does not include expenses related to the Special Action Committee on Okinawa (SACO), which are costs associated with the realignment of U.S. bases in Okinawa prefecture. Non-SACO expenditures are shown in Table 2.1 and include personnel and food provisions as well as material expenses, such as procuring new defense capabilities. Since FY 2012, Japan has increased its defense spending annually, including the duration of the previous MTDP when Japan began a more concentrated pursuit of new defense capabilities. This contrasts with the period from FY 2002 to FY 2012, when there were consecutive defense spending cuts. A second way to understand Japan's defense spending is the ratio of defense related expenditures to Japan's gross domestic product (GDP).

Viewed as a percentage, Japanese defense spending, while growing, remains artificially capped to less than 1 percent of its GDP (Table 2.1). This is the product of a political decision in 1976 by then–Prime Minister Miki Takeo to respond to opposition party and public opposition to increasing peacetime defense budgets, particularly during détente with the Soviet Union.⁵¹ Although it was broken three years in a row by then–Prime Minister Nakasone Yasuhiro in FY 1987 (1.004 percent), FY 1988 (1.013 percent), and FY 1989 (1.006 percent), the

⁴⁷ Eric Heginbotham and Richard J. Samuels, “Active Denial: Redesigning Japan's Response to China's Military Challenge,” *International Security*, Vol. 42, No. 4, May 2018, pp. 128–169.

⁴⁸ For scholarship examining this strategic bargain, see Michael J. Green, *Japan's Reluctant Realism: Foreign Policy Challenges in an Era of Uncertain Power*, New York: Palgrave Macmillan, 2001; Richard J. Samuels, *Securing Japan: Tokyo's Grand Strategy and the Future of East Asia*, Ithaca, N.Y., and London, UK: Cornell University Press, 2007; Kenneth Pyle, *Japan Rising: The Resurgence of Japanese Power and Purpose*, New York: Century Foundation Books, 2007.

⁴⁹ Japan and the United States of America, 2015, p. 1.

⁵⁰ Retired SDF officer, RAND interview, March 26, 2019.

⁵¹ John C. Wright, “The Persistent Power of 1 Percent,” *Sasakawa USA Forum*, No. 4, September 22, 2016, pp. 2–4.

Table 2.1
Japan's Non-SACO Defense Expenditures

FY	Defense Budget (hundreds of millions of yen)	Ratio of Defense Related Expenditures to GDP
2010	46.826	0.985
2011	46.625	0.964
2012	46.453	0.969
2013	46.804	0.96
2014	47.838	0.956
2015	48.221	0.955
2016	48.607	0.937
2017	48.996	0.885
2018	49.388	0.875
2019	50.007	0.884
2020 ^a	53.222	Not available

SOURCES: MOD, *Defense of Japan 2018*, Tokyo, 2018a, p. 462; “防衛費、GDP比最大1.3% 防衛相、NATO基準で [Defense Minister, According to NATO Standards, Defense Costs to GDP Are as Large as 1.3%],” *Nihon Keizai Shimbun*, April 9, 2019; MOD, 我が国の防衛と予算：令和2年度概算要求の概要 [*Defense Programs and Budget of Japan: Summary of FY2020 Request Estimates*], Tokyo, 2019b, p. 2.

^a Budget request.

artificial cap has proven resilient. In recent years, despite increasing defense budgets, the percentage of defense spending to GDP has actually fallen because of the growth of the overall Japanese economy. This is a constant source of tension in the alliance. The United States has wanted Japan to spend more on its own defenses, particularly at a time of increasing volatility in the region and the Japanese government emphasizing a dramatically changed security environment. Despite public debates, including within the ruling Liberal Democratic Party, on whether Japan should adopt a “NATO-standard” of spending 2 percent of its GDP on defense, this has not yet materialized.⁵² Japan’s defense spending continues to be artificially constrained below 1 percent of its GDP.

Japanese defense spending is only one aspect of its financial contributions to support joint defense interests with the United States, and a narrow one at that. Japan hosts about 57,000 U.S. troops, who have exclusive use of land and 78 facilities on Japanese territory.⁵³ This is invaluable to the United States, as it permits the United States a permanent forward presence

⁵² Policy Research Council, 新たな防衛計画の大綱及び中期防衛力整備計画の策定に向けた提言～「多次元横断（クロス・ドメイン）防衛構想」の実現に向けて～ [*Statement About the Formulation of the New Defense Program Guidelines and the Medium Term Defense Program: “Toward the Realization of Multi-Dimensional (Cross-Domain) Defense Plan”*], Liberal Democratic Party, May 29, 2018, p. 3.

⁵³ Total: 57,094 (Army: 2,516; Navy: 20,733; Air Force: 12,757; Marine Corps: 21,070). MOD, 在日米軍施設・区域(専用施設)面積 [*Areas of U.S. Forces Japan's Facilities, Zones (Exclusive Use Facilities)*], January 1, 2019c; Defense Manpower Data Center, “Military and Civilian Personnel by Service/Agency by State/Country (Updated Quarterly),” December 2019.

in the region, including its only forward-deployed carrier strike group. This is provided at cost to Japan. Although the current exact figure is unknown, according to DoD's 2004 *Statistical Compendium on Allied Contributions to the Common Defense* (the last year for which the report was required by Congress), Japan provided \$4.4 billion in both direct and indirect host-nation support/defense cost sharing in 2003.⁵⁴ This offset 74.5 percent of U.S. stationing costs, the largest percentage share of U.S. overseas stationing costs paid by an ally at that time.⁵⁵ In October 2019, during Diet debate, then–Prime Minister Abe said it was between 72 and 78 percent.⁵⁶

Japanese host-nation support is made up of three lines of effort.⁵⁷ The largest is the costs associated with covering the stationing of U.S. Forces, Japan (USFJ). The largest portion of this includes payments as part of a Special Measures Agreement with the United States whereby Japan agrees to pay for utility costs on bases, training relocation costs for U.S. forces, and base pay and other various wages to workers on bases, most of whom are Japanese nationals. Other costs borne by Japan are payments of rent to Japanese citizens who own the land on which U.S. bases are located, regardless of whether it is via an amicably agreed civil contract or as a payment to landowners who oppose continued U.S. use of their lands. It also includes costs for the Facilities Improvement Program, which covers the costs of construction of U.S. facilities on U.S. bases in Japan.⁵⁸ A second line of effort is SACO-related costs (second column of Table 2.2). These cover the costs associated with projects for land returns, training relocation, and noise reduction in Okinawa. Finally, Tokyo also helps pay for U.S. force realignment-related costs throughout Japan and abroad (third column of Table 2.2), such as projects for realignment in Okinawa, the construction of the Marine Corps Air Station Iwakuni, and the construction of facilities on Guam for the relocation of U.S. marines from Okinawa.

According to the Congressional Research Service, the construction of the Marine Corps Air Station Iwakuni, the construction of facilities on Guam for the relocation of U.S. marines from Okinawa, and the relocation of the U.S. Marine Corps Air Station, Futenma, are three of the largest international military base construction projects since World War II. And they come at considerable cost for Japan. For example, Japan will pay 94 percent of the \$4.8 billion in costs for the construction at Iwakuni and about one-third of the construction costs for facilities in Guam to support the planned move of U.S. marines from Okinawa.⁵⁹ These expenditures, totaling approximately \$9 billion (1.4 trillion yen) since 2010, are costs the United States has not had to pay for maintaining and realigning its forces in Japan and the region.

⁵⁴ DoD, *2004 Statistical Compendium on Allied Contributions to the Common Defense*, Department of Defense, 2004, p. B-21.

⁵⁵ DoD, 2004, p. E-6.

⁵⁶ Shinzō Abe, House of Representatives, Budget Committee, October 11, 2019.

⁵⁷ MOD, 2018a, p. 282.

⁵⁸ MOFA, "Host Nation Support (HNS)," April 12, 2016b; MOD, "在日米軍駐留経費負担の推移 [Changes in Host-Nation Support for U.S. Forces in Japan]," undated-a.

⁵⁹ Emma Chanlett-Avery, Caitlin Campbell, and Joshua A. Williams, *The U.S.-Japan Alliance*, Washington, D.C.: Congressional Research Service, RL33740, June 13, 2019, p. 23.

Table 2.2
Japanese Defense Expenditures: SACO-Related and U.S. Forces
Realignment-Related Expenses (billions of yen)

FY	SACO-Related	U.S. Force Realignment-Related	Total
2010	16.9	90.9	107.8
2011	10.1	102.7	112.8
2012	8.6	59.9	68.5
2013	8.8	64.6	73.4
2014	12.0	89.0	101.0
2015	4.6	142.6	147.2
2016	2.8	176.6	179.4
2017	2.8	201.1	203.9
2018	5.1	216.1	221.2
2019	25.6	167.9	193.9
			1,409.1

SOURCES: MOD, 2018a, p. 462; MOD, 2019b, p. 2.

Japanese Participation in Operations

Compared with other allies, Japan has not directly supported U.S. combat operations with force deployments.⁶⁰ In fact, Japan has not sent any forces into combat since the SDF were created in 1954. It is often said that no Japanese soldier has fired a weapon in anger since World War II. But although Japan does not shed blood like other countries, for decades it has “learned how to sweat” in a variety of noncombat operations.⁶¹ These have included 14 international peace cooperation activities, which the MOD categorizes as either sending SDF personnel to UN peacekeeping operations or providing humanitarian aid to international efforts.⁶² In addition to this, the SDF has been deployed countless times on domestic disaster relief activities, such as the response in the aftermath of the March 11, 2011, earthquake and tsunami in northern Japan, and several international disaster relief activities, aiding in efforts such as that following Typhoon Haiyan that hit the Philippines in 2013 and earthquakes in Nepal and New Zealand in 2015 and 2016, respectively.⁶³

There are two other types of SDF operations that are relevant to highlight for their applicability to a hypothetical East China Sea contingency, given the transferrable skills gained through conducting operational communications; intelligence, surveillance, and reconnaissance (ISR); logistics; rear-area support; rapid staging and deployment; and coordination with other militaries.

⁶⁰ Jeffrey W. Hornung and Mike M. Mochizuki, “Japan: Still An Exceptional U.S. Ally,” *The Washington Quarterly*, Vol. 39, No. 1, 2016, pp. 95–116.

⁶¹ Jeffrey W. Hornung, *Learning How to Sweat: Explaining the Dispatch of Japan's Self-Defense Forces in the Gulf War and Iraq War*, Ph.D. Dissertation, The George Washington University, 2009.

⁶² MOD, “Reference 57,” 2018a, p. 512.

⁶³ MOD, “Reference 57,” 2018a, p. 513.

The first type is the SDF's record in international peace cooperation activities. As of summer 2020, the SDF has been dispatched on four separate operations overseas.⁶⁴ The first operation, following the terrorist attacks on the United States on September 11, 2001, was to the Indian Ocean, where, from 2001 to 2007 and again from 2008 until 2010, MSDF and ASDF units provided rear-area support for foreign vessels and air transport of materials. During this time, MSDF ships conducted refueling of other ships 939 times, for a total of 517,054 kiloliters (kl) worth of fuel; conducted refueling of ship-borne helicopters 85 times, for a total of 1,200 kl worth of fuel; and provided 11,125 tonnes of water 195 times.⁶⁵ Besides the United States, the countries that received this fuel and water included the UK, France, Germany, Pakistan, Canada, New Zealand, Netherlands, Italy, Spain, Greece, and Denmark.⁶⁶ The ASDF also assisted with 381 flights carrying 3,396 tonnes of supplies for U.S. forces, such as engines and parts, and 389 U.S. military personnel.⁶⁷

The second deployment was to Iraq during the U.S.-led war. From 2004 until 2009, SDF units from all three services were engaged in various noncombat tasks, including providing medical treatment, water supply, reconstruction of public facilities, maritime transport of GSDF vehicles, and air transport of humanitarian and reconstruction supplies.

The third operation, still ongoing as of 2020, is the anti-piracy operation off the coast of Somalia and Gulf of Aden. Since March 2009, MSDF ships and planes have been engaged in escorting vessels sailing through the waters and providing surveillance activities from the air. In support of this operation, the MSDF opened Japan's first overseas base since World War II, in Djibouti in 2011.

Japan's fourth, and most recent, dispatch was two GSDF officers to Egypt's Sharm el-Sheikh on the Sinai Peninsula to serve under the command of the Multinational Force and Observers to help monitor the ceasefire between Israel and Egypt on the Peninsula. Specifically, these two officers are tasked with liaison and coordination duties between the Israeli and Egyptian forces. While small in overall scale, it was nevertheless groundbreaking for Japan because it represents the first time it deployed its personnel abroad to join a multinational force not connected to the United Nations.⁶⁸ Despite the non-combat nature of these operations, the SDF has gained valuable operational knowledge pertaining to air and sealift, logistical support, maritime refueling, and communications/coordination with foreign militaries.

⁶⁴ MOD, "Reference 57," 2018a, pp. 511–512.

⁶⁵ MOD, 旧平成十三年九月十一日のアメリカ合衆国において発生したテロリストによる攻撃等に対応して行われる国際連合憲章の目的達成のための諸外国の活動に対して我が国が実施する措置及び関連する国際連合決議等に基づく人道的措置に関する特別措置法に基づく対応措置の結果 [*Results of Response Measures Based on the Special Measures Law Regarding Humanitarian Measures Based on UN Resolutions, Etc. and Measures Taken by Japan in Response to the Activities of Other States to Achieve the Purpose of the UN Charter to Respond to the Terrorist Attacks that Occurred in the United States on September 11, 2001*], Submission to the Diet, January 2008a, p. 5; MOD, テロ対策海上阻止活動に対する補給支援活動の実施に関する特別措置法に基づく補給支援活動の結果 [*Results of Refueling Support Activities Based on the Special Measures Law Regarding the Implementation of Refueling Support Activities to the Anti-Terror Maritime Prevention Activities*], Submission to the Diet, April 2010a, p. 2.

⁶⁶ MOD, "補給対象国一覧 (参考3) [List of Countries Supplied (Reference 3)]," 2008a, p. 16.

MOD, "補給対象国一覧 (参考3) [List of Countries Supplied (Reference 3)]," 2010a, p. 12.

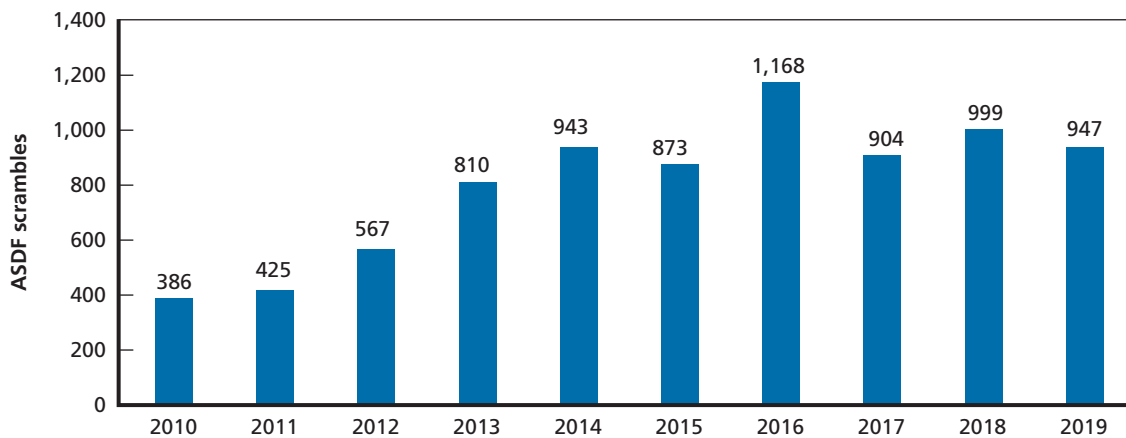
⁶⁷ MOD, 2008a, pp. 6–7.

⁶⁸ Jeffrey W. Hornung, "With Little Fanfare, Japan Just Changed the Way It Uses Its Military," *Foreign Policy*, May 3, 2019.

The second type of operation that is relevant to an East China Sea contingency is the ASDF's ongoing aerial scrambles against foreign aircraft that enter Japan's Air Defense Identification Zone (ADIZ). While Japan has a long history of scrambling to intercept Soviet planes entering Japanese airspace, these efforts now focus primarily on Chinese military aircraft flying with increasing frequency near Japanese territory and in airspace over strategic waterways, such as the Miyako Strait (the waterway between Miyako Island and Okinawa). Though down from the Cold War era, these scrambles also target Russian incursions, as well. As shown in Figure 2.3, ASDF scrambles have been on the rise over the past decade.⁶⁹

Arguably, these air sovereignty missions are the closest Japan's SDF has come to combat, given that they are responding immediately to adversaries in Japanese airspace and contain a real possibility of casualties. The ASDF are also operating at an increased operational tempo, having to surge their capabilities to respond to rapidly changing situations. These are not without costs. As a 2018 RAND publication noted, these scrambles have imposed opportunity costs for training in the ASDF fighter force, which could erode ASDF combat readiness, and have forced the ASDF to make adjustments in procedures, deployments, and acquisitions.⁷⁰

Figure 2.3
Japanese ASDF Scrambles (2010–2019)



SOURCE: Japanese Joint Staff, “令和元年度の緊急発進実施状況について [About the Emergency Scramble Situation in FY Reiwa First Year],” Joint Staff press release, April 9, 2020, p. 2.

Conclusion

Japan is a close strategic ally of the United States. Like the United States, Japan views Russia, North Korea, and China as the primary challengers to the security environment in the Indo-Pacific region, although the weight with which it views these challenges differs. While adhering to constitutional constraints and an exclusively defense-oriented policy, Japan sees a proactive

⁶⁹ The data represent the number ASDF scrambles, not the actual number of incursions by foreign planes. It is assumed, however, that the number of scrambles should correlate positively with the actual number of incursions because the ASDF responds to each incursion.

⁷⁰ Burke et al., 2018.

role for itself in supporting regional peace and security. Policy documents by Tokyo emphasize Japan's desire to not only be more forward-leaning in dealing with increasingly complex security challenges, but to do more, both by itself and in cooperation with the United States.⁷¹

Japan's approach to burden-sharing with the United States is best described as a shield-and-spear relationship. Japan focuses primarily on its defense, including the U.S. forces stationed in Japan, and the United States acts as the spear, striking out beyond Japan to shape the regional environment in a way conducive to American and Japanese interests. This strategic bargain rests on the fundamental agreement that, in exchange for U.S. support in defense of Japan, Japan will host forward-based U.S. forces. Beyond this, Japan's contributions include financial contributions to the U.S. presence in Japan and various U.S. initiatives in Japan and the region. Despite the SDF never having participated in combat operations since its establishment, the SDF has been active in noncombat operations overseas. Importantly, activities by the MSDF and ASDF have important transferrable lessons and skills to combat operations, including those related to communications, ISR, logistics, rear-area support, rapid staging and deployment, and coordination with other militaries.

Understanding what the individual SDF services can do with these lessons and skills requires a better understanding of the organizations and composition of these services. The next three chapters look at each of the services individually.

⁷¹ Itsunori Onodera, "Strengthening Japan's Defense Force," *Asia-Pacific Review*, Vol. 20, No. 2, 2013, pp. 69–80.

Ground Self-Defense Force Capabilities

Introduction

After Japan's defeat in World War II, the Imperial Army was dismantled. Five years later, under the occupation of the United States, Japan established the National Police Reserve as a supplementary organization to bolster the police force because U.S. General Douglas MacArthur feared a vacuum of military presence in Japan after the outbreak of the Korean War.¹ In 1952, now as an independent nation, Japan renamed its National Police Reserve the National Safety Forces. On July 1, 1954, when Japan established the SDF, the National Safety Forces were renamed the Ground Self-Defense Force. The mission was to maintain domestic safety, particularly in response to natural disasters, but also to undertake civil engineering projects as Japan rebuilt after the war.² That mission was transformed with the 1957 *Basic Policy for National Defense*, which added a new objective of preventing and repelling direct invasion of Japan.³

During the Cold War, the GSDF's efforts were focused on a forward deployment strategy to deny an anticipated invasion from the Soviet Union. The GSDF "deployed heavily armored divisions with tanks and long-range artillery on the island of Hokkaidō and repeatedly conducted training targeting Soviet Union amphibious operations."⁴ After the collapse of the Soviet Union, the GSDF "lost its direction, for a time, in its defense build-up" and began to focus on military operations other than war.⁵ It was the "period of expanding duties."⁶ Following the passage of the *Law on Cooperation with United Nations Peacekeeping Operations and Other Operations* in 1992, the SDF was able to dispatch personnel overseas for the first time. The GSDF focused on reconstruction operations under the mantle of UN peacekeeping operations, beginning with its first to Cambodia. It also began to participate in humanitarian relief work and disaster relief operations overseas. After the September 11, 2001 terrorist attacks on the United States, the GSDF embarked on its first experience of working alongside multinational forces outside Japan when it dispatched personnel to Samawah, Iraq to conduct

¹ 陸上自衛隊 広報チャンネル [GSDF Information Channel], "The JGSDF Keeps on Evolving: Striving for Peace and Stability in Japan and Throughout the World," video, January 14, 2016.

² GSDF Information Channel, 2016.

³ Yoshikazu Watanabe, Masanori Yoshida, and Masayuki Hironaka, *The U.S.-Japan Alliance and Roles of the Japan Self-Defense Forces: Past, Present and Future*, Washington, D.C.: Sasakawa Peace Foundation USA, 2016, p. 8.

⁴ Watanabe et al., 2016, p. 9.

⁵ Watanabe et al., 2016, p. 10.

⁶ GSDF Information Channel, 2016.

reconstruction support.⁷ It also conducted numerous humanitarian assistance/disaster relief operations throughout the Indo-Pacific region while responding to Japan's own natural disasters, such as the March 11, 2011 Great East Japan Earthquake. Today, the GSDF is expanding into new areas, including island defense operations.

Organization

The GSDF is the largest of the three SDF services, with 138,126 personnel.⁸ The GSDF is divided into five regional armies, which together consist of eight infantry divisions, one armored division, six infantry brigades, and several other artillery, anti-aircraft artillery, and engineer units.⁹ The largest, the Northern Army, is headquartered in Sapporo (Hokkaidō prefecture) and consists of two divisions and two brigades. The Northeastern Army is headquartered in Sendai (Miyagi prefecture) and has two divisions. The Eastern Army is headquartered in Nerima (Tokyo) and has one division and one brigade. The Middle Army is headquartered in Itami (Hyōgo prefecture) and has two divisions and two brigades. The Western Army is headquartered at Camp Kengun in Kumamoto (Kumamoto prefecture) and has two divisions, plus the 15th Brigade located on Okinawa. Previously, there was no centralized command over the operational units within these regional armies, preventing the transfer of logistics, personnel, weapons, and equipment to facilitate training and even operations without appealing to the MOD, something the GSDF was traditionally reluctant to do.¹⁰ This changed in March 2018 when the GSDF established its Ground Component Command (GCC) to centralize command and control (C2). Now, the Minister of Defense can command all GSDF units by directly instructing the GCC Commander, a three-star general with operational control (OPCON) over the GSDF. In addition to the units of the regional armies, the GCC also commands the rapidly deployable units that formally fell under the now-defunct Central Readiness Force:¹¹

- GCC Headquarters
- GCC Headquarters Unit
- 1st Airborne Brigade
- Amphibious Rapid Deployment Brigade (ARDB)
- 1st Helicopter Brigade

⁷ They were not involved in any combat role. In fact, not only were they limited to noncombat areas, much of their security was provided by Australian forces. Watanabe et al., 2016, p. 11.

⁸ MOD, "Reference 59," 2018a, p. 514.

⁹ "Japan: Army," *Jane's Sentinel Security Assessment—China And Northeast Asia*, February 13, 2019. Japanese brigades are relatively small (between 2,000 and 4,000 personnel), with each unit composed of various types of forces, such as infantry, armored, and artillery units; combat support units; and logistical support units. As part of a regional army, a brigade is regionally independent. Although its function is similar to a division in that it possesses the capability to engage in operations on one front, the brigade has limited capacity relative to a division. Included in each regional army is an anti-tank helicopter squadron and anti-ship regiment.

¹⁰ If a major operation occurred, the Minister of Defense was responsible for issuing commands to each of the regional armies through the Chief of Staff, Joint Staff.

¹¹ Ground Component Command, "陸上総隊の編成 [Composition of the GSDF]," undated.

- C5 Command¹²
- Military Intelligence Command
- Central Readiness Regiment
- Special Operation Group
- Central Nuclear Biological Chemical Weapon Defense Unit
- Nuclear Biological Chemical Countermeasure Medical Unit
- International Peace Cooperation Activities Training Unit.

Relevant Capabilities

The GSDF spent the Cold War anticipating and preparing to prevent a Soviet invasion. This denial strategy required a reliance on tanks and heavy artillery in the north. Much of this changed following the 2010 NDPG and its subsequent iterations. These proved transformational for the GSDF, as the NDPGs significantly shifted Japan's defense thinking away from the Cold War denial strategy. For the ASDF and MSDF, which had capabilities already aligned with the required mission sets in the Nansei Shotō region, the shift was not problematic. That was not true for the GSDF, which was ill-postured to handle the increase in air and maritime challenges. As such, the GSDF recrafted itself to be more mobile and to realign capabilities and training to respond to events in Japan's southwest. In practice, this meant taking on more anti-air and anti-ship functions and developing new amphibious capabilities. Notably, the 2010 NDPG set a reduction in the GSDF's tanks and heavy artillery to 400 units each.¹³ This was significant, given that the GSDF's arsenal of tanks and heavy artillery had already been reduced from 900 to 600 units each from the 1995 NDPO to the 2004 NDPG.¹⁴

Units that were more multifunctional and mobile were prioritized. Toward this end, the GSDF began reorganizing itself to make its divisions more multifunctional, make its brigades more mobile, and ensure that troops were located in the Nansei Shotō to ensure presence throughout the archipelago without any gaps.¹⁵ The GSDF now maintains rapid deployment units equipped with specialized functions, such as the ARDB, the 1st Airborne Brigade, and the 1st Helicopter Brigade. On top of this, the GSDF is reorganizing about half of its operational units into rapid deployment divisions and brigades, which can carry out nationwide strategic maneuver and conduct continuous rapid deployment training.¹⁶ Per the 2013 NDPG, it was decided that the GSDF would cut the number of regionally deployed units by converting some into rapidly deployable divisions or brigades, which the GSDF has already done by transforming two divisions and two brigades into smaller units equipped with firepower and ISR capabilities that are more mobile and able to be transported by air, via the CH-47JA helicopter,

¹² The Japanese name is システム通信団, which translates to System Signals Brigade in English. The unit, however, has decided to use C5 Command as its English name instead.

¹³ MOD, *National Defense Program Guidelines for FY2011 and Beyond*, December 17, 2010b, p. 20.

¹⁴ The reduction that took place in 1995 was historic because it was the first time that these reductions were included. Japan Defense Agency, “別表 [Annex],” 平成8年度以降に係る防衛計画の大綱について [*National Defense Program Outline for FY1996 and Beyond*], November 28, 1995; Japan Defense Agency, *National Defense Program Guidelines, FY 2005*, December 10, 2004, p. 13.

¹⁵ “Japan: Army,” *Jane's Sentinel Security Assessment*, 2019.

¹⁶ Ground Self-Defense Force, *GSDF Update Briefing*, RAND document received, March 29, 2019, p. 6.

C-2 transport aircraft, or V-22 Osprey.¹⁷ The GSDF is planning on increasing the number of rapid deployment divisions to three and rapid deployment brigades to four by 2024.¹⁸

In an operation, the GSDF plans to employ these rapidly deployable units in a phased-sequence response strategy whereby it can deploy these mobile units first in a rapid fashion followed by heavier units later.¹⁹ The thinking is that an advance party—such as the ARDB—will be immediately deployed (mainly) by helicopter or tilt-rotor after a contingency erupts. Shortly thereafter, aircraft will transport a combined arms rapid deployment regiment as the first phase. In the second stage, a rapid deployment brigade or division will be dispatched. In the third and final phase, GSDF reinforcements with more of the heavier equipment will be deployed by ships.

One major line of effort in this move toward more mobility has been the establishment of the ARDB “to land, recapture and secure without delay any remote islands that might be invaded.”²⁰ Although its core is the 660-strong Western Army Infantry Regiment, a battalion-sized light infantry regiment established in 2002 to specialize in amphibious operations, the full ARDB was stood up in March 2018, manned with 2,100 personnel.²¹ In March 2019, an additional 300 members were added to the ARDB.²² Under OPCON of the GCC, the ARDB is composed of two amphibious regiments, one Amphibious Assault Vehicle-7 (AAV-7) amphibious assault battalion, one field artillery battalion, one reconnaissance company, a signal company, an engineer company, and a logistics support battalion.²³ In addition to the AAV-7 vehicles, the ARDB will rely on GSDF-owned V-22s and CH-47JAs. The 2018 MTDP states that the ARDB will be strengthened over the next five years by the establishment of a third amphibious deployment regiment.²⁴ It is projected to reach full manpower of approximately 3,000 in the next few years.²⁵

¹⁷ Each of these rapid deployment units features a newly created rapid deployment regiment (RDR) of about 800 personnel each; in turn, each RDR comprises a regimental headquarters, a headquarters support company (including an anti-aircraft platoon using the Type 93 short-range surface-to-air missile, or SAM), three infantry companies (with Type 96 Wheeled Armored Personnel Carrier [WAPC]), a Maneuver Combat Vehicle Unit (with Type 96 WAPC Light Armored Vehicle and Type 16 Maneuver Combat Vehicle (MCV)), and a fire support company (120 mm mortar) (“Japan: Army,” *Jane’s Sentinel Security Assessment*, 2019).

¹⁸ MOD, *Medium Term Defense Program (FY 2019–FY 2023)*, December 18, 2018f, p. 4.

¹⁹ Ground Self-Defense Force, “新たな次元へ進化する陸上自衛隊 ～多次元統合防衛力の構築に向けて～ [The Evolution of the GSDF into New Dimensions--Toward the Construction of a Multi-Domain Defense Force],” 役割 [Roles], undated.

²⁰ MOD, *Medium Term Defense Program, FY 2014–FY 2018*, December 17, 2013b, p. 5.

²¹ Japan Defense Agency, “西部方面普通科連隊の新編 [Realignment of Infantry Regiment in the Western Army],” 防衛白書平成14年版 [*Defense of Japan 2002*]; “防衛大臣臨時記者会見概要 [Summary of the Minister of Defense’s Special Press Conference],” MOD, March 27, 2018; SDF officer, RAND email correspondence, October 4, 2019.

²² “Japan Deploys Missile Units on Islands Amid China’s Rise,” *Kyodo News*, March 26, 2019.

²³ Jeffrey W. Hornung, “Japan’s Amphibious Joint Pain,” in Scott W. Harold, Koichiro Bansho, Jeffrey W. Hornung, Koichi Isobe, and Richard L. Simcock II, eds., *U.S.-Japan Alliance Conference: Meeting the Challenge of Amphibious Operations*, Santa Monica, Calif.: RAND Corporation, 2018a, p. 28.

The ARDB is based at multiple stations in western Japan. The headquarters is located at the GSDF Western Army Headquarters in Ainoura, near Sasebo in Nagasaki prefecture, and its composite units are spread out at Ainoura, Sakibe (also Nagasaki prefecture), and Kusu and Yufuin in Ōita prefecture. There are also amphibious education units located at some stations in Nagasaki and Ōita prefectures.

²⁴ MOD, 2018f, p. 4.

²⁵ Koichi Isobe, “The Amphibious Operations Brigade: The Establishment of the JGSDF Brigade and Its Challenges,” *Marine Corps Gazette*, Vol. 101, No. 2, February 2017, p. 25; retired SDF officer, RAND email correspondence, September

Augmenting this push toward greater mobility has been an increase in the GSDF's footprint throughout the Nansei Shotō, where the GSDF did not historically maintain troops, beyond the 15th Brigade in Okinawa and a small presence on the island of Tsushima near northern Kyūshū. This changed with the establishment of four camps. The first, established in 2016 on Yonaguni (Figure 3.1), consists of a Coastal Observation Unit (COU) and logistics facility manned with about 160 personnel and is responsible for intelligence-gathering to provide a constant monitoring of activities in the East China Sea area.²⁶ In March 2019, two other units were established on Amami-Ōshima and Miyako. These latter two locations consist of surface-to-air missile (SAM) batteries and anti-ship cruise missile (ASCM) batteries, which

Figure 3.1
Map of the Nansei Shoto



ber 27, 2017.

²⁶ MOD, “南西諸島における陸上自衛隊拠点整備の状況 [Situation of the GSDF Establishing Locations in the Southwest Islands],” RAND document received, August 2019g.

Japan refers to as surface-to-ship missile (SSM) batteries.²⁷ There is a similar unit planned for Ishigaki, but the completion date was not confirmed at the time of writing this report.²⁸ It is generally believed to be 2021.

The GSDF is also actively working to develop its capabilities to monitor Chinese activity in the Nansei Shotō and to jam the communications of any adversary forces—including aircraft and ships—should a contingency occur. Toward this end, it is looking to strengthen its capabilities to collect and manage electromagnetic intelligence on enemy ships and planes and to strengthen electromagnetic interference equipment to neutralize enemy radar and communications. Some of the major efforts underway include research and development (R&D) and production of high-power interruption equipment designed to jam enemy unmanned aerial vehicles (UAVs) and airborne early warning and control (AEW&C) platforms, high-power microwave interference equipment designed to conduct close-range electronic warfare (EW) up to 5 kilometers, and electromagnetic observation equipment.²⁹ The GSDF is also developing a road-mobile Network Electronic Warfare System (NEWS) to analyze electronic waves and conduct EW. Designed for island defense, the system is made up of several specially equipped EW vehicles designed to perform electronic reconnaissance while degrading the command, control, and communications networks of adversaries.³⁰ One was procured in the FY 2019 budget, and another one requested in the FY 2020 budget.³¹ This capability will likely be employed by a specialized EW unit the service plans to stand up at Camp Kengun (Kumamoto) by April 2021 to monitor for adversary naval and airborne communication and radar emissions.

Finally, the GSDF has moved to introduce equipment with high maneuverability and transportation capacity. Cognizant that most of the GSDF's traditional units were never designed to deploy rapidly to fight on small, outlying islands separated by vast distances of water and air, the GSDF began reducing some of its less transportable assets, such as tanks and heavy artillery, and moving into more mobile assets. Continuing plans to reduce the GSDF's tanks and heavy artillery that began in the 1995 NDPG, the 2013 NDPG confirmed a further reduction to about 300 each.³² Yet, by the time of the 2018 NDPG's release, they had not yet been reduced, as these numbers still stood at approximately 600 tanks and 500 howitzers/rockets. Therefore, the 2018 NDPG included an additional commitment to reduce these to 300 each.³³ At the same time, the GSDF began developing variants to existing equipment,

²⁷ MOD, 2019d; Jiji, "Japan Expanding GSDF's Presence on Southwestern Islands with New Bases and Missile Batteries," *Japan Times*, March 16, 2019a; Kato, 2019.

²⁸ MOD, 2019d; Jiji, 2019a.

²⁹ SDF officer, RAND interview, March 29, 2019.

³⁰ Kosuke Takahashi, "Japan Displays New SPH Prototype, More Elements of Road-Mobile EW System," *Jane's Defence Weekly*, September 2, 2019b.

³¹ MOD, 我が国の防衛と予算：平成31年度予算の概要 [*Defense Programs and Budget of Japan: Summary of FY 2019 Budget*], Tokyo, 2019a, p. 7; MOD, 我が国の防衛と予算：令和2年度概算要求の概要 [*Defense Programs and Budget of Japan: Summary of FY2020 Request Estimates*] Tokyo, 2019b, p. 8.

³² MOD, *National Defense Program Guidelines for FY2014 and Beyond*, December 17, 2013a, p. 31.

³³ MOD, 2013a, p. 33.

such as a reconnaissance combat vehicle, mobile mortar, an infantry combat vehicle, and a mobile combat vehicle.³⁴

With these changes, the GSDF believes it will be better positioned to rapidly respond to a contingency in the Nansei Shotō, albeit for roles it would play on Japanese territory. In the coming years, there are two areas where the GSDF is positioned to make a positive impact in such a contingency. One is by employing the SAM and ASCM batteries it is deploying in the Nansei Shotō, which is reviewed in more detail in Chapter Six. The second area is logistical support.

Given the nature of the Nansei Shotō, the GSDF's helicopter fleet will play a critical role in a contingency in that even short-haul flights can take advantage of the island geography, assuming that the requisite refueling facilities exist to support such operations. Of the GSDF's helicopter fleet, only three can transport at least a dozen personnel, are twin-engine, and capable of long distances: the UH-60JA, CH-47J, and CH-47JA.³⁵ Only the latter two, however, can transport large equipment in addition to personnel, making them ideal for any operations on or near the Nansei Shotō.³⁶ Table 3.1 shows both current and future numbers of the fleet. The maximum payload of these Chinook aircraft is 28,537 lb (useful load)/28,000 lb (underslung), and they are capable of flying 749 miles with a 27,686-lb payload.³⁷ Maintaining this robust Chinook fleet will prove critical to moving personnel and supplies in between islands in the Nansei Shotō.

This capability will strengthen over the next decade as the fleet of Chinooks will be augmented by Osprey tilt-rotor aircraft. The GSDF is transitioning to V-22 Osprey, due to its ability to land and takeoff on remote islands or areas where runways may not be available. Although the V-22's maximum payload is less than that of the CH-47, at 20,000 lb (internal, cargo) with 10,000 lb (underslung, single hook) or 15,000 lb (underslung, two hooks, combined weight), the V-22 has a much longer flight distance and can fly faster.³⁸ Its maximum distance in vertical takeoff mode is far less than the CH-47's, at 402 miles with a 10,000-lb payload, with a smaller payload of 6,000 lb it can fly farther, up to 805 miles.³⁹ In short take-off mode, the V-22 can go much farther than the CH-47, although with lighter payloads. When carrying 10,000 lb, the V-22 can fly 1,093 miles.⁴⁰ Despite carrying less, the V-22 can fly faster than the CH-47. Compared with the CH-47's maximum speed of 178 miles per hour (mph) and cruising speed of 161 mph, the V-22's maximum speed is 296 mph, or 246 mph with a maximum slung load, and its cruising speed is 296 mph.⁴¹ The SDF ordered 17 V-22s; its first two were delivered in May 2020, with the remaining 15 expected within the next ten

³⁴ Ground Self-Defense Force, 2019, p. 6.

³⁵ The UH-60JA is capable of carrying external fuel-tanks, which enables it fly longer distances ("Mitsubishi [Sikorsky] UH-60," *Jane's All the World's Aircraft*, August 8, 2019).

³⁶ The CH-47J and CH-47JA can both carry 58 people each plus equipment. The UH-60JA can only carry 14 people. See each of the aircraft at Ground Self-Defense Force, "航空機 [Aircraft]," Japanese, undated.

³⁷ The data are for the CH-47SD ("Boeing 114 and 414 Chinook," *Jane's All the World's Aircraft*, May 15, 2019).

³⁸ "Bell Boeing V-22 Osprey," *Jane's All the World's Aircraft*, May 15, 2019.

³⁹ "Bell Boeing V-22 Osprey," 2019.

⁴⁰ "Bell Boeing V-22 Osprey," 2019.

⁴¹ The CH-47 data are for the CH-47SD variant. "Boeing 114 and 414 Chinook," 2019; "Bell Boeing V-22 Osprey," 2019.

Table 3.1
GSDF Airlift Capabilities

Service	Platform	August 2019	Circa 2029
GSDF	CH-47J/JA	54	57 ^a
GSDF	V-22	0	17

SOURCES: MOD, "Reference 9," 2018a, p. 460; MOD, *National Defense Program Guidelines for FY 2019 and Beyond*, December 18, 2018e; MOD, *Medium Term Defense Program (FY 2019–FY 2023)*, December 18, 2018f; MOD official, RAND email correspondence, July 26, 2019.

^a MOD plans to procure 3 CH-47JAs, 5 C-2s, and 4 KC-46As during the period of the new MTDP (FY 2019–FY 2023). Deployment of these aircraft will not necessarily be completed by the end of the new MTDP.

years. While this will provide the GSDF with a much-needed operational maneuver capability and prove beneficial if SDF runways or alternate airfields on smaller islands are damaged or destroyed, there are no dedicated refueling aircraft for the V-22 that could help provide support for extended land operations.

Given that the GSDF does not retain sealift capabilities, as well as the paucity of sealift capabilities in the MSDF (see Chapter Five), the 2018 MTDP introduced a plan for the SDF to organize one maritime transportation unit as a Joint Unit to allow the SDF to swiftly maneuver and deploy in joint operations.⁴² Discussions with MOD officials revealed that the intention is to quickly move troops and supplies to the islands that lie beyond Okinawa, such as those that make up the Sakishima Island group, like Ishigaki and Yonaguni (Figures 2.1 and 2.2).

Challenges

The changes in the GSDF benefit the service's ability to respond to an attack on Japanese territory and could be leveraged to help the United States in a regional contingency, particularly for operations on or near land. More mobility and units stationed in the Nansei Shotō better position the GSDF to help respond to hostilities far from the Japanese mainland in a way that prior GSDF posture did not allow. Although these islands are currently not equipped with facilities that can support large numbers of forces and the types of capabilities that would be expected to flow into the area during a high-end contingency, they are in or near the expected theater of conflict and therefore provide areas for allied forces to conduct reception, staging, onward movement and integration activities. Importantly, more mobile capabilities support quick movement of troops and supplies and, with the new force posture, could complicate China's advance closer to Japanese shores.

That said, critical challenges remain. On its most fundamental level, there are questions over how the GSDF would operate in a crisis. While the nationwide garrisons stretching down through the Nansei Shotō are advantageous in terms of presence, housing forces and capabilities within China's First Island Chain mean they can be held at risk in a conflict. Japan's anti-air and anti-missile defense systems can help mitigate these threats, but it can never elimi-

⁴² MOD, 2018f, p. 4.

nate them, because of the proximity to Chinese military assets and a paucity in passive base defense measures. Additionally, the effectiveness of these forces in a contested battlespace is unknown. For example, unlike the MSDF and ASDF, the GSDF lacks intelligence-gathering assets and shaping capabilities. Furthermore, the GSDF suffers from a poor fire support doctrine that does not facilitate combined arms (instead the GSDF approach is to “deconflict” fires, as opposed to “coordinate” fires).⁴³ GSDF commanders also do not possess all the necessary pieces under their authorities to form and exercise the necessary battlespace functions. They lack an integrated air and ground task force with logistics, something akin to a U.S. Marine Air-Ground Task Force. Taken together, these challenges may “overwhelm” any of the strengths the GSDF may have.⁴⁴

A second challenge is the nature of GSDF mobility. Given the isolated nature of the Nansei Shotō, the push for greater mobility and the development of the ARDB and rapidly deployable units makes sense. Yet the operational effectiveness of these capabilities should not be overestimated. As much as the GSDF is acquiring the hardware to become more mobile and the phased approach may make conceptual sense, there are questions over how quickly its forces on mainland Japan can assemble, integrate, match troops with logistics, and deploy once conflict commences. This is because the GSDF does not have a well exercised plan to implement a course of action at the operational level.⁴⁵ This leaves the GSDF in an untested situation to rapidly move from garrisoned bases on Japan’s mainland into a contested environment on isolated islands with limited logistics infrastructure.

Furthermore, the GSDF will have difficulty self-deploying personnel and capabilities because of challenges associated with its airlift capabilities and the lack of GSDF-owned sealift capabilities. Should a contingency erupt in the East China Sea, for example, much of the battle would likely focus on the aerial and maritime domains, assuming that China does not attempt a direct land assault of Japan. Most of the GSDF’s traditional units were never designed to deploy rapidly to fight in these domains. Due to issues of strategic mobility, the GSDF’s Type 10, Type 90, and Type 74 tanks, for example, are not designed for airlift by any of the GSDF’s airlift capabilities. And because they are all tracked-tanks, they are designed to fight invading tanks on open land, not small, mountainous islands. Similarly, the GSDF’s aviation capabilities concentrate on anti-tank AH-1S and AH-64 helicopters which, while lethal, are not capable of flying over large bodies of water like the Nansei Shotō, although they could conceivably “lily-pad” across islands, assuming fuel depots exist. This means the GSDF’s rapidly deployable forces will need not just the help of the ASDF’s and MSDF’s airlift and sealift capabilities, they will require the ASDF’s and MSDF’s close air and sea support for safe passage to and support in the battlespace. Without this support, the GSDF’s rapidly deployable forces will face high risks from the air and sea, thereby increasing the challenges to rapid assembly, integration, deployment, and execution of mission in a contested environment.

Assuming that the GSDF’s rapid forces can deploy quickly, one of the first units will likely be the ARDB. Yet, if it is used to respond to a Chinese invasion of Japanese islands—such as the Senkaku Islands—the GSDF may find the value of the ARDB comes from deploying the force *before* the attack happens. When considering what could be a large Chinese force—involving

⁴³ Retired U.S. officer, RAND email correspondence, October 4, 2019.

⁴⁴ Retired U.S. officer, RAND email correspondence, October 4, 2019.

⁴⁵ Retired U.S. officer, RAND email correspondence, October 4, 2019.

air, naval, ground, and paramilitary assets—the operational utility of the ARDB is questionable after Chinese forces take and occupy territory. The ARDB does not have a mission focus on sustained land campaign operations; rather, it is built around the logic of quickly pushing off an invading force. The current level and force structure of the ARDB alone likely will not be enough to dislodge the People's Liberation Army (PLA) if it is dug in and fully supported by air and sea assets.⁴⁶ Conducting such an amphibious operation would mean putting the ARDB's ship-to-shore assets well within range of Chinese weapons, to which they would be extremely vulnerable without the requisite support by the MSDF and ASDF. The ARDB is challenged by the fact that it has very little fire support, no shaping capabilities or C4ISR, and no logistic capabilities and the fact that, at its core, it is not operationalized with a joint plan and a supporting, integrated joint force with the MSDF and ASDF.⁴⁷ Therefore, contrary to the idea of the ARDB storming beaches to retake the islands as part of the first response in the GSDF's phased approach, its real value may be in getting boots on the ground *before* the invasion occurs and maintaining a defensive posture preventing an invasion from occurring.⁴⁸ Doing so would put Chinese forces in a position of having to fight their way onto the islands in a contested environment, thereby requiring China to bring more diverse capabilities that, in turn, make it easier for the SDF and U.S. forces to track and destroy these in transit rather than after they establish themselves in defensive positions.

A final challenge is that there are no plans to further build out the GSDF's presence on any additional islands, due to strong public opposition to expanding the SDF's footprint in the region. It does not matter if the islands are inhabited or not, as local communities that administer uninhabited islands are equally protective, if not more so, of untouched natural islands and aquatic areas. The lack of a more distributed footprint comes at a cost for Japan and the United States. Not being able to further distribute Japan's defenses simplifies targeting objectives for China during a contingency to a small number of bases which, in turn, puts a premium on both active and passive defense measures, such as hardening bases and depots. If these defenses are robust enough to defend against air and missile threats, deploying missile batteries at key chokepoints could keep Chinese forces farther from shore and complicate PLA Navy (PLAN) efforts to break out beyond the First Island Chain. Additionally, the lack of a more distributed posture puts pressure on the GSDF to deploy its mobile forces farther away from the likely theater of battle. The ARDB and other rapidly deployable units are generally far from the Nansei Shotō. Not only will forces flowing in from mainland Japan likely encounter the same challenges outlined above regarding support from the MSDF and ASDF, having to fight into a contested environment far from the theater may result in a delayed response to any sudden onset of hostilities.

There is tremendous strategic value in a more distributed footprint. More GSDF bases, including ARDB units, placed throughout the Nansei Shotō, along with resources devoted to passive defense, would help disperse GSDF forces and key assets across a wide geographic space, thereby diversifying the risk to any one base. Armed with anti-air and anti-ship missile

⁴⁶ Japanese Security/Defense Analyst, RAND interview, March 22, 2019; MOD official, RAND interview, March 26, 2019.

⁴⁷ MOD official, RAND interview, March 26, 2019; Retired U.S. officer, RAND email correspondence, October 4, 2019.

⁴⁸ U.S. official, RAND interview, March 22, 2019; Japanese Security/Defense Analyst, RAND interview, March 22, 2019; U.S. officer, RAND interview, March 28, 2019.

capabilities, as reviewed in Chapter Six, these forces would pose serious threats to Chinese air and naval platforms, thereby complicating China's ability to sustain operations at a distance. In addition to complicating Chinese planning and requiring more Chinese resources to be expended in a conflict, establishing a more distributed footprint would reinforce the alliance's deterrent value because "every place you put a Japanese structure becomes a place we [the United States] can put U.S. soldiers on."⁴⁹

Conclusion

The GSDF is making a concerted effort to become more mobile. While this chapter did not focus on all dimensions of the GSDF, it examined elements applicable to an East China Sea contingency, particularly in the Nansei Shotō. The major strength of the GSDF is its fleet of CH-47J/JA and the introduction of V-22 Ospreys. Given the nature of the Nansei Shotō, these capabilities would be critical to moving personnel and equipment across islands.

The GSDF's push for greater mobility and operational focus to the southwest is a positive development, but it is not without challenges. The phased-sequence response strategy makes sense from an operational perspective, but its effectiveness in a combat situation is uncertain in areas where these rapidly deployable forces—including the ARDB—must fight their way into a contested space from mainland Japan. The GSDF lacks combat experience and has taken a siloed approach to the development of the ARDB, with little coordination with the ASDF and MSDF, meaning severe gaps are expected in the GSDF's ability to operate the ARDB successfully with the MSDF and ASDF in a combat situation. Finally, although the four GSDF outposts and placement of SAM/ASCM batteries on three of these outposts are positive developments, they are too few for a region as vast as the Nansei Shotō to be able to deny Chinese ships and aircraft freedom of maneuver in those areas of the East China Sea that fall within these missile ranges. More capabilities dispersed throughout the Nansei Shotō would benefit Japan's defense strategy as a form of distributed defense, enabling the GSDF to diversify the risk to any one base.

⁴⁹ U.S. Military officer, RAND interview, March 28, 2019.

Air Self-Defense Force Capabilities

Introduction

The ASDF is the youngest of the three SDF services, as it has no prewar Imperial analogue. When the ASDF was established in July 1954, it replaced the U.S. Air Force in Japan, which was responsible for protecting Japan's sovereign airspace. The ASDF was given the main mission of responding to violations of Japan's airspace.¹ Throughout the Cold War, the ASDF continued this practice against Soviet planes. There is no "air police force" corresponding to the police on land and the Japan Coast Guard at sea, so the ASDF remains the only organization responsible for the security of Japan's airspace, both in peacetime and in contingencies.² On May 13, 1958, the ASDF conducted its first scramble and, throughout the Cold War, as capabilities improved and facilities increased, the ASDF's denial mission remained the same.³

As international cooperation missions increased, the ASDF expanded on its denial mission to include operational support for out-of-country missions, such as transporting SDF personnel and equipment to foreign locations. Starting in 2004, the ASDF began to assist with the reconstruction mission to Iraq, where the ASDF provided air transport for four and a half years and sent personnel to the Combined Air and Space Operations Center of U.S. Central Command. These helped the service improve its ability to conduct overseas operations. In the years since, the ASDF has continued to provide international emergency assistance missions to countries hit by natural disasters. Importantly, the ASDF today oversees the nation's Ballistic Missile Defense (BMD) Joint Task Force, commanded by the ASDF's Air Defense Command's Commander, and the service operates the C2 of Japan's BMD system through its Japan Aerospace Defense Ground Environment, or JADGE, system, composed of 28 ground-based, air-defense radars throughout Japan. The JADGE system is critical not just for the C2 of Japan's BMD system, but also for Japan's early warning system against other airborne threats and for communications with ASDF airborne assets.

¹ Watanabe et al., 2016, p. 25.

² Air Self-Defense Force, "About Air Self-Defense Force: Mission," undated-a.

³ For the history of the ASDF, see Air Self-Defense Force, 航空自衛隊について, 航空自衛隊の歴史 [*About the ASDF, History of the ASDF*], undated-b.

Organization

The ASDF is the second-largest SDF service, with 42,785 personnel.⁴ The fleet consists of 416 fixed-wing aircraft—of which 349 are fighters—and 15 transport helicopters.⁵ Until 2016, the ASDF divided air defense into three defense areas: Northern, Central, and Western. Each of these has an assigned Sector Air Defense Force attached to it, with each composed of two fighter wings, one Aircraft Control and Warning wing, and one or two missile groups.⁶ Additionally, instead of a defense area, a smaller Southwestern Composite Air Division also existed in Japan's southwest, responsible for the Nansei Shotō region. Like the other Sector Air Defense Forces, it had one missile group. Different, however, was that it only had one Aircraft Control and Warning squadron (as opposed to wing) and one fighter squadron (instead of two fighter wings). In response to increasing Chinese activity, in 2017, the southwestern area was elevated to become the Southwestern defense area on par with the other three defense areas, complete with its own Sector Air Defense Force called the Southwestern Air Defense Force. As result, today, the Southwestern Air Defense Force consists today of one fighter air wing (the 9th) composed of two squadrons of F-15s, one Aircraft Control and Warning wing, and one missile group.

Operationally, the ASDF is managed through five functional commands: the Air Defense Command, Air Support Command, Air Training Command, Air Development and Test Command, and the Air Materiel Command. The Air Defense Command is responsible for all tactical air operations, including BMD operations, through its command of the four sector air defense forces (Northern, Central, Western, and Southwestern Air Defense Commands), an Air Rescue Wing, an Air Tactics Development Wing, a Tactical Reconnaissance Group, an Airborne Early Warning Group, an Air Intelligence Wing and an Operations Support Wing.⁷ The Air Defense Command also commands six air defense missile groups, as noted above. The Air Defense Command is headed by a three-star general who holds OPCON during a contingency. The Air Support Command provides support for combat missions carried out by the Air Defense Command and is also headed by a three-star general, but with OPCON during peacetime. This commander commands a Tactical Airlift Group, an Air Traffic Control Service Group, Air Weather Service Group, a Flight Check Squadron, a Special Airlift Group, and an Aero Medical Evacuation Squadron.⁸

⁴ MOD, "Reference 59," 2018a, p. 514.

⁵ MOD, "Reference 9," 2018a, p. 460.

⁶ By the end of FY 2020, the fighter air wings and composite squadrons will be: Northern area: 2nd Air Wing at Chitose (2 squadrons of F-15s), 3rd Air Wing at Misawa (2 squadrons of F-35s); Central area: 6th Air Wing at Komatsu (2 squadrons of F-15s), 7th Air Wing at Hyakuri (1 squadron of F-2s; 1 squadron of F-4s); and Western area: 5th Air Wing at Nyutabaru (1 squadron of F-15s), 8th Air Wing at Tsuiki (2 squadrons of F-2s).

⁷ Air Self-Defense Force, "基地 [Bases]," undated-e; Air Self-Defense Force, "Organization," undated-d; Air Self-Defense Force, "航空自衛隊について [About the Air Self-Defense Force]," undated-b.

⁸ Air Self-Defense Force, undated-b, undated-d.

Relevant Capabilities

Fighters

Reflecting its historical mission of protecting Japanese airspace, the core of ASDF's fleet is its fighter fleet. Table 4.1 shows the fleet of ASDF fighters as of August 2019 and the expected composition in 2029. To fulfill the mission of defending Japanese airspace, the focus has been on acquiring capabilities to meet the increasing challenge posed by Chinese air assets in the East China Sea. The decision to acquire F-35As to replace its fleet of retiring F-4EJs and pre-multistage improvement program type F-15J/DJs, is one part of this effort. In December 2018, the MOD decided to procure a total 105 F-35As and 42 STOVLs (the F-35B was not yet named as the platform).⁹ Under the previous MTDP (FY 2013–2018), the MOD procured 34 F-35As; the ASDF has already seen the delivery of 13, although one was lost in an accident. Under the current plan, the MOD is looking to buy 27 more F-35As, for a total of 60 F-35As, and 18 STOVLs, with the plan to deploy these within a decade. There is currently no specific timeline about when Japan will finish procuring its final 44 F-35As and 24 STOVLs, meaning that they will be included in future MTDPs.¹⁰ In a statement on August 16, 2019, the MOD officially announced the F-35B as the STOVL choice.¹¹ While the ASDF will continue to operate the F-15, some of them will retire as the advanced F-35As and F-35Bs are deployed. How many will retire is not yet determined.

In theory, this should be supported by the F-2 replacement, although that process has proven problematic to date. Previous efforts were made to build a domestic next-generation,

Table 4.1
ASDF Fighter Capabilities

Aircraft	August 2019	Circa 2029
F-15J/DJ	201	TBD ^a
F-4EJ/EJ Upgraded	34	0
F2A/B	91	91
F-35A	12 ^b	60 ^c
F-35B ^d	0	18

SOURCES: MOD, "Reference 9," 2018a, p. 460; MOD, 2018e; MOD, 2018f; MOD official, RAND email correspondence, July 26, 2019.

^a Some of the F-15J/DJs will retire along with the deployment of F-35As.

^b The ASDF had 13 but lost one to an accident.

^c The MOD procured 61, but because of the accident, the real number that will be deployed is 60.

^d Until the official statement by the MOD on August 16, 2019 announcing its decision to procure the F-35B, all MOD documents, including the NDPG and MTDP, used the generic "STOVL."

⁹ 国家安全保障会議決定閣議了解 [National Security Council Decision/Cabinet Approval], "F-35A の取得数の変更について [About the Change in the Number of F-35A Acquisition Numbers]," MOD, December 18, 2018.

¹⁰ MOD official, RAND email correspondence, August 15, 2019.

¹¹ MOD, "短距離離陸・垂直着陸戦闘機の機種決定について [About the Decision of the Model for STOVL Fighter]," press release, August 16, 2019h.

twin-engine stealth aircraft with long-range capability and an internal weapon bay to succeed the F-2 by 2030.¹² This did not happen because of technological and cost hurdles, leading Japan to shift to consider joint development bids with foreign partners, with the concept of a hybrid of the F-22 airframe with the advanced avionics of the F-35 gaining a lot of attention. That, too, fell apart, and Japan shifted back to focus on an indigenous program, focusing on stealth capabilities. In July 2020 it was reported that, while a prime contractor has yet to be selected, production of a prototype is expected to begin by 2024, serial production expected around 2031, and the first planes to enter in to operation by 2035.¹³ When this happens, they will be Japan's first indigenously built fighters designed for air-to-air combat since World War II.¹⁴

Many of the people interviewed for this project lauded the advanced nature of the ASDF's fighter capabilities, the skilled pilots trained for combat, and a force that is suited for performing its responsibility of defense of Japan. At the same time, there are caveats attached to these strengths that may limit the effectiveness of these advanced platforms in a regional contingency.

The first is the quality balance of Japan's fighters. The platforms that Japan possesses are advanced and capable, but there are issues with each platform. The F-15 has not been modernized to keep pace with China's modernization program. In fact, the Air Staff Office (ASO) "has given up on equipping all F-15s" with the requisite upgrades because "the F-35s are coming."¹⁵ For example, one public source says the upgraded radar, Raytheon's AN/APG-63, is only planned for approximately 100 of Japan's F-15Js.¹⁶ The F-35s are also problematic. Despite the MOD deciding to deploy a total 105 F-35As and 42 F-35Bs, it is going to take over a decade to reach full operational capacity. Given ongoing problems with the F-35, such as cabin pressure spikes, loss of aircraft control with certain maneuvers, and problems with the aircraft's logistic system, questions remain over the timeline and what the status of the F-35 fleet will be a decade from now.¹⁷ And when it comes to the future fighter, the uncertainty that has plagued the replacement has served to push out the timelines of when that advanced fighter will actually enter operation.

The second is the ability of the ASDF fleet to operate in a contested environment. Officials within MOD are "not very confident" the ASDF can operate in a heavily jammed environment, because ASDF airframes do not have hardened communication capabilities or powerful broadcasters to counter emerging threats.¹⁸ For example, many of the ASDF's current radars use a single frequency, and are thus vulnerable to electronic countermeasures. Cogni-

¹² Franz-Stefan Gady, "Japan's Air Force to Receive 100 New Stealth Fighter Jets," *Diplomat*, July 7, 2016.

¹³ Mike Yeo, "Japan Unveils Timeline for Indigenous Fighter Jet Program," *Defense News*, July 9, 2020.

¹⁴ "Japan Gets Serious About Sixth Generation Fighter Program: Prototype to Be Built by 2024," *Military Watch Magazine*, July 10, 2020.

¹⁵ MOD official, RAND interview, March 26, 2019.

¹⁶ "Boeing (Mitsubishi) F-15J Eagle," *Jane's Aircraft Upgrades*, January 20, 2019.

¹⁷ Valerie Insinna, "The Pentagon is Battling the Clock to Fix Serious, Unreported F-35 Problems," *Defense News*, June 12, 2019; Valerie Insinna, "Inside America's Dysfunctional Trillion-Dollar Fighter-Jet Program," *New York Times Magazine*, August 21, 2019; Ryan Pickrell, "F-35 Stealth Fighter is Still Struggling with a String of Big Problems Even as the Pentagon Talks About Ramping Up Production," *Business Insider*, June 12, 2019; Eric Tegler, "WTF-35: How the Joint Strike Fighter Got to Be Such a Mess," *Popular Mechanics*, July 27, 2018.

¹⁸ MOD official, RAND interview, March 26, 2019.

zant of this, the MOD is moving to upgrade eight in the next five years.¹⁹ Even with upgrades, however, the ASDF's problems will not be solved because China has very capable EW capabilities while the ASDF's counter-EW capabilities are "very limited," leading to a situation where the ASDF is "going to have lots of problems" in a heavily jammed environment.²⁰

A third caveat has to do with limited airfields and facilities west of Okinawa. In the Nansei Shotō, the ASDF's only operating base is Naha in Okinawa, which is well within range of Chinese missiles. Should hostilities erupt in the East China Sea area, particularly farther along or beyond the Nansei Shotō, the ASDF will face two possible difficulties. The first is sortie generation. In a contingency, the ASDF will be responsible for maintaining air superiority around the Japanese archipelago. The farther from Okinawa, the more challenging it will be for ASDF assets to perform their missions if they are operating solely from Naha. Other bases on mainland Japan can be used, but these would push ASDF assets on even longer routes, resulting in slower sortie generation. Seen as such, the base in Okinawa may not be a single point of failure, but it is a major point of failure should this base get destroyed and the ASDF lacks viable alternative bases.

The second concern regarding the limited airfields and facilities west of Okinawa is limited access to supplies and facilities. As described by one retired SDF officer, this is one of the ASDF's biggest "headaches."²¹ Even though Okinawa is the ASDF's primary operating base for the region, it is limited in the amount of munitions, supplies, and parts it maintains because these items are stored for a peacetime posture, not combat.²² In a contingency, these are unlikely to last more than a week if they are not replenished.²³ This situation worsens the farther one gets from Okinawa, as materiel starts to become virtually nonexistent. While the ASDF can legally use civilian airfields in a contingency, the airfield facilities lack some, or most, of the necessary support systems and matériel that fighters need, such as munitions and spare parts. And while commercial fuel can be used, civilian pumps may require a specific refueling hose to be compatible with ASDF aircraft.²⁴ More critically, these civilian facilities lack the mobile radar and communication systems needed for providing situational awareness to ASDF aircraft. While prepositioning some of these (non-munitions) supplies at these civilian airfields would help, it is difficult to get local municipalities to agree to an expanded SDF presence.²⁵ Because of this, these items would have to be deployed with maintenance personnel to these smaller airfields once a contingency erupted.

These limits on airfields and access to critical support supplies and facilities means the ASDF lacks diversification of risks to its bases from Chinese air and missile threats. The concentration of ASDF assets in a few locations makes targeting of critical SDF airfields and/or facilities much easier for Chinese forces, particularly in the Nansei Shotō. Should a Chinese attack against the ASDF in Okinawa—or U.S. bases—destroy runways and/or aircraft, the allies would be challenged to conduct successful air operations without resorting to its air bases

¹⁹ Retired U.S. officer, RAND interview, March 25, 2019.

²⁰ Retired SDF officer, RAND interview, March 27, 2019.

²¹ Retired SDF officer, RAND interview, March 27, 2019; Retired SDF officer, RAND interview, February 7, 2020.

²² SDF officer, RAND interview, March 28, 2019.

²³ Retired SDF officer, RAND interview, February 7, 2020.

²⁴ Retired SDF officer, RAND interview, February 7, 2020.

²⁵ SDF officer, RAND interview, March 28, 2019.

farther back on the Japanese mainland. Understanding these risks, the Japanese government decided to procure the F-35Bs and to retrofit two of its *Izumo*-class helicopter destroyers into multifunction destroyers capable of serving a function as fixed-wing aircraft carriers. While the F-35Bs can be flown from damaged airfields or very small airstrips, an aircraft carrier-type capability improves the flexibility in fighter operations.²⁶ Despite questions over their necessity and survivability against Chinese missiles, these retrofitted helicopter destroyers are seen as a way to diversify the risk to the ASDF's land bases. Hardening of existing ASDF facilities, prepositioning of supplies in civilian airfields, and planning with local governments for how the ASDF would use these civilian airfields would also work to complicate China's efforts, as it would reduce the risk of having a major point of failure in Okinawa.²⁷ Better-defended ASDF airfields, both passive and active defense measures, as well as more alternative airfields, not only reduce ASDF vulnerability, but would mean more energy and munitions needed to be expended by China in their search for ASDF airfields and assets. These alternative airfields matter for the United States as well, as Japanese laws allow the United States to have access to Japanese airfields, including civilian ones, in certain scenarios.

ISR and AEW&C

The ASDF fighter fleet is augmented by air assets performing ISR and airborne early warning and control (AEW&C) missions (Table 4.2). For ISR, in addition to the ground-based communications intelligence, passive radars (intelligence), and fixed position system (FPS) radars (surveillance), the ASDF operates a fleet of ISR-dedicated planes. Historically, the mainstay has been ten RF-4E/EJ Phantom planes used for surveillance/reconnaissance and capable of collecting imagery intelligence. These will be retired over the coming ten years, as they are old, and be replaced by three RQ-4B Global Hawk UAVs to enhance persistent wide-area surveillance capabilities. These Global Hawks will also be capable of all ISR functions (depending on the payload). Four YS-11EB planes, which are electronic intelligence-capable, support these ISR missions, as well as other ASDF assets that can be used for ISR including the service's E-767 Airborne Warning and Control System (AWAC) aircraft and the fleet of E-2Cs/E-2Ds.

Of the three SDF services, only the ASDF is equipped with a fleet of AEW&C-capable platforms. As shown in Table 4.2, the ASDF operates a fleet of 13 E-2C Hawkeyes that are responsible for AEW missions (also used for ISR, as mentioned above). This fleet is currently the largest E-2 operator outside the United States.²⁸ In November 2014, Tokyo decided to shift to the next-generation successor to the E-2C, the E-2D, to achieve its AEW&C requirements against a rapidly changing strategic environment. The first of these was delivered to Tokyo on March 29, 2019.²⁹ The full delivery of 13 E-2Ds is expected to occur within a decade, during which time the current fleet of E-2Cs will be retired. In addition to meeting the ASDF's AEW&C needs, the E-2D offers interoperability with next-generation aircraft systems, which the ASDF is procuring.³⁰ Unlike U.S. Navy E-2Ds, the ASDF's E-2D fleet will not be equipped with the Cooperative Engagement Capability (CEC), although the MOD

²⁶ MOD, 2018f, p. 10.

²⁷ Heginbotham and Samuels argue a similar point. Heginbotham and Samuels, 2018, p. 153.

²⁸ "Northrop Grumman Delivers First E-2D Aircraft to Japan," *Northrop Grumman Newsroom*, May 30, 2019.

²⁹ "Northrop Grumman Delivers First E-2D Aircraft to Japan," 2019.

³⁰ "Northrop Grumman Delivers First E-2D Aircraft to Japan," 2019.

Table 4.2
ISR and AEW&C Capabilities

Service	Asset	August 2019	Circa 2029
ASDF	RF-4E/EJ	10	0
ASDF	RQ-4B Global Hawk	0	3
ASDF	E-2C	13	0
ASDF	E-2D	1	13
ASDF	E-767	4	4
ASDF	EC-2	0	Not available
ASDF	YS-11EB	4	Not available

SOURCE: MOD, "Reference 9," 2018a, p. 460; MOD, 2018e; MOD, 2018f; MOD Official, RAND email correspondence, July 26, 2019; MOD official, RAND email correspondence, October 8, 2019.

is considering it.³¹ If acquired, this would aid Japan's air defenses as the CEC system enables high-quality situational awareness and integrated fire control capability against both cruise missiles and aircraft.³² Also, the ASDF plans to base its aircraft on land, which will allow it to take off with extra fuel, thereby lengthening the time the aircraft can operate without refueling (8 hours versus 5 hours).³³ Its continued use of its four E-767 AWACs will augment this. Toward that end, the MOD has been dedicating funding in recent years to improve the aging fleet's capabilities.³⁴

As robust as these capabilities are, there are caveats that potentially limit their effectiveness in a contingency. First, while the ASDF plans to retire the RF-4E/EJ and replace it with the unmanned Global Hawk, it will have to rely on Japan's satellite communications, which are

³¹ Although the MTDP says the Ministry of Defense will add the CEC to its E-2D, RAND interviews with officials said it is only likely to remain under consideration for the current MTDP. MOD, 2018f, p. 13. Also see Defense Security Cooperation Agency, "Japan – E-2D Advanced Hawkeye Airborne Early Warning and Control Aircraft," *Defense Security Cooperation Agency News Release*, September 10, 2018; Masaya Kato "Japan and US to Sharpen Missile Defense with Real-Time Data Sharing," *Nikkei Asia*, August 25, 2018.

³² With CEC, SDF services are joined together for great lethality, with two major operational benefits. The first is that CEC enables the SDF to integrate hostile targeting data (position, course, speed) from different sensors at sea, in the air, and in space. The integrated targeting data shared by ships and aircraft gives the SDF more chances to launch their missiles at the target before the enemy reaches its target. For example, an MSDF ship that is shooting at a missile does not have to detect and track the target by itself. If an airborne ASDF aircraft detects the target, it can transmit this data to the MSDF ship which can then, in turn, shoot its missiles. The second way is being able to leverage CEC for covert operations. Using CEC, airborne ASDF assets can track the target while MSDF ships do not have to radiate their radar, allowing them to electronically hide their location until they shoot at the target.

³³ Franz-Stefan Gady, "US State Department Approves Sale of 9 E-2D Advanced Hawkeye Aircraft to Japan," *Diplomat*, September 11, 2018.

³⁴ For example, up until the budget request for FY 2020, the Ministry of Defense spent four consecutive years making these efforts. MOD, 我が国の防衛と予算：平成28年度予算の概要 [*Defense Programs and Budget of Japan: Summary of FY 2016 Budget*], Tokyo, 2016, p. 3; MOD, 我が国の防衛と予算：平成29年度予算の概要 [*Defense Programs and Budget of Japan: Summary of FY 2017 Budget*], Tokyo, 2017, p. 4; MOD, 我が国の防衛と予算：平成30年度予算の概要 [*Defense Programs and Budget of Japan: Summary of FY 2018 Budget*], Tokyo, 2018c, p. 5; MOD, 2019a, p. 9.

not secure, meaning the information is not encrypted and probably easy to detect.³⁵ This leaves them, and the data they gather, vulnerable to hacking, spoofing, jamming, and interception.³⁶ Additionally, while the YS-11EB plays a valuable ISR role in electronic intelligence collection, there are only four in the entire fleet. Worse, they are old, with one interviewee saying they are so old that the ASDF only flies one YS-11EB at any one time because of ongoing maintenance issues.³⁷ The ASDF may soon rectify this, as it will replace the YS-11EB with an electronic intelligence/communications intelligence version of the C-2 (designated EC-2) designed to collect signals, process the data to classify and geolocate it, and then store or share the information with other aerial, naval, or ground assets.³⁸ Finally, while the ASDF can perform continuous ISR in peacetime with its current fleet, these platforms appear to be unarmed, and the ASDF continues to lack highly advanced ISR platforms that would be critical in a contingency. For example, Japan lacks advanced/special mission ISR platforms, such as ground moving target information (GMTI) radar; overhead, persistent, infrared (OPIR) capabilities; and measurement and signature intelligence systems.

Challenges

Beyond these caveats that may stunt the effectiveness of the ASDF's strengths in fighters and assets performing ISR and AEW&C missions, for a contingency in the East China Sea that is likely to require operations in airspace far from Japan's mainland, the ASDF does not have many logistical support capabilities (Table 4.3), which is a challenge for a maritime geography.

Consider first aerial refuelers. Should ASDF fighters be called on to engage Chinese aircraft or ships far from Okinawa, they will need to spend more time "on station" by loitering in airspace. Aerial refueling assists in this, as it allows the ASDF to stack the airspace with fighters closer to the theater, sustaining them in the airspace to engage in defensive combat air patrol missions without having to return to base. Currently, the ASDF maintains only four dedicated KC-767 aerial refuelers, along with two KC-130Hs that possess aerial refueling capabilities. The former are used for fighters, and the latter are used primarily for the UH-60J search-and-rescue helicopters.³⁹ The four KC-767 refuelers have been enough to support current ASDF operations in peacetime, as they are seen as supplements to fuel depots on ASDF bases on the Japanese mainland.⁴⁰ Because of the changing nature of the Indo-Pacific region's security challenges, the ASDF has begun to increase these capabilities. Over the next decade, the fleet of refuelers is expected to grow to ten, with the procurement of six KC-46A aircraft.

The problem is that, with such a large EEZ, Japan's current fleet may not be sufficient to maintain combat air operations far from ASDF bases, especially if those operations are

³⁵ Retired U.S. officer, RAND interview, March 25, 2019; MOD official, RAND interview, March 26, 2019.

³⁶ Hacking, spoofing and intercept are difficult, but still possible. Jamming, however, is much easier.

³⁷ Retired U.S. officer, RAND interview, March 25, 2019.

³⁸ "Kawasaki C-2," *Jane's All the World's Aircraft*, August 8, 2019; David Cenciotti, "Footage of Japan's New Kawasaki C-2 ELINT Variant Operating From Iruma Air Base Emerges," *The Aviationist*, June 27, 2018.

³⁹ MOD official, RAND email correspondence, August 15, 2019.

⁴⁰ Retired SDF officer, RAND interview, March 27, 2019.

Table 4.3
Key SDF Logistics Capabilities

Service	Platform	August 2019	Circa 2029
ASDF	KC-767 (refueling)	4	4
ASDF	KC-130H (possessing aerial refueling functions)	2	3 ^a
ASDF	KC-46A (refueling and transport)	0	6 ^b
ASDF	C-1 (transport)	13	0
ASDF	C-2	10	15 ^{b, c}
ASDF	C-130H (transport)	14	13 ^d
ASDF	CH-47J	15	15

SOURCES: MOD, "Reference 9," 2018a, p. 460; MOD, 2018e; MOD, 2018f; MOD official, RAND email correspondence, July 26, 2019.

^a MOD has implemented conversion of one C-130H into a KC-130H.

^b MOD plans to procure 3 CH-47JAs, 5 C-2s, and 4 KC-46As during the period of new MTDP (FY 2019–FY 2023). Deployment of these aircraft will not necessarily be completed by the end of the 2018 MTDP.

^c MOD plans to deploy a total 22 C-2s at some point in the future.

^d MOD has implemented conversion of one C-130H into KC-130H.

closer to China.⁴¹ This is understandable, since the fleet was designed around the assumption of access to bases. Nevertheless, this would prove challenging in a contingency, particularly if both U.S. and SDF planes were requesting fuel. Even though the ASDF will see six additional KC-46A planes added to the fleet over the next decade, some feel that this is still dramatically low and too slow, as it will only result in a total of ten aerial refuelers for ASDF fighters in the span of decade.

The second area to consider is the ASDF's transport fleet. The core of the fleet (Table 4.4) is 37 fixed-wing cargo planes capable of performing the heaviest lifting. Over the next decade, this will drop to 28 as the ASDF phases out usage of the C-1 and changes to the C-2, which is expected to grow to 15. In addition to a continued reliance on the C-130H, the ASDF will not seek any additional Chinook helicopters, leaving that fleet at 15. While the ASDF's logistical support platforms are capable, there simply are not enough of them should the ASDF be asked to participate, or support, a contingency far from the main islands of Japan. The MOD has long recognized these deficiencies, although it continues to be slow to respond.⁴²

Like the aerial refuelers, the ASDF's airlift assets will likely face pressure in a contingency. This is not due to payload or range. Compared to the C-1 and C-130H, Japan's C-2 excels in both categories, being able to fly farther and carry heavier payloads than both these aircraft, ensuring a steady flow of resources to Okinawa from virtually anywhere in Japan.⁴³ The C-2 will face challenges, however, in two areas critical in an East China Sea contingency.

⁴¹ MOD official, RAND interview, March 26, 2019.

⁴² MOD official, RAND interview, March 26, 2019.

⁴³ "Kawasaki C-2," 2019; "Kawasaki C-1," *Jane's Aircraft Upgrades*, February 12, 2019; and "Lockheed Martin (Lock-

The first challenge is that the C-2 does not accommodate oversized cargo larger than that which the C-1 and C-130H can carry (Table 4.5). For example, while C-2s are big enough to carry Patriot system components, such as the missiles, launchers, and radars, it would take approximately three to four C-2s to transport an entire Patriot fire unit.⁴⁴ Similarly, while the C-2 can transport the GSDF's more mobile capabilities, such as the maneuver combat vehicle, AAV, or the new 155-mm howitzer, it cannot transport a GSDF tank or other large-sized vehicles.⁴⁵ Because of this, the SDF "still needs to rely on U.S. transport" for oversized cargo.⁴⁶ Should a need arise to transport more of the SDF's larger equipment by air during a contingency, the C-2 fleet will be challenged, forcing the SDF to use private ferry companies or the MSDF's limited sealift capabilities.

A second challenge is the takeoff and landing requirements. The C-2 was designed for air transport in disaster relief and for international cooperation and emergency assistance situations.⁴⁷ These missions were assumed to take place in areas where large runways are plentiful—unlike the assumed mission of the C-1, for example, which was designed for short take-off and landing (STOL) performance.⁴⁸ The C-2 was "not made for islands."⁴⁹ Accordingly, its takeoff and landing requirements are much larger than those of the C-1 and C-130H (Table 4.5) when it is fully loaded. This matters for a contingency in the Nansei Shotō. Unlike Naha, which has a 3,000-meter runway, the runways on Amami-Ōshima, Ishigaki, Miyako and Yonaguni have 2,000-meter runways. The lone exception is the island of Shimoji, attached to Miyako by bridge, which has a 3,000 meter-long runway that is used for jet aircraft pilot train-

Table 4.4
ASDF Fixed-Wing Cargo Planes Hold Specifications

	C-2	C-1	C-130H
Length:	51 ft, 4¼ in	35 ft, 5¼ in	41 ft, 0 in
Width:	13 ft, 1½ in	8 ft, 10¼ in	10 ft, 3 in
Height:	12 ft 11½ in (forward, of wing rear spar) 13 ft 4¼ in (aft, of wing rear spar) 4 ft 7 in (to sill)	8 ft, 4½ in	9 ft, 2¾ in
Volume:	9,040 cubic ft	2,606 cubic ft (excluding ramp area)	4,351.0 cubic ft (excluding flight deck, including ramp)

SOURCES: "Kawasaki C-2," *Jane's All the World's Aircraft*, August 8, 2019; "Kawasaki C-1," *Jane's Aircraft Upgrades*, February 12, 2019; and "Lockheed Martin (Lockheed) C-130 Hercules," *Jane's Aircraft Upgrades*, July 26, 2019.

heed) C-130 Hercules," *Jane's Aircraft Upgrades*, July 26, 2019.

⁴⁴ Retired SDF officer, RAND interview, February 7, 2020.

⁴⁵ Retired SDF officer, RAND interview, March 27, 2019; MOD official, RAND interview, March 27, 2019; SDF officer, RAND email correspondence, October 3, 2019.

⁴⁶ MOD official, RAND interview, March 26, 2019.

⁴⁷ Kawasaki, "C-2 Transport Aircraft," undated.

⁴⁸ Kawasaki, "C-1 Transport Aircraft," undated.

⁴⁹ MOD official, RAND interview, March 26, 2019. An individual familiar with the development of the C-2 said that the ASDF did not have a requirement for landing at unpaved runways; instead, it was envisioned as a nucleus route transporter with the C-130 playing the role of terminal transporter. SDF officer, RAND email correspondence, October 3, 2019.

Table 4.5
ASDF Fixed-Wing Cargo Planes Required Field Lengths

	C-2	C-1	C-130H
Takeoff Field Length	2,300 m (7,546 ft)	915 m (3,000 ft)	1,573 m (5,160 ft)
Landing Field Length	2,400 m (7,875 ft) (at max takeoff weight)	823 m (2,700 ft) (from 15 m [50 ft], at 81,260 lb weight)	732 m (2,400 ft) (from 15 m [50 ft], at 100,000 lb all-up weight)
	1,801 m (5,906 ft) (at max landing weight)		839 m (2,750 ft) (from 15 m [50 ft], at 130,000 lb all-up weight)

SOURCE: "Kawasaki C-2," 2019; "Kawasaki C-1," 2019; and "Lockheed Martin (Lockheed) C-130 Hercules," 2019.

ing (although SDF use remains prohibited in peacetime).⁵⁰ The predominance of 2,000-meter runways is not problematic for the C-1 and C-130H, it is for the C-2 at maximum payload.⁵¹ Unless the ASDF loads the aircraft short of its maximum payload or flies it with less fuel, the C-2 will need at least a 2,300-meter runway for takeoff if it is loaded with maximum fuel and cargo and 2,400 meters for landing.⁵² And even if the aircraft could land on these outlying islands, without prepositioning of supplies or parts, these planes would be challenged by the lack of materiel at these airbases.

As such, in a contingency, Japan will likely have to use its C-2 fleet to transport troops, cargo, and supplies to Okinawa and then rely heavily on smaller air and sealift capabilities to rapidly move personnel and supplies throughout the rest of the Nansei Shotō.⁵³ The problem is that the SDF does not *currently* operate smaller capabilities, such as the Osprey and mobile transport ships, and it suffers from a shortage in sealift capabilities, as will be examined in the next chapter.

Conclusion

In sum, while the ASDF benefits from having a modern, advanced fleet of fighters and transports, the service is challenged by modernization upgrades to its fighter fleet that are likely to stretch decades, by a shortage of refuelers and highly advanced ISR platforms, and by complications it will likely face should it be necessary to fly to some of Japan's smaller islands in the Nansei Shotō or operate farther away from ASDF bases on Japan's mainland.

⁵⁰ Masahiro Matsumura, "SDF Should Utilize Shimoji Airport," *Japan Times*, April 18, 2014.

⁵¹ Retired SDF officer, RAND interview, March 27, 2019; SDF officer, RAND interview, March 28, 2019.

⁵² MOD official, RAND email correspondence, August 14, 2019; "Kawasaki C-2," 2019.

⁵³ MOD official, RAND interview, March 26, 2019; MOD official, RAND interview, March 27, 2019.

Maritime Self-Defense Force Capabilities

Introduction

Following World War II, many Imperial Navy ships were given to Allied Powers as a form of reparation, but Japan retained some to help repatriate former Japanese soldiers and to assist with minesweeping in Japanese waters. In April 1952, a Coastal Safety Force was created to oversee the minesweeping activities, which became the Maritime Self-Defense Force in 1954.

Different from the GSDF, however, which was established as a supplement to the police and thus a completely different entity than its predecessor, the MSDF was intentionally established to succeed the Imperial Navy, even adopting its traditions.¹ As part of the cleanup effort following the war, the MSDF—like the Coastal Safety Force—was entrusted with having to clear about 60,000 underwater mines placed around Japan to open the sea lines of communication (SLOCs).² At its founding, the MSDF consisted primarily of minesweeping ships entrusted to protect sea lanes, sweep for mines, defend the coasts, and safeguard Japan's ports.³ It was not until the Soviet Union began showing the ability to close SLOCs in the Western Pacific that the MSDF expanded its equipment and organization to focus more on sea lanes in the surrounding seas of Japan and enable anti-submarine warfare (ASW) missions against Soviet submarines, as well as escorting and protecting U.S. naval task forces.⁴ By the end of the Cold War, the MSDF's missions had solidified around defending Japan and stabilizing the areas surrounding Japan.

While maintaining this mission focus, the MSDF began to expand the scope of its operations after the end of the Cold War. Outside of minesweeping operations taken after World War II and during the Korean War, the first MSDF operation overseas was a minesweeping operation after the cessation of hostilities of the Gulf War, when Japan dispatched a task force of six ships to remove abandoned Iraqi mines.⁵ Then, in March 1999, for the first time since its inception, the MSDF was ordered to perform a maritime police action (called a Maritime Security Operation) by escorting vessels and P-3C patrol aircraft engaged in various activities to deal with suspected spy ships off the coast of the Noto Peninsula. In the past two decades, the MSDF has continued to push into new mission areas and support of other countries' armed

¹ Watanabe et al., 2016, p. 13.

² Watanabe et al., 2016, p. 14.

³ Watanabe et al., 2016, p. 15.

⁴ Watanabe et al., 2016, p. 16.

⁵ This consisted of four minesweepers, one mine-countermeasures support ship, one oiler, and 500 personnel. For details on the decisions behind this historic operation, see Hornung, 2009, pp. 131–200.

forces, as well as to provide post-natural disaster humanitarian assistance/disaster relief support, both domestically and internationally.⁶ For example, as detailed in Chapter Two, starting in 2001 the MSDF sent a task force of ships to conduct replenishment activities in the Indian Ocean for coalition forces conducting operations in Afghanistan. Similarly, the MSDF has been deployed off the coast of Somalia since 2009 to conduct anti-piracy operations with multinational partners, making it the MSDF's longest continuous operation since its establishment. As part of this operation, Japan established its first overseas base since World War II in Djibouti.⁷

Despite these new missions, the MSDF's primary focus remains protecting "safe and free use of oceans" around Japan with sea-denial capabilities.⁸ To secure these waters from encroachment, the MSDF continues to provide the full range of naval anti-air warfare, anti-surface warfare, and anti-submarine warfare missions; patrol and ISR capabilities; mine countermeasure capabilities; and BMD.⁹

Organization

The MSDF is the smallest of the three services in terms of manpower, with 42,289 personnel.¹⁰ As of 2018, the MSDF consists of 135 surface and subsurface ships, of which 47 are destroyers.¹¹ It also has 163 aircraft, which consist of 73 P-1 and P-3C patrol planes and 90 rotary-wing aircraft.¹² The MSDF is organized into one Self-Defense Fleet, five domestic regional districts (Yokosuka, Kure, Maizuru, Sasebo, and Ōminato), an Air Training Command, a Training Squadron, and a few other commands and training schools.¹³ The Self-Defense Fleet is composed of the Fleet Escort Force, made up of four escort flotillas that include two escort divisions in each flotilla plus an additional five escort divisions not organized into an escort flotilla, the Fleet Air Force (seven Air Wings that include four Air Patrol Squadrons, five Air Anti-Submarine Warfare Helicopter Squadrons, and one Air Reconnaissance Squadron), the Fleet Submarine Force (two submarine flotillas composed of three submarine divisions each), a Mine Warfare Force, Fleet Intelligence Command, and a few other commands.¹⁴ The Self-Defense Fleet is commanded by a three-star admiral called the Commander in Chief, Self-Defense Fleet, who has OPCON over the MSDF.

⁶ Maritime Self-Defense Force, "歴史 - 自衛艦隊 [About the Self-Defense Fleet: History]," undated-d.

⁷ Joint Staff, "ソマリア沖・アデン湾における海賊対処 [Counter-Piracy Off the Coast of Somalia and the Gulf of Aden]," 活動情報 [Activity News], undated.

⁸ Maritime Self-Defense Force, "Mission of JMSDF," undated-f.

⁹ Maritime Self-Defense Force, undated-f; Tim Fish, "Japan Maritime Self-Defense Force Expanding as Tokyo Takes New Approach to Maritime Security," *USNI*, May 29, 2019.

¹⁰ MOD, "Reference 59," 2018a, p. 514.

¹¹ MOD, "Reference 10," 2018a, p. 461. The other ships include 18 submarines, 24 mine warfare ships, 6 patrol combatant craft, 11 amphibious ships, and 29 auxiliary ships.

¹² MOD, "Reference 9," 2018a, p. 460.

¹³ Maritime Self-Defense Force, "組織図 [Organization Chart], 海上自衛隊について [About the MSDF], undated-e.

¹⁴ Self-Defense Fleet, "Organization," undated.

Relevant Capabilities

Surface and Subsurface

Given the nature of the maritime challenge China poses in the Nansei Shotō area and broader region, the Japanese government has spent significant resources on strengthening key capabilities to ensure open SLOCs and defense of Japan from seaborne threats. The MSDF's greatest single strength is its ASW capabilities, dubbed "the world's best" by a retired SDF officer.¹⁵ As mentioned in the introduction to this chapter, during the Cold War, one of the MSDF's main tasks was to hunt the Soviet Union's submarines to protect U.S. naval ships. These submarines operated in the deep waters of the Pacific and the waterways surrounding Japan. The MSDF focused heavily on procuring destroyers and P-3C ASW patrol aircraft, so much so that the MSDF became the largest purchaser of P-3Cs after the United States.¹⁶ Helicopters for the MSDF's destroyer fleet were also equipped with dipping sonar and torpedoes. Aiding these airborne efforts were the MSDF's auxiliary ocean surveillance (AOS) ships, with the current 2,850-ton *Hibiki*-class commissioned at the end of the Cold War, which possess advanced capabilities to gather acoustical intelligence on open seas. While the end of the Cold War meant a rapid decline in the threat posed by Soviet/Russian subs, the rise of China (as well as North Korean activity) meant that Japan's institutional knowledge and legacy systems dedicated to ASW put Japan in a position to conduct ASW missions against these new challenges.

The core of this effort is the MSDF's advanced destroyer and submarine fleets, which are capable of both ASW and ISR operations. As examined in detail in Chapter Six, this also includes the MSDF's Aegis-equipped destroyers, a critical pillar in Japan's BMD system. The goal for the MSDF, as set out in the 2013 NDPG is to achieve 54 destroyers and 22 submarines by approximately 2024.¹⁷ In addition to procuring new vessels and extending the life of existing surface/subsurface ships capable of ISR to sustain this number, the MSDF also plans on increasing the number of operating days on these ships by introducing shifts of multiple crews.¹⁸

Japan's surface capabilities are presented in Table 5.1. Currently, its 48-ship destroyer fleet consists of 30 destroyers (DDs); eight Aegis-equipped, guided missile destroyers (DDGs); four helicopter destroyers (DDHs); and six destroyer escorts (DEs). To achieve the goal of 54 destroyers, the MSDF has been extending the lives of certain classes of destroyers: DD *Murasame*, DD *Hatsuyuki*, DD *Asagiri*, DDG *Hatakaze*, DDG *Kongō*, and DDE *Abukuma*.¹⁹ The introduction of a new *Maya*-class DDG set for commissioning in 2020 and 2021 will aid in this effort. These ships will be equipped not only with the Aegis Baseline J7 combat system able to fire the SM-3 Block IIA missile, but also with CEC.²⁰ Importantly, once they enter service by 2021, two *Hatakaze*-class DDGs will become training vessels, bringing the MSDF to its full strength of eight Aegis-equipped DDGs. The construction of a new multi-purpose frigate (FFM) will also aid in the effort of achieving a 54-ship destroyer fleet. The FFM is

¹⁵ Retired SDF officer, RAND interview, March 26, 2019.

¹⁶ SDF officer, RAND email correspondence, October 16, 2019.

¹⁷ MOD, 2013a, p. 31.

¹⁸ MOD, 2018f, p. 10.

¹⁹ According to defense budgets since 2012, these are the only classes of destroyers to have received upgrades.

²⁰ Mike Yeo, "Japan Launches First Ship of New Destroyer Class," *Defense News*, July 30, 2018.

described as being a ship equipped with compact hulls and multi-role capacity that can perform the job of a destroyer as well as mine countermeasures.²¹ The plan is to have 12 of these FFM's by the end of the 2018 MTDP, with a 22-ship fleet envisioned by the end of the 2018 NDPG.²² Assuming that the 2018 MTDP and its next iteration go according to plan, as the MSDF retires all six DE and ten DD, and sustains the current four DDHs, eight DDGs, and 20 DDs (for a total of 32 destroyers), the introduction of 22 FFM's will complete the MSDF's 54-ship destroyer fleet a decade from now.

Importantly, over the next decade Japan will take measures to enable STOVL aircraft to operate from existing SDF ships "to further improve flexibility in fighter operations while ensuring safety of SDF personnel."²³ The 2018 MTDP stipulated that the existing *Izumo*-class DDH will be the class to be refurbished.²⁴ Despite its new function, it will continue to engage as a multifunction destroyer, including ISR, and thus remains part of the planned 54-ship destroyer fleet.²⁵

Japan's submarine fleet is also a strength. Currently, it consists of 18 submarines (Table 5.1). Nine of these are the older *Oyashio*-class, and the other nine are the larger and newer *Sōryū*-class.²⁶ Similar to life-extension efforts of the MSDF's destroyer fleet, to achieve the goal of a 22-sub fleet, the MSDF has been extending the lives of both classes of submarines for years. Additionally, like the creation of the *Maya*-class DDGs and the FFM, Japan has been putting money toward the construction of a new 3,000-tonne class of submarines with higher detection and other enhanced capabilities.²⁷

Finally, the MSDF is set to obtain another *Hibiki*-class AOS ship soon, bringing this important capability to three within a decade (Table 5.1). At some point beyond, the plan is to increase this fleet to four, but that is likely to occur more than a decade from now.²⁸

When taken together, the MSDF's surface and subsurface fleet is well positioned to defend SLOCs and conduct chokepoint control in the region. For example, given the strong ASW and submarine capabilities, the MSDF could ambush PLAN submarines that may be seeking to break out of the First Island Chain into the larger Pacific Ocean. Although many of today's PLAN submarines differ from the Soviet threat in that Chinese (and North Korean) submarines operate in shallower waters, and thus necessitate different sensors, skills, and tactics, the PLAN's move to larger submarines and expansion into deeper waters puts the MSDF back into a position it played during the Cold War. When combined with the MSDF's mine-sweeping capabilities and ISR assets (both examined below), the MSDF is a force enabler for the U.S. Navy.

²¹ MOD, 2019a, p. 8.

²² SDF officer, RAND interview, March 27, 2019; MOD official, RAND email correspondence, September 20, 2019.

²³ MOD, 2018e, p. 21.

²⁴ MOD, 2018f, p. 10.

²⁵ Unlike the *Hyūga*-class, the *Izumo*-class DDH are more suitable for ISR than ASW because the *Izumo*-class ships lack torpedo tubes and vertical launch anti-submarine rockets.

²⁶ Maritime Self-Defense Force, "潜水艦「おやしお」型 [Submarines: Oyashio Class]," undated-c; Maritime Self-Defense Force, "潜水艦「そうりゅう」型 [Submarines: Souryu Class]," undated-g.

²⁷ MOD, 2019a, p. 8.

²⁸ MOD official, RAND email correspondence, August 12, 2019.

The MSDF also possess a superior minesweeping fleet that plays an important role for the alliance, given that the Navy's 7th Fleet has few counter-mine vessels. Currently, the MSDF's fleet is made up of 24 ships with different mission sets (Table 5.1), supported by ten MCH-101 helicopters, which are all equipped with minesweeping capability. The largest part of the fleet is made up of minesweeper—coastal (MSC) ships (掃海艇). The core, and oldest part, of the MSC fleet are the 12 *Sugashima*-class, wood-built ships. These are augmented by three slightly newer ships of the *Hirashima*-class, but they do not differ much with the exception of being slightly larger ships with greater horsepower.²⁹ The most recent MSCs are three *Enoshima*-class ships.³⁰ The *Enoshima*-class ships are seen as superior to the *Sugashima*-class and *Hirashima*-class ships because *Enoshima*-class ships are the first minesweepers in the fleet to be made from fiber-reinforced plastic instead of the conventional wood, which offers superior durability and also makes it lighter.³¹ There are also two *Uraga*-class minesweeper—tender (MST) ships (掃海母艦) capable of laying mines.³² The MSDF's newest ships are the *Awaji*-class minesweeper—ocean (MSO) ships (掃海艦), which are also made of a fiber-reinforced plastic material to reduce the ship's weight and magnetic signature and increase its stealth performance.³³ Two MSOs have already been delivered, with the third expected to be commissioned in 2021 and a fourth included in FY 2020's defense budget request.³⁴ The fleet is rounded out with two minesweeper—controller (MCL) ships (掃海管制艇), which are converted from an older class of ships.³⁵

Table 5.1
MSDF Capabilities (Surface and Subsurface)

Vessel	August 2019	Circa 2029
Destroyer (DDH, DDG, DD, DE)	48	32
(DDG, Aegis-equipped)	(8)	(8)
Submarine	18	22
Minesweepers	24	12
Multi-purpose frigates (FFM)	0	22
Auxiliary Ocean Surveillance (AOS)	2	3

SOURCES: MOD, "Reference 10," 2018a, p. 461; MOD, 2018e; MOD, 2018f; Maritime Self-Defense Force, "音響測定艦「ひびき」型 [Auxiliary Ocean Surveillance: Hibiki Class]," undated-b; MOD official, RAND email correspondence, July 26, 2019; MOD official, RAND email correspondence, September 20, 2019.

²⁹ Maritime-Self Defense Force, "掃海艇「ひらしま」型 [Minesweepers: Hirashima Class]," undated-a; Maritime Self-Defense Force, "掃海艇「すがしま」型 [Minesweepers: Sugashima Class]," undated-h.

³⁰ Maritime Self-Defense Force, "掃海艇「えのしま」型 [Minesweepers: Enoshima Class]," undated-i.

³¹ "Enoshima Class Minesweeper," *Seawaves*, October 18, 2017.

³² Maritime Self-Defense Force, "掃海母艦「うらが」型 [Minesweeper Tender: Uraga Class]," undated-j.

³³ "Awaji-Class Minesweepers," *Naval Technology*, undated.

³⁴ MOD, 2019b, p. 10.

³⁵ Maritime Self-Defense Force, "掃海管制艇「いえしま」型 [Minesweeper Controller: Ieshima Class]," undated-k.

Over the next decade, the minesweeping fleet will undergo a change. Fifteen MSC ships and the two MCLs will be decommissioned and replaced by the *Awaji*-class MSOs. In approximately a decade (although likely longer) the MSDF plans to have eight total MSOs, supported by the current two MSTs and two MCLs, meaning the MSDF's minesweeping fleet will be reduced to 12, albeit more modernized, ships.³⁶ Like the destroyer fleet, the reduction in the minesweeper fleet will be offset by the introduction of the FFM's because FFM ships will be equipped with limited mine-countermeasure capabilities to supplement the minesweeper fleet. The MSDF will maintain MSCs, along with the new MSOs, because they have some key advantages over the FFM. Namely, in addition to being able to remove mines "one by one," MSOs are able to sweep larger areas at a time by towing equipment.³⁷ Moreover, by using Variable Depth Sonar, they are able to remove mines placed in deeper locations.

ISR and ASW

The MSDF's aviation wing is composed primarily of ASW assets (Table 5.2), which are capable of other missions, such as anti-surface warfare and ISR. The core of the MSDF's aviation ISR efforts is the fleet of P-1s and P-3Cs. While not equipped with an advanced imagery intelligence or electronic intelligence collection capability, the fleet is well suited for surveillance/patrol purposes as part of Japan's ASW efforts, making it a critical asset over vast swaths of ocean. The P-1s and P-3Cs are also armed with weapons, such as torpedoes. Currently at 73, the P-3C fleet will shrink to approximately 65 over the next decade as the MSDF shifts to replace the P-3C with the indigenously built P-1, an aircraft equipped with four jet engines. Despite the U.S. shift to the P-8 Poseidon, Japan claims "that the P-1 is a more capable, if

Table 5.2
ISR and ASW Capabilities

Service	Asset	August 2019	Circa 2029
MSDF	P-1	19	>Total 65
MSDF	P-3C	54	
MSDF	OP-3C	4	Not available
MSDF	EP-3	5	Not available
MSDF	SH-60J	22	0
MSDF	SH-60K	58	>Total 75 ^a
MSDF	SH-60K (Upgraded Capability)	0	

SOURCES: MOD, "Reference 9," 2018a, p. 460; 海上自衛隊艦艇と航空機集 (平成30年度版) [Collection of MSDF Ships and Planes (2018 Edition)], Tokyo: Maritime Defense Newspaper Company, July 20, 2018, p. 148; MOD official, RAND email correspondence, July 26, 2019; MOD official, RAND email correspondence, August 12, 2019; MOD official, RAND email correspondence, October 8, 2019.

^a Like the 20 ship-borne UAVs, the MOD will pursue the establishment of 75 Patrol Helicopters by the completion of "NDPG for FY 2019 and beyond" but the exact number will be considered during the period of 2018 MTDP (FY 2019–FY 2023).

³⁶ SDF officer, RAND email correspondence, September 10, 2019.

³⁷ MOD official, RAND email correspondence, September 13, 2019.

more expensive, platform than the P-8.”³⁸ The surveillance/patrol function of ships and submarines conducted by the P-1s and P-3s is supported by a small fleet of OP-3C equipped with imagery intelligence capabilities and EP-3 with electronic intelligence capabilities. The MSDF also operates a capable fleet of SH-60K helicopters that looks to grow in the coming decade as the MSDF retires its SH-60J fleet. Because of their relatively short range and limited sensor capabilities, however, these helicopters are not used for daily ISR missions launched directly from an airbase; rather, they are used for ad-hoc ISR missions launched from ships at sea. To strengthen these ISR and ASW capabilities, Tokyo has been focusing on upgrading the radars on its P-3Cs to improve its detection and discernment capabilities and extending the life of existing P-3Cs, SH-60Ks, and SH-60Js.³⁹ Importantly, the MOD plans on procuring ship-borne UAVs and will deploy unmanned underwater vehicles (UUVs), as well as proceed with R&D aiming at further enhancement of their capabilities to utilize them for oceanic observation and ISR.⁴⁰ One estimate is that the MSDF will procure approximately 20 of these over the life of the 2018 NDPG, but the exact number will be considered during the period of the 2018 MTDP, depending on the progress made in their procurement.⁴¹

When we consider the total number of P-3Cs, P-1s, OP-3Cs, and EP-3s the MSDF operates, the sheer number of platforms is a strength. Together with its ISR assets, such as ships and submarines and ground-based units, the MSDF is well postured to conduct ISR operations in Japanese waters. Given the size of Japan’s EEZ, however, there are questions as to whether even these are sufficient numbers for a contingency involving large numbers of PLAN and PLA Air Force (PLAAF) assets and a heavy barrage of missiles against Japanese capabilities, bases, and facilities that will almost certainly reduce the SDF’s arsenal and place heavy demands on Japan’s surviving ISR capabilities. Other challenges also exist. For example, the MSDF only operates a small number of planes engaged in advanced intelligence collection. More troublesome is that the robust ISR platforms collect a lot of data, but Japan’s processing, exploitation, and dissemination (PED) capability is insufficient. This problem is not limited to the MSDF; the SDF cannot support the amount of information it collects from these aerial platforms, which is likely to be high in a contingency, because the SDF assets are more capable at collecting far more data than their communications capabilities permit to transmit in real-time. Not only do some of the planes lack the satellite communication capability necessary to share their data directly with those on the ground, even for those planes that have the capability to share their data directly, bandwidth issues and the large size of files for digital pictures and videos tend to make sharing difficult.⁴² Instead, the planes must physically land, download their data, and then begin analysis.

³⁸ “Japan’s P-1 Leads Defence Export Drive,” *Armscom*, September 11, 2015.

³⁹ For example, the last 5 years, which includes the budget request for next year, all includes these efforts. MOD, 2016, p. 2; MOD, 2017, p. 4; MOD, 2018c, p. 4; MOD, 2019a, p. 8. MOD, 2019b, p. 10.

⁴⁰ MOD, 2018f, pp. 9, 12.

⁴¹ MOD official, RAND email correspondence, July 26, 2019.

⁴² All P-1s have Link-16 capability while P-3s, EP-3s, and OP-3Cs are equipped with Link-11. Given these network connections, these aircraft can transmit and receive digital track data (location, course/speed, etc.) and tactical orders data, but are unable to transmit the information they receive (i.e., digital pictures or videos). Because the P-1s and some P-3s have satellite communication capability, however, they can send e-mails with compressed files from the aircraft to other assets, including ships and HQs. For those assets without satellite communication capability, they must land and pass the data to analyzing units on the ground. U.S. Retired officer, RAND interview, September 25, 2019.

Challenges

When it comes to sustaining MSDF operations on the water, the MSDF finds itself in a precarious position. Currently, as shown in Table 5.3, the MSDF only has five oilers, both classes of which are relatively old. In the next decade, this number will likely not increase, although newer oilers may come online to replace older ones. Each of the existing ships is designed to support an MSDF task group; they were not designed to sustain operations far from a major MSDF base.⁴³ As such, this lack of oilers will likely limit the time MSDF destroyers and mine-sweepers can sustain operations far from the nearest MSDF port in Sasebo (Nagasaki prefecture), unless fuel tanks are pre-positioned in Okinawa or the MSDF uses commercial ports.⁴⁴ Should fuel tanks be pre-positioned in the Nansei Shotō, along with access to commercial ports, the MSDF's oilers would have shorter distances to travel to replenish their supplies and ships requiring refueling would have more options in the theater of operations. Over the next decade, the MSDF is looking to introduce two large tankers that can transport fuel, such as from fuel storage sites in mainland Japan to Okinawa.⁴⁵ While necessary to ensure fuel supplies to ports in Okinawa for forces operating out of Okinawa, these ships will do nothing to ensure the sustainment of MSDF ships operating at sea, as they are not designed for at-sea refueling.

Like its oilers, the MSDF lacks an adequate number of sealift platforms (Table 5.3). Currently, in the entire MSDF fleet, there are only three *Ōsumi*-class LSTs. This is largely a function of the SDF's history. Given the historical focus on countering a Soviet invasion from the north, most of the GSDF forces needed to counter that threat were already stationed

Table 5.3
Key SDF Logistics Capabilities

Service	Platform	August 2019	Circa 2029
MSDF	<i>Towada</i> -class replenishment ship	3	>Total 5 (Potentially including a new class of oiler)
MSDF	<i>Mashu</i> -class replenishment ship	2	
MSDF	1-GO-class LCU	2	6
MSDF	LCAC	6	6
MSDF	<i>Osumi</i> -class LST	3	3

SOURCES: MOD official, RAND email correspondence, July 26, 2019; Maritime Self-Defense Force, “補給艦「とわだ」型 [Replenishment Ships: Towada Class],” undated-l; Maritime Self-Defense Force, “補給艦「ましゅう」型 [Replenishment Ships: Masyuu Class],” undated-m; Maritime Self-Defense Force, “輸送艇「1号」型 [LCU: 1-GO Class],” undated-n; Maritime Self-Defense Force, “エアクッション艇「1号」型 [LCAC: 1-GO Class],” undated-o; Maritime Self-Defense Force, “輸送艦「おおすみ」型 [LST: Osumi Class],” undated-p.

NOTES: LCAC = landing craft, air-cushion; LCU = landing craft utility.

⁴³ Retired SDF officer, RAND interview, March 26, 2019.

⁴⁴ At 20 knots as an average speed, it will take a ship about 30 hours to move from the Senkaku Islands area to Sasebo. Assuming that ship can move unchallenged, at a minimum, it will take that ship about 60 hours of transit time to go to Sasebo and return to the theater. SDF officer, RAND email correspondence, January 26, 2020.

⁴⁵ MOD, 2019b, p. 18.

in Hokkaidō, making the need for maritime transport of equipment and personnel a minor concern. Despite the changed strategic environment, there is no plan to increase the number of LSTs anytime soon because of the MSDF's always tight budget and limited number of personnel (see below).⁴⁶ Although these are big ships capable of oversized transport and assisting with amphibious operations and transportation operations, three is, as one MOD official interviewee noted, "not a lot."⁴⁷ More problematic is the fact that the ship's C4I capability is very limited: it has an old anti-air radar and no datalink.⁴⁸ And there are examples when the MSDF's ships are actually too big to access some of the smaller islands with shallower harbors.⁴⁹ Should Japan find itself engaged in or supporting a conflict in the Nansei Shotō area or broader East China Sea, these three ships will prove insufficient, particularly if one or more are damaged, as the closest ports to receive large-scale repairs are in Sasebo or Nagasaki (both Nagasaki prefecture) or those further away—but still in western Japan—in Kure (Hiroshima prefecture), or Tamano (Okayama prefecture). The distance ensures that even one ship's absence will serve a significant detriment to sealift operations. The other MSDF ships capable of sealift—the LCU and LCAC—are not equipped to be of any real value far from the Japanese mainland. The LCACs are not designed for long-distance transport; they are designed to be used on the *Ōsumi*-class LST (two LCACs per one LST) to load/unload vehicles on the shore. The two LCUs are too small to be of any real value as they have very limited capacity. For example, they can transport limited numbers of personnel and equipment, but they are unable to carry tanks or heavy armored vehicles.⁵⁰

Given the paucity of SDF sealift options, and a hesitance by the MSDF to procure sealift capabilities because some in the MSDF view them as resource burdens with relatively limited usage,⁵¹ the only reliable backup is to request to use ships owned by commercial companies, such as ferries. In February 2016, the government launched a "special purpose company" (an entity created through multiple private companies to undertake work as agreed upon in a contract between the government and the company) called Kosoku Marine Transport to possess and manage two private ferries—*Nacchan World* and *Hakuo*—that the MOD can utilize when necessary.⁵² During normal conditions, Kosoku Marine Transport operates the two ferries for for-profit civilian purposes and, based on a standing agreement with the MOD, to provide transportation services for the SDF for SDF drills or for emergency responses, such as natural disasters. In a contingency, if Kosoku Marine Transport feels it is too dangerous for its crews to operate the ships, the SDF can use the ferries for transport purposes but SDF personnel would be responsible for operating the ships.⁵³ Even in this situation, the use of these ships will still be

⁴⁶ SDF officer, RAND interview, March 28, 2019; SDF officer, RAND interview, March 29, 2019.

⁴⁷ MOD official, RAND interview, March 26, 2019.

⁴⁸ SDF officer, RAND email correspondence, September 19, 2019.

⁴⁹ SDF officer, RAND interview, March 29, 2019.

⁵⁰ SDF officer, RAND email correspondence, September 19, 2019.

⁵¹ SDF officer, RAND email correspondence, September 19, 2019.

⁵² "Ferry Company Launched Under Defense Ministry Plan to Use Private Ships in Emergencies," *The Mainichi*, March 17, 2016.

⁵³ Under the existing contract, the SDF can use these two ships within a 72-hour notice. However, since the government has not paid cost up-front for individual work to be done under this contract, the government would have to conclude a subcontract for each additional work requested. While this would take some time, it is assumed they will agree to a

limited, as they would be restricted to areas far from where combat is taking place.⁵⁴ This is not a legal restriction; it is a policy restriction made from the judgment that it is too dangerous to allow these private, unarmed ships without armor to operate in dangerous areas. There are also several legal statutes that restrict these civilian ships from carrying munitions, limiting such ships to supplies, vehicles, or personnel.⁵⁵ Therefore, should a contingency erupt in the Nansei Shotō, the SDF would still find itself limited to the three *Ōsumi*-class LSTs in the theater of operations where combat is taking place.

With limited sealift capabilities, a premium will be placed on protecting and maintaining access to MSDF ports to foster rapid movement between these ports and the theater of operations. Unlike the ASDF, which could potentially diversify by utilizing civilian airfields, the MSDF fleet is largely tied to port-based logistics and is less amenable to dispersion.⁵⁶ The MSDF legally can access commercial ports in the case of a contingency for supplies such as water, fuel, and food, but MSDF ships require materiel that commercial ports cannot offer, such as munitions and specialized equipment for repairs. As such, the limited number of ports means the MSDF may need to consider investing in the preparation of dual-use ports, plan for the use of U.S. ports in the Western Pacific, such as Guam, and developing capabilities to reload at sea.

Conclusion

Given the nature of the MSDF's traditional missions in securing SLOCs and defense of Japan from seaborne threats, it maintains a robust surface and subsurface fleet. The MSDF's attainment of a 54-destroyer and 22-submarine fleet within the decade—which includes eight Aegis-equipped destroyers—is its major strength. The addition of a new multipurpose frigate with a multirole capacity—including the job of a destroyer and mine countermeasures—aids in this objective. The MSDF's aviation fleet focuses on ISR and ASW missions. The sheer quantity of P-3Cs, P-1s, SH-60Js, and SH-60Ks that the MSDF operates is a strength by itself, ensuring that the MSDF can conduct ASW and surveillance and reconnaissance operations. The MSDF aviation fleet, however, lacks a PED capability.

The MSDF faces two major challenges. One is the paucity of oilers, which means that sustaining MSDF operations far from port will be a challenge, thereby limiting the time MSDF destroyers and minesweepers can sustain their operations. Even more problematic will be the MSDF's lack of sealift capabilities, which will make naval transport of large numbers of troops and equipment throughout the archipelago difficult, particularly if the destruction of airfields makes it difficult to utilize the ASDF's airlift assets. Relying on civilian companies—the current backstop—comes with considerable drawbacks, including limitations on where civilian ships can go and what they can transport.

government offer of any subcontract.

⁵⁴ MOD official, RAND interview, March 26, 2019.

⁵⁵ MOD official, RAND interview, March 27, 2019.

⁵⁶ Heginbotham and Samuels, 2018, p. 154.

Broad SDF Strengths

Despite lacking the nomenclature of “military,” the SDF is a modern military with highly trained personnel. The capabilities examined in the previous three chapters show that it possesses some highly advanced platforms. What does not appear in the analysis are some of the SDF’s broader strengths and weaknesses. Highlighting those that are relevant to an East China Sea contingency provides more context to the nature of the force and areas where burden-sharing with U.S. forces may be easiest or more challenging. This chapter reviews the SDF’s three major strengths: (1) high levels of interoperability with U.S. forces, (2) strong air and missile defense capabilities, and (3) priority on the new domains of space, cyber, and the electromagnetic spectrum. Chapter Seven follows with some of the SDF’s most pressing challenges.

High Levels of Interoperability with U.S. Forces

Given the forward presence of U.S. forces in Japan, it is natural that U.S. and Japanese forces maintain a high level of interoperability. The individual armed services of the United States and Japan are not equal in terms of their levels of interoperability, however. The unanimous opinion voiced during this research was that the U.S. Navy and MSDF are most interoperable. This is not to say that the U.S. Air Force and ASDF or the U.S. Army/U.S. Marine Corps and the GSDF do not enjoy interoperability; it is simply not at the same level. Great interoperability will pay dividends in a contingency given the need for U.S. and Japanese forces to operate in support of each other. The various levels of interoperability stem from several factors, reviewed here.

Similar Equipment

One of the major factors behind the alliance’s high level of interoperability is the United States’ and Japan’s use of similar equipment—or equipment that can communicate well and share real-time information. Japan acquires more than 90 percent of its defense imports from the United States and currently has \$22.1 billion in active government-to-government sales cases under the Foreign Military Sales (FMS) system.¹ Some of the more significant implemented FMS cases include the F-35 Joint Strike Fighter, the Aegis Combat System, the E-2D Airborne Early Warning Aircraft, the KC-46 Refueling Tanker, the Global Hawk Unmanned Aerial System, and the Osprey V-22 tilt-rotor aircraft, as well as various missiles, including SM-3

¹ Bureau of Political-Military Affairs, “U.S. Security Cooperation with Japan: Fact Sheet,” U.S. Department of State, May 21, 2019.

Block IIA interceptor missiles.² Similar equipment helps minimize the technical aspects of interoperability challenges, and it also pays dividends in emergencies. Because the allies have an active Acquisition and Cross Servicing Agreement (ACSA), they can logistically support each other. And because of the equipment similarities, they maintain similar spare parts, a benefit for logistical support during a contingency. In March 2017, the U.S. Navy and MSDF conducted a first-of-its-kind exercise to demonstrate this point, exchanging maintenance parts at a ship-to-ship level for a naval exercise.³

Regular Training and Exercises

The United States and Japan have also enjoyed decades of bilateral exercising and training. The U.S. Navy and the MSDF have the oldest relationship, with their first bilateral engagement—minesweeping training—conducted in 1955. The U.S. Air Force and ASDF conducted their first fighter combat training in 1978. And the U.S. Army and GSDF began their bilateral engagement in 1981, with the first Yama Sakura command post exercise taking place the following year. A snapshot of more recent, larger bilateral activities is shown in Table 6.1. These span all three SDF services and all four U.S. services—including a regular joint training event that brings together approximately 40,000 participants from both countries. Examples of their efforts include both command post and field training between the U.S. Army/Marine Corps and GSDF, antisubmarine training and minesweeping training between the U.S. Navy and MSDF, and air defense and fighter combat training between the U.S. Air Force and ASDF. These provide opportunities for the services to maintain their individual levels of operational readiness and enhance specific skills. Bilaterally, they provide opportunities to improve coor-

Table 6.1
Bilateral Exercises (FY 2009–FY 2018)

FY	Joint	GSDF	MSDF	ASDF
2009	1	8	8	9
2010	1	7	9	10
2011	1	6	8	5
2012	1	8	7	5
2013	2	6	8	8
2014	1	8	8	8
2015	1	9	7	10
2016	1	9	7	9
2017	1	10	23	32
2018	1	6	12	2

SOURCE: MOD official, RAND email correspondence, August 30, 2019 and September 11, 2019.

² Bureau of Political-Military Affairs, 2019.

³ Megan Eckstein, “U.S., Japanese Destroyers Conduct First-Of-Kind Parts Swaps During Interoperability Exercise,” *USNI*, March 17, 2017.

dination, enhance response capabilities and skills in key areas, develop similar methods, and share strategies and tactics. Through these activities, the allies can build similar “human software” to complement their shared defense hardware, enabling them to better operate together across a spectrum of conditions, thereby positioning each country to better support the other in the challenging operational conditions that are expected in a contingency.

Similar Operational Concepts and Doctrines

A third pillar of allied interoperability is the allies’ armed forces sharing many concepts and doctrines. Much of this is due to the U.S. role in the SDF’s establishment, followed by decades of bilateral exercises and training.⁴ Shared concepts and doctrines ensure coherence between their armed forces, with both sides embracing common language and terminology despite differences in how their forces can be deployed. The GSDF was trained by the U.S. Army based on U.S. military doctrine, drilling, and teaching methods; the ASDF was equipped and trained by the U.S. Air Force; and the roles and missions of the MSDF are based “not only on the security and defense strategy of Japan, but also on U.S. naval strategy and the U.S. National Security Strategy on which the naval strategy is premised.”⁵ These close relationships have paid off. The ties between services allow for continuous opportunities to share assessments on issues of common concern and prepare for future opportunities to work together. Importantly, the adoption of similar practices help to ensure they can operate more effectively together should a contingency erupt.

Maintenance Support

Finally, interoperability is enhanced by Japanese facilities—operated by Japanese companies—providing maintenance support for U.S. equipment (Table 6.2). Nippi, for example, is the sole U.S. military aircraft maintenance company in Japan, servicing all U.S. Navy and Marine Corps aircraft since 1953.⁶ Using Japanese facilities will prove invaluable in wartime as it does in peacetime, as it allows the U.S. military to avoid long transportation delays associated with repairing or upgrading equipment in the United States. Additionally, because Japan gets most of its defense equipment through FMS, Japan and the United States have developed relatively similar platforms. Because Japanese industries can conduct maintenance for U.S. equipment that is the same as, or relatively similar to, Japanese equipment (e.g., F-35s, Ospreys, or Aegis ships), the supply and maintenance capability for the alliance is enhanced “through interchangeable components, streamlined bilateral inventory, and increased capability to conduct expeditionary repairs of battle damage.”⁷ Although there are licensing agreements that prevent these Japanese companies from using U.S. technology and other proprietary information in other areas, the allies’ relationship does provide much-needed business for Japan’s defense industries. These types of activities help keep Japan’s defense industry active and offset low production that results from such firms focusing almost solely on the domestic market.

⁴ For a good overview, see Watanabe et al., 2016, pp. 13–14.

⁵ Watanabe et al., 2016, pp. 13–14.

⁶ “U.S. Military Aircraft Maintenance,” *Nippi Corporation*, undated.

⁷ Jason Y. Osuga, “Forging a Closer Maritime Alliance: The Case for U.S.-Japan Joint Frigate Development,” *CIMSEC*, July 17, 2017.

Table 6.2
Japanese Sustainment Efforts of U.S. Equipment in Japan

U.S. Platform	Japanese Company	Location
U.S. Navy FA-18	Nippi	Iwakuni
U.S. Marine Corps FA-18	Nippi	Iwakuni
U.S. Navy EA-18	Nippi	Iwakuni
U.S. Navy MH-60	Nippi	Atsugi
U.S. Marine Corps AH-1Z/UH-1Y	Nippi	Futenma
U.S. Marine Corps MV-22	Subaru	Kisarazu
U.S. Navy Fundamental Maintenance on AEGIS ship	Mitsubishi Heavy Industries	Yokohama
F-35 MRO&U airframe	Mitsubishi Heavy Industries	Komaki
F-35 MRO&U engine	Ishikawajima-Harima Heavy Industries	Mizuho

SOURCE: MOD official, RAND email correspondence, June 12, 2019.

These four factors—equipment, exercises and training, concepts and doctrines, and maintenance support—represent solid pillars of U.S.-Japan interoperability. Through these areas, the allies enjoy a strong mutual understanding of their needs and capabilities and have developed the ability to operate with each other across a spectrum of situations using common terminology.

Japan's Air and Missile Defense Systems

Japan is no stranger to threats from the air. Japan's *Defense of Japan 2009* acknowledged that “in the event of an armed attack on Japan, such attacks are . . . likely to begin with surprise air attacks using aircraft or missiles.”⁸ A decade later, Japan's thinking remains the same, with the *Defense of Japan 2018* stating, “it is expected that Japan will be repeatedly hit by rapid and surprise aerial attacks by aircraft and missiles in the case where a full-scale invasion against Japan occurs.”⁹ While it is likely these will come concurrently with some combination of cyber and space attacks, the thinking that air attacks will come in the initial stage of conflict is undisputed. To defend against these, Japan has devoted resources to both its air and missile defense systems.

Consider first Japan's BMD system. Following the threat posed by North Korea in the late 1990s, Tokyo began efforts to develop a nationwide BMD system. The sea-based tier, managed by the MSDF, consists of seven (soon to be eight) Aegis-equipped destroyers with SM-3 interceptor variants that can target incoming missiles in their mid-course phase. This destroyer group currently is composed of four *Kongō*-class and two *Atago*-class destroyers, which use SM-3 Block IB interceptors; the new *Maya*-class destroyers will use the more advanced SM-3

⁸ MOD, *Defense of Japan 2009*, Tokyo, 2009, p. 212.

⁹ MOD, 2018a, p. 340.

Block IIA interceptor. By 2022, the two *Atago*-class destroyers will finish upgrades to also be able to use the SM-3 Block IIA interceptors.¹⁰ The entire archipelago of Japan can be covered by two to three ships, depending on the interceptor.¹¹

The ground-based tier, managed by the ASDF, consists of fire units using the Patriot Advanced Capability (PAC)-3 interceptor dispersed throughout the country in six missile groups, with most positioned around Tokyo and other key locations and major metropolitan centers.¹² Because these systems are relatively mobile, however, the ASDF can move these units to shift coverage based on changing threats. Intended as a point-defense system for missiles in their terminal phase should they leak through the Aegis layer, with an engagement range of only 12 miles, the PAC-3 systems can also be utilized to break up missile debris, but this would rapidly expend their finite interceptors in the process.¹³ As an improvement, in FY 2020, Japan will equip 12 of these fire units with the new PAC-3 Missile Segment Enhancement (MSE) advanced interceptor, but which units was still under consideration as of mid-2020.¹⁴ Covered below, these PAC-3 MSEs are critical to a stronger Japanese air defense because they can also be used for responding to both cruise missiles and aircraft, in addition to ballistic missiles.¹⁵

These two BMD systems are interconnected and coordinated by the JADGE network, the nationwide radar network and early warning sensors operated by an SDF BMD Joint Task Force (JTF) located at Yokota. The commander of the ASDF's Air Defense Command serves as joint operations commander, with C2 over this BMD network centralized through the JADGE system.¹⁶ As part of their efforts, the ASDF and MSDF share tasks on daily schedules, allowing one service to cover the tasks of the other should either be unable to conduct an assigned task for any reason.¹⁷

Japan's BMD system is beneficial for the United States in a regional contingency. The JADGE system is linked to U.S. communications satellites, allowing the United States and Japan to share data on aerial threats against Japan (and thus U.S. bases). Furthermore, the U.S. 7th Fleet, which is based in Japan, has ships equipped with Aegis BMD systems that are assigned to BMD operations and can relay or receive data to and from other Aegis ships, including Japanese destroyers, as well as land-based systems, such as the PAC-3 systems, including both Japan's and the U.S. units deployed in Okinawa. The United States maintains five destroyers and one cruiser equipped with the Aegis BMD system in Japan. Finally, the United States has deployed two AN/TPY-2 early warning radars in Japan, which are capabilities vital for the defense of the U.S. homeland.

¹⁰ MOD official, RAND email correspondence, October 4, 2019.

¹¹ MOD, *Japan's BMD*, September 2008b, p. 11; Kyle Mizokami, "Everything You Need to Know: Japan's Missile Defenses," *National Interest*, September 2, 2017.

¹² Kingston Reif, "U.S. and Allied Ballistic Missile Defenses in the Asia-Pacific Region (Fact Sheets & Briefs)," Arms Control Association, January 2019; MOD, "ペトリオットPAC-3の配備について [About the Deployment of the Patriot PAC-3]," October 28, 2015; Sakamoto, 2018, p. 171.

¹³ Reif, 2019.

¹⁴ MOD, 2018c, p. 12. MOD official, RAND email correspondence, October 4, 2019.

¹⁵ MOD, 2018f, p. 11.

¹⁶ Watanabe et al., 2016, p. 29.

¹⁷ Hornung, 2018a, p. 31.

The allies have also worked closely to jointly research, develop, and produce these systems. This cooperation began in the 1980s, but after the increasing missile threat posed by North Korea in the 1990s, bilateral efforts to develop a BMD system began in earnest. Japan's decision to procure the BMD-capable Aegis system from the United States marked the first time a missile defense capability produced by the U.S. Missile Defense Agency was sold to an ally.¹⁸ They also negotiated a deal to allow Japan licensed production of PAC-3 interceptor missiles.¹⁹ And for the SM-3 Block IIA interceptors for Aegis-equipped destroyers, they chose joint development. As when Japan was interested in augmenting its sea-based Aegis layer with a ground-based Aegis Ashore capability, the United States once again worked closely with Japan, approving the sale of two Aegis Ashore missile batteries (although Tokyo ultimately canceled this deployment plan in June 2020, examined below).²⁰

Beyond R&D and production, the United States and Japan also enjoy BMD operational cooperation. Since March 2012, the two militaries maintain a Bilateral and Joint Operations Coordination Center at Yokota, where they can share early warning information and intelligence. The United States also employs early warning satellites with the Space-Based Infrared System (SBIRS)—which Japan does not possess—that allow the United States to constantly monitor the region, looking for signs of potential launches.²¹ This is crucial for Japan's missile defense, because currently Japan does not have early warning satellites, making it difficult to detect missile launches until after launch. The MSDF's Aegis-equipped ships and the ASDF's PAC-3 systems rely on U.S. early warning satellites to track launches, after which they pick up the tracking and telemetry and supply information back to U.S. forces.²² Should Japan install the CEC on its assets, this would further integrate Japanese forces into the U.S. military's radar and sensor network. The allies also coordinate their BMD strategies to ensure a more efficient and effective operation of their BMD systems. Toward this end, they closely cooperate on policies, equipment, and operational issues, such as the joint development of the SM-3 Block IIA mentioned above, the sharing of early warning information and BMD operational information in real time and sharing information on deployments and setting up of Japan's Aegis and PAC-3 systems.²³

Importantly, Japan has a record of intercepting ballistic missiles, albeit in a test environment. In 2007, the MSDF destroyer *Kongō* successfully conducted the first SM-3 flight test.²⁴ A year later, Japan became the first country after the United States to successfully test a PAC-3 against a simulated ballistic missile target.²⁵ In recent years, the United States and Japan have conducted similar tests. In February 2017, they successfully conducted the first intercept of a

¹⁸ Michael D. Swaine, Rachel M. Swanger, and Takashi Kawakami, *Japan and Ballistic Missile Defense*, Santa Monica, Calif.: RAND Corporation, MR-1374-CAPP, 2001; Rachel Hoff, "U.S.-Japan Missile Defense Cooperation: Increasing Security and Cutting Costs," *American Action Forum*, December 2, 2015.

¹⁹ Hoff, 2015.

²⁰ Defense Security Cooperation Agency, "Japan – AEGIS Weapon System," *DSCA News Release*, Transmittal No. 19-08, January 29, 2019.

²¹ Yuki Watai, "Is Japan's Ballistic Missile Defense Too Integrated With the US?" *Diplomat*, November 28, 2018.

²² Kato, 2018.

²³ MOD official, RAND email correspondence, October 4, 2019.

²⁴ MOD, "Successful PAC-3 Flight Test," *Japan Defense Focus* (No. 11 Special Feature), October 2008c.

²⁵ MOD, 2008c.

ballistic missile target using the co-developed SM-3 Block IIA interceptor.²⁶ Then, in September 2018, the MSDF and the U.S. Navy successfully tested an intercept using the SM-3 Block IB Threat Upgrade, verifying the capabilities of an improved Aegis BMD configuration for Japan's destroyers.²⁷

As robust as Japan's BMD system is, and associated cooperation with the United States, it is not perfect. One challenge is coverage. Because of concerns that the Aegis-equipped ships cannot be on-station 24-hours a day, 365-days a year—due to bad weather or maintenance needs—Tokyo planned on adding two Aegis Ashore units in Akita and Yamaguchi prefectures, operated by the GSDF. These two units were expected to provide persistent coverage for the entire archipelago, thereby strengthening the ability to observe and respond to ballistic missile threats, resulting in a more robust BMD network. Initially given the green light in 2017, in June 2020 Japan's then–Defense Minister Kōno Tarō announced Tokyo would suspend the project over concerns of cost and technical issues. In a short time, the deployment was cancelled with no alternative selected at the time of publication.²⁸ While even two additional Aegis Ashore units would still likely result in Japan's BMD system being overwhelmed against a massive ballistic missile assault or even a moderate number of multiple independently targetable reentry vehicles, against more limited attacks it was thought they would have proved effective in strengthening the BMD coverage provided by the existing two tiers.

A related coverage issue has to do with radars equipped with BMD-functions. As shown in Table 6.3, of the 28 ground-based radars that Japan's air and missile defenses rely on, only seven upgraded FPS-3s and four FPS-5s have BMD functions.²⁹ The remaining 17 radars, which consist of two FPS-20s, five FPS-2s, six FPS-4s, and four FPS-7s, do not have BMD functions; instead, they are only capable of responding to aircraft and cruise missiles. All 28 radars, however, are linked via the JADGE system, allowing the data to be fed to those SDF assets connected to JADGE, such as fighters. Even though the MOD has been upgrading its less sophisticated radars to the more advanced FPS-7 at some existing radar sites and adding BMD functions to some of the FPS-7s, including at locations in the Nansei Shotō, there are no plans to expand beyond the existing 28 radars. By 2021, however, not only will all four FPS-7 radars be BMD-equipped, the ASDF will convert two of the older FPS-2 radars into BMD-equipped FPS-7 radars, bringing Japan's total BMD-equipped radars to 17.³⁰ Beyond this, there are no plans to install BMD functions into other radars or to buy more radars.

A second challenge has to do with the fact that these are fixed, ground-based radars. There are 28 sites, which communicate with Japan's AEW&C capabilities (both air and land-based collection stations), Aegis-equipped ships, PAC-3 units, and other ASDF airborne assets. Collectively, these radars are the connective tissue for the JADGE network, coordinated and

²⁶ Missile Defense Agency, "U.S., Japan Successfully Conduct First SM-3 Block IIA Intercept Test," February 3, 2017.

²⁷ Missile Defense Agency, "Japan Missile Defense Flight Test Successful Through Intercept," September 12, 2018.

²⁸ Jeffrey W. Hornung, "Japan Is Canceling a U.S. Missile Defense System," *Foreign Policy*, July 2, 2020a. Japan was not confident that it could prevent the rocket boosters from the system's interceptor missiles from hitting local communities after separation from the interceptor. The MOD said that software modifications were available that could ensure correct booster separation, but the modifications that were attempted had not been successful, meaning that the missile hardware would likely need to be redesigned. Because such efforts would cost Japan an additional \$1.8 billion and take roughly a decade to complete, Tokyo decided it best to cancel the deployment.

²⁹ James Simpson, "Hardware Monday: J/FPS-5 Fixed 3D Radar," *Japan Security Watch*, January 17, 2011.

³⁰ MOD official, RAND email correspondence, October 4, 2019.

Table 6.3
ASDF's Radar Network (2019)

Radar Type	Quantity	BMD Functions
FPS-20, FPS-6	2	No
FPS-2	5 (-2)	No
FPS-3 (Upgraded)	7	Yes
FPS-4	6	No
FPS-5	4	Yes
FPS-7	4 (+2)	By 2021

SOURCE: MOD official, RAND email correspondence, October 4, 2019.

networked by the ASDF's secure line at the Air Defense Command at Yokota. Despite their importance, these radars are vulnerable to a variety of threats, including air-delivered munitions, missile attack, EA, cyberattack, and/or special forces operations. Not only do they lack significant protection, their general locations are publicly available, published in the annual *Defense of Japan* report.³¹

Currently there are no plans for strengthening the resiliency of this system. For example, if the FPS radars are destroyed, there are only a limited number of mobile radars—14 J/TPS-102 radars—that are good mobile substitutes that can be moved to other areas for special coverage, or to support the air surveillance system in case there is an interruption in fixed-radar operations (such as the disabling or destruction of some of these radars). And these mobile radars are not equipped with BMD functions. There are also no plans to increase the number of these mobile radars. There are plans for the GSDF to develop a multipurpose observation radar that integrates four separate types of radar it currently operates (littoral surveillance radar, low-altitude radar, counter-battery radar, and counter-mortar radar) into one radar.³² Deployment of this capability is years away, but, once developed, it will reduce both production costs and life cycle costs, and the radar will respond to targets with low radar cross-sections. The effect this radar would have on BMD, however, is limited, as the GSDF radar will likely be limited to GSDF ground operations, and it is not known whether it will be connected to JADGE.

Despite these challenges, Japan's BMD system is strong. Japan also has robust air defense capabilities, though they are possibly stronger against aircraft than cruise missiles. In the same six missile groups that operate the PAC-3 systems, the ASDF operates PAC-2GEM systems for defense against aircraft. Although these can be used against cruise missiles, several interviewees said these would have limited effectiveness against them. As mentioned above, however, once the PAC-3MSE is deployed, it can be used against both ballistic and non-ballistic missile threats. The MSDF is also equipped with several anti-air systems, such as the SM-2 (for DDGs) and the Sea Sparrow and Evolved Sea Sparrow (for DDs and DDHs).³³ And

³¹ MOD, "Location of Principal SDF Units (for illustrative purposes)," *Defense of Japan 2018*, Tokyo, 2018b, page not numerated—tear-out map.

³² 防衛装備庁プロジェクト管理部事業監理官 (情報・武器・車両担当) [Project Supervisor, ATLA Project Management Department (In Charge of Intelligence, Weapons, Wheeled Vehicles)], "令和元年度 政策評価書 (事前の事業評価)" [Reiwa First Fiscal Year Policy Evaluation Document (Prior Project Evaluation)], MOD, undated.

³³ MOD official, RAND email correspondence, February 4, 2020; SDF official, RAND email correspondence, February 8, 2020.

Figure 6.1
Map of the Nansei Shoto



both services operate anti-air systems for base defense, with the ASDF operating a short-range SAM and the MSDF's shore units operating smaller, Stinger-type missiles. The GSDF has also invested in air defenses, such as the Type-03 mid-range (called Chū-SAM, or 中SAM) and Type-11 short-range SAM platforms.

As part of its expanding footprint in the Nansei Shotō, the GSDF has been deploying the Type-03 SAMs to the region and planning to upgrade these systems. Of all seven of the GSDF's anti-aircraft artillery (AA) Groups, only one is located in the Nansei Shotō: the 15th Anti-Aircraft (AA) Regiment in Okinawa, equipped with three Type-03 SAM batteries and one Type-11 SAM battery.³⁴ In recent years, the GSDF moved Type-03 batteries from

³⁴ SDF official, RAND email correspondence, October 1, 2019. The 15th is called a Regiment, not a Group, because it is the only one that is a combined unit. It was established in March 2014 after the 6th AA Group was reorganized. The others, called AA Groups, are single-weapon units. Locations and weapon used are the 1st AA Group in Hokkaidō (Hawk), 4th AA Group in Hokkaidō (Hawk), 2nd AA Group in Kantō (Chū-SAM), 8th AA Group in Kansai (Chū-SAM), 3rd AA Group (the HQ, 313rd, 314th and 345th are in Fukuoka—with the 313rd and 314th operating the Hawk

AA Groups elsewhere in Japan to the same islands in the Nansei Shotō where it is building bases (Table 6.4). In 2019, the GSDF moved one Type-03 battery from the 3rd AA Group in Fukuoka prefecture to Amami-Ōshima; and in 2020, it moved a similar battery from the 7th AA Group in Nagasaki prefecture to Miyako. A third battery is expected in the region in the coming years, with the most likely destination being Ishigaki.³⁵ In the years ahead, the GSDF is planning to deploy upgraded Type-03 capabilities. These are important because it will enable the systems to track multiple targets simultaneously.³⁶ Compared with the Type-03 system's 50-km range and maximum engagement altitude of 10,000 meters, the upgraded Type-03 system (called Chū-SAM Kai, or 中SAM改) has a maximum range of 100 km.³⁷ Its enhancements also improve its ability to respond to low-altitude and high-speed targets.³⁸ Although no decision has been made on where and by when the upgraded Type-03 will be deployed, reports have indicated it will replace the Type-03 batteries on Ishigaki, Miyako, and Amami-Ōshima, beginning in 2021 (Figure 6.1).³⁹

Along with these GSDF improvements, the MOD is looking to acquire the CEC system.⁴⁰ This would benefit defense against cruise missiles and aircraft and missiles with a longer range. Already, the MSDF is equipping its two newest *Maya*-class, Aegis-equipped destroyers that will enter into service in 2020 and 2021 with the capability.⁴¹ Additionally, as already noted, the MOD is considering adding the capability to the ASDF's E-2D aircraft.⁴² Looking ahead, once the MSDF's Aegis-equipped destroyers are equipped with SM-6 missiles, they will be able to take advantage of CEC to intercept cruise missiles as well, thereby improving Japan's air defenses.⁴³ According to Raytheon, the SM-6 missile is even useful for sea-based terminal BMD.⁴⁴ Similarly, to reinforce the detection and tracking capabilities for missiles and to enable unitary C2 of the various equipment each SDF service possesses, the SDF is pursuing initiatives that include upgrading JADGE, procuring an air defense command and control systems

and the 345th the Chū-SAM—and the 344th is in Amami-Ōshima operating the Chū-SAM), and 7th AA Group in Kyūshū (the HQ and 346th are in Miyako operating the Chū-SAM and the 327th and 328th are in Nagasaki operating the Hawk).

³⁵ It is rumored the battery will move from the 3rd AA Group in Fukuoka, but nothing official has been announced.

³⁶ The system has a simultaneous multitarget engagement capability using a multifunctional truck-mounted phased array, and separate target acquisition and detection radar. The phased-array radar is reported to be capable of tracking up to 100 targets simultaneously, whilst engaging 12. "Chu-SAM," *Land Warfare Platforms: Artillery & Air Defence*, May 21, 2019.

³⁷ "Chu-SAM," 2019.

³⁸ MOD, 2019a, p. 11.

³⁹ Dylan Malyasov, "Japan Deploying Type 3 Missile System in Okinawa Prefecture," *Defence Blog*, August 24, 2016; "Chu-SAM," 2019.

⁴⁰ In addition to detecting aircraft, CEC will enhance Japan's BMD capabilities as it expands the range that Japanese assets can monitor and enables information on a missile's location, direction and speed to be shared among ships and aircraft simultaneously.

⁴¹ "Japan to Spend \$4.2 Billion on Lockheed Radars for Aegis Ashore Missile Defense," *Defense Post*, July 30, 2018.

⁴² Kato, 2018.

⁴³ Kato, 2018.

⁴⁴ Raytheon, "SM-6 Missile," undated.

for the GSDF to ensure effective joint response operations against airborne threats, and developing a new fixed air defense radar, among other R&D efforts.⁴⁵

Because of the likelihood of aerial assaults also coming from the sea, the GSDF began deploying ASCM batteries throughout the Nansei Shotō with the advanced Type-12 ASCM (Table 6.4). With a maximum range of 200 km, the Type-12 ASCMs can fire on enemy ships approaching Japanese territory farther out from shore.⁴⁶ This ability to reach farther will grow in the years ahead, as the GSDF plans on dispersing some of its batteries equipped with the Type-12 missiles throughout the Nansei Shotō. Currently, the GSDF has five ASCM numbered regiments.⁴⁷ Using the SSM lexicon of the SDF (versus ASCM), the 5th SSM Regiment is located in Kumamoto in southern Japan and is the only regiment that operates the Type-12 ASCM (6 batteries).⁴⁸ In March 2019, one battery of this 5th SSM Regiment was established on Amami-Ōshima. In March 2020, one more was established in Miyako. Currently, the other four are located in Kumamoto. In the future, another battery will move to Ishigaki, bringing the total number of batteries operating the Type-12 missiles in the Nansei Shotō to three.⁴⁹

When viewed alongside the ASDF's PAC units for both air and cruise missile defense, the GSDF's deployment of SAMs and ASCMs in the Nansei Shotō form an aerial defense network that strengthens Japan's A2/AD capabilities, shifting more risk to China's military operations by denying its ships and aircraft freedom of maneuver in the East China Sea. For example,

Table 6.4
GSDF Missile Capabilities in the Southwestern Island Chain

Service	Type	Missile	Status
GSDF	ASCM	Type-12	Deployed 2019: Amami-Oshima Deployed 2020: Miyako Will be deployed by 2023: Ishigaki ^a
GSDF	HVGP	New type	Deployment and location: TBD
GSDF	Mid-range SAM	Type-03	Deployed 2019: Amami-Oshima Deployed 2020: Miyako Will be deployed TBD: Ishigaki ^b
GSDF	Mid-range SAM	Upgraded Type-03	Deployment and location: TBD

SOURCES: MOD, 2018e, p. 28; MOD official, RAND email correspondence, August 20, 2019; Malyasov, 2016.

NOTE: HVGP = hyper-velocity gliding projectile.

^a MOD has said nothing official, but one media report cited it as 2023. Ryan Drillsma, "Japan to Deploy Type 12 Anti-Ship Missiles to Remote Southwestern Islands by 2023," *Taiwan News*, April 29, 2019.

^b Nothing official has been announced. Will likely occur in tandem with the Type-12 deployment.

⁴⁵ MOD, 2018f, p. 13. The air defense command and control system project will be an upgrade of the existing GSDF division-level C2 system it operates for its Type-03 SAM batteries.

⁴⁶ This figure is an open-source range ("Type 88 (SSM-1); Type 12; Type 90 (SSM-1B); SSM-2," *Jane's Weapons: Naval*, June 21, 2018).

⁴⁷ MOD, 2018e, p. 33.

⁴⁸ SDF officer, RAND email correspondence, October 1, 2019. The other four are the 1st SSM Regiment in Hokkaidō (Type-88 SSM), 2nd SSM Regiment in Hokkaidō (Type-88 SSM), 3rd SSM Regiment in Hokkaidō (Type-88 SSM), and 4th SSM Regiment in Aomori (Type-88 SSM).

⁴⁹ SDF officer, RAND email correspondence, October 1, 2019; MOD official, RAND email correspondence, October 4, 2019.

assuming that Chinese naval forces would have to pass through the Miyako Strait (Figure 6.1) to credibly threaten U.S. forces converging on the area of operations, Japan's ASCMs position it to act as "gatekeeper" in the region.⁵⁰ With its SAMs and PAC-2GEMs, Japan can also threaten Chinese air assets. This may allow Japan to "slam shut" an outlet for Chinese forces wanting to break beyond the First Island Chain while at the same time helping create safer passage for U.S. reinforcements flowing into the theater.⁵¹ It would also pay dividends for U.S. forces moving from bases in Japan to the combat zone.

Like the BMD system, there are areas where improvements could help strengthen it. Given the Nansei Shotō's proximity to China, to be effective, the SDF must ensure the safety of its air defenses from Chinese aerial assault. This includes camouflage, concealment, and dispersal. Possible improvements of Japan's space, cyber, and electromagnetic warfare capabilities (reviewed next) could further strengthen Japan's missile arsenal, as they would provide Japan with better capabilities by which to deny, degrade, or deceive Chinese sensors, forcing China to spend more time searching for mobile launchers and expending finite munitions. Importantly, unlike the two BMD systems that are interconnected and coordinated by the JADGE network and operated by an BMD JTF located at Yokota, Japan's air defenses exist in parallel with one another, with each service operating its own C2 for its assets. Although there are a few structures for joint air defense, for the most part, air defense is a complicated endeavor across the three services. While a massive aerial onslaught will challenge any air defense system, the lack of integration will make Japan's air defenses a more difficult enterprise, even against a limited attack.

Looking ahead, Japan is pursuing select capabilities that have the potential to strengthen its air and missile defenses through an ability to hold Chinese forces at risk at an even greater range. Despite restrictions on offensive weapons, Japan is seeking to acquire missiles with longer ranges, which it calls standoff missile capabilities.⁵² Included in the 2018 MTDP are the Joint Strike Missile (JSM, a medium-range, anti-ship missile), the Joint Air to Surface Standoff Missile (JASSM, an air-to-ground precision missile), and the Long Range Anti-Ship Missile (LRASM, a long-range, precision-guided, anti-ship missile).⁵³ Although the MTDP used the nomenclature JASSM, the Minister of Defense later said it would be the JASSM-ER (extended range).⁵⁴ Whereas the JSMs will be mounted on the F-35A, the JASSM-ER and LRASM capabilities will be mounted on the modernized F-15s. Compared with the JSM's maximum range of about 500 km, the JASSM-ER's range is approximately 900 km.⁵⁵ Japan is also developing an improved supersonic air-to-ship missile (ASM), called the ASM-3, to fly more than 400 km (increased from its current 200 km).⁵⁶ The ASM-3, which flies at a speed of around

⁵⁰ Yoshihara, 2014, p. 6.

⁵¹ Yoshihara, 2014, p. 6.

⁵² If a missile is not an ICBM, the government does not face any explicit constitutional issues in procuring it.

⁵³ MOD, 2018f, p. 12. According to a retired SDF officer, Japan does not use the nomenclature JASSM-ER (Extended Range) because all JASSMs have extended ranges. Retired SDF officer, RAND email correspondence, November 2, 2019.

⁵⁴ "防衛大臣記者会見概要" [Summary of the Minister of Defense's Press Conference], MOD, December 8, 2017.

⁵⁵ Jiji, "Japan Plans to Develop Home-Made Long-Range Anti-Ship Missile to Counter Threat," *Japan Times*, March 24, 2019b.

⁵⁶ MOD, 2019b, p. 15; Kosuke Takahashi, "Japan to Develop Long-Range Air-to-Surface Cruise Missiles," *Jane's 360*, March 20, 2019c.

Mach 3, was initially to be mounted on the F-2s, but the plan now is to deploy them on the F-2's successor.⁵⁷

And as part of Japan's active defense strategy in the Nansei Shotō, the SDF is developing a number of new missiles.⁵⁸ One is a land-based hyper-velocity gliding projectile (HVGP).⁵⁹ Details regarding ranges and when and where they will be deployed are still undecided, but media reports have cited a maximum range of 300 km and that is intended to be deployed in the Nansei Shotō.⁶⁰ The 2018 NDGP stipulates that the GSDF will establish 2 HVGP battalions over the next decade, intended for the defense of remote island units.⁶¹ Similarly, R&D on a new ASCM is taking place, with references to the introduction of an improved Type-12. Finally, there are efforts to develop hypersonic missile capabilities, with current efforts very much in the nascent R&D phase.⁶² There have been no decisions about its expected range or when and where it will be deployed.⁶³ These capabilities, along with the missiles capable of longer ranges detailed in the preceding paragraph, are significant developments given the prohibitions against offensive capabilities. Used in a defensive capacity, however, these missiles will extend Japan's reach beyond its shores, thereby improving Japan's ability to hold Chinese assets at risk and thus, further strengthening Japanese defenses against air and missile threats, or assets capable of deploying these threats.

New Domains

In the 2018 NDGP, Tokyo broadened its attention to include three “new” domains: cyber, space, and the electromagnetic spectrum. The objective is to develop a “Multi-Domain Defense Force” that is capable of executing cross-domain operations and sustained conduct of activities during all phases from peacetime to contingencies.⁶⁴ Developments in these domains open up more asymmetric means by which the alliance can respond in any regional contingency. Japan does not currently maintain a dominance in any one of these domains or a capability that exceeds that of China, but it has laid considerable groundwork in each upon which to develop.

Space

Japan is no newcomer to space, but the security component of space is relatively new for Japan. Until the passage of the 2008 *Basic Law on Space Policy*, Japan's military use of outer space was limited.⁶⁵ The passage of this law changed the paradigm from basically prohibiting mili-

⁵⁷ Jiji, 2019b.

⁵⁸ MOD, 2018f, p. 12.

⁵⁹ MOD, 2018c, p. 9; MOD, 2019a, p. 12.

⁶⁰ “Japan—Army,” *Jane's World Armies*, March 15, 2018.

⁶¹ MOD, 2018e, p. 33.

⁶² The FY 2019 budget, for example, stipulates money is to be spent on research on various “component technologies of SCRAM-jet engines using combustion in supersonic air flow” (MOD, 2019a, p. 12).

⁶³ MOD official, RAND email correspondence, August 20, 2019.

⁶⁴ MOD, 2018e, pp. 10–11.

⁶⁵ Before the 2008 Basic law, the MOD gradually expanded the use of outer space under a framework called “Generalization Theory.” This allowed the SDF to use certain space capabilities if the technology had been generalized for civil

tary use of space to proactively utilizing space for national security purposes.⁶⁶ In July 2012, Tokyo established the Office of National Space Policy in the Cabinet Office to systematically promote policies related to space development and utilization.⁶⁷ Responsible for planning, designing, and coordinating policies related to space exploitation and implementing policies regarding development, maintenance, and operation of Japan's now-functioning Quasi-Zenith Satellite System (QZSS), the Office of National Space Policy was reorganized into the National Space Policy Secretariat in April 2016.⁶⁸ In 2015, Japan revised the *Basic Law*, preparing it as a development plan focusing on the next approximately 20 years and pursuing three goals: (1) ensuring space security, (2) promoting the use of space in the civilian sector, and (3) maintaining and strengthening Japan's space industry and scientific/technological bases.⁶⁹

The MOD values the space domain as important "for collecting information to detect indications of various incidents in advance and strengthening the surveillance activities in its surrounding seas and airspace; and ensuring means of communication by the SDF in their international peace cooperation activities and other activities."⁷⁰ Importantly, Tokyo also values the space domain as important for the SDF to conduct its tasks, recognizing the importance of being "able to continuously utilize space capabilities even in contingencies."⁷¹ As such, for most of the past decade, Japan has been working on developing capabilities that include a modern Space Situational Awareness (SSA) system composed of low earth orbit radar, a telescope (owned by the Japan Aerospace Exploration Agency, or JAXA), and a deep space radar and operational system (owned by the MOD).⁷² The JAXA system and MOD system will be connected.

Japan is building on these past developments. In particular, the MOD is working to strengthen information gathering, C2, and satellite communication capabilities by using multiple types of satellites with various sensors and to enhance the survivability of its satellites by improving the MOD's SSA and deep space capabilities.⁷³ It is possible these will be operational sometime in the next ten years.⁷⁴ This includes information-gathering, communication, and positioning capabilities, and building a structure "to conduct persistent ground- and space-based space situation monitoring."⁷⁵ In April 2019, a Space and Maritime Policy Office (宇宙海洋政策室) was established in the Strategic Planning Division of the MOD's Defense Policy

use. For example, under this, the SDF started to use communication satellites, information gathering satellites, global positioning satellites (commercial and military codes), and weather satellites.

⁶⁶ Yasuo Otani and Naohiko Kohtake, "Applicability of Civil and Defense Dual Use to Space Situational Awareness System in Japan," *Space Policy*, Vol. 47, February 2019, pp. 140–147.

⁶⁷ Cabinet Office, "Space Policy," Government of Japan, undated.

⁶⁸ Cabinet Office, undated.

⁶⁹ MOD, 2018a, pp. 329–330.

⁷⁰ MOD, 2018a, p. 329.

⁷¹ MOD, 2018a, p. 330.

⁷² Paul McLeary and Theresa Hitchens, "US, Japan To Ink Hosted Payload Pact to Monitor Sats," *Breaking Defense*, August 5, 2019.

⁷³ MOD, 2018a, p. 330; MOD, 2018e, pp. 19–20.

⁷⁴ MOD official, RAND interview, March 22, 2019.

⁷⁵ MOD, 2018e, pp. 19–20.

Bureau.⁷⁶ By March 2021, a Space Domain Planning Group (宇宙領域企画班) will be established in the Joint Staff's J6. Importantly, the NDPG stipulates that the SDF will strengthen the capability "to disrupt opponent's command, control, communications and information."⁷⁷

The MOD is focusing currently on three main initiatives. One is developing and enhancing Japan's SSA. The MOD is focused on the development of deep space radar and operation system to perform SSA.⁷⁸ Because of the threat of a foreign country disturbing, jamming, or capturing Japanese satellites, the MOD aims to establish SSA by 2022 to monitor and maintain an accurate picture of conditions in space.⁷⁹ As part of this, the MOD is working to deploy a radar and operating system to monitor and counter threats to Japanese satellites. In May 2020, the MOD launched a new 20-person Space Operations Force (宇宙作戦隊), sometimes translated as Space Operations Squadron, within the ASDF aimed at tracking threats to Japanese surveillance satellites, such as space debris and satellites operated by other countries. Scheduled to be fully operational by 2023, this unit is expected to consist of approximately 100 people.⁸⁰ Japan is expected to acquire equipment to detect electromagnetic interference with Japan's satellites and an optical telescope to monitor space debris and unidentified objects in space.⁸¹

A second key initiative is a focus on the Japanese-owned Quasi-Zenith Satellite System (QZSS) as an alternative national positioning, navigation, and timing (PNT) capability to augment the U.S.-operated Global Positioning System (GPS). QZSS was designed to provide Japan with a more stable and accurate PNT service by utilizing it in an integrated fashion with GPS.⁸² Despite Japan launching the satellite Michibiki into orbit in 2010, the SDF's use of the system is not widespread, due to its cost and the limited nature of QZSS thus far. The current QZSS has been operated as a four-satellite constellation since November 2018, enabling these satellites to work in an integrated way with GPS and thus ensuring stable, high-precision positioning, albeit limited to the Asia-Oceania region.⁸³ Over the next five to six years, Japan plans to have a total of seven QZSS satellites enabling the SDF and other users to get PNT information without any reliance on GPS for the area on and around Japan.⁸⁴ For overseas operations,

⁷⁶ The establishment was actually an upgrade from a Space and Maritime Policy Group that existed within the Division, first established in October 2015.

⁷⁷ MOD, 2018e, p. 20. The Japanese word for disrupt is 妨げる能力. See MOD, 平成31年度以降に係る防衛計画の大綱について [*National Defense Program Guidelines for FY 2019 and Beyond*], December 18, 2018d, p. 20.

⁷⁸ MOD, 2019a, p. 4.

⁷⁹ MOD, 2018a, p. 331.

⁸⁰ MOD official, RAND interview, March 27, 2019.

⁸¹ MOD, 2019b, p. 4; Kyodo, "Japan Eyes New Defense Unit to Monitor Space from ASDF Base in West Tokyo," *Japan Times*, August 22, 2019b; "Japan Seeks Record Defense Budget, Outer Space, Cyberspace in Focus," *The Mainichi*, August 30, 2019.

⁸² One of the main reasons Tokyo was interested in QZSS is that GPS signals in an urban environment are not reliable. Because of the large number of skyscrapers in Japan, a receiver cannot see the GPS satellite directly, and receiving signals may be reflected, which means travelling a longer path that could cause errors in positioning. The QZSS remains almost entirely over Japan, so a receiver can see QZSS satellites directly, making QZSS positions more accurate. Another benefit of QZSS is its use of different frequencies. Even if a GPS signal is jammed, QZSS signals are available.

⁸³ National Space Policy Secretariat, "Overview of the Quasi-Zenith Satellite System (QZSS)," Cabinet Office, undated.

⁸⁴ MOD official, RAND interview, March 22, 2019.

however, because of the limited nature of QZSS, the SDF will still have to rely on GPS to get PNT service.

The third initiative is the development of an X-band defense communication satellite network (and modification of equipment to adapt to these satellites).⁸⁵ The purpose of the network is to help streamline SDF communications systems and ensure stable communication links.⁸⁶ This is particularly relevant as the SDF shifts to the Nansei Shotō which has large expanses of water. Currently, there are three X-band defense satellites used for SDF communication. Originally, these satellites (called Superbird) were owned by a private company (SKY Perfect JSAT) and leased to the MOD. Japan is replacing them with defense satellites, thereby providing a high-speed connection spanning all three services on a wholly MOD-owned network. The first satellite for this system was launched in January 2017 (Kirameki-2), and the second was launched in April 2018 (Kirameki-1).⁸⁷ The third is expected to launch in 2022 (Kirameki-3), thereby completing the transition to a system that is fully owned by the MOD and contracted out to a private company to operate.

The move to strengthen the capability “to disrupt opponent’s command, control, communications and information” is new ground for Japan.⁸⁸ And one that could pay tremendous operational dividends in a contingency. What specific “disruptive” capability the MOD will introduce remains unclear, but one media report has said that it would include an intercepting satellite that can disable the operations of other countries’ military satellites, with plans to deploy it in the mid-2020s.⁸⁹ And in an effort to bolster Japan’s ability to detect and track missile threats, the government is initiating research for strengthening its ISR capability utilizing early warning satellites to detect regional missiles launches.⁹⁰ Depending on how robust this space-based early warning capability becomes, it may have the potential to help enhance the U.S. SBIRS, thereby strengthening the alliance’s ability to detect and track missile threats utilizing the space domain.

The initiatives in X-band satellite communications and QZSS-capable terminals are not necessarily new developments, but the move for the SDF to have SSA is. Still, the focus is on ISR of space, not ISR from space. It is still valuable, however, in that SSA supports the SDF’s stable use of space via communications and PNT, which support SDF units’ operations.

Cyber

Japan is also not a newcomer to the cyber domain. In November 2014, it passed a *Cyber Security Basic Act* that was meant to contribute to Japan’s security by clarifying the basic principles of cybersecurity measures and the responsibilities of local governments.⁹¹ In January 2015, a

⁸⁵ MOD, 2019a, p. 4.

⁸⁶ Ankit Panda, “Japan Plans First Military Communications Satellite Launch,” *Diplomat*, January 19, 2017.

⁸⁷ The launch of the Kirameki-2 preceded that of the Kirameki-1 due to the latter being damaged during transportation to its launch site. Kirameki-2 was launched when Kirameki-1 was still undergoing repairs.

⁸⁸ MOD, 2018e, p. 20.

⁸⁹ Yomiuri Shimbun, “Satellite Interceptor Sought by Mid-2020s,” *Japan News*, August 19, 2019.

⁹⁰ Kosuke Takahashi, “Japan Mulls Acquiring Early Warning Satellite Capability to Detect Ballistic Missiles,” *Jane’s Defence Weekly*, June 12, 2019a; “ミサイル発射探知、実証へ 政府、警戒衛星の保有検討 [Government Exploring Possession of Guard Satellites to Detect and Verify Missile Launches],” *Sankei Shimbun*, June 12, 2019.

⁹¹ MOD, 2018a, p. 332.

Cybersecurity Strategic Headquarters was established, followed in September with the issuance of a Cyber Security Strategy that included a focus on Japan's security. Also in January 2015, the government established the National center of Incident readiness and Strategy for Cybersecurity (NISC; the "c" and "r" are intentionally not capitalized, per Japan's usage) in the Cabinet Secretariat to provide support to the Cybersecurity Strategic Headquarters.⁹² This was particularly important, as the NISC is responsible for planning and promoting cybersecurity-related policies and serves as the control tower in responding to significant cybersecurity incidents against government organizations and agencies, as well as critical infrastructures.⁹³

The MOD and SDF are responsible for protecting their networks and systems.⁹⁴ In March 2014, a Cyber Defense Group (CDG, or サイバー防衛隊) was established to strengthen this effort.⁹⁵ The CDG, a subordinate unit of SDF's C4 Systems Command, a joint command directly under the Defense Minister, is responsible for protecting the Defense Information Infrastructure, the backbone network of the SDF. Each service, including the Joint Staff, has its own specialized unit for monitoring information systems and networks and responding to cyberattacks.⁹⁶ The MOD and SDF are together engaged in measures to, among other things, increase the security of the information and communication systems to prevent cyber intrusions into their networks.⁹⁷ The MOD has been increasing the budget and personnel dedicated to cyber. The CDG has expanded from 110 to 150 and is working to expand it further. In the FY 2019 budget, for example, funds were included for 70 additional members, increasing CDG's strength to 220 personnel.⁹⁸ In the FY 2020 budget request, the MOD wants to add an additional 70 people to bring the CDG to 290 people.⁹⁹ Japanese media have reported that the plan is to grow the CDG to an end state of 500 by 2023, but the MOD has not confirmed this.¹⁰⁰

Japan is looking "to strengthen its capabilities for persistent monitoring of command and communications systems and networks as well as for damage limitation and recovery."¹⁰¹ Years of investments in cyber defense capabilities give Japanese officials confidence in their ability to protect the SDF network.¹⁰² Still, the MOD seeks to improve the Defense Information Infrastructure for availability, redundancy, and resiliency while procuring cyber information-gathering devices to gather information on the tactics, techniques, and procures of attacks

⁹² MOD, "Whole of Government Initiative for Cybersecurity," RAND document received, March 26, 2019f, p. 1.

⁹³ MOD, 2018a, p. 332.

⁹⁴ MOD, "Cooperation in Efforts by the Government," RAND document received, March 26, 2019d, p. 2.

⁹⁵ MOD, 2018a, p. 333.

⁹⁶ Joint Staff: Cyber Defense Group; GSDF: System Protection Unit; MSDF: Communication Security Group; and ASDF: Computer Security Evaluation Squadron. MOD, "MOD/SDF Measures to Deal with Cyberattacks," RAND document received, March 26, 2019e, p. 3.

⁹⁷ MOD, 2018a, p. 333.

⁹⁸ MOD, 2019a, p. 5.

⁹⁹ MOD, 2019b, p. 6. This will be spread out across the three services: 50 (GSDF), 10 (ASDF), and 10 (MSDF).

¹⁰⁰ "サイバー反撃の専門人材育成 防衛省、教育も一元化 [Training Experts in Cyber Counterattack, MOD, Education Also Centralized]," *Nihon Keizai Shimbun*, February 20, 2019.

¹⁰¹ MOD, 2018e, p. 20.

¹⁰² MOD official, RAND interview, March 26, 2019; SDF officer, RAND interview, March 26, 2019.

against the MOD and SDF.¹⁰³ Like the space domain, the new focus is on developing the “capability to disrupt, during attack against Japan, [an] opponent’s use of cyberspace for the attack.”¹⁰⁴ Although this is limited to situations in which Japan’s survival is threatened, thereby precluding its use in peacetime or gray zone situations, it is a substantial new development that could benefit the alliance in a contingency. As part of this effort, Japanese media have reported that the MOD hired private contractors to create malware—to be used in an exclusive defensive capacity—consisting of viruses and backdoors.¹⁰⁵

There are plans to expand the number of personnel dedicated to cyber protection. The 2018 NDPG indicates that the SDF will establish an integrated unit called the Cyber Defense Unit to conduct persistent monitoring of SDF’s information and communications networks and strengthen cyber defense capabilities, including the capability to disrupt an opponent’s use of cyberspace during an attack against Japan.¹⁰⁶ The Cyber Defense Unit is expected to be established by FY 2023 with approximately 500 people, and it will be under the direct control of the Defense Minister.¹⁰⁷ Japanese media have also reported that, once complete, in combination with increases in the SDF’s cyber-related units in each service, the size of the SDF’s cyber related units will increase to more than 1,000 personnel by the end of FY 2023.¹⁰⁸

The SDF’s focus in cyber has been largely defense-oriented to date, but the main difference in the efforts now is that the SDF is looking to advance into disruptive capabilities, which would provide the SDF with a broader-range of cyber capabilities that could be employed as asymmetric measures during a conflict. However, the SDF will still be limited to defending its own systems/networks. There are no plans to have the SDF expand its responsibilities into the protection of other government ministries or civilian systems/networks.

Electromagnetic Spectrum

The third “new” domain is the electromagnetic spectrum. Although Japan is not a newcomer in this area, its capabilities largely exist in separate disciplines. For example, the SDF possesses various electromagnetic sensors such as radar, electronic support measures, infrared, and Magnetic Anomaly Detectors. The problem is that Japan’s electromagnetic capability focuses on sensors, and its capability for conducting electromagnetic warfare is relatively weak. Electronic warfare (EW) consists of three elements: electronic attack (EA), electronic protection (EP), and electronic warfare support (ES). The SDF has been largely focusing its efforts in ES. The SDF’s EA capability is limited to self-defense and training, which is not strong enough for jam-

¹⁰³ MOD, 2019a, p. 5.

¹⁰⁴ MOD, 2018e, p. 20. The Japanese word for disrupt is 妨げる能力. See MOD, 2018d, p. 18.

¹⁰⁵ “サイバー反撃ウイルス保有へ 有事に備え防衛省、作成方針 [Toward Possessing Cyber Counter-Attack Virus, MOD Plans on Developing for a Contingency],” *Tokyo Shimbun*, April 30, 2019; Catalin Cimpanu, “Japanese Government to Create and Maintain Defensive Malware,” *ZDNet*, May 5, 2019.

¹⁰⁶ MOD, 2018e, p. 27.

¹⁰⁷ National Security Secretariat official, RAND email correspondence, October 5, 2019.

¹⁰⁸ MOD, “SDF Cyber-Related Units, Etc,” untitled RAND document received, undated-e, p. 4; “宇宙・サイバー、自衛隊初の統合部隊創設へ 防衛省検討 [Space-Cyber, MOD Considering the Establishment of the SDF’s First Joint Unit],” *Sankei Shimbun*, January 28, 2019; “日本がサイバー戦部隊を大幅拡充、「守勢から攻勢へ」—中国メディア [Japan Greatly Expands the Cyber Combat Unit, Chinese Media Say “Moving from Defense to Offense”],” *Excite News*, August 13, 2017.

ming in actual warfare.¹⁰⁹ And though the ASDF has installed some jamming pods on some aircraft, they are not installed on all aircraft.¹¹⁰ Should a military jam SDF platforms, Japan will be “blind and deaf,” because the SDF does not have sufficient EP capability to counter-jam or secure data networks.¹¹¹ The 2018 NDPG indicates an interest in changing this situation. Specifically, it looks to enhance information and communications capabilities, information collection and analysis capabilities related to electromagnetics, and capabilities to minimize the effect of being jammed.¹¹² The same NDPG also stipulates that the SDF “will strengthen capabilities to neutralize radar and communications of an opponent who intends to invade Japan.”¹¹³

These efforts in the electromagnetic domain remain largely underdeveloped. Efforts until now have largely focused on ES and at the tactical level of each service. The ASDF has the most developed capability, with EW aircrafts and an Electronic Warfare Operations Group (as part of the Air Tactics Development Wing), but it lacks combat-ready EA assets. The MSDF and GSDF have even fewer EW assets. What is lacking are devoted EA assets that are combat-capable. While the 2018 NDPG indicates an effort to strengthen the SDF’s capabilities, the fruits of this effort are years away, leaving the capabilities of each service largely unchanged. And yet, the efforts already underway demonstrate a determination to develop capabilities to monitor interference against Japanese platforms using electromagnetic energy and use electromagnetic energy to disrupt enemy operations. The FY 2019 defense budget, for example, included the establishment of an Electromagnetic Spectrum Policy Office in the MOD’s Bureau of Defense Buildup Planning and an Electromagnetic Spectrum Domain Planning Section in the Joint Staff. In addition to the procurement of F-35As, and F-35Bs, which have advanced EW capabilities, the MOD is also improving the F-15’s EW capabilities and refurbishing the airframe of UP-3D aircraft to equip it with an improved jammer to support training.¹¹⁴

The MOD also wants to develop aircraft and vehicles capable of disrupting enemy radar and radio signals. This includes the “stand-off EW aircraft” to hinder invading forces via jamming equipment that was included in Chapter Four.¹¹⁵ The GSDF is also developing a road-mobile Network Electronic Warfare System (NEWS) to analyze electronic waves and conduct EA. Designed for island warfare, the system is made up of several specially equipped EW vehicles designed to perform electronic reconnaissance while degrading the command, control, and communications networks of adversaries.¹¹⁶ One was procured in the FY 2019 budget, and

¹⁰⁹ MOD official, RAND interview, March 26, 2019. For example, the function of EA frequencies is matched to SDF radars or radios. This means EA jamming for training transmits the EA radio waves on frequencies which other SDF assets are using. In most cases, there are some frequencies this EA equipment cannot transmit, which is problematic if attempting to jam an adversary.

¹¹⁰ SDF official, RAND interview, March 29, 2019.

¹¹¹ SDF official, RAND interview, March 27, 2019.

¹¹² MOD, 2018e, p. 20.

¹¹³ MOD, 2018e, pp. 20–21.

¹¹⁴ MOD, 2019a, p. 7.

¹¹⁵ MOD, 2019b, p. 7.

¹¹⁶ Takahashi, 2019b.

another requested in the FY 2020 budget.¹¹⁷ The MOD also wants to develop systems to jam enemy aircraft radar,¹¹⁸ and to develop ground-based jammers for use against foreign satellites or AEW&C planes from the ground. For the latter, the MOD is looking to develop a jamming system to be installed on vehicles targeting AEW&C planes in the mid-2020s and then move to develop a similar—albeit static—system targeting foreign satellites.¹¹⁹

Given the rapid changes in Japan's security environment, its efforts in all three of these new domains position it to play an important role in any East China Sea contingency by enabling Japan to employ asymmetric means against what is likely to be quantitatively larger Chinese forces. That said, there are notable challenges Japan will need to overcome before it will be positioned to deploy these capabilities effectively. On a basic level are concerns over resources and manpower. The resources to fund and staff these efforts are lacking; pursuing robust capabilities will place stress on an already limited defense budget. The MOD's *R&D Vision*'s plan for these new domains over the coming decades promises to be a very costly endeavor.¹²⁰ Beyond the R&D, procurement and maintenance will also eat up massive portions of the defense budget. Staffing these efforts may also prove challenging. Officials admit the challenge is not just finding a sufficient *number* of personnel but finding *quality* personnel who are knowledgeable about these domains. Japan's challenge is put in stark relief when compared with China's progress in these domains. In cyber for example, while Japan is looking to increase the number of personnel in its CDG to 220 in FY 2020, China already has 130,000 people devoted to cyber activities, according to one estimate.¹²¹ Japan is up against similar situations in space and electromagnetic capabilities.

There is also a lot of uncertainty regarding what types of capabilities are needed and specifics on how to use them.¹²² This is particularly true for disruptive capabilities sought for space and cyber. For example, it is widely believed that the SDF lacks the ability to trace the origins of a cyber attack with the speed and precision necessary to counterattack with high levels of confidence. How to develop these capabilities is a "huge challenge" that will likely necessitate the MOD/SDF to seek cooperation with the private sector or other countries' armed forces.¹²³ In space, if Japan seeks to disrupt another country's satellite, it needs to have defense capabilities to prevent its own satellites from being disrupted. And in the electromagnetic domain, Japan not only lacks the jamming capabilities needed for EW, there is no confidence the SDF could operate in a heavily jammed environment. Japan's acquisition of these capabilities is years, perhaps decades, away.¹²⁴

Finally, the government will need to confront doctrinal and legal challenges to engage in disruption activities against another state, particularly if it is difficult to attribute with absolute

¹¹⁷ MOD, 2019a, p. 7; MOD, 2019b, p. 8.

¹¹⁸ MOD, 2019b, p. 7.

¹¹⁹ Yomiuri Shimbun, 2019.

¹²⁰ Acquisition, Technology and Logistics Agency, *R&D Vision*, Tokyo: Ministry of Defense, 2019.

¹²¹ Kyodo, "In First, Japan to Develop Computer Virus to Defend Against Cyberattacks," *Japan Times*, April 30, 2019a.

¹²² MOD official, RAND interview, March 22, 2019.

¹²³ MOD official, RAND interview, March 26, 2019.

¹²⁴ As an idea of how long it will take, a recent publication by the Ministry of Defense's Acquisition, Technology and Logistics Agency projected in "Technological Roadmaps" that many of these capabilities will take up to two decades to develop. Acquisition, Technology and Logistics Agency, 2019, p. 7.

certainty the origin of an attack. Aside from how these capabilities would be applied in a direct attack on Japan, more thinking needs to be done on what other situations might arise in which Japan could utilize its new disruption capabilities in space and cyber. This is particularly relevant should an attack occur on a scale smaller than war, if the attacker is an individual versus a state or state-equivalent, and the legal guidelines for identifying and pursuing cyber attackers during times of peace.

Conclusion

This chapter sought to highlight some broader SDF strengths to augment the strengths of the individual SDF services covered in the previous three chapters. The first is interoperability, where the United States and Japan enjoy high levels across four dimensions: equipment, exercising and training, concepts and doctrines, and maintenance support for U.S. military equipment in Japan. The second is Japan's air and missile defense capabilities, which continue to improve, including the introduction of stand-off capabilities. The final strength is Japan's prioritization of new priorities: space, cyber, and the electromagnetic spectrum. The next chapter identified broad challenges that the SDF faces.

Broad SDF Challenges

The SDF is an advanced military that enjoys several strengths, but there are broad challenges that may prevent it from fully leveraging its strengths in an East China Sea contingency. Three of the most important challenges are (1) that key capabilities critical to warfare—even the defense of Japan—are nonexistent; (2) a near-total absence of jointness; and (3) rapidly accelerating negative trends in SDF recruitment and aging.

Key Capabilities Are Nonexistent

While the SDF maintains advanced capabilities in key areas, it lacks significant capabilities that would be relevant in a regional contingency. As noted in Chapter Two, because of legal interpretations associated with Article 9, Japan has restricted itself from possessing some weapons, including ICBMs, long-range bombers, and aircraft carriers. Despite other types of weapons not being interpreted as prohibited, the SDF continues to not possess key capabilities that could prove critical to any regional contingency.

The first, and the most controversial in terms of domestic Japanese politics, is long-range strike capability. While Japan maintains various anti-ship and anti-air missiles, and the ranges of these are growing, and newer stand-off capabilities are coming online in the years ahead, none of these are considered long-range. Japan also refrains from ballistic missiles. As noted in Chapter Two, historically this included both ICBMs and IRBMs, although IRBMs dropped off the list after the Cold War ended. This restraint was self-imposed because of concerns that these missiles were offensive in nature. In response to the nature of the threat Japan faces and the legal constraints within which Japan can act, proposals have surfaced in political committees that have emphasized using long-range missiles against enemy missile bases in self-defense *after* a missile is fired against Japan to prevent a second or third wave of attacks, thereby maintaining Japan's exclusive defense orientation. While there have been some voices calling for using such capabilities in a preemptive manner, the recommendations from the Liberal Democratic Party have focused on employing the capabilities as a defensive response, not as a preemptive capability to prevent a first strike.¹ The legal justification for being able to possess these capabilities rests on a 1956 government interpretation that these capabilities are defensive

¹ Politicians have said that preemptive strikes are permissible if a country had declared an intent to attack Japan or if it were clear that a missile attack was being prepared. "Japan to Formally Weigh Strike Capability for Self-Defense," *Nikkei Asia*, August 13, 2017.

in nature should Japan not have any other alternative and Japan's survival is at stake.² This debate over “enemy base attack capability,” a euphemism for strike capability, was renewed after Japan's 2020 cancellation of Aegis Ashore deployment as part of a broader discussion of Japan's deterrence capabilities, although no conclusion was reached as of mid-2020.³ The continued lack of long-range strike—even used in a defensive capacity—challenges the alliance in a contingency because it puts the onus of defending Japan from aerial threats primarily on its air and missile defense systems. Japan's BMD and air defense systems alone, however, are unlikely to force regional adversaries to stand down.⁴ Without the threat of Japan being able to strike enemy assets far from Japanese territory—in a defensive capacity—adversaries will continue to enjoy the operational advantage of time in their attacks against Japan or U.S. bases in Japan. Even against ships, without strike capabilities, Japan will have difficulty “blocking an invasion” far off-shore, closer to the adversary's ports of disembarkation.⁵

A second capability missing from Japan's arsenal is minelaying. Despite minelaying being considered a use-of-force activity, the SDF can legally lay mines if the government declares an emergency situation that requires the SDF to take action to eliminate an armed attack.⁶ In this situation, the act of laying mines would be defensive in nature. Even though Japan had minelaying capabilities in the past, it has not developed them for close to three decades because political leadership decided there was no longer a strategic need.⁷ Currently, other than submarines that can be armed to lay mines, the MSDF only has two ships dedicated to minelaying—the MST *Uraga*-class ships, which are only capable of carrying about 50 mines each.⁸ Given the potential threats to the Nansei Shotō, minelaying capabilities could reinforce the expansion of GSDF bases and its deployment of SAMs and ASCMs because they would strengthen the SDF's ability to perform chokepoint control by making use of Japan's archipelagic geography, thereby assisting the U.S. Navy, U.S. Marine Corps, and the ARDB by denying PLAN vessels freedom of maneuver.

The third capability Japan lacks is EA assets, as indicated in Chapter Six. While the ASDF's F-15s, F-4EJs, and F-2s have electronic countermeasure pods installed, they are for self-protection only. The ASDF does not operate any dedicated EW platforms with a specific EA purpose. Instead, it operates a small fleet of trainer aircraft: one EC-1 and four YS-11EAs.⁹ While these are capable of *limited* EA, they are not designed for combat against enemy aircraft; rather, they are designed solely for training purposes, with limited capability to jam radars

² In 1956, the government of Prime Minister Hatoyama Ichiro argued that it was unreasonable to think the spirit of the constitution required Japan “to sit and wait to die” if it came under attack. Speaking hypothetically, Naka Funada, then head of the Japan Defense Agency, said that if no other suitable means exist for Japan to defend itself, striking an enemy's missile bases was constitutional from the standpoint of self-defense (Naka Funada, House of Representatives, Cabinet Committee, February 29, 1956).

³ Jeffrey W. Hornung, “Is Japan's Interest in Strike Capabilities a Good Idea?” *War on the Rocks*, July 17, 2020b.

⁴ Jeffrey W. Hornung, “Japan Needs Long-Range Strike Capabilities,” *Defense One*, October 23, 2017.

⁵ MOD official, RAND interview, March 26, 2019.

⁶ This is defined in Article 76 of the SDF Law, which describes the situation for exercising “Defense Operations.” Government of Japan, “第七十六条 [Article 76],” 自衛隊法 [*Self-Defense Forces Law*], 1954 Law No. 165.

⁷ Retired SDF officer, RAND interview, March 26, 2019.

⁸ Maritime Self-Defense Force, “掃海母艦「うらが」型 [MST ‘Uraga’ Class],” undated-a.

⁹ MOD official, RAND email correspondence, October 8, 2019.

and radios of the SDF.¹⁰ Importantly, the MOD included stand-off jamming capabilities (not limited to training) in the FY 2020 budget, making an as-of-yet-undecided platform EA capable.¹¹ The same is true for the MSDF. The MSDF maintains a small fleet of dedicated EW assets that includes five EP-3s and three UP-3Ds. The EP-3s, capable of electronic intelligence collection, are designed for ES. The UP-3Ds are capable of limited EA, being designed primarily for training the MSDF's destroyers. While most of the MSDF's aviation fleet has basic ES capabilities and electronic countermeasure pods, there are no EA capabilities aside from those used for training purposes. This means that even though the SDF maintains limited jamming capabilities it uses as training assets, it lacks capabilities that could be used in actual wartime conditions.¹² Understanding this, the MOD has been looking for ways to rectify this weakness. The *R&D Vision* published by the MOD in 2019 includes a long list of technologies the MOD/SDF is seeking to acquire. This includes jamming technology, anti-jamming technology, protection technology against electromagnetic pulse effects, and electromagnetic spectrum domain awareness technology, among others.¹³ Japan's *R&D Vision* states that Japan can acquire these technologies sometime between 2029–2038, with an acknowledgement that even this endpoint is “tentative.”¹⁴

Finally, Japan lacks unmanned assets, both armed and unarmed. Despite an interest by the MOD and services to invest more in unmanned assets, such as UAVs and UUVs, they “haven’t been seriously pursued.”¹⁵ This is due to an ongoing debate in Japan’s defense community on needing to invest in unmanned technology to help alleviate pressures on declining SDF recruitment and distribute Japanese defenses over wider areas versus those who support dedicating resources to traditional manpower-reliant platforms, such as the refurbished *Izumo*-class ships and F-35 aircraft. As a result, despite some tentative steps into unmanned platforms, such as the purchase of the Global Hawk ISR platform, the MOD and services are still largely in the planning and R&D phase.¹⁶ The only exceptions are some field surveillance assets by the GSDF and primitive unmanned capabilities in mine warfare and the removal of land mines and improvised explosive devices. Numerous interviewees indicated the MOD lacks a well-thought out plan on what unmanned capabilities SDF needs, how it would employ them, and where they would be deployed.

There are no constitutional constraints preventing Japan from possessing unmanned assets. Neither are there restrictions against arming them. Possession of unmanned assets may help ease some of the recruitment problems facing the services (examined below) and provide Japan with greater operational mobility in both defense operations and in support of the United States. This is needed against a state such as China, which has forces much larger than the SDF and with capabilities that can quickly overpower Japan if these forces are brought in

¹⁰ Because of concerns that EA capabilities could be deemed too aggressive, the ASDF never pursued them in any great effort. Because training purposes are meant to strengthen Japan’s defenses, limited EA capabilities were approved, as they are seen as defensive capabilities.

¹¹ MOD, 2019b, p. 7.

¹² MOD official, RAND interview, March 26, 2019.

¹³ Acquisition, Technology and Logistics Agency, 2019, p. 7.

¹⁴ Acquisition, Technology and Logistics Agency, 2019, p. 8.

¹⁵ Retired SDF officer, RAND interview, March 27, 2019.

¹⁶ National Security Secretariat official, RAND interview, March 23, 2019.

full. A cost-benefit analysis would be required to determine whether unmanned capabilities are significantly cheaper to purchase, fuel, and maintain than their manned-counterparts, but broad generalizations can be made regarding the operation benefits they would bring for Japan:

- Unmanned assets generally have the benefit of long endurance, thereby providing persistent acquisition and rapid dissemination of ISR information. In this mission, they have advantages over manned counterparts by being able to operate in environments difficult or dangerous for humans, such as high altitudes or deep ocean depths.
- Weaponized assets can provide extensions of manned strike missions, putting weapons—rather than sensors—on a moving target, thereby increasing the accuracy of strikes from greater distances. Importantly, in a combat situation, unmanned assets can provide critical support to manned SDF assets, including jamming and communications.
- Unmanned assets can stay in or near the combat area longer than SDF's manned systems, which can help minimize casualties or capture of personnel if damaged/destroyed.
- If cheaper than traditional platforms, they could be procured in greater numbers, enabling the SDF to employ these in large numbers against a quantitatively larger adversary.
- Unmanned assets are easier and faster to deploy and require smaller facilities to house and maintain, which is pertinent for Japan given the thousands of possible islands on which to house these assets. Strategic benefit also comes with Japan's ability to disperse its forces over dozens or hundreds of islands rather than large bases or platforms.

While none of these capabilities that Japan currently lacks would provide Japan, or the alliance, a decisive edge in any regional conflict with China, their absence nevertheless puts Japan at an operational disadvantage.

The SDF Lacks Jointness

Another challenge has been the SDF's inability to work together as one force, even in its core task of defending Japan. A 2018 RAND conference publication on the GSDF's establishment of the ARDB examined the "amphibious joint pain" Japan faced in this context.¹⁷ Although that focused on the GSDF's effort to establish amphibious capabilities, the challenges contained therein are applicable to the entire SDF. A point that publication raised that is relevant to a regional contingency is that the three SDF services "must cooperate seamlessly and quickly to tackle the changing operational challenges in the air and on the sea and the ground. Jointness is indispensable in this effort because each service can do what the others cannot."¹⁸ The MOD and the services have been aware of this challenge for years. And yet, the SDF remains largely three separate forces with better interoperability with their U.S. counterparts than with each other, although they are gradually improving.

¹⁷ Hornung, 2018a.

¹⁸ Grant Newsham, "Developing a Maritime Security Coalition Architecture for the Indo-Pacific," News18.com, November 1, 2014.

For many years, the issue that received a lot of attention was the inability of the three services to share data among themselves. As detailed in proceedings of the 2018 conference, historically, the ASDF and MSDF have shared Link 16 capabilities on some of their assets but the GSDF did not, making it difficult for the MSDF and ASDF to share data with the GSDF in the same battlespace, thereby impeding instantaneous shared situational awareness and targeting data.¹⁹ For example, without a shared data link capability, the MSDF were not able to easily talk to GSDF ASCMs batteries to transmit data or coordinate operations; nor could the ASDF's PAC systems directly communicate with the GSDF's SAMs.²⁰ This complicated targeting identification and coordinated firing among SDF assets in theater. The GSDF's lack of data link capabilities was therefore seen as one challenge to better jointness. In recent years the GSDF has attempted to rectify this through the acquisition of Link 16 for its ASCM batteries, with the installation expected to be completed by mid-2021.

That said, data sharing challenges remain. While the MSDF's DDGs and DDHs are equipped with Link 16, less than 10 percent of other destroyers have it.²¹ The same is true in the ASDF. While its AWACS have Link 16, less than half of the F-15 fleet is equipped with Link 16, and none of the F-2s have it.²² The reason for the lack of extensive buildout is due to the enormous cost of the system. Nevertheless, the result is gaps throughout the SDF. Even after the GSDF deploys the capability in 2021, there will still be difficulty conducting real-time data sharing in non-ASCM tasks. While Link 16 will allow the three services to quickly share data among them in anti-ship operations, data sharing in other targeting operations will still be challenged (i.e., anti-air, anti-ground) as necessary information will be shared within a service on that service's specific system and network and then via a common network such as Link 16 among the sister services. This will be easier for anti-air operations, where interfacing units will be able to provide the requisite targeting data.²³ It will be harder for anti-ground operations where there are no interfacing systems.²⁴ In these cases where units do not have the common network and cannot receive or transmit data even through interface units, effective and timely conduct of joint operations will be hindered.

The challenges to jointness go beyond a common data sharing capability. As the 2018 RAND publication examined, other prominent areas continue to bedevil the SDF services—C2, communications and information sharing; fires; and equipment—but I will not reexamine in-

¹⁹ Hornung, 2018a, p. 36.

²⁰ Retired SDF official, RAND email correspondence, February 7, 2020.

²¹ MOD official, RAND interview, March 26, 2019.

²² According to one estimate, out of the 201 F-15s in the fleet, only 68 are receiving the upgrade. MOD official, RAND interview, March 26, 2019. For the F-2s, the delay is due to the delay of improvements on the platform's mission computer. Starting in FY 2020, the platform will begin to undergo Link-16 installations.

²³ The ASDF's PAC batteries and some of its F-15s, as well as some MSDF destroyers, are already Link 16-capable, while its non-Link 16 F-15s can get data from ASDF AWACS via the ASDF's specific link system and from non-Link 16 MSDF destroyers via Link 11. Even though the GSDF's Chū-SAM batteries do not have Link 16, they will be able to get data from the JADGE network, to which they are connected.

²⁴ Although MSDF destroyers have Link 16 and the ASDF's F-2s can get data from AWACS, the GSDF's artillery batteries do not have Link 16. Instead, they use a service-specific system that connects to the C2 system. In this situation, close air support by ASDF and GSDF as well as naval gun fire support by the MSDF and GSDF still has to rely on voice communication.

depth here.²⁵ Other problems of jointness stem from the lack of a joint planning doctrine and deficiencies in the SDF's doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) pillars. There are also differences in operational concepts and service cultures. The SDF, for example, lacks a joint fire support command, control, and coordination doctrine with associated joint tactics, techniques, and procedures; leaving each service to develop their own interpretation on execution and who controls what, with the services tending to "deconflict" fires for safety purposes rather than "coordinate" fires to produce an effect in combination with maneuver and other war-fighting functions.²⁶ This, of course, poses operational challenges because if fire support agencies are not centrally coordinated by one fires coordination team, the possibility of fratricide increases and the possibility of achieving the required operational effects from fires goes down.

Another major obstacle to jointness is different C2 structures. Japan lacks a joint operational command, although in an East China Sea contingency it is expected that it would establish a joint task force. Yet, the SDF is more accustomed to operating as individual services that coordinate with one another rather than a joint force. Each service has its own decisionmaking structures, priorities, and tasking procedures which are not necessarily in synch with one another. Any East China Sea contingency will mean that the SDF will face an adversary far from the Japanese mainland in conditions that are rapidly changing. This will demand quick sharing of time-sensitive information and coordinated responses by the three services that their separate C2 structures may prevent. Successful deployment of the ARDB, for example, will require seamless C2 among the SDF services for these units to rapidly stage and deploy from their bases on mainland Japan and be protected by air, maritime and ground assets as the ARDB's component parts are transported to the battlespace and be ready to engage the adversary at all points in between. While the services will be able to track all other ocean or aerial activity—including U.S. military assets and commercial traffic to avoid friendly fire catastrophes and engaging the adversary in a timely manner—the operation's success will have to rely on quick and effective coordination among the three service's separate C2 structures, such as coordinated tasking procedures. Without this, a contingency can become highly challenging as the SDF will have problems making rapid decisions on what unit in which service engages enemy assets. As the ranges of the SDF's ASCMs, SAMs and ASMs extend over time, and multiple services can be involved in an operation, this problem will become more acute.

Lastly, although the three services do conduct joint exercises every year, they have done very little joint training for the type of warfare expected in the East China Sea, thereby limiting the type of training that could be conducive to better jointness. This is not entirely the SDF's fault. Part of the problem is that, despite having thousands of islands, there are few suitable for practicing the type of tasks expected in a regional contingency. Not only does an island have to be uninhabited and far from those that are inhabited, for amphibious warfare training, the island must have the right geological features to allow for practicing ship-to-shore assaults without damaging equipment. They also need a suitable range that does not prohibit the troops from exercising the calling for MSDF gunfire and guiding close air support aircraft. Crucially, the central government needs to obtain support of the local municipality or prefectural government that administers the islands. For example, although an island in western Kyūshū called

²⁵ These four were C2; communications and information sharing; fires; and equipment.

²⁶ Hornung, 2018a, pp. 37–38.

Eniyabanare was utilized in 2014 in the SDF's first known joint exercise dedicated to island defenses, local leaders have since designated it as a part of a national park, making it difficult to utilize it again for similar exercises.²⁷ Such an exercise has only been repeated once since that time, in 2016. And while the GSDF and MSDF conducted joint amphibious training in 2018 on the island of Tanegashima, consisting of landing training by AAVs, boats and helicopters, and the MSDF's LST *Shimokita*, the ASDF were not involved.²⁸

Negative Trends in SDF Recruitment and Aging

Despite the SDF's high level of professionalism, Japan's demographic decline is having a negative effect on the force, both in recruiting and the force's age, which could impair the SDF's ability to engage with what is expected to be a quantitatively larger Chinese force. Data from Japan's National Institute of Population and Social Science Research shows that, in the coming decades, Japan's population will suffer a decline. As of July 2019, Japan's population stood at 126.2 million.²⁹ In 2020, the projected population is 125.3 million. Over the following decades, Japan will continue to shrink, with its population dropping to 119.1 million by 2030, 110.9 million by 2040, and 101.9 million by 2050.³⁰ In 2053, it is expected to drop beneath 100 million (99.2 million) for the first time since 1966.³¹ Along with this decline, Japan is rapidly aging. This matters for the SDF, because the population from which to recruit new personnel, the working age population (ages 15–64), is shrinking. From 74.1 million in 2020, it will drop to 68.8 million in 2030, 59.8 million in 2040, and 52.8 million in 2050.³² Given that the SDF workforce draws from a similar age pool as the general workforce, it is expected that SDF recruitment will face increasing challenges in the future. Already, the SDF is facing such challenges. Data provided by the MOD show that trends in SDF applicants and recruits are negative (Table 7.1). Despite SDF applicants reaching a high of 159,328 in 1998, by 2018 this had sunk to 87,562, leaving the SDF facing its second-worst year in applicants since 1991 (the worst being 2008's 82,845 applicants). While the number of SDF recruits are much smaller today compared with 1991, when the SDF had 23,148 recruits, the general trend in absolute numbers has remained fairly steady since 2012.

²⁷ While laudable for it bringing together the three SDF services, the 2014 exercise was relatively small as it only involved 1,300 personnel, two MSDF destroyers, two ASDF F-2 jets, a landing craft, air-cushioned (LCAC) for troops and amphibious vehicles, a minesweeper, and some helicopters. MOD official, RAND email correspondence, August 30, 2019.

²⁸ MOD Official, RAND document received, August 30, 2019.

²⁹ Ministry of Internal Affairs and Communication's Statistics Bureau of Japan, 人口推計—2019年(令和元年)7月報 [*Population Estimates-2019 (Reiwa Year 1), July Edition*, Statistics Bureau of Japan, July 22, 2019, p. 1.

³⁰ National Institute of Population and Social Security Research, 日本の将来推計人口—平成28(2016)–77(2065)年附:参考推計 平成78(2066)–127(2115)年,平成29年推計 [*Population Projections for Japan: 2016-2065 (With Long-Range Population Projections: 2066-2115)*, 2017 Estimates], Tokyo, Japan: National Institute of Population and Social Security Research, July 13, 2017, p. 81.

³¹ In 1966, Japan's population was 99.03 million. In 1967, it reached 100.2 million for the first time. See Statistics Bureau of Japan, Ministry of Internal Affairs and Communication, 人口推計/長期時系列データ 我が国の推計人口(大正9年~平成12年) [*Population Estimates / Long-Term Chronological Data, Our Country's Estimated Population (1920–2000)*], e-Stat, December 18, 2007.

³² National Institute of Population and Social Security Research, 2017, p. 81.

Table 7.1
Total Number of SDF Applicants and Recruits (FY 1991–FY 2018)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total number of applicants	90,833	90,932	104,278	126,162	132,822	140,970	149,636	159,328	156,311	145,488
Total number of recruits	23,148	20,209	11,525	12,148	12,618	13,314	15,766	11,128	9,999	12,508
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total number of applicants	143,651	151,324	145,578	132,767	124,602	119,592	89,297	82,845	103,829	114,943
Total number of recruits	15,333	14,070	13,985	15,924	17,542	18,052	16,712	13,569	8,069	11,012
	2011	2012	2013	2014	2015	2016	2017	2018		
Total number of applicants	119,797	114,488	114,834	105,984	93,155	92,129	93,174	87,562		
Total number of recruits	9,606	15,200	14,448	14,187	13,666	14,148	14,090	15,060		

SOURCE: MOD Official, RAND document received, April 1, 2019.

Problematically, however, these low numbers mean the SDF is increasingly having trouble meeting its recruitment goals, as shown in the fulfillment rates in Table 7.2.³³ Despite several years of surpassing fulfillment goals in the early 2010s, since 2015 this is no longer the case. Part of the reason for this is a temporary surge in the number of personnel retiring, combined with SDF efforts to recover from personnel cuts over a decade ago.³⁴ These have worked to push the target number for recruitment higher, thus a higher “required” number, putting more stress on recruitment. Although the “join” data show steady progress over the past few years, the long-term trends of Japan’s aging society threaten to make the problems of fulfillment permanent. This is because, as shown in Table 7.1, the number of applicants continues to drop. The services are experiencing different levels of challenges with recruitment with the MSDF increasingly facing the largest difficulties. Details on the individual services are included in the appendix.

The SDF’s recruitment challenges, viewed alongside the long-term trends of Japan’s aging society, threaten to make the problems of SDF fulfillment permanent. The implications of these shortfalls will likely differ across the services, however. For example, compared with manpower shortages in a GSDF infantry unit, where taskings can be shifted to other units or shortfalls could ease management challenges, manpower shortages in the MSDF and ASDF could translate into operational problems on ships and planes where those assets require a set number of personnel to be operated regardless of the manning level.

The MOD views the general decline in applicants as a “recruiting crisis” but not a crisis for the SDF.³⁵ This is because the SDF has managed the declining pool of recruits by relying

³³ The “required” number in the data is mainly set by two factors: (1) number of SDF personnel who left the service and (2) personnel numbers authorized by the annual defense budget.

³⁴ MOD official, RAND email correspondence, September 19, 2019.

³⁵ MOD official, RAND interview, March 28, 2019.

Table 7.2
SDF Fulfillment Rate (FY 2009–FY 2018)

FY	Required	Applicants	Join	Fulfillment Rate (%)
2009	10,042	103,829	8,069	80
2010	10,021	114,943	11,012	110
2011	9,347	119,797	9,606	103
2012	14,271	114,488	15,200	107
2013	13,607	114,834	14,448	106
2014	13,808	105,984	14,187	103
2015	14,884	93,155	13,666	92
2016	14,218	92,129	14,148	100
2017	15,977	93,174	14,090	88
2018	17,699	87,562	15,060	85

SOURCE: MOD Official, RAND document received, September 17, 2019.

NOTE: In addition to the three services, also includes various kinds of students.

on other means to maintain a force size as close to the authorized number as possible. One method—raising the retirement age—has been an attractive option. This method, however, ages the SDF. As Table 7.3 shows, retirement ages were already raised to the current level, with two exceptions. The retirement age of the highest rank of General or Admiral, reserved for the chief of each service and the Chief of Staff, Joint Staff, is 62. Similarly, the retirement age of personnel who serve as doctors, dentists, or pharmacists or in a musical band, military police, or intelligence section is 60. Given the pressures of dwindling recruitment, Japan has been forced to raise the retirement ages again. In the next five years, Japan will raise the retirement age for all ranks—except for the top two—by one year, giving the SDF an additional 6,000 people.³⁶ Five years after that, Japan will do it again, providing an additional 6,000.

While the average age for officers has generally remained at 41 years of age since retirement ages began increasing in the 1990s, the average age of noncommissioned officers (NCOs) in the SDF has increased along with raising the retirement age and broadened criteria for candidates. In 1990, the average age of an NCO was 35.9 years; in 2018 it had increased to 38.6.³⁷ Over the next six years, it is projected that age will increase to 39.5.³⁸ This increase is believed to be due, in part, to the fact that more university graduates are applying to, and are qualified to become, NCO candidates.³⁹ Despite these increases in NCOs, the average ages of each SDF branch have not fluctuated much, largely because new recruits tend to keep these averages consistent. As Table 7.4 shows, over the past decade, the average age has increased by approxi-

³⁶ MOD official, RAND interview, March 28, 2019.

³⁷ MOD, “階級別の平均年齢の推移 (幹部・准尉) [Change in Average Age of Ranks (Officer, Warrant Officers)],” RAND document received, undated-c.

³⁸ MOD, “Change in Average Age of Ranks (Officer, Warrant Officers),” undated-c.

³⁹ MOD official, RAND email correspondence, August 26, 2019.

Table 7.3
SDF Retirement Ages, by Rank

GSDf	MSDF	ASDF	Retirement Age	When Raised
Lieutenant General	Vice Admiral	Lieutenant General	60	1990
Major General	Rear Admiral	Major General		1990
Colonel	Captain	Colonel	56	1995
Lt. Colonel	Commander	Lt. Colonel	55	1995
Major	Lt. Commander	Major		1996
Captain	Lieutenant	Captain	54	1993
1st Lieutenant	Lt. Junior Grade	1st Lieutenant		1993
2nd Lieutenant	Ensign	2nd Lieutenant		1993
Warrant Officer	Warrant Officer	Warrant Officer		1993
Sergeant Major	Chief Petty Officer	Senior Master Sergeant		1994
Master Sergeant	Petty Officer 1st Class	Master Sergeant		1994 ^a
Sergeant 1st Class	Petty Officer 2nd Class	Technical Sergeant	53	1990
Sergeant	Petty Officer 3rd Class	Staff Sergeant		1990

SOURCE: MOD, "Retirement Age of SDF Personnel," JSDF Personnel Recruitment (RAND document received), undated-g, p. 7; MOD, "Change in Average Age of Ranks (Officer, Warrant Officers)," undated-c.

^a Raised to 53 in 1990.

Table 7.4
Average Age of Each SDF Branch (Officers, Fixed-Term Personnel, Privates), 2009–2018

	GSDf	MSDF	ASDF
Oct. 31, 2009	34.7	35.4	35
Oct. 31, 2010	35.3	35.8	35.4
Oct. 31, 2011	35.5	36.2	35.8
Oct. 31, 2012	35.7	36.3	36.1
Oct. 31, 2013	35.6	36.4	36.1
Oct. 31, 2014	35.5	36.3	36.2
Oct. 31, 2015	35.5	36.4	36.2
Oct. 31, 2016	35.5	36.5	36.3
Oct. 31, 2017	35.6	36.5	36.4
Oct. 31, 2018	35.5	36.5	36.5

SOURCE: MOD official, RAND email correspondence, August 26, 2019.

mately one year for each service. Should recruitment continue to prove challenging, and retirement ages are increased to maintain the force, these averages will likely continue to rise.

As the force gets older, it will adversely affect Japan's ability to support a regional contingency. As personnel age, they will face greater health issues than their younger counterparts, leading to a possibly less healthy force and possibly a greater strain on already tight defense budgets to cover medical expenses for older personnel. It does not necessarily mean a weakened SDF. The SDF can adjust missions to different personnel. For example, it is likely that older personnel will be tasked with more support-type missions, and younger soldiers will be assigned to units tasked with front-line warfighting missions.

The combination of recruitment challenges and an aging force has given rise to a debate over the value of moving toward greater use of unmanned assets. There is no clear consensus in the MOD or SDF on whether this should be the path forward. One view is that, given Japan's long-term demographic challenges, even if the future of warfare is not solely unmanned, many platforms likely will be. Investments in unmanned platforms would help reduce manpower and resource burdens on the services. That said, even supporters of this view warn that unmanned systems are not a panacea to the SDF's recruitment and defense budget problems. Depending on the platform, unmanned assets may be cheaper to procure and operate than their manned counterparts, but that is not always the case. For example, according to one estimate, the RQ-4 Global Hawk is more expensive to operate than some manned fighter aircraft.⁴⁰ Without a thorough cost-benefit analysis, it would be an overstatement to claim that all unmanned systems will be significantly cheaper in terms of fuel, operational, and maintenance costs. Such questions about the cost savings of unmanned platforms may be welcomed by the MOD, as many interviewees said that the dominant view in the SDF is hesitation to embrace unmanned platforms. According to this thinking, unmanned systems are seen largely as a replacement of manned systems, not as a complement. The result is relative stagnation in the debate over the future role of unmanned systems in the SDF. Given the SDF's challenges in recruitment and aging, long-term demographic trends may be the forcing function for who wins this debate.

Conclusion

This chapter explored three broad challenges facing the SDF that could prevent a robust response to an East China Sea contingency. It began with an assessment of key capabilities critical to warfare that are nonexistent, including long-range strike capability, mining, EW, and unmanned assets. It turned next to the SDF's lack of jointness, highlighting the difficulties of sharing data among the services and different C2 structures. The final challenge is negative trends in SDF recruitment and aging, with neither boding well for the long-term health and size of the SDF.

⁴⁰ Ashley Boyle, "The US and Its UAVs: A Cost-Benefit Analysis," *American Security Project*, July 24, 2012.

Legal Permissions, Interpretations, and Restrictions

The previous chapters focused exclusively on SDF capabilities, but understanding these capabilities does not provide full insight into *how* Japan would use them in a regional contingency. Given that the SDF has never been in combat, there are many questions regarding the situations in which Japan would support the United States, allow the United States to access its bases for combat, and authorize the SDF to use force. This chapter examines the broad outlines of what Japan's own laws authorize it to do in different situations, with the understanding that the nuanced details are a function of the specific scenario and political leadership in Tokyo. The chapter begins by laying out the alliance's basic obligations and expectations. It then examines the conditions for the United States to access its bases in Japan for combat operations not related to Japan's defense. Following that, the chapter briefly touches on the issue of the United States accessing Japanese air and seaports during a contingency before turning to the legalities associated with SDF using force in combat situations.

Alliance Obligations and Expectations

The U.S.-Japan security treaty sets out basic alliance obligations and expectations, and guidelines for operationalizing these are contained in the *Guidelines for U.S.-Japan Defense Cooperation*. The guidelines were first drafted in 1978 and have been revised twice: once in 1997 and most recently in 2015. The guidelines are important in that they provide expected roles and missions for security and defense cooperation in specific situations; they are not, however, legally binding. In the 2015 version, four distinct scenarios were identified and the associated expected roles and missions: peacetime, emerging threats to Japan's peace and security, actions in response to an armed attack against Japan, and actions in response to an armed attack against a country other than Japan.¹ These are examined in turn below.

Peacetime

The 2015 guidelines lay out the following roles and missions for the SDF in peacetime:

- Conduct ISR activities.
- Cooperate in air and missile defense.
- Cooperate on the maintenance of the maritime order.
- Provide mutual protection of each other's assets, as appropriate, if engaged in activities

¹ Japan and the United States of America, 2015.

that contribute to the defense of Japan, including during training and exercises.

- Continue to conduct bilateral and multilateral training and exercises to strengthen interoperability, sustainability, and readiness.
- Provide mutual logistic support where appropriate, including, but not limited to, supply, maintenance, transportation, engineering, and medical services.
- Enhance joint/shared use of facilities and cooperate in ensuring the security of these.

Emerging Threats to Japan's Peace and Security

During a period when a threat to Japan's peace and security is emerging, the 2015 guidelines describe the following missions for the SDF:

- Conduct noncombatant evacuation operations (NEOs) in third countries for their own nationals or coordinate in planning and cooperation of NEOs for the other.
- Cooperative measures in maritime security to include, but not limited to, information sharing and inspection of ships based on a UN Security Council resolution or other basis under international law.
- Handle regional refugee situation should refugees flow into Japan.
- Cooperation and mutual support in search and rescue operations, including support to U.S. combat search and rescue operations.
- Protection of their respective facilities and areas and, upon request from the United States, provide additional protection for facilities and areas in Japan in coordination with the United States.
- Enhance mutual logistic support (which includes, but is not limited to, supply, maintenance, transportation, engineering, and medical services).
- Provide, as needed, temporary use of facilities, including civilian airports and seaports.

Actions in Response to an Armed Attack Against Japan

The guidelines differentiate between when an attack is anticipated and when an attack occurs, mirroring Japan's domestic law. The guidelines state that, when an armed attack is anticipated, the allies will take steps to deter the attack and deescalate the situation while preparing to defend Japan. Few details are provided beyond "joint/shared use of facilities and areas; mutual logistic support, including, but not limited to, supply, maintenance, transportation, engineering, and medical services; and reinforced protection of U.S. facilities and areas in Japan."² In a situation where an armed attack against Japan occurs, however, the guidelines provide more detail. These include jointly conducting bilateral³

1. Operations to Defend Airspace;
2. Operations to Counter Ballistic Missile Attacks;
3. Operations to Defend Maritime Areas;
4. Operations to Counter Ground Attacks; and/or
5. Cross-Domain Operations.

The United States and Japan have also agreed to cooperate on various operational support

² Japan and the United States of America, 2015, p. 11.

³ Japan and the United States of America, 2015, pp. 11–14.

activities that include⁴

1. Communications and Electronics;
2. Search and Rescue;
3. Logistic Support;
4. Use of Facilities; and
5. Chemical, Biological, Radiological, and Nuclear Protection.

Actions in Response to an Armed Attack Against a Country Other Than Japan

Made possible by the passage of security laws in Japan in 2015 (detailed below), the 2015 guidelines include new roles and missions for the allies in situations that involve an armed attack against the United States or a third country, but in which Japan itself has not come under armed attack. In this situation, the guidelines detail several areas where the allies will cooperate to respond to the armed attack and to deter further attacks:

- Cooperate in the protection of assets engaged in operations, such as NEOs or BMD.
- Cooperate and provide support in search and rescue operations, including combat search and rescue.
- Cooperate in maritime operations, to include minesweeping operations, escort operations, and interdiction of shipping activities providing support to adversaries.
- Cooperate in intercepting ballistic missiles.
- Provide logistics support.

The guidelines detail the full spectrum of expected roles and missions they have agreed to perform, primarily in the defense of Japan. Because of the U.S. presence in Japan, in virtually all the agreed upon roles and missions, the defense of Japan overlaps with defense of the United States. For example, Japan's operations to defend airspace and counter ballistic missile attacks serve to defend U.S. forces in Japan as well. What is not explicit is what types of activities Japan is prepared to perform outside of its own defense; outside of Japanese territory, waters, or airspace; and beyond rear-area activities. The most important gap in the guidelines is any indication of how they would apply to the use of force by Japan in a scenario involving an attack against a third country.

U.S. Military Base Access for Combat Operations

For many regional contingencies, operational success for the United States will be a function of its ability to rapidly deploy its forces in Japan. This ability, in turn, rests on a strict legal interpretation regarding America's ability to employ its forces stationed on bases in Japan for combat operations other than Japan's defense.

Japanese officials understand that the United States will need to rely on bases in Japan to execute an operation in the region, such as the defense of Taiwan.⁵ But from the perspective of Tokyo, the United States is legally required to perform prior consultation with Japan to employ its forces from these bases for combat operations if it is not for the defense of Japan. In a Janu-

⁴ Japan and the United States of America, 2015, pp. 15–16.

⁵ Michael J. Green, "Will Japan Fight? Assessing the Scenarios for Conflict on China's Maritime Periphery," testimony before the U.S.-China Economic and Security Review Commission, April 13, 2017, p. 9.

ary 19, 1960, exchange of notes between Japanese Prime Minister Kishi Nobusuke and U.S. Secretary of State Christian Herter regarding the implementation of Article 6 of the *Treaty of Mutual Cooperation and Security*, the need for the United States to engage in what is called “prior consultation” was made explicit. In this document, the two sides agreed that

major changes in the deployment into Japan of United States armed forces, major changes in their equipment, and the use of facilities and areas in Japan as bases for military combat operations to be undertaken from Japan other than those conducted under Article V of the said Treaty, shall be the subjects of prior consultation with the Government of Japan.⁶

For Tokyo, prior consultation is an explicit legal obligation, per the terms of the treaty.⁷ The sensitive issue related to base access comes with “the use of facilities and areas in Japan as bases for military combat operations to be undertaken from Japan” for purposes other than Article 5 treaty obligations, which is the defense of Japan. Japan expects that the United States will consult with it prior to conducting combat operations to obtain Japan’s consent if the United States is considering using its bases in Japan to engage in armed conflict with another country when Japan itself is not a party to that conflict. The reason is to ensure that the United States “think[s] of how an opponent will react [to a strike] and the ramifications after that.”⁸ If an action taken by the United States puts Japan in a position where it becomes a target, it needs to be consulted because these actions will affect Japanese security.

In practice, prior consultation is not an onerous process. Officials from the U.S. government—likely the U.S. Ambassador in Tokyo—would approach the Japanese government—likely the Minister of Foreign Affairs—before any combat operations are decided.⁹ They would discuss things such as what type of operations the United States is envisioning, why, and what is allowed under the security treaty. Such a meeting would provide both governments an opportunity to have a conversation about security to avoid a situation in which Japan gets involved in a conflict not of its own making. It is not that Japan is trying to shirk any alliance responsibilities; rather, “if Japan is involved in a conflict, Japan needs to be consulted,” since its security will be affected.¹⁰

Should the United States fail to conduct prior consultation and launch attacks from U.S. bases against another country, there could be very serious consequences for the alliance, as Japan views such noncompliance as going “against our agreement.”¹¹ What would happen in such a situation is unclear, though most agree that if it occurs, “we (i.e., the alliance) are in trouble.”¹² Some feel that political voices, such as opposition parties, would immediately argue

⁶ Japan and the United States, *Exchange of Notes*, RAND document received, January 19, 1960b, pp. 33.8–33.11.

⁷ All Japanese government officials interviewed for this project expressed this view in no uncertain terms.

⁸ MOD official, RAND interview, March 22, 2019.

⁹ MOD official, RAND interview, March 25, 2019; MOFA official, RAND interview, March 26, 2019. Today, the Alliance Coordination Mechanism exists and would likely play a prominent role.

¹⁰ MOFA official, RAND interview, March 26, 2019.

¹¹ MOD official, RAND interview, March 22, 2019.

¹² National Security Secretariat official, RAND interview, March 23, 2019.

that this abrogates the security treaty, thereby making the alliance “null and void.”¹³ Most others feel that such voices may not come immediately, particularly in a situation where Japan needed U.S. support to protect it from China, but the decision would nevertheless “put severe pressure on the alliance.”¹⁴ Although the consequence may not be seen immediately, it would likely lead to “a reckoning once conflict is over,” as leadership in Tokyo would not forget a unilateral U.S. decision to engage in warfare with another state if Washington disregarded its prior consultation responsibility.¹⁵ Even if the reaction is delayed, there is a widespread view in Tokyo that noncompliance would be an “infringement of the treaty” that “would imperil the existence of the alliance.”¹⁶

In practice, some Japanese officials feel prior consultation gives Japan a veto power over U.S. actions, as it acts as a limitation on what the United States can do.¹⁷ Without a veto power, the whole notion of prior consultation “is meaningless.”¹⁸ Others, however, feel it is not a veto; rather, it is simply an opportunity to give Japan a say in the process. But Japan is also not unrealistic. If a contingency erupted between the United States and China, and Japan refused the U.S. use of its bases, officials admit the “alliance will be finished.”¹⁹ And if an attack on Japan were imminent and the United States wanted to use its bases, Japan would not say no.²⁰

Although the prior consultation process is not difficult, obtaining Japanese consent may not be easy. Several things could occur, such as delays in political approval or conditions imposed. And in a conflict between the United States and China, for example, where Japan has not yet been attacked, getting Japan’s leadership to agree to the United States using its bases for combat operations would make Japan an automatic target. Since that effectively guarantees Japan’s entry into the conflict and a willingness to accept the fact that “people will die,” obtaining consent could be difficult.²¹ Even politicians agree that if China took a calculated strategy and “dangled bases versus people” to Japanese leadership—meaning that Beijing attempts to persuade Tokyo from not granting the U.S. base access for combat strikes by promising not to kill Japanese civilians with airstrikes—it may be “very difficult for a prime minister to decide we are on the U.S. side.”²² Japan’s acquiescence to U.S. requests is not automatic, even in this situation, though obtaining consent is also not impossible. Although many officials interviewed for this research stated the United States should not expect Japan to refuse a request for use of its bases, particularly if hostilities between were imminent, they stressed that any base access decision is ultimately a political one.

Realistically, it is difficult to imagine Japan opposing a U.S. request to use its bases if a regional conflict erupts. Should the United States enter into hostilities with China, “it is dif-

¹³ National Security Secretariat official, RAND interview, March 23, 2019.

¹⁴ MOFA official, RAND interview, March 26, 2019.

¹⁵ Retired U.S. officer, RAND interview, March 25, 2019.

¹⁶ MOFA official, RAND interview, March 25, 2019.

¹⁷ Retired U.S. officer, RAND interview, March 25, 2019.

¹⁸ MOFA official, RAND interview, March 25, 2019.

¹⁹ MOD official, RAND interview, March 29, 2019.

²⁰ MOD official, RAND interview, March 25, 2019.

²¹ National Security Secretariat official, RAND interview, March 23, 2019.

²² Japanese politician, RAND interview, March 25, 2019.

difficult to imagine how the conflict won't affect Japan's national security."²³ And given that the United States is Japan's only ally, in a conflict where China could realistically strike Japan, it will be politically "almost impossible" for Tokyo to oppose a U.S. request for base access.²⁴ Although outright rejection of a U.S. request is unlikely, and approval is not automatic, one official stated that Japan's approval is semi-automatic because Tokyo knows what side it should be on in that conflict.²⁵ Mindful of its domestic laws (examined below), how much Japan assists in the U.S. endeavor beyond base access will depend on the speed and depth of discussions the United States engaged in during the prior consultation process. The earlier that Japan is brought in as part of the decisionmaking process, the more it has a stake in the outcome.

U.S. Military Access to Japanese Air/Sea Ports

U.S. bases in Japan may not be the only facilities that U.S. forces want to use. In a regional contingency, it would be operationally beneficial for U.S. forces to have access to Japanese airfields and ports, both SDF and civilian. According to the allies' Status of Forces Agreement (SOFA), U.S. forces are granted the use of facilities and areas in Japan.²⁶ The SOFA does not distinguish between SDF or civilian facilities. If a contingency occurs in which Japan is attacked, the United States can expect access to SDF airports and seaports, with the Alliance Coordination Mechanism coordinating the specifics. The decision on allowing access to SDF facilities is ultimately decided by the Japanese government but is generally considered to be guaranteed, with it expected that Tokyo will expedite the necessary procedures in an emergency.²⁷

The situation for the United States accessing civilian airfields and ports is more complicated but begins with the United States notifying Tokyo which specific seaports and airfields it wants to use via the U.S.-Japan Joint Committee. Like its access to SDF facilities under the SOFA, the United States is granted access to civilian airfields and ports in Japan. The 2015 *Guidelines* contained specific language clarifying U.S. access to these civilian facilities. In "important influence situation" (described below), the "Government of Japan will provide, as needed, temporary use of facilities, including civilian airports and seaports, in accordance with the Japan-U.S. Security Treaty and its related arrangements."²⁸ Similarly, in an "armed attack situation" (described below), the "Government of Japan will provide, as needed, additional facilities in accordance with the Japan-U.S. Security Treaty and its related arrangements."²⁹ The legal differences relating to U.S. access to these civilian facilities is granted by Japan's *Law Concerning the Use of Specific Public Facilities in Situations Including Where an Armed Attack*

²³ MOD official, RAND interview, March 22, 2019.

²⁴ Japanese politician, RAND interview, March 25, 2019.

²⁵ MOFA official, RAND interview, March 26, 2019.

²⁶ Japan and the United States of America, "Article II, 1.(a)" and "Article V," *Agreement Under Article VI of the Treaty of Mutual Cooperation and Security Between Japan and the United States of America, Regarding Facilities and Areas and the Status of United States Armed Forces in Japan*, January 19, 1960c.

²⁷ MOD official, RAND interview, March 22, 2019.

²⁸ Japan and the United States of America, 2015, p. 10.

²⁹ Japan and the United States of America, 2015, p. 15.

and Others Against Japan Occurs.³⁰ As the name states, the law only allows access after a situation where the government declares an armed attack, or some other large-scale emergency. This is either after an armed attack has taken place or when an armed attack is anticipated by the government. Prior to these situations, the United States will face difficulties accessing civilian facilities because Tokyo cannot order local municipalities to comply with a peacetime request.³¹

Once an armed attack or anticipated armed attack situation is declared by the government, and the United States requests which civilian facilities it wishes to use, the government would decide how much access U.S. forces are allowed and coordinates with those in charge of the facilities.³² In that sense, there is no automatic granting of access to civilian airfields and seaports during a contingency. The law simply allows the government to coordinate with civilian authorities to assist the United States in accessing the facility it needs.³³ Should a civilian authority oppose, the law gives the central government the authority to order the local authority to comply.³⁴ In case the local authority refuses, the central government can directly grant access to the facility in question.³⁵

Therefore, once the Diet approval occurs (under the situations described below) and the central government agrees on the U.S. request, there is a high degree of confidence that the United States will have access to civilian facilities. The process, however, could be time-consuming. The United States would tell the MOD of its desire to use a specific port; in turn, the MOD would have to coordinate with the Ministry of Land, Infrastructure, Transport and Tourism, which, in turn, would be responsible for coordinating with the airfield or seaport in question. In principle this means the United States would potentially have access to all Japanese airfields and ports in a contingency, but there is no guarantee to immediate access. Even though the law allows Tokyo to order local authorities to allow access, obstruction by intransigent local authorities could hinder quick access. For example, because the process requires approvals from local authorities, or an override by the central government, local authorities could find ways to slow the process down.³⁶ In a crisis, it is hoped that civilian authorities would refrain from this behavior, but there is no guarantee against it.

³⁰ Government of Japan, 武力攻撃事態等における特定公共施設等の利用に関する法律 [Law Concerning the Use of Specific Public Facilities and Others in Situations including Where an Armed Attack Against Japan Occurs], 2004 Law No. 114.

³¹ MOD official, RAND interview, March 27, 2019.

³² Government of Japan, “第七条・第九条・第十一条 [Articles 7, 9, 11],” 2004 Law No. 114.

³³ MOD official, RAND interview, March 27, 2019.

³⁴ To ensure the priority use of a harbor, Article 9, Clause 3 of the Law gives the PM the authority to direct the Minister of Land, Infrastructure, Transport and Tourism to issue permissions or to take other measures to ensure the required use of a port when it is deemed necessary and urgent to protect Japanese people's lives and property. While this does not give the central government the authority to ‘punish’ the non-complying local authority, neither does it need to follow any sequence of requests. Tokyo can ‘take over’ if it feels the local authority is foot-dragging. See Government of Japan, “第九条第三項 [Article 9, Clause 3],” 2004 Law No. 114.

³⁵ MOD official, RAND email correspondence, December 9, 2019.

³⁶ U.S. official, RAND interview, March 22, 2019.

SDF Use of Force and the Political Approval Process

Given Japan's constitutional restrictions on its armed forces, there is a question of whether and how the SDF's capabilities could be employed in a contingency. Unlike Article 5 of the North Atlantic Treaty Organization's (NATO) North Atlantic Treaty, which states "an armed attack against one or more [parties] in Europe or North America shall be considered an attack against them all,"³⁷ Japan is under no treaty obligation to assist the United States in a conflict. This has led to accusations of the alliance being unfair.³⁸ And yet, Japan today is legally able to assist the United States in a contingency, albeit with conditions attached and in limited situations.

Prior to 2015, Japan was only authorized to mobilize the SDF for national defense and could only use force in an armed attack situation (武力攻撃事態). Under the Armed Attack Situations Response Law, two scenarios were defined: an "armed attack situation" and an "anticipated armed attack situation." The former was defined by then-Prime Minister Koizumi Junichirō as one in which there is an organized and premediated armed attack against Japan's territorial land, sea or airspace and it could be applicable to an armed attack against Japanese ships on the high seas, depending on the situation.³⁹ The latter was defined as a situation in which an armed attack has not yet occurred but is anticipated.⁴⁰

In 2015, the Abe administration passed a suite of security laws that expanded what Japan can do with its SDF and the situations within which it can act.⁴¹ While this legislation gives Tokyo the flexibility to expand the use of force, much depends on the specifics of any given situation. This legislation was important because it expanded these areas in which the SDF could act, even though the expansion was "very limited."⁴² Two new situational concepts were introduced in this regard. The first is a situation that will have an important influence on Japan's peace and security (重要影響事態). These are situations that affect Japan's peace and security and, if not addressed, will have the potential to lead to a direct armed attack against Japan.⁴³ This was an amendment to a former concept of "situations in areas surrounding Japan," which sought to expand the geographical range of areas for Japan to operate. The second new situational concept is a situation threatening Japan's survival (存立危機事態), which was added

³⁷ NATO, "Article 5," North Atlantic Treaty, April 4, 1949.

³⁸ Eugene Kiely, "Trump on 'Unfair' U.S.-Japan Security Treaty," *FactCheck.Org*, July 2, 2019.

³⁹ The Japanese reads: 我が国に対する武力攻撃とは、基本的に、我が国の領土、領海、領空に対する組織的、計画的な武力の行使を言うと考えております。また、公海上にある我が国の艦船に対するものは、状況によっては我が国に対する武力攻撃に該当し得ると考えることもできます。Koizumi Junichirō, House of Representatives, Special Committee Regarding a Response to an Armed Attack Situation, May 14, 2003.

⁴⁰ Government of Japan, "第二条第3項 [Article 2, Clause 3]," 武力攻撃事態等及び存立危機事態における我が国の平和と独立並びに国及び国民の安全の確保に関する法律 [Law for Ensuring the Peace and Independence of Japan and the Security of the State and the People in Armed Attack Situations, Etc., and Situations Threatening Japan's Survival], 2003 Law No. 79.

⁴¹ An English overview of these laws is provided in Jeffrey W. Hornung, "Japan's 2015 Security Legislation: Change Rooted Firmly in Continuity," in Mary McCarthy, ed., *Routledge Handbook of Japanese Foreign Policy*, Abingdon, United Kingdom and New York: Routledge, 2018b, pp. 22–40. For more details in Japanese, see Cabinet Secretariat, "平和安全法制等の整備について [About the Development of the Legislation for Peace and Security]," undated.

⁴² Japanese politician, RAND interview, March 27, 2019.

⁴³ Government of Japan, "第一条 [Article 1]," 重要影響事態に際して我が国の平和及び安全を確保するための措置に関する法律, [Law Concerning Measures to Ensure Peace and Security of Japan in Situations That Will have an Important Influence on Japan's Peace and Security], 1999 Law No. 60.

to the Armed Attack Situations Response Law to become the Law for Ensuring the Peace and Independence of Japan and the Security of the State and the People in Armed Attack Situations, Etc., and Situations Threatening Japan's Survival.⁴⁴

Under these new laws, Tokyo must first *define* an unfolding situation and make decisions on the linkages to Japan's security. Should a contingency erupt but Japan is not attacked and Tokyo defines the situation as one that will have an important influence on its peace and security, SDF involvement would be limited.⁴⁵ It would be restricted to noncombat, rear-area support activities that can be conducted either in Japanese territory/waters/airspace or on the high-seas.⁴⁶ These activities are described in the defense guidelines and include things such as logistic support, provision of supplies, repair and medical services, and search and rescue operations. The SDF would not be authorized to use force.⁴⁷ Two caveats are attached to this support. The first is that the SDF can provide U.S. forces with live ammunitions and other materials as part of this effort, but it is restricted from providing weapons of any kind.⁴⁸ The permitted support activities, however, are not restricted to the United States; they can be provided to the armed forces of any country assuming Japan has signed the Acquisition and Cross-Sharing Agreement with that country.⁴⁹ The second caveat is that these rear-area support activities must legally not take place in the area "where combat activities are actually occurring" and cannot be regarded as violating the prohibition on integration with the use of force with another military (武力行使との一体化).⁵⁰

Declaring a situation as having an "important influence on Japan" is not precise or well defined, nor is it automatic. Officials admit there is a "vague interpretation" of what sort of situation would be defined as this, but it is likely to include Japan not being directly attacked.⁵¹ Because Article 5 of the security treaty does not commit Tokyo to support the United States should Washington be engaged in combat, Japanese involvement at this stage relies purely on a political decision from Tokyo. Only the prime minister has the legal authority to order the deployment of the SDF.⁵² These decisions, however, must obtain both a cabinet decision and

⁴⁴ Government of Japan, 2003.

⁴⁵ SDF officer, RAND interview, March 27, 2019.

⁴⁶ Government of Japan, "第二条 [Article 2]," 1999. National Security Secretariat official, RAND interview, March 23, 2019; MOD official, RAND interview, March 25, 2019; MOD official, RAND interview, March 27, 2019.

⁴⁷ MOD official, RAND interview, March 27, 2019.

⁴⁸ Government of Japan and Government of the United States of America, "Article 1, Clause 1.a.ii," *Agreement Between the Government of Japan and the Government of the United States of America Concerning Reciprocal Provision of Logistic Support, Supplies, and Services Between the Self-Defense Forces of Japan and the Armed Forces of the United States of America*, September 26, 2016.

⁴⁹ Government of Japan, "第3条第1項・第3条第2項 [Article 3, Clauses 1 and 2]," 1999; Government of Japan, "(Appendix) Matrix of the Legislation for Peace and Security," *Japan's Legislation for Peace and Security*, March 2016, p. 8.

⁵⁰ Hiroshi Sasamoto and Naoki Kuwayama, "後方支援法制に関する国会論議: 周辺事態安全確保法改正案、国際平和支援法案 [Diet Debate Regarding Logistics Support Legislation: Revision of the Law Concerning Measures for Peace and Security in Situations in Areas Surrounding Japan and the International Peace Support Bill]," *立法と調査 [Legislation and Research]*, No. 372, December 2015, pp. 55–57.

⁵¹ MOD official, RAND interview, March 25, 2019.

⁵² As noted earlier, Article 9 of Japan's constitution prohibits war potential. Previous governments have interpreted the SDF as defense forces and thus legal. Because of Article 9, however, the constitution does not specify any government position as responsible for commanding the SDF. Japanese officials said the power of the prime minister over these decisions are therefore based on Article 72 of Japan's constitution: "The Prime Minister, representing the Cabinet, submits

then Diet approval in the form of a Basic Plan (基本計画) that defines the scope of the proposed SDF mission.⁵³ In an emergency situation, where Diet approval is not immediately possible, the SDF can act as it awaits Diet approval.⁵⁴

For Japan to move beyond rear-area, noncombat support to the SDF using force, Japan's prime minister historically had only to decide whether a situation was an armed attack situation (武力攻撃事態). For this, a prime minister must make decisions on the linkages between an unfolding scenario and Japan's security and determine whether a situation fulfills several conditions. From 1954 to 2014, these three conditions were:

1. There is an imminent and illegitimate act of aggression against Japan;
2. There is no other appropriate means available to repel the aggression;
3. The use of armed force is limited to the minimum extent necessary.⁵⁵

This meant that Japan was able to use force, but only for individual self-defense. In 2014, however, then-Prime Minister Abe reinterpreted Japan's constitution to allow the SDF to use force in the exercise of collective self-defense. According to these changes, the SDF could now use force if the following three conditions are fulfilled:⁵⁶

1. When an armed attack against Japan has occurred, or when an armed attack against a foreign country that is in a close relationship with Japan occurs and as a result threatens Japan's survival and poses a clear danger to fundamentally overturn people's right to life, liberty and pursuit of happiness;
2. When there is no other appropriate means available to repel the attack and ensure Japan's survival and protect its people; and
3. The use of force will be limited to the minimum extent necessary.

Under this reinterpretation (of Condition 1), Japan can now use force in a situation threatening Japan's survival (存立危機事態), in addition to an armed attack situation. Also, Japan can now legally use force not just for its own self-defense, but also to assist another country through the exercise of collective self-defense, even if Japan itself has not been or is not being attacked. Although the wording changed, Conditions 2 and 3 generally stayed the same.

These are "restrictive conditions" in the sense that they are limited to Japan's defense and to specific scenarios.⁵⁷ At the same time, they are vaguely broad. Definitions of "close rela-

bills, reports on general national affairs and foreign relations to the Diet and exercises control and supervision over various administrative branches." Government of Japan, "Article 72," *Constitution of Japan*, May 3, 1947.

⁵³ Government of Japan, "第四条・第五条 [Articles 4 and 5]," 1999. Important to note: while Japan uses 基本計画 for 重要影響事態, it uses 基本対処計画 for 武力攻撃事態 and 存立危機事態.

⁵⁴ Government of Japan, "第五条 [Article 5]," 1999.

⁵⁵ "憲法第9条の趣旨についての政府見解 [Government Interpretation Regarding the Intent of Article 9 of the Constitution]," 防衛白書平成25年版—日本の防衛 平成25年版 [*Defense White Paper 2013: Defense of Japan*], Tokyo: Ministry of Defense, 2013.

⁵⁶ Ministry of Foreign Affairs, "Three New Conditions for 'Use of Force' as Measures for Self-Defense," *Japan's Security Policy*, April 12, 2016a. For the original Japanese, see Japanese Ministry of Defense, "憲法第9条のもとで許容される自衛の措置としての「武力の行使」の新三要件 [The New Three Conditions on the 'Use of Force' for Self-Defense Measures Allowed Under Article 9 of the Constitution]," 憲法と自衛権 [The Constitution and the Right to Self-Defense], undated-f.

⁵⁷ Japanese politician, RAND interview, March 27, 2019.

tionship,” “threatens Japan’s survival,” “poses a clear danger,” and “other appropriate means” are left undefined, leaving it to the prime minister to decide whether a scenario fulfills these conditions. The third condition, while it sounds limiting, means that Japan would respond proportionally; it does not mean that Japan will refrain from engaging in high-end conflict.⁵⁸

For Tokyo to designate a situation as a threat to Japan’s survival, wherein Japan can conduct a “defense operation” under Article 76 of the SDF Law, political leadership must define the situation as such and then follow similar procedures as it would for declaring a situation as having an “important influence on Japan.” Namely, the prime minister would need to draft and obtain a cabinet decision and Diet approval for a the SDF to be deployed in a Basic Response Policy (対処基本方針).⁵⁹ This will involve the scope of the mission defined. Like a situation with an “important influence on Japan,” in emergency situations where Diet approval is not immediately possible, the SDF can act as it awaits Diet approval afterward.⁶⁰

Japan does not differentiate between an armed attack situation (武力攻撃事態) and a situation threatening Japan’s survival (存立危機事態) in terms of the legal authority to use force.⁶¹ Therefore, once a situation is declared as a threat to Japan’s survival, it becomes legally possible for the SDF to use force and do whatever it takes to defend itself. In other words, the United States can expect the SDF to behave like other militaries in this situation. Defense of Japan operations would overlap significantly with assistance to the United States, such as BMD, ISR, and ASW.

According to Condition 1, however, Japan does not have to be directly attacked to declare a situation as threatening Japan’s survival. For example, since the United States is responsible for defending Japan under Article 5 of the security treaty, if the United States is attacked, this could affect Japan’s survival and thus can be defined as such.⁶² In turn, this enables Japan to use force as the exercise of collective-self-defense. Once a situation is declared as a threat to Japan’s survival, SDF activities are no longer limited to noncombat areas. Neither are restrictions on taking actions that could violate the prohibition on integration with the use of force of another military (武力行使との一体化).

The problem is that, even in situations that the government declares to be a threat to Japan’s survival, there is no consensus in Tokyo on what Japan could do.⁶³ Government authorization of the use of force beyond Japan’s self-defense also requires a political decision. But although there is nothing legally obligating Japan to support the United States in a regional contingency, the consensus among Japanese officials and SDF officers is that Japan would likely do so.⁶⁴ When Japanese officials imagine the consequences of a conflict between the United States and China, regardless of whether the United States won or lost, they tend to con-

⁵⁸ MOD official, RAND interview, Tokyo, March 22, 2019; MOD official, RAND interview, March 25, 2019.

⁵⁹ Government of Japan, “第九条 [Article 9],” 2003. Important to note: while Japan uses 基本対処計画 for 武力攻撃事態 and 存立危機事態, it uses 基本計画 for 重要影響事態.

⁶⁰ Government of Japan, “第9条第4項 [Article 9, Clause 4],” 2003.

⁶¹ Government of Japan, “第七十六条・第八十八条 [Articles 76 and 88],” 1954.

⁶² MOD official, RAND interview, March 25, 2019.

⁶³ MOD official, RAND interview, March 22, 2019.

⁶⁴ Nothing is guaranteed. Most officials emphasized participation is likely, but one acknowledged that “if U.S. ships are sinking, Japan will *probably* say yes” to get involved. National Security Secretariat official, RAND interview, March 23, 2019.

clude that it is in Japanese interests to support the United States to prevent Chinese hegemony and the weakening of the United States.

For Japan to support the United States in a regional contingency, a situation needs to fulfill the first condition above. Once Japan authorizes collective self-defense, however, the SDF can assist any country helping Japan without having to obtain separate approvals for each country. Importantly, in its exercise of collective self-defense, the SDF would act just as it would for the self-defense of Japan if it was under direct attack.⁶⁵ In other words, the SDF will not be limited in the types of activities it can perform for a specific operation meant to win the battle. For example, even if a Chinese ship was not taking aim at a Japanese asset and posed no threat to Japanese civilians or forces, the SDF could fire on that ship if Japan was exercising collective self-defense for the United States.⁶⁶ The government also interprets the constitution as not confining the use of the minimum necessary force to defend Japan (under the right of self-defense) to the geographic boundaries of Japanese territory, territorial waters, and airspace.⁶⁷ Dispatching armed SDF troops to the territory, territorial waters, or airspace of another country (referred to as 海外派兵) with the aim of using force, however, would exceed the definition of the minimum necessary level of self-defense and thus is understood to be unconstitutional.⁶⁸ There are, however, two exceptions.

The first exception is collective self-defense. If a state requests Japan for assistance by the SDF and approves the SDF to operate in its territory/waters/airspace of that country, the SDF can do so if the three conditions are met.⁶⁹ Whether or not Japan does so is up to political leadership.

The second exception is if the territory, territorial waters, or airspace in question belongs to a state that has attacked Japan or is engaged in battle with states that Japan has declared it will assist under collective self-defense. In this situation, Japan may use force in that state's territory, waters, and airspace as long as the three conditions are met.⁷⁰ This, too, is as much a political decision as it is a function of the SDF capabilities. It is "pretty doubtful," for example, that Japan would send its troops to another country's territory for combat operations.⁷¹ It is also doubtful that Japan would go on the offensive "hunting subs or shooting down ships in another's territory."⁷² Both of these are unlikely because of Japan's capability limitations or political considerations, not legal concerns. Although conducting similar operations on the high seas may be more likely, even that would be "politically difficult" and "very sensitive."⁷³

⁶⁵ National Security Secretariat official, RAND interview, March 23, 2019.

⁶⁶ National Security Secretariat official, RAND interview, March 23, 2019; MOD official, RAND interview, March 27, 2019.

⁶⁷ MOD, *Fundamental Concepts of National Defense*, undated-b.

⁶⁸ MOD, "Geographic Boundaries Within Which the Right of Self-Defense May Be Exercised," undated-b. Also see Inoue Satoshi, House of Councillors, Special Committee on Peace and Security Legislation for Japan and International Society, July 30, 2015.

⁶⁹ Japanese Defense Analyst, RAND interview, March 22, 2019; National Security Secretariat official, RAND interview, March 23, 2019; MOD official, RAND interview, March 25, 2019.

⁷⁰ MOD official, RAND interview, March 25, 2019.

⁷¹ National Security Secretariat official, RAND interview, March 23, 2019.

⁷² MOD official, RAND interview, March 22, 2019.

⁷³ National Security Secretariat official, RAND interview, March 23, 2019; MOD official, RAND interview, March 22, 2019.

So while the SDF could legally participate in a contingency that is not related to Japan's defense, its operational space is self-restricted. Japan is more likely to use force in its own territory rather than on the high seas or in the territory, waters, or airspace of another state.

Conclusion

This chapter sought to draw broad outlines of what Japan considers legal in different situations, with the understanding that many of the details and actions would be a function of the specific scenario and the political leadership in Tokyo. While the United States can access its military bases in Japan for combat operations not related to Japan's defense, approval is not automatic, although likely, gained through a prior consultation process with Japan. U.S. access to Japanese civilian air and seaports is also likely. Japan can legally support the United States in a regional contingency and use force doing so, but several conditions exist that would need to be met. And when and what Japan can legally do depends on how Tokyo defines the situation at any one time. For everything the United States expects to do, or wants Japan to do, there is a need for political approval or decisions—or the completion of a political process—in Japan. This ensures that Japan's transitions away from peacetime to using force could be difficult; at the very least, it may take time. Nothing is automatic, but the legal framework for this support is there.

Conclusions and Recommendations

This report analyzed Japan's ability to respond to and support a contingency in the East China Sea wherein the United States is engaged in conventional high-end hostilities with China. It sought to examine the strategic thinking in Japan and capabilities of the SDF, as well as the relevant laws and interpretations that govern the usage of these capabilities. The report concludes that, despite challenges in the SDF and Japan's focus on self-defense, there are numerous areas where the SDF can act to support the United States in such a contingency. That assistance, however, is potentially limited, both in terms of capabilities and existing legal restrictions and political realities.¹ This concluding chapter provides five areas where Japan might consider focusing its attention to better position the SDF to respond to an East China Sea contingency and four recommendations for the United States on specific areas where Washington should focus its efforts.

Areas Needing Japan's Attention

Greater Emphasis on Mobility and the Ability to Flow Forces

Japan's SDF is an advanced force, but it is not designed to engage in or sustain a high-end contingency that is not on or near the Japanese mainland. The SDF was designed around Japan's defense, particularly on or close to its four main islands. Despite Chinese activities in the Nansei Shotō having forced Tokyo to adapt, Japan's SDF capabilities have been slow to respond.

For a hypothetical contingency taking place near the Nansei Shotō or in the broader East China Sea area involving the United States and China that requires the SDF's involvement, the theater of combat will likely be far from mainland Japan and the main concentration of SDF bases and capabilities. The SDF's strengths for this scenario, now and a decade from now, include ISR (e.g., the MSDF fleet, aerial capabilities of the MSDF and ASDF, and ASDF radar sites), BMD (e.g., Aegis and Patriot systems), ASW (e.g., the MSDF air and maritime fleets), air superiority (e.g., fighters, AEW&C), rear-area support (e.g., destroyer escorts, base protection), and chokepoint control (e.g., submarines, ASCMs). These can provide the alliance critical situational awareness and defense of key capabilities and facilities in Japan, thereby denying China a quick victory. Given the SDF's current composition, however, such a contingency would severely stress Japan's ability to rapidly respond to the theater of operations and sustain

¹ Hornung and Mochizuki, 2016.

that response over a long period of time, particularly after the SDF begins to lose key capabilities. Specifically, the SDF would likely confront difficulties in the following key areas:

- SDF supply chains and movement of troops, equipment, and supplies to Okinawa from mainland Japan—as well as from Okinawa to the area west of Okinawa—and rear-area support in the theater due to the lack of robust sealift capabilities and maritime oilers
- stacking airspace far from Okinawa due to the ASDF's limited aerial refueling fleet
- conducting high-quality ISR and PED capability for high-quantity collections because of the lack of a theater ISR platform (until the Global Hawk is deployed), lack of advanced/special mission ISR platforms (e.g., GMTI, OPIR, and measurement and signature intelligence), and lack of airborne assets with analysis capability and/or the ability to distribute the data to other assets in the theater in real-time
- operating in an electronically compromised environment and conducting EW against adversary targets due to a paucity of both EP and EA assets
- capability to keep adversaries far from Japanese shores and critical waterways and airspace around Japan because current anti-ship, anti-air capabilities are limited in range
- complicating adversary operations and targeting options due to the lack of a more dispersed SDF posture and passive defense measures
- preventing SDF communications satellites from hacking, spoofing, jamming, and intercept due to continuing problems with unsecure satellite communications
- fighting into a contested battlespace to recapture Japanese territory from Chinese forces due to ongoing jointness issues among the three SDF services.

Although the 2018 NDPG shows an effort to address some of these issues, such as aerial refueling, it shows no effort being made to rectify others, such as shortfalls in sealift or maritime refuelers. Even in those areas where it is addressing known deficiencies, such as the quality of Japan's jet fighter fleet or aerial refueling capability, Japan's spending timelines do not keep pace with the challenges. For example, it will take a decade to achieve a fleet of ten aerial refuelers and even longer before Japan achieves full deployment of its F-35A and F-35B fleets. Japan could better position itself for success in a future contingency by working to fill in its critical gaps in the force identified above, prioritizing its defense spending on modernizing and increasing more of these critical capabilities. Other areas simply need more, such as dedicated ISR platforms or installing ISR packages on existing aircraft.

Importantly, should Japan continue to restrict itself to spending 1 percent of GDP on defense, procurement will lag behind China. Given regional threats and the efforts underway by the MOD and SDF to meet these challenges, it is unlikely that Tokyo can continue to maintain the 1 percent constraint and expect to succeed. If the threats facing Japan have changed, this should logically be reflected in the magnitude of its efforts. Not only will Tokyo likely have to reconsider its artificial spending cap, it will have to spend its finite resources smarter.²

² Philippe de Koning and Phillip Y. Lipsy, "The Land of the Sinking Sun: Is Japan's Weakness Putting America in Danger?" *Foreign Policy*, July 30, 2013.

Improve and Integrate Japan's Air and Missile Defense Systems

Japan's current air and missile defense systems were built largely in response to two separate threats, the Soviet air threat and the North Korean ballistic missile threat. In the face of the air and missile threat posed by China, however, Japan needs to improve these systems to deal with the possibility of a Chinese aerial assault that could knock out Japanese and American air bases and ports across Japan to cripple the alliance's ability to not just defend Japan, but to intervene in Chinese operations, such as attempted seizure of the Senkaku Islands or even Taiwan. A 2015 RAND publication estimated that China possesses more than 1,000 short-range ballistic missiles, as many as 274 medium-range ballistic missiles, and between 450 and 1,250 cruise missiles.³ Depending on their location and associated ranges, launching these against Japan—including U.S. bases—along with aerial assaults by PLAAF assets and naval strikes by the PLAN would likely not just overwhelm Japan's air and missile defenses, but also challenge the alliance's combined ability to retain air superiority and freedom of maneuver in the East China Sea. This is particularly true in the Nansei Shōtō, where the small size of the islands limits the ability of the SAM, PAC, and ASCM systems to maneuver, thereby simplifying targeting options for Chinese systems. China's ability to overwhelm Japan's existing defenses is likely to grow as China continues to increase both the number and ranges of these missiles. Should China deploy multiple independently targetable reentry vehicles, the challenge will further increase. Additionally, should China deploy stealth aircraft, or should Japanese Aegis destroyers be deployed to engage PLAN assets in more traditional surface warfare tasks, Japan's current air and missile coverage will be further weakened.

Sustaining the SDF's ability to prevent China from a quick victory in any regional contingency will depend on the strength of Japan's defenses. First and foremost, this should mean a focus on passive defense measures. This includes measures such as base/port and depot (both fuel and munitions) hardening, dispersion of forces and key assets (both on bases and between more bases), extensive use of dual-use facilities, greater redundancy in key elements (especially C2, infrastructure, and base operations), and deception capabilities. Because JADGE is central to Japan's ability to search, detect, track, and intercept incoming aerial threats, its protection should also be a high priority. Building greater redundancies into the existing network—such as establishing second landlines to connect sensors and radars and greater hardening of these landlines to withstand attacks, as well as development of a robust mobile radar network in case the 28 land radar sites are destroyed—should be a priority. Eric Heginbotham and Richard Samuels argued for these elements as part of an active denial strategy that focuses on a resilient force posture.⁴ While this report also argues that these efforts are critical, I was unable to determine in my research the extent to which these efforts are being pursued.

When thinking about more active defense measures, Japan needs to be realistic about the situation it faces. The number of Chinese missiles and aircraft is outpacing the number of Japanese interceptors and aircraft to defend against these threats. The Aegis Ashore system was originally intended to counter North Korean missile threats, but it could have been used against Chinese ballistic missiles. That said, the system was in no way a panacea to Japan's

³ Eric Heginbotham, Michael Nixon, Forrest E. Morgan, Jacob L. Heim, Jeff Hagen, Sheng Tao Li, Jeffrey Engstrom, Martin C. Libicki, Paul DeLuca, David A. Shlapak, David R. Frelinger, Burgess Laird, Kyle Brady, and Lyle J. Morris, *The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996–2017*, Santa Monica, Calif.: RAND Corporation, RR-392-AF, 2015, p. 48.

⁴ Heginbotham and Samuels, 2018.

security challenges. Because it was limited to ballistic missiles only, despite Tokyo initially considering capabilities to defend against both ballistic and cruise missiles, its effectiveness would have been a function of what type of missiles Japan's adversaries launch (as well as how many).⁵ Nevertheless, Japan's cancellation of the deployment of the Aegis Ashore system in June 2020 without an alternative did nothing to strengthen its air and missile defense capabilities, leaving Japan in an arguably weaker position. Instead, Tokyo shifted the discussion to a broader conversation about the SDF's deterrence capabilities with a focus on enemy base attack capabilities, a euphuism for strike capabilities. Considering ongoing ballistic missile threats, short of reconsidering the deployment of Aegis Ashore in some form, there is value in Japan strengthening its existing BMD network, to the extent it can, by ensuring sufficiently stock-piled fire systems and that any new MSDF surface units introduced are Aegis-capable. Because the threats facing Japan include ballistic and cruise missiles, as well as aircraft, however, Japan should consider options that would strengthen its air and missile defense systems.

As noted above, Japan should focus first on bolstering passive defense measures to help improve its resiliency against attacks. In addition to hardening existing sites and following many of the suggestions discussed earlier, the SDF could distribute its posture throughout more islands, including distributing its SAM, PAC, and ASCM batteries and making greater use of decoys. Not only can mobile missile launchers shoot and move, but island geography provides camouflaged launchers opportunities to blend into difficult rural terrains. With a distributed posture and use of mobile ground launchers, Japan can make things more difficult for China in tracking and targeting. The more targets China must find and the more time it is forced to spend searching for launchers, and then expending munitions, the more complicated Chinese operations become. And as Japan develops its space, cyber, and electromagnetic capabilities, it should focus on platforms that enable Japan to knock out the guidance systems of enemy assets to prevent accurate targeting and/or delivery of these threats.

Japan's ability to cope with an air and missile assault would be further increased by ensuring its disparate air and missile defense systems are integrated. To do that, however, the discrete assets in each of the services need to not only be connected to JADGE, they need to fall under the C2 of an integrated air and missile defense commander.⁶ Ideally, this should be someone like the Commander of the Air Defense Command, who has the authority not only to order these assets to deal with threats, but to relocate them to deal with threats in the most effective way. For this, much work needs to be done on the C2 structure that would determine how the three services would work together in a joint manner.

Finally, the time may be ideal to consider a mix of offensive and defensive options within the confines of Japan's exclusive defense orientation. Japan's move toward stand-off missiles and renewed interest in strike capability after canceling the deployment of Aegis Ashore is an important discussion. As shown above, Japan has historically eschewed strike capabilities, even though they are considered constitutional in certain circumstances. Because of Japan's geography and possession of advanced air and maritime platforms, procurement of these capabilities would help strengthen Japan's deterrence more than defensive systems alone could. Not only would its air and maritime assets be able to deploy these missiles at greater ranges beyond its own territory, should Japan move to acquire ballistic missiles as part of its strike capabil-

⁵ Hornung, 2020b.

⁶ For example, while both the GSDF and ASDF use data from JADGE, the GSDF's Chū-SAMs are under a GSDF division commander or regional army while the ASDF PAC batteries are under an ASDF commander.

ity package, it could add a ground capability that the alliance currently lacks. Together, these capabilities would improve Japan's ability to deter an adversary further from shore by holding key assets at risk. That said, these capabilities promise to be costly to develop and deploy. If, for example, Japan moves to acquire missiles capable of striking enemy bases, it will require the necessary supporting infrastructure to find, fix, track, and target as well as a set of robust cyber, space, and electromagnetic capabilities to degrade an adversary's defenses before these missiles are launched.⁷ Devoting money to developing these capabilities will detract from bolstering the SDF's capabilities in other areas outlined above. Nor do strike capabilities fix the deficiencies in Japan's air and missile defenses, which should remain a priority. While there are benefits to be gained for Japan by obtaining some sort of limited strike capability, it should not be viewed as a substitute for good defenses, active and passive. Should Japan decide to pursue more robust strike capabilities beyond what it is already procuring in its stand-off missile programs, Japan will need to find the balance between defensive and offensive capabilities—eschewing the term *offensive*—for an optimal deterrence posture.

Make Greater Use of Japan's Geography

Japan is made up of thousands of islands, yet only an extremely small number house SDF assets. Japan's efforts in recent years to expand the SDF's footprint on four islands in the Nansei Shotō are moves in the right direction, but more efforts may be necessary. Further expansions of the SDF's presence throughout the Japanese archipelago, and particularly in the East China Sea area, would benefit Japan's security and strengthen its ability to respond to a regional contingency in ways it cannot do today.

The GSDF's posture changes, the establishment of the ARDB, and the move toward more rapid deployment regiments and brigades are all positive developments. It is more likely that a conflict will erupt somewhere near to the islands farthest south in the Nansei Shotō than near mainland Japan, so Japan's security would be better served by placing some rapidly deployable units closer to the expected theater. These units are specialized and critical for quick responses, but they are located far away. As noted in Chapter Two, the distance from Yonaguni to the southern tip of Kyūshū alone is 1,200 km, but the GSDF forces are based even farther north. This distance, coupled with the SDF's paucity of sealift (and airlift for larger assets), means it is possible that these forces will be late in responding to a rapidly evolving contingency, particularly if the ARDB must wait for ASDF and MSDF support for protection to move from their base in Kyūshū to the theater. Currently, there is no plan to further build out SDF bases in the Nansei Shotō to house the GSDF's more mobile units.⁸ Although geographical considerations, such as active volcanos or low-lying islands, and sizes of usable land space are considerations that limit the islands the SDF could use, a major factor limiting further expansion is opposition by local residents and landowners—whether they live on the islands in question or not—who are resistant to expanding SDF camps and bases.⁹ Yet, given the nature of the security environment, there is arguably a strategic necessity to deploy similar units to the Nansei Shotō and in greater numbers than the final planned size and footprint for Yonaguni, Ishigaki, Miyako, and Amami-Ōshima.

⁷ Hornung, 2020b.

⁸ SDF officer, RAND interview, March 29, 2019.

⁹ SDF officer, RAND email correspondence, October 4, 2019.

In particular, deploying critical assets such as SAMs, PAC units, and ASCMs throughout the Nansei Shotō help these islands serve as critical chokepoints in Japan's A2/AD strategy to deny China freedom of maneuver. Dispersing these units throughout these islands would, in a contingency, force China to dedicate time and effort tracking these units and waste munitions trying to destroy them. Given the rugged island environments, the use of tunnels, hardened shelters, disguised storage sites, and decoys would make this endeavor even more difficult, as it would undermine the PLA's capacity to identify, target, and destroy these missile units.¹⁰ Such a posture would augment the strengths of the MSDF's submarine capabilities, which can lurk in nearby waters to block critical maritime chokepoints. Despite the paucity of dedicated minelaying capabilities, should the MSDF increase these capabilities, well-laid sea mines could make things even more difficult for PLAN units, as China would have to neutralize these mines if it fails to obtain sea control and air superiority in a conflict.¹¹ While increased deployments in Japan's fire units could strengthen Japan's A2/AD strategy and augment the strengths Japan's SDF has in surface, subsurface, and aerial capabilities, so too would increases in mines. As Toshi Yoshihara has argued, "mines are relatively easy to produce in quantity and far less expensive than the capital-intensive vessels they are designed to sink."¹²

Looking ahead, it may be helpful for Japan to think about other ways to strategically utilize its island geography. Japan could, for example, augment its manned presence by leveraging its islands for other purposes. One idea would be a greater utilization of dual-use facilities at civilian airfields, assuming the necessary infrastructure was built, or the pre-positioning of supplies, such as fuel or parts. Another would be using islands as smaller outposts for redundancy in key capabilities, such as facilities to house rapidly deployable assets and decoys, as well as platforms on which to house radars and sensors to monitor activity. A third idea would be to utilize these islands for unmanned systems. Unmanned assets require smaller facilities to house and maintain, which is ideal for these smaller islands. The strategic benefit for the alliance of any of these options is that dispersing Japanese forces over dozens or even hundreds of small islands would multiply substantially the potential chokepoints and/or launching facilities from which SDF assets and munitions could be deployed to prevent Chinese movement throughout sections of the East China Sea, through the Nansei Shotō, and into the Pacific Ocean. It also helps increase the SDF's survivability since the few SDF bases that are situated in the region are well within range of Chinese assets, thus vulnerable to attack. Although many of Japan's islands would be vulnerable to Chinese air and missile threats, the threat could be reduced through passive defense measures and more robust air and missile defenses described in the preceding section.

Make a More Dedicated Effort Toward Jointness

The SDF is not a large force, and as the analysis has shown, it is unlikely to grow due to recruitment challenges. Better jointness will help Japan better leverage its finite capabilities. Despite Japan having taken steps toward greater jointness, such as the establishment of the Joint Staff, problems remain. There is no single thing Japan can do to foster jointness; it will likely take a mix of several efforts.

¹⁰ Yoshihara, 2014, p. 7.

¹¹ Yoshihara, 2014, p. 7.

¹² Yoshihara, 2014, p. 7.

At the most basic level, Japan needs to foster changes in its educational and personnel system. To help SDF personnel gain improved understandings of sister service cultures and decision-making, the SDF provided greater opportunities for serving in joint billets and stationing liaison officers in major headquarters of each of the other services. More is needed. For example, the SDF services currently pursue a narrowly focused education on their own service in their respective staff colleges. To break this tendency, the SDF should promote and support greater learning opportunities at staff colleges for personnel from other services and an expansion of educational opportunities at the National Defense Academy, Japan's joint staff college. Also helpful would be expanding the number of liaison officers serving at headquarters of another service. Additionally, despite the establishment of the Joint Staff, officers serving in those billets tend to look back at their home service for overarching guidance, largely because promotions are tied to their service. If the SDF makes serving in joint billets a significant benefit for promotions to O-4 and above and mandatory for promotions to general officer, this can help foster the importance of the Joint Staff as an overarching entity and simultaneously encourage SDF personnel to think jointly.

Given that a lack of common systems or capabilities that would help the individual SDF services sustain joint operations further from shore for long periods of time, the MOD could consider reviewing its acquisition process with an aim toward centralizing it. After all, despite the known need for common data links among the services (or a system that allows them to share data together), the decision to *not* acquire Link 16 for the GSDF for many years, for example, rests with the GSDF, demonstrating the current process's weaknesses. The United States could assist Japan in reviewing this system, providing insight into the efficacy of DoD's Joint Requirements Oversight Council, which reviews important acquisition requests against joint operational abilities. The MOD may find it useful to establish a similar construct, whereby procurement decisions are subject to the collective review of the services and the authorities of the Joint Staff. From 2018, the MOD's Planning and Programming Division started to play a central role in equipment acquisition to help ensure more efficient acquisition decisions. To strengthen the Joint Staff's role in this process, and further foster a joint approach, the MOD could entrust the Joint Staff with defense planning and programming to ensure a joint approach to acquisition decisions from the planning and programming stage. So as not to exclude the services, each service should be required to create an operational concept based on modeling and simulation to help rationalize the type of force it needs to field and thus, the equipment it wants to procure. Having to explain these findings to sister services will help foster mutual understanding of operational thinking and priorities and, ideally, help the SDF eventually establish a joint operational concept which would enhance the effectiveness of all the services. In turn, this would help reduce procurement requests for single-service missions in favor of equipment that benefits the joint force.

It would also benefit the SDF to conduct more joint training and exercises. As mentioned above, the three services have too few opportunities to conduct the types of joint exercises relevant to an East China Sea contingency. While the SDF has excelled in small scale peacetime joint missions, like that in Djibouti, in a high-end contingency, the joint force that will be assembled is expected to be quite large and will need to operate in a highly contested environment. There will be no time to prepare for rapid staging and deployment and protection of these assets over large bodies of water or the necessary live firing, close air support, amphibious landings from distance, and sustainment operations over stretched air and sea supply lines that will likely accompany a regional contingency. That puts a premium on peacetime train-

ing. More exercises that involve MSDF ships and ASDF aircraft practicing firing in support of GSDF troops on land, for example, as well as coordinated firing by GSDF ASCM and SAM batteries on enemy assets in the air and water in support of ASDF and MSDF assets, would help the services work out their jointness challenges in peacetime to better prepare for a contingency. The more unscripted these exercises can be, the more the services will benefit. And the more these exercises train for operations under a situation with shifting C2 (i.e., amphibious operations), the better the SDF will fair in a real-world joint operation.

Beyond these are technological and structural issues. Technologically, decades of the individual SDF services' obtaining different hardware and systems without much thought for their sister services challenge the SDF. A common data link system may help overcome some of these difficulties, but alone is not a solution for jointness. Many observers of the SDF note that the lack of a common data link system is a manifestation of the deficiencies in the SDF's DOTMLPF pillars. Nevertheless, a common data-sharing network is, in many respects, one of the easier ways to achieve some level of jointness, because, regardless of the hardware each service has, it is the enabling technology that allows these disparate platforms to share data and work as a unified force in some capacity.

Different C2 structures also remain a challenging aspect. Japan has had joint task forces in the past, but being "joint" has largely meant each service handling its own area under a joint structure and coordinating with one another. With more advanced capabilities that cross across domains and reach far distances, this is situation may no longer be tenable. For example, the GSDF's ASCMs can attack surface targets far from Japanese shores, which was the traditional domain for the MSDF. Data sharing is necessary for joint engagement, but without a clear C2 structure, such as tasking and reporting procedures, timely joint operations will remain difficult. A joint operational headquarters may provide a key to leverage the SDF's capabilities across all domains and focus critical operational issues into a command structure that can make and act on decisions. Because a permanent headquarters would likely duplicate many existing administrative issues that challenge the SDF now, however, an operational-specific headquarters structured around specific functions may be best, like a Nansei Shotō operational headquarters overseeing anti-air, anti-surface, and anti-ground units made up of all the services. Assuming the assigned joint force exercises regularly for various scenarios and has fairly equal representation by each service so that no one service dominates, it could help speed up decisions and coordination that would otherwise be challenged by having to wait for three separate services to coordinate decisions. It would also relieve responsibilities on the Joint Staff's Chief of Staff, which currently is expected to play the role of both an operational commander and chief of defense.

Provide a Greater Focus on Resolving Issues with SDF Personnel Numbers

How to maintain effectiveness as a force amid negative demographic trends remains one of the SDF's greatest challenges for the 21st century. One possible means to better manage this problem may be unmanned assets, although a cost-benefit analysis of unmanned platforms versus manned platforms would be necessary to make this determination with certainty. Since Japan has yet to move seriously toward the use of unmanned assets, and because of the expected difficulty in obtaining local support for building the island infrastructure necessary to support these assets, Japan will have to find ways to recruit more people to meet personnel requirements.

Increasing retirement ages is a method the MOD has already pursued. And it is set to do so again. Yet, this ages the force, which is not without cost. The MOD and SDF have also uti-

lized other means, such as raising salaries of enlisted personnel and relying more on YouTube and short-message-service messaging (e.g., texting) to appeal to Japan's youth.¹³ Over the next decade, the MOD plans on seeking to diversify the applicant pool by including college graduates, leveraging retired SDF personnel and reserve personnel, and improving the living and working environments to attract more applicants.¹⁴ Other possibilities could include expanding the use of reserve personnel or lowering the criteria used to recruit, both of which would have negative effects on the quality of the force. Another idea—although understandably difficult at most Japanese universities—would be to establish a Japanese version of the Reserve Officer Training Corps (ROTC) program. Robert Eldridge, in a book focusing on the impact of aging on the SDF, offers more drastic means, although not recommended by this study, including the elimination of the SDF's overseas responsibilities, establishment of a conscription system, and/or hiring private overseas military contractors.¹⁵

Although not a new idea, and one already identified by the MOD, tapping more heavily into Japan's female population could help address recruitment challenges.¹⁶ The population of women in the SDF is small. To better understand this paucity, it is insightful to look at the SDF's officer corps. Data provided to RAND shows that, as of March 2018, there were 1,477 female officers in the GSDF (6.2 percent), 384 female officers in the MSDF (4.0 percent), and 335 female officers in the ASDF (3.7 percent), with a combined total of 2,196 female officers in the entire SDF, or 5.2 percent of the entire force.¹⁷ The number of women serving in senior positions is even smaller. As of January 2019, in the GSDF there were no females serving as general officers and only 17 colonels (out of 1,100 GSDF generals and colonels); in the MSDF there was only one rear admiral and ten captains (out of 600 admirals and captains); and in the ASDF there was only one major general and 13 colonels (out of 550 generals and colonels).¹⁸ Japanese women are clearly an untapped recruiting potential. Promotion of living and work environments more conducive to female personnel is a bare minimum, as is increasing the number of women in the SDF without exacerbating work-life balance issues and potentially further increasing the negative demographic trends in Japan. Other ideas could be to utilize more female recruiters to appeal to females; to have more women visible in SDF advertising—not just showing women in training but also women doing their jobs in service; and to have SDF recruiters be more active in going to places where qualified women are likely to be, such as sporting events, or targeting female athletes in high schools and universities. These efforts could be supported by exchanging ideas with U.S. services and recruiters into how the United States targets female recruits.

One idea often raised is to cut the size of the GSDF and rebalance the SDF toward a larger MSDF and ASDF, because the threats facing Japan today are more maritime and aerial in nature. Such calls fail to consider the significant moves the GSDF has made to be more mobile and to respond to Nansei Shotō-type scenarios. They also overlook the critical role the

¹³ MOD official, RAND email correspondence, August 27, 2019.

¹⁴ MOD, 2018e, p. 23.

¹⁵ Robert D. Eldridge, 人口減少と自衛隊 [*Depopulation and the SDF*], Tokyo: Fusosha Publishing, March 1, 2019.

¹⁶ MOD, 2018a, pp. 400–402.

¹⁷ MOD official, RAND email correspondence, August 27, 2019. GSDF female officers include nursing personnel in comparison with other forces.

¹⁸ MOD official, RAND email correspondence, August 27, 2019.

GSDF plays in responding to Japan's frequent natural disasters. Rather than blanket reductions in the GSDF, a critical—and often unexamined step—is for Japan to conduct a thorough risk assessment and force posture review to better understand whether the current SDF is properly staffed and postured to defend and deter against today's threats. A better understanding by all the services, MOD officials, and politicians would facilitate more useful discussions about the nature of the force and its ability to handle likely threats. If such a risk assessment were to conclude that the SDF's current force posture is imbalanced and poorly positioned, this could set in motion an effort that could include not just rebalancing the services, but reducing legacy equipment in each service and focusing efforts on platforms more conducive to fighting the scenarios Japan is most likely to face in the 21st century. The MOD could then reinvest the savings from personnel, equipment, and possibly bases into those areas where shortfalls were found. This would be difficult, and likely engender strong resistance from each of the services, but in the long run it would serve to improve Japan's national security and make better use of Japan's manpower (and resources).

Recommendations for the United States

Set the Conditions for Success in Prior Consultation

For any high-end regional contingency involving the United States and China, one expectation the United States will have of Japan is to access its bases for combat operations. Because a U.S. strike launched from bases in Japan against a neighboring country would carry grave implications for Japan's national security, prior consultation is intended to keep Japanese leadership knowledgeable about such critical decisions. Because an airstrike launched from U.S. bases in Japan without conducting prior consultation could potentially cause the Japanese government to limit its support contributions—or curtail the alliance relationship after a conflict subsides—the United States should consider refraining from acting without Japanese acquiescence. The process itself is not onerous, but effort will need to focus on setting the conditions for Japan to agree, particularly if Japan has not yet been attacked.

The first step is the need to consult Japan early and often. Prior consultation provides Japanese leadership with information to help them understand the nature of the pending threat and what the United States plans on doing. It helps them to understand that even if Japan is not targeted now, denying base access could merely delay Japan's eventual entry into the conflict, and then at a much more disadvantageous position should U.S. forces suffer considerable losses in the meantime. Japanese leadership “needs ownership, [it] can't just be told”; this is particularly true “if [Japan is] going to have deaths.”¹⁹ Tokyo will need to convince its public of the need, “to show the Japanese public our sovereignty has not been infringed upon without our consent.”²⁰ The prior consultation process helps them because it gives leadership a stake in the outcome, enabling them to make a conflict “our war, not something we got dragged into.”²¹

It should be easy for U.S. leaders to make the case that if the United States is at war with China, or appears likely to be heading in that direction, it will have an important influence on

¹⁹ Japanese politician, RAND interview, March 25, 2019.

²⁰ MOFA official, RAND interview, March 25, 2019.

²¹ Japanese politician, RAND interview, March 25, 2019.

Japan's security and potentially Japan's survival. The key for U.S. leaders is getting Japanese leaders to agree on this point and declare a situation as such, thereby clearing important legal hurdles that allow the SDF to support U.S. operations. Providing Japan with all the relevant intelligence and planning as quickly as possible to demonstrate that the unfolding dangers will have an important influence on Japan and should always be the United States' first task. Reminding Tokyo about a post-conflict region where the United States loses further emphasizes the potential cost to Japan should the United States not act quickly and forcefully from its forward presence in Japan.

Second, given Japan's focus on self-defense, the United States should tie requests to Japan's defense and its survival. The closer the United States can tie operational threats to Japan's survival, the better the U.S. arguments for base access will resonate. For example, explaining how a proposed action helps fulfill Article 5 or 6 of the security treaty makes it easier to convince political leadership in Japan of the appropriateness of the request to access bases.²² Furthermore, if NATO or other countries are joining, this will be an important fact to emphasize, as Japan "doesn't want to be the only one" not supporting the United States, particularly if that operation helps defend Japan.²³

Third, to persuade Japan to agree to U.S. armed forces using its bases in Japan for combat, the United States should take a more active role in protecting the Japanese civilian population. Getting Japan to agree, particularly if it is not yet attacked, will require the United States "to consider cost-benefit ramifications on Japan's side."²⁴ If the conflict is with a country such as China, the cost to Japan in terms of casualties could be quite high. To be able to persuade a Japanese prime minister to make Japan an enemy belligerent of a force fighting the United States, and thereby ensuring casualties in a country that has not seen conflict since 1945, the United States needs to demonstrate a commitment to bolster Japan's defense and reduce the costs and risks for Japan as much as possible.²⁵ Some measures the United States could take include offering to help defend major metropolitan areas or committing to a joint operation in defense of Japan, rather than just supporting the SDF.²⁶ If an onslaught of missiles is expected, the United States could support Japan's air and missile defense systems.²⁷ Japanese leaders will be more likely to quickly allow base access if the United States takes actions to support Japan's defense and minimize the damage and casualties that are expected. Japanese officials are under no fantasies of fighting a "bloodless war," but if the United States wants something—in this case using its bases in Japan for combat—then it will have to give something to demonstrate its commitment to help Japan protect itself.²⁸

While prior consultation may be interpreted by some in the United States as an unnecessary step or even appear to constitute a potential veto on U.S. operations, the reality is the United States cannot assume automatic base access for combat operations not tied to a defense of Japan situation. The prior consultation process is unlikely to result in outright rejection, but

²² MOD official, RAND interview, March 25, 2019.

²³ Japanese politician, RAND interview, March 27, 2019.

²⁴ MOD official, RAND interview, March 22, 2019.

²⁵ National Security Secretariat official, RAND interview, March 23, 2019.

²⁶ National Security Secretariat official, RAND interview, March 23, 2019.

²⁷ MOD official, RAND interview, March 22, 2019.

²⁸ MOFA official, RAND interview, March 25, 2019.

it might not go as smoothly as the United States would prefer—for example, there could be delays, or conditions imposed. The more the United States handles the request for base access in a timely manner and in full consideration of Japan's political pressures and requirements, the higher the chances for a more rapid response from Japan in sync with U.S. operational timelines.

Focus Requests for Increased Alliance Contributions on Japanese Defense Spending

Japan's current 1 percent self-imposed limit on defense spending is an artifact of a political decision in the 1970s. Even though the Abe administration increased defense spending annually from 2012 through 2020, it remains below 1 percent of Japan's GDP. This has given rise to calls for Japan to increase its defense spending, to increase the amount of money it provides on host-nation support, and to buy more American equipment. These calls are understandable given how the threat environment around Japan has changed. No ally has been as vocal about the dangers of China and North Korea as Japan. If, as Japan declares, the threat environment has gotten worse and more needs to be done, then it follows that Japan needs to do more. And Japan has done more. Yet, asking the United States to do more while Japan adheres to the self-restraint of 1 percent sends a message that maybe the United States should not be as active either.

It is unlikely that Japan will concurrently make major increases in its defense budget and other alliance contributions. For this reason, the United States needs to prioritize which alliance contributions it wants Japan to increase. As shown throughout this report, Tokyo has shown remarkable flexibility in finding areas—both in-cash and in-kind—to contribute to the alliance. These include covering labor costs, utility costs, and training relocation costs for U.S. forces in Japan, constructing of U.S. facilities on U.S. bases in Japan, paying costs for rent to Japanese landowners providing their lands to U.S. forces, paying costs for the United States to realign its force posture—both in Japan and in the region—with assistance for the construction of new facilities, and procuring over 90 percent of Japan's defense equipment by FMS from the United States. These contributions save U.S. taxpayers from having to pay these costs. Most importantly, Japan's hosting of U.S. forces saves the United States valuable resources compared with basing these forces in Hawaii or the continental United States. These forward-deployed forces also provide operational flexibility to the United States, which is free to deploy these troops anywhere they are needed, including combat operations directly from Japan, so long as prior consultation is ensured. They are not tethered to Japan.

Given the change in the threat environment, it is difficult to avoid asking Japan to increase its defense spending. Being mindful of Japan's broad ranging alliance contributions, however, the United States needs to resist the temptation to simply request spending increases across the board or to make broad comparisons to the NATO 2 percent standard. Japan is contributing resources to several areas of interest to the United States. Therefore, its contributions to the alliance are not directly comparable to NATO members' contributions. There is no one-size-fits-all percentage that Japan should be compared against; rather, the operating costs of each alliance and the existing commitments and contributions need to be considered when making a request.

As of mid-2020, host-nation support negotiations have yet to begin in full-force; but requests by the United States for Japan to increase its contributions on defense spending, realignment costs, and host-nation support without a clearly articulated need or areas of possible shifting of existing commitments carry potential political risks and could damage public

support for the alliance. Requesting Japan do more in its own defense spending, or increase its contributions to the alliance, is more likely to receive a positive response from Tokyo when the requests are incremental, more targeted, and rationalized. Prioritized requests are more manageable and demonstrate an understanding of Japan's existing alliance contributions. They also help Japanese leaders prioritize areas where Japan's finite resources could make the biggest impact.

Given that Japan is the front line in any regional contingency, the United States should prioritize its efforts on asking Japan to increase its defense spending domestically (even beyond its artificial 1 percent barrier) rather than increases in direct or in-kind alliance contributions to U.S. presence in Japan or the region. To support this effort, the United States and Japan should have a serious discussion about the roles and missions of the alliance and areas where Japan can complement the United States. For example, instead of having Japan do more of everything and essentially mirror U.S. capabilities on a smaller scale, a further refinement of the specialization of labor would allow Japan to focus spending priorities on maintaining those capabilities where it maintains strengths, creating critical redundancies needed to prevent an adversary from quick victories, and filling gaps in the alliance where both agree they exist. Doing so would hopefully demonstrate how some spending priorities may add critical strengths to the alliance, but others only contribute to capability at the margin.

Japan is correct that the threat environment has changed and a different response is required. As shown above, there are many capabilities that Japan requires. In many cases, it is budgetary or political constraints, rather than technical deficiencies, that prevent Japan from obtaining them. A strong SDF, equipped with the weapons that are needed to defend and deter adversaries in the 21st century, better serves U.S. interests. What it needs are the resources to develop, deploy, and operate these capabilities. For this, higher Japanese defense spending in a prioritized manner is required.

Maintain Strong Political Ties with Tokyo

For all the operational requests that the United States is likely to ask Tokyo in an East China Sea contingency, and the associated need for Tokyo to decide on whether a scenario poses an "important influence on Japan" or a threat to Japan's survival, much will depend on Japan's political decisionmaking. Nothing is legally automatic. Nor is there a consensus on the specifics of how Japan's laws will be interpreted. All these decisions are political, resting with the prime minister at any given moment. Because a contingency in which the United States asks Japan for both indirect and direct support has no historical precedent, it is unknown how long it might take the Japanese government to reach decisions during an unfolding crisis. This leads to a situation, as one interviewee expressed, where Japan may take "a long time to shift out of Phase Zero."²⁹

While there was near unanimity among interviewees about some level of Japanese involvement if the United States is involved in a regional contingency, nothing is guaranteed. For Japan to be involved, it is a question of how far it is willing to go. Getting from "we can't just do nothing" to what Japan is willing to do will involve direct U.S. involvement.³⁰ Much of the United States efforts' in a contingency will move only as fast as the government of Japan.

²⁹ U.S. officer, RAND interview, March 28, 2019.

³⁰ Japanese politician, RAND interview, March 25, 2019.

Consequently, there is a chance that U.S. operational timelines will not align with Japanese political timelines, thereby posing a potential delay in U.S. response. Given the unique roles the United States and Japan play in regional security, these decisionmaking timelines need to be as closely aligned as possible to sync bilateral responses to an adversary's activities.

Therefore, the United States should take steps in peacetime to set the conditions for more rapid Japanese political decisionmaking in a contingency. At the highest level, political leaders should seek to maintain amicable ties. At the working level, counterparts in the defense establishments need to discuss the issues covered in this report to reach some level of mutual understanding. Research and tabletop exercises on specific scenarios that test each side's assumptions and expose gaps would also prove beneficial. At the most fundamental level, however, Japanese political leaders will most likely face domestic resistance to involving Japan in any conflict, regardless of the scenario. Because of continuing strong pacifism in some sections of Japanese society, there is a need for deeper engagement on security issues with Japan's public. Debates surrounding the 2015 security legislation showed that the public did not have a clear understanding of what the new bills authorized. Given that public support would empower a prime minister to provide political and military support to the United States, the United States should encourage Tokyo to explain the alliance's legal framework and elicit possible Japanese support. The United States could help itself in this effort by being clear with Tokyo what kind of missions it expects the SDF to support, based on the 2015 security legislation and revised guidelines.

Assist Japan in Its Efforts to Develop New Domains

Japan's push into the new domains of space, cyber, and the electromagnetic spectrum represent important steps forward in Japan's defense thinking and strengthen Japan's ability to respond asymmetrically. Although Japan's capabilities likely lag behind those of China, it is attempting to go fast and far over the next decade. The problem, however, is that Japan needs assistance to quickly develop the capacity to deploy these capabilities in a meaningful way. It is in the interest of the United States to help Japan succeed. Given Japan's interests, and financial commitment, it is vital for the United States to do as much as possible to help Japan move quickly in its endeavor and learn where there are lessons to be had on how to develop these capabilities.

Toward this end, the United States should be open to engaging Japanese counterparts as much as possible. The more Japanese officials and SDF officers can exchange opinions and share information with their American counterparts, the better chance for Japan to leapfrog its capabilities faster than if it pursued these initiatives in isolation. In the space domain, continued participation in the U.S.-Japan Space Cooperation Working Group is fundamental. Similarly, continued engagement in the Cyber Defense Policy Working Group as a framework for defense authorities to meet and discuss various topics related to cyber is invaluable. Tabletop exercises such as the annual SSA multinational tabletop exercise hosted by U.S. Strategic Command also provide opportunities for SDF officials to test their knowledge or observe how their U.S. counterparts handle domain-specific scenarios. Finally, the United States should consider inviting Japanese forces to training or joint experiences that incorporate any of these domains as components.

Beyond training, Japan needs help developing ideas about what capabilities are needed and the concepts necessary for how to employ them. In other words, the United States should help provide insight into how it uses these domains. This would help the alliance in the long term, as it would enable Japan to help bake these concepts and mission sets into its operations

at this early stage, ensuring greater interoperability across assets in each of these domains. Importantly, the United States should offer insight into the types of legal issues it faced when developing and deploying capabilities in these domains, to help Japan overcome expected legal challenges when it deploys capabilities in these domains over the next decade.

Conclusion

This report sought to answer the question of what roles can and will Japan play should a conventional high-end contingency erupt in the East China Sea between the United States and China. Despite Japan's focus on self-defense, there are significant roles the SDF can play in support of U.S. operations. Although, quantitatively, it is unlikely that the SDF will be able to prevail in force-on-force encounters with China, the three SDF services have significant strengths. These include advanced weaponry, increasing footprint in the Nansei Shotō, capabilities associated with ISR and AEW&C, minesweeping, and ASW. Additionally, the SDF has three broader SDF strengths that would matter in an East China Sea contingency: interoperability with U.S. forces, air and missile defenses, and the attention Tokyo is placing on the new domains of space, cyber, and the electromagnetic domain. Viewed collectively, these strengths position Japan to make things very difficult for China to prevail quickly in conflict and increasingly keep Chinese forces at length with a growing suite of A2/AD capabilities, thereby heightening the risk to China in any East China Sea contingency and allowing Japan to remain in the fight in support of the United States.

At the same time, there are significant challenges the individual SDF services would face in said contingency: sealift (and potentially airlift), uneven modernization efforts of critical air fighters, insufficient air and sea refueling capabilities, ability to operate in a heavily jammed environment, and limited ports/airfields and facilities west of Okinawa. Additionally, broader SDF challenges could hinder the effectiveness of the SDF. These include the nonexistence of key capabilities, problems of jointness in the SDF, and recruitment challenges and aging in the SDF. Together with the difficulties of having to defend against Chinese missile and air strikes against Japanese bases, ports, or other logistical facilities, these challenges will limit what and how Japan can do.

In addition to assessing the SDF's capabilities, the report described the complex set of legal permissions and interpretations associated with how those capabilities can be employed. With a focus on areas most relevant for a high-end contingency in the East China Sea that may involve the defense of Japan, the report examined the issue of prior consultation and United States accessing bases in Japan for combat, the ability of the United States to access Japanese airfields and ports—both SDF and civilian—and the legalities associated with Japan's use of force and exercise of collective self-defense. While Japanese laws sets limits for all of these, the United States can expect Japanese domestic laws and interpretations to support U.S. operations, although external events will dictate the pace and level of support and some effort may be required to obtain that support.

Finally, this report offers recommendations for ways to highlight existing strengths, leverage existing capabilities and laws, and potentially overcome some of the challenges to ensure more effective and capable Japanese support in a high-end contingency in the East China Sea. While all will require tradeoffs, the fact is that the more both countries can work on these in peacetime, the better prepared they will be in a future contingency.

Recruitment by SDF Service

While the decline in recruitment affects all three SDF services, the severity of the decline affects each service differently. To understand the effect this will have, it is important to note how the SDF categorizes its new recruits. One category is called “fixed-term personnel (or fixed-term privates),” referring to those people who join for a two- or three-year term that is renewable. Only a small fraction of these are selected to be promoted to become NCOs after years of enrollment (about one-fourth or one-fifth) and then stay in the SDF until their fifties.¹ The second category is called “non-fixed-term personnel (or non-fixed-term privates)” who have been qualified to be promoted to NCO in a few years after they join the SDF. These individuals are on a faster track because they enter having passed higher-level exams and enroll through a more competitive selection process. These categories are the two largest categories of enlisted applicants/recruits.² In the data provided below, “Candidates for Private” refer to the “Fixed-Term Personnel” while “Candidates for NCO” refer to “Non-Fixed-Term Personnel.”

Ground Self-Defense Force

The GSDF is the largest of the three services. According to the MOD’s *Defense of Japan 2018*, the GSDF’s authorized strength of uniformed personnel was 150,856 people, but the service was staffed at only 91.6 percent of this amount, at 138,126 personnel.³ And the GSDF has been faced with a shrinking pool of applicants, both as candidates for private and NCO (Table A.1). In the past two decades, with two exceptions, there has not been a year with more than 20,000 male applicants as candidates for private. Instead, there has been a slow decline in the annual number of male applicants. A similar trend is occurring with the number female applicants as candidates for private, which has not surpassed 3,000 applicants since 2002.

The trend has been more erratic for NCO candidates (Table A.2). Despite enjoying years of growth between 2008 and 2011 and enjoying a positive 2017, in which NCO candidate applicants surged to 16,837, compared to 13,485 from the previous year, the overarching trend for the GSDF has been negative. The impact of this has not been widely felt, however, because the GSDF has generally been able to meet—or come very close to meeting—its fulfillment

¹ MOD official, RAND email correspondence, August 26, 2019.

² The other categories the Ministry of Defense includes in its data are NCO candidate students (until FY 2006), GSDF High Technical School Students, Students Airmen, National Defense Academy Students, National Defense Medical College Students (Doctor), and Officer Candidates.

³ MOD, “Reference 59,” 2018a, p. 514.

objectives, as seen in Table A.3. The past two years (2018 and 2019), however, have been challenging.

Table A.1
Candidates for Private: GSDF (FY 1998–FY 2017)

Men	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Number of Applicants	17,045	15,118	15,343	21,009	18,960	17,888	18,944	17,234	17,040	15,803
Number of Recruits	3,665	3,189	4,677	6,684	5,862	5,038	6,351	6,465	5,785	4,607
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of Applicants	13,402	12,509	14,930	14,695	21,779	19,916	18,742	15,904	16,182	14,982
Number of Recruits	3,132	869	3,638	2,470	7,127	5,908	5,449	4,651	4,415	4,158
Women	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Number of Applicants	3,629	3,693	3,743	3,345	3,088	2,821	2,420	2,286	2,161	2,057
Number of Recruits	500	499	494	501	500	499	497	500	515	500
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of Applicants	1,924	2,131	2,379	2,564	2,957	2,664	2,482	2,114	2,485	2,786
Number of Recruits	495	250	499	500	523	499	499	564	749	897

SOURCE: MOD Official, RAND Document Received, April 1, 2019.

Table A.2
Candidates for NCO: GSDF (FY 1998–FY 2017)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Number of Applicants	23,165	23,380	19,853	17,477	22,419	21,103	18,497	15,675	17,234	15,150
Number of Recruits	1,636	1,696	1,832	1,926	1,757	1,850	1,858	2,409	3,903	4,620
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of Applicants	14,737	27,451	31,867	34,768	23,452	22,415	18,887	13,939	13,485	16,837
Number of Recruits	4,241	2,777	2,946	2,090	2,095	2,091	2,655	2,638	2,991	2,971

SOURCE: MOD Official, RAND document received, April 1, 2019.

Table A.3
GSDF Fulfillment Rate (FY 2009–FY 2018)

FY	Required	Applicants	Join	Fulfillment Rate (%)
2009	5,755	49,237	4,146	72
2010	6,395	57,941	7,349	115
2011	5,168	61,065	5,289	102
2012	9,231	57,247	9,951	108
2013	8,068	49,571	8,625	106
2014	8,830	44,108	8,770	99
2015	8,941	35,222	8,032	90
2016	8,245	35,094	8,384	102
2017	9,299	37,184	8,217	88
2018	10,606	35,688	8,737	82

SOURCE: MOD Official, RAND document received, September 17, 2019.

Air Self-Defense Force

The ASDF is the second-largest of the three services, both in terms of authorized strength and actual staffing. According to the MOD's *Defense of Japan 2018*, the ASDF's authorized strength of uniformed personnel was 46,942 people, but the service was staffed at only 91.1 percent of this amount, with 42,785 personnel.⁴ Data show that, despite a banner year of 6,183 male applicants in 2005 as candidates for private (Table A.4), the number of applicants in 2017 is not much larger than two decades prior. In fact, the general trend has been a shrinking pool of male applicants. Apart from three years (2005, 2006, 2013), every year has seen fewer male applicants as candidates for private than in 1998. This trend is even more severe among women applicants. Since the high of 954 applicants in 1998, there has been no year with a larger number of applicants. Although there have been some increases in recent years, beginning in 2013, the general trend has been between 500 and 700 applicants. The trend of ASDF NCO candidate applicants appears to be a bright spot for the ASDF (Table A.5). Different from the GSDF and MSDF, the number of NCO candidate applicants in 2017 (9,111) was more than it was two decades ago (8,944). Although the ASDF has experienced the same fluctuation in applicants that the other services have, its NCO candidate applicants have remained generally consistent and even enjoyed growth in recent years.

Despite this trend, problems with recruitment will negatively affect the ASDF. For example, despite the decision to acquire a fleet of 105 F-35A and 42 F-35B aircraft, some believe it is highly unlikely this goal will be met because the ASDF not only lacks the resources but also the people to operate and maintain such a large fleet.⁵ Data showing the ASDF's fulfillment

⁴ MOD, "Reference 59," 2018a, p. 514.

⁵ SDF officer, RAND interview, March 29, 2019.

rates for recruitment support this, as evident in Table A.6. The trend has been a decline in meeting recruitment goals, with the most recent two years the worst in a decade.

Table A.4
Candidates for Private: ASDF (FY 1998–FY 2017)

Men	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Number of applicants	4,862	3,385	3,853	4,453	3,655	4,421	4,468	6,183	5,107	4,640
Number of recruits	1,014	444	868	1,249	1,066	1,373	1,624	2,199	1,773	1,576
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of applicants	3,822	2,847	2,852	2,884	4,421	5,029	4,748	4,845	4,714	4,422
Number of recruits	644	508	616	633	1,293	1,408	1,232	1,465	1,357	1,380
Women	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Number of applicants	954	919	807	705	675	697	622	635	647	644
Number of recruits	102	90	98	100	99	129	158	222	149	162
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of applicants	600	602	530	504	681	870	938	885	882	934
Number of recruits	157	57	58	67	134	132	270	171	81	134

SOURCE: MOD Official, RAND document received, April 1, 2019.

Table A.5
NCO Candidates: ASDF (FY 1998–FY 2017)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Number of applicants	8,944	9,172	7,755	6,678	7,430	7,949	7,455	7,727	7,786	7,127
Number of recruits	520	439	425	477	439	488	621	802	956	1,174
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of applicants	6,618	10,231	9,766	9,295	5,873	7,063	7,291	6,970	6,900	9,111
Number of recruits	1,053	772	689	774	783	721	780	697	757	773

SOURCE: MOD Official, RAND document received, April 1, 2019.

Table A.6
ASDF Percent Fulfillment Rate (FY 2009–FY 2018)

FY	Required	Applicants	Join	Fulfillment Rate (%)
2009	1,534	18,077	1,495	98
2010	1,625	17,960	1,505	93
2011	1,511	17,358	1,580	105
2012	2,311	15,846	2,332	101
2013	2,425	18,836	2,371	98
2014	2,161	18,566	2,393	111
2015	2,634	17,963	2,436	92
2016	2,371	17,458	2,334	98
2017	2,719	18,378	2,417	89
2018	3,012	16,399	2,670	89

SOURCE: MOD Official, RAND document received, September 17, 2019.

Maritime Self-Defense Force

Although it is very close in size to the ASDF, the MSDF is the smallest of the three services, both in terms of authorized strength and actual staffing. According to the MOD's *Defense of Japan 2018*, the MSDF's authorized strength of uniformed personnel was 45,363 people, but the service was staffed with only 42,289 personnel, making its staffing percentage the highest of the three services, at 93.2 percent.⁶ Unlike the fluctuations that both the GSDF and ASDF have experienced over the past two decades, the MSDF has had a relatively stable number of applications from male candidates for private (Table A.7). In fact, except for four years (1999, 2009, 2010, 2011), the number of male applicants has remained above 3,000. In four years (2005, 2006, 2013, 2016), it even surpassed 4,000. The same consistency is not seen among women applicants as candidates for private. Instead, for women, the fluctuation is greater, with the data showing a low of 486 applicants in 2015 and a high of 876 candidates in 2006. Compared with 1998, however, when there were 826 applicants, the trend has generally been one of decline, with only 693 applicants in 2017. The trend for MSDF NCO candidates is the most severe among all the categories (Table A.8), where the number of applicants in 2017 (3,203) was roughly half of what it was in 1998 (6,483). Compounding these problems, the MSDF is experiencing the most difficulty in meeting its fulfillment objectives. As shown in Table A.9, the MSDF has struggled every year over the past four years to meet its recruitment targets.

The MSDF is aware of its situation. Its challenge with attracting new recruits stems largely from the nature of the work. Specifically, people tend to avoid applying to the MSDF because “people want to keep their kids near their homes, not send [them] away for national

⁶ MOD, “Reference 59,” 2018a, p. 514.

service.”⁷ The low recruitment numbers are believed to be rooted in the fact that there is a hesitance to work on the ocean far from home without any privacy and easy access to wi-fi or connection to social media.⁸ Because GSDF personnel live and work in a domestically regionally focused garrison and ASDF personnel live and work out of their bases, they do not face the same recruitment challenges as the MSDF. Instead, these services become “attractive as a job in locally exhausted regions,” or parts of the country that are economically depressed.⁹

Table A.7
Candidates for Private: MSDF (FY 1998–FY 2017)

Men	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Number of applicants	3,265	2,847	3,415	3,634	3,390	3,984	3,859	4,753	4,145	3,920
Number of recruits	417	336	951	903	934	1,228	1,293	1,501	1,417	1,360
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of applicants	3,520	2,463	1,868	2,579	3,540	4,312	3,829	3,903	4,285	3,693
Number of recruits	1,011	558	249	580	805	1,162	710	908	892	771
Women	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Number of applicants	826	786	740	750	682	756	551	596	876	635
Number of recruits	60	85	85	88	79	78	84	117	136	152
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of applicants	571	503	599	742	660	743	622	486	519	693
Number of recruits	135	79	120	59	81	79	79	79	116	173

SOURCE: MOD Official, RAND document received, April 1, 2019.

⁷ MOD official, RAND interview, March 28, 2019.

⁸ National Security Secretariat official, RAND interview, March 23, 2019; MOD official, RAND interview, March 29, 2019.

⁹ MOD official, RAND interview, March 28, 2019.

Table A.8
NCO Candidates: MSDF (FY 1998–FY 2017)

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Number of applicants	6,483	6,789	6,112	5,797	6,856	7,015	6,500	6,102	5,409	4,377
Number of recruits	472	490	512	728	817	850	877	961	1,031	1,200
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of applicants	4,321	5,957	6,274	7,129	4,798	5,056	4,967	4,183	3,927	3,203
Number of recruits	1,258	627	599	970	975	972	1,001	993	1,263	1,300

SOURCE: MOD Official, RAND document received, April 1, 2019.

Table A.9
MSDF Percent Fulfillment Rate (FY 2009–FY 2018)

FY	Required	Applicants	Join	Fulfillment Rate (%)
2009	1,927	10,996	1,487	77
2010	1,105	11,391	1,188	108
2011	1,772	13,280	1,811	102
2012	1,833	12,007	2,050	112
2013	2,148	13,054	2,394	111
2014	1,846	12,452	1,980	107
2015	2,338	10,978	2,186	94
2016	2,629	10,936	2,477	94
2017	2,986	9,907	2,430	81
2018	3,110	11,275	2,626	84

SOURCE: MOD Official, RAND document received, September 17, 2019.

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In the Indo-Pacific region, the alliance the United States has with Japan is arguably its most important. If a high-end contingency erupts in the East China Sea and the United States becomes engaged in major conventional combat operations with China, what roles can and might Japan play? In this report, Jeffrey W. Hornung assesses the strengths and limitations of Japan's Self-Defense Forces (SDF), as well as legal issues pertaining to the SDF use of force and U.S. base access in a contingency for combat operations that may not be directly tied to the defense of Japan.

Hornung finds that, despite Japan's focus on self-defense, there are significant areas in which the SDF can assist the United States. He identifies strengths and weakness of the capabilities of each of the three SDF services—both current and expected over the next decade—and steps that could be taken to enhance these capabilities. Hornung also examines bilateral agreements and Japanese laws that govern how SDF capabilities may be employed and whether U.S. forces can expect to access their bases in Japan for combat operations. Hornung makes specific recommendations on how to ensure more effective and capable Japanese support in an East China Sea contingency involving China, including how Japan could better position itself to respond, both for its own defense and in support of the United States, and how the United States could better support Japan in these efforts.

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