



Japan and Security



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A Closer Look at the Operational Concept for “Aegis System-equipped Vessels”

Issues for Consideration

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In June 2020, Japan’s Ministry of Defense (MOD) abruptly announced it would abandon the Aegis Ashore deployment plan. Then, after twists and turns in policy coordination between the government and ruling parties, the Cabinet decided on December 18 to build two “Aegis system-equipped vessels” to replace the Aegis Ashore system. How will the shift from deployment of two land-based Aegis systems to construction of two sea-based Aegis system-equipped vessels impact Japan’s “comprehensive air and missile defense”? What are Aegis system-equipped vessels, and what should be their operational concept? I would like to offer some thoughts on these issues for your consideration.

I. The Missile Threat for Japan and the Implementation of Aegis Ashore

1. What does “comprehensive air and missile defense” encompass?

Two factors need to be considered when thinking about the future of Japan’s comprehensive air and missile defense:

- (i) Defense against North Korean missiles
- (ii) Missile defense in an Anti-Access/Area Denial (A2/AD) environment (mainly defense against diverse missile threats from China).

Responding to the situation in (i) requires a 24-hour, 365-day-a-year system that can continuously guard against missiles in peacetime, including test and training missile launches. Although North Korea has an increasingly diverse arsenal of missiles, it has launched only a small number of them.* Furthermore, non-missile threats (e.g. aircraft, surface ships, and submarines) from North Korea are almost inconceivable.

* Note: After the Kim Jong Un regime came to power (2012 to present), North Korea is considered to have launched a total of 88 ballistic missiles towards the Sea of Japan.¹ Incidentally, according to media reports and other open sources, China has conducted more than 100 missile launch tests and trainings in 2019 alone (though mainly in China's inland area).²

Responding to the situation in (ii) is required mainly during contingencies. It will likely focus on dealing with attacks targeting Japan Self-Defense Force (SDF) units and U.S. military bases in an area stretching from the southern Japanese island of Kyushu to the Nansei Islands southwest of Kyushu. In this case, Japan is anticipated to face serious threats both in quality and quantity, including non-missile threats.

2. Objective and significance of introducing Aegis Ashore

A. Japan's ballistic missile defense (BMD) posture and Aegis ship operations

Needless to say, Japan conceptualized Aegis Ashore (AA) as a BMD system against North Korea's ballistic missiles. The expected benefit was increased operational flexibility for Aegis ships, especially in an A2/AD environment. This is to say that the AA deployment plan was conceptualized based on three requirements:

- › There was a need to build a system that can continuously protect Japan from North Korean ballistic missile attacks 24 hours a day, 365 days a year.
- › Doing so would relieve the Maritime Self-Defense Force's (MSDF) Aegis ships of their BMD patrol mission in the Sea of Japan. This in turn would ensure operational flexibility, including deployment to the Southwest, and enable the return to their core mission such as fleet air defense.
- › There was a need to alleviate the overall manpower burden and secure training opportunities for the MSDF by reducing operations tempo, which is under pressure to respond to heightened threats in the Southwest and new warfighting strategies.

B. Dilemma for U.S. Navy Aegis ships and need for Japan-U.S. cooperation

In fact, the U.S. Navy was also engaged in BMD patrol missions in Japan's waters and faced precisely the same situation as the MSDF. In June 2018, then U.S. Chief of Naval Operations Adm. John Richardson succinctly expressed the distress felt by the U.S. Navy to the following effect*:

(i) Aegis ships have to conduct BMD patrols in fixed locations, which puts pressure on maintaining maritime superiority and other core Navy surface missions. In order to free up the sophisticated and multi-role Aegis ships for other missions, we want to halt BMD patrols around Japan and Europe by transferring that role to land-based BMD systems, such as the AA.

(ii) The BMD patrol mission has been eroding the Japan-based U.S. 7th Fleet's mission readiness and reduced its training time. This became a factor in the collision of USS *Fitzgerald* (June 17, 2017; claimed the lives of seven crew members in the line of duty), and two months later, the collision of USS *John S. McCain* (August 21, 2017; claimed the lives of ten crew members in the line of duty).

* Note: Congressional Research Service, "Navy Aegis Ballistic Missile Defense (BMD) Program: Background and Issues for Congress" (updated February 2021).³

In short, when considering Japan's comprehensive air and missile defense, cooperation in roles, missions, and capabilities (RMC) under the Japan-U.S. Alliance must not be overlooked. This is also an important point for both of the factors I mentioned at the beginning.

As outlined above, one of the basic ideas behind the AA implementation plan was to establish a permanent system to deal with North Korea's ballistic missiles in factor 1(i). In addition, the plan was meant to free up the MSDF and U.S. Navy's cherished Aegis ships, which were tied up in conducting BMD patrols around the Sea of Japan. The freed-up ships could then return to their core mission of surface fleet defense (e.g. air defense and anti-submarine missions), including deployment to the Southwest.

C. Maritime operations in increasingly severe A2/AD environment

The Aegis ship was originally developed in the 1970s to protect the U.S. carrier groups from the Soviet Union's massive anti-ship offensive capabilities by expanding the capability to respond simultaneously to multiple threats, especially to saturation attacks by anti-ship missiles. Today, China's offensive capabilities involving a diverse set of anti-ship ballistic and cruise missiles pose a threat far greater than that of the Soviet Union at the time.

In fact, if we consider the military balance between China and the Japan-U.S. Alliance as of now, the anticipated level of maritime dominance inside the First Island Chain (East China Sea) at the initial phase of a contingency has changed drastically since the United States dispatched two carrier strike groups in 1996 to deter the escalation of the Taiwan Strait crisis.* Today, such a level of maritime superiority cannot be obtained without making an intense and concerted effort.

* Note: Ever since the humiliation suffered during the 1996 Taiwan Strait crisis, the People's Liberation Army (PLA) planners have regarded U.S. aircraft carriers as their main threat and have been studying ways to defeat U.S. carrier strike groups.

As a result, if the PLA were to clash with the U.S. Forces, China is expected to launch a saturation attack on the defense line formed by the U.S. carrier strike group and its Aegis ships, involving a large number of anti-ship ballistic and cruise missiles fired from multiple directions, including the Chinese mainland, aircraft, vessels, and submarines.⁴

For such a contingency scenario in the Southwest region, Japan must also be ready to mobilize many of its eight Aegis ships to the region for protecting the maritime surface forces and supporting the Japan-U.S. joint operations. However, even with a growing threat from China, Japanese and U.S. Aegis ships, which are multi-role, high-performance, and highly maneuverable, have had to perpetually engage in BMD patrols around the Sea of Japan to respond to a possible North Korean contingency during peacetime. This situation is unacceptable from the rational standpoint of military operations, training, and burden on manpower.

II. Discussion following the Cancellation of the Aegis Ashore Deployment Plan

1. Cabinet decision on "Aegis system-equipped vessels"

The AA deployment plan was cancelled in 2020 despite the strategic environment remaining challenging as ever (I will not go into details here as it diverges from the topic). Based on various discussions within the government and the Liberal Democratic Party (LDP), the following decision was made at the Cabinet meeting on December 18, 2020:

- (i) "The Government will procure two Aegis system-equipped vessels in place of the land-based Aegis system."
- (ii) "The Japan Maritime Self-Defense Force (JMSDF) will maintain these vessels."
- (iii) "The Government will continue to consider the details including additional function and design arrangement of the vessels and will take necessary measures."

While the last item uses subtle wording, the best we can say at this point in time is: (i) The Aegis system, which is necessary to deal with North Korea's ballistic missiles, will be sea-based and the land-based version will be abandoned; (ii) This sea-based system will be called "Aegis system-equipped vessels"; and (iii) The design and functions of such vessels, however, remain to be determined based on the operational concept to be formulated in the future. In other words, what the "Aegis system-equipped vessels" will be is undecided at this point in time. These matters will likely become a subject of discussion going forward.

2. Are Aegis system-equipped vessels the same as Aegis ships?

In LDP discussions, myself included, most of the proposals called for building two new Aegis destroyers. This was because, at first glance, it seemed to offer the benefits of having two more destroyers. This proposal was made because we all understood the seriousness of the threat in the Southwest.

However, as described in detail in Adm. Tokuhiro Ikeda's paper in the *Japan Military Review* (March 2021),⁵ if we consider actual operations (including non-operational periods due to periodic maintenance and inspections; docking for supply replenishment and crew rest; operational cycles, such as necessary training and travel to and from operational waters), adding two Aegis destroyers to the existing eight, bringing the total to ten destroyers, will not immediately lead to a 20 percent increase in mission capability (actual missions performed in operational waters).

That is, if two Aegis ships are built to perform BMD patrol missions in the Sea of Japan to replace the abandoned AA plan, then the number of Aegis ships that can be re-assigned to the core mission in the

Southwest will increase by only about 0.75 ships from the current number when maintenance, inspection, and operation cycles are considered. (Moreover, a certain number of the U.S. Navy Aegis ships will continue to be tied up in BMD patrols around Japan, which will deny them the flexibility to conduct other missions. [According to the aforementioned Adm. Richardson, a total of six U.S. Aegis ships are currently conducting sea-based BMD missions.]*)

* Note: Moreover, as pointed out in Ikeda's paper, the MOD plans to strengthen the recruitment of MSDF personnel, make naval service more enticing, improve the work environment, promote the roles of female SDF personnel, improve compensation, extend the retirement age, and increase reappointments in order to procure the 600 personnel minimum necessary to operate the new Aegis ships. However, this MOD plan, which was briefed at a joint meeting of LDP's National Defense Division and Research Commission on National Security, raises questions of whether it provides concrete solutions with immediate effects. It is regrettable that such measures are usually nothing more than a typical pie in the sky.

Incidentally, according to an MSDF personnel, if we operate eight Aegis destroyers on the original premise of AA deployment (destroyers are relieved from BMD patrols), then up to three to four destroyers would have been freed up for core missions, including deployment to the Southwest (also freeing up the U.S. Navy Aegis ships for additional deployment).

In short, I would like to make the point clear that although many politicians and citizens still misconstrue that "building two Aegis system-equipped vessels" corresponds to two full-spec Aegis destroyers, this is not necessarily the case. The convoluted wording of the Cabinet decision of December 2020 is a reflection of this complicated issue.

III. Operational Concept for "Aegis System-equipped Vessels"

1. Basic approach

Bottom line up first, many variations of Aegis system-equipped vessels can exist depending on the operational concept. Then what is a suitable operational concept for Aegis system-equipped vessels?

We must not forget that even if Aegis system-equipped vessels were adopted as the alternative for the AA, the objective and context of the AA project have not fundamentally changed. That is, the main mission of Aegis system-equipped vessels is to first and foremost replace the capability of the AA, which was to continuously monitor and respond to North Korea's ballistic missile threat in peacetime, 24 hours a day, 365 days a year (provided, however, that the system must also have capability to deal with various types of cruise missiles, along with capability to deal with the recent diversification of ballistic missile flight paths and "irregular trajectory missiles"). By doing so, eight Aegis destroyers would be relieved from BMD patrol missions and freed up for their core missions. This would ensure operational flexibility for the MSDF as a whole, secure training opportunities, and reduce the burden on manpower. Consequently, our first aim should be to design and deploy Aegis system-equipped vessels that contribute to fulfilling these objectives.

2. Ships envisaged for "Aegis system-equipped vessels"

I envisage Aegis system-equipped vessels to be as follows:

- › Even if the Aegis system is moved offshore, the system should achieve the same level of constant operations as that of the land-based AA as much as possible. In other words, it is essential that the system has the ability to stay at sea for as long as possible (sea endurance).
- › Therefore, the propulsion system should support Aegis system-equipped vessels without refueling for as long as possible (speed is not required as the main mission is BMD patrol; even if the vessels need to operate in the Southwest, they do not need to have high speed for such deployment).
- › In addition to comprehensively reducing manpower requirements by increasing unmanned and automated operations, the crew rotation system should be instituted to alternate the crew by helicopter and other means while continuing offshore BMD patrols. Aegis-system equipped vessels will adopt joint operations, with the MSDF personnel operating the vessel and the Ground Self-Defense Force personnel operating the Aegis system (as specified in the Annex Table of the National Defense Program Guidelines for FY2019 and Beyond).
- › The initial plan for the AA assessed that (assuming it is equipped with SM-3 Block IIA interceptors) two coastal sites on shore will be able to cover the entire Japan. Similarly, the Aegis system-equipped vessels also do not need to deploy far offshore.

The best location for Aegis system-equipped vessels is coastal waters close to land, both from

the perspective of operations and sea endurance. Coastal waters facilitate peacetime monitoring and security as well as crew rotation and resupply, while enabling defensive cover under sea and air superiority during a crisis. (Even if the situation causes vessels to engage in missile defense in the Southwest [in a contingency scenario], it is not reasonable to forward deploy a single vessel of any type past the East China Sea based on the current threat environment.)

- › Accordingly, if we assume that the primary peacetime mission is to conduct continuous missile surveillance, and contingency mission environment presumes an operation area where direct threat from aircraft, surface ships, and submarines is low, then it is likely sufficient to equip Aegis system-equipped vessels with only minimum defense functions (e.g. close range air defense, defense against maritime terrorist attacks; note that built-in capabilities will defend against missile attacks).

IV. Issues for Consideration

Finally, I would like to make a few additional comments on issues that we need to consider going forward.

1. Response to emerging threats such as hypersonic glide vehicles

Much-publicized technologies of recent years like hypersonic glide vehicles are still in the R&D phase in many countries, including the United States. To respond to these technologies, we can think of small satellite constellations and unmanned aircraft with detection and tracking capabilities and directed energy weapons that can target and destroy these emerging threats. Japan must quickly solve the security clearance problem to participate in joint R&D with the United States and Europe from an early stage to ensure that Japan can deal with these emerging advanced threats.

The Aegis system-equipped vessels are anticipated to operate for about 40 years from commissioning to decommissioning. In light of their service life, it is necessary to take into account future expandability (e.g. space and power requirements) to accommodate future missile defense capabilities.

2. Maritime operations in China's A2/AD environment

A. New warfighting approach: Distributed Maritime Operation

The topic of Distributed Maritime Operation (DMO) calls for a broader discussion than just Aegis system-equipped vessels. Nonetheless, I bring it up because it is a relevant issue when thinking about how it fits in overall maritime operations.

In order to execute maritime operations while dealing with saturation attacks by ballistic and cruise missiles in the current severe A2/AD environment, it is necessary to develop new weapon systems and review warfighting approaches amidst the rapidly changing force balance. This requires referring to DMO, which the U.S. Navy identifies as a new warfighting approach. The DMO is a tactic that links small surface ships (new missile frigates [FFGs] and large unmanned surface vessels [LUSVs]) and diverse surface ships equipped with long-range anti-air/anti-ship missiles and weapons. By linking them together in a sophisticated network, they form a distributed but unified offensive capability that complicates the adversary's situational awareness and decision-making, allowing naval forces to gain and maintain maritime superiority against an adversary that has numerical advantage.

In Japan's MSDF, the 30FFM, which is currently under rapid construction for force integration and deployment, is expected to play a role in this regard. So far, the first vessel JS *MOGAMI* and the second vessel JS *KUMANO* have completed their naming and launching ceremonies. For the foreseeable future, Japan plans to rapidly procure two vessels a year under the Medium Term Defense Program (FY2019–FY2023).

Japan currently does not yet have any concrete plan to develop an unmanned surface vessel (USV) as an offensive weapon delivery platform. In the United States, on the other hand, USVs and optionally manned vessels (small vessels that perform various missions with a small number of crew in peacetime but can be unmanned in contingencies or high-risk situations)⁶ are already in the stages of building prototypes and conducting autonomous navigation tests. Japan needs to closely follow the development status of these vessels so as not to fall behind.

B. Development and deployment of long-range missiles

However, the severity of the situation in the Southwest makes such efforts still inadequate. Therefore, the Indo-Pacific Command of the U.S. Forces submitted a budget request to Congress for \$27 billion

(2022–27), which includes the deployment of ground-based long-range missiles along the First Island Chain.⁷

Similarly, Japan must further expand its offensive capabilities with urgency. In regard to this issue, the Cabinet decision of December 18, 2020 confirmed that Japan would introduce Aegis system-equipped vessels and enhance deterrence by developing new stand-off missiles indigenously. The Air Self-Defense Force (ASDF) had already indicated in the FY2018 budget that it would begin introducing the Joint Strike Missile (JSM) with a range of 500 kilometers. The ASDF had also indicated in the Medium Term Defense Program that it would proceed with the development of the Joint Air to Surface Stand-off Missile (JASSM) with a range of 900 kilometers and the Long Range Anti-Ship Missile (LRASM) with a range of 800 kilometers. The 2018 Cabinet decision added the development of indigenous missiles to strengthen stand-off defense capabilities.

According to the MOD, there is a prospect that the Type 12 surface-to-ship guided missile (KAI), which is being developed domestically, can be developed as a stand-off missile with even longer range. Moreover, the Cabinet decision states that such a stand-off missile will be upgraded to operate with multiple platforms, with a concept that calls for a family of missiles that can be mounted on both vessels and aircraft.

If these missiles can be deployed on surface vessels and achieve a range as long as JASSM, they are expected to fill the capability gap of MSDF units against the Chinese Navy that Toshi Yoshihara of the Center for Strategic and Budgetary Assessments (CSBA) expressed concern in his paper, especially the gap in long-range anti-ship missile capability.⁸ This may become one of the trump cards for the MSDF to overcome its relative disadvantage against the Chinese Navy.

3. Possessing strike capability

As mentioned at the beginning, we must consider two aspects when examining Japan's system of comprehensive air and missile defense.

First, with regard to the defense against North Korea's missiles, I noted that by establishing a missile defense posture (as close to constant operation as possible) from peacetime through Aegis system-equipped vessels, we can ensure that Japanese and U.S. Aegis ships can be deployed to the Southwest.

Second, as numerous scholars have also pointed out, even then it will not be easy to establish and maintain maritime superiority in an A2/AD environment during a contingency and establish a missile defense posture in the Southwest. This tells us that defense against North Korea's missiles and missile defense in an A2/AD environment are not merely two separate defense postures but represent fundamental differences in their characteristics and vector. In particular, Japan's missile intercept capability will fail to act as a deterrent if China's rapidly expanding ballistic and cruise missile threat in both quality and quantity can overcome Japan's missile defenses. Therefore, we cannot ignore the discussion on possessing "strike capability" (self-defense counterattack capability)* as a complementary deterrent.

* Note: This is "deterrence by denial" in which if Japan is attacked by missiles, Japan has the capability and intention to launch a counterattack in self-defense within the limits of international law and Japan's interpretation of the Constitution (e.g. the concept of exclusively defense-oriented policy). This should not be confused with the so-called "defensive first strike" concept.

Furthermore, this is not only an issue for Japan. The nature of the deterrent offered by strike capability must be given a serious consideration in the context of Japan-U.S. RMC cooperation, based on a shared understanding of the situation between Japan and the United States.

We may see Tokyo and Washington consider moving beyond the traditional shield-spear division of labor to a new structure in which the shield and spear are appropriately complementary. This does not mean that the credibility of U.S. extended deterrence is wavering. Rather, it means that Japan should consider the role it should play for actively and independently contributing to the achievement of a "Free and Open Indo-Pacific" (e.g. shifting from taking a passive stance to becoming an active security provider). The time has come for Japan to reexamine its security strategy.⁹

In the past, the Japan-U.S. Defense Guidelines has redefined the nature of Japan-U.S. defense cooperation to adapt to the changes in the security environment surrounding the two countries.¹⁰ The situation is expected to change further going forward. If we are to review the shield-spear complementary

structure as a deterrent, then we need to work on redefining the defense cooperation in the Japan-U.S. Defense Guidelines.

As is evident even without the warning from Toshi Yoshihara of CSBA, the environment surrounding Japan is a situation with no time to lose.

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¹ Japan Ministry of Defense, “Recent Missile & Nuclear Development of North Korea,” March 2021, https://www.mod.go.jp/j/approach/surround/pdf/dprk_bm.pdf.

² *Sankei Shimbun*, September 29, 2020, <https://www.sankei.com/world/news/200229/wor2002290034-n1.html>; United States Department of Defense, “Military and Security Developments Involving the People’s Republic of China 2020: Annual Report to Congress,” September 2020, p. 55, <https://media.defense.gov/2020/Sep/01/2002488689/-1/-1/1/2020-DOD-CHINA-MILITARY-POWER-REPORT-FINAL.PDF>. (URL last accessed July 27th 2021)

³ Congressional Research Service, “Navy Aegis Ballistic Missile Defense (BMD) Program: Background and Issues for Congress,” updated February 25, 2021, <https://fas.org/sgp/crs/weapons/RL33745.pdf>. (URL last accessed July 27th 2021)

⁴ Dennis M. Gormley, Andrew S. Erickson, and Jingdong Yuan, “A Potent Vector: Assessing Chinese Cruise Missile Developments,” *Joint Force Quarterly* 75, September 30, 2014, <https://ndupress.ndu.edu/Media/News/News-Article-View/Article/577568/jfq-75-a-potent-vector-assessing-chinese-cruise-missile-developments/>. (URL last accessed July 27th 2021)

⁵ Tokuhiro Ikeda, “Iijisu shisutemu tosaikan’ wa kaiji ni nani wo motarasuka” [What will “Aegis system-equipped vessels” bring for the Maritime Self-Defense Force?], *Japan Military Review*, March 2021.

⁶ Bryan Clark and Timothy A. Walton, “Taking Back the Seas: Transforming the U.S. Surface Fleet for Decision-Centric Warfare,” Center for Strategic and Budgetary Assessments (CSBA), December 31, 2019, <https://csbaonline.org/research/publications/taking-back-the-seas-transforming-the-u.s-surface-fleet-for-decision-centric-warfare/publication/1>. (URL last accessed July 27th 2021)

⁷ Defense News, March 1, 2021, <https://www.defensenews.com/congress/2021/03/02/eyeing-china-indo-pacific-command-seeks-27-billion-deterrence-fund/>. (URL last accessed July 27th 2021)

⁸ Toshi Yoshihara, “Dragon against the Sun: Chinese Views of Japanese Seapower,” CSBA, May 19, 2020, <https://csbaonline.org/research/publications/dragon-against-the-sun-chinese-views-of-japanese-sea-power/publication/1>. (URL last accessed July 27th 2021)

⁹ A detailed analysis of Japan’s possession of “spear” capabilities (strike capability), including the legal issues, is presented in: Shinichi Kitaoka and Satoru Mori, “Misairu boei kara hangekiryoku e: Nihon no senryaku no minaoshi wo” [From missile defense to counterattack capability: Review of Japan’s strategy], *Chuo Koron*, April 2021.

¹⁰ For example, Japan and the United States agreed: in the 1978 Guidelines, on the division of roles in Japanese contingencies during the Cold War between the United States and the Soviet Union; in the 1997 Guidelines, on the division of roles in peacetime, contingencies, and peripheral situations (North Korea, Taiwan) after the collapse of the Cold War; and in the 2015 Guidelines, on the division of roles in peacetime, gray-zone situations, and contingencies in response to various threats (North Korea, China, international terrorism) amid the relative decline of U.S. influence.

About the Author

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