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# Ballistic Missile Defense in Japan

## Deterrence and Military Transformation

*In collaboration with the Atomic Energy Commission (CEA)*

**Sugio Takahashi**

*December 2012*

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Thérèse Delpech passed away on January 18, 2012. As Director of Strategic Affairs of the French Atomic Energy Commission (CEA), Thérèse was instrumental in promoting and supporting several research programs on proliferation in France and abroad. But for her and her continuous support along the years, the *Proliferation Papers* would not exist. Ifri's Security Studies team is as sad as we are indebted to her, and would like to dedicate the 2012 issues of the *Proliferation Papers* to her memory.

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*Sugio Takahashi*

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# Contents

# Introduction

In December 2003, the government of Japan (GoJ) made a historic decision. Following the United States, Japan decided to be the second country in the Asia-Pacific to deploy a ballistic missile defense (BMD) system. The beginning of the Japanese BMD participation can be dated back to the Strategic Defense Initiative (SDI) project in the late 1980s. It started as defense industry cooperation rather than as a response to the threat at that time – about a decade before North Korean ballistic missile flew over Japanese territory in 1998. However, since the 1998 North Korean missile launch, the context has changed and BMD efforts have been highly prioritized to cope with the clear and immediate threat from Pyongyang. The 2003 decision to deploy a Patriot Advanced Capability-3 (PAC-3) lower-tier, ground-based system and a Standard Missile SM-IA sea-based system was intended to form a defense architecture against ballistic threat.

However, the deployment of BMD does not simply provide a countermeasure against ballistic missile threat. First, it has transformed the organization and command and control system of the Japanese Self-Defense Forces (SDF). With highly limited time margins in missile interception operation and its cross-service characteristics, joint and streamlined command in addition to control structure and legal procedure are of essential importance for effective BMD. The procurement of interceptors alone does not ensure effectiveness. Second, within the alliance structure, given their parallel deployment of BMD systems, it is essential that the Japanese and American militaries deepen their operational cooperation. Mainly for that reason, the Air Self-Defense Force (ASDF) relocated the command and control center of its integrated air defense system next to the US Force in Japan (USFJ) headquarters. Third, BMD deployment changed Japanese thinking about extended deterrence. Before BMD deployment, the GoJ's strategic document, the National Defense Program Guidelines (NDPG) (published in 1976, 1995, and 2004) qualified extended deterrence as "Japan […] rely[ing] on the US nuclear deterrent". But the latest NDPG, released on December 2010, clearly presents the Japanese BMD as an indigenous effort to improve the credibility of the US extended deterrence. It is no longer a matter of simply "relying on" the US nuclear deterrent.

This paper explores the implications of Japanese BMD on Japan's defense posture and regional security. First, it presents a brief history of Japanese BMD. Second, it analyzes SDF transformations as a consequence of the deployment and use of BMD. In this context, BMD worked as a catalyst for the transformation of SDF, both in its own

organization and in its defense cooperation with the US. Finally, the implications for regional security, including the BMD's role in the credibility of the extended deterrence, are discussed.

# Ballistic Missile Defense in Japan

### *Brief History up to 2003*

The beginning of Japanese participation in missile defense can be traced back to the 1980s. At that time, the agenda of missile defense was raised as an issue of defense industrial cooperation within the Japan-US alliance, rather than as a response to ballistic threat. As a part of the Strategic Defense Initiative (SDI), The Western Pacific Missile Defense Architecture Research (WESTPAC), led by the defense industry, and which entailed company-to-company rather than government-to-government cooperation, started in 1989 and ended in 1993.[1] This format of cooperation demonstrates that initial Japanese participation in the missile defense enterprise was not a threat-driven effort. From the perspective of the Japanese defense industry, this project was a watershed in Japan-US cooperation in defense technology. Since then, the Japanese defense industry has continuously paid strong attention to the US missile defense development program, as it evolved to Global Protection Against Limited Strikes (GPALS) and Theatre Missile Defense (TMD)/National Missile Defense (NMD) phases, through the George H.W. Bush administration to the Clinton administration.

On the other hand, the US approach to this cooperation involved two-way technology transfer between Japan and the US, in contrast to the traditional one-way transfer from the US to Japan. In the 1950s and 1960s, because of the devastation caused by WWII and with enforced prohibition of defense technology, Japan's defense industry had poor technological potential. It depended heavily on technological support from the US defense industry. After the revitalization of Japanese defense industry with Japanese economic reconstruction, and on the basis of the 1967 "Three Principles on Arms Exports", Japan applied a strict restraint of arms sell and therefore one-way technological transfer was a traditional form of defense industrial cooperation for Tokyo and Washington.

In acquiring defense equipment, Japan prioritized indigenous production (*kokusanka*) rather than off-the-shelf-purchase. However, the

[1] Ken Jimbo, "Dando Misairu Boei to Nichibei Domei: Nichibei Kyodo Kenkyu no Seisaku Katei to Doumei no Senryaku Chosei (Ballistic Missile Defense and the Japan-US Alliance: Policy Process of the Japan-US Cooperative Research and Alliance 'Strategic Adjustment')", *Kokusai Anzenhosho* (*Journal of International Security)*, March 2002, available at: www.jiia.or.jp/pdf/asia_centre/jimbo_bmd.pdf.

US side was frustrated by such an asymmetrical form of cooperation.[2] When Secretary of Defense Les Aspin visited Japan in 1993, he made clear that the United States would not agree to licensed production and Japan's only options were either off-the-shelf purchase or joint development.[3] In response, the GoJ sought to participate in the research and development of missile defense, starting with an analysis of Japan's missile defense requirements. To this end, the Theater Missile Defense (TMD) Working Group was set up in 1995.[4]

North Korea's Taepo-Dong long-range ballistic missile launch in 1998 was a big turning-point for Japan's missile defense policy. That ballistic missile overflew Japanese territory, provoking widespread concern in Japan about ballistic missile development by North Korea. As a result, Japan's security requirement for missile defense was broadly and deeply acknowledged. The GoJ decided to initiate joint technological research with the US on sea-based upper-tier missile defense (Navy Theatre-Wide Defense, based on AEGIS ships, now named AEGIS BMD).[5] This joint technological research focuses on four technologically challenging components of an AEGIS vessel-based, upper-tier missile system: nose cone, infrared seeker, kinetic warhead, and second-stage rocket motor. With this decision, the GoJ articulated a three-stage approach to Japan's BMD efforts, comprising research, development, and deployment. This format separates each stage in any project; an exit decision on one system must be made before advancing to the next stage. For example, a decision to start the research phase of a system does not guarantee that the development phase will follow after the research phase has been completed. A system chosen for deployment could be different from what was researched and developed.

Following its 1998 decision on joint technological research, the GoJ continued its BMD efforts. In December 2003, Japan's Cabinet and Security Council decided to deploy PAC-3 (a surface-to-air, lower-tier BMD system) and the Standard Missile (SM-3 Block IA, a sea-based, upper-tier missile defense system) systems to counter ballistic missile threats.

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[2] About *kokusanka* and defense industry cooperation between Japan and the US, see Michael Green, *Arming Japan: Defense Production, Alliance Politics, and Postwar Search for Autonomy*, New York, Colombia University Press, 1995.

[3] Patrick Cronin, Paul Giarra and Michael Green, "Theater Missile Defense and US-Japan Alliance", in Michael Green and Patrick Cronin (eds.), *The US-Japan Alliance: Past, Present and Future,* New York, Council on Foreign Relations Press, 1999.

[4] About this process, see Kawakami Takashi and Ken Jimbo, "Dando Misairu Bouei to Nichibei Doumei: Nichibei Kyoudou Kenkyu no Seisaku Katei to Kongo no Tenbo (Ballistic Missile Defense and the Japan-US Alliance: Policy-Making Process of Japan-US Joint Technological Research and Future Outlook)", in Morimoto Satoshi (ed.), *Misairu Bouei (Missile Defense)*, Tokyo, Japan Institute for International Affairs, 2001, pp. 263-265.

[5] Statement of the Chief Cabinet Secretary, Japan-US Joint Technological Research on Ballistic Missile Defense, 25 December 1998.

### *Deployment after 2003*

Since its 2003 decision on deployment of SM-3 Block IA and PAC-3, Japan has been implementing two sets of BMD programs. One is the deployment of a system to counter existing ballistic missile threats, and the other is research and development into a system to counter potential missile threats in the future. The 2003 decision, prior to the introduction of an interceptor being jointly developed with the US (Standard SM-3 Block IIA), is aimed at the former objective. The BMD shield will comprise six Aegis vessels (the 2003 decision stipulated four, but it was decided in 2010 to increase the number to six), four PAC-3 groups, four newly developed ground-based X-band radar sets (FPS-5), upgrades of seven radar systems (upgraded FPS-3), and modification of the Japan Air-Defense Ground Environment (JADGE), an automated integrated air-defense system, to add BMD capabilities.

After North Korea's ballistic missile launches in July 2006, Japan accelerated the timetable for PAC-3 delivery. The first PAC-3 battery was deployed at Iruma Air Base, about 30 km from the center of Tokyo Metropolitan City, in March 2007. This initial force structure of the BMD shield was enhanced with the release of the new National Defense Program Guideline in 2010 (NDPG 2010) and the Mid-Term Defense Program for FY 2010-2015 (MTDP 2010-2015).[6]

In addition to the deployment of PAC-3 and Standard SM-IA, the GoJ continued the R&D efforts with the US on the next-generation interceptors; this process had been initiated by the 1999 decision on the Aegis vessel-based upper-tier missile system. As stated above, based on the three-phase format of BMD, starting the research phase of a specific system does not automatically guarantee that the development phase of that system will follow.

To start the development phase, in December 2005, the Cabinet and the Security Council made a decision to approve joint development with the US of the SM-3 Block IIA,[7] also known as the 21-inch diameter SM-3 interceptor.[8] These development plans include enhancement of such missile components as the 21-inch second- and third-stage rocket motors, the advanced infrared seeker, the advanced signal processor, and the Divert and Attitude Control System (DACS), as well as upgrading the Aegis system and the vertical launch system. Japan's role in the project is centered on nose cone and rocket-motor development.

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[6] Ministry of Defense, *National Defense Program Guidelines for FY 2011 and beyond*, December 2010, available at: www.mod.go.jp/e/d_act/d_policy/pdf/guidelinesFY2011.pdf; Ministry of Defense, *Mid-Term Defense Program (FY2011-FY2015)*, December 2010, available at: www.mod.go.jp/e/d_act/d_policy/pdf/mid_termFY2011-15.pdf.

[7] Statement of the Chief Cabinet Secretary, Japan-US Joint Development of Upgraded Interceptor for Ballistic Missile Defense, 24 December 2005.

[8] The diameter of the missile is 21 inches up to the warhead, making it wider than the SM-3 Block IA currently in service with the SDF, which has a 13.5-inch diameter above the second-stage rocket motor.

### *North Korean Missile Launches, 2009 and 2012*

The year 2009 saw major new moves with regard to North Korea's development of nuclear weapons and missiles. First, North Korea launched a satellite on 5 April. Although Pyongyang claimed success, no satellite was located in orbit; the international community understood this launch to be part of a ballistic missile development program. One month later, on 25 May, North Korea announced that it had exploded a second nuclear bomb. Finally, Pyongyang launched seven ballistic missiles on 4 July.

Upon North Korea's notification of a self-described space vehicle launch in 2009, the GoJ decided to deploy its Self-Defense Forces (SDF) to prepare for possible failure of the announced launch with activation of its Ballistic Missile Destruction Measures. Established in 2005, this procedure allows authority for the interception operations to be pre-delegated to SDF commanders (details of these measures are explained in the following section). On 12 March 2009, North Korea notified the International Civil Aviation Organization (ICAO) of its satellite launch plan, designating parts of the Sea of Japan and the Pacific Ocean as 'dangerous' zones. This was reported by the Korean Central News Agency, North Korea's state media. On receiving this report, the SDF stepped up their level of alert for intelligence-gathering and surveillance. Then, on 27 March, the GoJ issued an order for steps to be taken to destroy any part of the descending rocket/missile in case the launch failed. The Defense Minister issued an order for the implementation of the destruction measures during the period up to 10 April, and the SDF deployed Aegis vessels and PAC-3 batteries.

On 5 April, at around 11:30 am, the missile was launched. At around 11:37, after what is believed to have been the separation of its first stage, the rocket passed over Japan's Tohoku region at a height of 370-400 kilometers and fell into the Pacific Ocean. As no object was observed to be falling toward Japanese territory, destructive measures were not implemented.

In April 2012, as in 2009, North Korea announced that it would launch a "space vehicle" between 12 and 16 April. As in 2009, the GoJ decided to activate the Ballistic Missile Destruction Measures, and the Maritime SDF Aegis ship, Air SDF PAC3, and Ground SDF rapid response units for consequence management were deployed to the Okinawa area and Tokyo. On 13 April, North Korea launched the missile, but it failed immediately after the launch.

In both 2009 and April 2012, the dissemination of early-warning information caused trouble. In 2009, the MoD announced the launch of a missile one day before its actual launch. In contrast, in 2012, the MoD delayed announcing the missile launch until more than one hour after the actual launch. These two cases demonstrate how real-time information dissemination to society is challenging for military organizations.

There were multiple sensors to detect North Korea's missile launch in 2009 and April 2012: Shared Early Warning information (SEW) from US

early-warning satellites; the ground-based phased-array radar of the Air SDF, and the maritime radar of the Aegis destroyers of the Maritime SDF. For the sake of crisis management and consequence concerns, information about a missile launch is expected to be disseminated immediately to other related branches of government and local government. According to MoD after-action reports, in both cases,[9] information from these sensors was gathered by the Cabinet Secretariat (National Security and Crisis Management).

In 2009, on 4 April at 12:16, the FPS-5 phased-array radar at Iioka, Chiba Prefecture, detected an object above the Sea of Japan. This information was sent to staff at Air Defense Headquarters, Fuchu, Tokyo. In accordance with procedure, the staff reported verbally to other headquarters staff, using the phrases "Iioka detected" and "SEW detected". However, there was a misunderstanding. At that time, SEW had not detected the missile launch. This voice-based information was immediately disseminated to the local government through the Cabinet Secretariat. One minute later, the Joint Staff Office checked SEW information and noticed that SEW had not detected the missile launch. Accordingly, they reported that the 12:16 launch information was false. Finally, at 12:20, the corrected information – stating that no missile had been detected – was disseminated to the local government.

According to the after-action report of 2009, the human error happened because one staff had been wrongly convinced that both FPS-5 and SEW had detected the missile launch. In response to this episode, the MoD improved the confirmation process for early warning information.[10]

In contrast, in April 2012, the opposite situation happened. On 13 April at 7:40 am, the MoD received SEW information from the US. However, it took time for other sensors to confirm the launch, to double-check, and no Japanese sensor could detect it. For that reason, the GoJ's announcement of the missile launch was delayed for about one hour. Finally, at 8:23, Defense Minister Naoki Tanaka announced the information at a press briefing, followed by a briefing by Chief Cabinet Secretary Osamu Fujimura at 8:37.

The reason for this delay was that the GoJ had established a double-check principle to avoid the dissemination of false information, as

[9] Ministry of Defense, "Kitachosen no Misairu Hassha ni Kakaru Boueishou no Jouhou Dentatsu ni Tsuite (Information Sharing by Ministry of Defense in North Korean Missile Launch)", 15 May 2009, available at: www.mod.go.jp/j/approach/defense/bmd/2009515-1.html; Ministry of Defense, "Kitachosen niyoru Jinkoeisei to Shousuru Misairu Hassha Jian ni Kakaru Kensho Oyobi Taioukentou Chimu Houkokusho (After-Action Report on the Response to North Korea's Missile Launch)", 15 June 2012, available at: www.mod.go.jp/j/press/news/2012/06/15b_1.pdf.

[10] Ministry of Defense, "Kitachosen no Misairu Hassha ni Kakaru Boueishou no Jouhou Dentatsu ni Tsuite (Information Sharing by Ministry of Defense in North Korean Missile Launch)", 15 May 2009, pp.3-4.

had happened in 2009.[11] In addition, in April 2012, North Korea's missile exploded immediately after the launch. In general, radar cannot pick up objects below the horizon because its magnetic waves travel in a straight line. Therefore, both the ground-based radar in Japan and the maritime-based radar of the Aegis vessels deployed in the southern part of Japan could not detect the missile because it crashed before it rose above their horizon.[12] This physical reality prevented the double-checking of the information released by the SEW space-based sensors.

These two cases, in 2009 and April 2012, are completely opposite examples that demonstrate the difficulties in strategic communication concerning ballistic missiles. This needs both accuracy and rapidity. The procedures of confirmation and dissemination need to be continuously updated for future similar situations.

Following April 2012, on 1 December that year, North Korea declared its intention to launch again what it described as a space launch vehicle. The response of the GoJ was similar to the April case: on 7 December, the Defense Minister issued an order to activate the Ballistic Missile Destruction Measures and units from the three services were deployed in the same configuration as in April.

On December 12, at around 9:50 am, the rocket was launched. Unlike 2009 and April 2012, the GoJ disseminated early-warning information without any trouble and transmitted the information to local governments at 10:05 am. It was also the first time that North Korea succeeded in deploying an object on the orbit.[13] Although Pyongyang claims that the launch is part of a space program, it is apparent that it is also part of its ballistic missile development program. Therefore, this successful launch demonstrates how much the North Korean ballistic missile program makes progress, and raises serious concerns regarding regional security.

[11] Ministry of Defense, "Kitachosen niyoru Jinkoeisei to Shousuru Misairu Hassha Jian ni Kakaru Kensho Oyobi Taioukentou Chimu Houkokusho (After-Action Report on the Response to North Korea's Missile Launch)", 15 June 2012, pp.13-14.
[12] *Ibid*., pp.8-9.
[13] North American Aerospace Defense Command, "NORAD acknowledges missile launch", 11 December 2012, available at: www.norad.mil/News/2012/121112b.htm.

# Transforming the Self-Defense Forces

### *Legal Structure*

The implications of the BMD deployment were not confined to mere acquisition of new capability with a “noble” weapon system. With BMD, organizational transformations have unfolded within the SDF. One significant example of such transformation is the adaptation of the legal structure governing the armed forces.

Since the time between launch and impact of a ballistic missile is a matter of minutes, it is of utmost importance to construct a rapid-response decision-making system. However, the standard procedure in Japan takes some time: only after the GoJ identifies the situation as an “armed attack situation” and gives the SDF a Defense Operation Order – the order is issued by the prime minister and needs to be approved by the Diet – can the SDF begin operations against the threat.

This procedure, suited for a full-scale defense operation against high-end conventional invasion, is a process that consumes too much time to respond adequately to a ballistic missile threat. Therefore, for cases of such threat without conventional invasion or ballistic missile tests and space vehicle launch by neighboring countries, the Japanese security policy community recognized the need to establish a separate operational procedure for non-war situations, allowing for pre-delegation of firing authority to the SDF missile-defense taskforce.

The July 2005 amendment of article 82-2, paragraph 3 of the Self-Defense Forces Law gives the defense minister the power to order the destruction of incoming ballistic missiles based on the prime minister’s decision. In the event that there is a high possibility of a ballistic missile launch, or it is feared that parts of a rocket might accidentally fall onto Japanese territory, this provision allows the defense minister to issue an order – in accordance with procedures approved by the prime minister – to destroy the incoming object so as to prevent the loss of lives or damage to property on Japanese territory. In the cases of the 2009 and 2012 North Korean missile launches, this legal system was activated to deal with a possible missile drop on Japanese territory.

### *SDF Command and Control*

As with other advanced countries' military, in the post-Cold War era, the SDF have been transforming their operational organization to promote jointness. In this process, BMD played a critical role as a catalyst. During the Cold War, the need for joint operations was not significant, because all three SDF services were assumed to engage in their mission to defend Japan in a relatively independent way: the Ground Self-Defense Force against the Soviet Red Army's ground troops, the Maritime Self-Defense Force against threats emanating mostly from the Soviet Navy's submarines, and the Air Self-Defense Force against Soviet airstrikes. Their operational cooperation was qualified as "coordination" rather than "joint operations".

The need for joint operations is particularly strong in the cross-service operational environment, such as amphibious operations, which require tight cooperation between sea and ground units, and close air-support operations, in which air units support ground troops. Conversely, joint operations are not critical in such cases as naval surface combat operations, which involve mainly maritime forces, or air defense operations, in which air units play the central role. This is the reason why SDF did not develop an organizational structure for joint operations.

In the post-Cold War era, however, the opportunity for the SDF to take part in a variety of missions, such as international peace keeping and disaster relief operations, gives rise to a greater need for seamless inter-service cooperation. In the disaster relief operations for the 1995 Hanshin Earthquake, one Japanese military officer observed that all three services' helicopters should be operated jointly.[14] And, with the evolution of information technology and high-tech weaponry, the SDF gradually realized the necessity to develop structures for joint operation.[15] Joint operation is also an essential foundation for effective BMD, because the MSDF's Aegis vessels and the ASDF's warning and surveillance systems and Patriot missile defense systems are all part of the Japanese BMD system, and these assets should be closely coordinated for time-sensitive missile defense operation. These operational requirements demonstrate how the service-based stovepipe organization of the Cold War era is outdated. In order to develop the organizational structure for joint operation, the SDF established the Joint Staff Office (JSO) in 2007.

Before the creation of the JSO, each service of the SDF operated under its own staff office. With the JSO, the function of each individual service's staff office has changed. The significance of the formation of the JSO lies in the separation of responsibility for capability development and

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[14] Yamaguchi Toru, "Jieitai no Togo Mondai: Tayoka Suru Ninmu eno Taio (Joint Operation of SDF: A Response to Expanding Missions)", *Kokusai Anzenhosho (Journal of International Security)*, Vol. 26, No. 2, September 1998, pp. 69-71.

[15] Office of Strategic Studies, Defense Policy Division, Defense Policy Bureau, Japan Defense Agency, *Info-RMA: Study on Info-RMA and the Future of the Self-Defense Forces*, December 2000, available at: www.mod.go.jp/e/publ/w_paper/pdf/2006/rma_e.pdf.

for operation. Prior to the reorganization, the three staff offices took responsibility for both. The new system assigns operational responsibility to the JSO, and the service staff offices are responsible for capability development only. Despite "joint" in its title, the JSO's role is not limited to cases of joint operation. It also encompasses the activities of units within a single service. In other words, the JSO's operational responsibility covers all actual field operations, not only joint operations.

In case of joint operations, the Joint Task Force (JTF) is temporarily organized for that operation (the SDF does not employ a permanent headquarter or joint taskforce). The Commander of the Air Defense Force, the Commanders of the Regional Armies, and the Commander of the Self-Defense Fleet are all eligible to become the *ad hoc* Joint Taskforce (JTF) commander. The composition and commander of the JTF depend on the situation. For example, with the 2011 Great Eastern Japan Earthquake, General Kimizuka, the Commander of the Northeast Regional Army, was assigned to be commander of JTF-TH (TH stands for "to-hoku", which means northeast) which had command and control authority over all units for disaster relief operation. With the 2012 North Korea ballistic missile launch, the Commander of Air Defense Force was assigned as commander of the JTF-BMD. The JTF commander was to exert command and control authority over the BMD assets of ASDF and MSDF and consequence management units of GSDF.

### *US-Japan Cooperation*

In addition to the SDF's own BMD, the US military has deployed its BMD in Japan. In accordance with the Japan-US agreement for force realignment of the US Force in Japan in May 2006, a forward-based X-band radar was installed at the ASDF's Shariki Garrison in Aomori Prefecture in June 2006, and a PAC-3 unit under the 94th Army Air and Missile Defense Command was deployed in Okinawa the following October.[16] Moreover, following its refitting with BMD capabilities, the Aegis guided-missile destroyer USS *Shiloh* arrived at Yokosuka to take up its duties as an element of the forward-deployed forces for the West Pacific. Through close cooperation with the SDF, the US military's BMD is expected to play a significant role in the defense of Japan.

Just as BMD facilitated reformation of joint operations within the SDF, the parallel deployment of missile defense capability by the SDF and US forces has positive implications for coalition operations, because it requires seamless operational cooperation between these two country's BMD systems. Missile interception effectiveness is obviously bolstered if information on targeted missiles is shared by the US and Japanese BMD networks. For Japan, since Japanese satellites lack early-warning capability, early-warning information from the US Defense Support Program satellite in geosynchronous orbit is indispensable for missile defense operation. With target acquisition data from Japanese ground-based sensor, the US missile defense assets can also intercept missiles more

[16] The National Institute for Defense Studies, *East Asia Strategic Review 2008*, Tokyo, The Japan Times, 2008, pp. 204-205.

effectively. On the other hand, if robust coordinated interception command and control is not developed, there is greater potential for redundant responses or failed intercepts.

Tackling this challenge, Japan and the United States created a system for collaboration in a command and control and real-time information-sharing system. A big step was taken in this direction when a meeting of the United States-Japan Security Consultative Committee (SCC, involving meetings between the defense ministers and foreign ministers of both countries, known as Two-Plus-Two meetings) on 29 October 2005 issued the SCC document "US-Japan Alliance: Transformation and Realignment for the Future".[17] It included an agreement to establish the Bilateral Joint Operation Coordination Center (BJOCC), with the relocation of the ASDF Air Defense Force Headquarters to the Yokota Air Base, where USFJ headquarters is based. The establishment of the BJOCC at the Yokota Air Base is expected to enhance operational integration between the SDF and US forces.

In this way, BMD deployment by the SDF and US forces has facilitated operational integration of these military forces.

[17] Secretary of State Rice, Secretary of Defense Rumsfeld, Minister for Foreign Affairs Machimura, and Minister of State for Defense Ohno, Security Consultative Committee Document, *US-Japan Alliance: Transformation and Realignment for the Future*, available at: www.mofa.go.jp/region/n-america/us/security/scc/doc0510.html.

# Implications for Northeast Asian Security

### *Growing Ballistic Missile Threats in Northeast Asia*

In terms of ballistic missile proliferation, especially vertical proliferation, northeast Asia is a highly "concern-rich" region. North Korea and China have developed and deployed a huge number of ballistic missiles.

According to the Japanese Defense White Paper, North Korea is understood to deploy several types of ballistic missiles:[18] the short-range Scud variant ballistic missile (Scud-B with 300 km range and Scud-C with 500 km range), the No-Dong missile with 1000-1300km range, the Taepo-Dong 1 (TD-1) missile with 1500 km range, the Musudan missile, which is believed to be a modification of the SS-N-6 submarine-launched ballistic missile of the former Soviet Union, with 2500-4000 km range, and the Taepo-Dong 2 (TD-2) with 6000 km range. Among them, it is estimated that several hundred Scud variant and No-Dong missiles are deployed. The TD-2, which can reach the US mainland, is still under development (the TD-1 may have been developed as an interim experimental missile in the TD-2 development process). Except for the TD series, these missiles are road-mobile and operated by transporter erector launcher (TEL).

Combined with their nuclear development program, these missile forces of North Korea are a huge source of regional instability. In August 1998, North Korea launched a TD-1 over mainland Japan. In July 2006, seven missiles were launched to the Sea of Japan. Six were identified as the No-dong and Scud variant and one as a TD-2, which crashed after separation failure of the first-stage booster. In April 2009, North Korea launched a TD-2, claiming it to be a space launch vehicle; it flew more than 3000km.[19] These consistent efforts by North Korea to develop its ballistic missile strike capability pose a serious threat to the security of Japan. On the other hand, just as the 1998 Taepo-dong launch over Japan paved a way for Japanese participation in the BMD project, these "fireworks" every few years and the nuclear tests in 2006 and 2009 served to provoke Japanese BMD development and deployment.

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[18] Ministry of Defense, *Heisei 23 Nendo-ban Nihon no Boei (Defense White Paper in FY2011)*, Tokyo, 2011, pp. 64-65.
[19] *Ibid*., p. 64.

China has continued to modernize its ballistic missile forces, as a part of developing capabilities for anti-access/area-denial (A2/AD).[20] It has already deployed ICBMs, SLBMs, IRBMs/MRBMs and SRBMs. Now it is replacing its liquid-fuel missiles with the solid-fuel versions. Moreover, it is believed that China is focusing on modernizing its strategic nuclear forces in order to be less vulnerable to the US strategic nuclear force, by developing road mobile ICBMs (DF-31A) as well as SLBMs (JL-2). As regards theater ballistic missiles, China has deployed the liquid-fuel DF-3 and DF-4, and the solid-fuel road mobile DF-21. The DF-21 family includes the anti-ship ballistic missile version (DF-21D).

Unlike North Korea, China has not used these ballistic missile forces as a tool for regional provocation, except for the 1995 missile launch exercise flying over Taiwan, at the time of Taiwan's China's presidential election. The concern regarding ballistic missile development and deployment by China and North Korea takes different forms. North Korea is seen as more unpredictable and as a risk-taker that is not reluctant to use its ballistic missile forces. China, on the other hand, is not seen as a fearless risk-taker. For that reason, the US is seeking to improve 'strategic stability' by increasing mutual trust.[21] Nevertheless, consistent Chinese efforts to acquire invulnerable nuclear second-strike capability and conventional anti-access and area-denial capability have grave strategic implications for the future strategic landscape in the Western Pacific.

### *BMD and Extended Deterrence*

The growth of ballistic missile threats in northeast Asia has raised the strategic importance of the BMD system as a countermeasure. At the same time, the current BMD system cannot provide a perfect barrier against incoming ballistic missiles. It needs to be combined with other means of deterrence, such as conventional and nuclear strike capability. The challenge of responding to regional vertical ballistic missile proliferation is to build comprehensive regional deterrence architecture of both defense and strike systems, reinforced by robust intelligence, surveillance and reconnaissance (ISR) and command and control systems.[22] In this sense, the BMD system in Japan is one component of the defense system in the regional deterrence architecture in northeast Asia. The Japanese BMD system enhances the effectiveness of the US extended deterrence for Japan.

Japanese official thought about extended deterrence was indicated in the National Defense Program Guidelines (NDPG), the capstone document of Japanese defense strategy. Concerning extended deterrence, the relevant paragraph in the 1976 version remained more or less the same in the 2004 version.

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[20] *Ibid*., pp. 79-81.
[21] Department of Defense, *Nuclear Posture Review Report*, April 2010, p. 7.
[22] *Ibid*., p. 28.

The 1976 NDPG stated:

> Japan's basic defense policy is to possess an adequate defense capability of its own while establishing a posture for the most effective operation of that capability to prevent aggression. In addition, a defense posture capable of dealing with any aggression should be constructed, through maintaining the credibility of the Japan-US security arrangement and insuring the smooth functioning of that system. Against nuclear threat Japan will rely on the nuclear deterrent capability of the United States.[23]

Subsequent NDPGs retained this thinking. The 1995 NDPG stated:

> Against the threat of nuclear weapons, [Japan will] rely on the US nuclear deterrent, while working actively on international efforts for realistic and steady nuclear disarmament aiming at a world free from nuclear weapons.[24]

The difference between this statement and the 1976 version is that it refers to nuclear disarmament and non-proliferation efforts while maintaining the line of thought of the 1976 NDPG, embodied in the phrase "rely on the US nuclear deterrent".

A similar statement can be found in the NDPG 2004:

> To protect its territory and people against the threat of nuclear weapons, Japan will continue to rely on the US nuclear deterrent. At the same time, Japan will play an active role in creating a world free of nuclear weapons by taking realistic step-by-step measures for nuclear disarmament and non-proliferation. Japan also will play an active role in international disarmament and non-proliferation efforts regarding other types of weapons of mass destruction and their delivery means, such as missiles.[25]

The 2004 NDPG, which mentions the role of BMD, is the version that decided the deployment of the BMD system in Japan. Following the

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[23] Ministry of Defense, *Showa 52 Nendo Iko ni Kakaru Boei Keikaku no Taiko ni Tsuite (National Defense Program Guidelines for FY 1977 and beyond)*, October 1976.

[24] Ministry of Defense, *Heisei 8 Nendo Iko ni Kakaru Boei Keikaku no Taiko ni Tsuite (National Defense Program Guidelines for FY 1996 and beyond)*, November 1995.

[25] Ministry of Defense, *Heisei 17 Nendo Iko ni Kakaru Boei Keikaku no Taiko ni Tsuite (National Defense Program Guidelines for FY 2005 and beyond)*, December 2004.

statement about "reliance" on the US nuclear deterrent, the 2004 version of NDPG went on to say in relation to response to ballistic missile attacks:

> Japan will respond to ballistic missile attacks by establishing the necessary defense force structure, including the deployment of ballistic missile defense systems. Against nuclear threat, Japan will adequately respond by missile defense, in addition to relying on US nuclear deterrence.[26]

The 2004 NDPG was released after the 2002 Nuclear Posture Review, which features the concept of a "new Triad" for strategic deterrence, composed of a nuclear and conventional strike system, a defensive system, and responsive infrastructure. Therefore, the extended deterrence part of this NDPG should be in line with this new Triad. However, with some reference to BMD, the basic thinking on extended deterrence in this document was not changed. It still continued to state "reliance on the US nuclear deterrent" without positing the role of BMD within strategic deterrence. On the other hand, the conceptual framework of new Triad was incorporated in the joint statement released in the May 2007 Security Consultative Committee (SCC) document. According to the joint statement: "The US reaffirmed that the full range of US military capabilities – both nuclear and non-nuclear strike forces and defensive capabilities – form the core of extended deterrence and support US commitments to the defense of Japan." Thus, the NDPG 2004 statement was going to be outdated. Combined with the new Triad and Japan's own BMD system, Japan does not simply "rely" on the US nuclear deterrent, but begins to play a proactive role in strategic deterrence. Considering these changes, the 2010 version of the NDPG fundamentally rewrites the statement about extended deterrence. With regard to the concept of extended deterrence, it says:

> To address the threat of nuclear weapons, Japan will play a constructive and active role in international nuclear disarmament and non-proliferation efforts, so as to achieve the long-term goal of creating a world without nuclear weapons. At the same time, as long as nuclear weapons exist, the extended deterrence provided by the United States, with nuclear deterrent as a vital element, will be indispensable. In order to maintain and improve the credibility of the extended deterrence, Japan will closely cooperate with the United States, and will also appropriately implement its own efforts, including ballistic missile defense and civil protection.[27]

The most significant point about these statements in the NDPG 2010 is that, whereas previous defense reviews had simply used the phrase "the US nuclear deterrent", this document mentions "the extended deterrence provided by the United States, with nuclear deterrent as a vital

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[26] *Ibid*.

[27] Ministry of Defense, *National Defense Program Guidelines for FY 2011 and beyond*, *op. cit*.

element". This change reflects the new Triad thinking of the 2001 NPR, which integrates non-nuclear elements such as missile defense and conventional strike capability into strategic deterrence. At the same time, this phrase expresses the Japanese interpretation of the centrality of the nuclear component in strategic deterrence. Secondly, the NDPG 2010 replaces the phrase "rely on", in reference to the US nuclear deterrent, with "will be indispensable". Thirdly, the new NDPG explicitly mentions the Japanese BMD system as a part of Japan's "own efforts". It clarifies Japan's intention to counter nuclear threats itself rather than simply "relying" on the US extended deterrence.

In this way, the NDPG explicitly posits the role of the Japanese BMD system within the deterrence architecture, in a consistent way with the American strategic deterrence. More specifically, the BMD system in Japan plays three roles in regional deterrence. First, it serves to reassure the Japanese. While the current BMD system is far from being a perfect barrier against ballistic missiles, it provides people with some sense of being defended. Even with the system's limited capability, this sense of being defended forms a completely different public attitude from the sense of being defenseless. During the first Gulf War of 1991, the deployment of Patriot missiles to Israel when it came under Iraqi missile attacks gave the Israeli public a greater sense of security. Similarly, deployment of Japan's BMD system assuages the Japanese public's fear of ballistic missile threats. In the cases of the 2009 and 2012 North Korean ballistic missile launches, the government's decision on deployment of the BMD system to protect Japanese territory gave the Japanese public a strong sense of being defended. Such reassurance can make crisis management slightly less challenging, because people's sense of being defended by BMD tends to mitigate public pressure to claim first strike against an adversary's ballistic missiles.

Second, while the current BMD system would provide very limited defense against a swarm of ballistic missiles, it could be effective against a cheap-shot strike involving one or two ballistic missiles. Such a cheap shot can be conducted as blackmail or coercion, where a limited number of ballistic missiles avoids provoking US all-out retaliation by either nuclear or conventional means, given US assessment that such a limited missile attack is below the American threshold for retaliation. If the adversary recognizes that the Japanese (and the US) BMD can provide effective defense against such a cheap shot, and that it needs to launch more missiles to overcome the defensive barrier, then it would be likely to assess that such a missile attack would exceed the threshold for US retaliation. In this way, BMD can reinforce the credibility of extended deterrence.

Third, BMD provides damage-limitation capability for the SDF in case of contingency. With BMD, both SDF and US bases in Japan are more resilient against ballistic missile attack. If airstrips in Japan are more resilient, tactical fighter aircraft from such airbases can conduct a strike operation even under ballistic missile threat. With the current division of labor between Japan and the US, Japan is assumed to conduct the defensive operation and the US to conduct the strike operation. With

Japanese BMD, the US can maintain in-theater conventional second-strike capability in a resilient way. This reduces the incentive for the potential adversary to strike first against airbases in Japan. By making in-theater second-strike capability more resilient, BMD enhances the region's total deterrence posture.

### *Future Challenges*

The BMD system is a countermeasure against ballistic missile threat. Therefore, the extent of the strategic implication of BMD is a function of the extent of ballistic missile threat. As discussed in the previous section, given the outlook for the ballistic missile threat in northeast Asia, one cannot be optimistic about the future strategic landscape. This implies that BMD will have grave strategic implications in this region. And, as the NDPG 2010 mentions, Japanese BMD is one component of the Japan-US deterrence architecture in northeast Asia. Therefore, the relation with other elements of such deterrence architecture needs to be explored. This section looks at two issues in this perspective.

The first issue is the ICBM threat from this region. North Korea is believed to be making consistent efforts to develop an ICBM that can reach the US mainland, such as the Taepo-Dong 2 or Musudan. If North Korea acquires an ICBM with a nuclear warhead, the missile could threaten the US. North Korea might then perceive that it has more a reliable deterrent against the US military commitment, while it has a minimum strike capability against a handful of US cities. This perception could intensify its provocative behavior in the region.

To prevent such a perception, the US mainland needs to have a BMD system. From this perspective, theater-based missile defense would not be enough for regional stability. If North Korea completed ICBM development, and felt confident that it could deter the US military commitment, the danger of regional provocation by ballistic missile would be more serious. To counter such confidence, both the US homeland BMD and theater BMD play an essential role in regional security. Without these damage-limitation capabilities against ballistic missile threat, a North Korea ICBM could worsen the regional security situation. In this sense, deployment of the US mainland missile defense system needs to be continued, in addition to deployment of theater BMD.

China also continues to invest in invulnerable nuclear second-strike capability with its road-mobile ICBM and SLBM. Even after the deployment of the DF-31A road-mobile ICBM and JL-2 SLBM, these strategic nuclear forces could not destroy the US counter-force capability. However, such forces would increase the vulnerability of US cities. While the Ballistic Missile Defense Review, 2010 denies any US intention to neutralize Chinese strategic nuclear force with a missile defense system,[28] such expansion of Chinese strategic nuclear force could provoke fear of

[28] Department of Defense, *Ballistic Missile Defense Review Report*, February 2010, p. 4.

‘decoupling’ in extended deterrence. Even in this case, BMD can have strategic implications. Even though the US explicitly notes that the US mainland BMD system is not aimed at countering Chinese strategic nuclear force, its damage-limitation capability provides some reassurance for Americans. This sense of being defended would reinforce the credibility of the extended deterrence.

In these ways, to cope with the growing ICBM threat, theater-based BMD would not be enough to ensure regional stability. To prevent a ‘change of the game’, the US mainland missile defense system needs to be developed at the same pace as ICBM capabilities in the region. The second issue is the relation with theater-based strike capabilities, especially in terms of crisis stability. At the theater level, without forward-deployed tactical nuclear force, BMD and conventional strike capabilities are major components of the deterrence architecture. But with the growing ballistic missile threats in northeast Asia (in other words, anti-access/area-denial capability), ground-based, short-range tactical fighter aircraft would be vulnerable.

As mentioned earlier, BMD can enhance the resilience of these forces. But a question concerning crisis stability arises if F-35 is deployed at these fixed airbases. If these bases are vulnerable, the presence of stealthy short-range fighters drastically intensifies the first-strike incentive for potential adversaries. Especially if the F-35 is dual-capable, forward-deployed F-35s can be viewed as a forward-deployed tactical nuclear force, in which case the first-strike incentive could be much greater. To avoid such negative implications for crisis stability arising from short-range stealth strike aircraft, deployment of BMD to reduce base vulnerability against ballistic missile is critically important. Combined with measures for tactical dispersion, the damage-limitation capability of BMD, and other invulnerable conventional second-strike capabilities (such as submarine-launch cruise missiles), the first-strike advantage against such aircraft would be reduced and the negative impact of short-range nuclear-capable stealth aircraft on crisis stability could be mitigated.

# Conclusion

Deployment of BMD in Japan implies not just the introduction of a new weapon system, but a catalyst for a broad change in Japan's defense posture regarding domestic legal procedure and command and control structure; the form of defense cooperation with the US, and Japan's role in extended deterrence. This broad strategic implication of BMD arises due to two characteristics of BMD.

First, given the time-sensitivity of ballistic missile interception operations, a BMD system requires a highly integrated network-centric command and control and information-sharing system. To achieve this, organizational restructuring, with cross-service integration and streamlining operational procedures, is essential. As well as within the SDF, US-Japanese operational cooperation needs to be further improved for such time-sensitive operations. Such demanding operational requirements have prompted organizational reformation of the SDF and integration of US-Japanese missile defense operations. Second, BMD provides strategic defense against strategic offense relying on ballistic missiles. With nuclear weapons, ballistic missiles can provide 'existential deterrence' even with limited deployment. However, with the emergence of a credible BMD system, proliferator would need to deploy more ballistic missiles than the numbers of BMD interceptors to maintain its deterrence power, even if these missiles are tipped with nuclear warheads. This raises the cost for proliferators to build a credible offensive missile force, and strongly reduces the coercive power a proliferator could acquire simply by deploying ballistic missiles. In this context, a BMD deployment gives a proactive role to that country in a strategic equation between proliferator and deterred, even if this country does not possess its own retaliation capability. This effect transforms dynamics in alliance management in the context of extended deterrence.

Japanese BMD underwent a kind of operational test in both 2009 and 2012, with North Korea's missile launches, although the interceptors were not actually fired. Such repeated missile launch by North Korea suggests that the country is seriously and consistently developing and will continue to develop ballistic missiles. Japan thus needs to make efforts to deploy and upgrade its BMD system. On the completion of the joint development of the SM-3 Block IIA interceptor in the near future, the GoJ will need to decide whether or not to actually deploy that advanced Aegis-based BMD system. Analysis of BMD's comprehensive influence on Japan's defense posture and its alliance suggests that the continuous efforts to improve system performance, organization, institution, and strategic thinking will need to be maintained and even reinforced as capabilities expand.

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