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# Ballistic Missile Defense in the Asia-Pacific Region: Cooperation and Opposition

**Ian E. Rinehart**

Analyst in Asian Affairs

**Steven A. Hildreth**

Specialist in U.S. and Foreign National Security Programs

**Susan V. Lawrence**

Specialist in Asian Affairs

April 3, 2015

**Congressional Research Service**

7-5700

[www.crs.gov](http://www.crs.gov)

R43116

## Summary

The growing number and modernization of ballistic missiles in the Asia-Pacific region poses a security challenge for the United States and its allies and is thus a concern for many in Congress. The United States has made ballistic missile defense (BMD) a central component of protection for forward-deployed U.S. forces and extended deterrence for allied security. The configuration of sensors, command-and-control centers, and BMD assets in the region has slowly evolved with contributions from treaty allies, primarily Japan, Australia, and South Korea.

Observers believe that North Korea has an arsenal of hundreds of short-range ballistic missiles and likely dozens of medium-range Nodong missiles; the extended-range Nodongs are considered capable of reaching Japan and U.S. bases there. Longer-range North Korean missiles appear to be under development but remain unreliable, with only one successful test out of five in the past 15 years. The U.S. intelligence community has not yet concluded that North Korea can build nuclear warheads small enough to put on ballistic missiles, but there is significant debate among experts on this question.

Congress has maintained a strong interest in the ballistic missile threat from both North Korea and Iran and in BMD systems to counter those threats. The National Defense Authorization Act (NDAA) for FY2013 noted that East Asian allies have contributed to BMD in various ways, and it called on the Department of Defense (DOD) to continue efforts to develop and formalize regional BMD arrangements. Similarly, the FY2014 NDAA and FY2015 NDAA encourage the United States to cooperate with regional allies on BMD issues to enhance the security of all partners.

The United States and its allies in the Asia-Pacific region have responded to the North Korean missile threat by deploying BMD assets and increasing international BMD cooperation. The United States and Japan have deployed Aegis-equipped destroyers with Standard Missile 3 (SM-3) interceptors, Patriot Advanced Capability 3 (PAC-3) batteries, early warning sensors, and advanced radars to meet the threat. South Korea and Australia have relatively basic BMD capabilities with plans to improve those in the near future. Cooperation on BMD follows the hub-and-spokes model of U.S. bilateral alliance relationships in the region; the multilateralism that underpins the European BMD arrangement is largely absent. Working-level coordination is especially close among the United States, Japan, and Australia, but senior U.S. defense officials have called for greater integration of U.S. and allied BMD efforts in East Asia to improve effectiveness.

The stated focus of U.S. BMD policy is to defend against limited missile strikes from rogue states, not to alter the balance of strategic nuclear deterrence with the major nuclear-armed states. Nonetheless, Russia and China have strongly criticized U.S. BMD deployments as a threat to their nuclear deterrents, and thus a danger to strategic stability. Chinese officials and scholars make several other criticisms: that BMD is antagonizing North Korea and thus undermining regional stability; that the United States is using BMD to strengthen its alliance relationships, which could be turned against China; and that BMD is undermining China's conventional missile deterrent against Taiwan, and thus emboldening those on Taiwan who want to formalize the island's separation from China.

Specific issues for Congress raised by BMD cooperation in the Asia-Pacific include

- appropriations for BMD programs;

- the potential for Foreign Military Sales financing of BMD technology to allies;
- the role of BMD cooperation in shaping alliance relationships and overall U.S. strategy in the region;
- the effect of U.S. BMD cooperation on U.S. relations with China, North Korea, and Russia; and
- the possible role of U.S. BMD cooperation in shaping military developments in those countries.

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## Introduction

This report presents background information and discusses potential issues for Congress relating to U.S. ballistic missile defense (BMD) efforts in the Asia-Pacific region. These efforts pose several potential policy, funding, and oversight issues for Congress. Decisions that Congress makes on these issues could affect U.S. defense funding requirements and military capabilities, and U.S. relations with countries in the Asia Pacific region, including China, Japan, South Korea, North Korea, and Australia.

This report focuses on U.S. BMD efforts specific to the Asia-Pacific area. Other CRS reports cover U.S. BMD efforts elsewhere and issues other than BMD affecting U.S. relations with countries in the Asia-Pacific region.<sup>1</sup>

## Overview

The growing number and modernization of ballistic missiles in the Asia-Pacific region poses a security challenge for the United States and its allies. Observers believe North Korea has a large arsenal of short-range ballistic missiles (SRBMs). These North Korean SRBMs are believed to have sufficient range to hit targets in South Korea and Japan, including some U.S. military bases there. In recent years, North Korea has also conducted several tests of a long-range ballistic missile system that culminated in a successful space launch in December 2012. Yet, North Korea has not to date demonstrated a reliable capability to hit targets such as Guam or other U.S. territory with a ballistic missile.

Congress has expressed strong concern about the ballistic missile threat from both North Korea and Iran and strong interest in ballistic missile defense (BMD) systems to counter those threats. Section 229 of the National Defense Authorization Act (NDAA) for FY2013 (P.L. 112-239) states that it is the sense of the Congress that “the threat from regional ballistic missiles, particularly from Iran and North Korea, is serious and growing, and puts at risk forward-deployed forces, assets, and facilities.” The Department of Defense (DOD) is seeking to counter this threat with various measures, including the deployment of increasingly capable BMD systems. Although China is not the focus of U.S. BMD policy, Chinese missiles nevertheless present a complicating factor and increasing challenge for U.S. policy.

As a matter of policy and as a result of treaty commitments, the United States extends deterrence to protect its allies in the Asia-Pacific region. In essence, this means the United States will help deter threats to these allies and, if deterrence fails, use U.S. assets to defeat these threats. In 2010, the United States publicly confirmed to South Korea—and thus implicitly to Australia, Japan, and

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<sup>1</sup> See, for example, CRS Report RS22758, *Iran’s Ballistic Missile Programs: An Overview*, by Steven A. Hildreth; CRS Report R41549, *Missile Defense and NATO’s Lisbon Summit*, by Steven A. Hildreth and Carl Ek; CRS Report R41526, *Navy Shipboard Lasers for Surface, Air, and Missile Defense: Background and Issues for Congress*, by Ronald O’Rourke; CRS Report RL33745, *Navy Aegis Ballistic Missile Defense (BMD) Program: Background and Issues for Congress*, by Ronald O’Rourke; CRS Report R41219, *The New START Treaty: Central Limits and Key Provisions*, by Amy F. Woolf; CRS Report RL33436, *Japan-U.S. Relations: Issues for Congress*, coordinated by Emma Chanlett-Avery; CRS Report R41259, *North Korea: U.S. Relations, Nuclear Diplomacy, and Internal Situation*, by Emma Chanlett-Avery and Ian E. Rinehart; CRS Report RL30957, *Taiwan: Major U.S. Arms Sales Since 1990*, by Shirley A. Kan; and CRS Report RL33010, *Australia: Background and U.S. Relations*, by Bruce Vaughn.

other allies covered by the U.S. “nuclear umbrella”—that extended deterrence includes BMD capabilities.<sup>2</sup> Congress reinforced this commitment in the FY2013 NDAA when it stated in Section 229 that, “The United States has an obligation to meet its security commitments to its allies, including ballistic missile defense commitments.” Similarly, the FY2014 NDAA (P.L. 113-66) and FY2015 NDAA (P.L. 113-291) encourage the United States to cooperate with regional allies on BMD issues to enhance the security of all partners.

As the threat from ballistic missiles has increased, the United States has gradually expanded its deployment of BMD assets and associated sensors in East Asia. The configuration of sensors, command-and-control (C2) centers, and BMD interceptors in East Asia—in other words, the regional “architecture” of U.S. BMD—has slowly evolved in concert with contributions from treaty allies. Cooperation on regional BMD offers the potential for greater effectiveness and cost efficiency, but it is proceeding at different rates with different countries. The U.S.-Australia partnership on early warning satellites dates back to the early Cold War and the Defense Support Program (DSP) that began in 1970. The United States and Japan have been cooperating on BMD programs since the 1990s and have a mature partnership. South Korea and Australia are beginning to acquire the necessary hardware and software for a more robust BMD capability to include missile interceptors. Southeast Asian allies Thailand and the Philippines have so far not spent their relatively scarce defense funds to procure and deploy BMD systems.

The most authoritative DOD directive on BMD policy, the 2010 Ballistic Missile Defense Review Report (BMDR), declared a policy of implementing the “phased adaptive approach” (PAA) in East Asia.<sup>3</sup> That approach seeks to address the most acute near-term threats with deployments of existing technology and to pursue the deployment of BMD programs designed to deal with future, longer range ballistic missile threats as those threats develop. New capabilities are phased in to the system as they become available. The implementation of the phased adaptive approach in East Asia would require more formal arrangements. Fulfilling the requirement in Section 229 of the FY2013 NDAA, in August 2013 DOD published a report to Congress on regional ballistic missile defense that elaborates on the “phased, tailored, and adaptive approaches” to regional BMD architectures.<sup>4</sup>

Although the BMDR and the 2010 Nuclear Posture Review (NPR)<sup>5</sup> both explicitly commit the United States to the goal of maintaining “strategic stability” with Russia and China, the two countries have raised strong objections to U.S. BMD programs. Moscow and Beijing both argue that the programs pose a threat to their nuclear deterrents, with Russian concerns focused on BMD in Europe, and Chinese concerns focused on BMD in the Asia-Pacific.

Issues for Congress related to the evolution of U.S. BMD posture and policy in the Asia-Pacific region include

- appropriations for BMD programs;

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<sup>2</sup> The Joint Communiqué of the October 2010 U.S.–South Korean Security Consultative Meeting describes extended deterrence as “the full range of military capabilities, to include the U.S. nuclear umbrella, conventional strike, and missile defense capabilities.” <http://www.defense.gov/news/d20101008usrok.pdf>

<sup>3</sup> Robert Gates, *Ballistic Missile Defense Review Report*, Department of Defense, Washington, DC, February 2010, pp. 12-13.

<sup>4</sup> Department of Defense, *Regional Ballistic Missile Defense*, Washington, DC, August 23, 2013, p. 2.

<sup>5</sup> Department of Defense, *Nuclear Posture Review Report*, April 2010, pp. x-xi, 4-5, 28-29, <http://www.defense.gov/npr/docs/2010%20nuclear%20posture%20review%20report.pdf>.

- the potential for Foreign Military Sales (FMS) financing of BMD technology to allies;
- the role of BMD cooperation in shaping alliance relationships and overall U.S. strategy in the Asia-Pacific region;
- the effect of U.S. BMD cooperation on U.S. relations with China, North Korea, and Russia; and
- the possible role of U.S. BMD cooperation in influencing Chinese, North Korean, and Russian military developments.

## **U.S. BMD Policy**

The stated focus of U.S. BMD policy is to defend against limited missile strikes from so-called rogue states, namely Iran and North Korea, on the U.S. homeland or against allies and U.S. forces deployed abroad.<sup>6</sup> As a matter of policy, U.S. missile defenses are not intended to alter the balance of nuclear deterrence with the major nuclear-armed states, i.e. Russia and China. U.S. and allied BMD assets in the Asia-Pacific region are, however, inherently capable of intercepting short-range ballistic missiles (SRBMs) in East Asia that are launched not just from North Korea, but also from China. Future U.S. BMD capabilities in the region may be designed to counter much longer-range ballistic missiles regardless of their country of origin.

The guiding policy for deployment of BMD capabilities under the Obama Administration has been the Phased Adaptive Approach (PAA). The PAA seeks to address the most acute near-term threats with deployments of existing technology and to pursue BMD programs designed to deal with future, longer-range ballistic missile threats as those threats develop. U.S. policy aims to develop and deploy an overall global BMD system eventually linking regional and homeland BMD. The 2010 BMDR states that the United States “will pursue a phased adaptive approach within each region [Europe, the Persian Gulf, and East Asia] that is tailored to the threats unique to that region, including their scale, the scope and pace of their development, and the capabilities available and most suited for deployment.”<sup>7</sup> Regional BMD systems can provide a number of strategic benefits to the United States both in peacetime and in war, and can help to prevent premature escalation of a crisis into a war.<sup>8</sup>

In 2009, the United States announced plans for a European PAA and has so far completed the first phase of that effort. Phase two is on track with the installation of an Aegis Ashore system in Romania in 2015. Efforts to formalize an Asia-Pacific PAA (APPAA) are underway, but prospects remain unclear. Implementation of an APPAA could provide an opportunity for the United States to identify and prioritize missile threats and to rally allies and partners around a common vision for defending their territory and U.S. deployed forces in the region. Currently, many of the platforms and sensors required for a Phase 1 APPAA are already in place, such as Patriot and Aegis interceptor platforms and various ground-based sensors and radars. What is lacking is a

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<sup>6</sup> Robert Gates, *Ballistic Missile Defense Review Report*, Department of Defense, Washington, DC, February 2010, pp. 12-13.

<sup>7</sup> *Ballistic Missile Defense Review Report*, p. 23.

<sup>8</sup> Brad Roberts, “On the Strategic Value of Ballistic Missile Defense,” *Institut Français des Relations Internationales, Proliferation Papers*, No. 50, June 2014.



formal agreement that would lay out a path forward for a more integrated approach with allies and partners, as well as rules of engagement and clarity on various command and control issues.

## Regional Policy Context

In late 2011, the Obama Administration announced a new centerpiece for its foreign and defense policy known as the “strategic rebalancing” (originally called a “pivot”) to the Asia-Pacific region.<sup>9</sup> The January 2012 Defense Strategic Guidance issued by DOD also highlights this change,<sup>10</sup> and U.S. officials have since expounded on the various elements of the strategy. Since 2012, the U.S. military has increased rotational deployments to Australia, the Philippines, and South Korea, and has pledged to deploy its most advanced assets (such as the F-35 Joint Strike Fighter) to East Asia at an early date. One major thrust of the rebalancing strategy is deepened engagement with allies and partners in the region and a concurrent effort to knit strong bilateral ties into a web of regional security cooperation, particularly among treaty allies.<sup>11</sup> The United States has fostered U.S.-Australia-Japan and U.S.-Japan-South Korea trilateral security cooperation and has encouraged India to take a more proactive role in Asia-Pacific security. Some Chinese observers see these developments as a policy to “contain” China, although U.S. officials and many non-Chinese scholars reject that notion.

## Ballistic Missile Capabilities in East Asia

Several countries in the Asia-Pacific region possess ballistic missiles and have space launch programs. North Korea’s ballistic missiles and their continued development and deployment are a significant security concern and a central focus of U.S. BMD policy. The U.S. position for some time has been that Russian ballistic missiles do not threaten U.S. regional interests or the U.S. homeland, because of strategic deterrence, and therefore, in former Defense Secretary Robert Gates’ words, U.S. BMD systems “are not focused on trying to render useless Russia’s nuclear capability.”<sup>12</sup> China’s ballistic missile forces and their modernization are of some concern to the United States, but China’s missile forces are also not a stated focus of U.S. BMD programs. U.S. policy seeks to maintain strategic stability with China.<sup>13</sup>

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<sup>9</sup> Hillary Clinton, “America’s Pacific Century,” *Foreign Policy*, November 2011. See also CRS Report R42448, *Pivot to the Pacific? The Obama Administration’s “Rebalancing” Toward Asia*, coordinated by Mark E. Manyin.

<sup>10</sup> Leon Panetta, *Sustaining U.S. Global Leadership: Priorities for 21<sup>st</sup> Century Defense*, Department of Defense, Washington, DC, January 5, 2012, [http://www.defense.gov/news/Defense\\_Strategic\\_Guidance.pdf](http://www.defense.gov/news/Defense_Strategic_Guidance.pdf).

<sup>11</sup> “DOD News Briefing with Adm. Locklear from the Pentagon,” Department of Defense, June 15, 2012, <http://www.defense.gov/transcripts/transcript.aspx?transcriptid=5063>. See also CRS Report R42146, *Assessing the January 2012 Defense Strategic Guidance (DSG): In Brief*, by Catherine Dale and Pat Towell.

<sup>12</sup> At the hearing on the New START Treaty, Defense Secretary Gates stated that, “The [missile defense] systems that we have, the systems that originated and have been funded in the Bush administration, as well as in this administration, are not focused on trying to render useless Russia’s nuclear capability. That, in our view, as in theirs, would be enormously destabilizing, not to mention unbelievably expensive.... Our ability to protect other countries is going to be focused on countries like Iran and North Korea, the countries that are rogue states, that are not participants in the NPT [Nuclear Non-proliferation Treaty], countries that have shown aggressive intent.” U.S. Congress, Senate Committee on Foreign Relations, *The New START Treaty (Treaty Doc. 111-5)*, 111<sup>th</sup> Cong., 2<sup>nd</sup> sess., May 18, 2010, S. Hrg. 111-738 (Washington: GPO, 2010), p. 74.

<sup>13</sup> Frank A. Rose, “Ballistic Missile Defense and Strategic Stability in East Asia,” remarks as prepared for delivery to the Federation of American Scientists, Washington, DC, February 20, 2015.



## North Korea's Ballistic Missile Threats

Observers believe that North Korea has a large arsenal of ballistic missiles that could reach targets in South Korea and Japan. Pyongyang has declared its intent to develop a nuclear-armed ICBM capability, but North Korea's longer range missiles capable of reaching Guam, Alaska, or the continental United States appear unreliable and in some cases remain untested. Yet, many analysts believe that Pyongyang is moving closer to its goal of a nuclear-armed ICBM capability.<sup>14</sup>

According to the Department of Defense (DOD), "North Korea has several hundred SCUD SRBM and Nodong medium-range ballistic missiles (MRBM) available for use against targets on the Korea Peninsula and Japan."<sup>15</sup> An independent assessment from 2011 estimated that North Korea has a stockpile of roughly 700 SRBMs with about 100 launchers.<sup>16</sup> However, these missiles are highly inaccurate and therefore less militarily effective when armed with conventional warheads. Since 2010, the North Korean military has unveiled new ballistic missiles seemingly based on Russian designs, although the new MRBM and a reported mobile ICBM vehicle paraded through Pyongyang have not been flight tested and some analysts have assessed them as mock-ups. Experts remain divided on the potential capabilities of these missile types. DOD and others have noted that North Korea "displayed what appears to be a road-mobile ICBM" in April 2012.<sup>17</sup> Some have more recently noted that North Korea may be testing sea-launched ballistic missile technologies as well.<sup>18</sup>

Despite international condemnation and United Nations Security Council (UNSC) prohibitions, North Korea twice in 2012 launched long-range ballistic missiles ostensibly carrying satellite payloads, demonstrating the importance that Pyongyang places on continued development of ballistic missiles. North Korea has made slow progress toward developing a reliable long-range ballistic missile. The December 2012 launch was the first successful space launch after four consecutive test failures in 1998, 2006, 2009, and April 2012.

North Korea's inconsistent progress toward developing a long-range missile calls into question the 1999 U.S. National Intelligence Estimate that North Korea could successfully test an ICBM that could deliver a small nuclear payload to the United States by 2015.<sup>19</sup> The author of a 2012 RAND technical report on the North Korean nuclear missile threat asserts that the Unha-3 rocket, which successfully lifted an estimated 100 kg satellite payload into orbit in December 2012, is not capable of carrying a nuclear warhead at intercontinental range.<sup>20</sup> Some experts concluded in

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<sup>14</sup> Joel S. Wit and Sun Young Ahn, "North Korea's Nuclear Futures: Technology and Strategy," U.S.-Korea Institute at SAIS, North Korea's Nuclear Future Series, February 2015.

<sup>15</sup> Department of Defense, "Annual Report to Congress: Military and Security Developments Involving the Democratic People's Republic of Korea 2012," May 2013, p 19.

<sup>16</sup> *North Korea Security Challenges: A Net Assessment* (London: The International Institute for Strategic Studies, 2011). pp. 144-146.

<sup>17</sup> U.S. Department of Defense, "Missile Defense Announcement as Delivered by Secretary of Defense Chuck Hagel," press release, March 15, 2013, <http://www.defense.gov/speeches/speech.aspx?speechid=1759>.

<sup>18</sup> "North Korea: Test Stand for Vertical Launch of Sea-Based Ballistic Missiles Spotted," Joseph S. Bermudez, Jr., October 28, 2014, 38North, U.S. Korea Institute at SAIS, <http://38north.org/2014/10/jbermudez102814/>

<sup>19</sup> National Intelligence Council, *Foreign Missile Developments and the Ballistic Missile Threat to the United States Through 2015* (unclassified summary), September 1999, [http://www.dni.gov/files/documents/Foreign%20Missile%20Developments\\_1999.pdf](http://www.dni.gov/files/documents/Foreign%20Missile%20Developments_1999.pdf).

<sup>20</sup> Evan Ramstad, "After First Glance, North Korea's Missiles Not As Fearsome," *Wall Street Journal*, December 13, (continued...)

2011 that a future North Korean ICBM “would almost certainly have to undergo an extensive flight-test program that includes at least a dozen, if not two dozen, launches and extends over three to five years.”<sup>21</sup> Such a program would make North Korean intentions obvious to the world. On the other hand, it is possible that North Korea would take a radically different approach and accept one successful test as sufficient for declaring operational capability. Many see North Korea’s Unha-3 “space launch vehicle” as a cover to mask an ICBM program. However, no country has ever first developed a space launch program and then ICBM program. Additionally, there is increasing concern over North Korean development and static engine testing of a road-mobile ICBM that some refer to as the KN-08.<sup>22</sup>

### **Missile Test or Satellite Launch?**

The core technology used to launch an object (such as a satellite) into orbit substantially overlaps with the technology used to deliver a ballistic missile warhead to its target. The components of a long-range ballistic missile are comparable to those found in a space launch vehicle. “Developing a [space launch vehicle] contributes heavily to North Korea’s long-range ballistic missile development,” according to a 2013 DOD Report to Congress on North Korea. Based on this overlap and concerns about missile proliferation, the U.N. Security Council acted to prohibit North Korean launches using any kind of ballistic missile technology—even for ostensibly non-military purposes—under Resolutions 1695 (2006), 1718 (2006), 1874 (2009), and 2087 (2013). North Korea’s December 2012 space launch placed an object in orbit, so the vehicle used cannot technically be designated as an ICBM. Yet there is no evidence that any of the previous, failed launches of a Taepodong-1 or Taepodong-2 vehicle placed a payload in orbit. Thus, those launches might be considered ballistic missile tests. Satellite imagery revealed preparations throughout most of 2014 for what some believe would be another long-range missile or space launch.

The potential ability of North Korea to miniaturize a nuclear warhead and mate it to a ballistic missile, especially an ICBM, is a key concern of the United States. The official position of the Director of National Intelligence is that “North Korea has not yet demonstrated the full range of capabilities necessary for a nuclear armed missile.”<sup>23</sup> Others assess that “North Korea likely has the capability to mount a plutonium-based nuclear warhead on the shorter range [800-mile] Nodong missile” already.<sup>24</sup> Although senior North Korean military leaders stated in 2012 their long-range missiles could hit the United States with nuclear weapons,<sup>25</sup> there is no clear evidence that Pyongyang has developed a warhead small enough to fit on an ICBM or one capable of surviving re-entry at ICBM range. In October 2014, Gen. Scaparrotti, Commander U.S. Forces Korea, said that he believes North Korea has “the capability to have miniaturized a device at this point, and they have the technology to potentially actually deliver what they say they have. We have not seen it tested,” however, he added.<sup>26</sup>

(...continued)

2012, <http://blogs.wsj.com/korearealtime/2012/12/13/after-first-glance-north-koreas-missiles-not-as-fearsome/>

<sup>21</sup> *North Korea Security Challenges: A Net Assessment* (London: The International Institute for Strategic Studies, 2011), p. 155.

<sup>22</sup> Stephen Haggard, Daniel Pinkston, Kevin Stahler, and Clint Work, “Interpreting North Korea’s Missile Tests: When is a Missile Just a Missile,” The Peterson Institute for International Economics, Witness to Transformation blog, October 7, 2014, <http://blogs.piie.com/nk/?p=13532>.

<sup>23</sup> James Clapper, “DNI Statement on North Korea’s Nuclear Capability,” Office of the Director of National Intelligence, Press Release, April 11, 2013.

<sup>24</sup> David Albright, “North Korean Miniaturization,” US-Korea Institute at SAIS, February 22, 2013, <http://38north.org/2013/02/albright021313>.

<sup>25</sup> “Ex-N. Korea Army Chief: Rockets Could Be Used to Transport Nukes,” *Korean Broadcasting System*, December 11, 2012, [http://english.kbs.co.kr/News/News/News\\_view.html?page=1&No=95239&id=Po](http://english.kbs.co.kr/News/News/News_view.html?page=1&No=95239&id=Po).

<sup>26</sup> Department of Defense Press Briefing, <http://www.defense.gov/Transcripts/Transcript.aspx?Transcriptid=5525>.

## Other Countries in the Region with Significant Ballistic Missile Arsenals

### China<sup>27</sup>

China's ballistic missiles are not the focus of U.S. BMD programs and policy. China fields what it calls a "lean and effective" nuclear arsenal that is believed to be significantly smaller than the arsenals of the United States and Russia, even though China has no treaty obligations restricting the number of missiles it can deploy. China has long had a declaratory "no first use" policy for its nuclear weapons, under which its limited nuclear arsenal is intended to deter nuclear attacks against China and give China the ability to retaliate after a nuclear strike. The 2013 DOD report to Congress on military and security developments involving China reported that China's nuclear arsenal included 50-75 silo-based and road-mobile ICBMs. The 2014 edition of the report did not include a specific number.<sup>28</sup> A 2013 report from the Bulletin of the Atomic Scientists estimated that China then had approximately 250 nuclear warheads, deliverable by nearly 150 nuclear-capable land-based ballistic missiles and aircraft and an emerging nuclear-capable ballistic submarine fleet.<sup>29</sup>

China has been engaged in a slow but steady nuclear modernization effort over the years, an effort that China portrays, at least in part, as a response to U.S. BMD advances. The U.S. National Air and Space Intelligence Center (NASIC) states that "China has the most active and diverse ballistic missile development program in the world," and NASIC notes that China is developing methods to counter ballistic missile defenses.<sup>30</sup> According to DOD, China now fields additional road-mobile DF-31A ICBMs and more sophisticated silo-based DF-5 ICBMs. China is also developing a new road-mobile ICBM, the DF-41, possibly capable of carrying multiple warheads to a range of 4,600 miles, and a sea-based nuclear capability in the form of a new class of nuclear-powered ballistic missile submarine.<sup>31</sup>

China's strategic missile forces, known as the Second Artillery, also fields conventionally armed ballistic missiles, including SRBMs, MRBMs, and anti-ship ballistic missiles (ASBMs). These missiles are believed to be intended to deter Taiwan from formalizing its de facto separation from China. Almost all of China's SRBMs, perhaps more than 1,000, according to the 2014 DOD report, are deployed opposite Taiwan. Also of concern to the United States is China's fielding of an ASBM, the DF-21D, known colloquially as a "carrier killer" missile. DOD states that this missile has a range in excess of 900 miles (1,500 km) and "provides the PLA the capability to attack large ships, including aircraft carriers, in the western Pacific Ocean."<sup>32</sup>

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<sup>27</sup> For more information, see CRS Report RL33153, *China Naval Modernization: Implications for U.S. Navy Capabilities—Background and Issues for Congress*, by Ronald O'Rourke, and CRS Report RL31555, *China and Proliferation of Weapons of Mass Destruction and Missiles: Policy Issues*, by Shirley A. Kan.

<sup>28</sup> Department of Defense, *Military and Security Developments Involving the People's Republic of China 2012: Annual Report to Congress*, p. 31, [http://www.defense.gov/pubs/2013\\_china\\_report\\_final.pdf](http://www.defense.gov/pubs/2013_china_report_final.pdf).

<sup>29</sup> Hans M. Kristensen and Robert S. Norris, "Chinese Nuclear Forces, 2013," *Bulletin of the Atomic Scientists*, Vol. 69, No. 6 (November/December 2013), pp. 79-85.

<sup>30</sup> *Ballistic and Cruise Missile Threat*, U.S. National Air and Space Intelligence Center, 2013.

<sup>31</sup> Department of Defense, *Military and Security Developments Involving the People's Republic of China 2014: Annual Report to Congress*, pp. 7 and 28, [http://www.defense.gov/pubs/2014\\_DoD\\_China\\_Report.pdf](http://www.defense.gov/pubs/2014_DoD_China_Report.pdf).

<sup>32</sup> *Ibid.*, pp. 7 and 36.

The development of the DF-21D ASBM is part of an apparent Chinese effort to develop new systems and tactics to counter or impede the ability of the U.S. military to intervene in a conflict in the Western Pacific. The United States refers to this effort as providing China with anti-access/area denial (A2/AD) capabilities. Referencing both China's and Iran's pursuit of "asymmetric means to counter our power projection capabilities," the 2012 Defense Strategic Guidance states that the U.S. military will invest in BMD as one of several approaches to ensure continued power projection capabilities in A2/AD environments.<sup>33</sup>

In addition to deploying ballistic missiles, China is also developing its own BMD technology. China reported that it successfully tested a ground-based mid-course missile interceptor within its own territory on January 27, 2013. This was China's second reported such test; the first was on January 11, 2010.<sup>34</sup> Chinese media noted that the United States is the only other country to have attempted this technically challenging feat.<sup>35</sup> The Chinese test followed by hours the U.S. test of a three-stage ground-based missile interceptor, underscoring an element of competition in the technological development of BMD systems.<sup>36</sup> According to a senior U.S. official, China also tested an anti-satellite weapon in the guise of a BMD test in July 2014.<sup>37</sup> China's intentions in developing missile defense technology remain unclear.

## Russia

The number of Russian ICBMs is constrained by formal treaty with the United States; their numbers have declined significantly since the early 1990s. Russian ballistic missiles are not the focus of U.S. BMD programs. Currently, Russia has about 320 ICBM launchers, which, along with its small force of bombers, falls well below the limit of 700 deployed delivery systems contained in the new strategic arms reduction treaty, known as the New START Treaty. The 1987 Intermediate-Range Nuclear Forces (INF) Treaty prohibits the United States and Russia from possessing any MRBM or IRBM. Russia is developing the RS-26, which has been tested above and below the 5,500 km range defined for ICBMs.<sup>38</sup> Its anticipated initial deployment in 2015 is reported to be in Irkutsk in southeastern Siberia "from where it would possibly be directed at China because it would lack the range to reach targets in Europe."<sup>39</sup> Russia possesses a few

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<sup>33</sup> Leon Panetta, *Sustaining U.S. Global Leadership: Priorities for 21<sup>st</sup> Century Defense*, Department of Defense, Washington, DC, January 5, 2012, pp. 4-5, [http://www.defense.gov/news/Defense\\_Strategic\\_Guidance.pdf](http://www.defense.gov/news/Defense_Strategic_Guidance.pdf). The guidance lists as areas for investment, "implementing the Joint Operational Access Concept, sustaining our undersea capabilities, developing a new stealth bomber, improving missile defenses, and continuing efforts to enhance the resiliency and effectiveness of critical space-based capabilities."

<sup>34</sup> "China Carries Out Land-based Mid-course Missile Interception Test," *Xinhua News Agency*, January 28, 2013.

<sup>35</sup> Xu Tianran, "China's Anti-Missile Test Successful: Govt," *Global Times*, January 29, 2013.

<sup>36</sup> Missile Defense Agency, "Ground-based Interceptor Completes Successful Flight Test," January 26, 2012, <http://www.mda.mil/news/13news0001.html>.

<sup>37</sup> Frank A. Rose, "Ballistic Missile Defense and Strategic Stability in East Asia," remarks as prepared for delivery to the Federation of American Scientists, Washington, DC, February 20, 2015.

<sup>38</sup> Whether the new missile is a violation of the 1987 INF Treaty is discussed in CRS Report IN10038, *Russia's Compliance with the INF Treaty*, by Amy F. Woolf, and in CRS General Distribution Memo, *Recent Reports on Russia's Compliance with the INF Treaty*, by Amy Woolf, July 26, 2013.

<sup>39</sup> *First RS-26 to Be Deployed in Irkutsk in 2015*, Russian Strategic Nuclear Forces, July 1, 2014, [http://russianforces.org/blog/2014/07/first\\_rs-26\\_to\\_be\\_deployed\\_in.shtml](http://russianforces.org/blog/2014/07/first_rs-26_to_be_deployed_in.shtml).

hundred very short-range SRBMs that are not likely capable of reaching targets in South Korea or Japan.<sup>40</sup>

## **U.S. and Allied BMD Capabilities in the Region**

The responses of the United States and its allies in the Asia-Pacific region to the threat of ballistic missiles have included political statements, policy coordination, changes to military doctrine, research and development programs, deployment of sensors, and procurement of ballistic missile interceptors and assets. President Obama has declared that, in response to threats from North Korea, “the United States is fully prepared and capable of defending ourselves and our allies with the full range of capabilities available, including the deterrence provided by our conventional and nuclear forces.”<sup>41</sup> The actions of Asia-Pacific countries reflect variation in how defense policymakers in these countries view their vulnerability to ballistic missile threats.<sup>42</sup> The sense of insecurity is most acute among Japanese elites, whereas Australian leaders feel relatively secure from missile attack. South Korean policymakers are aware of the threat, but until recently have prioritized defense against North Korea’s long-range artillery and a cross-border invasion. Southeast Asian leaders appear to be less concerned about ballistic missiles, and their relatively modest defense budgets cannot support the acquisition of technologically advanced BMD systems without forcing reductions in other desired capabilities.

U.S. BMD assets currently in operation use kinetic kill vehicles to intercept ballistic missiles at various points in the missile’s trajectory (upper tier/mid-course and lower-tier/descent phase), conceptually akin to “a bullet hitting a bullet.”<sup>43</sup> Ground-Based Interceptors (GBI) are designed to counter ICBMs aimed at the continental United States, but other systems such as the PAC-3, Terminal High-Altitude Area Defense (THAAD), and Aegis SM-3 are designed to intercept SRBMs and MRBMs in an allied defense and force protection role. Only the GBI is designed to intercept an ICBM launched from the Asian continent toward the United States.

**United States.** The United States has an array of BMD assets already deployed in the Asia-Pacific region: SM-3 interceptors on Aegis-equipped destroyers; PAC-3 batteries at military bases in the theater; and early warning sensors in Japan, on land (AN/TPY-2), at sea (floating X-band radar), and in space. In response to North Korea’s threatening actions and statements in early 2013, DOD decided to deploy a THAAD system to Guam two years ahead of schedule. The Navy, in particular, is seeking an evolution in its BMD capabilities over the next decade to increase its ability to intercept more sophisticated MRBMs, IRBMs, and eventually to develop limited capabilities against ICBMs. Existing DOD plans call for 48 BMD-capable Aegis vessels and over 400 SM-3s acquired by FY2020.<sup>44</sup> The United States is exploring ways to leverage its

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<sup>40</sup> See CRS Report R41219, *The New START Treaty: Central Limits and Key Provisions*, by Amy F. Woolf.

<sup>41</sup> The White House Office of the Press Secretary, “Remarks by President Obama and President Park of South Korea in a Joint Press Conference,” press release, May 7, <http://www.whitehouse.gov/the-press-office/2013/05/07/remarks-president-obama-and-president-park-south-korea-joint-press-confe>.

<sup>42</sup> The assessments in this paragraph are based on analysis of statements and reports by the relevant ministries of defense, especially the annual (or biennial) defense white papers of Australia, Japan, and South Korea.

<sup>43</sup> One exception is the U.S. Navy’s SM-2 Block IV endo-atmospheric (i.e. terminal phase) interceptor, which uses a blast fragmentation warhead.

<sup>44</sup> CRS Report RL33745, *Navy Aegis Ballistic Missile Defense (BMD) Program: Background and Issues for Congress*, by Ronald O’Rourke.



BMD investments by collaborating with other countries to establish the APPAA; U.S. defense officials have expressed a desire for trilateral BMD cooperation. In December 2014, the U.S. military deployed a second AN/TPY-2 radar in Japan (at the Kyogamisaki Communications Site near Kyoto) and, as of early 2015, is considering deploying THAAD to South Korea in response to North Korean provocations (see section below for further discussion).

**Japan.** More than any other country, Japan has invested heavily in BMD. The Japan Maritime Self-Defense Force (JMSDF) has four destroyers equipped with Aegis tracking software and SM-3 Block IA interceptors, and the Ministry of Defense plans to add four more BMD-capable Aegis destroyers. Japan fields 17 PAC-3 units, protecting key locations in Tokyo and throughout the archipelago, and will procure more.<sup>45</sup> All these BMD assets are linked with Japan's advanced FPS-3 and FPS-5 radar. Japanese defense officials say that a space-based early warning system is under consideration to be deployed before the end of this decade. Japan reportedly is planning to build two new Aegis destroyers beginning in 2015, in part to expand its sea-based missile-defense capabilities, and to build two more BMD-capable destroyers by 2020.<sup>46</sup> In early July 2014, Japan's government announced plans to ease the country's long-standing ban on participating in collective self-defense activities, a move that will allow Japanese Aegis-equipped ships to be more fully integrated into missile defense systems with the United States. Reports in September 2014 indicated that Japan may also be interested in acquiring Aegis Ashore capabilities.<sup>47</sup>

**South Korea.** South Korea has only recently begun to acquire advanced BMD capabilities. In the decade prior to the election of President Lee Myung-bak in 2008, South Korean leaders prioritized harmonious relations with North Korea over acquisition of missile defense technologies that could provoke Pyongyang. The South Korean Navy now has three KDX-III *Sejon-Daewon* class cruisers equipped with Aegis tracking software—but no interceptors.<sup>48</sup> However, Seoul has announced plans to implement an indigenous Korean Air and Missile Defense (KAMD) system to counter aircraft, cruise missiles and ballistic missiles launched by North Korea. As part of its ongoing effort to upgrade its missile defense system, South Korea's arms procurement agency in April 2014 approved a \$1.3 billion plan to upgrade the ROK's PAC-2 air defense system and buy PAC-3 missiles by 2020.<sup>49</sup> The commander of U.S. Forces Korea in June 2014 recommended that the United States deploy a THAAD system in South Korea; this potential deployment and South Korea's plans for its own KAMD system became a subject of controversy in 2014 (see section below for further discussion).<sup>50</sup>

<sup>45</sup> Arthur Bright, "Japan to Boost Military Budget Amid Regional Tensions," *Christian Science Monitor*, January 9, 2013.

<sup>46</sup> "Japan to Build Two More Aegis Antimissile Ships: Report," *National Journal Online*, 23 July 2014.

<sup>47</sup> Sam LaGrone, "Report: Japan Interested in Aegis Ashore for Ballistic Missile Defense," USNI News, September 16, 2014, <http://news.usni.org/2014/09/16/report-japan-interested-aegis-ashore-ballistic-missile-defense>.

<sup>48</sup> Brad Hicks, George Galdorisi, and Scott C. Truver, "The Aegis BMD Global Enterprise: A 'High End' Maritime Partnership," *Naval War College Review*, vol. 65, no. 3 (Summer 2012), p. 73.

<sup>49</sup> Eun-jung Kim, "S. Korea to Upgrade Patriot Missile Defense by 2020," *Yonhap*, April 28, 2014; "U.S. Pressure Mounts on Missiles," *Joins.com*, 31 May 2014.

<sup>50</sup> Song Sang-ho, "USFK Chief Recommends THAAD to Korea," *Korea Herald*, June 3, 2014.

### **Iron Dome for South Korea?**

Even before Israel's "Iron Dome" defense system grabbed headlines in 2013 by intercepting rockets targeted at Israeli cities, South Korea had been considering a purchase of the system.<sup>51</sup> Iron Dome is not a BMD system, but rather is designed to intercept self-propelled, very short-range rockets (essentially small and unsophisticated missiles) by striking them with guided missiles. The South Korean capital of Seoul is within range of hundreds of North Korean rocket launchers arrayed across the border. Israeli officials claim that the Iron Dome interceptors have destroyed more than 90% of the incoming rockets that they targeted. Iron Dome is not capable of destroying ballistic missiles, which travel at a much higher speed than rockets.

To date, South Korea and Israel have not been able to agree on the terms of trade for Iron Dome. Reportedly, Israel has not met South Korea's demand that Israel make a reciprocal purchase of Korean defense equipment.<sup>52</sup> The high cost of the Iron Dome system and questions about its usefulness are other barriers to a purchase, according to reports. South Korea has been indigenously developing defensive systems to fulfill a similar function.

**Australia.** Australia has long maintained several early warning radar sites in cooperation with the United States, but currently has no BMD intercept capability. The Australian Navy plans to procure two Aegis-equipped vessels, which could be fitted with BMD capabilities against SRBMs and MRBMs in the future. Such capabilities would be useful primarily to Australia for defending others in a force projection capacity. Due to the great distance from Northeast Asia, Canberra is faced with a unique threat profile: Australia is only at risk from ICBMs but has no plans to counter such missiles with BMD. Australia relies on the U.S. nuclear umbrella for deterrence, with a treaty-based security guarantee.<sup>53</sup>

## **THAAD Deployment in South Korea**

Reportedly, the U.S. military is considering deployment of a THAAD system to South Korea to defend U.S. forward-deployed forces and South Korean territory from North Korean ballistic missiles.<sup>54</sup> The possible deployment has sparked controversy in Korea, largely because of the Chinese government's public opposition. The THAAD deployment has also raised broader questions about Seoul's BMD policy.

China has complained that the radar capabilities of the THAAD system could be configured to allow the United States to monitor airspace over Chinese territory, and in February 2015 the Chinese Minister of Defense lodged a protest with his counterpart in South Korea.<sup>55</sup> In March 2015, China's Assistant Foreign Minister publicly warned South Korea to "importantly think about Beijing's attention to and concerns over the deployment of THAAD to the peninsula."<sup>56</sup> U.S. defense officials assert that the THAAD system will be configured in "terminal mode" (or "engagement mode") to optimize its ability to identify ballistic missile launches in North Korea

<sup>51</sup> Yuval Azulai, "South Korea Mulls Importing Iron Dome," *Globes (Israel)*, November 18, 2012, <http://www.globes.co.il/serveen/globes/docview.asp?did=1000799298>.

<sup>52</sup> Kevin Baron, "Why Doesn't Seoul Have Iron Dome?" *Foreign Policy* E-Ring blog, April 9, 2013, [http://e-ring.foreignpolicy.com/posts/2013/04/09/why\\_doesn\\_t\\_seoul\\_have\\_iron\\_dome](http://e-ring.foreignpolicy.com/posts/2013/04/09/why_doesn_t_seoul_have_iron_dome).

<sup>53</sup> The U.S. security guarantee is of great importance to Australia. For further information see CRS Report R42822, *Australia and the U.S. Rebalancing to Asia Strategy*, by Bruce Vaughn.

<sup>54</sup> Daniel Pinkston, "No Such Thing as a Free Ride? ROK Missile Defence, Regional Missile Defence and OPCON Transfer," International Crisis Group, In Pursuit of Peace blog, July 29, 2014.

<sup>55</sup> Ser Myo-ja, "China's Defense Chief Raises THAAD," *Korea JoongAng Daily*, February 5, 2015.

<sup>56</sup> Song Sang-ho, "Seoul Fires Back at China's Opposition to THAAD," *Korea Herald*, March 17, 2015.



and intercept them before they reach targets in South Korea.<sup>57</sup> This mode has a shorter radar range and would therefore not have much coverage over Chinese territory, except perhaps for areas near the border with North Korea. Beijing appears to be concerned that the U.S. military may—even for short periods—configure the THAAD radar in “look mode” and rotate it to greatly increase its coverage over Chinese territory, which some Chinese consider a form of “spying.” U.S. officials point out that this configuration would nullify the ability of the THAAD system to intercept missiles from North Korea, the purpose of this potential deployment.

Despite Chinese objections, South Korean Minister of National Defense Han Min-Koo praised a potential U.S. deployment of THAAD, saying it “will be helpful in ... strengthening the security posture on the peninsula.”<sup>58</sup> Many South Koreans were upset that China would urge South Korea to forgo an effective defensive measure to protect their country from possible aggression by North Korea. The ROK Ministry of Defense spokesperson responded firmly to the Chinese admonition in March 2015, saying, “A neighboring country can have its own position about the U.S. Forces Korea’s deployment of THAAD. But it should not attempt to exert influence on our defense security policies.”<sup>59</sup> In one sense, the proposed THAAD deployment has become a litmus test for Seoul’s alignment between Beijing and Washington. Some observers in Seoul are concerned that angering China in this dispute would have negative ramifications for ROK-China relations.

Yet, South Korea has other concerns surrounding this issue, such as the affordability of buying its own THAAD system from the United States and the effectiveness of THAAD against North Korean missiles.<sup>60</sup> Although the U.S. government has not proposed that South Korea purchase THAAD, some political opposition figures in Korea nevertheless claim that a potential U.S. deployment is part of a campaign to convince the ROK government to bear some of the costs.<sup>61</sup> Seoul may also be wary of THAAD as a backdoor into the U.S.-led regional BMD system, in which some Korean leaders are reluctant to participate fully.

## **Bilateral, Trilateral, and Multilateral BMD Cooperation**

The persistent threat of a missile attack from North Korea has led U.S. policymakers to seek deeper BMD cooperation with Asia-Pacific allies. This trilateral and multilateral approach remains the major emphasis of U.S. officials and can be viewed as aligning with the goals of the strategic rebalancing to the Asia-Pacific region. The “Joint Integrated Air and Missile Defense: Vision 2020” policy guidance document, which DOD released in December 2013, urges the U.S. military to integrate air and missile defense capabilities with partner countries and to leverage partners’ contributions.<sup>62</sup>

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<sup>57</sup> CRS interviews with U.S. defense officials in November 2014 and March 2015.

<sup>58</sup> Sarah Kim, “Korea Coming Around to THAAD Idea,” *Korea JoongAng Daily*, July 22, 2014.

<sup>59</sup> Song Sang-ho, “Seoul Fires Back at China’s Opposition to THAAD,” *Korea Herald*, March 17, 2015.

<sup>60</sup> Rob York, “Why Seoul Shrugs at U.S.-Led Missile Defense,” *NK News*, August 29, 2014.

<sup>61</sup> “Now Is the Time to Show Clear Opposition to THAAD,” *Hankyoreh*, Editorial, March 28, 2015.

<sup>62</sup> Martin Dempsey, “Joint Integrated Air and Missile Defense: Vision 2020,” U.S. Department of Defense, Washington, DC, December 13, 2014.

**U.S.-ROK.** Although U.S.-South Korea alliance relations have been closely coordinated in recent years, Seoul resisted cross-national integration of BMD systems. The two countries share intelligence and sensor data and in 2013-2014 deepened their bilateral missile defense discussions. Reportedly, the United States has urged South Korea to develop advanced BMD capabilities that are more integrated with U.S. and allied BMD systems in the region.<sup>63</sup> Seoul has announced its intention to develop its indigenous KAMD system instead, but—in a compromise that could enhance alliance capabilities and regional security—South Korean BMD systems will be *interoperable* with U.S. systems.<sup>64</sup> It appears that this basic agreement will enable efficient bilateral BMD cooperation without infringing on South Korean sensitivities. For years, Seoul has been resistant to the concept of an integrated BMD system for several reasons: the desire, especially strong among progressive Koreans, for more strategic autonomy; a reluctance to irritate China, which has consistently voiced opposition to U.S. BMD deployments; and a disinclination to cooperate with Japan.

**U.S.-ROK-Japan.** Japan-South Korea defense cooperation remains extremely limited due to long-standing historical disputes. In July 2012, South Korea and Japan came to the brink of signing a military information-sharing agreement, but domestic political considerations led the South Korean government to walk away from the agreement at the last minute. The two countries eventually arranged a more limited Memorandum of Understanding (MOU) on trilateral intelligence-sharing with the United States in December 2014. This agreement enables Japan and South Korea to share information on North Korea nuclear and missile programs through the United States and could be valuable for detecting and tracking North Korean missile launches.

**U.S.-Australia.** As a staunch U.S. ally, Australia signed a BMD Framework MOU with the United States in July 2004, facilitating policy collaboration and information sharing. Australia relays missile launch and tracking sensor data from its early warning radar and satellites.<sup>65</sup> Such information would likely be highly useful to BMD platforms.

**U.S.-Australia-Japan.** The United States, Australia, and Japan have established a working group on BMD as part of their regular trilateral security consultations.<sup>66</sup>

**U.S.-Japan.** The United States and Japan have researched BMD technology since 1987 and currently are making progress in the joint development of the SM-3 Block IIA interceptor. Initiated in 1998, this bilateral research and development program paved the way for deeper cooperation on BMD. The U.S. Navy and the Japan Maritime Self-Defense Force (JMSDF) manage the program, and the two governments share the costs. In 2011 and 2013, Japan relaxed its prohibitions on the export of defense technology, opening the door for future sales of SM-3 Block IIA interceptors, PAC-2 interceptors, and other BMD systems to third parties under certain conditions.

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<sup>63</sup> Paul McLeary, “Burden Sharing Is the Future of Asian Missile Defense, Pentagon Official Says,” *Defense News*, May 28, 2014.

<sup>64</sup> “Joint Communiqué of the 46<sup>th</sup> ROK-U.S. Security Consultative Meeting,” U.S. Department of Defense, Washington, DC, October 23, 2014, paragraph 7.

<sup>65</sup> Ashton Carter. “The U.S. Strategic Rebalance to Asia: A Defense Perspective,” Speech as delivered in New York on August 1, 2012. <http://www.defense.gov//speeches/speech.aspx?speechid=1715>

<sup>66</sup> Frank A. Rose, “Growing Global Cooperation on Ballistic Missile Defense,” Remarks as prepared for delivery in Berlin, Germany, September 10, 2012, <http://www.state.gov/t/avc/rls/197547.htm>.

The mature U.S.-Japan BMD partnership has already served as a key driver of improvements to alliance interoperability.<sup>67</sup> Both nations feed information from a variety of sensors to create a common operating picture at the Bilateral Joint Operating Command Center at Yokota Air Base, located outside Tokyo, and at U.S. Pacific Command (PACOM) Headquarters in Hawaii. A Center for Strategic and International Studies report stated in June 2012 that the United States and Japan “have essentially created a joint command relationship ... from the perspective of any possible adversary.”<sup>68</sup> This information sharing arrangement improves the effectiveness of each nation’s target identification, tracking, and interceptor cueing. Japan and the United States hold an annual command exercise called “Keen Edge,” which examines potential conflicts centered on Japan and simulates BMD responses. The JSDF is the only partner with which the U.S. military has conducted kinetic BMD exercises, primarily as testing for the Aegis system and SM-3 Block IA interceptors.<sup>69</sup>

**BMD Exercises and Training.** PACOM and U.S. Air Forces Pacific established the Pacific Integrated Air and Missile Defense (IAMD) Center in October 2014 to increase multinational integrated IAMD capabilities in the Asia-Pacific region and to serve as a hub for related training and education. A U.S. officer affiliated with the Pacific IAMD Center wrote, “The center would be the medium to build and improve operational plans, defended assets lists and integrated command and control, and discuss new challenges and methodologies.”<sup>70</sup> At the global level, the United States conducts biennial, multilateral computer-simulation exercises, called “Nimble Titan,” with partner countries to study the possible role and effects of BMD in a conflict. These exercises include representatives from Japan, Australia, and numerous European countries.

In April and December 2012, North Korea launched three-stage Taepodong-II ballistic missiles (called Unha-3 by North Korea), providing opportunities for the United States, Japan, and South Korea to test their sensors’ tracking capabilities operationally. The missile tests reportedly revealed gaps in sensor coverage and flawed communications protocols, which Japanese defense officials subsequently rectified.<sup>71</sup> Also, the U.S. Navy deployed its sea-based X-band radar to the theater before both launches.<sup>72</sup> Japanese, South Korean, and Taiwanese officials all declared that they would intercept a missile if it endangered their territory.<sup>73</sup> In the weeks leading up to the April launch, the Japanese government formed several task forces and held multiple meetings with high-level U.S. defense officials.<sup>74</sup> Japan mobilized three Aegis destroyers and deployed PAC-3 units on the island of Okinawa and on three smaller islands close to the announced trajectory of the rocket. These statements and deployments echoed Japanese actions prior to North Korea’s 2009 Taepodong-II missile launch.

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<sup>67</sup> David J. Berteau and Michael J. Green, *U.S. Force Posture Strategy in the Asia Pacific Region: An Independent Assessment*, Center for Strategic and International Studies, Washington, DC, June 27, 2012. p. 26

<sup>68</sup> Berteau and Green, p. 26

<sup>69</sup> For a list of SM-3 flight tests, including those launched from Japanese ships, see CRS Report RL33745, *Navy Aegis Ballistic Missile Defense (BMD) Program: Background and Issues for Congress*, by Ronald O'Rourke.

<sup>70</sup> S. Edward Boxx, “Building a Ballistic Missile Defense,” *Asia-Pacific Defense Forum*, July 1, 2014.

<sup>71</sup> Sugio Takahashi, “Ballistic Missile Defense in Japan: Deterrence and Military Transformation,” Institut Français des Relations Internationales, Proliferation Papers 44, December 2012.

<sup>72</sup> Richard Dudley, “Pacific Allies Prepare for North Korean Rocket Launch,” *Defense Update*, December 8, 2012, [http://defense-update.com/20121208\\_pacific-allie-prepare-for-north-korean-rocket-launch.html](http://defense-update.com/20121208_pacific-allie-prepare-for-north-korean-rocket-launch.html).

<sup>73</sup> “Japan Will Intercept NKorean Rocket If Threatened,” *Associated Press Online*, March 30, 2012.

<sup>74</sup> “Japan, US Agree to Boost Cooperation over North Korea’s Planned Rocket Launch,” *Kyodo News Service*, April 11, 2012.

## Opposition to BMD in East Asia

The efforts of the United States and others to defend themselves from the threat of ballistic missiles have elicited opposition in East Asia as well as in Europe since President Reagan first announced the Strategic Defense Initiative (often referred to as “Star Wars”) in 1983. The United States formally withdrew from the 1972 Anti-Ballistic Missile (ABM) Treaty in June 2002, a step that allowed it to pursue BMD programs without restriction.<sup>75</sup> Russia has strongly criticized U.S. BMD deployments in Europe as targeted, at least partially, at Russia, and thus a danger to the strategic stability of nuclear deterrence. In the Asia-Pacific region, North Korea and China have been the most vocal opponents. China, like Russia, argues that U.S. BMD programs are a threat to strategic stability. Both North Korea and China also argue that U.S. BMD policies are evidence of hostile intentions.

### North Korean Perspective

The North Korean state-run media have repeatedly castigated U.S. and allied BMD deployments, calling related activities examples of hostile policies toward North Korea. Articles in September 2012, for example, described BMD as a pretext for aggressive Japanese warmongering and for an American missile attack network aimed at Eurasia. More commentary in 2013 and 2014 accused the United States of using BMD to contain China and Russia militarily and provoking a regional arms race.<sup>76</sup> A North Korean spokesman stated that the placement of a new missile defense radar in southern Japan would compel North Korea to bolster its nuclear deterrent.<sup>77</sup>

The statements emanating from Pyongyang may be attempts to stake out a bargaining position for North Korea, not merely hostile rhetoric. In bilateral and multilateral negotiations covering its nuclear program, North Korea has sought to define “denuclearization of the Korean Peninsula” to mean that the United States would withdraw its extended deterrence guarantee from South Korea when North Korea eliminated its nuclear weapons. In this context, North Korean criticisms of BMD are possibly signals directed at the other countries in the Six-Party Talks on North Korean denuclearization.

### Chinese Perspective

The Chinese government has long been highly critical of U.S. and allied BMD efforts in East Asia. Chinese President Xi Jinping signaled continuity in China’s stance on the issue during his first trip abroad as president, a visit to Russia in March 2013. In a joint statement issued in Moscow, the two governments called on the international community “to act cautiously” in deploying and cooperating on BMD, and voiced their opposition to “the unilateral and unchecked

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<sup>75</sup> The 1972 ABM Treaty, as amended, limited the United States and the Soviet Union to a single anti-ballistic site of up to 100 interceptors against ICBMs. The U.S. site at Grand Forks, North Dakota was dismantled and put into caretaker status in the mid-1970s; the Soviet Union, and now Russia, maintains and has upgraded its one site around Moscow. The Treaty further placed significant restrictions on the development, testing and deployment of BMD systems above a certain capability.

<sup>76</sup> Hyon-to Ri, “Maneuver to Establish Missile Defense System Aimed at Global Hegemony,” *Rodong Shinmun*, January 19, 2013; “U.S. Talk About ‘Missile Threat from North Korea’ Refuted: KCNA Commentary,” *Korean Central News Agency*, July 16, 2014.

<sup>77</sup> “North Korea Blasts U.S. for Beefing Up Its Missile Defense,” *Yonhap News Agency*, September 22, 2012.

buildup of anti-missile capabilities by a country or a group of countries to the detriment of strategic stability and international security.”<sup>78</sup>

China’s criticisms of U.S.-led BMD efforts in East Asia have focused on the perceived potential threat that they pose to China’s nuclear deterrent. As noted above, China has a “no first use” policy for its limited arsenal of nuclear weapons. In the words of a leading U.S. expert on China’s nuclear program, Gregory Kulacki of the Union of Concerned Scientists, “the size and capabilities of China’s nuclear force are calibrated to assure Chinese decision makers have enough nuclear weapons to survive a first strike, engage in limited retaliation, and preserve future deterrence.”<sup>79</sup> Yet the most recent edition of an influential Chinese military text, *The Science of Military Strategy*, published in December 2013, asserts that the United States has identified China as its “principal strategic opponent” and that U.S. BMD construction in East Asia is “creating increasingly serious effects on the reliability and effectiveness of a Chinese retaliatory nuclear attack.” *The Science of Military Strategy* also identifies U.S. development of a conventional prompt global strike (CPGS) capability as a threat to China’s nuclear retaliatory capability.<sup>80</sup>

A leading Chinese expert on nuclear issues, Wu Riqiang of Renmin University of China, has raised specific concerns about forward-based radars in BMD systems in Asia being able to detect Chinese strategic missiles:<sup>81</sup>

Equipment such as the forward-deployed radars that can greatly increase the effectiveness of BMD systems are unacceptable to China. Beijing’s biggest concern is that such radars will be deployed close enough to China to register the decoy-deployment processes of strategic missiles.... Decoys and other countermeasures are much lighter than the re-entry vehicle, so the BMD system can identify the real warhead by detecting changes in velocity caused by the deployment of each object. This prevents missile-defence systems from being susceptible to mid-course countermeasures, and should be seen as China’s red line, which the United States should not cross.

Wu states that although the United States has not yet clearly delineated its BMD system in the Asia-Pacific, he believes it “would probably utilize” the AN/TPY-2 X-band radars deployed in Japan; the SBX radar; the PAVE PAWS early-warning radar in Taiwan; two Green Pine radars in South Korea; and other X-band radars that could be deployed in Southeast Asia. He acknowledges that Taiwan’s PAVE PAWS radar is not currently considered part of the U.S. BMD

<sup>78</sup> “Joint Statement of the People’s Republic of China and the Russian Federation on Win-Win Cooperation and Deepening the Comprehensive Partnership of Strategic Coordination,” Xinhua Asia-Pacific News Service in Chinese, March 22, 2013.

<sup>79</sup> Gregory Kulacki, “The Chinese Military Updates China’s Nuclear Strategy,” Union of Concerned Scientists, March 2015.

<sup>80</sup> Academy of Military Sciences Military Strategy Research Department, *战略学 (The Science of Military Strategy)*, Military Science Press (Beijing), December 2013, as quoted in Gregory Kulacki, “The Chinese Military Updates China’s Nuclear Strategy,” Union of Concerned Scientists, March 2015.

Section 1045 of the FY2013 NDAA (P.L. 112-239) appears to have contributed to Chinese fears of CPGS. It required the Commander of the U.S. Strategic Command to submit a report on China’s “underground tunnel network” and “the capability of the United States to use conventional and nuclear forces to neutralize such tunnels and what is stored within such tunnels,” leading a prominent Chinese military scholar to write that the legislation “seems to imply that a conventional strike against the Chinese nuclear weapon system is an option.” Major General Yao Yunzhu, *China Will Not Change Its Nuclear Policy*, China-U.S. Focus, April 22, 2013, <http://www.chinausfocus.com/peace-security/china-will-not-change-its-no-first-use-policy/>.

<sup>81</sup> Wu Riqiang, “China’s Anxiety About U.S. Missile Defence: A Solution,” *Survival: Global Politics and Strategy*, Vol. 55, No. 5, October-November 2013, p. 46.



system, yet he writes, “But from Beijing’s perspective, because the United States could covertly connect the radar to the system with ease, it must be regarded as such.”<sup>82</sup>

In a March 2015 paper, Kulacki highlights an apparent adjustment of China’s nuclear deterrence policy that he characterizes as a “response to perceived U.S. threats against the survivability of China’s nuclear forces ...,” such as BMD and CPGS. Kulacki notes that the 2013 edition of *The Science of Military Strategy* for the first time raises the possibility that China might launch a retaliatory nuclear attack after China has confirmed that a nuclear attack has been launched against it, but before the enemy nuclear warheads have reached their targets in China. Kulacki raises concerns about the dangers inherent in such a shift to a “launch-on-warning” posture:

China’s land-based nuclear missiles are currently kept off high alert with the warheads and the missiles separated and under different commands. It is unclear whether this long-standing practice would change as China begins to field new early warning capabilities. If the PLA did decide to increase readiness to launch rapidly by mating warheads to missiles during normal peacetime operations, that would, in combination with procedures to launch on warning, significantly increase the risk of an accidental or erroneous launch of a Chinese nuclear weapon.<sup>83</sup>

Other areas of Chinese concern about U.S. BMD programs in East Asia include the following:

- **The potential for BMD programs to undermine China’s conventional deterrent against Taiwan.** China has stationed approximately 1,000 conventional SRBMs opposite Taiwan with the goal of deterring Taiwan from formalizing its separation from China. Chinese military scholars have warned that U.S. BMD programs, and particularly the sale of BMD systems to Taiwan, send “wrong signals to the ‘Taiwan independence’ forces.”<sup>84</sup> The implication is that BMD programs may give Taiwanese a sense of greater security, emboldening some to ignore the Chinese missile threat and actively resist China’s efforts to unify with Taiwan. The United States has been unsympathetic to this set of Chinese concerns, and it has sold Taiwan limited missile defense infrastructure. In the 1990s, for example, the United States sold Taiwan three Patriot missile defense fire units with PAC-2 Guidance Enhanced Missiles (GEM). In 2008 and 2010, Presidents George W. Bush and Barack Obama respectively notified Congress of additional sales to Taiwan of PAC-3 systems. The United sold to Taiwan the PAVE PAWS early-warning radar system, which reportedly became operational in 2012.
- **The potential for BMD programs to undermine the effectiveness of other Chinese uses of conventional ballistic missiles.** China has not made this argument prominently, possibly out of an unwillingness to highlight potential offensive uses of its ballistic missiles outside of a Taiwan context, and perhaps because it tacitly recognizes a U.S. right to develop tactical BMD systems that do not undermine strategic stability. Wu Riqiang notes that China’s conventional

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<sup>82</sup> Ibid., p. 36.

<sup>83</sup> Gregory Kulacki, “The Chinese Military Updates China’s Nuclear Strategy,” Union of Concerned Scientists, March 2015.

<sup>84</sup> See, for example, Chen Zhou, “Anti-Ballistic Missile Program: Does No Good to World Peace and Security,” *U.S.-China Focus*, August 24, 2012, <http://www.chinausfocus.com/peace-security/anti-ballistic-missile-program-does-no-good-to-world-peace-and-security/>.

ballistic missile capability “gives the United States a reasonable motivation to develop tactical BMD systems. But certain tactical BMD assets can be used for strategic purposes, thereby undermining Sino-American strategic stability.”<sup>85</sup> A 2013 CSIS report asserts that U.S. BMD programs are not intended to compromise China’s long-range nuclear deterrent, but “China’s significant shorter-range missile capability, especially those missiles that threaten U.S. military forces in the region as well as U.S. allies and partners, are, however, a legitimate and necessary target for U.S. *theater* missile defense.”<sup>86</sup>

- **The potential for BMD programs in East Asia to strengthen the United States’ alliance relationships in the region, which Beijing fears could be turned against China.** China appears to be particularly anxious about the implications of integration of command and control systems between the United States and Japan. Beijing also worries about strengthened U.S. alliances with Korea, Australia, and the Philippines, and the potential for them to be turned against China.

## **Russian Perspective<sup>87</sup>**

Since the United States first sought to deploy regional BMD capabilities in Europe against the threat of Iranian ballistic missiles, Russia has remained steadfast in opposition. Russia has long stated that U.S. and allied BMD could be used, especially as its capabilities evolved, to threaten Russia’s strategic nuclear deterrent. The United States and its allied partners in Europe have held numerous discussions and briefings with Russian counterparts over the years to attempt to dispel the notion that allied BMD deployments would affect Russia in this regard, with little tangible effect. Russia remains concerned about U.S. BMD cooperation in Europe, and although the Russian perspective resonates among some Europeans, U.S. allies in Europe largely support the effort to deploy regional BMD capabilities in Europe.

Although Russia has been relatively muted regarding U.S. and allied BMD cooperation in the Asia-Pacific region today, Russia has expressed some concern about progress toward a global BMD system and has complained to Japan and South Korea in bilateral settings about this development.<sup>88</sup> It is possible that Russian opposition to the European Phased Adaptive Approach could at some point be echoed in East Asia. China has closely followed Russian objections to U.S. BMD programs, with China’s state-controlled media regularly carrying reports on Russian statements on the subject.

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<sup>85</sup> Wu Riqiang, “China’s Anxiety About U.S. Missile Defence: A Solution,” *Survival: Global Politics and Strategy*, Vol. 55, No. 5, October-November 2013, p. 44.

<sup>86</sup> Elbridge A. Colby, Abraham M. Denmark, and John K. Warden, *Nuclear Weapons and U.S.-China Relations: A Way Forward*, Center for Strategic and International Studies, A Report of the Project on Nuclear Issues Working Group on U.S.-China Nuclear Dynamics, March 2013, <http://csis.org/publication/nuclear-weapons-and-us-china-relations>.

<sup>87</sup> For more information, see CRS Report RL33407, *Russian Political, Economic, and Security Issues and U.S. Interests*, coordinated by Jim Nichol and Steven Woehrel.

<sup>88</sup> “US Missile Shield Elements Making up Global System in Various Regions,” *Asia News Monitor*, April 5, 2012.



## Challenges, Risks, and Opportunities Arising from Increased BMD Cooperation

At present, U.S.-allied cooperation on BMD in the Asia-Pacific region follows the hub-and-spokes model of bilateral alliance relationships centered on the U.S. military. The United States and its allies share information and have commitments to mutual defense on a bilateral basis, but the multilateralism that underpins the European BMD architecture is largely absent. Statements by senior U.S. defense officials indicate that the U.S. military is encouraging greater integration of command, control, computers, and communications (C4) functions among U.S. allies.<sup>89</sup> As BMD systems and related sensors become more sophisticated, observers argue that the opportunities and the potential benefits of inter-service and international linkages are growing. The U.S. military has the technical capacity to operate a multinational, integrated BMD architecture in the Asia-Pacific region—based on its experience in Europe—but there are political challenges and risks as well.

### Potential Benefits and Costs of Systems Integration

There are both potential benefits and costs to deeper integration of BMD systems between countries. The primary potential benefits are enhanced effectiveness (in range, coverage, and targeting accuracy), cost efficiency, burden sharing, and the signaling effects of a collective organization. DOD's "Joint Integrated Air and Missile Defense: Vision 2020" policy document emphasizes the importance of collecting information from all sources and sharing it with partners. A 2006 CSIS study on BMD in East Asia found that "recent operational studies have shown that regional netting of sensors can cut the requirement for fire units (i.e., weapon-launching sites or platforms) to defend a given area by two-thirds."<sup>90</sup> The same report states, "Sharing technologies, development costs, data, and more through a regional approach to defense would make defenses both more effective and more quickly deployable... [A] regional approach would also ease diplomatic pressures on any individual nation moving toward BMD."<sup>91</sup> The primary potential costs are the expense and difficulty of multilateral coordination and the classic "alliance dilemma" of entrapment in a potential conflict that might be against the national interest. In South Korea, the affordability of U.S.-produced BMD systems reportedly is a concern.<sup>92</sup> Asia-Pacific leaders would also face the risk that participation in a regional BMD architecture may sour relations with Beijing.

The establishment of a collective, interoperable, regional BMD architecture anchored by the U.S. military would be a significant shift from the current approach. Information sharing among the United States and its East Asian allies could necessitate modifications to the C2 relationships of the countries involved, and collective action would call for even greater changes. Participants

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<sup>89</sup> "U.S. Ballistic Missile Defense Not up to Threat: Admiral," *Jiji Press English News Service*, March 27, 2012; Paul McLeary, "Burden Sharing is the Future of Asian Missile Defense, Pentagon Official Says," *Defense News*, May 28, 2014.

<sup>90</sup> Jeremiah Gertler, *The Paths Ahead: Ballistic Missile Defense in Asia*, Center for Strategic and International Studies, Washington, DC, March 2006, p. 37.

<sup>91</sup> *Ibid.*, p. 37.

<sup>92</sup> Rob York, "Why Seoul Shrugs at U.S.-Led Missile Defense," *NK News*, August 29, 2014, <http://www.nknews.org/2014/08/why-seoul-shrugs-at-u-s-led-missile-defense/>.

would need to resolve difficult questions such as who is in command of the intercept—the country targeted by missiles, the country firing the interceptor, or a particular authority established for this purpose. An integrated BMD network might be the forerunner of more institutionalized collective security in the region, though numerous, significant political hurdles would have to be cleared by all parties involved before serious discussion could begin.

## **U.S.-Japan-South Korea Triangle**

Robust trilateral military cooperation with South Korea and Japan could be a major force multiplier for the United States, in missile defense as least as much as in other areas of security. A trilateral partnership could improve defense policy coordination to shape the regional security environment and share the burdens of crisis response. From a technical perspective, the expanded sensor and interceptor coverage of a trilateral C4 network could enhance BMD effectiveness against North Korea by tracking missiles from multiple angles at multiple points in their flight trajectory. However, South Korea might not benefit as much, because it is so close to North Korea that incoming missiles would likely fly on a lower trajectory and could arrive in a matter of minutes.

At present, unresolved hostility between Japan and Korea based on historical issues continues to thwart a strategic partnership and may inhibit certain aspects of a future APPAA.<sup>93</sup> The Commander of U.S. Pacific Command in July 2012 expressed his desire for Tokyo and Seoul “to find a way past the political divide that stops them from recognizing the importance of information sharing as it relates to the security environment.”<sup>94</sup> The intelligence-sharing MOU that Japan and South Korea signed in December 2014 was a significant step for trilateral defense cooperation with the United States, but it was not as comprehensive as an agreement that Tokyo and Seoul nearly consummated in 2012, before political backlash in South Korea scuttled that deal. Domestic politics in South Korea and Japan will, however, continue to have a large effect on the degree of military cooperation. Many South Koreans distrust Japan because of what they see as an unrepentant attitude toward the misdeeds of Imperial Japan in the early part of the 20<sup>th</sup> Century.

The Abe Administration’s reinterpretation of Japan’s constitution (in the Cabinet Decision of July 1, 2014) removed an obstacle to participation in a collective BMD system, provided that the Japanese government addresses this issue with changes to its domestic laws. This move by Japan to allow for collective self-defense could open doors to greater trilateral security cooperation, but many South Koreans are wary of defense cooperation with Japan. On the other hand, an expansion of security cooperation centered on BMD could have a positive effect of dulling this anxiety about Japan’s military intentions. For example, in a journal article in early 2012, a South Korean Vice Admiral extolled the strategic benefits of trilateral cooperation in naval missile defense, in part on these grounds.<sup>95</sup> A South Korean security expert argued in 2014 that Seoul

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<sup>93</sup> For more information, see CRS Report RL33436, *Japan-U.S. Relations: Issues for Congress*, coordinated by Emma Chanlett-Avery.

<sup>94</sup> Richard Halloran, “The Rising East: U.S. Commander Wants Tokyo, Seoul to Resolve Disputes,” *Honolulu Civil Beat*, July 30, 2012.

<sup>95</sup> VADM Ho-Sub Jung, “ROK-US-Japan Naval Cooperation in the Korean Peninsula Area: Prospects for Multilateral Security Cooperation,” *International Journal of Korean Studies*, Spring 2012, p. 200.

should join the U.S.-led regional BMD system to ensure that South Korea has a voice in the development and operation of this new defense arrangement.<sup>96</sup>

## **U.S.-China Relations**

The U.S.-China relationship has long been complicated by high levels of strategic mistrust. Beijing asserts that the issue of U.S. BMD programs contributes to its mistrust of Washington. To allay stated Chinese concerns and improve transparency about both countries' nuclear programs, the United States has sought to engage China in senior-level dialogue on nuclear issues and BMD. So far, however, such dialogue has been limited. The two countries held a single round of an official nuclear dialogue in the final year of the George W. Bush Administration, in April 2008, but China declined to hold follow-up meetings. Two high-profile bilateral dialogues, the Strategic and Economic Dialogue and the Strategic Security Dialogue, have touched on nuclear issues. The most sustained discussion of nuclear issues and BMD between the two countries so far has occurred in "Track 1.5" dialogues, defined as dialogues attended by some officials and military officers in an unofficial capacity, and "Track 2" dialogues, defined as unofficial meetings among experts.<sup>97</sup> In early 2015, a senior U.S. State Department official emphasized the importance of open dialogue and stated, "To encourage that dialogue, we have taken and will continue to take steps to keep China informed about developments in U.S. BMD policy."<sup>98</sup>

U.S. and Chinese experts have made a variety of recommendations to address tensions between the United States and China over BMD programs.

- In March 2015, two experts with Pacific Forum CSIS, a host of unofficial nuclear dialogues with China, proposed that the United States step up its efforts to launch an official dialogue with China on strategic nuclear issues.<sup>99</sup>
- In a 2013 article, Chinese nuclear expert Wu Riqiang proposed a solution to the two countries "BMD dilemma" whereby "the United States commits to maintaining a low level of BMD effectiveness—enough to counter North Korea's unsophisticated ICBMs without threatening China's more advanced strategic missiles. In return, Beijing will agree to refrain from expanding its nuclear arsenal."<sup>100</sup>

In 2013, the CSIS Project on Nuclear Issues Working Group on U.S.-China Nuclear Dynamics made the following recommendations:<sup>101</sup>

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<sup>96</sup> Kang Choi and Gi-Bum Kim, "Breaking the Myth of Missile Defense," Asan Institute for Policy Studies, Issue Brief, August 8, 2014, <http://en.asaninst.org/contents/breaking-the-myth-of-missile-defense>.

<sup>97</sup> For an assessment of Track 1.5 and Track 2 nuclear dialogues with China, see, Michael O. Wheeler, "Track 1.5/2 Security Dialogues with China: Nuclear Lessons Learned," Institute for Defense Analyses, September 2014, [https://www.ida.org/~media/Corporate/Files/Publications/IDA\\_Documents/SFRD/2014/P-5135.pdf](https://www.ida.org/~media/Corporate/Files/Publications/IDA_Documents/SFRD/2014/P-5135.pdf). The study was undertaken pursuant to Section 1045(b) of the National Defense Authorization Act for Fiscal Year 2013.

<sup>98</sup> Frank A. Rose, "Ballistic Missile Defense and Strategic Stability in East Asia," remarks as prepared for delivery to the Federation of American Scientists, Washington, DC, February 20, 2015.

<sup>99</sup> Ralph A. Cossa and John K. Warden, "The Time Is Right for U.S.-China Nuclear Dialogue," PacNet #14, Pacific Forum CSIS, March 4, 2015, <http://csis.org/publication/pacnet-14-time-right-us-china-nuclear-dialogue>.

<sup>100</sup> Wu Riqiang, "China's Anxiety About U.S. Missile Defence: A Solution," *Survival: Global Politics and Strategy*, Vol. 55, No. 5, October-November 2013, p. 44.

<sup>101</sup> Elbridge A. Colby, Abraham M. Denmark, and John K. Warden, *Nuclear Weapons and U.S.-China Relations: A* (continued...)

- The U.S. government should implicitly accept China's second strike capability. To do so would mean that the United States would "plan, procure, and posture its forces and base its own policy on the assumption that an attempted U.S. disarming first strike, combined with U.S. missile defenses, could not reliably deny a Chinese nuclear retaliatory strike on the United States." Among the advantages of such a position: "The credibility of U.S. assurances about BMD ... would likely be augmented with such an acknowledgment," even if the acknowledgement were not made publicly.
- The U.S. government should make its BMD program "as transparent as prudence and security allow" and make it clear "that the United States has no intention of using its ballistic missile defenses to negate China's long-range nuclear deterrent capability."
- The United States should explore such confidence-building measures as reciprocal visits to national missile defense sites, reciprocal notification of BMD and hypersonic vehicle test launches, and the dispatching of observers to national BMD exercises and tests.

In 2011, Ambassador Linton F. Brooks, a former administrator of the Department of Energy's National Nuclear Security Administration, proposed that government technical experts from China and the United States conduct a joint analysis of the U.S. national BMD system and its capabilities against Chinese missiles and a joint analysis of the North Korean missile threat.<sup>102</sup>

At the geopolitical level, the U.S.-China disconnect over BMD may have had the consequence of helping bolster China's relations with Russia. China's and Russia's shared antipathy toward U.S. BMD is an important point of commonality in their bilateral relationship, although Russia is also wary of the program of nuclear modernization that China says it is carrying out partly in response to U.S. BMD.

## **Deterrence and Dissuasion of North Korea**

Some argue that enhanced BMD cooperation could negate the coercive value of North Korean ballistic missiles. A robust, cooperative BMD effort could improve defense and deterrence for South Korea and, especially, Japan against North Korean ballistic missiles. Australia, though an unlikely target, would benefit from an earlier intercept point against ballistic missiles launched from Northeast Asia. A former senior defense official argues that BMD improves deterrence in several ways: BMD makes North Korea uncertain about the success of a missile attack, reduces the vulnerability of the United States and its allies to coercion; reduces the pressure for pre-emptive strikes by the United States and its allies; and enhances the strength of any U.S. and

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*Way Forward*, Center for Strategic and International Studies, A Report of the Project on Nuclear Issues Working Group on U.S.-China Nuclear Dynamics, March 2013, <http://csis.org/publication/nuclear-weapons-and-us-china-relations>.

<sup>102</sup> Ambassador Linton F. Brooks, "Looking to the Future: The Post-New Start World and Potential Sino-U.S. Confidence Building Measures," presented at the 6<sup>th</sup> U.S.-China Strategic Dialogue on U.S.-China Strategic Nuclear Dynamics, Honolulu, June 5-7, 2011, and cited in Michael O. Wheeler, "Track 1.5/2 Security Dialogues with China: Nuclear Lessons Learned," Institute for Defense Analyses, September 2014, [https://www.ida.org/~media/Corporate/Files/Publications/IDA\\_Documents/SFRD/2014/P-5135.pdf](https://www.ida.org/~media/Corporate/Files/Publications/IDA_Documents/SFRD/2014/P-5135.pdf).

allied counterattack.<sup>103</sup> Another benefit may be the dissuasion effect of a coordinated BMD response to North Korea's missile program: Pyongyang might decide that its development of missiles and WMD is in fact counterproductive and could conceivably reduce its investment in those capabilities. China's discomfort regarding U.S. and allied BMD deployments might cause Beijing to discourage North Korea's continued investment in ballistic missile development. On the other hand, some Chinese observers argue that these BMD efforts increase North Korea's sense of insecurity and encourage investments in asymmetric capabilities such as ballistic missiles.

## **BMD Program Evolution**

Stated U.S. BMD policy is designed to defend the U.S. homeland against limited ballistic missile attack by rogue states and to defend against regional threats to U.S. forces, allies and partners; it is not intended to affect the strategic balance with Russia and China. But some observers believe that U.S. BMD systems over the coming decade may be on a trajectory to become increasingly capable against Chinese and Russian ballistic missiles. Although the United States dropped its plan for Phase 4 of the EPAA, which would have included a limited capability against first generation ICBMs from Iran, efforts to improve ICBM defenses are likely to continue.

These trends raise important questions. If such efforts proceed, how might Russia and China respond? Will Russia or China or both further expand their ballistic missile forces, or develop ballistic missiles capable of evading U.S. BMD systems? How might evolving U.S. BMD capabilities against ICBMs affect prospects for regional BMD capabilities over time? The 2013 DOD report to Congress on military and security developments involving China states that China is "working on a range of technologies to attempt to counter U.S. and other countries' ballistic missile defense systems."<sup>104</sup> According to the summary of the 2012 DOD-sponsored Track 2 academic dialogue with China, American participants "repeatedly warned their Chinese colleagues" that if China were to share such technologies with North Korea or other so-called rogue states, the United States would view such a development as "highly escalatory."<sup>105</sup>

## **Congressional Actions**

### **Regional BMD in the FY2015 NDAA**

The FY2015 NDAA (P.L. 113-291) includes three sections directly relevant to the subject of this report, and many other sections that are indirectly relevant. Section 1666 states,

It is the sense of Congress that—(1) the regional ballistic missile capabilities of countries such as Iran and North Korea pose a serious and growing threat to forward deployed forces of the United States, allies, and partner countries;

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<sup>103</sup> Brad Roberts, "On the Strategic Value of Ballistic Missile Defense," Institut Français des Relations Internationales, *Proliferation Papers*, No. 50, June 2014.

<sup>104</sup> Department of Defense, *Military and Security Developments Involving the People's Republic of China 2013: Annual Report to Congress*, pp. 31-32, [http://www.defense.gov/pubs/2013\\_china\\_report\\_final.pdf](http://www.defense.gov/pubs/2013_china_report_final.pdf).

<sup>105</sup> Christopher Twomey, Michael Glosny, and Ryan Jacobs, *US-China Strategic Dialogue, Phase VII*, Naval Postgraduate School, Monterey, CA, January 2013, p. 16.

(2) given this growing threat, it is a high priority for the United States to develop, test, and deploy effective regional missile defense capabilities to provide the commanders of the geographic combatant commands with capabilities to meet the operational requirements of the commanders, and for allies and partners of the United States to improve their regional missile defense capabilities; ...

(5) the United States should continue to work closely with its allies in Asia, particularly Japan, South Korea, and Australia, to improve regional missile defense capabilities, particularly against the growing threat from North Korean ballistic missiles.”

The section also required DOD to submit a report to Congress on regional missile defense, including a detailed description of BMD capabilities and cooperation in the Asia-Pacific region.

Section 1255 states the Sense of the Congress that “increased cooperation on missile defense among the United States, Japan, and the Republic of Korea would enhance the security of allies of the United States in Northeast Asia, increase the defense of forward-based forces of the United States, and enhance the protection of the United States with regard to threats from the Korean Peninsula.” The section calls on DOD to identify opportunities and challenges for increased trilateral cooperation on missile defense and to brief Congress on its findings. Section 1059 mandates an independent assessment of U.S. military strategy and force posture in the PACOM area of responsibility, including an examination of capability shortfalls in BMD, among other areas.

## Issues for Congress

### Funding for an Asia-Pacific Phased Adaptive Approach

Congress has consistently authorized and appropriated funding for BMD as a core component of U.S. defense policy in countering ballistic missile threats from rogue states. There have been exceptions for programs deemed unlikely to deliver capabilities in the near- or medium-term, but the overall level of funding support for BMD programs in Congress to date has remained steady. It is possible that an APPAA will require additional funding, beyond that for which DOD has planned. Costs could include funds for more BMD systems, sensors, C4 infrastructure, bases, and/or military construction. As part of any agreement to deploy BMD capabilities in the region, U.S. allies might want additional, non-BMD related weapons systems. In a congressionally-mandated independent assessment of U.S. force posture strategy in the Asia-Pacific region, the Center for Strategic and International Studies (CSIS) recommended that the United States deploy THAAD and additional PAC-3 units to protect forward deployed forces.<sup>106</sup>

Considering the current threats from ballistic missiles, potential issues for Congress are whether DOD is expanding BMD programs at an appropriate level, and whether current and planned BMD capabilities are the best and most cost-effective approach for addressing ballistic missile threats. Other observers believe the stated threats are exaggerated and that the U.S. BMD program, especially the U.S. GMD system, does not work.<sup>107</sup>

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<sup>106</sup> The CSIS study fulfilled the requirement for an independent assessment of U.S. force posture in the Asia-Pacific region mandated in Section 346 of the FY2012 National Defense Authorization Act (P.L. 112-81).

<sup>107</sup> See for instance, Markus Schiller, *Characterizing the North Korean Nuclear Missile Threat*, RAND Corporation, (continued...)



## Foreign Military Sales

The United States has sold to allies several types of BMD capabilities: Aegis tracking software, PAC-2 and PAC-3 batteries, and SM-3 Block IA interceptors (the last to Japan only). There is a potential for significant further sales if South Korea and Australia decide to emphasize BMD in future budgets, or if Southeast Asian countries such as Vietnam, the Philippines or Singapore begin to view ballistic missiles as a threat to their security. Even if these countries do not participate in a regional BMD system, some analysts have suggested that “reliance of non-U.S. assets on American hardware and software in systems like Aegis goes a long way toward syncing allied capabilities and interoperability [at the technical level].”<sup>108</sup> A potential issue for Congress is what role, other than those already defined in statute, Congress would play in overseeing Foreign Military Sales (FMS) of these BMD systems.

## Outlook for Near Term

As the executive branch further develops U.S. BMD policy in the Asia-Pacific region, Congress has the opportunity to shape this development. The budget allocated to these BMD efforts will affect U.S. defense posture and capabilities in the region, and potential FMS financing of U.S. arms exports could help determine allied approaches to BMD. Through the power of the purse, oversight, legislation, or other tools, Congress may choose to encourage the evolution of an Executive Branch-led APPAA or other formal, collective BMD architectures, or it may choose to slow or thwart this current development. The degree of multilateral integration of BMD assets, accommodation of Russian and Chinese concerns, strategic focus, and technical foundation of BMD capabilities are just several of the critical issues that may merit congressional attention going forward.

## Author Contact Information

Ian E. Rinehart  
Analyst in Asian Affairs  
irinehart@crs.loc.gov, 7-0345

Susan V. Lawrence  
Specialist in Asian Affairs  
slawrence@crs.loc.gov, 7-2577

Steven A. Hildreth  
Specialist in U.S. and Foreign National Security  
Programs  
shildreth@crs.loc.gov, 7-7635

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2012, [http://www.rand.org/content/dam/rand/pubs/technical\\_reports/2012/RAND\\_TR1268.pdf](http://www.rand.org/content/dam/rand/pubs/technical_reports/2012/RAND_TR1268.pdf), and Joe Cirincione, “Alaskan Folly,” *Foreign Policy*, March 13, 2013, [http://www.foreignpolicy.com/articles/2013/03/18/alaskan\\_folly](http://www.foreignpolicy.com/articles/2013/03/18/alaskan_folly).

<sup>108</sup> Hicks et al., p. 76.