Ballistic Missile Defense in South Korea: Separate Systems Against a Common Threat
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Executive Summary

Some of the most enduring disagreements in the alliance between the United States and the Republic of Korea (ROK) concern ballistic missile defenses (BMD). At the same time that South Korea has expanded its conventional offensive missile program, it has declined American proposals for a regionally integrated BMD architecture, insisting on developing its own national system in parallel to the defenses operated by U.S. Forces Korea (USFK). American appeals for interoperability between U.S. and ROK systems have been received cautiously, as were proposals to enhance its own BMD in Korea by introducing the Terminal High-Altitude Area Defense (THAAD) to the Peninsula for several years. A desire for expanded autonomy in national security appears to underpin Seoul's attitudes on BMD. Rather than rely passively on American protection against North Korea's nuclear and missile threats, South Korea's military leaders have focused on developing precision-strike capabilities to intimidate Pyongyang, and resisted simply accepting an American BMD umbrella. Even more than they desire greater independence from their American patron-ally, South Koreans are suspicious of entanglements with Japan, their former colonial master, whose own defensive systems are already integrated with the American regional BMD architecture. This outlook encourages the pursuit of independent defense capabilities and discourages institutionalizing trilateral security arrangements.

Introduction

South Korea (the Republic of Korea, or ROK) has the unusual distinction of hosting two unrelated ballistic missile defense (BMD) systems: one for the South Korean military and another for U.S. Forces Korea (USFK). Despite the standing presence of over 25,000 American troops, yoked to South Korea's armed forces in a Combined Forces Command (CFC); despite routine joint training and exercises between the two allies; and despite almost two decades of urgings from the United States to build an integrated BMD architecture, the two systems have remained separate. Even while Washington negotiated with Seoul for permission to enhance USFK's defenses by deploying the Terminal High-Altitude Area Defense (THAAD) system to the Peninsula, South Korea has remained committed to its own national Korean Air and Missile Defense (KAMD) system, based on a variety of technologies from different sources, including indigenously produced interceptors. Years of pledges by South Korean defense officials have produced little observable progress toward making the separate American and Korean systems interoperable, despite benefits for the effectiveness of allied BMD in the theater.

South Korea's approach to BMD is thus at a great remove from America's experience with other allies. The European Phased Adaptive Approach (EPAA), adopted early in the Obama administration, has been portrayed as a model for other regional architectures, but South Korea's choices have allowed for only halting progress toward regional integration.[1] While the missile threat from North Korea (the Democratic People's Republic of Korea, or DPRK) justifies and motivates South Korea's interest in BMD capabilities, it has not, by itself, determined the ROK's approach. Instead, concerns unrelated to the operational effectiveness of any particular BMD architecture have shaped these choices.

South Korean BMD Concerns

The first and greatest issue has been cost relative to perceived benefit; very simply, the South Korean defense establishment has preferred to invest in offensive missile capabilities to intimidate North Korea with the threat of precision strikes. Not far behind is national pride, in the form of South Korea's desire for greater independence from its patron-ally, the United States, and its resistance to entanglements with its former colonial master, Japan. Other considerations have included sensitivity to the concerns of China, which is South Korea's top trading partner and main opportunity for leverage on North Korean behavior, and perhaps also the interests of South Korea's own defense industries.

Many of these issues and concerns have found their most visible expression in areas not immediately or uniquely linked to BMD. Korea has never truly been able to determine its own fate in the modern era; security issues therefore tend to impinge strongly on Korean national pride. One prominent example in the period discussed in this paper is the premature decision for the transfer of wartime operational control of the armed forces (OPCON) by 2012, initially agreed between the Minister of National Defense and the U.S. Secretary of Defense in fall 2006.[2] After North Korea's armed attacks against South Korea in 2010, the allies began to reconsider the original timeline for OPCON transfer, and then substituted a "conditions-based" process without fixed dates. Nevertheless, the retention of the commitment to OPCON transfer by two subsequent pro-American governments in Seoul testifies to the power of national feelings in South Korea.[3] These same feelings have informed repeated decisions to resist the adoption of a common, integrated BMD architecture.

Another aspect of Korean nationalism, in the form of anti-Japanese sentiment, also helps to explain Seoul's desire for a separate BMD system. The American BMD architecture in the Asia-Pacific region is integrated with Japan's; this is the system that Washington would like to see Seoul join. Even the mutually beneficial decision to share sensor data between the ROK the United States could therefore contribute indirectly to the defense of Japan, Korea's former colonial master, whose intentions many Koreans continue to suspect. There are many examples of Korea's allergy to Japan from the period under consideration; the most salient would be the April 2011 episode, when the Korean side balked at the last moment rather than sign an agreement with Japan to permit the sharing of sensitive defense data (a General Security of Military Information Agreement, or GSOMIA), finally concluded in in the months after North Korea's fifth nuclear test, despite continued public opposition in South Korea. American efforts to bring about trilateral defense cooperation have had some incremental successes since this time, but the years-long delay in signing the ROK-Japan GSOMIA has been emblematic of the serious obstacles to cooperation.[4]

A third factor, involving the dominant perspective in China on the significance of BMD deployments, may also have contributed to South Korea's go-slow approach on acquiring BMD and especially on achieving interoperability with American systems. China is South Korea's most important trading partner by far; it is also widely viewed as the only country capable of keeping the North Koreans in line. Probably for these reasons, Seoul has at times shown sensitivity to China's concerns about the American alliance network perched on its doorstep, including the role of BMD. A special concern sometimes reflected in the Chinese media is the

tendency of a multinational BMD architecture to embed the U.S. military more deeply in the region.[5]

A fourth potential concern may be a desire to create greater opportunities for South Korea's defense industry. In practice, this concern can be difficult to distinguish from nationalistic sentiment; the belief that independent defense capabilities are crucial to the ROK's autonomy goes hand-in-hand with favoring indigenous defense development and production. It is also consistent with South Korea's long history of industrial policy, including export-oriented industry. The defense sector has not been an exception to this pattern.[6]

Many of these factors appear to have been in play in the recent debate over the deployment of THAAD. USFK officials have described the need for these high-altitude interceptors in Korea in order to create a "layered defense," a BMD architecture that permits multiple shots at an incoming warhead. After years of discussion in the media, public opposition from the Chinese Ministry of Foreign Affairs, and a debate in Seoul over whether THAAD in Korea could somehow contribute to the defense of Japan, the United States and South Korea finally agreed to discuss the deployment. Formal talks began soon after North Korea's fourth nuclear test in January 2016 and its second successful space launch in February 2016.[7] An agreement to deploy was announced in July.[8]

From a U.S. perspective, South Korea's reticence has created obstacles to the highly collaborative, trilateral defense relationship that the United States has sought to establish between itself, Japan, and South Korea since the late 1990s. The ROK's insistence on a separate, parallel BMD system features prominently in this story, not least of all because an effective multinational BMD architecture would involve close ties between the allies' command-and-control networks.

Reviewing the history of South Korea's own BMD programs from the mid-1990s to the present shows the enduring strength of these concerns. Despite South Korea's recent movement toward cautious acceptance of an enhanced U.S. BMD system on its territory, these issues seem unlikely to abate in the foreseeable future.

Early Choices: Low Cost and Self-Reliance

South Korea has faced a threat from hundreds of North Korean theater ballistic missiles since roughly the late 1980s. Seoul's concern about the threat grew after a series of North Korean ballistic missile flight-tests on May 29, 1993, florid threats from Pyongyang during the nuclear crisis of June 1994, and the start of USFK's deployment of Patriot batteries to protect its own facilities.[9] These events may have contributed to the start of serious discussions within the ROK Ministry of National Defense (MND), no later than fall 1995, about launching a new air and missile defense program. This undertaking was justified in terms of the need to replace South Korea's aging fleet of U.S.-supplied Nike-Hercules air-defense missiles.[10]

One path for the acquisition of a BMD system might have been to acquire new, up-to-date systems from a single supplier. Instead, South Korean leaders have persistently sought an

independent course, and have resisted the American plans to integrate South Korea for a regional BMD architecture that would emerge later in the decade.

Cost concerns were prominent in the information disclosed to the public about the new, so-called "SAM-X" program. Media reports starting in early 1996 indicated that the MND was considering not only Raytheon's Patriot systems, but also their Russian counterpart, the Almaz-Antey S-300. The Russian offering was deemed the leading candidate on the grounds of cost. Russia had borrowed heavily from South Korea in the early 1990s, and found in discounted military exports to Seoul a way to pay down its debt.[11] South Korean interest in acquiring Russian systems naturally invited concern from the U.S. military. In May 1998, the USFK commander openly voiced his concern about the need for interoperability of American and South Korean defensive systems.[12]

American advice, or pressure, seems to have helped to refocus the SAM-X program on Patriot PAC-3 BMD systems, but this shift led to seemingly insuperable cost problems. Although SAM-X survived defense budget cuts after the financial crisis of 1997 and the election of opposition leader Kim Dae-jung to the presidency, it was subjected to repeated, years-long delays on account of lack of adequate funding.[13] Shortfalls in funding became an enduring theme in South Korean BMD acquisition from this time on, even as the country's own ballistic and cruise missile programs have prospered.[14]

North Korea's launch of a TD-1 multistage rocket over Japan on August 31, 1998 renewed interest in the United States in establishing a National Missile Defense (NMD) and a regional, multinational Theater Missile Defense (TMD) in Northeast Asia, an idea that Japan was quick to embrace.[15] The South Korean leadership was reticent about involvement from the start. Even once the MND had accepted the need for a Patriot buy, Minister of National Defense Chun Yong-tack drew a sharp line against participating in the U.S. architecture, questioning its efficacy for deterring North Korea, citing the potential response of other regional countries, i.e., China, and noting South Korea's own lack of sufficient funds, and its lack of advanced defense technology. His successors would offer similar statements as well.[16]

Seoul may well have been wary of involvement in a defense architecture that could be seen as participating in the "containment" of China; keeping China closer to the ROK than the DPRK has been an important South Korean objective since the end of the Cold War. Minister Chun's reference to defense technology was perhaps even more significant, reflecting the yearning to achieve greater self-reliance in defense. Always being in need of superior foreign technology for national defense would mean that the ROK would never be able to choose its own course.[17] Implicitly, if the DPRK could build its own missiles to threaten the ROK, then the ROK should be able to make its own missile defenses, not to mention missiles for threatening retaliation, unless it was content to rely permanently on the protection of the United States. Under the presidency of Kim Dae-jung, too, South Korea's approach to the North leaned toward diplomacy and aid rather than new defense expenditures.

Although South Korea was too hard-pressed financially to invest the anticipated roughly one trillion won (about $1 billion) needed to acquire a state-of-the-art theater BMD system like PAC-3, it was able to set aside about 10 billion won (about $10 million) for the Agency for Defense

Development (ADD) to start development of an indigenous "medium-range surface-to-air missile," or M-SAM, starting in 1998. (ADD is the developer of South Korea's indigenous missile systems, which bear a close visual resemblance to Russian short-range ballistic missiles.) This small effort was expected to take a decade to bear fruit, and was described at the outside as involving the assistance from "Russia and other advanced countries."[18]

Over time, M-SAM would be portrayed as an anti-aircraft weapon, designed to replace older U.S.-supplied Hawk SAMs. The first production M-SAM systems, renamed Cheongung, were deployed to the Northwest Islands by early 2016.[19]

In the meantime, the X-SAM program, which was supposed to fill the gap in South Korea's defenses by acquiring PAC-3 or its equivalent, continued to make little progress. The MND failed to find a viable path for acquisition until 2005, when it identified a solution in the form of secondhand Patriot PAC-2 systems owned by Germany.[20] The ensuing negotiation would last years.

The Korean Air and Missile Defense (KAMD) Concept

Another reason for the slow path to acquisition of BMD was, in all likelihood, a lack of urgency. After the launch of the TD-1 over Japan in August 1998, North Korea had agreed to a moratorium in space launches and missile tests. Pyongyang adhered to this policy of restraint until July 2006, when it flight-tested a barrage of theater ballistic missiles, along with a three-stage TD-2 launcher. In October 2006, it conducted its first nuclear test. Later that year, South Korea announced the development of a new BMD architecture, the Korean Air and Missile Defense (KAMD), which officials described as "affordable." Early media accounts of KAMD described it as featuring a network of Patriot batteries, a new, indigenously developed early-warning radar, and its own dedicated command center.[21]

In 2008, Seoul's Defense Acquisition Program Administration (DAPA) finally concluded the purchase of the secondhand German PAC-2s, to be linked by new fire-control systems from Raytheon. The first shipment from Germany arrived in South Korea late that year, about 13 years after the initial decision to replace the superannuated Nike-Hercules. The newly acquired interceptors were deployed around ROK Air Force bases.[22]

Now apparently feeling some urgency to erect a national BMD system, Seoul set aside the idea of an indigenous early-warning radar. In fall 2009, DAPA decided to purchase two Super Green Pine radars from Israel's Elta. These radars were originally designed to work with the Arrow BMD interceptor jointly developed by the United States and Israel.[23] Thus, KAMD was taking shape rapidly, with a minimum of equipment purchased directly from the United States.

But even as South Korea continued to receive shipments of old PAC-2 equipment from Germany, the MND concluded that these systems were ineffective against the North Korean missile threat. The equipment was outmoded and better suited to intercepting aircraft than missiles. The aging PAC-2 tracking radars broke down frequently and proved difficult to maintain.[24]

In consultations with the United States in late 2012, the government expressed renewed interest in acquiring new PAC-3 systems, to be deployed at an early date.[25] The U.S. Department of Defense received formal notice of Seoul's interest in a possible purchase in October 2013.[26] Indeed, as early as 2008, descriptions of KAMD future development had broadened to include new U.S.-made interceptors, in the form of Raytheon's SM-2 missiles, to be deployed abroad South Korea's new Aegis-class destroyers.[27] Later accounts also indicated an interest in the SM-6 interceptor, then under development.[28]

Two other new acquisition tracks also emerged under the KAMD umbrella. The first was naval, and moved briskly. As early as January 2008, descriptions of the architecture's future development broadened to include Raytheon's SM-2 missiles, to be deployed aboard the ROK Navy's new Aegis-capable destroyers.[29] Perhaps reflecting ambivalence within Seoul, the purchase and delivery of SM-2s have not been highly publicized. A DOD notice from May 2009 documenting South Korean interest in buying a batch of SM-2s noted that the ROK "already has these missiles in its inventory."[30] (Some SM-2s would be displayed in an October 2013 Armed Forces Day parade in Seoul.) Later accounts also expressed interest in acquiring the new SM-6 multi-role naval missile, which operates in both defensive and anti-ship modes.[31]

The second acquisition track involved more indigenous systems. At the same time that the shortcomings of the German PAC-2s were first brought before the public eye, MND also revealed news plans for developing another indigenous BMD interceptor, a program called L-SAM.[32] L-SAM has been depicted as an upper-tier interceptor for a layered defense, with the lower tier composed of PAC-3 and M-SAM batteries.[33] This high-altitude intercept role may suggest an additional, unstated reason for Seoul's early reluctance to discuss an American THAAD deployment to Korea; although THAAD is expected to be USFK's system, and not South Korea's, its presence in Korea might undercut the rationale for L-SAM.

Regardless of the exact configuration, the rapid emergence of the initial KAMD system seems to have pushed U.S.-ROK discussions toward the subject of interoperability between allied defense systems. South Korean Ministers of National Defense issued essentially identical pledges to achieve this goal in each joint statement of the annual ministerial-level U.S.-ROK Security Consultative Meeting (SCM) since 2012.[34]

Despite the operational advantages of having defensive assets exchange data and coordinate actions in combat, interoperability appears to have been a source of discomfort for the South Koreans. American officials may have contributed to that discomfort by linking the theme of interoperability to the unpopular subject of trilateral defense cooperation with Japan, speaking in terms of "an interoperable regional missile defense architecture."[35]

Perhaps the first concrete indication of progress on interoperability appeared in January 2016, when the MND announced plans to install a Link 16 tactical data link between the allies' respective BMD command centers at Osan Air Base.[36] The U.S. BMD system uses Link 16 to connect the other elements of the system to a Command and Control, Battle Management, and Communications System.[37] The MND announcement emphasized that the data link would run only between the two command centers, which implicitly will remain separate despite their proximity, and will not have direct and unmediated access to each other's BMD assets. Shortly

thereafter, it was also announced that the allies would undertake a joint BMD exercise during the annual spring military exercises.[38] For the time being, at least, this modest level of interoperability seems to represent the extent of Seoul's willingness.

Conclusions and recommendations

Overall, KAMD seems to have had little in the way of a consistent system design, and remains very much a work in progress. It has emerged as a patchwork quilt—an improvisational assemblage of technologies from a variety of foreign and domestic suppliers. Its only fixed characteristic is the first word in its name: *Korean.* Whatever form it may take, KAMD is the national BMD system of the Republic of Korea, as opposed to a joint or regional architecture.

This pattern reflects Seoul's tendency to respond to a variety of pressures and concerns by delaying acquisition of big-ticket American systems, selecting low-cost alternatives when possible, and investing in locally produced alternatives, all while insisting on the maximum operational autonomy. It is invariably North Korean missile and nuclear tests that have spurring greater interest in BMD in Seoul and, at least temporarily, greater willingness to collaborate with the United States in the BMD field.

As a result, South Korean defense officials have improvised a meandering course on BMD development and acquisition, now steering closer to their American partners, now further away. American officials may periodically get an impression of progress, but so far that progress remains tentative and incremental. With time, as Seoul's technological capabilities mature, it is likely to shift toward an increasingly independent defense posture. Short of a fundamental shift in South Korean views on defense technology, national autonomy, or regional politics and security, no trilateral BMD system including the U.S. and Japan should be expected to take shape.

A certain tension can be seen in South Korea's approach: the desire to keep costs under control conflicts with the goal of avoiding integration into a joint or multinational architecture. A multinational approach would presumably offer the best value in terms of operational effectiveness, since it would involve relatively mature technologies and take advantage of investments already made by foreign partners. Insisting on a low-cost approach to BMD has actually forced Seoul to accept some degree of dependence. For example, ROK defense officials have felt compelled to explain to reporters that a data link between command centers is desirable, since it will give South Korea access to U.S. space-based early warning data—something the ROK cannot afford to duplicate.

Faced with this situation, perhaps the most constructive approach for the United States would be to consider proposing a jointly developed U.S.-ROK defensive architecture, separate from its U.S.-Japanese equivalent, which would create a joint capability at substantial cost savings for South Korea. While this approach would not resolve all South Korean concerns, it would help to remove the most acute issue. Despite a desire for greater freedom of action, as well as anxiety about the intentions of U.S. President-elect Donald Trump, South Korea's leaders are far from ready to separate themselves from their alliance from the United States. The continuing USFK

presence helps to deter serious North Korean aggression, and may even be seen as offering a counterweight to China's growing military power. Seoul's interest in BMD has grown since the end of the North Korean missile-test moratorium and the first North Korean nuclear test, both in 2006, so a jointly developed system is not out of the question.

Timeline

Late 1980s: Emergence of a large-scale North Korean theater ballistic missile threat.

May 29, 1993: Four North Korean theater ballistic missile tests.

June 1994: North Korean nuclear crisis.

October 1995: Earliest South Korean media references to SAM-X program.

1995-1996: Earliest USFK Patriot deployments.

August 31, 1998: North Korean TD-1 space launcher overflies Japan.

November 1998: Earliest South Korean media references to M-SAM program.

July 4 and 5, 2006: North Korean ends missile testing moratorium with six theater ballistic missile tests and first TD-2 space launch attempt.

October 9, 2006: First North Korean nuclear test.

October 2006: Earliest South Korean media references to Korean Air and Missile Defense (KAMD).

2008: Negotiations to acquire German PAC-2 systems are concluded; deliveries to South Korea commence.

January 2008: Earliest South Korean media references to interest in acquisition of SM-2 naval interceptors from the United States.

February 2008: Earliest South Korean media references to interest in acquisition of SM-6 naval interceptors from the United States.

2009: Negotiations to acquire Israeli Super Green Pine radars are concluded.

May 2009: South Korean possession of SM-2 naval interceptors is publicized for the first time by the U.S. Department of Defense.

October 2011: Earliest South Korean media references to L-SAM program.

October 2012: Earliest South Korean media references to interest in acquisition of PAC-3 systems from the United States.

October 1, 2013: ROK Armed Forces Day parade in Seoul displays multiple missile systems, including SM-2 naval interceptors.

Early 2016: First Cheongung (M-SAM) systems reported deployed.

January 7, 2016: Fourth North Korean nuclear test, called its first thermonuclear test.

February 7, 2016: North Korea conducts its second fully successful TD-2 launch.

February 7, 2016: USFK releases text of a joint ROK-U.S. statement on negotiations concerning THAAD deployment in South Korea.

July 7, 2016: USFK announces ROK-U.S. agreement on THAAD deployment.

September 9, 2016: Fifth North Korean nuclear test.

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