Chapter Two

MOTIVATIONS AND RESPONSES

The urgency of the ballistic missile defense issue for Japan is prompted by two basic factors: the growing potential threat posed by foreign ballistic missiles, and the policies and actions of the United States in support of a BMD system.

THE THREAT

The specific threats or concerns presented to Japan by ballistic missiles take several forms: (1) the threat to Japan and to U.S. forces based in Japan presented by the possession of medium-, intermediate-, and long-range ballistic missiles by North Korea, China, and Russia; (2) the threat presented by the possibility that other states (especially "states of concern" such as Iraq and Libya), as well as nonstate actors such as terrorists, might use ballistic missiles to threaten or intimidate Japan particularly in the context of Japanese participation in UN peacekeeping or in providing assistance to U.S. troops; (3) the general prospect of regional and global instability resulting from the proliferation of ballistic missile systems and technologies; and (4) the threat posed by short and medium-range ballistic missiles to Japanese or allied forces deployed overseas as part of UN-sanctioned peacekeeping efforts.

North Korea

Of these threats and concerns, the most significant is North Korea's possession and development of increasingly more-capable medium- and intermediate-range missiles. Such missiles could be used to

threaten or attack Japan in the context of a conflict on the Korean peninsula or a U.S.–North Korean military or political confrontation. Despite recent improvements in North Korea's relations with both South Korea and the United States, such scenarios remain possible given the deep-rooted and long-standing nature of the military and political confrontation on the Korean peninsula, the seemingly unpredictable nature of the North Korean regime under some circumstances, and the continued absence of any substantive reduction in the size and disposition of North Korea's military forces. Japanese public anxiety over the potential threat posed by North Korea's ballistic missile program significantly increased when Pyongyang fired a rocket over northern Japan on August 31, 1998, ostensibly in a failed attempt to launch a satellite. North Korea's ballistic missile capabilities are presented in Table 1.

North Korea's Nodong-1 MRBM (Scud Model-D) is arguably of greatest concern to Japan. It has a range of 1,000-1,300 km (620-800 miles) and could reach most of Japan, including many U.S. bases. North Korea began development of this missile in 1988. It has had only one known flight test in May 1993. During that year, the U.S. Department of Defense announced that the Nodong had become operational. North Korea currently possesses about 100 Nodong-1 missiles. Moreover, the Nodong provides the core technology for the longer-range, two-stage Taepodong (TPD). The Taepodong-1 has a range of 1,500–2,000 km (900–1,200 miles) and could reach all of Japan. The North Korean missile fired over Japan in August 1998 was

Table 1

North Korean Ballistic Missiles

	Type	Range (km)	Payload (kg)
Hwasong-5 (Scud Mod B)	SRBM	300	1,000
Hwasong-6 (Scud Mod C)	SRBM	500	700
Nodong-1 (Scud Mod D)	MRBM	1,000	700–1,000
Taepodong-1	MRBM	1,500+	1,000
Taepodong-2	IRBM	4,000+	1,000

SRBM = Short-range ballistic missile, with ranges up to 1,000 km (620 mi.); MRBM = Medium-range ballistic missile, with ranges of 1,001–3,000 km (621–1,860 mi.); IRBM = Intermediate-range ballistic missile, with ranges of 3,001–5,501 km (1,861–3,410 mi.).

SOURCE: Stimson Report, p. 17.

apparently a Taepodong-1 with a solid-fuel third stage. This three-stage rocket might have a range of more than 5,000 km (3,100 miles).

North Korea is also reportedly developing a two-stage Taepodong-2 with a range of 4,000–6,000 km (2,500–3,700 miles) and might extend the range of this missile by adding a third stage.[1] At present, Pyongyang has agreed to place a moratorium on further development of its longer-range missiles, including both the TPD-1 and the TPD-2. Many Japanese defense specialists are not especially concerned about either the TPD-1 or TPD-2, however, because their ranges are generally considered too long to pose a threat to Japan. Instead, these military observers of North Korea's missile capabilities are reportedly placing an increasing emphasis on Pyongyang's significant, and possibly growing, force of Nodong missiles.[2]

North Korea's missile force is likely capable of delivering both conventional and nonconventional (WMD) warheads. Pyongyang had a small nuclear weapons program until at least the early 1990s, when it reached an agreement with the United States to suspend that program, and also manufactures and possesses a wide range of biological and chemical agents. Thus, although North Korea probably does not currently possess a nuclear warhead small enough to be delivered on a ballistic missile, it might possess missile-deliverable chemical and biological warheads. Moreover, the U.S.-led effort to restrain North Korea's nuclear program under verifiable restraint has "not resolved the underlying concern that Pyongyang has the material to develop, or has already developed, one or more nuclear devices."[2]

In addition to its ballistic missile capabilities, North Korea also has an indigenous cruise missile program based on Soviet and Chinese technology. Pyongyang has been manufacturing the Chinese-designed Silkworm anti-ship cruise missile for many years and has two variants with ranges up to 100 km. It is also developing an anti-ship cruise missile with a range up to 160 km. This missile was first tested in July 1994.[3] Given the limited range of such systems,

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[1] CRS Report, p. 14; Stimson Report, p. 17.

[2] Cambone, p. 66.

[3] Stimson Report, p. 19.

however, and the rudimentary level of North Korea's medium-range air- and sea-based strike capability, Pyongyang's cruise missiles do not pose a major threat to Japan at present.

China

The number, types, and ranges of China's ballistic missile force are far greater than those possessed by North Korea. China currently has two types of MRBMs and one type of IRBM capable of reaching Japan. The MRBM CSS-2 has a range of 2,850 km and the MRBM CSS-5 has a range of 1,800 km (with a conventional warhead) or 2,500 km (with a nuclear warhead). The IRBM CSS-3 has a range of 4,750 km. The long range of China's ICBM CSS-4, 12,000-13,000 km, precludes any threat to Japan. As indicated in Table 2, the total number of medium and long-range missiles possessed by China at present is estimated at approximately between 100 and 185. Moreover, China will likely deploy a new land-based mobile ballistic missile (the DF-31) and perhaps a submarine-launched ballistic missile (SLBM) version of the same missile (the JL-2) by 2005. Both are also capable of reaching Japan. All of these ballistic missiles can carry both conventional and WMD warheads.

China has a relatively large inventory of nuclear and chemical weapons and probably also some biological weapons capable of being delivered by ballistic missiles. Beijing is also developing medium- and long-range anti-ship cruise missiles (ASCMs), land-attack cruise missiles (LACMs) and air-launched cruise missiles (ALCMs), some likely having the ability to carry WMD warheads and all probably deployable against Japan from several platforms.[4]

Although they do not openly acknowledge it, many Japanese strategists and military officers and some Japanese politicians are concerned that China might use its ballistic missile capabilities to threaten or attack U.S. forces in Japan or even Japanese territory and citizens. This could conceivably happen in two contexts: (1) as part of an escalating crisis over Taiwan in which Beijing seeks to prevent the United States and possibly the Japanese government from

[4]Stimson Report, pp. 23, 25; CRS Report, p. 14.

Table 2

Types and Estimated Numbers of Chinese Ballistic Missiles[a]

Delivery Vehicle (Western designator)	Range (km)	Nuclear Weapons Databook (1994)	Military Balance (98-99)	Jane's Strategic Systems (9/98)	Various
Land-based missiles					
DF-3A (CSS-2)	2,850	50	38+	60–80	40–80[b]
DF-4 (CSS-3)	4,750	20	10+	20–35	10–20[b]
DF-5A (CSS-4)	13,000+	4	17	15–20	4–10[b]
DF-21A (CSS-5)	1,800	36	8	35–50	20[c]
DF-15/M-9 (CSS-6)	600	N/A	4	400	25–50[b]
DF-11/M-11 (CSS-7)	300	N/A	N/A	200	160–200[d]
DF-11A (CSS-7 Mod 2)	300	N/A	N/A	N/A	32[e]
DF-31[f]	8,000	0	0	0	0
DF-41 (31A)	12,000	0	0	0	0
Sea-launched ballistic missiles					
JL-1 (CSS-N-3)	1,700	24	12	12	12
JL-2 (CSS-N-4)	8,000	0	0	0	0

[a]Adapted from Bates Gill and James Mulvenon, "The Chinese Strategic Rocket Force: Transition to Credible Deterrence," in *China and Weapons of Mass Destruction: Implications for the United States*, National Intelligence Council, Washington, DC, 1999, p. 35.

[b]Dunbar Lockwood, "The Status of U.S., Russian, and Chinese Nuclear Forces in Northeast Asia," *Arms Control Today*, November 1994, p. 24.

Notes continued on next page.

Table 2—contiued

[c]National Intelligence Council, "Foreign Missile Developments and the Ballistic Missile Threat to the United States Through 2015," September 1999, p. 11.

[d]Department of Defense, "The Security Situation in the Taiwan Strait," Report to Congress Pursuant to the FY99 Appropriations Bill, 26 February 1999.

[e]Two future brigades of 16 launchers each was first reportedly in Bill Gertz, "China Points More Missiles at Taiwan; U.S., in Turn, Helps Island Boost Defenses," *Washington Times,* 23 November 1999, p. A1; and Bill Gertz, "Second Chinese Missile Base Detected Near Taiwan: Report," *Washington Times,* 8 December 1999, p. A1.

[f]According to Stan Norris, a nuclear weapons expert in Washington, D.C., the DF-41 is now known as the DF-31A. The DF-31, DF-31A, and JL-2 are under development, and are not expected to be in service until the early 2000s or later (DF-31 and JL-2) or until approximately 2010 (DF-31A); the DF-31 was flight-tested in August 1999 and a computer simulation on the DF-31A was reportedly conducted recently.

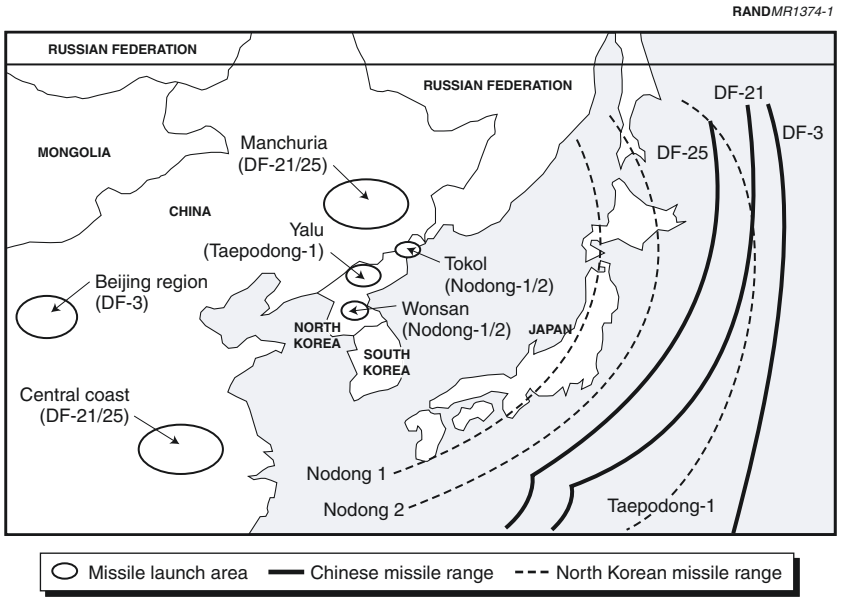
SOURCES: Adapted from Robert Norris, Andrew S. Burrows, and Richard W. Fieldhouse, *Nuclear Weapons Databook,* Volume Five*: British, French, and Chinese Nuclear Weapons,* (Boulder, CO: Westview Press, 1994), p. 377-78; *The Military Balance 1998/99* (London: Oxford University Press, October 1998), p. 178; *Jane's Strategic Systems,* September 1998; Robert S. Norris and William M. Arkin, "Appendix 11A. Tables of nuclear forces," in *SIPRI Yearbook 1997* (Oxford: Oxford University Press, 1997), Table 11A.5, 401; National Intelligence Council, "Foreign Missile Developments and the Ballistic Missile Threat to the United States Through 2015," September 1999.

providing Japan-based military assistance in a conflict, or at the very least to complicate such efforts; and (2) over the long term, in support of efforts by a much stronger and more confident China to achieve specific territorial, political, or strategic objectives in the Asia Pacific, such as control of the disputed Senkaku Islands, claimed by both Beijing and Tokyo. Given such concerns, some Japanese observers argue that China's significant—and some would argue potentially growing—MRBM and IRBM capabilities constitute the most significant long-term ballistic missile threat to Japan.

The map indicates those areas of Japan that would fall within Chinese and North Korean missile ranges.

Russia

Russia's missile force of ICBMs, SLBMs, and cruise missiles is much larger and more sophisticated than China's force. As indicated in



SOURCE: Vogt, p. 2.

Ranges of North Korean and Chinese Ballistic Missiles Capable of Reaching Japan

Table 3, Russia has at least six types of ballistic missiles capable of reaching Japan. However, Japanese concerns over a deliberate Russian ballistic missile attack have diminished greatly since the end of the Cold War, which led to the collapse of the Soviet Union and the subsequent decline of the Russian military.

At present, Japanese concerns are focused more on the potential consequences for Japan of either perceived reductions in central governmental control over ballistic missiles and WMD warheads in the former Soviet Union or the further dissolution of Russian politics and society. Such developments raise the possibility that nonstate actors hostile to Japan might acquire formerly Soviet ballistic missiles and WMD warheads or that one or more ballistic missiles deployed in the territory of the former Soviet Union might be launched by accident or without authorization against Japan or U.S. forces in Japan.

Table 3

Russian Ballistic Missiles

	Type	Range (km)	Payload (kg)	Status
SS-1 Scud	SRBM	300+	1,000	In service
SS-19 Stiletto	ICBM	10,000	43,500	3 deactivated
SS-21 Scarab	SRBM	120	482	In service
SS-24 Scalpel	ISBM	10,000	40,500	Modernized; 1 warhead
SS-25 Sickle	ICBM	10,500	1,000	In service; 1 warhead
SS-27 Topol M	ICBM	10,500	?	In production
SS-N-20 Sturgeon	SLBM	8,300	2,270	In service
SS-N-20 Sturgeon	SLBM	8,300	1,360	In service

SRBM = Short-range ballistic missile, up to 1,000 km (620 mi.); MRBM = Medium-range ballistic missile, 1,001–3,000 km (621-1,860 mi.); IRBM = Intermediate-range ballistic missile, 3,001–5,500 km (1,861–3,410 mi.); ICBM = Intercontinental ballistic missile, 5501+ km (3411+ mi.); SLBM = Submarine launched ballistic missile.

SOURCE: CRS Report, p. 8.

Other Threats

Several recent U.S. studies of the ballistic missile threat highlight the possibility that “states of concern” such as Iraq and Libya, or nonstate actors such as terrorists, might employ ballistic missiles to

threaten, intimidate, or even attack the United States, U.S. forces deployed overseas, or U.S. allies.[5] These studies also stress the prospect of regional and global instability resulting from the general proliferation of ballistic missile systems and technologies. Given Japan's position as a key ally of the United States in Asia, its government and citizens should also be concerned about these potential additional threats.

Finally, some Japanese strategists and military officers are concerned by the threat to UN peacekeeping forces posed by short- and medium-range ballistic missiles in the hands of Third World states and nonstate actors. This kind of threat was realized during the Gulf War, as noted above. Although Japan does not currently permit its own combat forces to participate in UN peacekeeping operations, some observers believe that such participation might occur in the future or that, even without direct participation in combat, Japan should consider developing the capability to assist UN forces through the provision of ship-based theater BMD systems.

THE ROLE OF THE U.S. GOVERNMENT

Although the above threats and concerns are important factors motivating Japanese interest in ballistic missile defense, one cannot deny that the policies and actions of the United States—as a strong advocate of BMD systems, as the only alliance partner upon whom Tokyo depends greatly for its security, and as a provider of military forces based on Japanese territory—also greatly influence Japanese perspectives and calculations.

The United States and Japan have been discussing ballistic missile defense issues since the inception of the SDI program in 1983. Moreover, Tokyo was familiar with the U.S. BMD programs of the early 1990s and with the U.S.-Russian negotiations in 1990–1992 on amending the 1972 ABM Treaty to permit the deployment of global BMD systems against limited ballistic missile attacks (the so-called

[5]See, for example, "Foreign Missile Developments and the Ballistic Missile Threat to the United States Through 2015," National Intelligence Council, Washington, D.C., September 1999.

"global protection system" or GPALS).[6] Although Washington was reportedly interested in the possibility of Japanese involvement in the SDI program in the 1980s (largely to reduce U.S. costs), concrete bilateral discussions and studies of BMD systems for Japan began in the 1990s, in the context of the GPALS concept. At the time, Japan was reportedly very hesitant to become involved in a BMD program.

The U.S. BMD program significantly conflicted with postwar Japanese policy in three ways: (1) the original proposal included the notion of deploying interceptors in space, which conflicted with Japan's Diet resolution prohibiting the militarization of space; (2) the cooperative aspect of the GPALS system would violate Japan's proscription against participation in collective defense organizations; and (3) the program allowed (but did not require) BMD-related technology sharing among its members, thereby posing a potential violation of Japanese limits on defense-related exports.[7] Many Japanese were also concerned over the unproven feasibility of many BMD technologies.

By the early 1990s, the United States had begun to place more emphasis on seeking Japanese participation in the theater missile defense (TMD) component of its BMD program, primarily to obtain technology, funding, and possibly customers for what was becoming a complex and expensive program.[8] The United States hoped that Japanese participation would reduce U.S. costs at a time of tight defense budgets; possibly reduce Japan's growing trade surplus with the United States; and deflect the charge that Japan would obtain a "free ride" by receiving the technological, political, and military

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[6]Cambone, p. 68.

[7]Cambone, p. 68.

[8]Cronin et al., p. 173. Former Secretary of Defense Les Aspen had announced in May 1993 that the United States would henceforth place a priority on TMD research and development, thus confirming the end of the SDI effort to construct a large-scale BMD system and the shift away from the GPALS concept toward a more limited national missile defense concept. This shift had occurred largely because the United States no longer faced the threat of a massive Soviet missile attack and in response to the growing perception, stimulated by the experience of the Gulf War, that the major threat to United States territory, U.S. forces overseas, and U.S. friends and allies was now posed by theater missiles possessed by Third World countries. Later in the same month, North Korea test-fired four ballistic missiles, including the Nodong-1, into the Sea of Japan, thus apparently further validating this assessment.

benefits of a U.S.-developed TMD system deployed to protect U.S. forces in Japan (and most likely parts of Japan) without paying the costs of such a system. At that time, much of the U.S. emphasis in interactions with Japan was reportedly placed on technology reciprocity and financing.[9]

The possibility that Japan could contribute financially to the BMD program seemed especially likely after the Gulf War, when Tokyo had contributed a huge sum to the United Nations effort. Thus, in general, the United States approach ". . .was not based on regional circumstances or Japan's actual defense needs, but on the assumption that Japan should support U.S. global leadership generally."[10] Not surprisingly, many politically powerful interest groups in Japan viewed the U.S. stance as a threat to Japan's defense technology and industry base. Indeed, many in Tokyo felt that Washington was more concerned with obtaining Japanese technology and funds than in defending Japan.[11]

By the mid-1990s, the U.S. rationale for Japanese participation in the planned BMD program had shifted, due to tight Japanese government budgets, the booming U.S. economy, and Japanese frustration and resentment over the United States' "burden sharing"–based approach. Coinciding with the effort to strengthen the U.S.-Japan security alliance and revise the guidelines for U.S.-Japan defense cooperation, the TMD program was recast as primarily an alliance maintenance issue and an effort to strengthen Japanese security.[12] Despite the adoption of this more "soft-sell" approach, however, the United States continued to pressure Japan to participate in TMD-related research and development activities, largely in response to signs of significant improvements in North Korea's ballistic missile program. This occurred even though deep-seated and unresolved disagreements reportedly had emerged by the mid-1990s in Washington regarding the usefulness of Japanese cooperation.

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[9]Cronin et al., p. 172.

[10]Stimson Report, p. 65.

[11]Cronin et al., p. 172.

[12]Stimson Report, p. 65; Cronin et al., p. 172.

Critics of Japanese participation in a U.S.-led BMD system argue that any missile defense system beyond a limited, lower-tier system will overwhelm Japan's limited national security resources and absorption capabilities and pose unmanageable strategic dilemmas for Washington and Tokyo (both factors are discussed in some detail in Chapter Three). In contrast, in addition to the burden-sharing and enhanced defense cooperation arguments mentioned above, U.S. proponents of Japanese participation insist that Tokyo's acquisition of a BMD system would enhance both countries' strategic position in Asia by strengthening extended deterrence and reducing the overall vulnerability of Japan and U.S. forces in Japan to limited ballistic missile threats during a regional crisis. Moreover, proponents argue that the United States will in any event eventually deploy a TMD system to defend its forces in Japan and under such circumstances could not conceivably deny such a system to the Japanese government, since a U.S.-only TMD force would allegedly impede interoperability and defense cooperation, and perhaps provoke resentment among the Japanese public.[13] The U.S. Navy and several U.S. Navy defense contractors are particularly strong supporters of Japanese acquisition of the naval-based TMD systems.

This debate has persisted within the United States to the present. However, by the late 1990s, enthusiasm for Japan's active participation in the BMD effort apparently had begun to wane in some quarters of the U.S. government. This has occurred in part because of the growing emphasis within the United States on achieving a technologically feasible national missile defense (as opposed to theater missile defense) capability. Although TMD continues to receive significant levels of funding, in recent years the U.S. government has arguably focused greater efforts on the NMD program, in response not only to North Korea's unexpected development of a nascent long-range missile capability but also to growing concerns over improvements in China's long-range ballistic missile program.[14] In addition, toward the end of the Clinton administration U.S. enthusiasm for Japanese participation in the

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[13]Cronin et al., pp. 173–175; Green, pp. 112–113.

[14]The latter concern was stimulated by a rash of largely unsubstantiated or inaccurate reports appearing in the late 1990s that China had achieved major leaps in its ICBM program by stealing major U.S. missile and nuclear warhead secrets.

TMD effort diminished because of the continued lukewarm level of Japan's actual involvement. Although Japan decided in 1993 to participate in a study with the United States on developing a joint BMD system (the Japanese Government–led U.S.-Japan Bilateral Study on Ballistic Missile Defense), it did not actually formally decide to participate in a U.S.-led TMD program until 1999. This decision (discussed in greater detail below) was spurred by the above-mentioned North Korean TPD-1 launch of August 1998, which generated public support for a missile shield and diplomatic cover by providing tangible evidence of a previously theoretical threat. Moreover, Japan's financial contribution to the TMD development effort, totaling approximately $300 million over a six-year period, is viewed by some in Washington as a relatively insignificant amount compared to the overall projected costs of the entire TMD program.[15] For example, the United States has committed approximately $2.3 billion to Block I Navy Theater-Wide (NTW) development over the next five years.

However, the current Bush administration's decision to build and deploy a multilayered National Missile Defense (NMD) system could produce a renewed emphasis on Japanese involvement in a U.S.-led TMD system. Evidence points to a strong desire on the part of key officials in the Bush administration to expand the scope of Japan's current participation.

JAPANESE OPTIONS

To cope with the ballistic missile threats discussed above, Japan could employ a variety of military-related countermeasures, either independently or in cooperation with the United States.[16] These

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[15]However, some observers believe that the relatively low amounts committed by Japan to joint TMD development are at least partly due to ". . .the relative inattention and low level of funding the United States has committed to the joint TMD program to date." Green and Dalton, p. 17.

[16]This discussion does not cover every possible Japanese response to potential ballistic missile threats and U.S. pressure. For example, Tokyo could take no action whatsoever, or it could put all of its efforts into global and regional arms control activities. However, the purpose of this section is to evaluate the options available to Japan in the military realm.

countermeasures fall into three broad categories: offensive measures, passive defense measures, and active defense measures.

Offensive Measures

Offensive measures include both "counterforce" weapons such as conventionally armed offensive missiles and strike aircraft capable of destroying ballistic missile bases, launchers, and C3 facilities; and "countervalue" weapons such as WMD-armed missiles and aircraft capable of destroying population centers. Such capabilities would serve to deter potential aggressors from threatening or using both conventionally and WMD-armed ballistic missiles, or to retaliate against a ballistic missile attack and thereby eliminate or severely diminish an aggressor's ability to continue an attack.

Although hawkish politicians and defense strategists occasionally hold out the option, Japan has essentially excluded the possibility of acquiring highly effective offensive capabilities (both conventional and WMD), largely for historical and domestic political reasons.[17] The United States would also likely oppose such capabilities as provocative and potentially destabilizing to the Asia-Pacific region.

Passive Defense Measures

Passive defense measures include all efforts designed to reduce the effectiveness of a ballistic missile attack on Japan, such as civil defense, deception, camouflage, hardening of targets, mobility, redundancy of targets, etc. A sole reliance upon such measures is viewed by many specialists as inadequate, given both the potential size and sophistication of the ballistic missile threat confronting Japan and the potentially adverse effect on citizen morale of reliance on passive measures alone. Because civil defense and hardening would likely prove inadequate against the damage even a small number of WMD-armed ballistic missiles could cause, the absence of any identifiable

[17] See Vogt, p. 3. Moreover, many Japanese are acutely sensitive to the possibility that the use of preemptive, conventionally-armed offensive strikes by Japan against the missile sites of a potential adversary could violate international law and invite international condemnation. Also, a failed preemptive attack could invite the action it sought to prevent and result in an escalation of hostilities. See Ogawa, p. 3.

BMD capability could provoke considerable panic among the Japanese populace should the Japanese islands come under missile attack. On the other hand, passive measures could reduce casualties from such an attack and thus form an effective underlayer to a missile defense system. Hence, whatever measures Japan takes to cope with the ballistic missile threat will likely include some type of ballistic missile defense system.

Active Defense Measures

Active defense measures consist primarily of efforts to intercept and destroy attacking missiles, including all forms of ballistic missile defense. To be successful, active defense measures such as national or theater missile defense systems require outstanding intelligence regarding the missile threat, early warning (EW) and close tracking and cueing capabilities, the ability to distinguish incoming warheads from decoys, an efficient battle management system, a highly integrated command, control, communications, and intelligence (C3I) infrastructure, and interceptors capable of homing in on fast-moving targets and neutralizing them.[18] Japan could theoretically acquire and deploy elements of at least four general types of BMD systems, each with several variations in platforms and technologies:[19]

- Lower-Tier (LT) systems—designed to intercept primarily short-range (less than 1,000 km) ballistic missiles within the atmosphere (endoatmospheric), as well as cruise missiles and aircraft, utilizing relatively slow-flying interceptors that maneuver to their targets. These systems provide "point defense" for small areas. Variations include: (1) Land-Based Patriot PAC-3, intended to target SRBMs in terminal phase and cruise missiles; (2) Medium Extended Air Defense System (MEADS), to target SRBMs in terminal phase and cruise missiles; and (3) Sea-Based Navy Area Defense (also known as NAD), to target SRBMs in terminal phase

[18] Stimson Report, p. 2.

[19] The following discussion is based on CRS Report, Summary, p. 1, and pp. 33–34; Stimson Report, pp. 3–9; Cronin et al., p. 171; and DoD report, p. 4.

and cruise missiles. The latter is intended to complement the NTW system, discussed below.[20]

- Upper-Tier (UT) systems—designed to intercept ballistic missiles with ranges up to 3,500 km, using hit-to-kill interceptors with infrared sensors. These systems are generally intended to help protect relatively large areas when employed in conjunction with PAC-3 or NAD LT point-defense systems, i.e., as part of a "layered" system. Variations include: (1) Theater High-Altitude Area Defense (THAAD) (upper endoatmospheric and exoatmospheric), to target SRBMs, MRBMs, and IRBMs with an apogee of 40+ km (25 miles) in midcourse and terminal phase; and (2) Sea-Based NTW, Block I or II (exoatmosphere), to target SRBMs, MRBMs, and IRBMs with altitudes of 100+ km in ascent or midcourse.[21]
- Boost-Phase Intercept (BPI)—designed to intercept ballistic missiles in the initial (boost phase) part of their flight, while their rocket motors are still burning and before they deploy independently targetable warheads or countermeasures. Such systems provide an early intercept capability requiring rapid detection and forward stationing of interceptors. Variations include: (1) Air-Based Laser (ABL), to target any ballistic missiles within several hundred kilometers of the ABL-equipped aircraft; (2) Space-Based Laser, to target any ballistic missiles within view of a satellite; (3) Air-Based Unmanned Aerial Vehicle (UAV) with interceptor, to target any ballistic missiles within a determined range; and possibly (4) elements of the sea-based NTW system, although to achieve boost-phase intercept the NTW system would have to undergo significant modifications resulting in essentially a brand-new capability.[22]
- National Missile Defense (NMD)—designed to intercept ballistic missiles over a large territory from a variety of origins. The system, proposed by the Clinton administration, was intended to defend national territory against a limited ballistic missile attack from either IRBMs or ICBMs. Variations include: (1) Land-based

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[20]Stimson Report, p. 3.

[21]Stimson Report, p. 7.

[22]CRS Report, p. 10.

> systems, similar to initial or augmented systems planned for the United States, to target ICBMs; (2) sea-based augmented NTW (endoatmospheric) systems, to target MRBMs, IRBMs, and ICBMs at high altitude; and (3) space-based systems similar to those in U.S. research programs, to target ICBMs.[23]

Although there are constraints on some of these options, which will be discussed in detail in Chapter Three, elements of these missile defense systems could theoretically be acquired and operated by Japan independently or in cooperation with the United States. Or they could be part of a larger, integrated missile defense network linking systems in South Korea, Taiwan, and Japan with the United States' EW, communications, battle management, and firing units. In the latter configuration, Japan, South Korea, and Taiwan would of course need to agree to participation in the system, and China would no doubt vehemently oppose Taiwan's involvement.[24]

Given cost, suitability, and other considerations, the most likely type of ballistic missile defense systems ultimately available to Japan, according to many experts, are the following:

- Land-Based Lower Tier, similar to Patriot PAC-3, Configuration Three
- Sea-Based Lower Tier, similar to NAD
- Land-Based Upper Tier, similar to THAAD (THAAD Missile and TMD-Ground-Based Radar)
- Sea-Based Upper Tier, similar to NTW Phase One
- Sea-Based Upper Tier, similar to NTW Phase Two.

The PAC-3 Configuration Three Land-Based Lower Tier system is designed to possess the radar ability to distinguish automatically between heavy warheads and light decoys or debris. It might be able to defend out to several tens of kilometers from the interceptor's launch point. Thus, it will likely possess a good chance of defense against

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[23]CRS Report, p. 10.

[24]Moreover, some transfers might be prohibited by the Missile Technology Control Regime or other agreements such as the ABM Treaty and the Strategic Arms Limitation Talks (SALT) agreement with Russia. See CRS Report, p. 10.

Iraqi-type Scuds with single warheads.[25] The THAAD system is designed to be highly mobile and to possess a "shoot-look-shoot" concept of operations.[26]

Both the upper-tier and lower-tier sea-based BMD systems are based on the evolving capabilities of the AEGIS Weapons System (AWS) and SPY-1B/D radars, which are located on Ticonderoga-class (CGE47) guided-missile cruisers and AEGIS-equipped (DDGE51) guided-missile destroyers. The AWS (also known as the AEGIS Combat System—ACS) is currently deployed on 27 U.S. Navy Ticonderoga-class cruisers and 28 AEGIS-equipped destroyers, as well as four Japan Maritime Self-Defense Force (JMSDF) Kongo-class destroyers. The LT naval system (NAD) is designed to defend small areas against short- to medium-range ballistic missiles, in addition to all aircraft, using the Standard Missile (SM)-2 Block IVA variant.[27] The UT naval system (NTW), currently under development, is being designed to intercept MRBMs and IRBMs using the SM-3, including the LEAP (Lightweight Exoatmospheric Projectile) kill vehicle and other new features beyond the SM-2 Block IV.[28]

The NTW system is not designed to intercept cruise missiles, aircraft, or short-range ballistic missiles that do not leave the atmosphere for any significant period of time because it uses an exoatmospheric kill vehicle that can intercept an incoming warhead only at altitudes above 80–100 km. Given the right placement, a single NTW ship ". . . may be able to defend an area as large as 2,000 km in diameter against a 1,000 km range threat."[29] The NTW program is designed to obtain a Block I capability against MRBMs and a follow-on Block II capability against both MRBMs and IRBMs by 2008 or shortly thereafter, although even these dates may be overly

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[25]O'Hanlon, p. 183.

[26]In 1999, the THAAD program achieved two successful test intercepts after several failures and consequently moved from the demonstration phase into the engineering and manufacturing development phase. Stimson Report, p. 7.

[27]The NAD program is currently in the engineering and manufacturing development phase. It has been delayed by the slower pace of the U.S. Navy's AWS software development effort, not missile development issues. The current projected date for first-unit-equipped (FUE) status is 2003. See Stimson Report, p. 6.

[28]Stimson Report, pp. 5–6, 8.

[29]Stimson Report, p. 8.

optimistic. The Block II variant will focus on defeating threats with ranges over 1,500 km.[30] It will require an upgraded AWS with a new high-power discriminating (HPD) radar, which could be an adjunct to or upgrade of the AEGIS SPY-1B/D radar. The variant also requires development of the capability to achieve allied and joint coordination across a wide range of activities, including air defense, force planning, and coordination of tactical operations.[31]

JAPANESE ACTIONS, CURRENT POLICY, AND NEXT STEPS

Thus far, Japan's response to the challenge posed by the above ballistic missile threats and to U.S. TMD policy has consisted of four sets of activities:

- Internal Japanese governmental and Liberal Democratic Party (LDP) studies, cooperative studies with U.S. nongovernmental entities, and bilateral governmental studies
- Establishment of formal agencies to consult with the United States on BMD issues and to advise the Japanese government
- Limited participation with the U.S. government on collaborative research and prototype production of TMD components
- Decisions on the acquisition of capabilities directly and indirectly related to BMD systems.

Internal Japanese Studies

A joint U.S.-Japan industry study entitled "Western Pacific Missile Defense Architecture Study" (WESTPAC) was launched in 1989. The study, which cost $8 million and took four years to complete, examined the feasibility of defending the Western Pacific and Japan from North Korean ballistic missile attacks during the 2000–2005 period and concluded that the Nodong-1 was the major threat to Japan. It recommended that Japan adopt a satellite-based defense communications network; acquire THAAD as a "first-tier" BMD overlay; and

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[30]Stimson Report, p. 8.

[31]Stimson Report, p. 9.

examine the use of a sea-based BMD system. The study was undertaken by a group of leading Japanese and American defense contractors.[32]

In August 1994, a special advisory panel (the Higuchi Panel) was convened and charged with drafting a security policy vision for the 21st century. Then–Prime Minister Tomiichi Murayama submitted the report. It included a recommendation that Japan cooperate with the United States to develop and deploy a BMD system to counter a "limited missile attack including from North Korea and China." The report also recommended that Japan develop military reconnaissance satellites.[33]

A Government of Japan (GOJ)-led U.S.-Japan Bilateral Study on Ballistic Missile Defense was agreed upon in September 1994 and initiated in January 1995. The study provided extensive simulation and systems analysis to identify and evaluate various alternative missile defense architectures. The results, produced in 1997 and discussed in greater detail in Chapter Three, led to the identification of specific Japanese BMD-related technologies associated with the U.S. Navy Theater-Wide TMD program that would enhance U.S. TMD systems development.[34]

In August 1995, the Japanese Defense Agency (JDA) issued a report entitled "On Research Concerning Ballistic Missile Defense." This report argued in favor of ballistic missile defenses and stressed Japan's limited ability to address the ballistic missile threat because of the deficiencies of both the PAC-2 systems then under acquisition and Japan's existing command and control system. The report's findings prompted the JDA to call for several studies of relevant technologies and systems, including satellite-linked sensor systems, a more capable weapons system, and a highly integrated C3I system.[35]

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[32]*Theater Missile Defense (TMD) in Northeast Asia: An Annotated Chronology, 1990-Present*, by the East Asia Nonproliferation Project, Center for Nonproliferation Studies, Monterey, CA (hereafter, TMD Chronology).

[33]TMD Chronology. See also Green, *Arming Japan,* pp. 147–148.

[34]DoD Report, p. 6. Correspondence with General Noboru Yamaguchi, Defense and Military Attaché, Embassy of Japan, Washington, D.C.

[35]TMD Chronology. According to at least one informed observer, the prime minister's office and the foreign ministry both privately approved the JDA report's basic as-

Subsequently, in December 1995, the Mid-Term Defense Program (MTDP) for FY 1996–2000 stated that the government of Japan would conduct extensive research on ballistic missile defense and would come to a conclusion by the end of the MTDP. This resulted in a three-year-long, internal JDA comprehensive research project on Japan's future air defense system, including ballistic missile defense. One of the major objectives of this research was to answer a set of questions as to whether BMD is technologically feasible and financially affordable. While this internal JDA study was being conducted, the Japanese government stated—in the Japan-United States Joint Security Declaration of April 1996—that it recognized that the proliferation of WMD and their means of delivery posed implications for U.S. and Japanese security, and pledged to work with Washington to prevent proliferation and to continue cooperating in the ongoing study of BMD.[36]

A report entitled "The Joint Declaration and Future National Security" was issued by the Policy Affairs Research Council of the LDP on April 18, 1997. This report indicated that discussion of BMD had progressed to the point where the LDP could recommend a "systemic approach in response to missile deployment by countries surrounding Japan," to include "more active joint studies on the TMD project with the United States."[37]

The above-mentioned three-year-long internal JDA report on the overall feasibility of BMD for Japan was completed in 1998. The report examined the requirements for a combined UT and LT land and naval BMD system designed to intercept tens of North Korean IRBMs with ranges below 2,000 kilometers at 80 percent effectiveness. It concluded that the protection of Japan by a limited BMD system was, in the words of one interviewee, "both technically feasible and marginally affordable." It estimated that such a system would cost approximately 2 trillion yen or $20 billion (equal to approximately 0.34 percent of Japan's GDP and 40 percent of Japan's annual de-

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sessment that some form of ballistic missile defense was needed by Japan. The JDA has made a statement and the prime minister's office and the foreign ministry have agreed, but not publicly, that BMD is needed.

[36]Briefing by General Noboru Yamaguchi, "Japanese Government's View on Ballistic Missile Defense: Current Status and Background," no date.

[37]Cambone, p. 82, footnote 16.

fense budget) and could be acquired over a period of 15–20 years through joint development with the United States and off-the-shelf technology. Although the report was critical of the THAAD system and largely focused on Patriot and NTW systems, it did not recommend or reject any specific BMD architecture.[38]

Formal Agencies

Two major Japanese organizations have so far been specifically created to examine the BMD issue:

- A joint U.S.-Japan TMD Working Group (TMD WG) under the Security Subcommittee, Security Consultative Committee (SSC-SCC),[39] was established in December 1993 following the North Korean firing of a Nodong missile into the Sea of Japan in May of that year. The TMD WG is chaired by four individuals, including representatives of the U.S. Asia-Pacific Affairs section of the Office of the Secretary of Defense, the U.S. Ballistic Missile Defense Organization (BMDO), the Japanese foreign ministry, and the JDA. The TMD WG was ostensibly formed to provide a forum for regular discussion of TMD and TMD-related matters such as regional political implications and treaty compliance.[40] However, in reality, the group has focused primarily on technical issues and conducted very few discussions of the political and strategic aspects relating to Japanese acquisition of BMD systems.[41]
- The Office of Ballistic Missile Defense Research (BMDR) in the JDA was established in April 1995 to work with the U.S. BMDO and the U.S. Pacific Command to determine the threat posed by ballistic missiles such as North Korea's Nodong-1, and to assist the GOJ in deciding whether or not to cooperate with the United States on TMD development.

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[38]Interview, Tokyo, June 1999.

[39]The U.S.-Japan Security Consultative Committee consists of the U.S. secretaries of state and defense and the Japanese minister of foreign affairs and the director-general of the JDA.

[40]DoD Report, p. 6.

[41]Interviews, Tokyo, June 1999.

Based on data provided through the TMD WG, as well as on JMSDF and Japanese industry views, the JDA had concluded internally by 1997 that the most logical area for U.S.-Japan bilateral technical TMD cooperation would be in the NTW program. The NTW program was reportedly preferred because the Japanese Self-Defense Forces (JSDF) already had the required platforms (in the form of AEGIS-equipped destroyers), the NTW program was still immature enough to allow Japanese industry involvement, the THAAD program presented significant obstacles (discussed below), and both the U.S. Navy and the JMSDF, along with Japanese shipbuilding interests, had pressed hard for acceptance of the NTW program.[42]

In addition to the two organizations mentioned above, the JDA and the Ministry of Economy, Trade and Industry (METI) in August 2000 established a Study Group on the Defense Technology Base (*Boei Gijutsu Kentokai*), chaired by Tokai University professor Hajime Karatsu, a leading proponent of maintaining a strong indigenous defense industrial base. The purpose of the study group is to improve the efficiency and strategic approach of the defense budget process underlying the MTDP by more effectively evaluating, with input from Japanese industry, the costs of purchasing or indigenously developing sophisticated and expensive military-related systems. The committee has placed a priority on two specific areas: air platforms (such as the P-3C ASW aircraft and the C-1 transport) and C3I- and information technology (IT)–related systems. According to a knowledgeable Japanese observer, the latter includes elements of direct relevance to the electronics and communications components of a BMD system. The need for this type of collaborative group reflects the increasing pressure on the defense budgetary process resulting from shrinking defense budgets and the high and increasing costs involved in developing and procuring advanced weapons systems. Although not exclusively oriented toward the BMD program, this organization reportedly will facilitate the Japanese government's efforts to evaluate the costs of critical elements of a BMD system and to allocate those costs among the services and programs of the self-defense forces.

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[42]Cronin et al., p. 173.

U.S.-Japanese Research Cooperation

A formal decision on research-oriented participation in the NTW program had been expected by the summer of 1998 because of the public disclosure of the above-mentioned internal JDA study, which identified specific Japanese BMD-related technologies associated with the U.S. Navy Theater Wide TMD program. The decision was postponed indefinitely at that time because of a lack of consensus in Japan, as well as pressure from China. As indicated above, support for participation (as well as for the development of indigenous information-gathering satellites) among politicians, the media, and the general public increased significantly as a result of the launch of the North Korean Taepodong-1 missile in August 1998.[43] In September 1998, both houses of the Japanese Diet passed a unanimous resolution condemning the North Korean missile launch and stating that the GOJ should undertake every possible means to secure the safety of the population.

The immediate beneficiaries of this changed mood were the longtime proponents of Japan's acquisition of surveillance satellites. Bolstered by media reports that the slow response of the Japanese government to the missile launch was due in large part to the U.S. failure to share satellite tracking information in a timely fashion, the Japanese government drafted a tentative plan in October 1998 for the introduction of information-gathering satellites. In December 1998, after a Diet debate that centered on the need for Japan to have its own source of reconnaissance data, Japan decided to produce and deploy optical reconnaissance satellites.

The Taepodong-1 launch also created an atmosphere conducive to a more open discussion in the Diet about BMD—in particular, about joint technical research on the system with the United States. Although the Socialist and Communist parties were opposed, and certain members of the Komeito and Democratic Party expressed varying degrees of reservation (even opposition), funding for collaborative research with the United States on the NTW system was finally included in the Defense Agency's budget for 1999. In August

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[43]CRS Report, p. 18; Green and Dalton, p. 17.

1999, a formal Memorandum of Understanding (MOU) was signed with Washington.

According to this MOU, Japan agreed to conduct research on and produce prototypes of four components of the NTW system relating to the NTW interceptor, the Standard Missile SM-3 Block II missile: (1) the lightweight nose cone; (2) the second-stage propulsion system; (3) the advanced missile sensor (infrared seeker); and (4) the advanced kinetic warhead. Japan committed approximately $9 million to fund the first year (1999) of this joint effort, and the JDA submitted a preliminary budget request of almost $20 million for the second year.[44] According to the JDA, Japan plans to spend approximately 20–30 billion yen (approximately $200–$300 million) over five to six years to fund this technology research effort up to the demonstration and evaluation stages.

From the Japanese perspective, this agreement commits Japan only to a limited program of research and prototype production, not to the development, production, or deployment of any BMD systems—either independently or in collaboration with the United States. The Japanese government makes a clear distinction between the current research phase, the development phase, and the production/deployment phase of weapons development. Hence, Japan's entrance into each phase will likely require a separate decision. Time and again during the debate over joint research, Japanese government officials testified before the Diet that development and deployment were not the issues being debated or decided. Those decisions, they insisted, would be made in 6–7 years; at that time issues such as technical feasibility, cost effectiveness, and Japan's defense needs would be taken into consideration. The United States, however, generally links research and development, and the point of separation of the two falls well within the weapon development stage as defined by the Department of Defense.[45]

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[44]CRS Report, p. 18; Green and Dalton, p. 17.

[45]Stimson Report, p. 63.

Acquisition Decisions

The most significant TMD-related acquisitions thus far include the following:

PAC-2. In 1991, Japan decided to acquire Patriot air defense (PAC-2) systems, followed by a decision in 1995 to acquire 24 enhanced PAC-2 (so-called PAC-2 plus) fire units to protect military installations and urban areas against missile attacks. The Japan Air Self-Defense Force (JASDF) began receiving these units in 1998. They were organized into six battalions, one to each of the JASDF's six air defense missile groups.[46] Moreover, the JDA has subsequently decided to further upgrade these existing fire units to incorporate more recent improvements in both battle management/C3I and the PAC-2 plus interceptor. However, the PAC-2 plus system reportedly has no significant capability against ballistic missiles with high reentry speeds—the sort of missiles that threaten Japan.[47] At the same time, the system provides a foundation upon which more capable lower-tier, land-based BMD systems (such as PAC-3) can be built. The JDA reportedly wants eventually to upgrade the PAC-2 plus system to employ the PAC-3 Configuration Three "hit-to-kill" missile as part of Japan's MTDP for 2001–2005. However, no such major upgrade decision has been taken by the GOJ as of late 2000.

The JMSDF also wants to procure two additional Kongo-class AEGIS-equipped destroyers over the next mid-term defense program (2001–2005). This would bring the total number of AEGIS ships to six. Several of these naval platforms would provide the foundation for Japanese NAD and/or NTW systems, if the government of Japan decides to acquire such systems.[48]

Reconnaissance Satellites. In November 1998, the GOJ approved the development of Japan's first satellite reconnaissance system, as indicated above. This move, though not directly related to BMD at present, demonstrates that strong political support exists for developing Japan's satellite-based early warning capabilities. Japan plans to

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[46]Stimson Report, pp. 5, 62. Page 5 cites the Vogt article and interviews with JDA officials. Also see Green and Dalton, p. 15.

[47]Vogt, cited in Stimson Report, p. 5.

[48]Stimson Report, p. 62.

launch four satellites by the year 2003—two equipped with radar and two equipped with electro-optical capabilities—for multipurpose information gathering and observation. The GOJ estimates that the total cost of these satellites will be approximately $1.7–$2 billion, but some outside observers believe this estimate is extremely low.[49] According to Japanese interviewees, this satellite reconnaissance system as currently envisioned could potentially be used to detect changes in the size and scope of military threats but could not detect the launch of ballistic missiles.[50] Most observers agree that a ballistic missile early warning satellite would be considered a military use of space and thus would violate the Diet resolution prohibiting such use. Furthermore, these satellites will be under civilian government control, and the JDA will be just one of the potential users.

Because the satellites were placed under civilian control and designed to be multipurpose rather than purely military, system acquisition was delinked from cooperation with the United States on BMD. This provided a way around confrontational debates on whether or not a ballistic missile early warning system—a key component of a BMD system—would violate either the Diet resolution or the constitutional prohibition against collective defense.

Infrared Sensors. Japan is reportedly modifying its existing infrared sensors to acquire some capability to detect and track ballistic missiles. But these efforts will apparently not adequately address the requirements of sophisticated BMD systems.

Taken as a whole, the above developments suggest that Tokyo has undertaken fairly extensive architecture and technical feasibility studies of BMD systems (with U.S. assistance) and has created formal organizations to support such activities. However, it has so far undertaken no effort to develop or acquire dedicated BMD systems of any kind; nor has it implemented passive defense measures such as civil defense or hardening; nor, according to our research, has it

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[49]TMD Chronology. The funding for these satellites reportedly will come from outside the Japanese defense budget.

[50]This is because the satellites reportedly will not possess an infrared sensor capability, which is necessary to detect ballistic missile launches. The Chinese nonetheless fear that Japan intends to eventually install infrared sensors on these satellites, thus presumably signaling Tokyo's desire to employ them as part of a TMD early warning system.

assessed in any thorough or systematic manner the larger political and strategic implications of a Japanese BMD system.[51] Japan is participating with the United States only in a limited program of collaborative research and prototype production for one component of the NTW system.

Although Tokyo is giving priority consideration to eventually acquiring both Patriot PAC-3 fire units and the NTW system for a layered defense against ballistic missiles, and is evaluating the costs of potential BMD-related electronics components, no formal decision has been made to acquire such LT and UT BMD capabilities. In fact, the Japanese government, from the prime minister on down, has made clear public statements that the decision to proceed with joint research is not linked to decisions either to develop or to deploy. These decisions will require full consideration of technical feasibility, the cost effectiveness of the systems, and Japan's future defense needs.[52] Deployed active defense systems so far consist only of a small number of PAC-2 fire units—which have an extremely limited capability against ballistic missile threats.

Moreover, to our knowledge, the Japanese government has yet to undertake any serious study of either C3I or jointness requirements for integrating future U.S. and Japanese BMD systems, including research in those essential software areas required for the development of a complete BMD system, such as system integration. Also, Japan presently has no concrete plans to acquire an independent early warning capability beyond what is provided by its AEGIS platforms and the JDA's BADGE (Basic Air Defense Ground Environment) air defense battle management system (more on this point below). Finally, discussion in the Diet on many critical issues associated with TMD discussed in Chapter Three (e.g., legal, domestic political, and

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[51] One knowledgeable reader of a draft version of this report believes that Japanese government agencies and/or nongovernment advisory or research bodies are almost certainly conducting such assessments on a highly secretive basis. This is no doubt possible. But our research did not unearth evidence of such assessments, despite considerable efforts, and several knowledgeable interviewees insisted that such assessments have not been undertaken as of late 2000.

[52] Testimony of Defense Agency Head Hosei Norota before the Lower House Budget Committee, February 1, 1999. Testimony by Foreign Minister Takemura Masayoshi and Prime Minister Keizo Obuchi before the Upper House Budget Committee, March 17, 1999.

international aspects) has been perfunctory. Government officials have deferred answering some of the more serious questions raised by opposition lawmakers until Japan actually confronts the question of whether or not to go forward with production, procurement, and deployment.

In short, Japan is officially committed at present only to an initial phase of study and joint research on UT-related components and the limited acquisition of LT-related systems. Moreover, these decisions and activities have been undertaken largely in response to public concerns that the GOJ was doing relatively little to cope with a growing missile threat from North Korea, and to express support for the U.S. BMD effort. Even though the prime minister's office and the foreign ministry have reportedly at times expressed their support for moving forward on BMD in private, no thorough discussion has been undertaken or agreements reached, either publicly or privately, on whether and how to proceed with BMD development, procurement, and deployment.[53]

Decisions or actions in these three areas will likely require a greater level of political consensus among many actors on a wide range of controversial issues: the effect of BMD decisions on the U.S.-Japan alliance; financial and legal constraints; the technical and military feasibility of the BMD concept; internal military and bureaucratic rivalries; and the reactions of China and other countries in the Asia-Pacific region. In short, the most significant and difficult decisions regarding BMD for Japan have yet to be made.

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[53]Interviews, Tokyo, June 1999.