

Chapter VI

Alternatives to NMD

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Previous chapters have made two broad points: that the currently envisioned NMD system would encounter serious technical, political and strategic problems defending against actors armed with long-range ballistic missile systems; and that NMD would be irrelevant against actors with short-range ballistic or cruise missiles or against those employing non-missile delivery systems.

This chapter lays out an alternative approach to protecting the United States from both the threat of long-range missile attack and the broader spectrum of potential threats to security from identifiable and non-identifiable actors.

Alternatives to NMD

This alternative approach is based on preserving and strengthening the existing web of military, political, economic and legal measures designed to prohibit, impede, isolate, expose and respond to the activities of potentially hostile state and non-state actors. While none of the individual elements of this alternative approach constitutes in itself a definitive response to all potential challenges, their interaction creates a significant barrier to a multi-faceted threat. Most importantly, compared to NMD, this alternative approach would be less destabilizing, less costly, and no less permeable.

Deterrence

The value of deterrence in heading off threats to U.S. security should not be underestimated. Despite its critics, and predictions about its imminent demise, there is no indication that deterrence (the threat of devastating retaliation) has lost its role as a primary factor in restraining identifiable adversaries from WMD use. As a matter of fact, all the evidence of the nuclear age indicates just the contrary.

Box 6.a**What About Undeterrables?**

It is sometimes claimed that some civilian or military leaders are irrational or undeterrable, presumably because they are motivated by a deep ideological hatred of the U.S. There is however, little evidence to support this proposition.

The fact that we may not agree with other governments or fail to understand their reasoning does not mean that the leaders of these governments are suicidal or incapable of understanding that the consequences of attacking the U.S. would outweigh any benefit they could hope to gain by such attacks.

Indeed, upon closer inspection we often find that the supposedly “irrational” or even threatening acts of other governments are in fact carefully calculated actions that are understandable and rational when viewed from their perspective. As long as we understand what motivates potential adversaries – and survival is certainly one motive – there is no reason we cannot deter them from using WMD against the United States.

The main caveat as regards the operation of deterrence is the requirement for an identifiable state actor to deter (or retaliate against). Deterrence may not work against an anonymous terrorist who chooses to hand-deliver a weapon, but neither would NMD. —SF & JM

While we may not be able to prevent or dissuade certain countries from acquiring long-range missiles, if these countries or any other country contemplated the use of missile-delivered WMD against the United States, they would have to consider the U.S. reaction to such an attack. The United States is by far the

world's strongest military power and its strength is reinforced by alliances with nations around the world. An attack on the territory of the United States, especially one involving WMD and resulting in substantial loss of life, could be expected to trigger the strongest possible response. It is difficult to imagine a situation in which civilian and military leaders would run the risk of triggering a massive U.S. conventional or, depending on the nature of the attack, nuclear response. As long as the actor is identifiable (and long-range ballistic missiles have a return address), and has equities that can be held at risk, deterrence will remain a powerful dissuader.

Arms Control

The power of negotiated barriers to the growth of the threat should also not be underestimated. The history of the nuclear age has shown clearly that the United States may be able to negotiate to eliminate, constrain or reduce "the threat" through arms control. The role of multi- and bilateral arms control in constraining the threat is five-fold. First, negotiated arms control agreements *delimit* the threat. With the NPT in force, for example, the international community knows:

- Which nations are declared nuclear powers (five – China, France, the U.K., the U.S., and Russia),
- Which are free of the Treaty's constraints (four – Cuba, India, Israel and Pakistan), and
- That, with the exception of three or four "backsliders," the balance of the world's nations are not seeking nuclear weapons.

Secondly, negotiated arms control agreements can actually *eliminate* major portions of the threat. The 1987 INF Treaty between the United States and the Soviet Union eliminated an entire class of weapons that threatened our allies and forces in Europe. When fully implemented, the chemical weapons convention (CWC) will eliminate all chemical weapons and stockpiles.

Treaties establishing nuclear-weapons free zones (NWFZ) in most of the land area of the Southern Hemisphere have also helped to eliminate threats. These NWFZ treaties reassure the roughly 110 states-parties to those agreements that their neighbors are not, and do not intend to become, nuclear weapons possessor or basing states. It was against the background of a NWFZ in Latin America that Brazil and Argentina agreed to negotiate among themselves an end to their (unacknowledged) nuclear weapons programs and, in the process, enhance their own security as well as that of the region.

Third, negotiated arms control agreements *impede* the development or spread of the threat. There may well be states which seek to circumvent the restrictions of an agreement, but a universal ban on the proliferation of certain arms, such as nuclear, chemical or biological weapons, enormously complicates the pursuit of these systems by potential violators. For example, Iraq's nuclear weapons program was drawn out by its need to dissimulate efforts to acquire the requisite technology.

Fourth, negotiated arms control agreements have made the world increasingly *transparent*. The arsenal of monitoring tools is impressive – national and international technical means, commercial observation satellites, voluntary and obligatory data exchanges, on-site-inspection, human intelligence, and CNN. This growth in transparency, a great deal of it brought about by arms control agreements, enables the United States and other nations of the world to track with considerably more confidence military and technological activities of potential concern. It also makes it more difficult for potential violators to carry out clandestine programs or evade their legal obligations.

Finally, arms control agreements create pressure on nations to conform to an international *norm*. The agreements also establish a legitimate basis for response and/or intervention in the event of a treaty violation. Normative pressure was key, for example, in bringing South Africa to its decision to denuclearize, join the NPT and open its facilities to international inspection. The international norm against the proliferation of nuclear weapons also served as a rallying point for the world community to

oppose North Korea's effort to leave the NPT in 1993. In addition, a widely accepted set of international norms established by the NPT, CWC and the Biological and Toxin Weapons Convention (BTWC) was key in bringing the international community to agree to denuclearization of Iraq after the Gulf War.

Box 6.b

NMD and Accidental or Unauthorized Launch

Supporters of NMD claim that it would also be useful in protecting the United States against an accidental or unauthorized launch by a major nuclear power. The CIA and the U.S. Strategic Command, however, believe that an accidental or unauthorized launch is extremely unlikely. According to the CIA, "Russia employs an extensive array of technical and procedural safeguards [on its nuclear weapons] and China keeps its missiles unfueled and without warheads mated."

Some proponents of NMD argue, with some justification, that Russian early-warning and command-and-control capabilities are fragile. They believe that NMD would be an important insurance policy against an unauthorized launch. The problem is, of course, that it is impossible to predict how large an unauthorized launch might be.

The most likely scenario – a launch prompted by a false warning on Russian radars and ordered by the commander of ground-based missile forces (possibly without consulting the political leadership) – would involve hundreds or even thousands of warheads. NMD would afford no protection at all against an attack of that size.

The United States and Russia have begun to take steps to address the danger of a misreading by the Russian early warning system by arranging to share information of worldwide ballistic missile launches (see Chapter V). Additional measures to ensure against unauthorized launches might include installing cameras or acoustic or seismic sensors in missile fields. Officer exchanges (or "shadow" visits) might be used to provide reassurance that surprise attacks are not being planned or practiced. In addition, the two countries could work together to analyze vulnerabilities and increase security against insider threats. It is far more effective and efficient to prevent weapons from being stolen or launched in error than to try to shoot them down after they are launched. Finally, the United States and Russia could continue to reduce the size of their strategic nuclear arsenals and consider retiring their most vulnerable forces.

In principle, the United States and Russia should try to institute all of the above measures. In reality, however, deploying an NMD system is likely to close off such avenues of cooperation for the foreseeable future.

—SF & JM

Economic Incentives

Various economic measures can give countries powerful incentives to voluntarily abandon or curtail their weapons programs or deployments. Some might consider "incentives" a euphemism for "bribery" but, if the threat is considered grave enough and the opportunity presents itself, there should be no hesitation to "buy out" the nuclear or missile programs of potential adversaries. Overall, economic incentives to induce countries not to develop or transfer missiles or warheads are likely to be vastly cheaper and more effective than building a system to shoot them down after they are launched.

In any case, the United States has a long history of attempting to modify the interests of other states through economic incentives and disincentives. An excellent example of the "incentives" approach is the January 1994 Tri-lateral Agreement among the United States, Russia and Ukraine which led to the denuclearization of Ukraine in exchange for nuclear fuel rods from Russia (which received a U.S. advance on sales of highly-enriched uranium (HEU) derived from the warheads). Another "incentives" success also occurred in 1994 when North Korea agreed to freeze and ultimately terminate its plutonium production and reprocessing programs in exchange for proliferation-resistant nuclear power reactors.

The record seems to indicate that other North Korean activities of U.S. concern are negotiable. In September 1999, after discussions in Berlin with former Secretary of Defense William Perry, North Korea agreed to curtail its missile program in exchange for the partial lifting of economic sanctions and the normalization of diplomatic relations. North Korea has also indicated on several occasions its willingness to end missile exports in exchange for aid. Similar “incentives” could be useful in curtailing threatening missile programs in other potentially hostile states.

Cooperative Programs

Cooperative programs and policies, such as security assurances, can also help restrain potential proliferators. U.S. security relationships have long been considered a key element in dampening the desire for nuclear weapons in technologically advanced countries like Germany and Japan. U.S. security assurances, together with those of the U.K., France and Russia, were a key element – together with the economic incentives discussed above -- in convincing Ukraine in 1994 to agree to relinquish its stockpile of Soviet nuclear warheads.

With the important exception of Russia and China, nuclear weapons and missile delivery programs have been pursued by states in response to perceived regional security concerns or to gain national prestige and not in order to attack or deter the United States. The primary military purpose for the nuclear programs of India, Israel, Pakistan, South Africa, Brazil and Argentina, was to threaten regional rivals. And it was concern over the policies of a post-Soviet Russia that drove Ukraine to consider retaining the nuclear arsenal left behind on its soil after the collapse of the Soviet Union.

Cooperative programs and policies will not be appropriate in all cases. In part, the nuclear weapons (and missile delivery) programs of North Korea, Iraq, and possibly Iran (although the threat from Iraq was certainly a big factor), can be attributed to a desire to fend off U.S. interference. On the other hand, there have been many occasions when cooperative programs have made a difference in constraining the growth of the WMD and missile threat.

Export Controls

Export controls have slowed proliferation substantially over the last several decades, reducing to a handful the number of countries that might acquire WMD and long-range missiles. Export controls deter countries from acquiring nuclear weapons or attempting to build missiles and buy time against those that try. In Brazil and Argentina, for example, export controls hindered the development of long-range missiles and nuclear weapons, allowing time for civilian governments to come to power and end those weapons programs.

The NPT, CWC and BTWC, for example, have both formal and informal limits on suppliers and lists of banned or restricted exports. These arrangements make the pursuit of these weapons by a potential violator a costly, difficult and time-consuming process. These agreements also oblige the establishment of domestic legislation to criminalize activities which are banned at the international level (see Box 6.c).

The centerpiece of efforts to prevent the acquisition of missile technology is the MTCR. It is a voluntary arrangement among countries to control the export of missiles and missile technologies, components and production facilities. The regime began in the 1987 with only seven members. Today, 29 countries are members and a number of additional states have promised to adhere to the MTCR guidelines (which prevent the transfer of missiles and space launch vehicles (SLVs) capable of delivering a 500 kg payload to a range of at least 300 km).

A variety of other measures form critical links in the global effort to limit the supply of WMD technologies and missiles. For example, countries around the world seek to follow International Atomic Energy Agency recommendations specifying security measures to prevent potential bomb-making material from being stolen – and the United States is actively working to strengthen international cooperation in that area. In the former Soviet Union in particular, the collapse of the Soviet state drastically undermined controls over nuclear material, along with restraints on the export of sensitive technologies. The United States is working closely with Russia and other states of the former Soviet Union to improve security for sensitive material and strengthen export controls – efforts which represent some of the most cost-effective investments in security to be found anywhere in the U.S. budget.

Box 6.c

The Criminalization of Chem-Bio Weapons Use by Individuals

“Recently, interest has developed in the possibility of a convention to create international law that would hold individuals criminally responsible for acts that are prohibited to states by the biological and chemical weapons conventions. Such a convention, which would be patterned on existing conventions that criminalize aircraft hijacking, nuclear theft, and other crimes that pose a threat to all, would make it an offense for any person, regardless of official position, to order, direct or knowingly render substantial assistance to the development, production, acquisition or use of biological or chemical weapons. A person who commits any of the prohibited acts anywhere would face the risk of prosecution or of extradition should that person be found in a state that supports the proposed convention.

International law that would hold individuals criminally responsible would create a new dimension of constraint against biological and chemical weapons. Such individuals would be regarded as *hostes humani generis* – enemies of all humanity. The norm against chemical and biological weapons would be strengthened; deterrence of potential offenders, both official and unofficial, would be enhanced; and international cooperation in suppressing the prohibited activities would be facilitated.”

Matthew Meselson, “The Problem of Biological Weapons,” Bulletin of the American Academy of Arts and Sciences, vol. 52, no. 5 (1999), p. 57.

Redoubling those efforts to control nuclear materials, and thereby keeping the essential ingredients of nuclear weapons out of the hands of proliferating states and terrorist groups in the first place, represents a far more cost-effective approach to defending the United States than attempting to intercept them after they have already been made into nuclear weapons on the tips of long-range missiles flying through the air toward the United States. Similar cooperative programs are helping to dismantle and destroy long-range missiles in the former Soviet Union, further reducing the missile threat to the United States. The most effective way to render a ballistic missile “impotent and obsolete” is with a screwdriver.

Preemption

If deterrence, diplomacy or other alternative approaches to dealing with the threat appear about to fail, the United States can try to destroy threatening facilities or missiles and their launchers before they can be used. This is an “ultimate sanction” which remains in the unspoken background of potential responses. The political analogue to preemption is coercive or covert regime change.²⁹

²⁹ On Dec. 18, 1998 Secretary of State Madeleine Albright stated on CNN that “our policy is to try to contain Saddam Hussein and the threat of weapons of mass destruction. But we also believe that the Iraqi people need a government that is more representative of them, and *we are talking about regime change* and working with a variety of opposition groups to try for them to help themselves to have a government that is representative and that would abide by the Security Council.” [Emphasis added]

A preemptive strike with conventional weapons or bombs might be able to eliminate a genuine threat to U.S. national security, particularly when such a threat emanates from an identifiable adversary with targetable delivery systems. The fear of such an attack also serves as a deterrent to potential adversaries. There are, however, several important drawbacks to a preemption strategy.

The first is that destroying facilities or missiles before launch is an act of war and would cast the United States as an aggressor. As a result, if the United States were not already at war, or if the threat did not involve an adversary suspected of possessing WMD, there could be strong inhibitions against firing the first shot. It should be noted, however, that these inhibitions did not keep the United States from attacking Sudan and Afghanistan in 1998. Second, after preemption, it might be difficult to convince other countries that the United States was acting in self-defense against an imminent attack. If the United States were perceived as “trigger happy,” it might eventually find it difficult to rally international support or create “coalitions of the willing” to restrain other threats in the future. Third, the United States could act mistakenly as, apparently, was the case in the attack on the Sudanese chemical weapons facility noted above. This, too, would ultimately damage U.S. credibility and hamper U.S. efforts to respond – or to rally others to our side to reply – to subsequent threats.

Finally, the United States may not be able to find and destroy suspect facilities or missiles or their launchers. Long-range missiles that might threaten U.S. cities from bases in North Korea or Iran would likely be large, fixed targets and preemption might be reasonably effective against them. But it is more likely that threats to the United States will be generated in clandestine facilities or will come from shorter range or mobile delivery systems which can be hidden, moved and launched rapidly from undistinguishable locations.

Civil Defense

The final element of this alternative approach is for the United States to maintain the best possible emergency response teams and civil defense capabilities to minimize the loss of life in case efforts fail to deter, constrain or prevent the acquisition of WMD or the launch of missiles by a potential adversary. The effectiveness of civil defense depends primarily on the type of weapons used and the degree of planning and training that has been devoted to protecting urban populations from these weapons.

Against conventional warheads, the experiences of World War II and the Gulf War suggest that the simplest civil defense measures – moving to basements, metro systems or the center of buildings on warning of an attack – can reduce casualties by roughly 50-percent. At the other end of the spectrum of destruction, there is no effective civil defense against nuclear weapons short of evacuation, which would be possible only in the unlikely event that there was ample warning of an attack against a particular city.

In contrast to conventional explosives and nuclear weapons, both of which destroy by blast and fire although on vastly different scales, civil defense against chemical and biological weapons is relatively straightforward and effective. Gas masks provide excellent protection against all but the highest concentrations of a chemical agent. With some training of the population and warning of an attack, masks could reduce civilian casualties by up to 90-percent. Although a program to distribute masks might cost billions of dollars, the total cost would be less than that of the proposed NMD system, and far more effective – particularly against submunitions (see Chapter II).

In the case of biological weapons, medical treatment and vaccines could also reduce casualties. The U.S. health care system is the largest in the world, absorbing four times as much money as the military budget. This system, coupled with fire-fighting and other emergency response services, police, federal and local

governments, the Centers for Disease Control (CDC) and the military should be able to significantly mitigate a biological weapons calamity.³⁰

An additional factor mitigating the bio-weapons threat is that pathogens are extremely difficult to weaponize and to disseminate. Most pathogens cannot survive sunlight, some must be in a particular size aerosol form to be effective and others are susceptible to destruction by the heat generated during their own delivery.³¹ While an actual bio-weapon threat delivered by ballistic missile cannot be ruled out, the assault is more likely to take the form of on-site delivery by an unidentified actor than a long-range attack by a known adversary.³²

The biggest impediment to effective civil defense against chem-bio weapons, however, would probably be political rather than technical in nature. While the implementation of useful civil defense programs should be relatively straightforward, the history of civil defense precautions against nuclear attack gives good reason to question whether the United States could carry out a serious program.

Conclusion

There exists a valid, viable and more effective alternative to NMD for dealing with the potential WMD-ballistic missile threat. This alternative consists of strengthening the interlocking and complementary barriers to WMD and missile proliferation created by deterrence, arms control (including transparency measures), economic incentives, cooperative programs, export controls, preemption and civil defense. Together, these various responses create a very powerful impediment to an identifiable WMD and long-range missile threat to the United States if or as one eventuates.

This alternative has three quite significant advantages over NMD. First, unlike NMD, the component parts of this alternative approach are already in place, have a record of success, and benefit from large-scale international political, financial and technical participation. Second, unlike NMD, elements of the alternative approach – such as transparency measures, civil defense and criminalization – are applicable against a broad spectrum of threats, including non-identifiable actors and short-range delivery systems. NMD, on the other hand, responds only to a specific – and the most unlikely threat – to U.S. security. Third, again unlike NMD, most – although not all – of the component parts of this alternative approach are mutually reinforcing and viewed as legitimate efforts to strengthen global security.

There are, in sum, excellent alternatives to NMD for protecting the United States from potential threats. These alternatives enjoy wide-spread support, have enhanced the security of the United States and other nations and should be vigorously pursued. The U.S. NMD program, on the other hand, is viewed by many governments, both friendly and critical, as a retreat by the United States from international efforts to constrain the threat of proliferation, as undercutting arms and export control agreements and as disrupting key strategic relationships. The generally negative reaction to NMD deployment (and concern about the ensuing violation of the ABM Treaty) jeopardizes vital support for many of the alternatives for dealing cooperatively with the threat of ballistic missiles and WMD and weakens existing, carefully constructed barriers to proliferation

³⁰ See M.F. Perutz, "The Threat of Biological Weapons," in *The New York Review of Books*, April 12, 2000.

³¹ As one university professor put it, "I am a trained biochemist and have written on biological warfare for 30 years, but I would have no idea how to build a biological weapon." *Washington Post*, April 2, 2000, p. A20.

³² The proponents of NMD are divided over this issue. In the Spring 2000 *Foreign Policy* (p. 196) Sen. Thad Cochran (R-Miss.) writes, "[T]he critics say our system 'cannot defend against ICBMs carrying biological or chemical agents packaged in submunitions.'" There is no evidence in the intelligence estimates cited by the concerned scientists that any rogue states are developing such a capability or that they could do so anytime soon." According to the Rumsfeld Commission, however, "All of the nations whose programs we examined that are developing long-range ballistic missiles have the option to arm these, as well as their shorter range systems, with biological or chemical weapons. These weapons can take the form of bomblets as well as a single large warhead."