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**Missile defense for America: Third World proliferation  
challenges and United States national security policy**

**Rolfs, David Wayne, M.A.**

**Regent University, 1994**

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MISSILE DEFENSE FOR AMERICA: THIRD WORLD PROLIFERATION  
CHALLENGES AND UNITED STATES NATIONAL SECURITY POLICY

By

DAVID ROLFS  
B.A., UNIVERSITY OF WISCONSIN-WHITEWATER, 1991

THESIS

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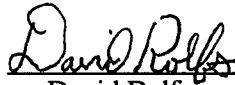
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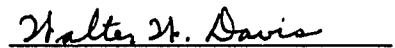
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## CONTENTS

	Page
ACKNOWLEDGMENTS.....	iv
ABSTRACT .....	vi
I. INTRODUCTION .....	2
A. The Challenge.....	2
B. A Crisis in Leadership.....	3
II. THE BALLISTIC MISSILE THREAT .....	6
A. Reassessing the Threat.....	6
B. Acknowledging the Threat .....	9
C. The Commonwealth of Independent States .....	12
D. China.....	18
E. North Korea.....	20
F. Iraq.....	25
G. Other Emerging Ballistic Missile Threats .....	28
III. PRINCIPLES OF A JUST DEFENSE .....	35
IV. THE CURRENT POLITICAL CLIMATE .....	40
A. The Clinton Administration's Response.....	40
B. Relying on Tactical Interceptors .....	45
C. Losing Sight of National Missile Defense.....	49
D. A Narrow Interpretation of the 1972 ABM Treaty .....	52
V. NATIONAL MISSILE DEFENSES FIRST .....	61
A. Challenges Facing the National Missile Defense .....	61
B. A Strategy for Deploying Limited American Missile Defenses .....	63
C. The Coastal Defense Network.....	66
D. Advanced Interceptors .....	67
E. Space-Based Inteceptors.....	70
APPENDICES.....	75
A. List of Abbreviations.....	76
B. Third World Ballistic Missiles .....	77
C. Indigenous Ballistic Missile Efforts.....	78
D. North Korea's Extension of Missile Ranges.....	79
E. Growth of WMD Warheads in the Third World.....	80
F. Chemical-Warhead-Capable Missiles .....	81
BIBLIOGRAPHY.....	82
VITA.....	88

## ABSTRACT

This thesis reassesses America's need for a national anti-ballistic missile (ABM) system. The risk that Third World proliferation of ballistic missiles and weapons of mass destruction (WMD) poses to the continental United States is reassessed in light of the improving global climate for technology transfers.

The Clinton Administration's decision to focus on theater-based defenses leaves the United States vulnerable to missile attack, and fails to provide adequate protection for America's allies and its military deployments abroad against missiles armed with WMD. Recent attempts made by the Administration and Congress to re-instate a narrow interpretation of the 1972 Antiballistic Missile Treaty may undermine America's future deployment of national missile defenses and even the Administration's own Theater Missile Defense Initiative. An effective political strategy for fielding a limited ABM system to protect the United States consists of fielding coastal defenses first, followed by advanced ground interceptors later, and lastly, space-based interceptors.

**MISSILE DEFENSE FOR AMERICA: THIRD WORLD PROLIFERATION  
CHALLENGES AND UNITED STATES NATIONAL SECURITY POLICY**

# I

## INTRODUCTION

### A. The New Challenge

America confronts a bold new challenge in the twenty-first century. Despite its apparent victory over the Soviet Union after a forty-five year Cold War, America now faces a world in disarray. New ethnic and regional conflicts are breaking out in the vacuum formerly filled by the security forces of the Soviet Union. A world-wide proliferation of nuclear weapons among nations ambivalent about, or even hostile to, American national interests poses an unprecedented threat to America's security. Sales of sophisticated delivery systems by countries such as North Korea and China to radical Islamic regimes in Iraq and Iran further jeopardize American security interests, both abroad and at home.

In 1983, Ronald Reagan boldly proposed a creative solution to the dilemma facing American cities caught in the potential cross-fire of an all-out nuclear exchange with the Soviet Union. Reagan's vision of a protective nuclear umbrella over the United States, while perhaps exaggerated and years ahead of its time, still offered an exciting alternative to the then gloomy reality of mutually assured destruction (MAD). Unfortunately, the Strategic Defense Initiative (SDI) was politically savaged by Reagan's political opponents. Critics, including many prominent scientists and defense analysts, pointed out the enormous technical difficulties of deploying such a system, the tremendous financial cost entailed, and the potentially serious diplomatic and strategic defense problems it might create. Many arms negotiators viewed the entire program as potentially destabilizing in superpower relations.

Reagan managed to push “Star Wars” through Congress and used his enormous talent as “The great communicator” to rally the American public behind his new defense initiative, but Democrat opposition continued to eat away at the program’s funding throughout the 1980’s. The initiative may have died out all together were it not for the timely appearance of the Patriot missile in the 1992 Gulf war, an early product of SDI’s research and development. The Patriot’s performance in the Gulf, although still the subject of debate, restored political support to a program facing an uncertain future. The Bush administration proposed a scaled down version of SDI, more conservatively named Global Protection Against Limited Strikes (GPALS). Further research and development on SDI was thus saved from certain extinction, and enthusiastically promoted by none other than Vice-President Dan Quayle for the next two years. However, inadequate funding continued to plague SDI’s successor.

#### B. A Crisis in Leadership

The effectiveness of any strategic missile defense has long been an issue of debate. The vision introduced and propagated by the Reagan Administration, which postulated that a shield could immediately be deployed in space that would make America immune from missile attack, seemed fantastic at the time. Some critics even argue that the Reagan Administration transformed this potentially sound national defense technology into a political symbol of mythological proportions, which did more harm than good to the SDI program in the long run.<sup>1</sup>

The political rhetoric from the Reagan Administration that claimed the world could instantly be liberated from the harsh reality of nuclear weapons by SDI may have been

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<sup>1</sup> For an excellent overview of the ideological war over SDI, consult Edward Tabor Linenthal, Symbolic Defense: the Cultural Significance of the Strategic Defense Initiative (Chicago: University of Illinois Press, 1989), 14-41.

somewhat exaggerated. Initially, the military and scientific leaders involved in the program strongly defended all the Administration's claims concerning SDI, assuming the President was merely trying to make the concept more understandable to average Americans or speaking vaguely in terms of future generations. Later, even SDI's first director and most pronounced advocate, Lt. General Daniel O. Graham, realized that the President really thought such defenses would be foolproof:

Following comments by Reagan in Moscow, Graham said in an interview: "I have been defending President Reagan from his critics. Now I find I have to throw in the towel and issue an apology to the critics with whom I have debated." . . . Reagan's presentation of a missile defense system as something that could "make it impossible for missiles to get through the screen" and as a means to "get rid of all the nuclear weapons" is mistaken . . . Reagan's version "is a description of the impossible. It is something that has never been in the cards. When he talks that way, he loses me."<sup>2</sup>

Unfortunately, this awkward beginning to SDI seriously damaged the reputation of an already proven United States defense technology. As early as 1962, the Department of Defense (DoD) concluded that a space-based ABM system could be deployed by 1970 at a cost of \$30 billion.<sup>3</sup> There is little debate in today's Congress about the effectiveness of ground-based interceptors or theater-based ABM systems. Questions revolve mainly around the effectiveness of ground-based interceptors, their cost, command and control, and compliance with the ABM Treaty.

In 1994, GPALS or any other anti-ballistic missile (ABM) system deployed by the United States still faces many of the same obstacles Reagan's vision of "Star Wars" confronted more than a decade ago. The most significant challenge to pursuing a national missile defense policy is justifying the defense expenditure to the American people in the face of increasing budgetary constraints and political pressure to allocate more national resources to America's growing domestic problems. Other problems include a political

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<sup>2</sup> William A. B. Campbell, ed., "'Bee Swarm' Defense Could be SDI Alternative," International Conservative Insight (September-October 1988): 16.

<sup>3</sup> Daniel O. Graham, The Case for Space Defense (Louisville: Frank Simon Company), 73-74.

debate over which should receive priority— theater-based defenses to guard against a pre-existing short and intermediate-ranged missile threat to our allies and troops deployed abroad, or a system designed to defend the cities of the United States itself—and the political resistance to deploying limited space-based systems in light of the 1972 ABM treaty signed with the Soviet Union. The next chapter examines the nature of the global ballistic missile proliferation problem and reassesses the threat it poses to the United States in light of the improving global climate for technology transfers.

## II THE BALLISTIC MISSILE THREAT

### A. Reassessing the Threat

According to American intelligence sources, the countries that currently possess the means to deliver a nuclear, biological or chemical (NBC) warhead to the United States via an intercontinental ballistic missile include Russia, Ukraine, Kazakhstan, Belarus, China, Great Britain and France. It is believed that only Brazil, India, Italy, Israel, Germany, Japan and Sweden have the means to develop this intercontinental capability before the end of this decade.<sup>4</sup>

Some take comfort in the fact that United States intelligence estimates indicate that the intercontinental delivery of weapons of mass destruction (WMD) via ballistic missiles will probably not be technically feasible for any Third World nation until the turn of the century. Unfortunately, such confidence may well be misplaced. United States intelligence has often failed to measure such threats accurately in the past. This is because many Third World countries often successfully evade United States intelligence gathering efforts. United States intelligence, heretofore preoccupied with spying on the Soviet Union, suffers from an inadequate Third World surveillance network.

The United States, for instance, was shocked to learn, during the talks leading up to the Intermediate Nuclear Forces (INF) Treaty, that it had underestimated the number of SS-23 launchers the Soviet Union had by some four hundred percent.<sup>5</sup> Iraq's nuclear

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<sup>4</sup> William E. Odom, Chairman, Report of the Proliferation Study Team on the Emerging Ballistic Missile Threat to the United States (February 1993), 1.

<sup>5</sup> *Ibid.*, 2.



facilities and 1989 test of the Al-Abid space launch vehicle also took the United States intelligence community by surprise.<sup>6</sup> Pakistan successfully tested its first nuclear weapons in 1987, but the United States continued to issue certifications that Pakistan had tested no nuclear devices for three years.<sup>7</sup>

Thus, although the current risk to the United States from ballistic missile attacks within this decade appears limited, the Report of the Proliferation Study Team on the Emerging Ballistic Missile Threat to the United States concludes that such a conclusion “cannot be maintained if several plausible developments are considered—developments that could lead to new ballistic missile threats during the remainder of this decade.”<sup>8</sup> Such developments might include:

- ◆ Acquisition from a foreign supplier of long-range ballistic missile components or technologies by proliferant countries hostile to the United States such as Iran, Iraq, or Libya—countries that could not otherwise field long-range missiles within this decade or early in the next. This development could occur as a result of transfers from China, and enterprises in the former Soviet Union operating independently and essentially without the consent of Moscow or Kiev.
- ◆ Indigenous development or acquisition from a foreign supplier of space launch vehicle (SLV) technology or complete systems by proliferant countries, and their subsequent conversion to long-range missile capabilities.
- ◆ The relatively rapid deterioration of political relations with countries now possessing long-range missiles or capable of promptly fielding long-range missiles if the political decision were made to do so.
- ◆ The acquisition of missiles with *less than* intercontinental range by Latin American or Caribbean countries hostile or prospectively hostile to the United States, or the fielding of missiles on the territory of such countries by a hostile third party.<sup>9</sup>

Should any of these developments materialize, either singularly or in some form of

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<sup>6</sup> Ibid.

<sup>7</sup> Aleta Jackson, ed., “Pakistan Had Nukes,” High Frontier Newswatch 10, no. 9 (September 1993): 3.

<sup>8</sup> Odom, Emerging Ballistic Missile Threat, 2.

<sup>9</sup> Ibid.

combination, the ballistic missile threat to the continental United States would escalate significantly.

Excluding such developments, the American intelligence community estimates that as many as 24 countries may have ballistic missiles by the year 2000 because of increasing ballistic missile technology transfers in the developing world.<sup>10</sup> As early as 1990, the United States Director of Central Intelligence estimated that by the end of the decade fifteen developing states would possess ballistic missiles, and six of these countries will likely have intermediate-ranged ballistic missiles (IRBM's).<sup>11</sup> Other 1990 forecasts indicated that in ten years eight Third World states would be capable of producing nuclear weapons, up to twenty-four would have an offensive chemical warfare capability, and five new states would join Syria and Iraq in the biological weapons club.<sup>12</sup>

Recently America's new CIA Director, James Woolsey, issued new estimates concerning the rapidly evolving Third World missile threat. He believes that countries presently owning only short and medium ranged weapons but actively seeking WMD and the means to deliver them over increasingly longer ranges (such as Iraq, India, Libya, Iran and North Korea) will be able to reach the continental United States by the year 2000.<sup>13</sup> In a report before the Senate Governmental Affairs Committee in 1993 Woolsey noted:

After the turn of the century, some countries that are hostile to the United States might be able to acquire ballistic missiles that could threaten the continental United States. We can't give you a precise date— whether it's eight years or ten years or fifteen years from now— by which that might

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<sup>10</sup> Henry F. Cooper, Statement on the Strategic Defense Initiative Before the Subcommittee On Strategic Forces and Nuclear Deterrence Committee on Armed Services United States Senate June 20, 1991 (Washington, D.C.: Strategic Defense Initiative Organization, 1991), 2. Another source puts the number at 22; see Mark Jacobsohn, "The Case for a National Missile Defense," American Defense Institute Briefing 2, no. 2 (4 February 1992): 5.

<sup>11</sup> Odom, Emerging Ballistic Missile Threat, 7. See Appendix B for current statistics concerning the Third World ballistic missile arsenal.

<sup>12</sup> Ibid.

<sup>13</sup> John K. Isaf, ed., "Is America Still Interested in National Missile Defense?" American Defense Institute News 10, no. 3 (Summer 1993): 2. See Appendix C, Table 2, for information concerning indigenous ballistic missile efforts in the developing world.

occur.<sup>14</sup>

He then cautiously added:

A shortcut approach . . . would be for such third world countries to buy ICBMs or major components covertly together with suitable nuclear warheads or fissile materials. Anything such as that would, of course, speed up ICBM acquisition by such nations.<sup>15</sup>

### B. Acknowledging the Threat

The Clinton Administration has become increasingly aware of these growing proliferation problems associated with WMD and ballistic missile technologies. Les Aspin, former Secretary of Defense with the Clinton Administration, considered these proliferation challenges so serious that in December, 1993, he called for an entirely new strategy for dealing with them, known as the Defense Counterproliferation Initiative. This initiative involves using United States military assets to detect and defend against theater-based WMD that developing countries already own or will shortly acquire.<sup>16</sup> In releasing such a plan, the Administration demonstrated its willingness to concede that preventative efforts at curbing proliferation, such as the nuclear non-proliferation treaty, simply are not enough. As Mr. Aspin put it, the Administration is “making the essential change demanded by this increased threat. We are adding the task of protection to the task of prevention.”<sup>17</sup>

Mr. Aspin has spoken and written at length concerning the new dangers America faces from the combined technologies of WMD and ballistic missiles, a danger driven by

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<sup>14</sup> From James Woolsey’s testimony before the Senate Governmental Affairs Committee (24 February 1993), found in “Ballistic Missile Defense Information for the Committee on Armed Services United States Senate” (Washington, D.C.: Ballistic Missile Defense Organization, 9 June 1993), 1, photocopied.

<sup>15</sup> Ibid.

<sup>16</sup> For a more detailed presentation of Aspin’s DCI, read Les Aspin, “New Capabilities Will Counter Weapons of Mass Destruction,” The Officer (January 1994): 38.

<sup>17</sup> Ibid, 37.

the engine of proliferation. Increasing opportunities for trade and technology transfers between developed and developing states appear to be a permanent fixture of the Post-Cold War era. It is this situation that the Defense Secretary found so troubling:

The world economy is characterized by an ever increasing volume of trade leading to an ever greater diffusion of technology. Simply put, this will make it harder and harder to detect illicit diversions of materials and technology useful for weapons development. . . . Potential proliferators are sometimes said to be “several decades behind the West.” This is not much comfort. . . . By 1953, the United States had fission weapons. We were building intercontinental range bombers, and were developing intercontinental missiles. . . . [W]e face a bigger proliferation danger than we’ve ever faced before. But second, and most important, is that a policy of prevention through denial won’t be enough to cope with tomorrow’s proliferators.<sup>18</sup>

Senator Sam Nunn, Chairman of the powerful Senate Armed Forces Committee, shares Aspin’s assessment concerning the unprecedented danger America faces from such proliferation. Nunn has publicly warned that the danger of an accidental or unauthorized missile launch or proliferation of nuclear materials is definitely increasing.<sup>19</sup> The threat of a full-scale nuclear exchange between the United States and Russia is probably receding, but the risk that a nuclear weapon will explode on United States soil has probably never been greater.

The United States faces increased risk because:

- Those nations now seeking weapons are characterized by a high degree of instability.
- We have little confidence in the ability of these states (or, indeed, non-state actors who acquire nuclear weapons) to provide adequate nuclear safeguards, including command and control.
- New or potential nuclear-capable entities have different beliefs about the military utility of nuclear weapons, as evidenced in some cases by their lack of restraint with chemical weapons.
- There are few remaining superpower constraints on aggressive regional players.
- The use of nuclear weapons could become an attractive option to

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<sup>18</sup> Ibid.

<sup>19</sup> Jay P. Kosminsky, ed., “After trip to Russia, Nunn warns of instability,” The SDI Report, no. 51 (22 December 1992): 1.

any nongovernmental organization which concludes that our apparent inability to solve many terrorist bombings would allow them to escape retribution.

- Serious asymmetries develop when one side has a well-developed nuclear capability and the associated political savvy, and the other is an inexperienced player with its first weapons.<sup>20</sup>

The threat ballistic missiles pose to the United States cannot be addressed simply by identifying countries that possess the capability to target American cities today. The Report of the Proliferation Study Team states: “Threat is a function of capability and intention, both of which may change relatively rapidly under plausible conditions.”<sup>21</sup> A failure to plan for tomorrow’s eventualities could leave the United States strategically vulnerable to a new world where the use of nuclear weapons is, unfortunately, thinkable if not probable.<sup>22</sup>

There are many motives driving the Third World’s aggressive acquisition of ballistic missile technologies:

Much like the dreadnought at the beginning of this century, ballistic missiles are seen as symbols of power and prestige. Because the great powers have such delivery systems, less-developed countries aspire to them as well. . . . In addition to prestige, ballistic missiles provide nations with the premier means of deterrence and may be sought for their ability to provide coercive leverage against regional rivals and to act as a deterrent to outside intervention in local conflicts. Ballistic missiles—and increasingly, cruise missiles—are viewed as a means to defeat the sophisticated defenses of more advanced countries such as Israel or South Korea. Ballistic missiles are fast, immune to pilot error . . . and, as yet, are largely invulnerable to current means of defense. This last factor renders missiles an excellent means of demoralizing an enemy, as was demonstrated by the Iran-Iraq “war of the cities.” In addition, their range allows states with otherwise limited power projection capabilities to exert regional or global influences.<sup>23</sup>

The intention or national will to use such weapons might be supplied by militant nationalist or religious movements within a country, and the capability or means to deliver

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<sup>20</sup> Frederick R. Strain, “Nuclear Proliferation and Deterrence: A Policy Conundrum,” Parameters 23, no. 3 (Autumn 1993): 85-86. See also footnotes 27, 45, 108 and 109.

<sup>21</sup> Odom, Emerging Ballistic Missile Threat, 2.

<sup>22</sup> Strain, “Nuclear Proliferation and Deterrence,” 86.

<sup>23</sup> Odom, Emerging Ballistic Missile Threat, 5.

such attacks could be rapidly secured through favorable trade arrangements or technological transfers. The following case studies will reassess several nations' ballistic WMD threat to the United States, in light of recent technological transfers and developments favorable to the evolution of such weapons programs.

### C. The Commonwealth of Independent States

The old Soviet Union once represented the greatest threat to the security of the United States. The USSR has undergone a tremendous transformation since 1989, but despite the incredible events that have since transpired in East-West relations, it must be remembered that the Commonwealth of Independent States (CIS) remains a serious military rival of the United States. The USSR's enormous ballistic missile force, capable of delivering a wide variety of WMD to the continental United States, remains largely intact in the newly designated CIS.

Russia still appears interested in maintaining a powerful military presence in world affairs. Recent developments indicate that Russia still projects a powerful influence over the internal policies of its recently departed fellow Republics. This is clearly evidenced in Russia's attempts to retain command and control over the nuclear assets of the Ukraine, and repeated interference in the internal affairs of Kazakhstan. Boris Yeltsin's government also appears committed to maintaining Russia's long-standing military alliance with the Bosnian Serbs.

Russia still has an active strategic weapons program. Russian defense authorities recently confirmed the existence of a Russian Space Force, previously a well-guarded Cold War secret. In 1992 the Space Force was elevated to the level of a fourth branch in the

Russian Defense Ministry.<sup>24</sup> This new space branch is charged with the duties of anti-satellite (ASAT) and ABM defense.<sup>25</sup>

Western sources also recently learned that the USSR has an automated doomsday system that will automatically fire the old USSR's strategic rocket force if electronic devices detect a breakdown in communications among the Russian general staff and nuclear detonations on Russian soil.<sup>26</sup> Bruce Blair, a senior fellow at the Brookings Institute, says: "[T]he doomsday machine provides for a massive salvo of these forces . . . . Weapons commanders in the field may be completely bypassed."<sup>27</sup> The device was first tested in 1984, and remains operational today.

Mr. Blair believes that such strategic planning indicates that Russia is still suffering from a nuclear dependency and, like the United States, remains committed to the use of nuclear weapons as instruments for securing vital national interests. According to Blair, other symptoms of Russia's nuclear dependency in 1993 include:

"the continuing construction of deep underground command posts in the Urals with hardened antennas for ordering retaliatory strikes by deeply submerged submarines. The Russians also still keep thousands of strategic warheads poised for immediate launching, and continue to play nuclear war games with Western foes in mind." Several months ago, he says, "Russia fought an all-out nuclear war (game) with the United States."<sup>28</sup>

Ambassador Richard F. Starr, former United States ambassador to the Mutual and Balanced Force Reduction negotiations of the early 1980's, shares Blair's concern with the CIS's expanding nuclear capabilities. According to Starr, Russia's ongoing military-

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<sup>24</sup> "Russia Maintains 'Space Force' in Military" (Moscow: Kyoda News International, 23 April 1993), 1, from NewsBank-Third Quarter, 1993.

<sup>25</sup> Ibid.

<sup>26</sup> Jay P. Kosminsky, ed., "Defense analyst describes Russian 'doomsday' system," The SDI Report, no. 61 (29 October 1992): 1. See also the October 8, 1993, article in the New York Times concerning the Doomsday machine.

<sup>27</sup> Phillip C. Clarke, "Today's Threat: New World Disorder with Nuclear Backdrop," The Officer (December 1993): 41. This text is from an October 11, 1993, talk given by Mr. Clarke to the American Civil Defense Association in Colorado Springs, Colorado.

<sup>28</sup> Ibid.

industrial complex, the financial engine of Boris Yeltsin's economy, still employs over 12 million workers in 1,700 manufacturing enterprises scattered in hidden cities around the country.<sup>29</sup> Starr also reports that although Russia is supposedly facing economic collapse, and publicly demanding Western economic aid, its military expenditures still clandestinely absorb 55 percent of all government expenditures and its Defense Ministry is planning to develop four new ballistic missiles over the next decade.<sup>30</sup>

The USSR was historically the world's largest exporter of ballistic missiles. Her Scud B is the most common long-range tactical missile in the world.<sup>31</sup> The old Soviet Union transferred many Scud B missiles to its allies in the Warsaw Pact and exported thousands to friendly regimes in Afghanistan, Egypt, Iran, Iraq, Libya, North Korea, Syria, Vietnam, and Yemen.<sup>32</sup> The USSR also exported SS-21 missiles to Syria, Yemen, and possibly Libya.<sup>33</sup> The Soviet Union helped develop North Korea's indigenous Scud manufacturing capability and China's nuclear and intercontinental ballistic missile (ICBM) programs.<sup>34</sup> The USSR was also the initial supplier of Scud B missiles to Iraq.

There is little evidence to indicate that the CIS is willing to depart from the old Soviet Union's traditional practice of contributing to global ballistic missile proliferation. Space-launched vehicle programs, for instance, have been used to develop long-range ballistic missiles in both India and Brazil, and it is relatively easy to convert a space launch vehicle (SLV) into a ballistic missile and vice versa; the United States, USSR, and China have all historically used ballistic missiles as space launch vehicles.<sup>35</sup> Still, despite strong

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<sup>29</sup> Ibid.

<sup>30</sup> Ibid.

<sup>31</sup> Robert G. Nagler, ed. Ballistic Missile Proliferation: An Emerging Threat (Arlington, Va.: System Planning Corporation, 1992), 13. This volume provides the best comprehensive treatment of the modern ballistic missile proliferation problem available in a single source.

<sup>32</sup> Ibid.

<sup>33</sup> Ibid.

<sup>34</sup> Ibid.

<sup>35</sup> Odom, Emerging Ballistic Missile Threat, 11.



American objections and trade sanctions, in 1990 the CIS made a \$100 million agreement with India to develop a cryogenic rocket motor for use in India's next-generation SLV, and Russia refuses to withdraw from the agreement.<sup>36</sup>

The CIS is also experiencing tremendous difficulties in monitoring and exercising effective command and control over its enormous supply of ballistic missiles and WMD. Such problems are aggravated by the recent revelation that Russia may have more nuclear warheads than previously thought. According to Viktor Mikhailov, a former Soviet official that now heads the Russian Ministry of Atomic Energy:

The USSR's secretive totalitarian system had succeeded in covertly manufacturing vastly larger quantities of nuclear arms and associated materials — "45,000 nuclear weapons" to be precise— or "12,000 more than generally believed, twice the number held by the United States at the time and exceeding all estimates save those of the most hawkish analysts," [Including, notably, Reagan's Secretary of Defense, Caspar Weinberger.]<sup>37</sup>

This was an American intelligence error of monumental proportions:

Surprisingly large, the 45,000 number rivals what Western analysts had previously thought to be the world's *combined nuclear arsenals at their apex*— 50,000 weapons spread among the Soviet Union, The [*sic*] United States, France, Britain, China and Israel.<sup>38</sup>

Political power struggles between old Communist hardliners and democratic reformers, ethnic battles in the republics and the powerful mediating role exercised by Russia's extremely nationalistic armed forces' high command provide an ominous challenge to American goals of maintaining a stable command and control system over the CIS's rocket forces.<sup>39</sup>

There is, for instance, an ongoing dispute over the ownership of the Ukrainian

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<sup>36</sup> Ibid., 17.

<sup>37</sup> Quoted in "'Hope Over Experience' (Part Deux): Secret Soviet Nuclear Stocks Shows Dangers of Clinton's U.N. Paen to Arms Control," Decision Brief (27 September 1993): 1. News of the secret Soviet nuclear arsenal was first published in the NYT, 26 September 1993, A-1.

<sup>38</sup> Ibid.

<sup>39</sup> Clarke, "New World Disorder with Nuclear Backdrop," 42.

nuclear arsenal. The Ukraine has declared its Soviet-made missiles state property, using them as a hedge to protect the Ukraine from future Soviet encroachments.<sup>40</sup> Moscow charges, with some merit, that these weapons are not being properly maintained. The United States is so concerned about the safety and potential covert sale of Ukrainian nuclear assets that the Clinton administration offered to guarantee the Ukraine's security and provide it with a generous economic aid package if it surrenders the weapons to Moscow.<sup>41</sup>

The strongly centralized command and control system over the former Soviet Union's rocket forces was not designed "in anticipation of the dissolution of the Soviet Union and the potential fragmentation of political and military authority."<sup>42</sup> Kazakhstan has admitted test launching an SS-19 ICBM with six nuclear warheads on its territory as recently as December, 1993, but claims ignorance as to who authorized the launch.<sup>43</sup>

Western visitors returning from the CIS report that nearly every former military weapon in the old Soviet arsenal, from transport services to T-80 tanks, is up for sale on the black market. In December, 1993, one month after Russia pledged to abide by the international Missile Technology Control Regime (MTCR), Russian cargo planes from a civilian airline transported seven North Korean truck chassis, commonly used for mobile missile launchers, to Syria.<sup>44</sup> The primary motive driving the Russian airline's participation, and most other covert Russian arms sales, was a desire for hard currency.<sup>45</sup>

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<sup>40</sup> Ibid.

<sup>41</sup> Ibid. The Administration is also offering to deliver F-16 jet fighters to Pakistan if she agrees to ban production of nuclear material for nuclear weapons. The fighters were purchased by Pakistan but never received because of Congressional disapproval over Pakistan's nuclear program. See Michael R. Gordon, "South Asian Lands Pressed on Arms," The New York Times, 23 March 1994, sec. A, p. 5.

<sup>42</sup> 1993 Report to the Congress on the Strategic Defense Initiative (Washington, D.C.: The Strategic Defense Initiative Organization, January 1993), 1-4.

<sup>43</sup> Jacobsohn, "Case for National Missile Defense," 5.

<sup>44</sup> Michael R. Gordon, "U.S. Says Russians Assisted Damascus With Missile Plan," The New York Times, 12 December 1993, sec. A, p. 1 (L). This is a particularly alarming development in light of Syria's arms exports to Iraq. Read Clarke, "New World Disorder with Nuclear Backdrop," 40.

<sup>45</sup> Ibid. Russian, Chinese and particularly North Korean missile sales all appear to be driven

Economic hardship further undermines the command and control system of the CIS' rocket forces by creating a favorable climate for the ascendancy of hardline military leaders, whose policies often make regional conflicts, accidental launches, and weapon sales all the more likely. Russia's economic situation can only be described as desperate. Her economy has shrunk "from \$800 billion in 1988 to an estimated \$500 billion in 1991, and . . . inflation has risen to an estimated 2,000 percent."<sup>46</sup> Considering Russia's economic instability, and the potential impact such instability could have on Russia's political system, the United States should "recognize that all of the necessary ingredients exist for a radical change in Russia's political and military outlook. . . . [S]hifts in power could occur rapidly and unpredictably."<sup>47</sup>

A final proliferation concern in the Soviet Union is the possible "brain drain" of recently unemployed Soviet nuclear scientists. The United States is spending millions to identify, track, and provide alternative employment for these Russian scientists.<sup>48</sup> This is a growing problem in the CIS where rapidly deteriorating living conditions, and average Russian scientist salaries at around five American dollars a month, make it difficult for ex-Soviet scientists to resist lucrative job offers emanating from the Middle East and Asia.<sup>49</sup> In December, 1993, a North Korean diplomat was expelled from the North Korean embassy in Moscow when it was ascertained that he was attempting to send a large group of Russian scientists to Pyongyang to work on North Korea's missile and space programs.<sup>50</sup> It is estimated that roughly 2,000 nuclear scientists are scattered around the

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primarily by a desire for hard currency.

<sup>46</sup> John R. Powers and Joseph E. Muckerman, "Rethink the Nuclear Threat," *Orbis* 38, no. 1 (Winter 1994): 101. This source makes the case that the danger of nuclear weapons being used is greater now than at any time since World War II.

<sup>47</sup> *Ibid.*

<sup>48</sup> Aleta Jackson, ed., "Nuclear Security Pacts With Belarus Signed," *High Frontier Newswatch* 10, no. 9 (September 1993): 3.

<sup>49</sup> Jacobsohn, "Case for a National Missile Defense," 7.

<sup>50</sup> Gordon, "Russians Assisted Damascus With Missile Plan," 1. Although it is one of the poorest countries in the Pacific rim, North Korea is aggressively pursuing both nuclear and ballistic missile

NIS, but identifying and tracking such scientists has proved difficult because of the closed nature of the old Soviet system.<sup>51</sup>

Russia's continued commitment to maintaining its strategic defense forces and heavy investment in an enormous military industrial complex make it unlikely that it will be able to resist the lucrative Third World ballistic missile market. Russia's dismal economic state adds further unpredictability to its political and military structures. Command and control difficulties over strategic rocket forces in the CIS pose serious risks to the security of the United States. The threat of accidental launches and authorized or unauthorized deliveries of ballistic missile or WMD technologies to Third World countries has been significantly elevated by recent events in the CIS.

#### D. China

China received two missiles from the Soviet Union in 1958, which it used to develop a ballistic missile of its own, the CSS-1.<sup>52</sup> Today the Chinese have a large number of CSS intercontinental missiles, many aimed at the United States, and are constantly increasing their quality and quantity.<sup>53</sup> The CSS-2 is capable of carrying a variety of WMD, and can be armed with warheads containing up to three 100-kiloton, multiple, independently targeted, re-entry vehicles (MIRV's).<sup>54</sup> China is reportedly developing a new land-based missile, the CSS-X-5, as a solid-propellant follow-on to the CSS-2, and is the only developing nation that has succeeded at developing its own SLBM,

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development programs.

<sup>51</sup> Jacobsohn, "Case for a National Missile Defense," 7.

<sup>52</sup> Nagler, Ballistic Missile Proliferation, 14.

<sup>53</sup> "From SDI to BMD: Is There a Need for National Missile Defense?" Published Proceedings of a Seminar by The American Defense Institute & High Frontier (23 July 1993), 17. Based on a quote from Henry F. Cooper, former Director of the Strategic Defense Initiative Organization.

<sup>54</sup> Nagler, Ballistic Missile Proliferation, 14.

the CSS-N-3.<sup>55</sup>

China is the third largest exporter of ballistic missile technology to the developing world. The Chinese may even have assisted North Korea in the development of its nuclear program. China has reportedly sold Saudi Arabia between 30 and 50 CSS-2 missiles with high-explosive (HE) warheads and ranges reduced to 2,400 km.<sup>56</sup> The Saudis probably possess the financial resources and Western political support needed to rearm these missiles with WMD or extend their range should it prove expedient for them to do so.

The Chinese have also developed the “M” family of ballistic missiles, which they have sold to Pakistan, Syria and Libya.<sup>57</sup> One of the M-series missiles reported to have recently been sold has a range of 1,000 km, and Libya may be selling some of the 140 M-9’s it purchased from China in 1989 to Syria.<sup>58</sup>

The Chinese have a small SLV program underway that has its origins in Soviet missile technology. Directed by Dr. Chien Hsu-shen, a research engineer schooled at the California Institute of Technology, the Chinese offer commercial launch services using their CZ family of space launchers.<sup>59</sup> Although the Chinese have agreed to abide by the MTCR, it is uncertain “how strictly they will enforce exports given both their economic and political-military interests.”<sup>60</sup> For instance, the Chinese are currently helping Pakistan develop a new, more advanced, ballistic missile to counter regional rival India’s growing rocket forces.<sup>61</sup>

China’s sale of advanced missile technologies to developing nations in the past has already contributed significantly to long-range ballistic missile proliferation in both the

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<sup>55</sup> Ibid., 44.

<sup>56</sup> Ibid., 14.

<sup>57</sup> Ibid., 15.

<sup>58</sup> Ibid.

<sup>59</sup> Odom, Emerging Ballistic Missile Threat, 16.

<sup>60</sup> Ibid.

<sup>61</sup> Gordon, “Asian Lands Pressed on Arms,” sec. A, p. 5. India is about to field a new surface-to-surface missile as well.

Middle East and Asia. The Saudi Arabian, Syrian, Libyan, and North Korean ballistic missile and WMD programs have all benefitted tremendously from Chinese technological assistance. China's continued cooperation in the Pakistani missile program poses grave threats to the long-term security interests of the Pacific Rim Region and the United States.

#### E. North Korea

North Korea, technically still at war with South Korea, is a highly militarized society that devotes 25 percent of its GNP to its military.<sup>62</sup> North Korea has developed its own military production facilities and is a major exporter of arms to the developing world. North Korea has an enormous investment in its ballistic missile program:

In 1976, North Korea launched a program, with help from Egypt and China, to develop an indigenous capacity to produce Scuds. In 1985, Iran agreed to finance this program, and by 1987 North Korea was producing Scuds at the rate of 8 to 10 missiles per month. In 1987-88, North Korea reportedly sold 90-100 Scuds to Iran. Currently, North Korea produces and deploys an advanced version of the Scud with a range of 500-600 km. Some of these reportedly have been purchased by Syria and Iran. In addition, there are reports that North Korea has developed an even longer range version, the No Dong 1 with a range on the order of 1,000 km. . . . North Korea's pursuit of the No Dong is driven both by its interest in selling the missile in the Middle East and northern Africa and by its desire for targeting areas as far as Japan and Beijing.<sup>63</sup>

North Korea has also licensed Scud B production lines to Egypt, Syria, Iran, and Iraq in addition to exporting its own missiles, and is even offering a longer ranged 2,000 km, version of the No Dong for sale.<sup>64</sup> It is rumored that North Korea supplied Iraq with most of the Scuds it used in the Gulf War.<sup>65</sup> The North Koreans go to great lengths to

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<sup>62</sup> Nagler, "Ballistic Missile Proliferation," 47.

<sup>63</sup> Ibid.

<sup>64</sup> Ibid., 16.

<sup>65</sup> "Defense Chief Hints at Joining U.S. Anti-Missile Scheme" (Tokyo: Kyoda News International, 8 September 1993), 1, from CD NewsBank-Third Quarter 1993.

obtain foreign technology for their missile and nuclear programs, and probably already possess both chemical and biological weapons.<sup>66</sup>

The No Dong-1 is capable of carrying nuclear, biological, or chemical (NBC) warheads. On March 18, 1993, CIA Director James Woolsey announced that North Korea was developing two additional missiles with one achieving perhaps a 3,500 km range, putting all of Northeast Asia, Southeast Asia, the Pacific rim region and United States Naval and Air Force bases on Guam within striking distance.<sup>67</sup> The Director is concerned that North Korea may export these missiles to Iran, where they could be used to threaten Europe as well.<sup>68</sup>

In 1985 North Korea signed the international Nuclear Nonproliferation Treaty (NPT). Unfortunately, North Korea has repeatedly denied International Atomic Energy Agency (IAEA) inspection teams access to suspected nuclear weapon testing facilities. On February 26, 1993, the IAEA gave North Korea a 30-day ultimatum to open up suspect nuclear sites near Yongbyon or face unspecified consequences.<sup>69</sup> On March 11, 1993, North Korea, announced it was withdrawing from the NPT, reinforcing international suspicions that it was indeed building nuclear weapons. China threatened to veto any Security Council Resolutions that imposed sanctions on its ally.<sup>70</sup>

Despite significant concessions on the part of the Clinton administration, including granting North Korea high level talks and an offer to cancel next year's joint South Korean-

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<sup>66</sup> Nagler, Ballistic Missile Proliferation, 47.

<sup>67</sup> "CIA Worried About N. Korean Missiles," The Orlando Sentinel, 18 March 1994, A-5. It is believed that both new missiles can carry WMD warheads. Appendix C, Figure 1, demonstrates North Korea's remarkable achievements in extending the range of its ballistic missile arsenal.

<sup>68</sup> Ibid. This is not an unlikely scenario. Saudi Arabia already has missiles with a 3,500-km range that conceivably could be used to threaten Southern and Central Europe.

<sup>69</sup> "North Korea and the Bomb," The World This Week, Hosted by Frank Gaffney, Videotape of Show #106, 28 min., Dolan International: 1 April 1993, videocassette. Although this is a dated episode, it provides a fascinating panel discussion concerning the nature of the North Korean nuclear threat and what the appropriate American policy response to it should be. Mr. Gaffney was a former Assistant to Secretary of Defense during the Reagan Presidency.

<sup>70</sup> Ibid.

United States “Team Spirit” military exercise, the North Koreans continue to deny IAEA inspection teams access to the plutonium reprocessing plant at Yongbyon.<sup>71</sup> The United States was trying to entice North Korea into complete NPT compliance by offering it possible diplomatic normalization and trade links.<sup>72</sup> Critics of this policy believe that giving in to North Korea’s demands ignores the obvious historical lessons of the late 1930’s; namely that appeasement is viewed as weakness by totalitarian regimes. Other critics fear that the United States might be setting a dangerous precedent. Third World countries might realize that if they too, obtain nuclear weapons, not even the United States will stand up to them.

Recent actions taken by North Korea, including its continued resistance to IAEA inspection at Yongbyong, unilateral termination of peace talks with South Korea, and threat to turn Seoul, South Korea, into “a sea of fire” appear to have finally forced the Clinton Administration to pursue UN economic sanctions.<sup>73</sup> The Administration also decided to reschedule the previously cancelled Team Spirit military exercise and ship Patriot anti-missiles to South Korea.<sup>74</sup> North Korea has warned the United States that if Patriot anti-missile batteries are deployed in South Korea, the North Korean government will consider it an act of war.

Recent public disclosures of United States intelligence estimates concerning North Korea’s nuclear program makes its intransigence to international inspection more understandable:

U.S. intelligence is convinced that the North Koreans have no intention of giving up their nuclear-weapons program. They still refuse to grant access

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<sup>71</sup> William S. Cohen, “North Korea Nuclear Threat is a Challenge to World Peace,” The Officer (January 1994): 23.

<sup>72</sup> “Nuclear Surveys: All in the Timing,” The New York Times, 22 February 1994, A6.

<sup>73</sup> “Showdown Brews with N. Korea,” The Orlando Sentinel, 20 March 1994, A-1, A-9.

<sup>74</sup> “U.S. Warns North Koreans of Sanctions,” The New York Times, 22 March 1994, A-1, A-6. The Administration still prefers to take what they describe to be a “gradual approach” to the North Korean situation.



to two of their waste dumps, the contents of which could enable inspectors to estimate how much plutonium North Korean bomb-makers already have extracted from their reactor. The Pentagon believes North Korea has made two or three nuclear devices—crude and untested, but probably workable . . . . [T]he latest unified assessment by the U.S. intelligence community said the possibility that the North has a bomb cannot be ruled out.<sup>75</sup>

In March of 1994, IAEA officials learned that North Korea was expanding its capacity to produce enriched plutonium by adding a second production line to its nuclear reprocessing installation at Yongbyon.<sup>76</sup> This action, while technically not in violation of the NPT, effectively doubles the plant's yield of separated plutonium and makes it clear that, despite strong international pressure, North Korea remains committed to its nuclear program. It is also planning to complete in 1995 a second larger nuclear reactor, to complement its pre-existing, smaller 5-megawatt reactor at Yongbyon.<sup>77</sup> As a result of these developments, Defense Secretary William Perry predicts that by May of 1994, North Korea may have enough new plutonium to make four or five nuclear bombs.<sup>78</sup>

North Korea may already be fielding nuclear weapons, but even if it is, they are almost certainly crude first-generation devices. Although these primitive nuclear weapons are probably too bulky to be used as a warhead on one of North Korea's numerous Scuds, at least one preliminary report indicates that some of its medium-ranged No Dongs may have been modified to carry such a nuclear weapon.<sup>79</sup> Given North Korea's enormous

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<sup>75</sup> Tom Post with Douglas Waller, "Kim Family Values," Newsweek Magazine, 20 December 1993, 36-37. The idea that the North Koreans have no intention of giving up their WMD is a frequent theme found in United States intelligence estimates of North Korean military capabilities. The C.I.A. believes that North Korea is intent on developing a nuclear arsenal and will probably not be thwarted by diplomatic or economic sanctions, regardless of their source.

<sup>76</sup> Michael R. Gordon, "North Korea May be Expanding Atom Site," The New York Times, 3 April 1994, A-6.

<sup>77</sup> Ibid.

<sup>78</sup> Steve Komarow, "North Korea Nears Nuclear Threat - U.S.," U.S.A. Today, 21 April 1994, A-4. After learning of this development, American and South Korean officials once again offered to suspend the joint South Korean-American "Team Spirit" exercises until November, 1994, if North Korea agrees to return to the bargaining table.

<sup>79</sup> Colonel Lewis Stevens, United States Army Reserve, interview by author, 28 February 1994, Orlando, Florida, Mr. Stevens residence. Col. Stevens has already participated in advanced planning for a potential Korean conflict in his role as an engineering expert for the Army War College.

investment in its ballistic missile, WMD and nuclear programs, it seems likely that they have a well-established, re-entry vehicle program underway. North Korea could conceivably try to use its new nuclear arsenal as a bargaining chip to negotiate an American military withdrawal from the southern peninsula. Should such an event occur, it would not be in the United States' best interests to abandon its South Korean ally simply because American policy-makers were intimidated by the North Korean nuclear threat.

Another challenge facing the Clinton administration's North Korean containment policy is convincing Japan that it need not fear North Korean missile attacks despite North Korea's successful testing and deployment of its No Dong I missile, which is capable of hitting most of Japan.<sup>80</sup> The United States has provided Japan with upgrades for its American-made Patriot anti-missile system, and may deploy additional Patriot batteries to alleviate Japanese defense concerns.<sup>81</sup>

Hopefully these measures will be enough to prevent the realization of what some officers have characterized as "the Pentagon's worst nightmare," in which a threatened Japan decides to rearm with strategic nuclear weapons, triggering a whole new wave of nuclear proliferation in the Pacific Rim Region.<sup>82</sup> If Japan were committed to such a program, it could field sophisticated nuclear weapons in a very short time.

There is no question that North Korea's WMD and ballistic missile programs currently represent a serious threat to the security of the United States and the global community. North Korea is the leading exporter of Scud missiles to the Middle East, and is aggressively pursuing contracts for the sale of new longer-range versions of the No Dong Missile. North Korea may succeed in extending the range of the No Dong missile from 1,000 km to 3,500 km in less than two years. Should staging an Asian equivalent of

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<sup>80</sup> "Defense Chief Hints at Joining U.S. Anti-Missile Scheme" (Tokyo: Kyoda News International, 1993), 1, from CD NewsBank-Third Quarter 1993.

<sup>81</sup> "New World Disorder with Nuclear Backdrop," 42.

<sup>82</sup> Stevens, interview, 1994.

Desert Storm ever prove necessary to halt North Korean aggression, North Korea's well-stocked WMD arsenal and large number of Scuds will make it exceedingly difficult to duplicate the success achieved by Desert Storm. North Korea's nuclear wild card makes such an operation even more problematic.

#### F. Iraq

Iraq had a sophisticated missile program underway prior to Saddam Hussein's invasion of Kuwait. Iraq was in the process of extending the range of Soviet Scud B and modified Scud C missiles it had purchased from North Korea.<sup>83</sup> Iraq was also in the process of developing a 2,000 km ballistic missile, the Al Aabed, a militarized version of the Tamouz 1 satellite launch vehicle successfully tested by Iraq in 1989. An earlier joint missile venture with Argentina and Egypt, Condor 2, was abandoned when the 1987 MTCR agreement made its costs prohibitive, but Iraq may have retained some of the infrastructure related to the project.<sup>84</sup>

Iraq has used its ballistic missile arsenal in two of the last wars it fought . Iraq used Frog-7 and Scud B's throughout its eight-year war with Iran. During one phase of the war, the fighting centered around ballistic missile exchanges, a period later identified as "The War of the Cities." During "The War of the Cities," Iraq launched longer range Al Hussein Scuds at urban and military targets located in and around Tehran. Iraq also fired about 90 Scud missiles during the Desert Storm conflict against military targets in Saudi Arabia and civilian population centers in Israel:

The ability of the United States to achieve total air supremacy during Desert Storm, but not to counter Saddam's ballistic missiles decisively, demonstrates why, for some proliferant states, missiles represent a weapon

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<sup>83</sup> Nagler, Ballistic Missile Proliferation, 16.

<sup>84</sup> *Ibid.*, 20.

of choice. The concerns about Saddam's missiles expressed in the United States and Israel, the inability of the United States to reliably find mobile missiles in Iraq during the war—and U.N. inspectors to find them subsequently—are all likely to reinforce the view of proliferants that missiles represent a capability well worth having.<sup>85</sup>

Iraqi engineers' modifications to Scud B missiles extended their range from 300 km to more than 500 km using the Al Hussein variant, bringing Tehran and Jerusalem within striking range; the Al Abbas variant extended the range to 900 km, adding Cairo, Medina and Istanbul to the target list; and the Al Abed version would extend the Scud's range to nearly 2,000 km, threatening even Moscow.<sup>86</sup>

Iraq also was building a formidable arsenal of nuclear, biological and chemical weapons before Desert Storm disrupted these activities. Iraq's previous use of chemical weapons against the Kurds is well-documented, and during the Gulf war, Allied planners were seriously concerned that a desperate Iraq might again resort to using this dreaded weapon. The cease-fire agreement that terminated Desert Storm clearly required full Iraqi cooperation with the United Nations resolutions calling for the complete identification and destruction of any remaining Iraqi WMD facilities.<sup>87</sup>

Unfortunately, it appears that Iraq is still intent on thwarting the full implementation of the agreed-upon UN cease-fire resolutions. Actions committed by the Iraqi leadership since the war can only be characterized as defiant. United Nations inspections have cast serious doubts on official Iraqi declarations of abiding with the cease-fire agreements, especially since it is now believed that "[u]p to 800 Scuds could be hidden underground, and some nuclear materials might have been transferred to Algeria."<sup>88</sup>

Iraq's two-and-a-half year recovery from Desert Storm can only be characterized as

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<sup>85</sup> Odom, Emerging Ballistic Missile Threat, 5.

<sup>86</sup> Nagler, Ballistic Missile Proliferation, 35. Saudi Arabia's CSS-2 missiles, acquired from China in 1988, already threaten Moscow and much of Europe.

<sup>87</sup> *Ibid.*, 36.

<sup>88</sup> *Ibid.*

miraculous:

Intelligence reports say 80 percent of his [Saddam Hussein's] military assets have been restored. Defying UN inspectors, he's said to be fast putting the pieces of his wrecked nuclear-weapons facilities back together. . . . "Iraq is manufacturing T-72 tanks, artillery, even short-ranged ballistic missiles (the infamous Scuds)." . . . "Iraq is operating more than 40 major weapons installations." And despite the UN trade embargo, Iraq has resurrected its clandestine arms-importing network—using companies in France, Germany and Jordan. . . . [T]he country still has billions of dollars overseas that are now being funnelled through a clandestine financial network based in Amman, Jordan, Geneva and Vienna. The network imports "all types of materials" needed for Saddam Hussein's rebuilding effort.<sup>89</sup>

Although United Nations' sanctions are not scheduled to end until 1995, they have proven completely ineffective at halting Iraq's re-armament.<sup>90</sup> Iraq is importing all the arms it needs from Syria.<sup>91</sup> Most American defense experts now believe that if Saddam had not invaded Kuwait alone he might have had his first nuclear bomb by now.<sup>92</sup> Gary Milhollin, director of the Wisconsin Project on Nuclear Arms Control, believes that Saddam is continuing to finance a nuclear weapons program that has 580 tons of natural uranium hidden away, including two tons of enriched uranium for making nuclear weapons, together with 255 tons of HMX, the high explosive needed for detonating nuclear devices.<sup>93</sup>

Iraq's armed forces, while weaker than they were in 1989, are nearly ready to fight in another Desert Storm.<sup>94</sup> If Saddam has learned anything from Desert Storm, this time he will wait until his ballistic missiles are fully capable of carrying WMD, and his nuclear

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<sup>89</sup> "New World Disorder with Nuclear Backdrop," 40. Iraq is currently in the process of rebuilding her Scud arsenal with help from Syria.

<sup>90</sup> Stevens, interview, 1994.

<sup>91</sup> "New World Disorder with Nuclear Backdrop," 40.

<sup>92</sup> Ibid. Following hostilities the Coalition was apparently shocked when they learned how far the Iraqi nuclear effort had progressed.

<sup>93</sup> Ibid.

<sup>94</sup> Stevens, interview, 1994. At this point however, they would again probably be decisively defeated.

program bears some fruit, before opening round two of the Gulf War.

### G. Other Emerging Ballistic Missile Threats

There are almost a dozen other nations that possess ballistic missiles and are working on improving their capabilities or using them to develop new generations of missiles of their own. Three representatives of this emerging ballistic missile threat include Brazil, India and Iran.

Brazil is an example of a nation that is within the United States regional sphere, and is developing a long-range ballistic missile capacity. Brazil is already working on fielding rockets with a range of 1,000 km, so it is not implausible that future Brazilian missiles will be capable of reaching the continental United States, especially if exported to other regional players.

Brazil's ballistic missile program is an outgrowth of its earlier development of Sonda sounding rockets for meteorological experiments, which received technical assistance from companies based in Europe, Canada and the United States.<sup>95</sup> To date, Brazil does not have any operational ballistic missiles but it is a leading arms producer and exporter among developing nations and has been heavily involved in collaborative aerospace programs and in the development and production of missiles for export.<sup>96</sup>

The Brazilian aerospace industry, Avibras SA, is producing a four-stage rocket, employing solid-propellant motors from the Sonda sounding program, for China.<sup>97</sup> Brazil

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<sup>95</sup> Nagler, Ballistic Missile Proliferation, 20.

<sup>96</sup> *Ibid.*, 51.

<sup>97</sup> *Ibid.*, 20. China is providing technical assistance and possibly a guidance system.

is also developing the MB/EE missile series. These missiles already possess ranges of 150 km to 600 km, and a MB/EE that flew 650 km was reportedly test-fired in Libya in 1988.<sup>98</sup> Libya appears interested in purchasing the missile for \$2 billion in financing worked out over five years.<sup>99</sup> Brazil is about to field the SS-300, its own version of the popular Russian Scud, which it hopes will be a hot export.<sup>100</sup> Avibras is planning on developing 1,000 km versions of the SS-300 and the MB/EE.<sup>101</sup>

Brazil was developing nuclear weapons until the government voluntarily shut the program down in 1990.<sup>102</sup> This decision may have been influenced by the economic consequences stemming from the 1987 Missile Technology Control Regime (MTCR), which made missile development a much more costly proposition. It is doubtful that Brazil's hard-pressed economy could fund an expensive nuclear program while simultaneously maintaining an advanced aerospace industry. Brazil refuses to sign the Nuclear Non-Proliferation Treaty.<sup>103</sup>

Based on the history of its aerospace program, Brazil can probably develop longer-range ballistic missile systems in the future. When it matures, Brazil's rocket program may rapidly escalate ballistic missile proliferation in South America and directly challenge regional security arrangements in the Western hemisphere.

India, after China and Israel, has the third most advanced indigenous ballistic missile capability in the developing world.<sup>104</sup> A major regional power, India has developed the Prithvi and Agni ballistic missiles, with ranges of 250 km and 2,500 km

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<sup>98</sup> Ibid., 51.

<sup>99</sup> Ibid. This agreement may entail helping Libya develop the full MB/EE line-up, including the future 1000-km MB/EE-1000.

<sup>100</sup> Ibid. Given the long history of Brazil's Avibras Aerospace Industry involvement in developing and producing missiles for export and Brazil's sagging economy, the company may be attempting to export long-range ballistic missiles for hard currency.

<sup>101</sup> Ibid., 20.

<sup>102</sup> Ibid., 51.

<sup>103</sup> Ibid.

<sup>104</sup> Ibid., 45.

respectively, to extend its influence over South Asia, the Pacific Basin, and Persian Gulf.<sup>105</sup>

India's ballistic missile program is also an offshoot of an earlier Indian SLV effort. India has one of the largest space industries in the developing world. Companies in the old Soviet Union and Europe have assisted India's rocket program, and the Glavkosmos company in Russia still has a \$100 million contract with India to help develop a cryogenic motor in India's next-generation SLV, and potential ICBM.<sup>106</sup>

India also has one of the oldest, largest, and most diversified military-industrial complexes in the developing world. India's SLV program, for instance, provides the infrastructure for its Integrated Guided Missile Development (IGMD) program established in 1983.<sup>107</sup> India detonated a nuclear device in 1974, has nuclear warheads and the capability to produce them rapidly, and is developing chemical and biological weapons.<sup>108</sup> It is believed that India may have as many as 200 nuclear weapons in its arsenal.<sup>109</sup>

Based on India's historical use of short-range rockets in its 1971 war with Pakistan, it probably will employ its rockets on future battlefields, but no one knows how it will use its new strategic nuclear rocket force because India has published no formal doctrine concerning the use of strategic nuclear weapons.<sup>110</sup> In India's last dispute with Pakistan over Kashmir, both sides put their nuclear forces on alert.<sup>111</sup>

The emergence of new nuclear powers with ballistic missile delivery systems, such as India, quickly reveals the inadequacy of applying old, Cold-War deterrence theories to

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<sup>105</sup> Ibid., 46.

<sup>106</sup> Odom, Emerging Ballistic Missile Threat, 27. The United States has strongly pressured Russia to terminate this contract but Russia refuses to give in.

<sup>107</sup> Nagler, Ballistic Missile Proliferation, 46.

<sup>108</sup> Ibid.

<sup>109</sup> For a concise summary of the developing world's missile threat, see John Hutt Cunningham, "Special Issue: The Third World Missile Threat," High Frontier Newswatch 10, no. 1 (January 1993): 2.

<sup>110</sup> Nagler, Ballistic Missile Proliferation, 46. Neither does Pakistan.

<sup>111</sup> Cunningham, "Third World Missile Threat," 2. During the last dispute with Kashmir, Pakistani fighter-bombers were identified with bomb racks capable of carrying nuclear weapons.



the rapidly evolving geopolitical framework of a new world order. New powers may emerge with their own unique perspectives concerning the use of ballistic and nuclear weapons systems. A failure to seriously address these new perspectives may lead to serious consequences for the future security of the United States.

Iran has made an enormous national commitment towards obtaining its own ballistic missile force. It has received significant foreign assistance, mostly from China, in developing an indigenous program to produce ballistic missiles.<sup>112</sup> Iran has also acquired former Soviet Scud B's, North Korean Scud B's and C's, and purchased its own Scud B manufacturing line based on a North Korean variant of the Scud.<sup>113</sup>

Historically, Iran has always been interested in asserting regional dominance over the Persian Gulf. Iran is an Islamic fundamentalist state and is a major sponsor of international terrorism, particularly against Israel and the United States. Isolated from the United States after the 1979 Iranian revolution, and from traditional Western arms sources after the Iran-Iraq war, Iran has increasingly turned to China and North Korea for military assistance.<sup>114</sup>

Iran is a member of the Nuclear Non-Proliferation Treaty but probably has chemical and biological weapons, and is strongly suspected of pursuing a nuclear weapons program.<sup>115</sup> Iran may already have purchased up to three tactical nuclear weapons from the former Soviet Republic of Khazakstan.<sup>116</sup> Iran is currently negotiating with China to purchase three or four 400-megawatt nuclear reactors, in addition to the one small research reactor China already has helped it build and operate.<sup>117</sup>

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<sup>112</sup> Ibid., 17.

<sup>113</sup> Ibid., 18.

<sup>114</sup> Nagler, Ballistic Missile Proliferation, 36. Iran is trying to purchase long-range Scuds from North Korea.

<sup>115</sup> Ibid.

<sup>116</sup> Cunningham, "Third World Missile Threat," 3.

<sup>117</sup> Ibid.

During the Iran-Iraq war, all the Scuds which Iran fired were equipped with conventional high explosive (HE) warheads, “but future use of chemical warheads by Iran cannot be ruled out.”<sup>118</sup> The Iranians are building a powerful offensive missile force to project Iran’s regional power in the Gulf:

In 1985 and 1986, Iran acquired a small number of Scuds from Libya and Syria, and in 1988 purchased an additional 100 Scuds from North Korea. With assistance from the Chinese, Iran also developed the capability to produce the short-range Iran-130 and the Shahin missiles. . . . China reportedly is assisting Iran in building a factory to produce an 800-km range missile. . . . The months following the Iraqi invasion of Kuwait in 1990 have seen an extensive rearmament program by Iran, including the acquisition of the extended-range Scud from North Korea.<sup>119</sup>

The destruction of Saddam Hussein’s armies in Desert Storm and collapse of the former Soviet Union has temporarily created a power vacuum in the Persian Gulf that Iran may seek to fill. Iran’s absorption of most of Iraq’s air force during the war, recent purchase of former Soviet submarines, and expanding offensive missile capabilities may be evidence of a design to secure its long-standing regional ambitions.

A reassessment of global ballistic missile threats to the United States must also, finally, consider the hypothetical scenarios. These include threats considered unlikely today, but plausible future events that must be accounted for in any long-range consideration of strategic defense planning. For example, Britain and France both possess WMD and the ballistic missiles to deliver them to the continental United States. Both are traditional allies of the United States, but they have not always been, and there is no guarantee that they will continue to be in the future.

Germany and Japan possess no ballistic missiles today. Once America’s enemies, today they are considered among the United States’ closest allies. Still, if either country committed its national resources to a ballistic missile or nuclear weapons program, it is

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<sup>118</sup> Nagler, Ballistic Missile Proliferation, 36.

<sup>119</sup> Ibid.

entirely possible that within a decade, these two nations could again threaten the security of the United States.<sup>120</sup> Any strategic defense policy concerning continental ballistic missile defenses would be short-sighted if it failed to consider these plausible long-range developments. This is especially true in the case of weapons systems as elaborate as continental missile defenses, which may take many years to build and test.

From this brief examination of a few selected developing states, it is obvious that the United States may be significantly more vulnerable to ballistically delivered WMD attacks in the near future than earlier intelligence estimates indicated. Carefully reassessing this ballistic missile threat in light of increasing technology transfers in the Third World favorable to the development of such weapons systems makes it clear that the Third World could pose a significant threat to United States security within the decade.

The CIS still has a massive rocket force that can quickly target American cities, and Russia seems unwilling to forego the profits associated with catering to the developing world's demand for ballistic missile technologies. Accidental missile launches and ballistic missile or WMD technology transfers to the Third World countries are all distinct possibilities in the former Soviet Republics. China's sale of advanced missile technologies to developing nations is significantly contributing to long-range ballistic missile proliferation in the Middle East and Asia. It too has missiles capable of hitting the United States, and they are still aimed at America. North Korea has one of the world's largest arsenals of Scud missiles and has created a successful market for the missile throughout the Middle East. North Korea is supplied with biological and chemical weapons and may possess nuclear devices. It is constantly expanding the range and carrying capacity of its No Dong missiles. Iraq is rapidly rearming, and has not abandoned its missile program. It will soon be prepared to fight in another Middle East war.

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<sup>120</sup> Odom, Emerging Ballistic Missile Threat, 1.

Brazil, India and Iran will all soon field viable short and intermediate-ranged missiles capable of carrying WMD. It is probably only a matter of time before the range of these missiles is extended. India already possesses nuclear weapons, and Iran's nuclear program is well on its way.<sup>121</sup> Germany and Japan could quickly field ballistic-delivered WMD if it were in their interest to do so. The threat these weapons pose to American security is real, and it is increasing rapidly. America's leaders must now determine what a proper policy response to this emerging threat should be. The following chapter considers the principles that should guide such a determination.

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<sup>121</sup> See Appendix D for further information concerning the evolution of ballistically delivered WMD in the Third World.

### III

#### PRINCIPLES OF A JUST DEFENSE

Those who oppose national missile defenses often support the main presupposition underlying the 1972 ABM Treaty and MAD doctrine, namely, that establishing a defense against offensive strategic weaponry is somehow destabilizing and therefore an illegitimate American policy response. Offensive weapon systems that counter an enemy's strategic arsenal are permissible within the MAD framework, but the international community has all but outlawed national missile defenses.

From a historical perspective however, such thinking runs counter to the very principles that America was founded on. The United States Constitution clearly indicates that it is the duty of the federal government to "provide for the common defense" of the American people. Indeed, Western political tradition has always held that the chief duty of government is to first, defend its people from outside aggression, and second, maintain internal order. Many Americans consider it outrageous that the United States is spending taxpayers' money on building an advanced Patriot anti-ballistic missile defense for Japan while America's cities remain vulnerable to missile attack.<sup>122</sup>

From the earliest days of American history, the colonists considered it among the highest of national priorities to secure a defense from external enemies. These external threats initially consisted of Spanish sea invaders or Indians, but later manifested themselves in the form of former allies, such as the French and English. In the last century

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<sup>122</sup> "New World Disorder with Nuclear Backdrop," 42. South Korea will soon receive such defenses as well, but at least they will also be protecting America's front-line forces.

alone, the Amer<sup>123</sup>ican continent has been threatened by German and Japanese totalitarianism, and most recently, an expansionistic Soviet regime.

In the past, the United States went to great lengths to defend herself from such threats. Except for a brief lull during the Jefferson administration, which was later corrected by Jefferson himself, this nation has always made the coastal defense of the United States a high priority.<sup>124</sup> At first, America was extremely vulnerable to seaborne invasion, but America's first administrations responded to this threat by spending enormous amounts of money to create a series of coastal fortresses along its Eastern shores. By the middle of the 19th century, the United States was well defended by many modern fortresses, including the famous forts Sumter and Monroe.

At the turn of this century, the United States had also finally developed a powerful navy that would soon challenge even England's traditional command of the seas. The two Roosevelt administrations invested heavily in this offensive force in the hope that it might make future seaborne invasions virtually impossible. It must be remembered, however, that the Roosevelt administrations never abandoned America's traditional commitment to defending its shores. The Wilson and Roosevelt administrations also maintained a strong United States Army Coastal Artillery Command so that any enemy naval force that successfully evaded the United States Navy's offensive task forces would be destroyed by coastal artillery batteries before it reached American shores.<sup>125</sup>

Today, technological advances have dramatically changed the tools and rules of modern warfare, making war today almost unthinkable. The United States Army Coastal

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<sup>124</sup> Peter Marshal and David Manuel, *From Sea to Shining Sea* (Old Tappan, N.J.: Fleming H. Revell Co., 1986), 128. For a short time, Jefferson opposed the creation of a navy and the maintenance of even a token regular army. He ended this opposition at some point during the summer of 1807, probably after realizing that America lacked the military means to resist British impressment of American seamen.

<sup>125</sup> For an excellent presentation concerning the historic role of America's coastal artillery defenses, see the "U.S. Army Coastal Artillery Command," Audio/visual exhibit in the Casemate Museum at Fort Monroe, Hampton, Va., 5 February 1994.

Artillery Command has been disbanded, and it may no longer be necessary to launch a massive naval invasion of the United States to threaten America's cities. The advent of the intercontinental ballistic missile and WMD warhead means that a belligerent nation's civilian population can be decimated simply by vaporizing a few of its larger cities or by detonating some chemical warheads over sensitive geographic regions. The terror that gripped England during the V-1 and V-2 German rocket attacks of the Second World War was greater than that experienced at any other point in the war, even when the island nation faced imminent invasion from the sea and a devastating German air offensive.<sup>126</sup>

Rational leaders in the USSR and United States, playing by the rules of deterrence, have avoided the terrible consequences of nuclear warfare for almost fifty years. Unfortunately, some leaders, like Saddam Hussein and Mu' ammar al' Qaddafi, do not always choose to follow Western rules of deterrence but instead often appear to act completely irrationally. Within this century, Adolf Hitler and Saddam Hussein defied the traditional understanding of deterrence by attacking non-belligerents, and literally embracing retaliation, escalation and the use of terror weapons. In the last decade alone, the United States has been repeatedly attacked by radical Islamic elements. American Marines in Lebanon were attacked by suicide truck bombers, Desert Shield forces defending Saudi Arabia were hit by Iraqi Scud missiles, and the World Trade Center in New York was bombed by radical Muslim extremists.<sup>127</sup>

Critics of anti-missile defenses argue that today's advanced technology has all but rendered defensive weaponry obsolete, and that only offensive weapons are needed to secure America's national security interests. Although the march of technology has given

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<sup>126</sup> Paul Carell, Invasion-They're Coming! (New York: EP. Dutton and Co. Inc., 1967), 177. For further corroboration concerning the state of English morale, consult Winston S. Churchill's, Triumph and Tragedy (Cambridge, England: The New English Library, 1953).

<sup>127</sup> Richard Behar, "The Secret Life of Mahmud the Red," Time (Oct. 4, 1993), 54-61. Any government that challenges the radical Islamic fundamentalist faith may face similar fanatical assaults.

mankind increasingly sophisticated and efficient means of destruction, there are certain principles of warfare that remain as constant as the rules Sun Tzu articulated in The Art of War so many centuries ago. Providing for the defense of friendly forces and territory is just as important today as it was thousands of years ago.<sup>128</sup>

One ancient rule of warfare that is often used by critics of ballistic missile defenses to condemn any American expenditure on defensive anti-missile systems is that the best defense is a good offense. Proponents of such defenses argue that the United States needs both offensive weapons systems like the American fighter-bombers that chased the Scud launchers and prevented them from launching their rockets, and defensive systems like the Patriot to shoot down the Scuds that somehow made it through the airborne interdiction, not unlike the role once played by the old American coastal artillery batteries.

In a world where WMD are increasingly being sought by the developing world as potential warheads for new, more advanced Third World ballistic missiles, the United States needs national anti-missile defenses to counter the rockets that manage to slip through the offensive patrols of its armed forces. If nothing else, America needs missile defenses as a backup defense system in the eventuality of system failure elsewhere. Ballistic missile defense for the continental United States may prove to be an expensive backup system, with estimated costs exceeding \$40 billion over ten years, but if defense from external threats is the primary purpose of government, then certainly such an investment is justifiable. Since the United States has excellent offensive weapons systems for targetting enemy missile launchers, but no realistic national defense against incoming missiles, perhaps it is time to build one.

The Constitution makes it the primary duty of the national government to provide for the nation's common defense. National security interests have historically always

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<sup>128</sup> Sun Tzu, The Art of War (London: Oxford University Press, 1967). This frequently referenced work represents a timeless treasure on the principles of warfare.



occupied center stage in the formulation of American foreign policy. In its historic development, America has always provided first for the defense of its people, and only later for the defense of its troops and allies overseas. Even after America developed a powerful navy and professional army, it always secured a strong defense of its borders. Modern warfare has become increasingly more destructive, but defensive weapons have not been rendered obsolete by any means. There already is a consensus in the United States that offensive weapons are needed to counter enemy ballistic missiles, but the constitutional, historic and strategic case for national missile defenses is even more compelling. The next chapter will examine the Clinton Administration's response to the growing Third World ballistic missile threat.

## IV

### THE CURRENT POLITICAL CLIMATE

#### A. The Clinton Administration's Response

The Clinton Administration has pursued two policies in response to the emerging ballistic missile threat, the Defense Counterproliferation Initiative (DCI) and the Theater Missile Defense Initiative (TMDI). The most recent policy is that of the DCI. It calls for linking current nonproliferation efforts such as the Missile Technology Control Regime (MTCR) and Nuclear Non-Proliferation Treaty (NPT) to a new set of American capabilities that defends friends when preventative efforts fail. In the case of Japan, for instance, the United States added protection in the form of Patriot missiles when preventative efforts to halt North Korea's nuclear and ballistic missile proliferation failed. The new initiative is not meant to replace current nonproliferation efforts, but to, in effect, actually strengthen them.<sup>129</sup>

International nonproliferation efforts need to be strengthened. Although nonproliferation efforts such as the MTCR and NPT have certainly slowed down ballistic missile proliferation, and in some cases made it politically or economically difficult for some developing nations to pursue certain WMD programs, they have ultimately failed to halt proliferation. Such efforts are often based on the false assumptions that there is a core of technology that can be controlled, that developing nations cannot develop missiles or WMD without access to such a core, and that the West can make the cost of obtaining such

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<sup>129</sup> "New Capabilities Will Counter Weapons of Mass Destruction," 37.

weapons systems prohibitive for renegade regimes.<sup>130</sup> Actually, most of the information needed to build short-range ballistic missiles is already available in the public domain and procuring the necessary hardware is not as difficult as one would imagine:

[M]uch of the critical hardware for constructing rockets and their warheads also has other purposes. Computer-numerically controlled machine tools are a mainstay of modern heavy industry; one way or another, they can be bought. Vacuum pumps and seals are large industrial commodities as well. For construction of nuclear weapons, specialty steels and carbon fiber centrifuge rotors can be acquired. When one has as much money to spend as, for example, Iraq had, willing buyers and sellers of illicit products will find one another, even if they must do so through shady middlemen. . . . [M]ost of the relevant technical base for the production of A-4, or Scud-like, missiles already exists in developing countries, although not all the technology is likely to be found in one state. However, the commercial network to connect the Third World suppliers and consumers to the equivalent of late 1950's American or European technology is well developed, so lateral transfers should be a tractable problem for a would-be nuclear state.<sup>131</sup>

Many critics doubt whether even tightening export controls will prevent the further proliferation of WMD and ballistic missiles in the Third World. For instance, in the case of nuclear weapons: "No equipment currently regulated by export controls would be necessary to produce the conventional explosive components of at least one Nagasaki-like implosion weapon per month."<sup>132</sup> Even when controls on vital missile technologies such as re-entry shields and guidance systems are strengthened,

. . . the profits available from trade in controlled hardware and software are so great that a strong temptation exists for all but the most honorable of corporations to make the sales and launder the purchases and proceeds. . . . [M]any once-respectable corporations have succumbed to the lure of easy money from selling products at prices geared to the special market and its risks.<sup>133</sup>

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<sup>130</sup> For an excellent article that discusses how developing countries thwart First World Proliferation Controls, including the MTCR, see Peter D. Zimmerman, "Proliferation: Bronze Medal Technology is Enough," *Orbis*, 38, no. 1 (Winter 1994): 70.

<sup>131</sup> *Ibid.*

<sup>132</sup> *Ibid.*, 76.

<sup>133</sup> *Ibid.*, 78.

In any event, the DCI's goals are ambitious, to say the least. It is hoped that the initiative will promote a consensus on the nature of the threat, thus strengthening the international nonproliferation effort; reduce the utility of WMD, thus making them less attractive to the proliferator; and provide a defense for neighbors threatened by those holding WMD, thus reducing the motive to acquire WMD for self-defense.<sup>134</sup>

Although Counterproliferation is a step in the right direction, it is built on some tenuous presuppositions. No one disagrees that current preventative efforts are not adequately addressing the proliferation problem, as evidenced by the actions of Iraq and North Korea, but it can hardly be argued that there is a consensus concerning the nature of the current ballistic missile or WMD threat or that DCI can, by itself, create one.<sup>135</sup>

In order to achieve its grandiose goals, DCI relies on a host of exotic new offensive and defensive systems, most of which have not yet been tested in combat. Indeed, one of the offensive strategies listed under the "protection" category of Aspin's DCI is "SCUD hunting," a mission that virtually everyone agrees American armed forces performed poorly during the Gulf War. There is little, if any, reason to believe that the United States Air Force's ability to hunt such weapons has significantly improved since Desert Storm. The Patriot's inability to even prevent Scuds armed with HE warheads from causing collateral damage to their targets, makes it difficult to believe it could provide adequate protection from missiles armed with WMD.<sup>136</sup>

In short, there are many inherent problems with the Administration's DCI. According to DCI's logic, protective measures should make WMD less attractive to proliferators, but Iraq and North Korea have not been dissuaded from their WMD and ballistic missile programs, despite the fielding of upgraded Patriot batteries in Japan and

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<sup>134</sup> "New Capabilities Will Counter Weapons of Mass Destruction," 39.

<sup>135</sup> "Is There a Need for National Missile Defense?", 1-19.

<sup>136</sup> Tim Weiner, "Patriot Missile's Success A Myth, Israeli Aides Say," New York Times, 20 November 1993, A1.

Israel. It might be argued that until a better defensive system is fielded against ballistic missiles, it is doubtful that America's allies will base their entire national defense solely on limited, American-supplied, theater-based interceptors. Based on the Gulf War experience, and what is at stake, they would be foolish to do so.

The Administration's other major defense policy, theater-based defenses, is primarily the result of budgetary constraints and political hostility to Reagan's SDI. Shortly after being appointed Secretary of Defense by President Clinton, Les Aspin made it clear that he supported the rapid development and deployment of defenses against shorter-range (theater) missiles and continental ballistic missile defenses, but opposed deploying such defenses in space.<sup>137</sup> Presidential candidate Bill Clinton said he would support both forms of defenses during the campaign, but indicated that he would reduce SDI funding dramatically.<sup>138</sup>

In February, 1993, the Clinton Administration ordered a forty percent reduction in the \$6 billion SDI budget, requested by former president Bush. This \$3.8 billion Clinton request was further trimmed in the Democrat-controlled Congress to \$2.8 billion.<sup>139</sup> Such a dramatic cut in funding made the likelihood of fielding continental ballistic missile defenses by the year 2004, as called for in the 1991 Missile Defense Act, extremely unlikely. One Pentagon official said frankly: "It is obvious that no deployment is being planned under the new rules."<sup>140</sup>

In May of 1993, Les Aspin went so far as to declare publicly "the end of the Star

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<sup>137</sup> Jay P. Kosminsky, ed., "Clinton Taps Aspin to Head Pentagon," The SDI Report, no. 52 (25 January 1993): 1. Prior to the Gulf War and the collapse of the Soviet Union, Les Aspin considered SDI to be primarily a research program.

<sup>138</sup> Ibid. Paradoxically, Clinton has carried out both of these campaign promises.

<sup>139</sup> For a good summary of the dwindling SDI budget consult Baker Spring, ed., "SDI Issues," The SDI Report, no. 61 (29 October 1993): 1.

<sup>140</sup> Aleta Jackson, ed., "Aspin Chops Missile Defense," High Frontier Newswatch 10, no. 10 (October 1993): 2.

Wars era.”<sup>141</sup> Aspin also gave the Strategic Defense Initiative Organization (SDIO) a new name to reflect its shifting priorities, the Ballistic Missile Defense Organization (BMDO).<sup>142</sup> In light of the administration’s reduced funding, it appears that only a theater-based missile defense remains fiscally viable. In the words of Henry Cooper, former Director of SDIO:

When I left on the 20th of January, we left a budget for some \$6.3 billion for 1994, and it was intended to execute a program mandated by the Congress, called for under the Missile Defense Act of 1991. . . . If we maintain theater missile defense at the levels being pursued now, I am concerned about the viability even there if we end up with something on the order of a \$3 billion budget, which is where I think we’re headed . . . . [W]e can’t do the Missile Defense Act Program with the level of funds that appears to be forthcoming. . . . [W]e simply have to change our strategy and do theater missile defense right, and a technology program that would permit us to defend the United States when we are persuaded by the facts, and hopefully not by direct attack, that such a system is needed and we are prepared to pay for it.<sup>143</sup>

A theater-based defense policy appears to be a credible option to pursue in light of current budgetary constraints, political resistance to space-based defenses, and the simple fact that short-range and intermediate-range ballistic missiles are currently the only threats facing the United States. But theater-based defenses face many problems. The main problem with theater defenses is their almost complete reliance on tactical anti-missile interceptors such as the Patriot, Theater High Altitude Area Defense (THAAD), Homing All the Way Killer (Hawk) or Extended Range Interceptor (Erint).

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<sup>141</sup> Baker Spring, ed., “Aspin Renames SDIO,” *The SDI Report*, no. 56 (24 May 1993): 1.

<sup>142</sup> Isaf, “Is America Still Interested in National Missile Defense?” 2.

<sup>143</sup> “Is There a Need for National Missile Defense?”, 18-19. Henry Cooper is extremely concerned about America’s national missile defense, or lack thereof.

## B. Relying on Tactical Interceptors

Some Israeli military analysts argue that the Patriot's success in shooting down Scuds during the Gulf War is a myth, that in fact the Patriot may have made only one successful intercept of 16 incoming Scuds that hit Israel in January and February of 1991.<sup>144</sup> Although Raytheon officials say that the Israelis are defining intercept in its most narrow sense, as direct impact, they defend the missile's performance claiming that the Patriot is not necessarily programmed to run into the Scud, but merely explode near it, and divert tumbling warheads from their targets.<sup>145</sup> Still, even using Raytheon's criteria, the Patriots may have missed as many as nine Scuds.<sup>146</sup> If these Scuds had been carrying WMD, the consequences would have been catastrophic.

In all fairness to the Patriot missile, it should be remembered that this missile was originally designed to shoot down enemy aircraft in the late 1960's, not defend large urban areas.<sup>147</sup> The Patriot's mission is to defend itself and a narrow geographic area surrounding the battery, usually a friendly airfield. Raytheon and Israeli engineers frantically rewrote the missile's software to give it an anti-Scud capability during the Gulf war, and the Patriot performed fairly well, considering it was doing a job its designers never intended it to do.<sup>148</sup> A third software upgrade for the Patriot (PAC-3) is being scheduled now as part of the TMDI.<sup>149</sup>

All of the proposed theater based anti-missile systems rely on either high-velocity

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<sup>144</sup> Tim Weiner, "Patriot Missile's Success A Myth, Israeli Aides Say," New York Times, 20 November 1993, 1. A controversial, but fairly objective article.

<sup>145</sup> Ibid.

<sup>146</sup> Ibid.

<sup>147</sup> Ibid.

<sup>148</sup> Ibid. Israel should receive most of the credit for this incredible feat.

<sup>149</sup> U.S. Department of Defense, U.S. Ballistic Missile Defense Programs, Washinton, D.C.: Ballistic Missile Defense Organizaton, June 1993, p. 3. This upgrade is not scheduled until 1996-1999. Up-to-date information concerning the new Theater-based Defense Initiative can be obtained from the BMDO (phone [703-695-8743]).

hit-to-kill (Erint ) or blast fragmentation technologies (Patriot and THAAD).<sup>150</sup> Except for the Erint, which the Clinton administration appears reluctant to deploy in deference to the 1972 Anti-Ballistic Missile (ABM) Treaty, most of these anti-missiles intercept their targets late in their post-boost, re-entry phase of flight.<sup>151</sup> This means they provide only the last line of protection against missile attacks. Even if the intercepts are successful, the detonations occur over friendly territory, with the resulting debris potentially raining down on friendly forces.<sup>152</sup> In the case of ballistic missile warheads armed with NBC weapons, this may have devastating consequences.

Israel, for example, is developing, with major American funding, its own missile interceptor called the Arrow, but no longer feels that this interceptor alone is adequate. Israeli Prime Minister Yitzhak Rabin officially publicly requested American technical assistance in helping Israel deploy additional defenses that target offensive ballistic missiles in their boost-phase.<sup>153</sup>

Rabin fears that missiles armed with NBC warheads, even if successfully intercepted, may inflict unacceptable civilian casualties if debris from the warheads falls on Israeli territory. Israelis are also concerned with the threat they face from missiles carrying chemically armed cluster bomblets and multiple independently-targeted nuclear warheads, which are best countered by destroying such missiles in their boost phases.<sup>154</sup> Israel understandably wants to destroy nuclear warheads before they reach Israeli airspace.<sup>155</sup>

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<sup>150</sup> 1993 Report to Congress on the Theater Missile Defense Initiative (TMDI) (Washington, D.C.: The Ballistic Missile Defense Organization, 6 January 1993), A-2. The United States Army recently chose the Extended Range Interceptor (Erint) hit-to-kill anti-missile to succeed the old blast-fragmentation technology of the Patriot interceptor; see Richard Burnett, "Erint May be Chosen but Patriot Will Live On," The Orlando Sentinel, 27 February 1994, D-1.

<sup>151</sup> Ibid.

<sup>152</sup> Jacobsohn, "Case for a National Missile Defense," 3.

<sup>153</sup> Jay P. Kosminsky, ed., "SDI and the Allies," The SDI Report, no. 55 (26 April 1993): 3.

<sup>154</sup> Robert Jastrow and Max M. Kampelman, "Death in Clusters" (New York: The New York Times, 13 January 1993), 1, from NYT CD Newsbank-Third Quarter 1993.

<sup>155</sup> Kosminsky, "SDI and the Allies," 21.



During tense North Korean negotiations late in 1993 these concerns were again raised by critics of TMDI when the Clinton Administration decided to send Patriot missile batteries to South Korea:

Welcome as it is, the apparent Administration decision to deploy Patriots to South Korea raises a trenchant question. **Why is it that these thirty-year old missiles—whose performance in the Persian Gulf was, while heroic, not terribly effective—remain, as Under Secretary of Defense Frank Wisner put it yesterday “...Our first line of defense in the event of short-range-missile attack...our best line of defense”?** (In fact, he could have added, *it’s our only line of defense* against that or any other kind of missile attack.)<sup>156</sup>

Although this charge ignores the fact that many new highly-advanced interceptors are being developed by the United States, including the Patriot PAC-3, THAAD, Erint, and Aegis/SM-2 Block IVA missiles, most of these provide only a limited area, low altitude, post-boost phase, re-entry intercept.<sup>157</sup> Except for Erint, all of these interceptors employ fragmentation warheads, which may not completely destroy an NBC warhead. The problems Israel and the Coalition experienced using the Patriot during the Gulf War have not been solved by the Clinton Administration’s ambitious TMDI.

There is a rarely discussed financial difficulty associated with TMDI as well. Given the limited area defense provided by the program’s weapons’ systems, the United States and its allies may have to field literally thousands of TMD units to ensure adequate coverage of threatened urban population centers and forward deployed military units. As Lieutenant General Charles Horner, Commander of the United States Central Command Tactical Air Forces, observed:

Patriot success also has exposed a hole in the Allied arsenal, Patriot is a point defense weapon, areas to be defended in Saudi Arabia are concentrated in a few, small clusters [sic]. If the Allied military targets had been spread out, there wouldn’t be enough Patriots in the world to defend [them]. . . . [W]hen very accurate missiles with mass destruction warheads

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<sup>156</sup> “U.S. Reinforcement of South Korea Must Not Stop With Patriots; Why is No Better Missile Defense Available?” Decision Brief (27, 1, 1994), 2. Quoted using article’s original emphasis.

<sup>157</sup> U.S. Ballistic Missile Defense Programs, 3.

are available to Third World nations, the U.S. will need a regional, wide area defense force to duplicate on a grand scale the Patriot's pivotal role in defanging the Scud.<sup>158</sup>

Japan and Israel are already clamoring for more Patriot missile batteries in light of the growing ballistic missile threat from their neighbors, North Korea and Iraq.<sup>159</sup> Deploying sufficient numbers of TMDI batteries to protect Europe, South Korea, Japan, Israel, Saudi Arabia, Egypt and the former Soviet Union may prove many times more expensive than pursuing Reagan's original SDI program.<sup>160</sup> That is why many defense experts, including the last director of SDIO, Henry F. Cooper, believe that a \$40 billion space-based global interceptor system, similar to the Bush Administration's GPALS, is a better fiscal option than ground-based interceptors.<sup>161</sup> Such a system would cost around \$40 billion over ten years, almost 70 percent less than Reagan's SDI.<sup>162</sup>

Another critical challenge facing TMDI has surfaced in the North Korean affair. North Korea announced in January, 1993, that it opposed the deployment of American Patriot missile batteries in South Korea. Responding to increasing international tension over the Korean situation, the Clinton Administration chose to delay deployment of such batteries for over three months.<sup>163</sup> The episode highlighted the obvious, that deploying land-based theater missile defenses takes time and is difficult to accomplish without the support of a host country and the acquiescence of its neighbors. Just shipping the Patriot missile batteries to Korea takes well over a month.<sup>164</sup>

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<sup>158</sup> Cooper, Statement on Strategic Defense Initiative, 4-5. Quoted from an interview of General Horner in *Aviation Week* that Ambassador Cooper later verified with General Horner to ensure it accurately reflected his views.

<sup>159</sup> Bradley Burston, "U.S.—Israeli Arrow Fails in Critical Test" (Jerusalem: Reuters, 17 October 1993), 1, from CD NewsBank-Third Quarter 1993.

<sup>160</sup> "Flash—Kim IL Sung Doesn't Approve of Patriots: Do We Need More to Buy *Global Missile Defenses?*" Decision Brief (31 January 1994): 2.

<sup>161</sup> "Is There a Need for National Missile Defense?", 19.

<sup>162</sup> Jacobsohn, "Case for a National Missile Defense," 4.

<sup>163</sup> *Ibid.* The Administration was also deferring to South Korea's desire to pursue peace talks with the North; read "U.S. Warns North Koreans of Sanctions," A-6.

<sup>164</sup> Lee Michael Katz and Bill Nichols, "U.N. Begins Work on Warning North," U.S.A. Today,

Although American Naval forces could field ship-based Aegis missile interceptors rapidly in such situations, such defenses would probably prove inadequate in situations where population centers or friendly forces deployed far inland needed to be defended. Since North Korea has announced that it considers the arrival of American Patriot batteries on Korean soil to be a formal act of war, it remains to be seen whether or not South Korea will go ahead with their deployment. In the case of Korea, it seems obvious that a potential aggressor can intimidate a peaceful government attempting to deploy effective missile defenses into temporary inaction.

The final, and most serious difficulty with pursuing a TMDI, given current defense funding priorities, is that it may give America a false sense of security and undermine its commitment to fielding a true continental ballistic missile defense.

### C. Losing Sight of National Missile Defense

The TMDI may give Americans a false sense of security, not unlike the initially unrealistic promises of the Reagan Administration concerning SDI. Israel's experience with the Patriot proves that ground-based tactical missile defenses, at best, only provide a limited defense from missiles armed with WMD. It must be remembered that in the case of attacks on United States territory, or American armed forces overseas, the debris that falls from missiles intercepted by current TMD systems will be falling on friendly soil, and may include radioactive material, toxic chemicals, or biological agents.<sup>165</sup>

TMDI may also undermine America's commitment to fielding a strategic missile

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23 March 1993, 1. The anti-missiles are being shipped because they occupy too much valuable space on air transport aircraft used to supply American troops in Korea, and the Administration seeks to downplay the significance of the deployment; see "U.S. Warns North Koreans of Sanctions," A-6.

<sup>165</sup> John Hutt Cunningham, Press Secretary of High Frontier, telephone interview by author, 30 March 1994. There is a definite possibility that NBC warheads intercepted by Patriot PAC-2 interceptors may not be completely destroyed with resulting debris (including armed nuclear devices) potentially causing serious collateral damage to area targets. Patriot PAC-3 and THAAD interceptors are not scheduled for deployment until 1996 at the earliest.

defense within this decade. Most defense experts agree that the BMDO cannot simultaneously deploy an effective theater-based and strategic defense against ballistic missiles.<sup>166</sup> The organization may be able to successfully develop one or the other, but trying to sustain two serious acquisition programs at current budgetary levels may end up jeopardizing the long-term viability of both.<sup>167</sup>

Although the Secretary of Defense's 1994 Fiscal Year Guidance publicly states that national missile defenses are a second priority of the administration, in reality, the Administration has all but ignored the 1991 Missile Act's directive to implement national missile defenses no later than 2004. There are serious consequences involved with this decision to delay further the construction of America's national missile defense.

The first consequence is that the United States remains vulnerable to ICBM attacks armed with WMD from Russia, Ukraine, Kazakhstan, Belarus, China, Great Britain and France. A second consequence is that the United States will also face, within this decade, an increasing risk of being attacked by intercontinental missiles launched from North Korea, Iraq, Iran, Brazil, India, Italy, Israel, Germany, Japan or Sweden.

Of course, there is always the possibility that the United States could be attacked by a shorter ranged ballistic missile already in the possession of North Korea, Iraq, Iran, or Libya. Arming such a missile with a chemical or biological warhead is technically feasible for most of these nations, and North Korea may even be able to mount a nuclear warhead on one of its No Dong rockets.<sup>168</sup> This eventuality could occur in the event a missile was launched from a freighter within range off the United States coast, or a missile was somehow covertly smuggled into Mexico, Cuba, an island in the Caribbean, or somewhere in Central America. Regardless of the source, it must be remembered that the United States

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<sup>166</sup> Stevens, interview, 1994.

<sup>167</sup> "Is There a Need for National Missile Defense?", 18.

<sup>168</sup> Cunningham, interview, 1994. Corroborated by Stevens, interview, 1994.

currently has no effective defenses against such a missile.

Perhaps the greatest consequence of not fielding a national anti-missile system now is the loss of the invaluable time needed for procuring, deploying and testing such a defense before it must be used. There has been talk in the BMDO about continuing a technological program for strategic defenses, but until such defenses are actually fielded, there can be no effective, simulated battle-field test of the system. This point is often neglected by critics of continental defenses who fail to recognize that: “the US must be defended *by the time* the next long range threat has emerged. Building a productive defense takes time and vision.”<sup>169</sup>

It is this enormous time frame, the time it typically takes to develop and effectively deploy a defensive weapon, that critics fail to consider when arguing that strategic defenses are not needed at this time because there is currently no active missile threat to the United States. For instance, the M-16, when first issued in Vietnam, had a high malfunction rate. It took time to adopt the necessary measures needed to turn the M-16 into a quality infantry rifle.<sup>170</sup>

As one can imagine, a system as enormous and elaborate as a continental missile defense takes time to plan, time to procure, time to test, and time to debug. The tremendous communications and command and control problems involved in such a system have been openly admitted to, even by the SDIO.<sup>171</sup> These problems must be ironed out in actual field tests with a procured and deployed system.<sup>172</sup> Time is perhaps the one commodity in warfare that cannot be purchased; once lost, it is gone forever.

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<sup>169</sup> Jacobsohn, “Case for a National Missile Defense,” 4.

<sup>170</sup> Richard O’Neil, ed., An Illustrated Guide to the Modern U.S. Army (New York: Prentice Hall, 1986), 132-133. The M-16A1 had an extremely high malfunction rate when first issued in Vietnam. This was in large part due to poor maintenance and improper training, but the weapon’s short range and poor stock were continuing sources of dissatisfaction for the Army and Marines, prompting the Army to consider the M-16A2 upgrade in 1981..

<sup>171</sup> Ambassador Henry Cooper admits such problems in, “Is There a Need for National Missile Defense?”, 36.

<sup>172</sup> Ibid.

When America's enemies can target the United States with WMD, they will not stop and wait until it deploys its ballistic missile defenses, which could take years. Aggressors may well use the weapons they develop to hold a Western city hostage, commit a terrorist act, or make an example of bombing a city like New York to deter future American intervention in the developing world.

#### D. A Narrow Interpretation of the 1972 ABM Treaty

The Clinton Administration recently informed the Senate that it plans on reversing the last two Republican administration's policies of broadly interpreting the 1972 ABM Treaty and will henceforth adhere to a narrow interpretation of the treaty.<sup>173</sup> Although it is not entirely clear which states will be considered the legitimate successors of the Soviet Union for purposes of the Treaty, the Clinton administration apparently wishes to strengthen its restrictions on the testing and development of missile defense systems.<sup>174</sup> This position seriously impedes any plan to field an effective national missile defense for the United States.

The obvious consequences of adopting such a position are already beginning to unfold. By adopting a narrow interpretation of the Treaty, the administration all but abandons the fielding of any national missile defenses because such a policy "prohibits the development, testing, and deployment of sea-based, air-based, space-based, and mobile land-based ABM systems and components without regard to the technology utilized."<sup>175</sup>

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<sup>173</sup> Aleta Jackson, ed., "ABM Treaty Upheld," High Frontier Newswatch 10, no. 9 (September 1993): 3.

<sup>174</sup> Aleta Jackson, ed., "Clinton Pulls a Fast One on Treaty," High Frontier Newswatch 10, no. 10 (October 1993): 2. Administration officials mentioned the possibility of amending the Treaty to allow for theater-based defenses but no subsequent action followed this statement.

<sup>175</sup> Sidney Graybeal and Patricia McFate, "The ABM Treaty and Ballistic Missile Defense: Can the Circle be Squared?" Arms Control and Disarmament Agency News (3 November 1993): 233. This

The Democrat decision to adopt a strict construction of the Treaty not only sabotages national missile defense, but ironically, may undermine even the administration's own TMDI. Although the 1972 Treaty always was held to restrict the deployment of national defenses against strategic missiles, it has never been heretofore considered applicable to theater defenses.<sup>176</sup> In 1993, however, the Democrat-controlled Senate Armed Services Committee decided that even theater-based defenses must now be reviewed for ABM Treaty compliance.<sup>177</sup>

The new 1994 Department of Defense Authorization Bill for TMDI funding specifically requires a complete review of seven important theater-defense systems to ensure that they are compliant with the ABM Treaty.<sup>178</sup> Incredibly, the systems under review include the popular Patriot missile and new THAAD, the key missile defense technologies undergirding Les Aspin's TMDI.<sup>179</sup> Funding for these programs has been frozen at fifty percent until they meet with ABM Treaty compliance.<sup>180</sup> An adverse ruling could conceivably leave the United States with no credible response to the increasingly recognized international ballistic missile proliferation problem.

Although some Patriot-type interceptors may meet Treaty guidelines, these types of anti-missiles still employ fragmentation warheads that provide poor protection against missiles armed with WMD. They are also incapable of shooting down incoming missiles traveling at velocities in excess of two kilometers a second, so while they can shoot down primitive Scud-B missiles, they may soon be rendered technologically obsolete by Third

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source provides an interesting examination of the impact of the Treaty on future missile defenses. For the text of the complete treaty consult, "Strategic offensive arms limitation: text of the 'Basic principles of negotiations on the further limitation of strategic offensive arms' [signed by Richard Nixon and Leonid Brezhnev, June 21, 1973]." Weekly Compilation of Presidential Documents, 9:812 (25 June 1973).

<sup>176</sup> Baker Spring, ed., "Senators Charge Committee's Demand for ABM Treaty Compliance Review for Theater Defenses is Inappropriate," The SDI Report, no. 59 (31 August 1993): 2.

<sup>177</sup> Ibid.

<sup>178</sup> Ibid.

<sup>179</sup> U.S. Ballistic Missile Defense Programs, 3.

<sup>180</sup> Cunningham, interview, 1994.

World missile advances. The new THAAD may be able to intercept SLBM's travelling at six or seven kilometers per second, but since the ABM Treaty forbids development of anti-missiles that intercept incoming enemy missiles travelling in excess of two kilometers a second, it cannot be developed unless the Treaty is amended.<sup>181</sup>

The Administration's commitment to a narrow reading of the 1972 Treaty is entirely contrary to the legislative intent of the 1991 Congressional Missile Act. The 1991 Act, as amended in 1992, directed the President to re-negotiate the ABM Treaty so it would:

- 1) permit additional sites for deploying ground-based ABM interceptors and radars (currently only one site is permitted);
- 2) allow space-based sensors to provide battle management for ABM purposes;
- 3) clarify Treaty restrictions on the testing and development of space-based systems;
- 4) loosen restrictions on the development of ABM technologies not available when the Treaty entered force; and
- 5) clarify the distinction between strategic anti-missile systems, which are restricted by the Treaty, and tactical anti-missile systems which are not.<sup>182</sup>

It is questionable whether the ABM Treaty is still in the United States' interest. The treaty was originally based on the questionable premise that national defenses against offensive strategic weaponry were inherently destabilizing. Such a view is, if nothing else, unprecedented in the history of warfare. No major offensive weapon system in history has

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<sup>181</sup> "Why Weaken the ABM Treaty?" New York Times, 13 December 1993, A-16. From the Editorial Page of the NYT, this piece provides the standard State Dept. defense for maintaining the ABM Treaty, namely because it is a capstone of disarmament efforts and abandoning it will make Moscow more reluctant to reduce their strategic arms, may lead to a new nuclear arms race and may undermine the U.S. strategic deterrent. To these charges it must be answered that the Treaty's own architects have decided it is no longer in the best interest of the U.S. to adhere to it, and the Russian hardliners are already reluctant to make further arms reductions as evidenced by their April, 1994, violations of the Conventional Forces Treaty. In any case, it is obvious that even in the worst case scenario, Russia cannot at this time afford to engage in another strategic arms race. Considering her vulnerability to current Third World ballistic missile threats, Russia might initially benefit more from the development of advanced ABM defenses than the United States.

<sup>182</sup> Jackson, "Clinton Pulls a Fast One on Treaty," 2.



been developed, and then voluntarily shelved, by the world community. Prior to the Second World War, it was believed that the development of the bomber would mark the end of civilization, but despite knowledge of the horrible carnage such a weapon could inflict, every major power proceeded to build its own bomber fleets which they later used to flatten the cities of Western Europe.

Heroic attempts were made between the two world wars to limit new weapons systems and outlaw war itself.<sup>183</sup> Germany was specifically forbidden from developing air, navy, or armored forces, but to no avail. Despite treaties limiting everything from chemical weapons to the size and caliber of battleships, it seems as though belligerents always found justification in the desperate circumstances of total war to use every modern weapon at their disposal, including thermonuclear weapons. Weapons once considered capable of ending civilization remain in the arsenals of many countries today, and some are still routinely used in the Middle East.<sup>184</sup>

It was hoped that the advent of nuclear weapons might end the vicious cycle of the arms race but clearly it has not. The first country to develop such weapons felt quite justified in using them against its adversary. Despite the NPT, the number of countries officially possessing nuclear devices has nearly doubled in the last five years. Another six developing countries are expected to have such weapons and the means to deliver them via ICBM's within the decade. Even with MTCR in place, there are now 19 Third World countries with ballistic missiles.<sup>185</sup> The evidence is overwhelming that

a broad-based trade in technologies directly relevant to the construction of primitive, but potentially threatening, guided missiles and early-generation nuclear weapons already exists outside the bounds of the MTCR participants and the Nuclear Suppliers' Group.<sup>186</sup>

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<sup>183</sup> War was internationally outlawed by the Kellogg-Briand Pact of 1928 and there was a strong international movement to outlaw chemical weapons after the First World War.

<sup>184</sup> Nagler, Ballistic Missile Proliferation, 72-74.

<sup>185</sup> *Ibid.*, 11.

<sup>186</sup> Peter D. Zimmerman, "Proliferation: Bronze Medal Technology is Enough," Orbis, 38, no. 1

Despite these problems, the MTCR and NPT should not be scrapped. These nonproliferation efforts serve a valuable role in reducing the rate of technology transfers to the developing world, thus delaying the evolution of new Third World weapons systems. It must be acknowledged, however, that these efforts have failed to stop the evolution and proliferation of new weapons of mass destruction. The United States cannot simply rely on technology controls and disarmament agreements alone to solve the proliferation problem, nor can it afford to overemphasize the significance of the 1972 ABM Treaty.

Although America once considered the Treaty to be in its own best national interests, this no longer appears to be the case. During the Treaty negotiations, the United States was primarily concerned with the USSR's potential transformation of its extensive SAM defenses into an effective ABM system, a strategy that might increase their confidence of launching a successful first strike.<sup>187</sup> This may have been the chief motive for America's entry into the treaty.

The ABM Treaty was consistent within the perspective of the mutually assured destruction (MAD) deterrence framework, perhaps even an offshoot of it, but circumstances are completely different today. Today the United States and CIS both face an increasing threat from a multitude of new nuclear powers. The MAD doctrine was always complicated by the existence of Western Europe's and China's nuclear arsenals, and the emergence of up to six new developing world nuclear powers within this decade, with more on the way, only makes it more problematic. After all:

There are many scenarios for which the traditional paradigm of massive response would be inappropriate and ineffective. These include accidental or unauthorized launch by a dissident element within one of the four nuclear republics, a one-weapon or two-weapons attack against the United States or an ally by a Third World nation, and the use of an improvised

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(Winter 1994): 82.

<sup>187</sup> "Can the Circle be Squared?", 235.

nuclear device by a terrorist organization.<sup>188</sup>

The vast damage inflicted by just one nuclear weapon might be enough to dissuade American leaders from annihilating a would-be Third World aggressor. In any event, the environmental damage stemming from a MAD response, may by itself, make assured destruction an unacceptable policy response. As environmental concerns increasingly dominate the world agenda, nuclear weapons may be viewed as an increasingly inappropriate military option for Western Nations. Clearly a new flexible response framework must be created to deal with such contingencies on a case by case basis.

The collapse of the Cold War's bi-polar geopolitical arrangement has rendered the old MAD framework obsolete, and perhaps the 1972 ABM Treaty too. Richard Nixon, the United States President that successfully negotiated the treaty, no longer believes the Treaty is in America's best interest. He thinks that it is time to move on and deploy strategic missile defenses.<sup>189</sup> Henry Kissinger, the principal architect of SALT I and the 1972 Treaty has publicly stated that "limitations on strategic defense will have to be reconsidered in light of the Gulf War experience; no responsible leader can henceforth leave his civilian population vulnerable."<sup>190</sup>

The ABM Treaty no longer serves the best interests of the CIS either, which already faces much greater regional ballistic missile threats than the United States. The CIS can be hit by ballistic missiles launched from China, Iraq, Egypt, Syria, Iran, Saudi Arabia, Israel, India, Pakistan and North Korea.<sup>191</sup> Boris Yeltsin has publicly expressed his interest in a joint American-Russian effort to develop and deploy a global anti-missile

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<sup>188</sup> Powers and Muckerman, "Rethink the Nuclear Threat," 101.

<sup>189</sup> "Is There a Need for National Missile Defense?", 14. Nixon's publicly stated view, according to Frank Gaffney, Director of the Center for Security Policy.

<sup>190</sup> Quote found in Cooper, Statement on Strategic Defense Initiative, 4-5. Kissinger's quote comes from an interview in Henry Kissinger, "A Sea Change in U.S.-Soviet Relations," The Washington Post, 2 April 1991, A-21.

<sup>191</sup> Nagler, Ballistic Missile Proliferation, 35-47.

defense system.<sup>192</sup> On January 29, 1992, Yeltsin said: "We are ready jointly to work out and subsequently to create and jointly operate a global system of defense in place of SDI."<sup>193</sup> Two days later he reiterated his proposal for the "creation of a global system for protection of the world community [which] could make use of high technologies developed in Russia's defense complex."<sup>194</sup>

The treaty could easily be modified to allow for a limited global ABM defense, or scrapped all together because it was made with an entity that no longer exists, the former Soviet Union. Even if, in a worst case scenario, the United States were forced to modify or abandon the Treaty unilaterally, it is doubtful that the CIS could financially sustain an arms race in space, and sharing the new United States defense technology would make it irrational for them to do so.

Proponents in favor of maintaining or updating the Treaty admit that the question of successor states has yet to be resolved.<sup>195</sup> There are also numerous ambiguities in the Treaty, many the result of new technologies, that must be resolved if the Administration wishes to continue abiding by it. These include:

what constitutes a strategic ballistic missile, what should be the dividing line between strategic and tactical ballistic missiles, what constitutes testing in an ABM mode, what determines giving non-ABM components an ABM capability, and what constitutes permitted utilization of data from space-based sensors.<sup>196</sup>

In any case, the Administration should carefully review its decision to adhere to a traditional Treaty interpretation. Such a policy may jeopardize its own TMDI, as well as effective deployment of national missile defenses in the foreseeable future, placing the next

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<sup>192</sup> Baker Spring, ed., "Arms Control," The SDI Report, no. 56 (24 May 1993): 3.

<sup>193</sup> 1993 Report on Strategic Defense Initiative, p. 1-6.

<sup>194</sup> *Ibid.*

<sup>195</sup> Baker Spring, ed., "ABM Treaty Review Conference Fails to Resolve Succession Problem," The SDI Report, no. 61 (29 October 1993): 3.

<sup>196</sup> "Can the Circle be Squared?", 233.

American generation in harm's way. It must also be remembered that the United States and CIS are not the only countries that threaten to militarize space, an outcome the ABM Treaty was designed to prevent. There are many non-signatories to that Treaty that may soon possess such a capability, including China, Iraq, North Korea and India.<sup>197</sup> Those who argue that the militarization of space is inevitable point out the fact that proliferators such as Iraq and North Korea, habitual violators of existing arms control agreements, are not content with just developing WMD and ballistic missiles; they are also aggressively pursuing active space programs, with an eye to the future.<sup>198</sup> Strict adherence to the ABM Treaty by the CIS and United States may eventually leave both countries vulnerable to future space-based weapons.

The Clinton Administration's Defense Counterproliferation (DCI) and Theater Missile Defense Initiatives (TMDI) fail to provide an effective defense of the United States from a growing international missile threat. The Nuclear Non-Proliferation Treaty (NPT) and Missile Technology Control Regime (MTCR) have slowed down, but failed to halt, ballistic missile and WMD proliferation in the Third World. America's current anti-missile interceptors cannot perform the ambitious mission the Administration is asking them to play in DCI and MTCR. The deployment of Patriot missile defense batteries has failed to discourage the further proliferation of ballistic missiles in the developing world, even of the primitive Scud B variety. Interceptors of the Patriot variety (THAAD, AEGIS and HAWK) cannot guarantee friendly forces protection from collateral damage caused by falling NBC warhead debris. Deploying tactical anti-missile defenses takes time and is difficult to accomplish in crisis situations.

Sufficient funding cannot be secured for both the Administration's national and theater-based missile defense programs, and it is doubtful that enough funding can be

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<sup>197</sup> Nagler, Ballistic Missile Proliferation, 35-47.

<sup>198</sup> Ibid.

allocated even to provide effective theater-based defenses for America's allies and overseas troop deployments. The Clinton Administration's decision to focus on theater-based defenses over national defenses means that national defenses may not be available when America's future enemies threaten the United States with ballistic missiles armed with WMD.

By adopting a narrow interpretation of the 1972 ABM Treaty, the Administration has called into question its entire TMDI. It has also delayed the development and deployment of all of the new advanced interceptors scheduled to replace the Patriot. Interceptors of the Patriot-variety may shortly be rendered obsolete by Third World ballistic missile and WMD technology advances. Adhering to the Treaty, a relic of the Cold War's MAD doctrine, is no longer within the United States' best national interests. The militarization of space may be inevitable, even if the CIS and United States uphold the Treaty. Therefore, the Treaty should be terminated unless it can be amended in a way that allows the United States and Commonwealth of Independent States to respond appropriately to the common threat each faces from Third World ballistic missile proliferation. The final chapter examines the form national missile defenses might take if constructed in the United States.

## NATIONAL MISSILE DEFENSES FIRST

A. Challenges Facing the National Missile Defense

There are many difficulties associated with deploying a national missile defense, even when sufficient political will and economic resources exist to undertake the endeavor. Foremost among the challenges are the issues of ABM Treaty compliance, system type, funding and political viability.

It should be noted, from the previous discussion concerning consequences of a narrow interpretation of the 1972 ABM Treaty, that the United States must amend, modify or abandon the Treaty if an effective national missile defense is to be erected. Until such a step is taken, a position advocated by representatives of two prior American administrations and the 1991 Missile Act, there is little hope of a credible national missile defense being designed, tested, or deployed.

The type of system to be deployed depends on the degree of defense sought to counter ballistic missile threats, and the funding made available to provide it. Ideally, an ABM system should be chosen that maximizes current security at the least possible cost, has an open architecture that allows for easy upgrades of existing interceptor and sensor systems, and provides limited defense against threats that may not exist now, but probably will be in place by the time the system is deployed. Thus far, the only system the Clinton Administration's BMDO is considering is the one ABM site permitted in North Dakota by the ABM Treaty. This site would contain 100 long-range interceptors with near-continental footprint, or capable of intercepting enemy ICBM's aimed at any target in the United

States. The cost of this system is \$22-24 billion.<sup>199</sup>

There are several problems associated with deploying such a system. Such a system would offer a limited defense against a couple of dozen ICBM's launched against the continental United States. It may not be effective against short and intermediate-ranged missiles targeting America's coasts, and offers no defense for Hawaii or Alaska.<sup>200</sup> This system's failure to provide a defense for a large percentage of the American population may alone be sufficient reason to reject it. The requirement of basing the first site at Grand Forks also means that at least one additional ABM site would have to be built to provide adequate continental coverage, should the decision be made in the future to construct a national missile defense system.<sup>201</sup> Moving the initial site to one of America's coasts would mean one fewer site would have to be built, cutting \$2 billion from the cost of a national missile defense system.<sup>202</sup>

The current plan also relies too heavily on the the long-range interceptor. The advanced ground-based interceptors would work well against ICBM's launched from countries thousands of miles away, but would provide virtually no protection against short-range Scud-type missiles and missiles with depressed trajectories.<sup>203</sup> Another problem associated with advanced ground-based interceptors is their inability to intercept missiles until they are in their post-boost phase. When warheads containing WMD are intercepted,

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<sup>199</sup> 1993 Report on Strategic Defense Initiative, p. 2-16. In FY-91 dollars.

<sup>200</sup> U.S. Ballistic Missile Defense Programs, 3. These would each require their own separate ABM site.

<sup>201</sup> 1993 Report on Strategic Defense Initiative, p. 1-4. Although the Grand Forks site would be armed with long-range interceptors with nearly a continental-sized footprint, a more effective national missile defense would require additional sites. This is because intercepts are rendered increasingly less probable as the distance between the target and interceptor's launch-site increases; for a more detailed examination concerning such issues read, Robert Jastrow, William A. Nierenberg, and Frederick Seitz, U.S. Responses to The Emerging Ballistic Missile Threat (Washington, D.C.: The George C. Marshall Institute, 1991), 13-19.

<sup>202</sup> *Ibid.*, p. 2-9.

<sup>203</sup> Robert Jastrow, U.S. Responses to The Emerging Ballistic Missile Threat, 42. THAAD anti-missiles would provide effective defense against Scuds, SLBM's and intermediate-range missiles such as the No Dong and CSS-2, if based along America's coast.



the resulting debris may fall on American soil and inflict serious casualties, or just off its coast, causing significant environmental and health consequences for the United States. Another serious problem with long-range interceptors possessing a continental footprint is their inability to distinguish successfully between enemy decoys and re-entry vehicles (RVs).<sup>204</sup> Third World countries could circumvent such a system by installing even primitive balloon decoys on their missiles.<sup>205</sup>

Rather than determine conclusively what the structure of an ideal ABM system should be, an ongoing highly-technical debate beyond the scope of this examination, the following discussion focuses on an implementation strategy for one ABM system, earlier proposed by the George C. Marshall Institute in 1991.<sup>206</sup> One of many possibilities, this example can be used to consider the basic requirements of an effective national missile defense, and how such a system could be deployed in the United States. Once a consensus is someday reached concerning the structures and appropriate technologies of America's continental missile defense, an effective deployment strategy may prove essential to sustaining a successful acquisition effort.

#### B. A Strategy for Deploying Limited American Missile Defenses

The basic requirements of a continental ABM system laid out in the Marshall Institute's U.S. Responses to The Emerging Ballistic Missile Threat include a mixture of space-based and ground-based interceptors, their respective sensor systems, and a THAAD anti-missile network along the coast of the United States.<sup>207</sup> Such a system has many advantages over the planned single site at Grand Forks.

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<sup>204</sup> Ibid., 20.

<sup>205</sup> Ibid., 19-20.

<sup>206</sup> Ibid., 35-59. Jastrow outlines a potential national missile defense system and its associated costs in chapters four and five of U.S. Responses to The Emerging Ballistic Missile Threat.

<sup>207</sup> Ibid., 56.

The Institute's proposed ground defenses realistically defend all fifty states from the Third World missile threat by deploying one advanced ground-based interceptor site along each of America's coasts, together with two more in Alaska and Hawaii.<sup>208</sup> Five such ABM sites will provide anti-missile coverage for nearly all American territory, and significantly improve the odds that intercepts of enemy missiles will take place far out over the oceans. The number of advanced interceptors at each site is a technical question, to be resolved on the basis of the improving efficiency of such weapons and the evolving nature of the threat, but ground-based interceptors of this type would be especially effective against enemy ICBM attacks.

The Institute's more controversial space-based missile defense would involve placing hundreds of space-based interceptors known as Brilliant Pebbles (BP) into orbit around the earth. These devices, once activated, automatically fire anti-missiles that home in on enemy rockets, sometimes while they are still in their boost phase, making a high velocity impact kill upon interception.<sup>209</sup> Space-based interceptors have the advantage of destroying enemy WMD warheads high above the atmosphere and far away from their intended targets, thus minimizing surface damage to the defending nation.

The advantage of space-based interceptors is that they can defend large areas and large numbers of targets or theaters more efficiently than ground-based defenses. This is because interceptors must be based close to an enemy missile to intercept it during its short flight. Ground interceptors can only intercept missiles within their immediate range, and they may have a long way to go up through the atmosphere before making their intercept. Placing a few hundred interceptors into orbit, on the other hand, means that "separate interceptors do *not* have to be provided at the site of each target or in each section of

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<sup>208</sup> Ibid., 41.

<sup>209</sup> Ibid., 20-21. Development of Brilliant Pebbles (BP) has been terminated by the Clinton Administration according to Cunningham, but the anti-missiles used by BP, known as Lightweight Exoatmospheric Projectiles (LEAP), were considered for use on the AEGIS anti-missile.

the theater area, as is the case with ground-based defenses.”<sup>210</sup> Thus, interception of enemy missiles is more likely, because there is a greater chance that one of many interceptors moving along its orbital path will be in sufficient range to make the intercept, regardless of the enemy missile’s target. One space-based interceptor provides five to ten times the coverage provided by a ground interceptor, making global ABM protection of our troops and allies overseas a more realistic proposition.<sup>211</sup>

The final branch of the United States’ ABM triad would involve a THAAD anti-missile coastal defense network . This would serve as a back-up for the advanced ground-based and space-based interceptors, and be especially effective against short-range Scud or depressed trajectory missiles fired from just off the United States coast to evade the advanced interceptor or space interceptor defenses.<sup>212</sup>

The basic advantages offered by this ABM triad are that the system defends nearly all American territory from long and intermediate-range missile attack, provides a limited defense for America’s allies and troops abroad, and provides an immediate defense against short-range missile attack along our borders. These are the minimum requirements that any proposed American ABM defense must meet as the United States pursues its design and development.

The political implementation strategy for acquiring such a triad should be based primarily on the degree each element contributes to America’s national security, next on its political viability, and finally, its cost. Although cost can prove prohibitive to the pursuit of certain programs, it must be remembered that the primary goal of government in the Western tradition is to secure the defense of its people. The cost of providing such

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<sup>210</sup> Ibid., 15.

<sup>211</sup> Ibid.

<sup>212</sup> Ibid., 42. Advanced ground-based and space-based interceptors are not effective against short-range and depressed trajectory missiles, and basing the THAAD batteries along the coast improves the odds of intercepts taking place over the ocean.

defenses is considered last because Defense programs that address what the American people consider to be legitimate defense needs must take precedence over domestic welfare programs, and a nation's survival may well depend upon this prioritization. In any case, there is no reason why missile defenses have to bankrupt the United States. The following strategy represents one politically feasible, but cost-effective method, for deploying such a triad.

### C. The Coastal Defense Network

The first tier of defenses that should be erected is the THAAD coastal ABM network. These missiles are among the cheapest and most readily deployable ABM defenses available.<sup>213</sup> They also utilize the already well-proven defense technology of the Patriot family of anti-missiles.<sup>214</sup> At a cost of \$2 million each, 150 of these missiles distributed along 100 launch sites would protect the entire United States coast, including Hawaii and Alaska, from a Scud-type or low trajectory missile attack involving up to two incoming missiles.<sup>215</sup> This branch of the triad addresses the immediate Third World missile threat already facing the United States, potential attacks involving short or intermediate-range missiles armed with WMD, launched from ships or countries in close proximity to the borders of the United States.<sup>216</sup> Such a system could easily be expanded by adding more missiles should the threat expand rapidly in the near future.

This tier is extremely likely to win popular support once the public is properly educated concerning the developing world's missile capabilities and the threat they pose to United States security. Bi-partisan support is likely, given the Administration's support of

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<sup>213</sup> Ibid., 53.

<sup>214</sup> Ibid., 39-40.

<sup>215</sup> Ibid., 40.

<sup>216</sup> Ibid., 38-39.

the TMDI, or else Democrats would be in the unenviable position of having to explain why they support tactical ballistic missile defenses for America's allies but not for the United States. Although the THAAD has been held up, because of ABM Treaty compliance questions by the Clinton Administration, proper modifications to the Treaty could easily be made to expedite the THAAD's ultimate deployment. After all, even the staunchest opponents of Reagan's SDI actively support missile defenses of the Patriot type.<sup>217</sup>

Research and development (R & D) costs of the THAAD network including 100 tactical launchers and launch facilities and 300 THAAD missiles should cost just a little more than \$60 million.<sup>218</sup> The Clinton Administration is spending three times this amount in this year's TMDI budget alone.<sup>219</sup> Funding does not appear to represent much of a challenge in deploying this level of defense. The joint research effort with Israel in developing the Arrow anti-missile could perhaps be exploited to hasten the final testing and deployment of the THAAD missile. Deployment of this tier of the triad should begin as soon as possible, perhaps as early as FY 1996.

#### D. Advanced Interceptors

The second defensive system that should be deployed is that of the advanced ground-based interceptors. The current administration, while publicly standing by a 2004 fielding date for America's first advanced interceptor site at Grand Forks, has done little to indicate that it is really committed to meeting this deadline. The fielding of such a system should begin no later than 2004, but the Grand Forks site should be scrapped, saving the taxpayers at least \$2 billion.<sup>220</sup>

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<sup>217</sup> Jay P. Kosminsky, ed., "Clinton Taps Aspin to Head Pentagon," The SDI Report, no. 52 (25 January 1993): 1.

<sup>218</sup> Jastrow, U.S. Responses to Ballistic Missile Threat, 58.

<sup>219</sup> "Is There a Need for National Missile Defense?", 15.

<sup>220</sup> 1993 Report to the Congress on the Strategic Defense Initiative, p. 2-9.

The proposed advanced ground-based interceptor is the next cheapest form of ABM defense, after THAAD, running about \$3 million per missile.<sup>221</sup> Although such interceptors are not yet available, a prototype was successfully tested in 1991.<sup>222</sup> These long-range, high-altitude anti-missiles could become available as early as the late 1990's.<sup>223</sup> Built after the turn of the millennium, advanced interceptor ABM sites would constitute America's first line of defense against the six or more developing nations expected to develop missiles of a truly intercontinental ability, together with NBC warheads, by 2004. Three sites, equipped with 10 advanced interceptors each, located in the Northeast, Northwest, and Southern United States should provide adequate continental coverage against the Third World threat. Later, two more advanced interceptor sites would be constructed to provide coverage for Alaska and Hawaii. America could quickly field more missiles per site should it desire to counter the threat of a larger NBC missile attack from a renegade developed power.

The 1991 Missile Act already mandates the construction of such national missile defenses. Although there appears to be some foot-dragging by the current administration, national defenses have already been voted upon and approved by the American people. Further education of the American public concerning the progress of Third World missile development programs will help provide the future political support needed to ensure full deployment of such defenses.

The funding of this tier is more problematic than the THAAD network, because of the larger financial commitment required to field these advanced defenses, and this issue must be sensitively addressed if existing political support is to be sustained. Therefore, the advanced interceptor system should be fielded in limited stages over time. The fielding of

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<sup>221</sup> Jastrow, U.S. Responses to Ballistic Missile Threat, 53.

<sup>222</sup> *Ibid.*, 20.

<sup>223</sup> 1993 Report to the Congress on the Strategic Defense Initiative, p. 2-12.

the advanced ABM sites should begin with an initial deployment of the Northeast and Northwest sites, with ten interceptors each. This is probably the minimum system needed to provide the continental United States with limited defenses against the initial Third World ICBM threat of the 21st century. Together both systems should cost approximately \$29 billion, with the initial site costing a little over \$20 billion to develop.<sup>224</sup>

Another \$4-5 billion would need to be spent on Brilliant Eyes (BE) space-based sensors so the ABM system could discriminate between enemy decoys and actual missiles.<sup>225</sup> On their own, advanced interceptors lack this ability, except in cases where intercepts are made low in the atmosphere, clearly unacceptable in the case of NBC warheads.

This raises the total cost of an initial two-site system to almost \$34 billion, a considerable investment, but once these R & D costs are paid, future sites would only cost between \$3-5 billion each.<sup>226</sup> A southern site would be constructed two years after the initial sites in 2006, and Alaska and Hawaii should both receive their sites by no later 2010. The complete five-site advanced ABM system would cost the United States around \$48 billion over ten years. For only \$13 billion more than the nation spent on SDI's research and development alone, the country could have a working ground-based missile defense by 2010.

Those who consider such a bill too great a defense expenditure should carefully consider the alternative. For instance, imagine the amount of damage that just one WMD could do if exploded in a city such as Los Angeles. Recent trends seem to indicate that the federal government would be asked to supply emergency disaster relief to the victims of such an attack. Once dazed survivors pulled themselves out of the rubble, they would

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<sup>224</sup> Ibid., pp. 2-16, 2-17.

<sup>225</sup> Ibid., p. 2-16.

<sup>226</sup> Ibid., p. 2-17. Much of the cost of the initial site lies in R & D expenses.

probably demand federal assistance in footing the reconstruction bill. Imagine more than one American city being hit by such a weapon and suddenly the expense involved in deploying ABM defenses seems very reasonable indeed. It must also be remembered that these calculations do not even begin to consider the cost in terms of human life, which can never be compensated for. Perhaps the idea of national ABM defenses could even be presented to the American public as a type of national disaster insurance.<sup>227</sup>

One creative idea for reducing the cost of such a system would be to use existing strategic missiles, scheduled to be deactivated because of military down-sizing or as a result of the START Treaty, to provide the engines, spare parts and guidance systems for the advanced interceptors. This could conceivably cut billions from the cost of an advanced interceptor tier.<sup>228</sup> Using Minutemen I and II rockets topped with Lightweight Exoatmospheric Projectiles (LEAP) used in BP satellites, America could begin deploying a national missile defense as early as 1997.<sup>229</sup>

#### E. Space-Based Interceptors

The third tier of the triad, space-based interceptors, has always been the most controversial of the defenses. Such space weapons have traditionally been banned by the ABM Treaty, and still carry with them a partisan political burden from earlier struggles during the Reagan SDI era. It is also the most expensive ABM defense at \$4 million per BE satellite.<sup>230</sup> For these reasons, this layer should be the last to be fielded.

Still, there are many reasons why a space defense should be deployed. Deploying

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<sup>227</sup> For an interesting article that discusses national risk and the third world nuclear threat, read Major General Milnor Roberts, AUS, "Unacceptable Risk," High Frontier Newswatch 10, no. 9 (September 1993), 1.

<sup>228</sup> Robert C. Richardson III, "Save Billions: Convert Missiles Into Anti-Missiles," Conservative Review (vol. 4, No. 1): 17.

<sup>229</sup> Cunningham, interview, 1994.

<sup>230</sup> Jastrow, U.S. Responses to Ballistic Missile Threat, 53.



an additional space-borne level of protection adds much more depth to the ground-based national missile defense. Adding a third layer of protection to the defense system makes it possible to make multiple intercept attempts against enemy missiles in the event of system failure.<sup>231</sup> Enemy missiles must first confront space interceptors, and even those that make it through this first screen will have to contend with a complex system of high altitude ground interceptors. A joint space-ground ABM system would destroy more enemy missiles than a ground-only system.<sup>232</sup> Space interceptors also offer a much better defense against more sophisticated missiles that have multiple independently targeted re-entry vehicles (MIRVed) or decoys mounted as their warheads because space interceptors can often intercept such missiles while they are still in their boost phase, before the warheads or decoys are released.<sup>233</sup> Space intercepts also increase the likelihood that WMD debris will fall on or near the territory such weapons were launched from, instead of coming down on or near their intended targets.

Space-based interceptors are probably not a viable political option at this point in time, but this need not continue to be the case. As the developing world's space and missile programs continue to mature, this form of defense may begin to look increasingly necessary to defense experts in both parties, especially after the developing world begins to procure more sophisticated MIRVed missiles. The militarization of space, once strenuously opposed by governments in the developing world, may prove to be a practical necessity by the beginning of the 21st century. A sound political strategy to pursue concerning this highly intimidating form of defense technology may still be the Bush Administration's attempt to posture space interceptors as a global protection system against limited nuclear strikes. Developing such a system in close cooperation with Boris Yeltsin's

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<sup>231</sup> Ibid., 48-50.

<sup>232</sup> Ibid., 47-48. There is debate as to exactly what this kill-rate percentage might be.

<sup>233</sup> Ibid., 49.

CIS and America's allies has proven to be a successful consensus-builder for space-based defenses in the past.<sup>234</sup> This is the strategy the Bush Administration used in 1991 to convince Boris Yeltsin that it was in Russia's best interest to assist the United States in developing a space-based global protection system to defend against the growing ballistic missile threat.

Funding a space-borne global protection system would be an expensive undertaking for the United States, but not nearly as expensive as the TMDI could prove to be. As previously mentioned, it does not seem fiscally possible for the United States to provide adequate ground-based ABM defenses for all of America's allies and troop deployments abroad. Such a commitment on America's part would require 6,550 THAAD missiles and 620 advanced interceptors, just to defend Israel, Egypt, Saudi Arabia and our European allies.<sup>235</sup> At the same time, as few as 1000 Brilliant Pebble interceptors could provide America, and any of its allies or troop deployments world-wide, with a space-based ABM defense capable of successfully intercepting as many as 20 Third World SLBM's launched from a submarine.<sup>236</sup> Additional interceptors could always be deployed later to address larger threats.

Adding a complete global protection system to complement America's first two tiers would extend ABM protection to America's allies and its armed forces overseas. This global shield, composed of 1000 orbiting BE satellites and 1100 ground based THAAD, for defense against more localized ballistic missile threats, would cost around \$10-15 billion.<sup>237</sup> A comparable ground-based-only defense would cost well over \$30 billion.<sup>238</sup> The United States may not be prepared to fund even the former figure after footing the bill

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<sup>234</sup> 1993 Report to the Congress on the Strategic Defense Initiative, pp. 1-5, 1-6.

<sup>235</sup> Jastrow, U.S. Responses to Ballistic Missile Threat, 25-33.

<sup>236</sup> *Ibid.*, 29-46. This is the largest number of ballistic missiles that can be launched by order of a single submarine commander.

<sup>237</sup> *Ibid.*, 58-59.

<sup>238</sup> *Ibid.*

of erecting its own national missile defenses by 2010 at a an expense of \$48 billion dollars. After 2010, however, the world community may be prepared to help pay for the construction of this global ABM defense.

Encouraging the international community's funding of such a system may indeed be in the best interest of the United States. Funding would be voluntarily provided by the world community for a system that would also improve the security of the United States. It would not be the first time the international community paid the United States for providing American military technology to help meet their legitimate collective defense needs. The Coalition effort in Desert Shield and Desert Storm was almost completely funded by America's allies abroad.<sup>239</sup> It might also help allay political fears that such a system could prove destabilizing if the entire world community rallied around its development.

United States security would be in no way jeopardized by foreign funding, or even foreign involvement in the command and control of such a global ABM system. This is because the United States will already have its own national missile defenses in the event of system failure or sabotage. It must be remembered that the space-based defense is complementary to pre-existing ground-based elements, and under no circumstances is meant to serve as a replacement of the first two tiers. Using the fruits of SDIO's Single Stage Rocket Technology program, the deployment of the space tier of America's ABM defenses could begin perhaps as soon as 2010.

The target date for America's complete three-tiered ABM defense and global protection system for defending its allies and troops from enemy missile attack could be set sometime around 2020. After a little more than twenty years, and at a cost of \$49 billion, America could field a world-wide anti-missile system that provides, for the first time in history, an effective defense against the threat of ballistic missiles armed with WMD.<sup>240</sup>

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<sup>239</sup> Stevens, interview, 1994.

<sup>240</sup> Although missile defenses may not provide a perfect defense against an enemy's ballistic

Certainly this is a reasonable expenditure for the United States to make considering the threat such weapons pose to the security of the United States. As the threat continues to increase in the years to come, the case for building such national defenses will become more and more compelling, but by that time it may be too late.

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missile attack, it must be remembered that in military science there is no such thing as a perfect defense. New weapon systems make it possible, and increasingly probable, that the specific enemy threats they were designed to counter will be thwarted.

## APPENDICES

## APPENDIX A LIST OF ABBREVIATIONS

### LIST OF ABBREVIATIONS

ABM	Antiballistic Missile
ASAT	Anti-Satellite Weapon
BMDO	Ballistic Missile Defense Organization
CIS	Commonwealth of Independent States
DCI	Defense Counterproliferation Initiative
ERINT	Extended Range Interceptor
GPALS	Global Protection Against Limited Strikes
HAWK	Homing All the Way Killer
HE	High Explosive (Warhead)
IAEA	International Atomic Energy Agency
ICBM	Intercontinental Ballistic Missile
IGMD	Integrated Guided Missile Development
INF	Immediate Nuclear Forces (Treaty)
IRBM	Intermediate-range Ballistic Missile
LEAP	Lightweight Exoatmospheric Projectile
MAD	Mutual Assured Destruction
MIRV	Multiple Independently-targetted Re-entry Vehicles
MTCR	Missile Technology Control Regime
NBC	Nuclear, Biological, and Chemical Weapons
NPT	Nuclear Non-Proliferation (Treaty)
PAC-2 (3)	Patriot Advanced Capability-2 or 3
SDI	Strategic Defense Initiative
SDIO	Strategic Defense Initiative Organization
SLV	Space Launched Vehicle
THAAD	Theater High Altitude Area Defense
TMDI	Theater Missile Defense Initiative
WMD	Weapons of Mass Destruction (see also NBC)

APPENDIX B

THIRD WORLD BALLISTIC MISSILES

TABLE 1					
<i>Ballistic Missiles of Developing Countries</i>					
Country	Range Category (km)				Supplier
	300	500-650	900-1200	≥1500	
Afghanistan	Scud B				USSR
Argentina			Condor 2		Indigenous
Brazil	MB/EE-300 SS-300	MB/EE-600	MB/EE-1000 SS-1000		Indigenous Indigenous
China	M-11	M-9	M-?	CSS-2	Indigenous
Egypt	Scud B Scud B	Scud C	Vector		USSR North Korea franchise Condor technology
India				Agni	Indigenous
Iran	Scud B Scud B	Scud C			USSR North Korea franchise Indigenous
Iraq	Scud B Scud B	Scud C Al Hussein	Al Abbas Badr 2000	Al Abed	USSR North Korea franchise Scud technology Condor technology
Israel		Jericho 1		Jericho 2	Indigenous United States
Libya	Scud B	Scud C M-9	Al Fatah		USSR North Korea China Indigenous
North Korea	Scud B	Scud C	No Dong 1	No Dong 2	Indigenous
Pakistan	M-11 Hatf 2				China Indigenous
Saudi Arabia				CSS-2	China
South Africa		Arniston			Jericho 1 technology

TABLE 1: BALLISTIC MISSILES OF DEVELOPING COUNTRIES. Adapted from the table found on page 12 of Robert G. Nagler's book Ballistic Missile Proliferation: An Emerging Threat, Arlington, V.A.: System Planning Corporation, 1992.

APPENDIX C  
INDIGENOUS BALLISTIC MISSILE EFFORTS

TABLE 2				
<i>Indigenous Ballistic Missile Efforts</i>				
Country	Missile	Range (km)	Deployment	Status and Comments
Egypt	Scud Variant	300	TBD	North Korean support
	Vector	1200	TBD	In abeyance
India	Prithvi	250	1992	In test phase
	Agni	2500	1995	1st stage tested
Iran	Iran-130	130	1990S	In test phase
	Scud B, C	300	TBD	North Korean support
Iraq	Scud B	300	TBD	North Korean support
	Al Hussein	650	1988	Used in Gulf war
	Al Abbas	900	1990	
	Badr 2000	1200	TBD	In abeyance
	Al Abed	2000	1995	In test phase
Libya	Al Fatah	300-950		In development
North Korea	No Dong 1	1000	1993	In test phase
	No Dong 2	2000-3500	Mid 1990's	In development
Pakistan	Hatf 1	80	1992	In test phase
	Hatf 2	300	1992	In test phase
	Hatf 3?	600	1995	In development

TABLE 2: INDIGENOUS BALLISTIC MISSILE EFFORTS. Adapted from the table found on page 25 of Robert G. Nagler's book *Ballistic Missile Proliferation: An Emerging Threat*, Arlington, V.A.: System Planning Corporation, 1992.



APPENDIX D

NORTH KOREA'S EXTENSION OF MISSILE RANGES

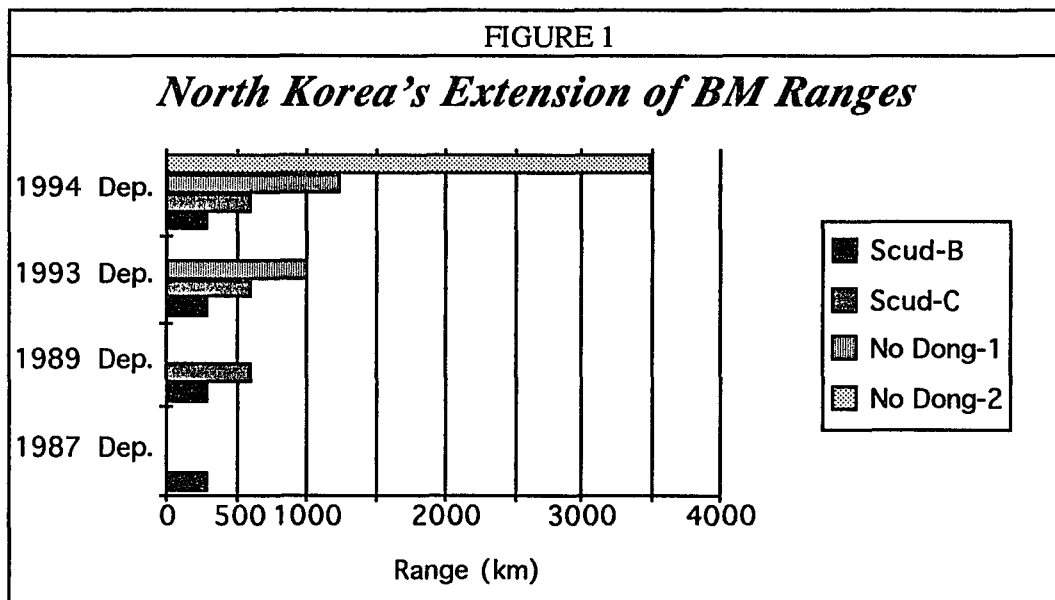


FIGURE 1: NORTH KOREA'S EXTENSION OF BALLISTIC MISSILE RANGES. Created using data from TABLE 2 (APPENDIX C) and "CIA Worried About N. Korean Missiles," The Orlando Sentinel, 18 March 1994, A-5.

APPENDIX E

GROWTH OF WMD WARHEADS IN THE THIRD WORLD

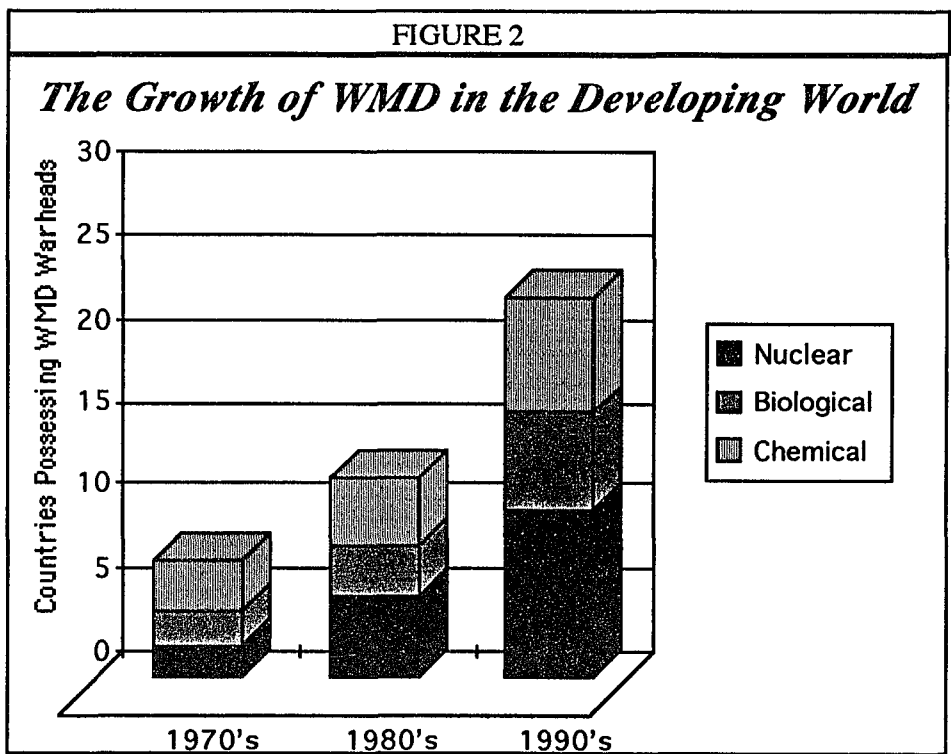


FIGURE 2: THE GROWTH OF WEAPONS OF MASS DESTRUCTION IN THE DEVELOPING WORLD. Figure created using data from pages 70-74 of Robert G. Nagler's book Ballistic Missile Proliferation: An Emerging Threat, Arlington, V.A.: System Planning Corporation, 1992.

APPENDIX F  
 CHEMICAL-WARHEAD-CAPABLE MISSILES

TABLE 3	
<i>Chemical-Warhead-Capable Ballistic Missiles</i>	
Developing Country	Ballistic Missile
Afghanistan	Scud B
Argentina	Alacran
Brazil	SS-300
China	M-9/11
Egypt	Scud B
India	Prithvi, Agni
Iran	Scud B
Iraq	Al Hussein
North Korea	Scud B,C, + No Dong
Israel	Jericho 2
Libya	Al Fatah
Pakistan	Hatf

TABLE 3: CHEMICAL-WARHEAD-CAPABLE MISSILES. Adapted from table found on page 74 of Robert G. Nagler's book Ballistic Missile Proliferation: An Emerging Threat, Arlington, V.A.: System Planning Corporation, 1992.

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## VITA

David Rolfs was born on June 5, 1967 in Arlington Heights, Illinois. He grew up in Delavan, Wisconsin. He attended Delavan-Darien High School where he was very active in the Debate and Forensics programs, winning the Double-Ruby National Forensics Speaking Award. He attended the University of Wisconsin at Whitewater where he participated in the honors program and was repeatedly named to the Dean's List, Who's Who Among American Students and awarded membership in Phi Kappa Phi. He also served as vice-president of Phi Alpha Theta (National Historical Honor Society), and as a member of the Pi Sigma Alpha (National Political Science Honor Society). After graduating Summa Cum Laude with a B.A. in history from Whitewater, he received a full Academic Merit Scholarship to attend Regent University where he is currently earning his M.A. in Public Policy. His studies have focused on the history of modern warfare, contemporary public policy issues and special topics in the Middle East.