

**THE IMPACT OF MISSILE THREATS
ON THE RELIABILITY OF U.S. OVERSEAS BASES:
A FRAMEWORK FOR ANALYSIS**

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FOREWORD

Despite changes in the global security environment stemming from the end of the Cold War, U.S. overseas bases remain vulnerable to ballistic and cruise missiles. This monograph, by Joel Wuthnow, explains how technical, strategic, and political factors will pose complex and discrete concerns, and makes a series of policy recommendations for how best to diminish the threat.

The monograph is being published under the Strategic Studies Institute's External Research Associates Program. We are publishing it as a contribution to the continuing dialogue on the U.S. military's strategy of engagement.



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SUMMARY

Although the United States will continue to utilize overseas military bases in the next decade, the acquisition and improvement of long-range missiles by several potential aggressors will pose new operational and strategic problems for U.S. forces. Several states will likely attain a credible capability to threaten U.S. bases within their respective regions, despite the sophistication of U.S. missile defenses. Strategically, there are uncertainties about whether the United States can deter some of these new missile-capable actors. Deterrence problems will create new risks to U.S. deployed forces: If deterrence fails, U.S. troops will be at a higher level of exposure. Alternately, missiles will grant states some leverage to dissuade the United States from actually using overseas forces, as well as a means to coerce host states into denying access to the United States. Though several factors will mitigate these concerns, the question remains: How reliable will alliance-derived “tripwires” and other deployments be in the overall U.S. strategy of engagement? Alterations in force structure, tailored to these threats, will likely be needed.

THE IMPACT OF MISSILE THREATS ON THE RELIABILITY OF U.S. OVERSEAS BASES: A FRAMEWORK FOR ANALYSIS

SECTION I. INTRODUCTION

U.S. national security strategy requires access to overseas military bases, but in the coming decade, that access will be threatened both politically and militarily. U.S. strategy demands continued reliance on bases for two basic reasons. First, in peacetime, U.S. forces stationed overseas provide evidence of a commitment to defending U.S. and allied interests. The 2004 *National Military Strategy* explained:

Overseas, U.S. forces permanently based in strategically important areas, rotationally deployed forward in support of regional objectives, and temporarily deployed during contingencies convey a credible message that the United States remains committed to preventing conflict. These forces also clearly demonstrate that the United States will react forcefully should an adversary threaten the United States, its interests, allies, and partners.¹

Despite significant base closures, particularly in Western Europe and with more on the horizon (particularly in Germany and South Korea), the United States continues to operate 35 large or medium-sized installations abroad.² These include air bases, naval facilities, and U.S. Army barracks. These facilities are mostly located in allied territory, specifically North Atlantic Treaty Organization (NATO) Europe, Turkey, Japan, and Korea.

Second, in times of conflict, overseas bases provide operational benefits for U.S. combat forces. With the exception of a limited number of long-range bombers and certain naval vessels, the United States cannot project combat power without access to bases in the area of operations. Ground forces require supply centers and sea- or airports through which to deploy, except in instances in which long-range forced entry operations may be effectively conducted. Most ships require repair and maintenance facilities, though not exclusively outside the continental United States. Likewise, most low-quantity, high-value aircraft (e.g., stealth fighters and airborne

warning and control systems [AWACS] early warning aircraft) require theater land basing. In some circumstances, combat forces may be generated and sustained from bases in allied territory, while in others (e.g., a conflict in the Middle East or Central Asia), temporary access agreements will have to be negotiated.

With the exception of Guam, all U.S. overseas bases are located on foreign soil, and all temporarily used bases will be located in foreign countries. Hence, both types of bases are subject to the willingness of foreign governments to grant access to the United States. Regarding permanent bases, states may request a withdrawal of U.S. forces. For instance, in 1991 nationalist opposition in the Philippines led to the end of a century-long U.S. military presence there. More commonly, states may disallow U.S. use of facilities for particular operations. In 2003, for example, Turkey refused to permit U.S. forces to use the NATO air base at Incirlik in support of the war on Iraq. Regarding temporary access, states may simply refuse to permit U.S. entry, or may strictly delineate the acceptable uses of their facilities. For instance, most Persian Gulf states denied the U.S. access during strikes on Iraq in 1998.

External military threats compose a second broad category of vulnerabilities to U.S. overseas bases. As early as the 1960s, all U.S. bases were within reach of Soviet ballistic missiles; the threat of a Soviet invasion was also a perennial concern during the Cold War. Today, the Department of Defense (DoD) identifies three “levels” of military threats against its overseas installations. Level I includes terrorism, sabotage, and civil unrest; Level II includes guerilla and special operations attacks; and Level III includes conventional attack and missile strikes, including missiles tipped with nuclear, chemical, or biological warheads.³ Moreover, military threats are linked to political vulnerability. As the National Defense Panel has noted, “For political reasons, allies might be coerced not to grant the United States access to their sovereign territory. Hostile forces might threaten punitive strikes against nations considering an alliance or coalition with the United States.”⁴

Thus, an overall assessment of the reliability of overseas basing must take into account both political and military factors. This is a difficult task, because it demands an analysis of the domestic politics of every state in which the United States currently possesses bases or

is likely to desire to deploy troops. As suggested, decisions to deny access can result from circumstances particular to individual states or regions. An overall assessment also demands a review of each type of military threat listed above, including both the capabilities of all possible enemies and the resolve of those states actually to use force. As indicated by the current war on terrorism, the motives and resources of nonstate organizations must also be factored into any general risk analysis. Finally, analysts must attempt to understand the relationship between external threats and the domestic politics of host nations.

This monograph does not seek to make an overall assessment of reliability, but focuses on the “Level III” problem of missile threats. Three factors suggest that the threat will be at least as significant in the coming decade as it was during the Cold War. First, several new actors are developing the means to target effectively and destroy fixed land locations—those states may lack the aggregate firepower of the former Union of Soviet Socialist Republics (USSR), but may still develop missiles and missile warheads of sufficient caliber to threaten the United States at a regional level. Second, new missile-capable states may not exercise restraint in using missiles, as it was believed the Soviet Union did. The answer to the question of whether certain states, especially those labeled “rogue states,” can be deterred is not clearly “yes.” Third, missiles will provide old and newly capable states a uniquely powerful instrument to coerce host nations into denying access to the United States. This is a particular concern in the post-Cold War period because the United States will likely wish to operate in theaters such as the Middle East and Central Asia, in which it lacks formal allies and in which new missile states are appearing.

Nevertheless, emerging missile threats do not obviously spell an end of the reliability of overseas bases. Some factors may, indeed, work in the opposite direction. First, the United States has a lead in military technology which may be leveraged to provide for defense against missile attack; defensive capabilities may be especially effective against states on the lower end of the capabilities spectrum. Second, deterrence is not necessarily implausible. All state decisionmakers are interested in their own survival, and so must consider the possibility that any use of missiles will compromise the

survival of their regime. Third, missile threats may actually make current and potential host nations more accepting of U.S. military presence; in the absence of sustained military cooperation with the United States, those same states may only be more vulnerable to increasing external threats.⁵

Some U.S. government reports in the past few years have begun to recognize the significance of missile threats on basing reliability. In 1997, the National Defense Panel wrote that, based on this threat, “the days of the 6-month build-up and secure, large, rear-area bases are almost certainly gone forever.”⁶ In 2001, the DoD’s *Quadrennial Defense Review* noted that “Saturation attacks with ballistic and cruise missiles could deny or delay U.S. access to overseas bases, airfields, and ports.”⁷ The few papers offering more detailed analysis of the problem have been, on the whole, technically-oriented. Meanwhile, sources that consider the higher-level subjects of coercion diplomacy and political decisionmaking have not dealt with the possible consequences for overseas basing.⁸

Thus, this monograph assesses the countervailing factors that will determine the impact of missile threats on basing reliability in the next decade. I will address this problem at three levels. Section II considers the balance of capabilities, covering the strategic reasons and proliferation environment that are driving states to acquire missiles, the quantitative and qualitative aspects of the offensive threat, and defenses available to the United States. Section III assesses the missile threat at the strategic level. The analysis attempts to estimate the effectiveness of deterrence as a strategy through which the United States will seek to prevent attacks on its overseas bases. Section IV analyzes the threat at a political level. The idea is that missiles may be used to coerce U.S. leaders to withdraw or fail to use overseas forces, or to coerce host nations into denying access to the United States. Section V draws these analyses together and concludes that missile threats will pose new and complex risks to overseas basing reliability at all three levels, but the impact is complicated by disparities and uncertainties. The remainder of the conclusion describes five methods of reducing the risk.

The anticipated contribution of this assessment is twofold: first, as a broad and comprehensive study of how missile threats will impact basing reliability. Given the state of the current literature,

the concept of exploring this issue at three separate, but interlinked, levels represents a unique offering. Second, the assessment serves as a model for how to think about the impact of external military threats on U.S. force structure. To the extent that the assessment does not, and cannot, provide sufficient consideration of particular topics, the organization of the document is flexible so as to allow for the incorporation of additional information. While the conclusion may change according to those inputs, the way of reaching that conclusion remains constant.

SECTION II. THE OFFENSE-DEFENSE BALANCE

Foreign militaries are developing missile systems as a relatively inexpensive way to defeat U.S. forces before they are employed in combat. Indeed, for most states, a doctrine of challenging the United States with conventional arms, such as fighter jets, tanks, and aircraft carriers, will be untenable for the foreseeable future.⁹ The only possible exceptions will be China and Russia, but China will remain at least a generation behind the state of the technological art and will lack the capability to sustain forces far from its borders.¹⁰ The Russian military has suffered a significant decline since the mid-1980s, and a massive spending increase would be needed to restore conventional parity between Russia and an expanded NATO.¹¹ Therefore, the United States will probably not face a peer military competitor within the next 15 years.

Given this gap between “the West and the rest,” potential adversaries must focus on exploiting areas of relative U.S. vulnerability. Such asymmetric strategies may include political warfare aimed at swaying world opinion against the United States; nontraditional modes of fighting, including urban and guerilla warfare, in which U.S. technological advantages are limited; targeting critical systems, such as computer and communications networks, that enable U.S. forces to “see” and “listen”;¹² developing surface-to-air missiles and mines that deny U.S. forces the ability to enter a combat zone; or targeting sites in the rear area—logistics points, airbases, naval facilities, and headquarters—which are vital both to generate combat forces and to sustain troops on the front lines.¹³

The strategy of targeting U.S. overseas bases is particularly appropriate to states seeking to match their strength with U.S. weakness. Indian Brigadier General Vijai Nair has studied the 1990-91 Gulf War, in which the United States exhibited reliance on a network of bases across the Persian Gulf. Thus, he observes,

When conducting offensive operations, modern armed forces are most vulnerable when they are mobilizing, moving to their forward assembly areas, beyond the reach of their logistics tail, and while they are re-grouping to continue the offensive. With a limited effort at the right place and time, he can inflict disproportionate damage to the attackers design of battle and force cohesion.¹⁴

With specific reference to the United States, Nair goes on to suggest that developing militaries find ways to inflict damage on the U.S. rear area. As he argues,

Management of host country facilities is, by far, the trickiest part of the American operational problem. This is the proverbial "Achilles heel." India needs to study the vulnerabilities and create covert and overt bodies to develop plans and execute operations to degrade these facilities in the run up to and after commencement of hostilities. Scope exists for low cost options to significantly reduce the combat potential of forces operating from these facilities.¹⁵

As another example of this mode of thinking, Russian Defense Minister Igor Sergeyev has written that the Russian armed forces should selectively attack "the most vulnerable functional elements of the main systems and key targets of the enemy's infrastructure, and in this way significantly [devalue] their superiority."¹⁶

Acquisition of ballistic and cruise missiles is a means by which states can pursue this asymmetric strategy.¹⁷ The basic reason is that both of these weapons can deliver a payload of either conventional munitions or weapons of mass destruction (WMD) to locations of strategic significance behind the opposing force's front lines. Ballistic missiles can deliver a warhead to a fixed point at a distance ranging from a few hundred to several thousand kilometers, depending on design and payload.¹⁸ The precise amount of damage any one ballistic missile is capable of inflicting on a land location is subject to several factors, such as accuracy, the type of warhead, and ability to survive

defenses. As an example of the possible effects, however, RAND has estimated that a single ballistic missile carrying an 1,100-pound bomb could have a “lethal area” of 825 by 1,250 feet—wide enough to encompass an entire air wing (96 F-15-sized aircraft) parked in the open.¹⁹

According to one senior U.S. Air Force general, this capability could fix high costs on future U.S. military interventions. Former U.S. Air Force Chief of Staff Ronald Fogleman has said,

Saturation ballistic missile attacks against littoral forces, ports, storage facilities, and staging areas could make it extremely costly to project U.S. forces into a disputed theater, much less carry out operations to defeat a well-armed aggressor. Simply the threat of such enemy missile attacks might deter U.S. and coalition partners from responding to aggression in the first instance.²⁰

Despite the possible damage to fixed land locations, ballistic missile systems have several drawbacks for a developing military. First, an international agreement known as the Missile Technology Control Regime (MTCR) limits the proliferation of the complex technological items necessary to construct a ballistic missile. However, as discussed in more detail below, several missile-capable states, such as North Korea and Iran, are not members of the MTCR. Second, domestic development programs can be difficult because of the cost, technological complexity, and ability of U.S. intelligence to monitor missile testing.²¹ Third, ballistic missiles can pose certain operational problems—their considerable weight requires a large and vulnerable launch platform, such as a truck or a fixed launch site. Moreover, the flight path of a given missile can be predicted at launch so as to give the target some degree of warning.²²

For these reasons, many states have opted to invest in cruise missiles. Cruise missiles are low-flying unmanned aerial vehicles (UAVs) that, when used against land targets, can deliver a warhead to a typical distance of between 50 and 500 kilometers.²³ Procurement of cruise missiles is manageable because the core components (guidance systems, propulsion, airframe) involve “dual-use” technologies that are not prohibited under international agreements.²⁴ Similarly, cruise missiles are relatively inexpensive. The U.S. Army estimates that for an investment of \$50 million, a Third World country could purchase

at least 100 land attack cruise missiles (LACMs, used for reaching targets on land), but only 15 tactical ballistic missiles.²⁵ To be sure, several conventionally armed cruise missiles would be needed to inflict the damage of a typical ballistic missile.²⁶ Given the low cost of procurement, however, this may not be a prohibitive requirement.

In the case of both types of missiles, states pursuing asymmetric strategies will benefit from a robust proliferation environment—there is no question that proliferation of ballistic and cruise missiles will continue in the next decade.²⁷ Russia and China are key proliferators of concern.²⁸ Other missile-capable states, such as Iran, North Korea, and Syria, may engage in “secondary proliferation” of items that were themselves imported.²⁹ Transfers from any of these states would allow a third country to accelerate a domestic production program.³⁰ In addition, the number of producers of LACMs will likely increase from 2 to 9 in the next decade, and 22 states have the technologies necessary for a domestic manufacturing capacity of cruise missiles of all types.³¹ Technical expertise and material needed to construct missiles also are widely available on the world market.

The primary international agreement aimed at curbing missile proliferation is the MTCR. Established in 1987, the MTCR contains two categories of proscribed items. Category I bans the sale of complete missile systems that are capable of delivering 500-kilogram payloads to a range of over 300 kilometers. Category II includes a variety of subsystems and enhancements for missile systems, such as avionics, navigation equipment, and stealth technology.³² Twenty-five nations are signatories to the MTCR, although most are U.S. allies in NATO Europe and East Asia.³³ Missile systems with ranges below 300 kilometers and payloads below 500 kilograms are subject to the Wassenaar Agreement.³⁴ In operation since 1996, Wassenaar aims to reduce the prevalence of dual-use technologies that can be incorporated in cruise missiles, such as advanced materials, navigation systems, sensors, and certain electronics. As with the MTCR, with the exception of Russia and a few other states, the signatories of Wassenaar are mostly U.S. allies.

Both regimes suffer from similar weaknesses. Several producers of missile technology have not pledged to abide by either agreement: of the current manufacturers of cruise missiles, only half are members of Wassenaar,³⁵ and only one of the other half (South

Africa) has joined the MTCR. Likewise, some signatories have bent the rules in the pursuit of profit. Though China promised to abide by the MTCR's Category I provisions, Chinese firms have transferred dual-use technology to a number of states (including Iran, North Korea, and Libya), and assisted Pakistan in its attempt to develop a medium-range ballistic missile.³⁶ The agreements also do not prevent the proliferation of technical experts, which applies to scientists from Russia, China, India, and elsewhere.³⁷ To be sure, some steps can be taken to retard the spread of missile systems and related technology.³⁸ However, these steps will not eliminate the objective of states to develop the capabilities to challenge U.S. forces militarily, nor will it eliminate the leverage accrued by the suppliers of such technology.³⁹ As a result, acquisition of missiles and related technology will continue.

In short, ballistic and cruise missiles will provide foreign militaries the capability to credibly threaten U.S. forces in their staging areas. Proliferation of such weapons is a particularly acute concern in light of U.S. deployments to bases in Central Asia following the September 11, 2001, terrorist attacks on the U.S. homeland, and as U.S. forces deployed to bases in the Persian Gulf in preparation for the war against Iraq in the winter of 2002-03.⁴⁰ Nevertheless, the character of the threat will be regulated by several factors: the number of missiles and missile-capable states; the quality of those arsenals; and the extent to which the United States can provide adequate theater defenses.

Quantitative Determinants.

Due primarily to strategic arms reduction, treaties, and the retirement of Cold War-era weapons, the aggregate number of ballistic missiles has been declining since the mid-1980s and will likely continue to fall.⁴¹ Likewise, the total number of states that possess ballistic missiles is not likely to increase substantially—it may, in fact, decline.⁴² Of the 35 states currently possessing some type of ballistic missile, the vast majority only possess small numbers (under 50) of Soviet-derived surface-to-surface missile systems (SCUDs), which typically lack both the range and accuracy to pose a serious threat to U.S. bases.⁴³ Moreover, as these SCUD weapons age, some poor missile-capable states may not be able to maintain their arsenals.

However, these indicators obscure specific changes in *some* inventories that pose new or evolving concerns for the United States. That is, certain hostile countries may establish a capability to target U.S. forces, or increase their ability to do so. The range necessary for an offensive actor to target any given U.S. facility is dictated by circumstance. For most potential aggressors, a short-range ballistic missile (SRBM, range <1,000 km) would be insufficient to target any U.S. land base. But there are exceptions. With 300-km range SCUD-B weapons, Syria can target the U.S. air base at Incirlik, Turkey, and North Korea can target U.S. Army garrisons and air bases in the northern part of South Korea. With 550-km range SCUD-C weapons, Iran can target U.S. locations on the east coast of the Arabian Peninsula, Syria can reach most of southeastern Turkey, and North Korea can target the entire South. In addition, Syria is developing a 750-km range SCUD-D weapon that would allow it to hit targets in northern Saudi Arabia, Turkey, and the southern Caucasus.

More complex is the problem of specific increases in the number of longer-range missiles and inventories. Due to the 1987 Intermediate-range Nuclear Forces (INF) Treaty, medium- and intermediate-range ballistic missiles (MRBMs and IRBMs, ranges of 1,000-3,000 and 3,000-5,500 km, respectively) were eliminated from U.S. and Soviet arsenals, leading to a 97 percent reduction of IRBMs and a 36-58 percent reduction of MRBMs. However, several other potentially hostile countries now possess MRBM-range weapons or are developing such a capability:

- North Korea possesses an unknown number of *No Dong-1* missiles (1,300-km) and is in the process of developing the *No Dong-2* (1,500-km) and *Taepo Dong-1* (2,000-km) MRBMs, and *Taepo Dong-2* (5,000-6,000-km) IRBM.
- China has built about 50 CSS-5 (1,800 km) MRBMs and a similar number of CSS-2 (3,000-4,000-km) IRBMs.
- In South Asia, India has produced about 20 2,500-km range *Agni-2* MRBMs, and Pakistan has countered with the 1,500-km range *Ghauri-1* MRBM (a derivative of the *No Dong-1*). India is developing the *Agni-3* (3,000-km) IRBM, while Pakistan is working on the *Shaheen-2* (2,500-km) and *Ghauri-2* (2,300-km) MRBMs and has engine tested a *Ghauri-3* (3,000-km) IRBM.

- In the Middle East, Iran has tested the *Shahab-3* (1,300-km), and is developing the *Shahab-4* (2,000 km) MRBMs.
- Iraq, according to the Central Intelligence Agency (CIA), was likely to flight test an MRBM by the year 2010 (prior to the 2003 war).⁴⁴
- Syria is not projected to attain a domestic production capacity, but may attempt to purchase mid-range ballistic missiles on the world market.
- In December 2003, Libya promised to ban ballistic missiles with ranges over 300 km (thus keeping its SCUD-B arsenal intact), but concerns remain about noncompliance and recidivism.⁴⁵

The CIA is agnostic on the precise number of missiles that will be fielded, but (excluding China and North Korea) one independent analyst has suggested that the other states may be able to launch between 1-5 MRBMs within 5 years.⁴⁶

Mid-range ballistic missile development and proliferation would endanger U.S. forces operating on three continents:

- North Korea's *No Dong-1* MRBM is capable of hitting U.S. forces in South Korea and all of Japan except for those Marines stationed on Okinawa, while its *Taepo Dong* missiles would be able to reach the U.S. base on Guam, as well as forces south to Australia.
- China's CSS-5s could reach U.S. targets in South Korea, Japan, eastern Central Asia, and, in the case of its CSS-2 IRBMs, Guam, the Caspian Basin, and even the eastern edge of the Arabian Peninsula.
- India's 2,500-km range *Agni-II* can target the strategic U.S. naval base on Diego Garcia, as well as the eastern Arabian Peninsula and much of Central Asia. Pakistan's 1,500-km range *Ghauri-1* can also threaten U.S. forces in the Persian Gulf and Central Asia.⁴⁷
- Iran's *Shahab-4* MRBM could reach U.S. bases in Oman, Qatar, Kuwait, and Saudi Arabia. An Iraqi MRBM, depending on specifications, would have placed many or all of the U.S.

bases and staging points in the Persian Gulf within striking distance.

- From Libya, a *No Dong*-range weapon could reach eastern Turkey (including Incirlik Air Base), most of the Mediterranean, and U.S. naval facilities in southern Italy. From Syria, such a missile could hit U.S. forces in Turkey, the Caucasus, Kuwait, Bahrain, and most of Saudi Arabia.



Intercontinental-range ballistic missiles (ICBMs, range >5,500 km) will continue to pose dangers to U.S. locations on a global scale. To be sure, the total number of ICBMs in the world has shrunk by 47 percent since 1987 (2,131 versus 4,040). On account of strategic arms reduction treaties, the number of missiles and warheads will likely continue to drop in the next decade. Barring a major increase in defense spending, Russia's number of ICBM warheads is projected to drop below 2,000 by 2015, but will still be large enough to credibly threaten virtually any U.S. land location. China possesses a small deterrent force of CSS-3 and CSS-4 ICBMs, and will produce more sophisticated models by the end of the decade. Elsewhere, at least three states (India, Iran, and North Korea) are in various stages of developing ICBMs. However, in terms of the direct impact on U.S. bases, the ICBM threat is less significant than the mid-range threat, since ICBMs are designed to threaten the U.S. homeland, and not overseas military sites.⁴⁸

Cruise missiles involve at least as many complexities as ballistic missiles. Currently about 75,000 cruise missiles are in existence, though the vast majority of these are anti-ship cruise missiles (ASCMs). A state would require a more complex LACM to consider striking at a U.S. land base. Currently, Russia holds a large number of Cold War-era LACMs (including 1,293 declared AS-15 LACMs); China holds an unknown number of domestically produced HN-1 and HN-2 LACMs; India produces the *Lakshya* missile. However, the CIA projects that, by 2015 as many as 24 states will attain a LACM capability. Though the CIA does not specify which states, we can assume that states such as Pakistan, Iran, North Korea, Libya, and Syria could acquire these weapons. The reason is that multiple acquisition pathways are available: indigenous development; the

conversion of ASCMs to land-attack versions; and purchase of LACMs or related technologies on the world market.⁴⁹ Again, the CIA does not attempt to predict the precise number of cruise missiles, but, given the missiles' relatively low cost, an average consumer may be able to acquire several hundred units of varying quality.

LACM proliferation would have strategic consequences for U.S. bases in each of the theaters in which they operate. The most common variety of LACMs⁵⁰ will have ranges of several hundred kilometers, thus endangering forward operation locations (see discussion of SRBMs).⁵¹ Another challenge is that, in contrast to ballistic missiles, cruise missiles can be effectively launched from ships. Michael E. Dickey of the U.S. Air War College has hypothesized scenarios in which states may use forward-launched LACMs against U.S. locations. In one case, an asserting state contracts three or four merchant freighter ships to sail to a point in international waters from which locations at a range of several hundred kilometers could be targeted. The added benefit is that, in such a scheme, the attacking state may be difficult to identify.⁵² In this manner, U.S. facilities in littoral regions such as the Persian Gulf, Northeast Asia, Turkey, and southern Europe may be targeted by LACM-capable states. Inland locations, such as Central Asia or Northern Europe, however, would be safe from short-range forward-launched LACMs.

The problem of proliferation is summarized in Table 1.

Current =  Developing = 

	ICBM	SRBM	MRBM IRBM	IRBM	SLBM	LACM
China	Current	Current	Current	Current	Current	Current
DPRK ⁵³	Developing	Current	Current	Developing	Current	Current
India	Developing	Current	Current	Current	Current	Current
Pakistan	Current	Current	Current	Current	Current	Current
Iran	Current	Current	Current	Current	Current	Current
Iraq ⁵⁴	Current	Current	Current	Current	Current	Current
Syria	Current	Current	Current	Current	Current	Current
Libya ⁵⁵	Current	Current	Current	Current	Current	Current
Russia	Current	Current	Current	Current	Current	Current

Principal sources: *Foreign Missile Developments and the Ballistic Missile Threat Through 2015*, Unclassified Summary of a National Intelligence Estimate, December 2001; *Report of the Commission to Assess the Ballistic Missile Threat to the United States* (Rumsfeld Commission), Executive Summary, July 1998; *Ballistic and Cruise Missile Threat*, National Air Intelligence Center, NAIC-1031-0985-98; *Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Conventional Munitions*, CIA report, 2003.

Table 1. Current/Developing or Potential Acquisition, through 2010.

Qualitative Determinants.

The problem of growing missile inventories is compounded by the prospect that users of those weapons will be able to effectively locate, target, and destroy U.S. sites of military significance.⁵⁶ Both types of enhancement will affect those states' battlefield capability, as well as their ability to engage in coercive diplomacy with the United States or its partners, as will be further discussed below.

The problem of location will be aided by a rising availability of high-resolution commercial satellite imagery. High-resolution imaging would provide a state the capability to pinpoint the coordinates of bases and other troop deployments. Currently, only the U.S. firm, Space Imaging, Inc., which operates the IKONOS satellite, offers high resolution products to private buyers, but companies in France, Israel, India, Pakistan, China, Russia, and elsewhere will enter the market in future years.⁵⁷ Whereas, during the 2001 conflict in Afghanistan, DoD was able to purchase IKONOS images of U.S. troop deployments, and thus deny this intelligence to other parties, such an option may not obtain in the future if high-resolution imagery becomes available on the global market, as appears likely.

Precise coordinates are of little use without the ability to accurately hit that exact latitude and longitude. At present, most missile-capable states that are not U.S. allies possess highly inaccurate derivatives of Soviet ballistic missiles.⁵⁸ Lacking the ability to make en-route course corrections, simple ballistic missiles can drift several kilometers from the intended target.⁵⁹ Stanford's Itzhak Ravid estimates the Circular Error Probable (CEP) values for several types of ballistic missiles as such: 2 kilometers for a SCUD-B, 5 km for a SCUD-C, and 10 km for a *No Dong*.⁶⁰ Of course, such inaccuracy would severely reduce the efficacy of any enemy missile strike on U.S. bases.

However, advances in guidance technology over the next decade will allow states to improve ballistic missile accuracy. Large and wealthy states may be able to develop or purchase guidance systems that greatly reduce CEP. For instance, China is developing a terminal guidance system, similar to that employed by the U.S. *Pershing-II* missiles, which would enable China's MRBM force a CEP of roughly 160 feet.⁶¹ Lower-end militaries will also profit from advances in guidance technology, but to a lesser degree. In particular, these

states may be able to equip their missile forces with commercial navigation aids such as the U.S. Global Positioning System (GPS) or the equivalent Russian GLONASS system. These systems are essentially satellite constellations that can vector exact latitude and longitude values to receivers on the ground. When incorporated into the crudest ballistic missile, a GPS receiver could improve accuracy by 20 percent.⁶² For states such as Iran and North Korea, this gain may be sufficient to incur a marginal increase in the overall capacity to damage U.S. bases.

The more worrisome applications of advanced guidance technology may be in LACMs.⁶³ The reason is that, unlike typical ballistic missiles, cruise missile propulsion allows for course modifications from launch to impact. GPS data would allow LACMs to eliminate any accrued error and, according to one analyst, achieve, “pinpoint accuracy.”⁶⁴ Regarding both types of missiles, however, the principal drawback to reliance on GPS navigation is the potential ability to block signals in a given geographic area during a crisis situation. In the future, though, LACM operators may be able to overcome this challenge by incorporating multiple types of navigation systems. Accompanied by the basic inertial navigation system and GPS, for instance, LACMs may be outfitted with terrain matching technology (such as the TERCOM system employed by U.S. *Tomahawk* cruise missiles). Russia, China, and other states are currently developing this technology, although the proliferation consequences are, as yet, unknown.⁶⁵

The third qualitative determinant is improvement in the lethality of ballistic and cruise missile warheads. Warheads can be divided into two basic types: conventional and unconventional (meaning chemical, biological, radiological, or nuclear). Conventional warheads use chemical explosives such as TNT to cause a “kill mechanism” to detonate and spew metal fragments over a wide area.⁶⁶ The key operational concern is that conventional warheads will be equipped with “submunitions,” several hundred small bombs that can inflict damage over a wider area than a standard “unitary” warhead.⁶⁷ This is particularly relevant to bases in which militarily valuable but “soft-skinned” targets (e.g., vehicles, power systems, personnel) are dispersed over a wide range.⁶⁸ Currently, states including China and Russia already possess this technology, and, within the next decade,

any other state “powerful enough to contemplate a conventional military campaign against U.S. interests . . .” will likely be able to acquire it.⁶⁹

Some states may also attempt to improve the lethality of their missiles by using warheads that contain WMD.⁷⁰ Nuclear-tipped missiles offer the greatest potential damage, as even a first-generation bomb (of the variety that might be developed in a state such as North Korea or Iran) could achieve a yield more than a thousand times greater than a warhead filled with conventional high explosives.⁷¹ Moreover, a nuclear option may be preferable over chemical and biological weapons because of the certainty that a nuclear weapon will detonate within a predictable area, and under all meteorological conditions.⁷² At present, several potential foes (India, Pakistan, Russia, China, and North Korea) possess a nuclear capability, and others could acquire one within the next decade.⁷³

Chemical and biological weapons offer the possibility of large-scale damage without the cost, acquisition, or maintenance difficulties associated with nuclear weapons, and are also less difficult to conceal.⁷⁴ The amount of damage yielded by a chemical warhead would depend on weather conditions, amount, type, and the defenses undertaken by base personnel, though contamination effects may be present at a distance of more than half a mile from the impact point.⁷⁵ Biological weapons are subject to similar use restrictions, and the potential damage may also be limited by preparedness. In addition, vaccines for some known pathogens (such as anthrax) are available, even though genetic modification tactics may obviate these specific immunities.⁷⁶ Several countries, including China, Russia, North Korea, Pakistan, India, Iran, Syria, Libya, and Sudan, currently possess chemical and/or biological weapons, in some cases in great amounts.⁷⁷ Moreover, growth in the amount and complexity of these weapons, especially among poorer states, will proceed in the coming decade.⁷⁸

Damage Limitation.

DoD has enumerated four basic methods of limiting the damage of theater missile attacks: passive defense, active defense, counterattack, and C⁴I.⁷⁹ Passive defense refers to a range of activities designed

to fortify troops and locations prior to an attack, including the duplication of certain critical capabilities, development of recovery and reconstitution plans, dispersal of assets, and hardening vital areas within a base complex. However, passive defense efforts suffer the drawbacks of time and cost.⁸⁰ Time is a concern with respect to bases leased on a short-term basis or those in regions in which the United States has not had a long-standing presence. For instance, certain airports in the former Soviet republics, contracted to support Operation ENDURING FREEDOM in 2001, lacked the required infrastructure—at some sites, engineers estimated a minimum of 4 months to achieve a minimum standard.⁸¹ New or underdeveloped bases also require a large cost investment. RAND estimates the cost of constructing one new reinforced hangar sized to fit a single fighter aircraft at \$4 million.⁸² Older, Cold War-vintage bases may incur high upgrade costs as they prepare to meet a more complex set of challenges.⁸³

Active defenses encompass cruise and ballistic missile defense systems intended to detect, track, and engage inbound enemy missiles. For several reasons, cruise missiles present particular problems in the first two stages.⁸⁴ First, since they fly low to the earth's surface, cruise missiles are difficult or, under heavy cover, impossible to detect with currently existing space-based sensors.⁸⁵ Second, LACMs present a small radar cross section (RCS) which may be difficult to differentiate from "ground clutter," such as vehicles. Third, advanced designs may incorporate "radar absorbing" materials to further reduce the RCS, as well as countermeasures such as chaff and decoys.⁸⁶

In response, DoD is developing several concepts to improve and integrate sensor capabilities. These include upgrades to existing systems, such as AWACS and joint surveillance, target attack radar system (JSTARS) aircraft, which were designed to track thousands of slow-moving targets;⁸⁷ the Space-Based Radar, which is being engineered to "track mobile targets over wide areas at strategic depths," but is unlikely to be deployed until after 2010;⁸⁸ and the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) program,⁸⁹ which would provide a 250-kilometer-wide detection system, but is also still in the early development

stage.⁹⁰ Nevertheless, several analysts suggest that such defenses, even if they do come on-line, will probably not be able to protect forward bases from massed attacks.⁹¹

Traveling in a high arc, ballistic missiles are easier to track than cruise missiles, though, because of their velocity, they are relatively difficult to intercept. The DoD response plan is layered, concentrating on systems designed to attack incoming missiles in their three phases of flight: boost phase, mid-course-phase, and terminal-phase. Current boost phase programs include the Space-based Laser and the Airborne Laser.⁹² The Sea-Based Midcourse Defense is the prime mid-course element oriented toward ballistic missile threats to overseas assets.⁹³ The PAC-3 and Theater High-Altitude Area Defense (THAAD) programs provide terminal-phase protection. PAC-3 is aimed at short-range weapons,⁹⁴ while THAAD, deployed in batteries of 150 missiles, is designed to engage both SRBMs and MRBMs.⁹⁵ Despite this layered approach, analysts are decidedly mixed in estimating how well ballistic missile defense will perform against incoming missiles.⁹⁶

In general, active defenses are likely to suffer at least three drawbacks. First, since cruise and ballistic missiles may be used as part of a strategic strike against U.S. forces, active defenses must be on a constant state of alert. Systems designed to defend forward operating bases and those in littoral areas may be particularly taxed, since those locations are susceptible to a broader range of offensive weapons than those situated in the extreme rear area.⁹⁷ Second is the concern that enhancements to offensive weapons are easier to effect than corresponding upgrades in deployed defenses. For instance, future missile forces may feature chaff or decoy countermeasures, and may be coated with radar-absorbing materials.⁹⁸ Third, regardless of the sophistication of a defense, an adversary armed with a given “threshold” number of missiles will possess the capability to overwhelm those defenses—a concern exacerbated by the growing lethality of individual warheads. Though future active defenses may not constitute a hapless and misleading “American Maginot Line,”⁹⁹ the emerging threat will significantly “stress air defenses.”¹⁰⁰

The third pillar of the DoD response is “counterattack” against enemy missile infrastructure (launch sites and command-and-control

facilities) before, during, and after a strike. Two conditions are necessary for the success of a counterattack strategy. First, following an initial attack, the United States must retain the required firepower to respond at a level that would significantly damage or destroy the enemy's offensive capabilities. This may not be assumed if the use of aircraft carriers and long-range bombers were ruled out as alternative sources of fire, though RAND considers that highly improbable.¹⁰¹ Stealthy long-range bombers may be the most effective option, but, with only 16 B-2s in service and no follow-ons on the acquisition agenda, the bomber force may not be strong enough to "kick down the door."¹⁰²

Second, effective counterattack must be able to target the enemy's missile systems. This requirement is problematic because states may conceal or move their forces. For instance, during the Gulf War, Iraqi SCUD forces "used deception and camouflage extensively, conducted continual exercises to minimize launch preparation times, [and] developed secure communications."¹⁰³ Nevertheless, the advent of the Space-Based Radar after 2010 may significantly improve U.S. detection capabilities, and long-range UAVs will provide an advanced intelligence, surveillance, and reconnaissance platform.¹⁰⁴

The final component of the DoD response concerns C⁴I activities. C⁴I is not a stand-alone answer to a missile threat, but supports and ties together the other three parts of the response strategy. In particular, it is intended to provide information to decisionmakers, including targeting data, damage assessment, and tactical warning of an impending attack—what former Admiral William Owens has labeled "comprehensive battlefield awareness."¹⁰⁵ Such information, in turn, would be used to coordinate passive defenses, facilitate active defenses, and add precision to counterforce operations. Given the advancing state of reconnaissance, surveillance, and signals intelligence in the United States, as well as the advent of networks created to integrate these systems, C⁴I will contribute to the robustness of U.S. defenses. However, this gain may be offset by factors such as the spread of sensor-evading technology, enemy concealment activities, short launch times for ballistic missiles, and the strain of constant alert.

Recap.

This section has developed a picture of emerging ballistic and cruise missile capabilities among several states, as well as the major components of the DoD response. The picture contains several disparities. Richer, more developed states will possess larger and better missile forces than “rogue states,” although the latter type of state will benefit from proliferation. Moreover, the possible damage runs across a spectrum, beginning with limited conventional strikes with inaccurate ballistic missiles to massed strikes with a mix of cruise and ballistic missiles armed with WMD. The picture also contains several critical uncertainties, such as the pace of proliferation (especially with respect to LACMs) and the effectiveness of defense. An estimate that errs on the side of caution would assume that several states (these being Russia, China, India, Pakistan, Iran, North Korea, Syria, and Libya) could maintain or gain a credible capability to threaten U.S. bases, either within their region or across continents.

SECTION II. DETERRING AGGRESSION: DEFENSE AT THE STRATEGIC LEVEL

The United States may forestall missile attacks against its overseas bases through two basic strategies: preemption and deterrence. As in the 2003 Iraq war, preemption is likely to be used when U.S. leaders decide that deterrence is not a viable option. “Rogue states” are particularly likely to be perceived by U.S. leaders as “undeterrable.”¹⁰⁶ Because of the enormous material, human, and political costs inherent in any preemptive war, this course of action will be used only when deterrence fails or is considered likely to fail. In order to decide how best to defend U.S. bases at the strategic level, then, we must consider the risk that adversaries will reject the U.S. deterrent threat.

Threat of Retaliation.

During the Cold War, effective deterrence of a Soviet attack rested on a credible threat of retaliation. In short, the U.S. leveraged sufficient military force that the costs of a strike exceeded the benefits

of doing so, and demonstrated intent to make good on its threat. Changes in the post-Cold War security environment produced the need to reconsider how best to deter enemy aggression.¹⁰⁷ Nuclear retaliation, and even retaliation itself, was questioned as the best method of deterring lower-level WMD and conventional attacks by a wider array of actors. Current DoD strategy has modified the threat of retaliation to include conventional strike alongside nuclear strike. It also seeks to dissuade conflict through active and passive defense (i.e., “deterrence by denial”) and by bolstering the defense infrastructure, including “command and control, intelligence and planning” capabilities. These three approaches constitute a “new triad.”¹⁰⁸

In the context of missile threats against U.S. military installations overseas, defenses may help to dissuade adversaries, especially those on the lower end of the capabilities spectrum. Defense may also affect the underlying purpose of building such arsenals, and thus aid in nonproliferation efforts.¹⁰⁹ However, fluctuations in the offense-defense balance render such an assumption tenuous. The uncertainty of defense necessitates an initial retaliatory capability that provides adequate firepower to deter an attack. According to the 2002 *Nuclear Posture Review*, that capability will include both nuclear and conventional strike options. In the first case, the United States will continue to sustain the traditional strategic triad composed of ICBMs, fleet ballistic missile submarines (SSBNs), and heavy bombers.¹¹⁰ The destructive capacity of strategic warheads is considerable, although it is improbable that a U.S. leader would choose to employ such weapons in any circumstance other than retaliation for a nuclear strike on U.S. or allied territory. Political commitment to strategic retaliation in the face of conventional, or even limited WMD, missile strikes on U.S. forces overseas would probably be untenable.¹¹¹

In contrast, the problem with conventional deterrence centers on capabilities. There is little question that the United States possesses formidable conventional weapons. The drawback is that the firepower available under such an option would not approach the “swift and apocalyptic consequences” associated with a nuclear weapon.¹¹² Precision-guided munitions (PGMs) can target the “core assets” of a regime, including its leadership, military headquarters,

principal fighting units, etc.,¹¹³ but PGM use alone may leave a regime intact, able to recover, and willing either to continue the fight or to negotiate a capitulation. Evasion tactics, such as those employed by Iraqi missile forces in the Gulf War, further complicate the tasks of establishing a credible conventional deterrent. Moreover, while political commitment to an initial response would be virtually assured, long-term commitment to a ground war, i.e., the only reliable means through which to evict a regime and control territory, is less certain. That enemy missile forces may be able to inflict heavy casualties on U.S. ground troops only further complicates the chances of long-term commitment.¹¹⁴ Thus, while conventional forces will maintain a role in compelling adversary behavior in a war, their role in deterrence is inherently limited.

Despite the limitations of each, reliance on both nuclear and conventional strike adds the benefit of flexibility.¹¹⁵ When confronted with limited threats against U.S. forces, a president would probably decide to employ conventional forces, but would not have to explicitly rule out the use of nuclear weapons. To an adversary, even a negligible chance of nuclear war may affect the cost-benefit calculation against action. Likewise, under a severe (biological or nuclear) attack against U.S. forces, a president may well order a nuclear strike, but would like to retain the option of employing conventional forces. Thus an adversary doubting the credibility of the nuclear deterrent would still have to factor in the consequences of a non-nuclear response.

The final component of establishing a retaliatory threat involves effectively communicating the threat to the target state. This may occur through several channels—formal declaratory policy, diplomatic forums, third parties, and “signals” such as deployments, alerts, mutual defense pacts with regional allies, and military exercises.¹¹⁶ Selecting the appropriate mix of communicative methods is entirely context-dependent. Explicit warnings may adequately present the U.S. deterrent, but those warnings might either be ambivalent, badly worded, or offensive to the receiving state. Ambiguous communication may force adversaries to assume that all possible responses are still “on the table,” but may obscure U.S. intention to follow through. “Signals” must also be selected cautiously, as a miscalculation in the timing or nature of the demonstration could

fail to produce evidence of U.S. intent, or may provoke a hostile state into using force as a supposed last resort.¹¹⁷ In short, the message must be tailored on a case-by-case basis with a view of its likely interpretation.

Coercion of Potential Aggressors.

Given the U.S. threat of retaliation, the question is whether leaders of missile-capable states will consider using missiles against U.S. bases in a crisis or some other situation. Cold War models of Soviet decisionmaking posited that leaders contemplating missile strikes against the United States would examine American capabilities and commitment to respond to such aggression and decide whether this course of action posed an acceptable risk or not. Since the United States constructed and conveyed the threat of nuclear retaliation, the prevailing notion in deterrence during the Cold War was that, as a “rational,” “informed,” and generally predictable actor, the USSR would not risk a war with the United States.¹¹⁸

Today, several conditions underlying this analysis may obtain in some states. The first involves strategic culture.¹¹⁹ Like the USSR, states with long-standing and “coherent” deterrence theories may view missiles as tools to be used to deter aggression, rather than as instruments of war.¹²⁰ Thus, states that recognize missiles as war-avoidance mechanisms may be amenable to negotiation and making specific “concessions” without the fear of “jeopardizing” major security goals.¹²¹ A second factor is history. In regions in which the United States has had a standing presence (e.g., Western Europe and Northeast Asia) or has routinely deployed combat forces, local antagonists may attribute a higher commitment value to U.S. deterrent statements or signals than those in which there has been less first-hand experience.¹²² Third is regime type. Decisionmakers backed by professional militaries and bureaucracies (such as Russia, China, and India) are more likely to perceive correctly incoming information and consider a full range of response options than those that are not.¹²³

However, missiles have proliferated to states in which such reassuring conditions are not present. With regard to strategic

culture, missiles in “rogue states” may be acquired as an instrument of war, rather than as a defensive means to provide for security. Even in China, a state that has been thought to follow a “limited deterrence” strategy, some strands of thought consider long-range missiles primarily as warfighting tools. One analyst has suggested that China’s “first strategic surprise attack,” should take place within the first day or two of a crisis.¹²⁴ Historically, some new missile states have had limited contact with the United States and might not be able to accurately assess the U.S. commitment to respond to aggression. Regime type also matters. In authoritarian states, decisions are more likely to be affected by groupthink, over-optimism, and a lack of consideration of evidence, all of which may contribute to risk-taking behavior.¹²⁵ Moreover, smaller and less well-organized regimes are less likely to possess intelligence services that can provide an accurate representation of enemy threats.

The importance of individual decisionmakers in authoritarian states is also worth noting. Because of the structure of government, leaders in such states are likely to have greater freedom in choosing how to act in a crisis scenario. Moreover, by overstating their ability to resist U.S. retaliation in the event of a crisis, leaders in these states may be able to build domestic support for responses that would be untenable elsewhere. Such leaders also tend to be risk-takers. Self-confident egoism (a key trait of the “authoritarian personality”) “leads to both a sense of omnipotence and a feeling of invulnerability that they cannot go wrong.”¹²⁶ Certain cognitive activities may contribute to misinterpretation of risk or flawed responses. In a denial mechanism, an individual may only accept positive evidence for a certain choice and disregard other data. In a bolstering process, leaders may overstate the merits of a decision and downplay the potential repercussions.¹²⁷

These factors notwithstanding, any leader interested in personal and regime survival will have to conduct some risk calculation in determining whether to attack U.S. forces. Moreover, the nature and results of these assessments will vary according to circumstance—each situation is different. The following paragraphs estimate decisionmaking factors in states identified in Section II as potentially capable of hitting U.S. overseas bases: Russia, China, North Korea,

India, Pakistan, Libya, Syria, Iran, and pre-war Iraq. While these balance sheets are quite general, we can begin to discern certain types of situations in which the U.S. deterrent fails.

Although Russia will pose the most serious capabilities challenge to U.S. forces, only the most imaginative scenarios would feature a breakdown in the nuclear deterrent relationship between Russia and the West. In the near future, NATO deployments in the Baltic states will further close the gap between the West and the Russian homeland. This will likely be viewed with apprehension, because of the long history of Russian vulnerability to land invasions.¹²⁸ Such expansion may create a security dilemma in the sense of inviting a Russian military buildup in Kaliningrad, which forms a “geostrategic bridgehead” with the Baltic region. This is a dangerous possibility, because Kaliningrad is severed from the main part of Russia. In a crisis, faulty communication to Moscow could precipitate an unnecessary escalation of tensions and ultimately produce a decision by Russia to strike against NATO.¹²⁹ Elsewhere, there is a low probability that some conflict could arise between Russia and U.S. forces stationed on its southern border, or throughout Central Asia.¹³⁰

However, several factors will virtually guarantee that Russian missiles are never employed against U.S. targets.¹³¹ First are common interests in democracy and the prevention of war, and the common threats of international terrorism, extremism, and the proliferation of WMD. Second, the rising generation of Russian military officers seems to hold a worldview in which the collapse of the Soviet Union is increasingly unimportant.¹³² Third, despite reductions in the Russian strategic arsenal, nuclear deterrence is numerically viable for the foreseeable future—as long as U.S. national missile defense plans are not capable of eliminating the Russian first strike option.¹³³ Fourth, although questions remain to be answered about the state of Russia’s early warning satellites,¹³⁴ Russia retains intelligence services that are “hard wired into virtually all the major capitals in Europe,” and thus probably is able to discern NATO intentions.¹³⁵

With a large and sophisticated missile inventory, China poses the next most serious capabilities threat against U.S. forces. On one hand, some observers believe that China is pursuing these capabilities to constrain U.S. policy choices—not in preparation for a warfighting

mission.¹³⁶ Specifically, China may be pursuing a “three-tiered” deterrent strategy, which includes a minimum nuclear deterrent capability against the United States, a “limited, nuclear-capable counterforce capability” at the regional level, and an offensive conventional posture at the theater level.¹³⁷ Moreover, the People’s Republic of China (PRC) has a robust intelligence presence in the United States, and would likely be able to gauge effectively U.S. capabilities to stage a conventional or nuclear retaliatory strike. Given these factors, and growing economic interdependence in the global economy, a State Department official estimates that “there is a reasonable prospect that [U.S.] deterrence would be effective.”¹³⁸

On the other hand, the prolongation of an authoritarian and nationalistic China may create situations in which international economic or military coercion is untenable.¹³⁹ In particular, the resolution of the “Taiwan issue involves the possibility of confrontation.”¹⁴⁰ According to Princeton’s Thomas Christensen, the PRC may be “fully undeterrable” in the scenario of a Taiwanese formal declaration of independence.¹⁴¹ The reasons may be strategic or political; strategic in the sense that China considers territorial self-defense as the preeminent vital national interest;¹⁴² political in the sense of adding legitimacy to a regime based on nationalism.¹⁴³ Although China may attempt to create a *fait accompli* through an initial “shock” followed by a negotiated settlement, it is likely that the ROC would resist a Chinese incursion.¹⁴⁴ U.S. policy toward the defense of Taiwan is ambiguous, although a U.S. intervention in a Straits’ crisis could lead to Chinese missile strikes against U.S. bases throughout the Asia-Pacific region. As suggested, China may launch a “strategic strike” against U.S. forces in the opening period of conflict in order to neutralize U.S. participation.

Despite its burgeoning conventional and nuclear forces, India is unlikely to pose a major threat to the United States in the coming decade. Several common interests will bind the United States and India: democracy; economic growth; avoidance of an India-Pakistan conflict; creation of safe border; and finding solutions to the problems of religious extremism, drug trafficking, and terrorism.¹⁴⁵ India also probably will not face major threats to regime stability, owing to a strong (though factionalized) party system, and several competitive

advantages in the global economy.¹⁴⁶ But a possible source of tension may be the long-term emergence of a “nationalist India”; a “highly bellicose” state that may conceivably demand that the United States withdraw its naval presence from the Indian Ocean and, more specifically, its strategic base on Diego Garcia.¹⁴⁷ Following some unpredictable set of events, there is a nominal chance of a confrontation, but it is far more likely that the United States will successfully deter any Indian aggression.

Pakistan represents more of an open-ended case than either Russia or India. In the near-term, U.S.-Pakistan relations will remain cordial, buttressed by cooperation in the war on terrorism. To solidify the partnership, in 2001-02 the United States granted Pakistan \$1 billion in direct aid, as well as over \$200 million in military sales. Moreover, reflecting a history of cooperation in the Cold War, the two nations have resumed high-level defense talks on military cooperation and anti-terrorism matters.¹⁴⁸ The concern is that factors such as poor economic policy, corruption, ethnic turmoil, and the lack of a rule of law may facilitate anti-Americanism.¹⁴⁹ In this case, strong U.S. ties to India may be viewed as a threat.¹⁵⁰ Should the United States intervene in a conflict in South Asia and Pakistan’s survival is threatened, deterrence may fail.¹⁵¹ However, the United States would almost certainly abstain from intervention in a fourth Pakistan-India war.

North Korea will pose more significant deterrence challenges for the United States than any of the aforementioned states. The most troublesome scenarios include an attack on the South as a method to ensure regime stability, or a domestic conflict in which government control over the military is reduced.¹⁵² On one hand, the probability of a crisis developing is lessened by engagement—aid, investment, personal contacts—and political pressure from Russia and China.¹⁵³ Should the regime accept engagement, the chance of a peaceful resolution increases. On the other are factors such as food shortages, an economy in decline, and a long-standing “strategy of communizing the South by force.”¹⁵⁴ In either scenario, U.S. forces stationed in the South (or elsewhere in Northeast Asia) would be at high risk of exposure. Indeed, reports from defectors indicate that the Democratic People’s Republic of Korea (DPRK) may launch a

preemptive strike on U.S. bases in the hopes that sudden mass casualties “would lead to antiwar sentiments among U.S. citizens and then to the withdrawal of U.S. troops from South Korea.”¹⁵⁵

Deterrence failure resulting from political instability is also a concern for Iran. At present, Iranian security policy is dictated by theocrats in conjunction with the military. If these elements were destabilized by internal unrest, they may attribute the situation to the United States—plausible because of the history of U.S. covert action in Iran.¹⁵⁶ As in the DPRK, a revolt may occur on account of economic decline.¹⁵⁷ In any other circumstance, however, an attack on U.S. forces is less likely. Through the lens of the Gulf War, Iranian decisionmakers have witnessed the severe consequences of a war with the United States and the resulting sanctions.¹⁵⁸ They must also recognize that, since all Iranian oil exports flow through a single, vulnerable terminal in the Gulf, a confrontation with the U.S. Navy could be “suicidal to the country’s economy.”¹⁵⁹ Nevertheless, a miscalculation of intentions is always possible, and the response of the mullahs may be erratic. The most promising, but as yet uncertain, future would involve a slow, but steady reform program and a deepening of ties in the international system.¹⁶⁰

Iraq is an exceptional case because U.S. deterrence arguably failed in both the 1991 Gulf War and in the 2003 conflict. But the two conflicts are substantively different. In the first war, there was a certain level of “intra-war deterrence,”¹⁶¹ since Hussein used SCUD missiles against U.S. forces, but abstained from tipping those missiles with WMD. After the Gulf War, U.S. and Israeli intelligence agencies concluded that, if Hussein felt that his regime was on the “brink of collapse,” he would not abstain from using unconventional warheads against the United States.¹⁶² In 2003, the intra-war costs of employing missiles and WMD against U.S. forces were insignificant for the Iraqi leadership, since the United States had already stated regime change as its objective.¹⁶³ The only plausible “deterrent,” in the sense of dissuasion at the tactical level, was against individual Iraqi commanders and soldiers who, presumably, had more to lose than the senior leadership.¹⁶⁴ In the longer-term, the nature of deterrence in a post-Hussein Iraq is unclear. A reconstituted state may be stable or highly unstable, depending on the nature of the United Nations (UN) effort.¹⁶⁵

Under the leadership of Hafez Al-Asad, the Ba'ath party in Syria demonstrated "pragmatism" and will likely continue to do so under his son, Bashar.¹⁶⁶ Syria's principal international antagonist is Israel, although Asad would probably only choose to use force if he felt his regime was threatened. Indeed, Syria has a major stake in the Middle East peace process: a crisis would decrease investment, foreign aid, and place heavy burdens on the state's resources.¹⁶⁷ Domestically, the regime will likely remain intact, because the government enjoys popular support and because the main (Islamic) opposition does not have a significant presence within Syria.¹⁶⁸ But the future is uncertain, since a number of social and economic problems are unresolved and, as in Iran and elsewhere, demographic changes may exacerbate these concerns.¹⁶⁹ This could provide an opening for a transition to a more fundamentalist regime that, in turn, could interpret the risk of Israeli and U.S. presence in the region differently.

Further West, Libya remains the fiefdom of Colonel Muammar Qadhafi. Libya's relations with the West moderated in the 1990s, culminating in 2003 as Libya promised to halt its WMD and longer-range ballistic missile programs.¹⁷⁰ This agreement may foreshadow more normalized relations between Libya and the United States. To be sure, skeptics have noted that "we should not assume that Qadhafi has changed his anti-Western" views and would not reorient Libya's foreign policy if the geopolitical situation was to change.¹⁷¹ A different problem is that, despite apparent political control, Qadhafi must contend with several potential challengers: disgruntled military officers, pro-Islamic radicals, and nonstate guerillas.¹⁷² Since "corruption, mismanagement, and unemployment have eroded support for the [current] regime,"¹⁷³ any of these groups could plausibly push for a termination of Qadhafi's diplomatic approach and reignite political-military tensions with the West.

In the context of missile strikes on U.S. bases, U.S. deterrent capacity is reduced or eliminated in two types of situations. First, when the core interests of a state (i.e., regime survival, territorial integrity) are endangered. A crisis in which these interests are at risk can result from domestic or international instability. Although the nine states surveyed above may each contend with either or both sources of crisis in the next decade, regime collapse is most highly probable among the "rogue states" (Iran and North Korea; possibly

Libya and Syria) and, to lesser degrees, Pakistan and China. In a domestic crisis, the leadership may view missile capabilities as a way to “divert public attention” and rally support around war with the United States. In an international crisis, a leader may conclude that a missile attack (perhaps including WMD) is the last, best, hope for survival.

The second type of situation involves a calculated decision at the beginning of an international crisis to deliver a “strategic blow” against U.S. forces, usually with the aim of undermining U.S. political resolve to intervene.¹⁷⁴ Examples include Chinese strikes at the outset of a Taiwan Straits war and a North Korean surprise attack against U.S. forces in the Republic of Korea (ROK). In both types of deterrence failure, the advent of new modes of fighting (including missile strikes) may themselves be important determinants of decisionmaking in terms of altering perceptions of the balances of forces and chances of success. However, as suggested, states will invariably consider a much wider range of factors when assessing the risks of breaking deterrence. For states with much to lose and little to gain by doing so, missile capabilities may have marginal or no effects.

Recap.

In the first phase of the deterrence dynamic, the United States will rely on defenses and a flexible, though limited, range of nuclear and conventional strike options. Potential aggressors, affected by factors such as strategic culture, history, and regime type, will calculate the risks and gains of defying the U.S. preference that force not be used. Here, the risks will normally outweigh the benefits of employing missiles, but in certain types of situations, the reverse may be true. Of course, the United States can take steps to increase the effectiveness of deterrence. The mix and type of deterrent must be tailored to individual circumstances—a nuclear, counterforce strategy may be the best method for deterring Russia, but may be ineffective against a smaller adversary threatening a limited conventional (or even a chemical) strike. Moreover, U.S. decisionmakers must take state-to-state variances into account when communicating the proposed retaliatory threat. This requires that U.S. leaders educate themselves

on the inconsistencies and supposed “irrationalities” of their opponents.

SECTION III. COERCION AND POLITICAL DENIAL

Enemy missiles do not need to be aimed exclusively at U.S. bases in order to render those sites ineffective. Adversaries may attempt to use missiles as coercive tools designed to compel or deter the United States into withdrawing its troops prior to the beginning of a conflict or opting to abstain from military intervention. The last section pointed out that one use of missiles against bases is to create a “strategic blow,” but such an effect may also accrue from the use or threat of use of missiles on other overseas U.S. targets or, especially, on the U.S. homeland. Likewise, missiles may be used to strike, or threaten to strike, nations which host U.S. forces or provide other access rights, thereby prompting those nations to deny the United States the use of their territory when those usage rights are most needed.

Threat Assertion.

As in U.S. deterrence, enemy coercive strategies begin with the presentation of a threat defined in terms of capabilities and commitment. The capabilities must raise the cost of a foreign policy decision so high that the target leadership opts to refrain from choosing that course of action. Against the United States or U.S. regional partners, missiles are attractive coercive tools for two reasons. First, missiles can affect U.S. political decisions by threatening, or actually creating, mass casualties abroad or (in the case of ICBMs or ship-launched LACMs) in the homeland. The idea is that domestic pressures to avoid or minimize losses would cause a U.S. president to rethink whether to employ force. Second, missiles can be leveraged against states that host U.S. troops or states that are considering whether to grant the United States access. Host nations may be coerced through the threat or reality of casualties and/or economic damage.¹⁷⁵

Global missile trends will exacerbate these utilities. Section II pointed out that a growing number of potential U.S. adversaries are

developing more and better missile forces. Relatively large, accurate, lethal, and long-range missiles provide asserting states the ability to threaten a costly military action in response to a failure of the United States to accept its, the asserting state's, preferences. Second, when combined with efforts to develop WMD, world missile stocks increasingly are able to inflict large numbers of military or civilian casualties. That several states either currently possess, or are seeking to acquire, ICBM-range ballistic missiles offers a particularly potent capability to sway U.S. political leaders. Third, proliferation and development will increase the number of targetable host nations and the severity of the proposed strike. As in the second category, concurrent production of WMD will further complicate the cohesion of alliances and partnerships.

On one hand, the damage potential of these capabilities may be decreased by missile defenses. Regional base protection, to reiterate, rests on the pillars of passive and active defense, counterforce operations, and advanced C4I. However, the effectiveness of these defenses is uncertain. Theater missile defenses (TMD) may also be ineffective in protecting regional allies and partners from some enemy missile threats. National missile defense (NMD) is nearing an initial operational capability, with interceptors already in place at Fort Greely, Alaska.¹⁷⁶ NMD architecture is designed to confront a limited number of incoming ICBMs, sufficient to deny any adversary except Russia and China.¹⁷⁷ On the other hand, missile defense at any level will invite offensive upgrades, which may be easier to effect than corresponding changes in deployed defenses. Moreover, some allies have resisted acquisition of TMD out of the concern that that would spark regional arms races.¹⁷⁸ Finally, the actual balance of forces may be irrelevant in a deterrent-based coercive strategy. With reference to ICBMs, U.S. intelligence official Robert Walpole has argued:

Acquiring long-range ballistic missiles armed with weapons of mass destruction will increase the possibility that weaker countries could deter, constrain, and harm the United States. The missiles need not be deployed in large numbers. They need not be highly accurate or reliable; their strategic value is derived from the threat of their use, not the near certain outcome of such use. Some may be intended for political impact; others may be built to perform more specific military missions—facing the

United States with a spectrum of motivations, development timelines, and hostile capabilities. In many ways, they are not envisioned at the outset as operational weapons of war, but as strategic weapons of deterrence and coercive diplomacy.¹⁷⁹

If these weapons are intended for actual use, factors such as reliability or accuracy would be more significant, but even an inaccurate ICBM strike against the U.S. homeland would have a powerful psychological effect.

The level of commitment attached to the threat depends on perceptions of the interests at stake, predictions of the chances of success, and domestic political variables. First, leaders are more likely to commit to a coercive strategy if the policy action in the target state is interpreted to significantly endanger the vital interests of the regime. U.S. military intervention, or simply the presence of U.S. troops in the region, may give rise to a view that, as long as those forces remain, the regime's survival is at stake.¹⁸⁰ In such a case, leaders may decide that a failure of the United States to accept the opposing state's demands warrants the use of the coercive instrument. Interests below the level of state survival may also create a strong will to follow through with the promise of military action. For instance, China's interest in the control of Taiwan may generate domestic support for the use of China's missile forces if the United States opted to intervene. Nevertheless, the putative benefits of protecting interests that do not involve regime survival would be less likely to overcome the costs of war than those that do, thus lowering commitment.

However, leaders may still commit if the chances of success in battle are deemed acceptably high. As noted in Section II, cultural, historical, and regime type-related factors may cause leaders to overestimate the effectiveness of their asymmetric warfighting advantages and commit to imprudently risky decisions. This effect may be even more skewed with respect to U.S. regional partners, which (if unaided by the United States) lack the same level of retaliatory capabilities. But even decisionmakers that correctly interpret the U.S. threat of retaliation could conclude that, irrespective of the balance of forces, the balance of willpower favors them.¹⁸¹ The reason is that, in the view of the asserting state, the U.S. public

would eschew a drawn out war that did not engage vital interests.¹⁸² Asymmetries contribute to a belief in success, and thus commitment. Still, the asserting state may also recognize that any actual attack on U.S. sites or allies would result in an increase in target state resolve to pursue the end-state of their regime.

Domestic political variables also have a role in conditioning the commitment to a coercive strategy. These variables are identical to those that affect how a state interprets the U.S. deterrent, because both influence the risk-taking propensity of decisionmakers. For instance, authoritarian states that do not confront any major internal challenges would be less politically vulnerable to negative results of using force against the United States if the coercive strategy fails, and would be more likely to secure public support for any such effort via control of information. The possession of a means of targeting U.S. vulnerabilities would embolden risktakers, but in the general case of risk avoiders may not add much or any value to commitment.

Communication is a final component of coercion when the strategy is to state a threat. Communications will be either direct (e.g., pronouncements and diplomacy) or indirect (e.g., missile tests, war games, and public rallies). States, whose capabilities and commitment level cannot be accurately interpreted through U.S. intelligence means, especially closed societies with opaque decisionmaking practices, may also seek to infuse their communication strategies with misleading or invented claims. The most famous case of a strategic bluff occurred in 1955, when the Soviet Air Force convinced a U.S. military attaché that it possessed twice as many *Bison* heavy bombers as it did by simply flying the same bombers over the attaché's head again and again.¹⁸³ However, the dangers inherent in this tactic include losing credibility in future communications and sparking a large U.S. buildup as a countermeasure.¹⁸⁴

Coercion of the United States.

Compellent strategies against the United States would fail when missiles are actually used against U.S. targets overseas or at home.¹⁸⁵ Ballistic missile launches can be tracked through current U.S. intelligence means and would allow leaders to identify the perpetrator

and organize a response. The origins of ship-launched cruise missiles may be harder to trace initially, but (as in the campaign against the Taliban) any state sponsors eventually would be identified and retaliated against. Presidents would not encounter major domestic opposition in reacting to aggression against U.S. forces or civilians at home. The question is not whether, but what form the response would take. The “new triad” would allow a president flexibility to select either a conventional or nuclear strike.

Deterrent coercion requires a closer analysis of the U.S. interpretation and response. As with U.S. deterrence of potential aggressors, aggressor deterrence of the United States will be affected by several domestic-level factors. In terms of strategic culture, “mirror imaging” in the American experience has created a sense that antagonists tend to think and act according to U.S. norms.¹⁸⁶ For instance, U.S. views of the nonutility of nuclear war may contribute to the belief that others would not commit to nuclear weapons use, when, in fact, other strategic cultures have different views on the purposes of WMD. Some of these attitudes derived from the Cold War. As noted, U.S. deterrence of the USSR assumed a rational and predictable actor; such assumptions may lead U.S. leaders to misunderstand adversary behavior.

Institutional factors will also be significant in affecting U.S. perceptions. With regard to intelligence, the U.S. intelligence apparatus is professional, diversified, and technically apt.¹⁸⁷ However, several sources of error exist: signals intelligence may be overwhelmed by the volume and complexity of transmissions;¹⁸⁸ human intelligence sources are, and will likely continue to be, constrained in the extent to which they can penetrate foreign governments and discern enemy threats; and analysis may suffer an “institutional predisposition” to inflate or deflate estimates, though the main examples involved a devaluation.¹⁸⁹ Concerning decisionmaking processes, several participating entities (DoD, the State Department, the CIA, nongovernmental agents, etc.) will ensure that competing opinions and data are provided. The concern is that a president might rely on a single body or clique. This has happened at several points in modern U.S. history, and may reoccur in a fast-moving crisis situation.¹⁹⁰

Although supported by these actors, presidents themselves may inaccurately interpret the actions of missile-capable states. For instance, presidents with a relatively benign view of a given state may cognitively reduce the importance of missiles in a given state's arsenal (and, of course, the reverse is valid).¹⁹¹ A further concern is that the human brain is poorly wired to deal with ambiguous information—uncertainty often produces over-simplification. In a situation in which new or dissonant intelligence is received, leaders may be confused or fall back on initial data and impressions. Finally, the president doubtfully will be able to understand fully the behavior of hostile actors. If U.S. leaders were “almost heroically ill-equipped” to understand Soviet behavior,¹⁹² understanding of new actors in the current period is even less likely, and such ignorance could produce faulty responses.

Affected by these factors, U.S. leaders will conduct a risk calculation in determining whether to resist or accept coercion. The answer goes to the question of whether states can successfully leverage missiles to constrain the use of overseas bases in a crisis and thus defeat the United States before war has begun. History suggests that U.S. leaders will be least likely to accept coercive threats when “broadly recognized national interests” are at stake.¹⁹³ In cases in which this provision has not held, the general public tends to be casualty averse. Ohio State's John Mueller argues that:

When the value of the stakes does not seem to be worth additional American lives, the public has shown a willingness to abandon an overextended or untenable position with little concern about saving face. However, if they are not being killed, American troops can remain in peacekeeping or nation-building ventures virtually indefinitely . . .¹⁹⁴

Elites (defined here as a mix of U.S. Government, business, higher education, and media leaders with expertise in foreign affairs) also incorporate perceived interests into their risk assessments.¹⁹⁵ For instance, in 2002, 82 percent of elites say they favored intervention if North Korea invaded the South. A bare majority (52 percent) would support military action in a Taiwan Straits crisis, with even less support for threats to even less obvious interests.¹⁹⁶ Nevertheless, despite potential public casualty aversion, a president may still reject coercion on the basis of his/her own interpretation of the interests at stake.

Although a matter of perception, interests can be categorized in a hierarchy ranging from “vital” to other, secondary concerns.¹⁹⁷ “Vital” interests are those required to “preserve the United States as a free nation with our fundamental values and institutions intact.”¹⁹⁸ Lesser interests include those that are important but which do not threaten national survival and safety. In this framework, U.S. leaders will be more likely to risk casualties in defense of higher interests than those that are more peripheral. Thus, the benefits of safeguarding “vital” interests would be likely to outweigh the prospective costs of war—but the costs of casualties may outweigh the benefits of protecting lower ordered interests.

Not coincidentally, U.S. leaders are most likely to see “vital” interests in the regions in which it is most likely to base troops: Europe, East Asia, and the Middle East. These three regions contain the “overwhelming predominance” of global wealth; contain most U.S. allies and a large percentage of U.S. economic interests; and sit astride potential strategic competitors of the United States.¹⁹⁹ Specifically, “vital” interests in East Asia have been defined as “productive” relations with China and the survival of Japan and South Korea; in Europe, the survival of European allies and the Atlantic Alliance; in the Middle East, the survival of Israel, access to energy, and nonproliferation of WMD.²⁰⁰ Over time, U.S. decisionmakers may also perceive “vital” interests at stake in Central Asia.²⁰¹ The United States may not, then, accept coercion to withdraw militarily from these regions or to refuse to project power there if its “vital” interests are endangered.

In sum, missile-based deterrent coercion may have a limited effect on U.S. decisionmaking under certain circumstances. Adversary capabilities and commitment would have to be perceived so pessimistically that the estimated costs of resistance outweigh the estimated value of doing so. The missile threat will have some effect on a president’s ability to marshal domestic consensus for accepting the risks of engagement, although elites, and perhaps the general public, seem to be willing to tolerate some loss for the sake of ensuring national interests. The level of that support, however, is uncertain and could deteriorate if the adversary is able to find an effective method of communicating an unacceptable threat. But the chance of a failure to intervene, or an *ex ante* withdrawal, in a

situation in which perceived vital interests are at stake would rest on the improbable decision of a president to pursue an option that may be even riskier—backing down.

Political Denial.

The second major coercive utility of missiles is to divide the United States from countries which either host U.S. forces or must decide whether to provide temporary basing for U.S. troops in the event of a conflict. In contrast to the United States, the consequences of compellent strikes against other nations are not obvious. There is a chance that, following an attack on a host nation, the asserting state could plausibly assign blame to the United States and thus cause the public to demand an ejection of U.S. forces for fear of further reprisals. But the stakes of such a gamble are much higher than, at least initially, coercive diplomacy, because an actual attack would probably result in immediate retaliation. Regarding U.S. allies, attack would be tantamount to strikes against U.S. territory and would invite U.S. conventional or nuclear reaction. TMD may also reduce the benefits of such a strategy, while keeping the costs constant. For these reasons, threats have more often been the subject of analysis.²⁰²

Assessment of target state response can be divided between allies and nonalliance “partners.”²⁰³ This distinction is based on the premise that ally risk analyses are substantively different from those performed by others.²⁰⁴ Alliance relationships are defined by a formal agreement of mutual defense; U.S. forces permanently stationed in these states provide credibility to the obligation by serving as a “tripwire” that, if crossed by an adversary, would automatically draw the United States into the conflict.²⁰⁵ When deciding whether to deny the U.S. access rights, allies must weigh the costs of jeopardizing the defense pact against the presumed value of acceding to the coercive threats of regional aggressors.²⁰⁶ Nonalliance partners, by definition, lack a long-term security guarantee from the United States, and do not usually host the U.S. military on a long-term basis. The risks of a denial, then, will not include consideration of damage to a security treaty, but may still include costs to productive political and military relations with the United States. Despite this generalization, the risk

assessments will vary across major alliances (Turkey, NATO Europe, Japan, Korea, Australia) and partnerships (especially in the Persian Gulf and Central Asia).

The significance of Turkey draws, in a major way, from access to the air base at Incirlik. As noted above, missiles from Russia, Syria, Iran, and Libya are now or will likely be able to target all or most of Turkey, raising the possibility of coercion to deny the United States the use of Incirlik. However, a move by any of those states to an aggressive posture toward Turkey would almost certainly increase the cohesion of Turkish-U.S. relations—without U.S. presence, the same states would be in a better position to seek future concessions.²⁰⁷ Denial would also threaten common interests, such as prevention of Russian influence in Central Asia, business cooperation, and nonproliferation of WMD in the region.²⁰⁸ The major reasons why Turkey would eject the United States from Incirlik stem not from missile proliferation, but from other considerations—long-standing fears that the United States wants to “carve up” Turkey, concern that U.S. action may motivate Kurdish nationalists to seek independence from Turkey,²⁰⁹ and the lack of public willingness to support the basing of U.S. forces.²¹⁰

U.S. access interests in European NATO include over-flight rights and forward basing of personnel and equipment (largely in the United Kingdom (UK), Germany, and Italy). Europe is currently safe from all but Chinese and Russian ICBMs, but acquisition of IRBMs in the Middle East and North Africa would allow coercion from several new actors. Coercion for the purpose of causing a general U.S. withdrawal from Europe is unlikely. Despite efforts by the European Union (EU) to develop defense capabilities separate from NATO, Europe is still reliant on the United States as a security provider; the transatlantic gap in military technology is widening, and Europe lacks a strong defense industrial base.²¹¹ Finally, some analysts argue that the point of an independent capability is not to create the option to reject U.S. presence, but rather to ensure that the United States stays.”²¹² Proliferation would likely only underscore Europe’s vulnerability and strengthen NATO.²¹³

In both Turkey and Western Europe, the major concern is not that the leadership will demand a U.S. withdrawal, but that, under certain circumstances, the threat of missile attack will cause a political

decision to deny the United States the use of facilities or the rights to use airspace to transport troops to a combat zone. For instance, during the Gulf War, Iraqi long-range missiles would have been able to threaten mass casualties in Europe or Turkey, thus endangering the cohesion of the alliance.²¹⁴ The problem may be acute if a host nation does not believe that its “vital” interests warrant U.S. use of force.²¹⁵ However, such a decision would still have to take into account the possible negative long-term effects on the alliance, including a U.S. decision to withhold economic aid or, in the worst case, to reassign its forces to a more willing host.

In East Asia, the U.S. Navy and Marine Corps have a substantial presence in Japan, able to respond to a spectrum of regional crises. Russia, China, and North Korea will be able to threaten reprisal for Japanese basing agreements. However, Japan is unlikely to expel U.S. forces on the grounds of growing missile threats; indeed, the opposite is true. The reason is that Japan has fundamental concerns about the motives of its three regional antagonists, and a significant reduction of U.S. presence would weaken the ability of Japan to provide defense.²¹⁶ The added benefits of the defense pact include the ability to avoid a “costly and destabilizing military buildup,” access to U.S. technology, and symbolism of Japan’s commitment to peace and nonaggression under civilian rule.²¹⁷

Similar to NATO, the danger of reliance on forces in Japan is that the Japanese government will deny the United States the ability to employ those forces in a crisis. One scenario in which this may hold true is a Chinese action against Taiwan in which the United States seeks to utilize its Japan-based assets but, given a calculation that the risks of a Chinese missile strike outweigh the benefits of a U.S. intervention, is denied that right. But in contrast to Europe, Japan is likely to correlate its “vital” interests with the United States in any instance of aggression by a regional enemy and thus permit use. Japan is also unlikely to choose an option that threatens the long-term solvency of the alliance, owing to internal restrictions on its self-defense forces. Nevertheless, public pressure to deny U.S. access may be significant in an extreme instance of coercion.

South Korea hosts a contingent of the U.S. Army, whose current purpose is to stabilize the peninsula. As with Japan, U.S. forces serve to balance the ambitions of other regional powers—in the case of

Korea, China, Russia, and, possibly, a resurgent Japan.²¹⁸ Specifically, as long as the North Korean threat remains, South Koreans are not likely to demand a U.S. withdrawal. The future beyond reunification, however, is less certain. In a unified, but weak, Korea, China may be able to put sufficient pressure on the new regime to scuttle the U.S.-Korea treaty.²¹⁹ Still, some liberal ROK thinkers seem to view post-reunification China relations as a supplement to the U.S.-Korea alliance, rather than as an alternative.²²⁰ A separate concern is that, with the resolution of the DPRK threat, the purpose of U.S. troops in Korea will transition to a regional role. For instance, U.S. presence may be more oriented toward “periodic deployments” of air and sea assets that are, regionally, more flexible than the U.S. Army.²²¹ Given a continuation of coercion from the PRC, Korea’s leadership may be reluctant to allow U.S. forces to engage in operations that do not have a direct bearing on the stability of the peninsula.²²²

A third East Asian alliance is Australia. Although the United States currently has no major deployments on the continent, it does operate a joint intelligence center, and Australia may rise in significance both as a training area for the United States and as a “hedge” against the loss of access to Japan.²²³ The proliferation concern is that Australia will be in range of Chinese, Russian, and North Korean long-range missiles. However, Australia’s leaders have expressed strong support for the presence of U.S. troops.²²⁴ The reason is that, with a relatively small population occupying a large landmass, Australia requires an external security guarantor in the face of ambitious regional actors.²²⁵ Commonly shared “vital” interests between the two allies (such as nonproliferation of WMD and free trade in Southeast Asia), also reduce the chance that missile coercion will be effective.

Partnerships in the Persian Gulf allow the United States staging points for military action in the Middle East. With continual U.S. deployments in the region following 1991, relations have begun to assume some qualities of alliance—a deterrence function against Iran and Iraq; the “necessity” that the United States would be immediately drawn into any act of aggression; and benefits accruing to Gulf States through extensive military-to-military contacts with the United States.²²⁶ Such interaction boosts the credibility of the U.S. partnership and reduces the chance of exclusion from the area.²²⁷

However, assumptions of reliable access remain tenuous. Many of the reasons are not related to external threats; these include the concern that identification with the United States in a conflict against Muslims could incite domestic instability and fears that cooperation with the United States could damage relations with other countries.²²⁸ But outside pressure is also a concern, given the relatively recent nature of U.S. involvement in the region and the lack of a mutual defense treaty. For instance, partly due to the fear of retribution from Saddam Hussein, all Gulf States except Kuwait denied the United States use of facilities during strikes on Iraq in 1998.²²⁹ Missile proliferation in states such as Iran and Syria compounds the concern that the same states will hedge against granting the United States access in any crisis short of an actual military action against them.

As indicted by deployments during the campaign against Afghanistan in 2001-02, Central Asia may assume a greater role in the temporary basing of U.S. forces in the next decade. Regional powers such as China, Iran, and Russia would be skeptical of U.S. motives and may seek to leverage arms to retain influence.²³⁰ In general, U.S. access to the region will be difficult in any case in which local states and regional powers do associate their own interests. The reason is that, in the absence of solid commitments by the United States to act as a guardian of the potential host states' security, those states will either turn to other powers as guarantors or will be easily coercible by the threat of force.²³¹ Iranian, Russian, or Chinese missiles may be an exceptionally powerful means to extract favorable political decisions in this region. However, should the United States find a way to convince Central Asian states that U.S. partnership—even if it does not constitute an alliance—is the best way to avoid Russian or Chinese “imperialist ambitions,” the chances of access improve.²³²

In sum, the use of missiles as political tools may affect the ability of the United States to ensure political access to both allied states and those with which it does not have a formal security treaty. Among allies, there is a minimal chance that the U.S. military will be asked to leave on account of foreign threats, but rights to use facilities or airspace may be withheld in cases in which the ally does not directly link its interests with the United States. Improvements in the capabilities of adversary coercive instruments may make such

denials more frequent. Reliability of access to partner state territory is problematic because the security benefits of granting access are less clearly defined than in the case of an alliance. Unless the United States can convince its partners that it intends to provide protection against foreign threats, adversaries will be in a strong position to demand that those states refuse to give the United States sanctuary.

Recap.

Missile development and acquisition will lead to capabilities to coerce, while commitment to such a strategy may be strong when the asserting state's security goals are at risk. U.S. response to compellance would be immediate retaliation, and the United States is unlikely to accept deterrent coercion when a case can be made that "vital" interests would otherwise be sacrificed. The responses of host nations will be disparate and unpredictable when their interests are not threatened. But, as U.S. General John Jumper concludes, "Access is an issue until you begin to involve the vital interests of the nation that you want and need as a host. Then access is rarely an issue."²³³ Nevertheless, given the growing lethality of adversary strike capabilities (as well as various domestic political factors not reviewed here), questions remain about the reliability of host nations. The United States must assume that its allies could be induced into denying the rights to use their territory during a crisis in which its, the allies', core interests are not directly and explicitly at risk.

SECTION IV. CONCLUSIONS AND POLICY IMPLICATIONS

Missile threats will pose new and complex risks to overseas basing reliability on three levels, although that impact is obscured by several disparities and uncertainties. At an operational level, several new actors are acquiring, fairly rapidly, the means to target effectively and destroy fixed land locations, such as ports, command centers, logistics facilities, and air bases. Actors, old and new, are also finding ways to improve the quality of their missile forces vis-à-vis U.S. defenses. Across a broad capabilities spectrum, potential aggressors will be able to threaten the United States in each of the major theaters in which it is likely to operate in the next decade

(Europe, East Asia, the Middle East, and Central Asia). To be sure, U.S. defenses will reduce the potential damage, but the extent of that protection, especially against massed volleys of accurate cruise and ballistic missiles, is uncertain.

At the strategic level, the United States will seek to deter its adversaries from employing force by threatening, at varying degrees of credibility, a nuclear or conventional response. The hope is that any state weighing the costs and benefits of such an action will choose against it, but international or domestic instability in one or more of these missile-capable states could lead to situations in which one might view preemptive strike as an optimal choice. This is a particular concern when a regime is on the verge of a collapse, or if a leader is convinced that a decisive victory can be achieved through a surprise attack on U.S. forces. More discretely, intra-war deterrence, in terms of preventing escalation to the use of WMD during a conflict, may also be threatened when the costs of such actions are very low, especially in the late phases of regime collapse.

U.S. forces deployed or deploying overseas are also at risk of missile coercion directed against U.S. leaders and political decisions in host nations in order to compel denial of access. Missiles are exceptionally powerful coercive tools because they are able to inflict large amounts of damage against military sites or population centers in small periods of time. Acquisition and improvements to missile arsenals only compound the problem. Responses will vary based on the consequences of accepting or rejecting coercion; target states will probably reject coercion when their vital interests are threatened, yet even then it is difficult to assume reliable access.

Geographical disparity adds one layer of variance. Bases further away from the source of conflict are typically less vulnerable than those within closer range. SRBMs and most LACMs cannot hit targets beyond several hundred kilometers, even though mid-range ballistic missile proliferation and advances to cruise missiles will permit adversaries to strike over longer distances. Still, those weapons are more expensive than their short-range counterparts, are fewer in number, take longer to travel, and are thus somewhat easier to intercept. Rear area bases are also likely to have stronger and more effective infrastructure to limit damage. In addition, such bases are likely to be situated in territories or countries that have

solid relations with the United States. Bases on Diego Garcia, Guam, and in the United Kingdom are not likely to be seriously threatened in a political sense. Close-in bases, such as those in Japan or Kuwait, may also be insulated from coercion. In addition, forward bases may have more effective defenses than those areas for which the day-to-day threat level is considered much lower.

Reliability will also vary on a regional basis. Western Europe is relatively secure because of Article V NATO guarantees, the distance to most potential enemies, stable transatlantic ties, and continuing strategic dependency.²³⁴ Yet access is still uncertain when perceived security interests are not threatened. Central Asia is situated between two latent aggressors (Russia and China), and a lack of formal security guarantees could pose difficulties for U.S. access. A breakdown of deterrence in this region does not seem likely, but a prolonged U.S. military presence itself could produce attempts at coercion or, in a worst-case, open hostilities. East Asian allies are close to possible sources of conflict and thus have an incentive to retain U.S. forces, but are also in range of unstable regimes and states that may have both the capabilities and will to pursue coercive strategies. Troops in Japan and the ROK, and to a lesser extent Australia, may be at risk of attack or denial, although that risk will be reduced by alliances and robust defenses. Middle East states have been increasingly willing to host U.S. forces, as relations assume qualities of alliance, and as the capabilities of local antagonists increase. Yet basing is tenuous there because of the lack of formal guarantees, and because of the proximity to potentially unstable or hostile regimes (including Iran, Iraq, Syria, and Libya).²³⁵

Similarly, vulnerability will differ at the country level. Part of the variance is due to geography, as described above. Some host nations are simply much closer to missile-equipped aggressors than others. Moreover, individual states have differing histories and relationships with the United States, decisionmaking processes, cultures, and domestic politics, each of which will affect how those states behave under conditions of high risk. The generalization that allies are reliable hosts may not always apply. While not a product of coercion, Turkey's decision to deny U.S. forces access in the 2003 Iraq war is an example of the questionable dependability of allies.²³⁶

Nonallied states lack formal security guarantees from the United States, but may still be reliable hosts when their perceived interests demand such a course of action. That several Gulf States provided U.S. access rights in 2003 when Turkey did not provides evidence against the rule that nonallies are less dependable than allies.

Linked to regional and country differences, the nature of U.S. basing agreements adds another layer of complexity to the impact. Permanent bases bolster deterrence by serving as a “tripwire” and solidifying U.S. alliances, but, due to their long-term function, may create a security dilemma. This is a particular problem in East Asia, in which U.S. forces permanently deployed in Japan and South Korea may be seen as threatening to the security of China and North Korea. NATO bases in the Baltic region or, less plausibly, in the Caucasus, may similarly provoke Russia.

Temporary bases pose a separate set of concerns. When used for certain purposes, such as performing humanitarian missions or eliminating a common adversary, short-term bases may not have any negative consequences at the strategic level. However, when such locations serve (or are seen) as staging grounds for military action against a missile-capable state, they may invite preemption or coercion. Yet unlike permanent bases, these facilities may lack significant infrastructure to protect high-value assets.

Uncertainties, even in a modest effort to project 10 years into the future, further obscure the impact. This is, in part, due to research limitations on this assessment, but uncertainty is also an integral and unavoidable problem of making estimates. Questions remain about exactly how far proliferation will proceed, especially in terms of cruise missile acquisition and dual-use technologies that may add value to the missile arsenals of even “rogue states.” The efficacy of deterrence is hard to judge because the decisionmaking of closed societies is unclear and because states that appear strong today could destabilize with little warning. Assessments of the coercive utility of missiles also depend on ambiguous capabilities and obscure enemy risk calculations. Moreover, as already noted, U.S. and partner state decisions may not always conform to the rule that coercion will be rejected when significant interests are at stake; the definition and perception of “vital” interests itself is liable to vary over time.

Policy Implications.

The United States can hedge against risks at all three levels through several methods, while continuing to place some reliance on overseas basing. These include: finding effective routes to deterrence while retaining the option of shifting to a preemptive strategy; strengthening alliances and partnerships; reducing over-reliance on any single base through dispersion and moving critical assets to the rear area; building effective counterattack forces; and developing advanced active and passive defenses.

Deterrence will remain the principal strategy through which the United States seeks to defend both its homeland and its overseas interests from attack. Deterrence is most likely to fail when adversary leaders calculate that a first strike will fulfill major security objectives and during periods of regime collapse. Avoidance of the first type of breakdown may be achieved through state-by-state adjustments to the threat the United States promises if its interests come under attack. U.S. targeting policies must account for assets valued most highly by the receiving state; these will vary from country to country. U.S. leaders must also find methods of communicating the threat that will be most effective given different cultures, decisionmaking processes, and other domestic level variables. For instance, declaratory policy that WMD use will result in forced regime change may be effective against some states.

Regarding the second type of breakdown (states on the brink of collapse), the United States may not be able to propose any cost that outweighs the target state's estimated benefits of missile use. If there is clear and compelling evidence that deterrence failure is imminent, the only available option for U.S. leaders may be a preemptive strike. Discrete planning for such an eventuality must, of course, begin well in advance of the actual operation—this requires that the United States reliably identify and track enemy missile forces, WMD facilities, command and control infrastructure, etc., so that the risk of a retaliation is mitigated. If the United States cannot do so, a preemptive strike may well “trigger the very attack it was intended to prevent.”²³⁷ In another sense, the United States must maintain adequate long-range offensive strike forces to perform such missions (details on this criterion are discussed in the section on counterattack below).

Second, relations with current or potential host nations can be strengthened. At the policy level, the United States can offer security guarantees to countries that are not currently allies. For domestic political reasons, this need not be a public activity, but frank and carefully worded messages to partner leaderships may have some effect in sustaining cooperation. Peacetime military-to-military contact, in the form of training and exchanges, is also useful in informing host nations of the capabilities and will of the U.S. Government.²³⁸ Another type of initiative, which may or may not best be handled publicly, involves civil defense. U.S. shared expertise (to the extent that it exists) in how to manage a crisis may enhance the confidence of leaders in times of risk, thereby increasing the probability that coercion will be rejected.²³⁹ Finally, missile defenses offer a means of reassuring allies, but allies may have technical, economic, and strategic concerns about cooperation in this area. Decisions to deploy TMD in foreign territory ought to be made in the context of consistent dialogue with the relevant governments.²⁴⁰

Third, force structure changes can reduce over-reliance on any single base. Dispersing assets to numerous locations in a theater—as opposed to consolidating those assets in one, or very few sites—would place a higher burden on any attacker seeking to deal a decisive blow. Dispersal to many host nations would also minimize the effects of any given denial. However, this tactic would entail relatively high infrastructure development and personnel costs.²⁴¹ A possible way to achieve dispersion without accruing these added costs would be to negotiate options to deploy to pre-existing sites during wartime (known as securing “places without bases”). An example is the Changi Naval Base in Singapore, which is a “place” to which U.S. carriers can deploy without actually maintaining a permanent “base,” and which provides insurance against a loss of carrier basing in Japan. A variation would involve moving pre-positioned and high-value equipment from vulnerable forward bases to power projection “hubs” in the rear area, including Guam, Diego Garcia, or in the UK.²⁴² Once the missile threat has been neutralized, material at these sites could be lifted to close-in bases.

The fourth approach to reducing risk involves counterattack. A capability to locate and destroy enemy missile forces before they are employed is an integral part of strategies of preemption and would also

contribute to deterrence and nonproliferation. Counterattack places specific burdens on the Navy and Air Force to develop precision, deep strike forces, including long-range bombers and cruise missiles. The current Air Force concept for achieving this type of capability is the Global Strike Task Force (GSTF). GSTF is centered on early insertion of B-2 bombers equipped with conventional bombs, supported by F-22 escorts and advanced ISR to identify enemy fixed and mobile targets.²⁴³ However, the active B-2 fleet stands at only 16, with no new stealthy bombers on the acquisition agenda—this is probably not sufficient to achieve the GSTF’s goal.²⁴⁴ The B-2 production line may have to be reopened to achieve a plausible counterattack capability, notably against states with higher end capabilities.²⁴⁵ Regarding the Navy, part of the *Trident* SSBN fleet may transition to a role in delivering conventional cruise missiles. Plans to rechristen these ballistic missile submarines as SSGNs are underway, and may complement the GSTF program well.²⁴⁶ However, enemy concealment activities will continue to pose significant problems for the development of effective counterattack.²⁴⁷

Active and passive defenses compose a final way to decrease vulnerability. The TMD programs currently under development were discussed in Section II; such efforts, even if realized, might not be able to engage reliably incoming ballistic or cruise missiles. However, longer-term, advanced concepts may offer more complete and reliable protection for theater bases. Space-based directed energy weapons, able to kill ballistic missiles in their boost phase, have been cited as one potentially transformational approach to ballistic missile defense.²⁴⁸ Regarding cruise missiles, the Space-Based Radar and long-range, unmanned aerial reconnaissance vehicles could provide significantly better tracking data. Passive defenses have suffered from the drawbacks of time and cost. However, RAND has proposed a new approach to infrastructure development, called “flex-basing,” which may mitigate these concerns. The idea is that defensive materials can be pre-positioned at power-projection “hubs” around the world, and rapidly transferred to forward locations in times when those resources are most needed.²⁴⁹ Sustained research, testing, and evaluation are obviously necessary if these types of concepts are ever to come to fruition.

These five types of risk reduction approaches are logical responses to the missile threat as interpreted in this monograph. In combination, they will increase the reliability of overseas bases over the course of the next decade. No combination, however, will be able to eliminate the risks that accrue from enemy missile acquisition and development, not to mention other types of threats not considered here (terrorism, guerrilla attacks, political denial not resulting from external threats, etc.). The residual risk is a cost of the pursuit of global engagement, and it will fall to future leaders to decide whether that cost is worth the benefit of continuing to be militarily engaged overseas.

ENDNOTES

1. Joint Chiefs of Staff, *National Military Strategy of the United States of America*, Washington, DC: U.S. Government Printing Office, 2004.

2. That is, bases that are valued at over \$800 million. For a complete list, see Office of the Deputy Undersecretary of Defense, *Base Structure Report*, Fiscal Year 2002 Baseline.

3. U.S. Joint Staff, *Joint Publication 3-10: Joint Doctrine for Rear Area Operations*," Washington, DC: U.S. Government Printing Office, May 28, 1996, section I-5.

4. National Defense Panel, "Transforming Defense: National Security in the 21st Century," Report of the National Defense Panel, December 1997, p. 12.

5. Samuel J. Tangredi, *All Possible Wars? Toward a Consensus View of the Future Security Environment, 2001-2025*, Washington, DC: Institute for National Strategic Studies, 2000, p. 110.

6. *Ibid.*, p. 42.

7. *Quadrennial Defense Review Report*, September 30, 2001; available online at www.defenselink.mil/pubs/qdr2001.pdf.

8. For technical analysis, see John Stillion, *Airbase Vulnerability to Conventional Cruise Missile and Ballistic-Missile Attacks*, Santa Monica: RAND, 1999; Christopher J. Bowie, *The Anti-Access Threat and Theater Air Bases*, Washington, DC: Center for Strategic and Budgetary Assessments, 2002; and David A. Shlapak and Alan Vick, *Check Six Begins on the Ground: Responding to the Evolving Ground Threat to US Air Force Bases*, Santa Monica: RAND, 1995. On post-Cold War deterrence and coercion issues, see Daniel Byman and Matthew Waxman, *The Dynamics of Coercion: American Foreign Policy and the Limits of Military Might*, Cambridge: Cambridge University Press, 2002; Stephen J. Cimbala, *Deterrence and Nuclear Proliferation in the Twenty-First Century*, Westport, CT: Praeger Publishers, 2001; Naval Studies Board, *Post-Cold War Conflict*

Deterrence, Washington, DC: National Academy Press, 1997; Keith B. Payne, *Deterrence in the Second Nuclear Age*, Lexington: University of Kentucky Press, 1996; DFI International/SPARTA, Inc., *US Coercion in a World of Proliferating and Varied WMD Capabilities: Final Report for the Project on Deterrence and Cooperation in a Multi-Tiered Nuclear World*, Defense Threat Reduction Agency, February 2001; Michele Flournoy and Clark Murdock, *Revitalizing the US Nuclear Deterrent*, Center for Strategic and International Studies (CSIS) paper, July 2002. On political mechanics, see Irving L. Janis, *Crucial Decisions: Leadership in Policymaking and Crisis Management*, New York: The Free Press, 1989; and Yaacov I. Vertzberger, *Risk Taking and Decisionmaking: Foreign Military Interventional Decisions*, Stanford: Stanford University Press, 1998. Other country-specific citations appear below.

9. Ahmed S. Hashim, "The Revolution in Military Affairs Outside the West," *Journal of International Affairs*, Vol. 51, No. 2, Spring 1998, pp. 7-8; and Carl Conetta and Charles Knight, "Defense Sufficiency and Cooperation," Project on Defense Alternatives, March 12, 1998.

10. *Annual Report on the Military Power of the People's Republic of China*, DoD Report, Washington, DC: U.S. Government Printing Office, 2002, pp. 15-16.

11. "Conventional" refers specifically to tanks and combat aircraft, in which NATO will enjoy large numerical advantages. Alexei Arbatov, Karl Kaiser, and Robert Legvold, eds., *Russia and the West: The 21st Century Security Environment*, Armonk, NY: M. E. Sharpe, 1999, pp. 49-50.

12. See, for example, Cimbala, *Deterrence and Nuclear Proliferation in the Twenty-First Century*, p. 111; Andrew Krepinevich, "The First War of a New Century: A First Blush Assessment," *CSBA Background*, September 2001.

13. Paul Bracken, *Fire in the East*, New York: HarperCollins, 1999, pp. 42-43; William R. Schilling, ed., *Nontraditional Warfare: Twenty-First Century Threats and Responses*, Washington, DC: Brassey's, 2002, p. 3; National Defense Panel, "Transforming Defense: National Security in the 21st Century," Report of the National Defense Panel, December 1997, pp. 11-17.

14. Brigadier V. K. Nair, *War in the Gulf: Lessons for the Third World*, New Delhi: Lancer International, 1991, p. 227.

15. *Ibid.*, p. 230.

16. Stephen J. Cimbala, ed., *The Russian Military Into the Twenty-First Century*, London: Frank Cass, 2001, pp. 104-105.

17. National Intelligence Council, *Global Trends 2015: A Dialogue About the Future with Nongovernment Experts*, Washington, DC: Central Intelligence Agency, December 2000, pp. 58-60; National Air Intelligence Center, "Ballistic and Cruise Missile Threat," NAIC-1031-0985-98.

18. An overview of ballistic missiles is provided by the Federation of American Scientists (FAS) at <http://www.fas.org/nuke/intro/missile/basics.htm>.

19. Specifically, the analysis covers an 1,100-pound bomb with a conventional warhead, equipped with 825 one-pound submunitions and guided to its target by Global Positioning System (GPS) technology. Stillion, pp. 11-15.

20. Andrew Krepinevich, "Emerging Threats, Revolutionary Capabilities, and Military Transformation," Testimony to Senate Armed Services Subcommittee on Emerging Threats and Capabilities, March 5, 1999.

21. Michael E. Dickey, "Biocruise: A Contemporary Threat," Counterproliferation Paper No. 7, USAF Counterproliferation Center, Air War College, September 2000, pp. 15-18.

22. *Ibid.*

23. As opposed to anti-ship cruise missiles (ASCMs), the far more common variety. An overview of cruise missiles is provided by FAS at <http://www.fas.org/nuke/intro/cm/>.

24. David Tanks, "Assessing the Cruise Missile Puzzle: How Great a Defense Challenge?" Washington, DC: Institute for Foreign Policy Analysis report, April 2001, pp. 8-10.

25. Dennis M. Gormley and K. Scott McMahon, "Proliferation of Land-Attack Cruise Missiles: Prospects and Policy Implications," in Henry Sokolski, ed., *Fighting Proliferation: New Concerns for the Nineties*, Maxwell AFB: Air University Press, 1996.

26. For instance, RAND estimates that, compared to one ballistic missile, perhaps a dozen cruise missiles would be needed to "severely damage" a fighter wing parked in the open. This assumes conventional munitions and GPS guidance. Stillion, pp. 11-15.

27. National Intelligence Council, pp. 58-60.

28. See data from the Carnegie Endowment: <http://www.ceip.org/files/projects/npp/resources/ballisticmissilechart.htm>.

29. See "Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions," CIA, January 2002.

30. See *Foreign Missile Developments and the Ballistic Missile Threat Through 2015*, Unclassified Summary of a National Intelligence Estimate, December 2001.

31. *Ballistic and Cruise Missile Threat*, National Air Intelligence Center, NAIC-1031-0985-98.

32. The full text and annexes of the MTCR are available from FAS, at <http://www.fas.org/nuke/control/mtr/text/index.html>.

33. However, Russia has been a member since 1995, and China, though not a member, has pledged not to sell Category I restricted items.

34. This is relevant to ship-launched LACMS, as described below. An overview is available at <http://www.wassenaar.org/docs/talkpts.html>.

35. Excluding the following countries: Brazil, China, India, Iran, Iraq, Israel, North Korea, South Africa, and Taiwan.

36. The Shaheen-II MRBM. See "Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions," CIA, January 2002.

37. *Ibid.*

38. The technical annexes of the MTCR might be revised so that more subsystems, such as stealth technology, are Category I proscribed items. The United States might make more of an effort to track the end use of dual-use products and inform its allies of those consequences. Demand-side initiatives, sanctions, economic aid packages, regional confidence building measures, and so forth may also dull the impact of proliferation, and may grant the United States time to develop more effective defenses.

39. For instance, Jacquelyn Davis and Michael Sweeney note that Russia's power will continue to flow partially from its sale of advanced military technology—this gives it leverage over other regional powers, such as Iran. Jacquelyn Davis and Michael J. Sweeney, *Strategic Paradigms 2025: US Security Planning for a New Era*, Washington, DC: Brassey's, 1999, p. 69. Bracken, p. 114, notes that some second-rate powers, such as North Korea and Pakistan, have little else to sell besides arms. Nevertheless, as suggested above, such transactions would have to contend with international pressures on the DPRK not to transfer MRBM weapons or related technology. For instance, Joseph Cirincione has written that, "North Korea, increasingly eager to open normal trade relations with the West, seems to be willing to suspend a [technically] dubious [missile] program for real material gain." Joseph Cirincione, "The Declining Ballistic Missile Threat," paper presented to the American Association for the Advancement of Science, February 18, 2002. However, North Korea restarted its defunct nuclear program in late 2002 and may threaten MRBM range missile transfers (or actually do so) as further blackmail of the international community.

40. Iraq did fire four short-range missiles at U.S. bases in Kuwait at the start of the latest war, but U.S. *Patriot* batteries destroyed all four.

41. Cirincione.

42. *Ibid.* In addition, *Foreign Missile Developments and the Ballistic Missile Threat Through 2015* notes: "The trend in ballistic missile development worldwide is toward a maturation process among existing ballistic missile programs rather than toward a large increase in the number of countries possessing ballistic missiles."

43. For instance, Iraq fired several low-quality, short-range ballistic missiles at U.S. bases in Kuwait at the start of the 2003 war on Iraq, but *Patriot* missile batteries easily destroyed each of them.

44. Information taken from CIA's *Foreign Missile Developments and the Ballistic Missile Threat Through 2015* and Office of the Secretary of Defense, *Proliferation: Threat and Response*, January 2001.

45. Thomas Donnelly and Vance Serchuk, "Beware the Libyan Model," *AEI National Security Outlook*, February 27, 2004.

46. Cirincione is a skeptic about the ballistic missile threat, but concedes that "the most significant proliferation threat comes from the slow but steady increase in the number of states possessing medium-range ballistic missiles, even as Russia and the United States eliminated their arsenals." Cirincione, p. 7.

47. Pakistan is also developing the *Shaheen-2* MRBM (2,500 km, 1,000 kg) and *Ghauri-2* MRBM (2,300 km, 700 kg). Its IRBM project is *Ghauri-3* (3,000 km, ? kg).
48. The ICBM threat is significant to U.S. overseas military forces for a more obscure reason; namely, the ability to undermine domestic political resolve to actually use those forces in the event of a conflict. This is considered in Section IV.
49. Dennis Gormley states that modifications to China's *HY-4 Silkworm* ASCM, which is available on the world market, could lead to a LACM with a range of 500-700 km. This would be tantamount to SRBM range capability and would certainly compound the gathering local anti-access challenge, but is less relevant for U.S. rear area bases—unless launched from a forward platform, as discussed below. Dennis Gormley, "Transfer Pathways for Cruise Missiles," annex to the Rumsfeld Commission report.
50. Upgraded versions of the Russian *Silkworm*.
51. Over the longer term, new LACMs with ranges of up to 2,000 km will enter the market, putting bases farther in the rear area at risk. See discussion of MRBMs.
52. Launching a ballistic missile from a shipboard location is technically possible but would result in severe inaccuracy owing to wave fluctuations; ballistic missiles are also considerably larger, making detection a more serious concern. Dickey, pp. 22-26.
53. CIA Director George Tenet recently claimed that North Korea possesses an ICBM capable of hitting the West Coast of the United States, though that weapon remains untested. <http://www.cnn.com/2003/WORLD/asiapcf/east/02/12/us.nkorea/index.html>.
54. Data is prior to the 2003 war.
55. Under promises made in December 2003, Libya promised to ban ballistic missiles with ranges over 300 km.
56. Opening sections, Owen R. Cote, "Assuring Access and Projecting Power: The Navy in the New Security Environment," MIT Security Studies Program research, 2001.
57. Bowie, *The Anti-Access Threat and Theater Air Bases*, p. 42; also see Krepinevich, "Emerging Threats, Revolutionary Capabilities, and Military Transformation."
58. Inaccuracy results from several potential sources of error: those based on launch platform misalignments, errors that stem from imprecise engine cutoffs in the mid-course phase, and terminal-phase errors that occur because of natural forces such as wind.
59. For instance, during the Iraqi missile strike on Tel Aviv in the 1990-91 Gulf War, only 50 percent of Iraqi *Al-Hussein* missiles landed within the Israeli capital or its immediate suburbs.
60. The definition of CEP is the circular area within which 50 percent of incoming missiles will fall. Thus if the CEP is 2 kilometers, we would expect 50 percent of the incoming missiles to fall within 2 km of the target. For instance, only about 50

percent of the Iraqi *al-Hussein* SRBMs used on Tel Aviv during the Gulf War actually landed in the city or its surrounding towns. Itzhak Ravid, "Theater Ballistic Missiles and Asymmetric War," Unpublished paper, Center for International Security and Cooperation, Stanford University, June 28, 2002, p. 14.

61. Mark Stokes, former China analyst at the Pentagon, says, "Breakthroughs in ballistic missile terminal guidance over the next five to 10 years could be devastating not only for the PRC's neighbors, but also for U.S. forces operating in the Pacific." Bowie, *The Anti-Access Threat and Theater Air Bases*, p. 40.

62. The reason for a 20 percent increase is that GPS cannot correct fundamental engine problems that lead to wide CEPs. However, more sophisticated missiles, such as China's M-9 SRBM, can attain a CEP of 150-200 meters using a GPS receiver. Stillion, pp. 8-9.

63. A more comprehensive discussion can be found in Gerald Frost and Irving Lachow, *Satellite Navigation-Aiding for Ballistic and Cruise Missiles*, Santa Monica: RAND, 1996.

64. Stillion, pp. 10-11.

65. Tanks, pp. A4-A5.

66. *Ballistic and Cruise Missile Threat*, National Air Intelligence Center, NAIC-1031-0985-98.

67. According to Ravid, a unitary high explosive would inflict "severe damage" within a radius of 20 or 30 meters, depending on weight. An 800 kg bomb, for instance, would have an impact radius of 30 m. Ravid, p. 18.

68. Recall that Stillion's analysis, cited above, assumed that future enemies would employ conventional submunitions against U.S. forward airbases. Stillion, pp. 11-15.

69. *Ibid.*, pp. 12-13, n6.

70. This is not only a problem of increasing lethality, but also of increasing the coercive capacity of missile forces. As noted in section IV, missiles tipped with WMD raise the stakes for the United States or host nations to reject enemy coercion.

71. Ravid, p. 21.

72. Biological weapons may spread farther than intended, while chemical weapons are subject to various weather restrictions to be effective. Walter Laquer, *The New Terrorism: Fanaticism and the Arms of Mass Destruction*, Oxford: Oxford University Press, 1999, p. 255.

73. Thomas R. Wilson, Director of the Defense Intelligence Agency, "Global Threats and Challenges," Testimony to the Senate Armed Services Committee, March 19, 2002, p. 16. Given proliferation or technical constraints, however, an alternative might be the use of radiological weapons. Certain radioactive materials, such as Cobalt-60 or Cesium-137 (also used in hospitals, research laboratories, nuclear power plants, and elsewhere), could be acquired and used to irradiate personnel and infrastructure. Laquer, p. 73. Nevertheless, important questions regarding the

technical feasibility and potential impact of such weapons remain to be answered. See Anthony H. Cordesman, "Radiological Weapons as Means of Attack," Center for Strategic and International Studies paper, pp. 4-7.

74. Schilling, ed., pp. 4-5; Wilson p. 16. On the technical side, Schilling, p. 65, estimates that approximately five specialists, including a pathologist and pharmacologist, would be needed to sustain a biological weapons program—clearly not a great hurdle for any state that would possess a ballistic or cruise missile.

75. *Ibid.* Schilling estimates that 2,000 pounds of VX gas could achieve 50 percent casualties within a half-mile radius, though Ravid (p. 23) warns that highly favorable wind velocities and trajectories would be needed to maximize damage.

76. *Ibid.*, p. 49.

77. More specific data are located in Office of the Secretary of Defense, *Proliferation: Threat and Response*, January 2001.

78. *Ibid.*, pp. 3-4.

79. Command, control, computers, communications and intelligence. U.S. Joint Staff, *Joint Pub 3-01.5: Doctrine for Joint Theater Missile Defense*, February 22, 1996.

80. A third problem is that the efficacy of passive defenses against missiles and WMD is unknown. Given changes in the offense-defense balance, Robert Martinage of CSBA says, "Who knows what you can do?" with passive defenses. Interview with Robert Martinage, Senior Defense Analyst, Center for Strategic and Budgetary Assessments, March 18, 2003.

81. Necessitating a primary use of carrier-based aircraft during the initial months of the campaign. As another example, development of adequate passive defenses in the Vietnam War challenged engineers—infrastructure to accommodate aircraft at the Tuy Hoa base required 1,300 engineers a year to construct. Bowie, *The Anti-Access Threat and Theater Air Bases*, p. 54.

82. RAND also notes that similar facilities would be needed to house critical support activities such as power generation, spare parts, and flight operations. Another specific drawback for air bases is that some large, but important, aircraft models (such as the AWACS) would require enormous reinforced hangars. Stillion goes on to discuss the possibility of "deployable shelters" that can be used to deliberately defend infrastructure-weak airbases, but notes that such a plan would require dozens of transport sorties, do not cover other critical assets, and cannot survive an impact within 100 feet or so of the hangar. Stillion, pp. 30-35.

83. But some interesting concepts may lay beyond the horizon. The USAF has commissioned studies looking at how to defend airbases around 2025, and at least one analyst has discussed the possibility of holographic projection of false targets, energy force fields, and nano-technology applications. M. Scott Mayes, *et al.*, *Aerospace Sanctuary in 2025: Shrinking the Bull's Eye*, U.S. Air Force: unpublished manuscript, 1996, pp. 25-37.

84. Once tracking functions are accomplished, engagement is a relatively simple matter of air defense. This can be incorporated by the PAC-3 or similar systems.

Interview with Baker Spring, Research Fellow, Heritage Foundation, March 18, 2003.

85. Technical experts claim that 30 years will be needed before space-based sensors can effectively detect and track low-flying cruise missiles. Tanks, p. 19.

86. *Ibid.*, p. 20; and *Ballistic and Cruise Missile Threat*, National Air Intelligence Center, NAIC-1031-0985-98. Also, Chinese LACMs slated for deployment after 2005 will likely feature “first generation” stealth technology. See Michael Vickers and Robert Martinage, “The Revolution in War,” CSBA report, December 2002, p. 31.

87. Stillion, pp. 46-47; and Tanks, pp. 23-25.

88. Interview with Robert Martinage, Senior Defense Analyst, CSBA, March 18, 2003; and Michael Vickers, “The 2001 Quadrennial Defense Review,” CSBA *backgrounder*, June 19, 2002, p. 5.

89. Joint Land-Attack Cruise Missile Defense Elevated, Netted Sensor System. Tanks, pp. 25-28.

90. Sensing incoming missiles is also a topic of the USAF long-term analysis program. Mayes, pp. 17, 21, 35, in describing the “aerospace base” of 2025, predicts further sensor integration and the novel use of artificial intelligence and “neural networks” to enhance the utility of electromagnetic sensors.

91. For instance, Jack Spencer of Heritage says that “cruise missile defense is a huge problem,” even more so than BMD. Interview with Jack Spencer, Senior Analyst, Heritage Foundation, March 17, 2003. Michael Vickers of CSBA doubts that defenses will be able to withstand “barrage attacks.” Interview with Vickers, March 18, 2003.

92. Office of the Secretary of Defense, *Proliferation: Threat and Response*, January 2001, pp. 101-102.

93. Slated for deployment in the 2004-2006 timeframe, this system involves sensors and surface-to-air missiles carried by forward-based AEGIS cruisers and destroyers. See Missile Defense Agency Fact Sheet on the Sea-Based Midcourse Defense at <http://www.acq.osd.mil/bmdo/bmdolink/pdf/seabased.pdf>.

94. *Ibid.*

95. See Fact Sheets at <http://www.acq.osd.mil/bmdo/bmdolink/pdf/thaad.pdf> and <http://www.acq.osd.mil/bmdo/bmdolink/pdf/pac3.pdf>.

96. Jack Spencer of Heritage is optimistic that BMD will “decrease vulnerability significantly,” but Robert Martinage of CSBA states that, by the end of the decade, “we won’t have much,” even though a rapid advance in directed energy technology could help. Interviews with Jack Spencer, Senior Analyst, the Heritage Foundation, March 17, 2003; and Robert Martinage.

97. Bowie, *The Anti-Access Threat and Theater Air Bases*, pp. 62-63; *Ballistic and Cruise Missile Threat*, National Air Intelligence Center, NAIC-1031-0985-98.

98. *Ibid.* However, Baker Spring is skeptical about this threat, arguing that there has been “too much overstatement on countermeasures.” Interview with Baker Spring.

99. Bracken, p. 64.

100. *Ballistic and Cruise Missile Threat*, National Air Intelligence Center, NAIC-1031-0985-98.

101. Paul K. Davis, Jimmie McEver, and Barry Wilson, *Measuring Interdiction Capabilities in the Presence of Anti-Access Strategies*, Santa Monica, CA: RAND, 2002, p. 132. Still, aircraft carriers must contend with numerous “emerging anti-navy capabilities,” such as anti-ship cruise missiles, “very quiet” attack submarines, and “sophisticated” sea mines. See Vickers and Martinage, pp. 33-38.

102. Interview with Robert Martinage.

103. Quote of Iraqi Lieutenant General Hazim ‘Abl-al Rassq. Christopher J. Bowie, “Destroying Mobile Ground Targets in an Anti-Access Environment,” *Northrop Grummon Analysis Center Papers*, December 2001, p. 3.

104. Interview with Robert Martinage.

105. Discussed with respect to counterforce operation in Dennis M. Gormley and K. Scott McMahon, “Counterforce: the Neglected Pillar of Theater Missile Defense,” online paper at <http://www.cdiss.org/colsep1.htm>.

106. Interview with Colonel Lee Blank, USAF, Ret., Senior Fellow, National Strategic Gaming Center, National Defense University, March 19, 2003.

107. Flournoy and Murdock, pp. 28-29.

108. As explicated in the DoD’s 2002 *Nuclear Posture Review*. Kurt Guthe, *The Nuclear Posture Review: How is the ‘New Triad’ New?* CSBA monograph, 2002, pp. 3-6. Defense infrastructure supports the other two legs and is not discussed in this paper. See Guthe for more details.

109. DoD, *Nuclear Posture Review*, unclassified foreword, January 2002, p. 2; also Payne, p. 144.

110. *Nuclear Posture Review*; Information from FAS, available at <http://www.fas.org/nuke/guide/usa/forces.htm>.

111. Defense Secretary Donald Rumsfeld noted in 2001 that strategic weapons would not deter Saddam Hussein, because “he knows a U.S. president would not drop a 100-kiloton bomb on Baghdad.” Julian Borger, “Bunker Bomb Will Bust Test Ban Buster Buster,” *The Guardian*, London, March 11, 2002, p. 12. An alternative form of nuclear deterrence may rest on tactical warheads, or “mini-nukes,” i.e., those with yields under 5 kilotons or so, which can be used on the battlefield in isolated, narrowly defined instances. Such a strategy may be more credible than one based on strategic retaliation, but would still have to overcome a 60-year taboo against nuclear weapons use that runs deep in the minds of U.S. leaders. Moreover, the political costs of breaking the nuclear taboo mediate against use, as does the long-term consequence of a blurring of the line between nuclear and conventional war.

112. See William S. Huggins, “Deterrence After the Cold War: Conventional Arms and the Prevention of War,” *Airpower Journal*, Summer 1993.

113. DFI report, p. 28.

114. For example, Saddam Hussein warned April Glaspie, the U.S. ambassador in Baghdad, "Yours is a society which cannot accept 10,000 dead in one battle." Byman and Waxman, p. 143.

115. Jack Spencer likens this approach to the "flexible response" doctrine promulgated in the 1960s. Since massive retaliation was no longer credible against lower-end conflict, strategists decided that a broader range of options was needed to preserve credibility. Interview with Jack Spencer, Senior Analyst, Heritage Foundation, March 17, 2003.

116. DFI report, p. 11.

117. Naval Studies Board, *Post-Cold War Conflict Deterrence*; and Payne, p. 124.

118. Payne, pp. 74-75. However, Payne (p. 38) hypothesizes that "Soviet restraint" may actually have been the product of a number of other considerations: pessimism regarding Soviet forces, "little desire" to directly challenge the United States, or a "general cautiousness" about war following the destruction of World War II.

119. Strategic culture comprises value systems and notions about which "strategic options" are appropriate in dealing with external threats. Alastair Iain Johnston, "Thinking About Strategic Culture," *International Security*, Vol. 19, Spring 1995, pp. 46-47.

120. DFI report, pp. 18-19.

121. *Ibid.*

122. *Ibid.*, p. 13.

123. *Ibid.*, pp. 13-14. Thus deterrence practices during the Cold War discounted many variables (ignorance, irrationality, miscalculation) that are more relevant considerations in a multipolar world. Payne, p. 157.

124. Alastair Iain Johnston, "China's New 'Old Thinking': The Concept of Limited Deterrence," *International Security*, Vol. 20, No. 3, Winter 1995, p. 22.

125. Vertzberger, pp. 89-99.

126. *Ibid.*, pp. 77-79.

127. Payne, pp. 104-105.

128. Stephen J. Cimbala, *Russia and Armed Persuasion*, Lanham, MD: Rowman & Littlefield, 2001, p. 190.

129. Arbatov, Kaiser, and Legvold, eds., p. 64.

130. Hooman Peimani, *Failed Transition, Bleak Future? War and Instability in Central Asia and the Caucasus*, Westport, CT: Praeger, 2002, p. 124.

131. Indeed, Russia is included primarily on the basis of its capabilities. Flournoy and Murdock (p. 33) argue that "from a policy perspective, Russia is no longer 'an enemy' and may not need to be deterred."

132. Davis and Sweeney, p. 69.

133. Thus, "Even skeptical but sensible Russians would agree they are safe from West." James Goodby, Petrus Buwalda, and Dmitri Trenin, *A Strategy for Stable Peace*, Washington, DC: U.S. Institute of Peace Press, 2002, p. 41.

134. See Geoffrey Forden, Pavel Podvig, and Theodore Postol, "False Alarm, Nuclear Danger," *IEEE Spectrum*, Vol. 37, No. 3, March 2000.

135. Cimbala, *The Russian Military Into the Twenty-First Century*, p. 192.

136. Counter-coercion of the United States is the subject of the next section.

137. Jason D. Ellis and Todd M. Koca, "China Rising: New Challenges to the U.S. Security Posture," *Strategic Forum*, Vol. 175, October 2000, p. 3.

138. *Ibid.*, pp. 3-4.

139. One of four scenarios posited in Patrick M. Cronin, ed., *2015: Power and Progress*, Washington, DC: National Defense University Press, 1996, pp. 35-39.

140. Evan A. Feigenbaum, "China's Challenge to Pax Americana," *Washington Quarterly*, Vol. 24, No. 3, Summer 2001, pp. 31-32.

141. Thomas J. Christensen, "Posing Problems without Catching Up," *International Security*, Vol. 25, No. 4, Spring 2001, pp. 36-37.

142. Feigenbaum, pp. 34-35.

143. See the conclusion of Gordon Chang, *The Coming Collapse of China*, New York: Random House, 2001.

144. Whiting, p. 125.

145. Ramesh Thakur, "India and the United States: A Triumph of Hope over Experience?" *Asian Survey*, Vol. 36, No. 6, June 1996, p. 577.

146. National Intelligence Council.

147. Cronin, pp. 25-28.

148. K. Alan Kronstadt, "Pakistan-US Relations," Congressional Research Service Issue Brief, December 11, 2002, pp. 6, 11.

149. NIC report, p. 66. For instance, the International Institute for Strategic Studies (IISS) warns that the assassination of General Musharaff in the near term would probably lead to a government with an "anti-American posture." IISS, *Strategic Survey 2001/2002*, London: Oxford University Press, 2002, p. 263.

150. Thus the United States should pursue confidence-building measures and, in the long-term, democratic development in Pakistan. Husain Haqqani, "America's New Alliance with Pakistan: Avoiding the Traps of the Past," CEIP Policy Brief, October 19, 2002, p. 7.

151. Interview with Michele Flournoy, Senior Advisor, CSIS, March 17, 2003.

152. Davis, pp. 105-106.

153. Nick Eberstadt, *Korea's Future and the Great Powers*, Seattle: University of Washington Press, 2001, p. 324.

154. See Jae Won Park, "Possibility of North Korean Collapse," Marine Corps University Command and Staff College report, Quantico, VA: Marine Corps University Command and Staff College, 1997.

155. Report from Colonel Choe Chu-Hwal, the highest-ranking DPRK defector. Avigdor Haselkorn, *The Continuing Storm: Iraq, Poisonous Weapons, and Deterrence*, New Haven: Yale University Press, 1999, p. 224. Also see Barry Rubin and Thomas Keaney, eds., *US Allies in a Changing World*, London: Frank Cass, 2001, pp. 210-212.

156. David Long and Christian Koch, eds., *Gulf Security in the Twenty-First Century*, Abu Dhabi: Emirates Center for Strategic Studies and Research, 1997, pp. 64-65.

157. Evidence: only 14 million of 64 million Iranians are actively employed, with 15 million slated to enter the workforce in the next decade. Thus, "if economic reform does not take hold soon, Iran may confront a new revolution; deterioration could lead to domestic discontent, spilling over into process of foreign policy." Bjorn Moller, *Oil and Water: Cooperative Security in the Persian Gulf*, London: I. B. Tauris, 2001, p. 102.

158. Michael Eisenstadt, *Iranian Military Power: Capabilities and Intentions*, Washington, DC: Washington Institute for Near East Policy, 1996, p. xviii.

159. Gawdat Bahgat, *The Persian Gulf at the Dawn of the New Millennium*, Commack, NY: Nova Science Publishers, 1999, p. 122.

160. *Ibid.*, p. 110.

161. The idea is that, during a conflict, the United States may not be able to deter certain types of behavior (e.g., Iraqi SCUD strikes on coalition forces) and yet may retain some capacity to deter other types of action (e.g., Iraqi use of WMD). As the discussion of the U.S. deterrent makes clear, there are different levels of response for different types of behavior. Whereas Iraq was willing to accept one response (conventional war stopping short of regime removal), it was not willing to risk the more serious consequence it estimated would occur if WMD were used. Interview with Vickers, Director of Strategic Studies, CSBA, March 18, 2003.

162. See Haselkorn, pp. 59-71.

163. This may be a reason why the Iraqi leadership was the initial target of U.S. strikes.

164. Defense Secretary Donald Rumsfeld, in his address to the media after the initial strike, attempted to dissuade Iraqi units from using WMD through the threat of prosecution for war crimes.

165. Civil war scenario: Bahgat, pp. 93-94; recidivist future: Long, p. 64.

166. Office of the Secretary of Defense, *Proliferation: Threat and Response*, January 2001, p. 43.

167. Eyal Zisser and Paul Rivlin, "Syria: Domestic Political Stress and Globalization," Tel Aviv, Israel: Moshe Dayan Center for Middle Eastern and African Studies, June 1999, pp. 21-24.

168. Eyal Zisser, *Asad's Legacy: Syria in Transition*, London: Hurst and Company, 2001, p. 175.
169. Syria has one of the highest "levels of natural increase" in the world at 3.3 percent to 3.5 percent. Economic issues include stagnation and shortages of water and electricity. Zisser and Rivlin, pp. 21-24.
170. William Lewis, "U.S.-Libya Relations: A New Chapter?" Washington, DC: Atlantic Council of the United States, May 2001, p. 4.
171. Craig R. Black, "Deterring Libya: The Strategic Culture of Muammar Qadhafi," Counterproliferation paper, Maxwell Air force Base, AL: Air War College, USAF Counterproliferation Center, October 2000, pg. 22.
172. *Ibid.*
173. Thomas Donnelly and Vance Serchuk, "Beware the Libyan Model," *AEI National Security outlook*, February 27, 2004.
174. Michele Flournoy, who served as Deputy Assistant Secretary of Defense for Strategy, states that, in internal DoD war games, these are the two primary archetypical situations in which states use missiles (specifically, tipped with WMD) against U.S. bases. Interview with Michele Flournoy, Senior Advisor, CSIS, March 17, 2003. Also the view of Jack Spencer; interview with Jack Spencer.
175. In this sense, coalition unity is a vulnerable center of gravity. Robert M. Soofer, "Joint Theater Missile Defense Strategy," *Joint Forces Quarterly*, Autumn 1995, p. 73; and Byman and Waxman, p. 171. Regarding the economic damage, Moshe Arens has described the effects of the Iraqi missile threat on Israel during the Gulf War: "As long as the missile threat hangs over Israel, our entire economy is in low gear. We must return to normalcy and put away the gas masks." Moshe Arens, *Broken Covenant: American Foreign Policy and the Crisis Between the US and Israel*, New York: Simon and Schuster, 1995, p. 212.
176. Ian Sample, "Star Wars: The next generation: The world's most controversial weapons system is loaded and ready to fire. But will it work?" *The Guardian*, London, August 12, 2004, p. 6.
177. See Center for Defense Information, "National Missile Defense: What Does it all Mean?" CDI issue brief, first published September 2000, updated in April 2002.
178. See Evan Medeiros, "Theater Missile Defense and Northeast Asian Security," Center for Nonproliferation Studies issue brief, August 2001, reviewed January 2003.
179. Robert Walpole, "The Iranian Ballistic Missile and WMD Threat to the United States Through 2015," Statement to the Senate Government Affairs Committee, September 21, 2000.
180. Ivan Arreguin-Toft, "How the Weak Win Wars: A Theory of Asymmetric Conflict," *International Security*, Vol. 26, No. 1, Summer 2001, pp. 96-98.
181. See Stephen Metz, "Strategic Asymmetry," *Military Review*, July-August 2001.

182. Arreguin-Toft, p. 105.

183. James F. Diehl, "The Art of the Bluff with Weapons of Mass Destruction," Industrial College of the Armed Forces (ICAF) paper, Washington, DC: ICAF, 1997, pp. 11-12.

184. *Ibid.* The 1955 Soviet rouse created fears of a "bomber gap" that led to a large increase in U.S. defense spending on strategic systems.

185. Other forms of asymmetric compellence fall outside the scope of this monograph, but may be more effective. The most important form involves active nonmilitary means of compelling U.S. behavior, such as political warfare aimed at shaping U.S. public opinion. Arguably, Iraq engaged in a public relations campaign to sway U.S. domestic opinion prior to the commencement of hostilities in 2003.

186. Colin S. Gray, "National Style in Strategy: The American Example," *International Security*, Vol. 6, No. 2, pp. 21-47.

187. William E. Odom, *Fixing Intelligence: For a More Secure America*, New Haven: Yale University Press, 2003, p. 185.

188. "The Intelligence Community in the 21st Century," Staff Study by the Permanent Select Committee on Intelligence, Executive Summary of Part V on Signals Intelligence, 1996.

189. The famous example is the supposed failure of the CIA to predict Soviet missile production in the mid-1970s. See John Prados, *The Soviet Estimate: US Intelligence and Russian Military Strength*, New York: Dial Press, 1982. The more recent example occurred in the summer of 2001, when Congress ordered an investigation into supposedly over-optimistic CIA analyses of China. Bill Gertz, "Panel Finds CIA Soft on China," *Washington Times*, July 6, 2001.

190. Janis, pp. 56-63. Janis cites many familiar cases, including Truman's advisory body, which uniformly encouraged escalation in Korea in 1950; and Kennedy's group of experts that urged an invasion of Cuba in 1961.

191. In addition to sources in Section III, see Richard J. Heuer, *Psychology of Intelligence Analysis*, Washington, DC: CIA, Center for the Study of Intelligence, 1999, Chapter 2.

192. Elaine Bunn states that the Soviet experience still affects how people think about foreign threat, but that there has been some "movement" in the past decade toward appreciating the nature of post-Cold War period threats. Interview with Elaine Bunn, Distinguished Research Fellow, National Defense University, March 17, 2003.

193. Eric V. Larson, *Casualties and Consensus: The Historical Role of Casualties on Domestic Support for US Military Operations*, Santa Monica, CA: RAND, 1996, p. 100.

194. John Mueller, "American Public Opinion and Military Ventures Abroad," Paper presented to the American Political Science Association, Philadelphia, August 13, 2003.

195. *Worldviews 2002: US Leaders Topline Report*, Chicago Council on Foreign Relations/German Marshall Fund of the United States, October 2002, Chapter 8.

196. For example, 68 percent of elites oppose the use of force to fight drug lords in Colombia. Survey data taken from *Ibid.*
197. *America's National Interests*, Report of the Commission on America's National Interests, July 2000, pp. 13-18 (a bipartisan panel of experts commissioned through the Nixon Center).
198. *Ibid.*, p. 15. Another way leaders may perceive vital interests is through "domino rationales" in which "a series of individually insignificant interests" are "linked so that their cumulative loss constitutes a material threat to survival." Larson, pp. 98-99.
199. Daniel Goure, "The Tyranny of Forward Presence," *Naval War College Review*, Summer 2001.
200. *America's National Interests*, pp. 24-26, 29-34. Other regions containing "vital" interests are Russia and the Western Hemisphere.
201. This region is not only situated between several potential competitors (Russia, China, Iran) but also contains significant energy reserves. Hooman Peimani, *Failed Transition, Bleak Future? War and Instability in Central Asia and the Caucasus*, p. 112. In the Caspian Basin alone, estimates indicate 20 billion barrels of untapped oil, which is much less than the Persian Gulf. The putative results of exploration may yield about 3-4 million barrels a day, which is equivalent to current Saudi exports. However, the Department of Energy has predicted a significant reliance on Middle East oil by 2020, and a Caspian route may therefore constitute a "vital" or at least "very important" interest. Hooman Peimani, *The Caspian Pipeline Dilemma: Political Games and Economic Losses*, Westport, CT: Praeger, 2001, pp. 24-26.
202. See Vickers and Martinage, pp. 64-67; and Christopher J. Bowie, *The Anti-Access Threat and Theater Air Bases*, pp. 31-36, which also focuses on the domestic politics of denial.
203. This is really the "third phase." The coercion dynamic is similar to that experienced by the United States—threats will be interpreted through domestic-level filters, and a risk analysis will be conducted on the relative merits of resisting the threat. Interpretation of the message will be determined by a familiar set of variables—culture, history, and structure. I do not attempt to perform a case-by-case analysis of this process, however, and must rely on the assumption that these states will evaluate the threat reasonably accurately.
204. Elaine Bunn observes that this generalization did not hold in the 2003 Iraq conflict in which Turkey (a NATO ally) refused to grant the United States access while Saudi Arabia (not an ally) granted the United States permission to use its territory. Interview with Elaine Bunn, Distinguished Research Fellow, National Defense University, March 17, 2003. As with any generalizations, there will be exceptions. But dividing states along these lines is useful in considering the differences in risk calculation.
205. George Stambuk, "Foreign Policy and the Stationing of American Forces Abroad," *The Journal of Politics*, Vol. 25, No. 3, August 1963, p. 482.

206. Or other benefits which are not considered in this study—domestic political pressure unrelated to missile threats, anti-nuclear sentiment and environmental costs of military bases; strategic gambits for greater “independence” from the United States, etc. Adam B. Siegel, “Base Access Constraints and Crisis Response,” *Airpower Journal*, Spring 1996.

207. Barry Rubin and Thomas Keaney, eds., *US Allies in a Changing World*, London: Frank Cass, 2001, p. 132.

208. Zalmay Khalilzad, Ian Lesser, and F. Stephen Larrabee, *The Future of Turkish-Western Relations: Toward a Strategic Plan*, Santa Monica: RAND, 2000, p. 46.

209. This has also been a historical concern in Turkish thought. During the founding of modern Turkey, between 1924-38, there were 16 Kurdish-led rebellions against Turkey. Bjorn Moller, *Oil and Water: Cooperative Security in the Persian Gulf*, London: I. B. Tauris, 2001, pp. 146-147.

210. Khalilzad, *et al.*, p. 12.

211. Peter W. Rodman, “European Common Foreign, Security, and Defense Policies—Implications for the United States and the Atlantic Alliance,” Statement for House International Relations Committee, November 10, 1999, p. 3; Michael Quinlan, *European Defense Cooperation: Asset or Threat to NATO*, Washington, DC: Woodrow Wilson Center Press, 2001, pp. 59-61.

212. The motives of Germany and others may be to “relieve the United States of enough of its burden in Europe to prevent an isolationist Congress from someday yanking U.S. troops home in disgust.” Butler, p. 4. This does not speak to the motives of all NATO allies—French motives may be to “enhance Europe’s autonomy from the United States.” Rodman, p. 2.

213. Moreover, NDU’s Kimberly Nastasi points out that Europe’s “strategic culture” is centered around NATO and that “people have underestimated” the strength of the alliance. Interview with Kimberly Nastasi, Research Analyst, National Strategic Gaming Center, National Defense University, March 19, 2003.

214. Soofer, p. 73. Another point is that any threat against NATO member states would immediately invoke Article IV of the North Atlantic Treaty, facilitating discussion and coordination.

215. Khalilzad, p. 48, writes that it is unlikely that “Turkey will allow the United States to use Turkish facilities in Middle East contingencies except if Turkish national interests are directly threatened.”

216. Young-sun Song, “Prospect for U.S.-Japan Security Cooperation,” *Asian Survey*, Vol. 35, No. 12, December 1995, p. 1091; Garrett Banning and Bonnie Glaser, “Chinese Apprehensions about Revitalization of the U.S.-Japan Alliance,” *Asian Survey*, Vol. 37, No. 4, April 1997, p. 386.

217. Robert D. Blackwill and Paul Dibb, *America’s Asian Alliances*, Cambridge, MA: MIT Press, 2000, pp. 53-54. The two main causes of a forced withdrawal are not directly linked to regional missile proliferation. First, the annual cost to Japan of subsidizing the United States (~\$4 billion) has produced resentment, but heightened

security concerns are likely only to justify this cost. Second is ambivalence among the Japanese public of the value of permanently hosting U.S. forces. For instance, a 1996 survey in *Asahi Shimbun* found that 70 percent of Japanese supported the alliance, but that 67 percent favored a reduction of forces. Morihiro Hosokawa, "Are U.S. Troops in Japan Needed?" *Foreign Affairs*, July/August 1998, pp. 2-5. However, the efficacy of such voices is inversely—not positively—related to perceptions of threats in East Asia. For instance, a solution to the problem on the Korean peninsula would fuel public opposition out of the feeling that U.S. troops are no longer necessary for security. Robert Dujarric, *Korean Unification and After: The Challenge for US Strategy*, Indianapolis: Hudson Institute, 2000, p. 59.

218. Dujarric, p. 24.

219. Davis and Sweeney, pp. 107-108.

220. Cossa, pp. 36-37.

221. Davis, pp. 106-107.

222. Dujarric, pp. 61-62.

223. Paul N. Nagy, "Access is Key to Power Projection," *Proceedings*, February 1999.

224. A 1996 joint declaration, "Australia-U.S. Joint Security Declaration: A Strategic Partnership for the 21st Century," stated:

Both governments reaffirm their commitment to that presence through forward-deployed U.S. forces, access arrangements, and exercises. We both attach importance to continuing Australian access to United States technology, close cooperation in intelligence matters, the assurance of resupply and logistics support in a crisis, and combined exercises and training to promote interoperability.

Cossa, p. 143.

225. Dibb, pp. 93-96.

226. David Long and Christian Koch, eds., *Gulf Security in the Twenty-First Century*, Abu Dhabi: Emirates Center for Strategic Studies and Research, 1997, p. 70.

227. In addition, Michele Flournoy suggests that formal allies status would exist if not for the negative domestic political consequences of overtly strong military ties to the United States. Interview with Michele Flournoy.

228. Krepinevich, "The First War of a New Century: A First Blush Assessment"; Long, *et al.*, pp. 130-131.

229. Rubin, p. 135.

230. For example, Russia has "enormous" financial stakes in development of Central Asia; U.S. designs to "bypass" Russian oil and gas pipelines in favor of Central Asia would net a large economic loss to Russia. Jan S. Adams, "The U.S.-Russian Face-Off in the Caspian Basin," *Problems in Post-Communism*, Vol. 47, No. 1, January-February 2000, pp. 53-57. On coercion, Georgia has chosen not to apply

for NATO membership because of the concern that Western presence on Russia's southern border would invite Russian coercion. Peimani, pp. 125-126. On the other hand, Azerbaijan has indicated it may be interested in allowing the United States to establish a base on the Apsheron Peninsula as a strategic counter to Russian bases in Armenia. Thus, calculations for permanent U.S. presence are not always clear cut. Adams, p. 52.

231. See Michael Denison, "Central Asia's New Romance with the West: A Match Made in Heaven?" Central Asia-Caucasus Institute biweekly analysis, January 16, 2002.

232. Quote of Ariel Cohen. Paul Basken, "China, Russia Voice Concern over US Bases in Central Asia," *Bloomberg News*, January 11, 2002.

233. Bowie, *The Anti-Access Threat and Theater Air Bases*, p. 32.

234. ESDP will provide a rapid-reaction force of 60,000 troops, but is oriented towards small-scale contingencies and military operations other than war. The ability of the EU to provide for territorial defense and to act in major theater wars will continue to be limited until such time as EU member states heavily reinvest in defense.

235. The future of Iraq is uncertain, but the ascension of a hostile and/or unstable regime in post-Hussein Iraq cannot be ruled out.

236. Some of the variance will result from domestic political issues that have nothing to do with missile threats and were thus not considered in this document. As noted in the introduction, political denial resulting from domestic pressure is a second major problem for reliability and must be assessed on a case-by-case basis.

237. James Lindsey and Michael O'Hanlon, "Correspondance: Limited National and Allied Missile Defense," *International Security*, Vol. 26, No. 4, Spring 2002, p. 195.

238. See Bowie, *The Anti-Access Threat and Theater Air Bases*, p. 53.

239. Idea offered by Mike Vickers. Interview with Vickers, Director of Strategic Studies, CSBA, March 18, 2003.

240. See Wu Chunsi "Tactical Missile Defense, Sino-US-Japanese Relationship and East Asian Security," International Network of Engineers and Scientists paper, online at <http://www.inesap.org/bulletin16/bul16art09.htm>.

241. Bowie, *The Anti-Access Threat and Theater Air Bases*, pp. 56-58.

242. Interview with Dr. Clark Murdock, Senior Fellow, CSIS, March 18, 2003. Also see Stillion, Chapter 5, for a full analysis of short-term and long-term standoff basing options.

243. See John Jumper, "Global Strike Task Force: A Transforming Concept, Forged by Experience," *Aerospace Power Chronicles*, April 2001.

244. According to Jack Spencer, the USAF modernization budget is heavily geared towards tactical aircraft, by a ratio of 26:1 (fighter versus long-range bombers). He attributes this, in part, to a fighter-centric USAF culture. Interview with Jack Spencer.

245. Clark Murdock also points out that reconnaissance is a significant problem for counterforce operations; he suggests that a new fleet of stealthy unmanned aerial vehicles may be necessary to gather intelligence on the location of enemy missiles. Interview with Dr. Clark Murdock, Senior Fellow, CSIS, March 18, 2003.

246. In January 2003, Northrop Grumman received a \$34 million contract to develop a method of converting SSBN missile tubes to accommodate Tomahawk LACMs. See Northrop Grumman press release "Northrop Grumman Awarded \$34 Million Contract for Missile Canister Conversion On SSGN Submarine Program," January 17, 2003.

247. See Bowie, *The Anti-Access Threat and Theater Air Bases*, p. 59.

248. *Ibid.*, pp. 62-63; but Bowie says that directed-energy weapons are "decades" away from deployment.

249. See Paul S. Killingsworth, *Flexbasing: Achieving Global Presence for Expeditionary Aerospace Forces*, Santa Monica, CA: RAND, 2000.