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#### The Ballistic Missile Threat\*

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It has become common wisdom and certainly common political usage to refer to the growing threat of ballistic missiles. But is this perception true? The threat is certainly changing, and is even increasing by some criteria. This paper will show, however, that by several other important criteria, the ballistic missile threat to the United States is significantly smaller than it was in the mid-1980s.

#### The Threat

The perception that the missile threat is increasing is based almost exclusively on the missile program and exports of North Korea. At first glance, this appears an unlikely threat and U.S. officials have had a difficult time convincing allied nations of the seriousness of their concerns. North Korea, after all, is a small nation whose population of 21 million is the same as that of Taiwan, but which struggles to produce a \$14 billion gross national product that is less than four percent of Taiwan's. The entire North Korean defense budget is an estimated \$2 billion per year, or about one-half the annual U.S. budget for missile defense programs alone.

North Korea, however, maintains one million men under arms, is the only nation in the world in an active military confrontation with the United States, and has steadily pursued a program to turn short-range Scud technology into longer range rockets. In the 1990s, North Korea tested and then deployed a 1,000 km range missile, the Nodong, based on a scaled-up Scud engine. On August 31, 1998, North Korea tested a Taepodong-1 missile in a failed attempt to orbit a small satellite. The Taepodong-1 flew only 1320 km, but its international impact was enormous. In 1999, then Secretary of Defense William Cohen concluded:

"The Taepodong-1 test was another strong indicator that the United States will, in fact, face a rogue nation missile threat to our homeland against which we will have to defend the American people. Our deployment readiness program has had two key criteria that have to be satisfied before we could make a decision to deploy a limited NMD system. There must be a threat to warrant the deployment and our NMD development must have proceeded sufficiently so that we are technologically able to proceed. What we are saying today is that we now expect the first criterion will soon be met, and technological readiness will be the primary remaining criterion." **1**

In September 1999, the National Intelligence Estimate (NIE) included countries other than Russia and China as ballistic missile threats to the United States for the first time. The NIE concluded that over the next 15 years the United States

"...most likely will face ICBM threats from Russia, China and North Korea, probably from Iran, and possibly from Iraq, although the threats will consist of dramatically fewer weapons than today because of significant reductions we expect in Russian strategic force."

Specifically, the NIE noted:

"Most analysts believe that North Korea probably will test a Taepodong-2 this year [1999], unless delayed for political reasons." (Original Italics) **2**

Although North Korea did not test any missiles in 1999 or 2000, a January 2001 report from

the Office of the Secretary of Defense, concluded:

"Potentially, a three-stage Taepodong 1 SLV could deliver a light payload to the United States, although with very poor accuracy. A three-stage Taepodong 2 could deliver a several hundred kilogram payload anywhere in the United States. North Korea is much more likely to weaponize the more capable Taepodong 2 than the three-stage Taepodong 1 as an ICBM...."

"[B]ut Pyongyang, in September 1999, announced it would refrain from testing long-range missiles.... The DPRK subsequently reaffirmed the moratorium June 2000, and again, in writing, in the October 2000 Joint Communiqué...." 3

In February 2001, Vice Admiral Thomas R. Wilson, Director of the DIA reaffirmed the 1999 threat assessment:

"[Over the next 15 years] Russia will maintain a viable, through much smaller strategic force, but will rely increasingly on nuclear weapons to compensate for diminished conventional capability. China is expanding and modernizing its strategic capability. Other states of concern, especially North Korea, Iran, and Iraq, could field ICBMs with WMD...." 4

We will examine the missile programs of each of these states.

### ***China***

China is slowly increasing the size, accuracy and survivability of its strategic nuclear arsenal. China currently fields approximately 20 long-range (13,000 km) DongFeng-5 (DF-5) missiles, capable of reaching the United States. China recently cancelled development of a replacement missile, the DF-41, but is believed to have begun development of a new long-range, solid-fueled, mobile missile to eventually replace the DF-5. Development of the DF-31 missile, an IRBM mobile missile with an 8,000 km range, began in the 1980's. China conducted flight tests of the missile in August 1999 and again in November 2000. The DF-31 could enter service within the next few years, replacing the 20 liquid-fueled, 5,500 km range DF-4s that China now fields.

### ***Iran***

Iran fields hundreds of short-range Scud-B and -C missiles (300 km and 500 km, respectively) and manufactures both indigenously. Acquisition of technology from North Korea's Nodong medium-range missile and assistance from Russian firms and individuals allowed Iran to substantially speed up the development of its 1,300 km Shehab-3 missile. Flight-tested three times, twice unsuccessfully, the missile may already be deployed. In September 2000 a CIA official told the Senate that "Tehran probably has a small number of Shahab-3 missiles available for use in a conflict."<sup>5</sup> Iranian officials have stated that other Shehab models are in development as space launch vehicles, not missiles. There is concern that, with continued North Korean and Russian assistance, Iran could develop a longer-range missile similar to the Taepodong-2. Within the next 15 years, the Office of the Secretary of Defense estimates that Iran:

"could test a space launch vehicle, which could have ICBM applications.... However, if Iran purchased an ICBM from North Korea or elsewhere, further development might not be necessary." 6

### ***Iraq***

Iraq's missile programs have been seriously curtailed by UN sanctions, but Baghdad continues to maintain short-range missile production lines and may retain a small number of 650 km Al Hussein Scuds. Iraq currently manufactures the 150 km liquid fuel Al Samoud and 150 km solid fuel Ababil-100. If sanctions are removed, Iraq would almost certainly pursue development of more capable missiles to match the accelerating programs of its neighbor Iran. According to the January 2001 OSD report,

"Depending on the success of acquisition efforts and degree of foreign support, it is possible that Iraq could develop and test an ICBM capable of reaching the United States by 2015." 7

### **Assessing the Assessments**

The 1999 NIE and subsequent assessments actually highlight the very narrow nature of the missile proliferation threat, one confined to a few countries whose political evolution will be a determining factor in whether they remain threats to the United States. Moreover, the assessments try to take a balanced approach to the kinds of threats the United States will face over the next 15 years. Robert Walpole, the CIA analyst primarily responsible for producing the NIE, testified before Congress that non-missile delivery and non-identifiable actors are the most likely threat:

"In fact, we project that in the coming years, U.S. territory is probably more likely to be attacked with weapons of mass destruction from non-missile delivery means

(most likely from non-state entities) than by missiles, primarily because non-missile delivery means are less costly and more reliable and accurate. They can also be used without attribution." **8**

The December 2000 report from the National Intelligence Council, "Global Trends 2015" reaffirmed that:

"Other means to deliver WMD against the United States will emerge, some cheaper and more reliable and accurate than early-generation ICBMs. The likelihood of an attack by these means is greater than that of a WMD attack with an ICBM." **9**

These key findings are overshadowed, however, by the dire warnings that dominate the assessments and the resulting news headlines. The assessments contribute to an exaggerated sense of the missile threat by focusing only on programs in these few developing nations, then magnifying the apparent dangers by adopting a series of worst-case assumptions.

The most extreme example of this narrow methodological approach is found in the 1998 Report of the Commission to Assess the Ballistic Missile Threat to the United States, chaired by former Secretary of Defense Donald Rumsfeld. The commission concluded that North Korea, Iran and Iraq could develop ballistic missiles with biological or nuclear warheads that would "inflict major destruction on the United States within about five years of a decision to acquire such a capability...During several of those years, the United States might not be aware that such a decision had been made." **10**

The commission made headlines with its claim that these and other nations could deploy an operational ICBM with "little or no warning." The Commission's conclusion implied that:

- an economically and technologically retrograde nation could create sophisticated weapons systems in about the same time as a developed nation;
- the developmental process in such a country would be an almost uninterrupted series of "best case" successes;
- no exogenous events (e.g., intelligence leaks, test explosions, economic collapse) would intervene to delay or derail the development program;
- the political relationship between these nations and the West would remain confrontational or worse over the next decade; and
- the U.S. would experience an almost uninterrupted series of "worst case" political, military and intelligence failures.

All intelligence estimates before the Rumsfeld report had concluded that it would be 10 to 15 years before any nation other than China or Russia could develop a missile capable of carrying a nuclear warhead to the continental United States, and that we would have ample warning time. An expert panel appointed by the Republican Congressional leadership and chaired by Robert Gates, the former director of the CIA under President George Bush, reaffirmed the soundness of these findings in December 1996, concluding, "the case [for ample warning time] is even stronger than was presented in the estimate." **11**

After the Rumsfeld report and the DPRK's test of the Taepodong-1 missile in 1998, official intelligence estimates shifted to adopt the same questionable methodology used by the Rumsfeld report. Thus, the 1999 NIE concentrated almost exclusively on the possible threat from North Korea, Iran and Iraq and emphasized what "could" happen over the next five to ten years. Conflict within the intelligence community over this shift is evidenced by the inclusion in the NIE of an unusual dissenting opinion from one of the intelligence agencies involved in producing the consensus report:

"Some analysts believe that the prominence given to missiles countries 'could' develop gives more credence than is warranted to developments that may prove implausible." **12**

Official statements on the threat have compounded the damage by interpreting the "could" possibilities as definitive certainties. Secretary Cohen said in March 2000, "The threat is here today. If it's not here right now it will be here tomorrow." **13**

General Ronald Kadish, director of the BMDO, warned the Senate Armed Services Committee in February 2000 of the possibility that "ballistic missile threats from states that threaten international peace and security will increase as they acquire a capability to launch more and longer range missiles with simple countermeasures in the 2005 to 2010 timeframe." On December 15, 2000, U.S. Representative Curt Weldon stated:

"Proliferation has been...astronomical over the past several years... There are over 70 nations today that possess medium, short-range and cruise missiles...over 22 nations have the ability to build these missiles, and they're selling them.... Missile proliferation is out of control."

The Boeing Company runs full-page ads in support of its Airborne Laser Weapon System

declaring, "with 13,000 tactical missiles in enemy hands, its nice to know ABL is on target." On May 6, 2001, National Security Adviser Condoleezza Rice stated, "... clearly, ballistic missile threats are different: They're very rapid in time; they cannot be defended at all."<sup>14</sup> Such views are the major factor justifying a crash effort to deploy a missile defense system by 2005.

**Box 3.a**  
**Confusion Over the Nature of the Threat**

A great deal of confusion exists over the nature of the "threat" facing the U.S. This confusion arises from a conflation in the public debate of the likely actors, the type of weapons that might be used, and their means of delivery. This confusion has led to the assumption that the primary danger to the U.S. is:

- A nation-state with
- a nuclear weapon and
- a long-range missile delivery system.

This is the threat against which NMD is designed.

In reality, however, the threat to the U.S. is probably much greater from:

- Non-state actors (terrorists, state-sponsored or not) with
- non-nuclear weapons, and
- short-range, non-missile delivery systems.

NMD is neither designed for nor capable of protecting the U.S. from state or non-state actors with WMD and "up close and personal" delivery schemes. It is these threats, against which NMD is irrelevant, that pose the most immediate - but still not insurmountable - challenge to U.S. security interests.

-JM

**A Net Assessment of the Global Ballistic Missile Threat**

A very different - and more accurate - threat assessment emerges if, rather than focusing only on the possible threat from three nations, a net assessment is performed of developments in global ballistic missile arsenals over the past 15 years. It then becomes clear that the ballistic missile threat is confined, limited and changing relatively slow. A close analysis of the global ballistic missile threat reveals several important trends.

**ICBM Arsenals**

The number of intercontinental ballistic missiles (with ranges over 5,500 km) has decreased dramatically since the height of the Cold War. During the 1980s, the Soviet Union deployed over 9,540 nuclear warheads on 2,318 long-range missiles aimed at the United States.<sup>15</sup> Currently, Russia has fewer than 5,000 missile warheads deployed on approximately 1,022 missiles.<sup>16</sup> This represents a 56-percent decrease in the number of missiles capable of striking the territory of the United States and a 48-percent decrease in the number of nuclear warheads on these missiles.

These decreases will certainly continue over the next ten years. With or without the implementation of the START II and III strategic arms reduction treaties, Russia is expected to field fewer than 2,000 nuclear warheads on missiles and bombers by 2010. If U.S.-Russian arms control and cooperative threat reduction programs continue, Russia's strategic arsenal of nuclear warheads may drop to as few as 1,086 by 2010.<sup>17</sup> Two thousand warheads would represent nearly an 80-percent decrease from the mid-1980s; 1,086 warheads would be an 89-percent decrease.

During this period, China has maintained a force of some 20 DF-5 intercontinental ballistic missiles. Under China's current policy of modernizing its nuclear arsenal, January 2001 OSD estimates predict that "by 2015, China likely will have tens of missiles capable of reaching the United States."<sup>18</sup> The lengthy development program for the DF-31 missile illustrates the formidable engineering and manufacturing challenges China faces and is typical of the consistently slow progress of China's missile programs. However, U.S. defense estimates recognize that military and political developments could result in significant increases. In particular, China "may change the pace of its modernization efforts for its nuclear missile force...if the United States deploys NMD." <sup>19</sup>

### Intermediate-range Missiles

The number of deployed intermediate-range ballistic missiles (with ranges of 3,000- to 5,500 km) has also decreased dramatically over the same period. President Ronald Reagan negotiated and implemented the Intermediate-range Nuclear Forces (INF) Treaty, eliminating this entire class of missiles from U.S. and Soviet arsenals. Final INF inspections took place on May 31, 2001, culminating in the destruction of 1,846 intermediate-range Soviet missiles and 846 U.S. ballistic and cruise missiles. China has some 20 DF-4 missiles in this range, with the first deployed in 1981. No other nation has developed IRBMs, though the launch of a two-stage Taepodong-2 would add a few missiles to this category. There has thus been close to a 100-percent decrease (98.9-percent) in the threat from IRBMs from the mid-1980s to 2001.

### Medium-range Ballistic Missile Programs

Apart from China and Russia, a few countries have conducted tests of medium-range ballistic missiles (with ranges of 1,000 to 3,000 km). India has successfully tested the 2,000 km range Agni-II missile as recently as January 2001, and is reportedly working on a longer-range missile with a range of up to 3,500 km, although the exact stage of development is unclear.<sup>20</sup> The only other significant medium-range threats come from missiles derived from the North Korean Nodong, Pakistan's Ghauri (1,300 km range) and Ghauri-II (2,000 km range) missiles and Iran's Shahab-3 (also 1,300 km range), all of which have been flight-tested. There are some speculative reports that Pakistan is working on a Shaheen-II missile of 2,400 km range and Pakistan has tested engines for a Ghauri-III, which Pakistani officials claim would have a range of 2,700-3,000 km. Saudi Arabia is believed to have a number of DF-3 missiles (2,600 km range) purchased from China before that nation agreed to abide by Missile Technology Control Regime (MTCR) restrictions. Finally, Iran is developing the Shahab-4 missile of 2,000 km range. None of these missiles threaten U.S. territory.

### Missile Development Programs

The number of countries trying or threatening to develop long-range ballistic missiles has not changed greatly in 15 years, and by some indications may be considered smaller than in the past. The nations now attempting to perfect long-range missiles are also smaller, poorer and less technologically advanced than were the nations with missile programs 15 years ago.

We now worry primarily about five nations, in addition to Russia and China: North Korea, Iran, Iraq, India and Pakistan. Fifteen years ago, North Korea was not a concern, but India, Brazil, Argentina, Egypt, South Africa, Iraq, and perhaps Libya were all involved in programs to develop medium- or long-range missiles. Brazil, Argentina, Egypt, and South Africa have since terminated such efforts.<sup>21</sup> Libya no longer has a viable development program for medium-range missiles, but is reportedly interested in purchasing Nodongs from North Korea. Israel retains the capability to develop long-range missiles, but is not considered a threat to the United States nor a likely exporter of missile technology.

### Aging Scuds

Almost all of the nations that possess ballistic missiles have only short-range missiles. Specifically, apart from the five recognized nuclear-weapon states, there are 29 nations with ballistic missiles, but the vast majority (23 nations) have missiles with ranges under 1,000 km. Furthermore, 20 of the 29 nations have only Scud-Bs, which are declining in military utility over time, or similar missiles of an approximate 300 km range or less. (Iraq officially has only short-range Scuds but may have assemblies for extended-range Scuds hidden in the country.)

Only six nations - Israel, Saudi Arabia, India, Pakistan, North Korea and Iran - have medium-range missiles over a 1,000 km range. Only five of these nations - Israel, India, Pakistan, North Korea and Iran - have active programs for developing intermediate-range missiles of over 3,000 km in the next 10 years. <sup>22</sup>

The blurring of short- and intercontinental-ranges for the world's missile inventory results in the misinterpretation of the oft-quoted assessment that over 25 nations possess ballistic missiles. This is true, but only China and Russia are potential adversaries with the capability to hit the United States with nuclear warheads on intercontinental ballistic missiles. This has not changed since Russia and China deployed their first ICBMs in 1959 and 1981 respectively. This confusion is perpetuated when policy-makers speak of threats from missiles to the United States or U.S. interests, such as forward-deployed troops or allied nations. This again merges threats from very short-range missiles, of which there are many, with long-range missiles, of which there are few.

#### **Box 3.b** **Can the United States be Deterred?**

It is sometimes argued that countries might develop WMD and threaten to attack the United States with these weapons to deter it from intervening in a regional conflict. For example, China might threaten to attack the United States if it moved to defend Taiwan against an invasion from the mainland or Iran or Iraq might develop WMD to prevent U.S. intervention in the Persian Gulf. NMD, it is argued, would provide the United States with confidence that it could intervene without itself suffering severe consequences. Even during the Cold War, when the United States was unprotected against long-range

missiles, the massive Soviet nuclear arsenal did not deter the United States from assuring its allies that they would be defended, by nuclear weapons if necessary, against Soviet attack. Although, fortunately, this promise was never put to the test, many Soviet and European leaders alike considered it credible. More recently, the Gulf War demonstrated that the United States is prepared to intervene even when the adversary is known to be a WMD possessor-state.

There is also no reason to believe that the United States would withdraw from a conflict if an adversary made good on its threat to attack the United States. It is much more likely that direct attacks on the United States would serve to galvanize support for overwhelming and decisive action against the offender. In any case, even with NMD, the United States will not be invulnerable to ballistic missile attack and a presidential decision to intervene made on the assumption that the nation were fully protected could be extraordinarily dangerous.

-SF & JM

### The Threat of Deliberate Attack

Fifteen years ago, the ballistic missile threat confronting the United States was many times greater than it is today. Many officials confuse the possibility that one or two nuclear weapons might be used (a catastrophic, but limited event) with the Cold War threats and crises. Many times over the past 40 years the citizens of the United States were deeply fearful that a global thermonuclear exchange would be triggered through deliberate confrontation, miscalculation or accident. Such an exchange would have destroyed the planet, not just the nation. While the possibility of an accidental or unauthorized ballistic missile launch by Russia could increase as economic and technological conditions deteriorate, the possibility of an all-out exchange remains extremely remote (see Chapter VI). The threats facing the United States are serious, but they are orders of magnitude removed from the threats encountered during the Cold War.

Figure 3.a - Countries with Medium- or Intermediate-Range Ballistic Missiles

COUNTRY	SYSTEM NAME	STATUS	RANGE (KM)	PAYLOAD (KG)	ORIGIN
India	Agni	T	2,000	1,000	I/United States/France
	Agni-2	O	2,500	1,000	I
	Agni-3	D?	3,000+?	1,000?	I
Iran	Shahab-3	T/D	1,300	1,000	I/DPRK
	Shahab-4	D	2,000	?	I/Russia
	Shahab-5	D?	3,000-5,500?	?	I/Russia
Israel	Jericho-2	O	1,500	1,000	I/France
	Jericho-3	D	2,500	1,000?	I
North Korea	Nodong-1	D/T	1,000	700-1,000	I
	Nodong-2	D	1,500	770	I
	Taepodong-1	T	1,500-2,000	1,000	I
	Taepodong-2	D	3,500-5,500	1,000	I
Pakistan	Ghauri	T	1,300	500-750	I/DPRK
	Ghauri-2	D/T	2,000	700	I/DPRK
	Shaheen-2	D?	2,000	1,000	I/DPRK?
	Ghauri-3	D/T	2,700-3,500	?	I/DPRK
Saudi Arabia	Dong Feng-3 (CSS-2)	O	2,600	2,150	PRC

KEY: This table lists those nations, other than the five declared nuclear-weapon-states, that have missiles with ranges exceeding 1,000 km.

D = Developmental T = Tested O = Operational I = Indigenous

### Net Assessment

The more accurate way to summarize existing global ballistic missile capabilities is that there is a wide-spread capability to launch short-range missiles (mostly Scuds). There is a slowly growing, but still limited, capability to launch medium-range missiles. Most importantly, there is a decreasing number of long-range missiles that can threaten the United States.

### Is NMD the Correct Response?

Given the diminishing nature of the ballistic missile threat to the United States and the likelihood that states such as North Korea and Iran would deliver any weapons of mass destruction that they might develop by non-missile means, it stands to reason that NMD may not be the most productive way to address the residual missile threat. Some might argue that diplomatic developments with North Korea have made both our threat assessment and the urgency of national missile defense obsolete. On September 17, 1999, the Clinton Administration announced it would ease sanctions against North Korea in response to a pledge by Pyongyang to halt further testing of long-range missiles. The policy adheres to the concept that if North Korea does not test the Taepodong-2, and if that nation can be further convinced not to export missiles or related technology, the greatest source of an additional ICBM threat to the United States would be eliminated.

Unclassified photos of the North Korean test facilities released in February 2000 revealed what many analysts have long concluded: the missile program is primitive by world standards, not capable of sustaining multiple launches of missiles, and of limited military utility. North Korea, increasingly eager to open normal trade relations with the West, seems to be willing to suspend a dubious program for real material gain (see Chapter VI).

Both the 1999 NIE and the Rumsfeld Commission assume an optimistic and fairly straightforward path for North Korea to scale-up their existing missiles to true intercontinental range. But only the United States, Russia and China have been able to build a missile of this range thus far. One cannot completely rule out the possibility that North Korea could develop a missile with enough range to reach the continental United States within ten years. However, the obstacles are formidable. As previous intelligence estimates have reported, the Taepodong-2, 3 or 4 would have to make remarkable progress in propulsion, guidance and reentry vehicle technology. Moreover, as the size of the missile increases, it requires a difficult manufacturing and engineering shift from the steel bodies employed by Scuds to low-weight, high-strength alloys. Finally, North Korea would have to manufacture a nuclear warhead small enough and sturdy enough to fit on the tip of the missile. There is no evidence that North Korea has mastered these techniques, only speculation that it might be possible.

Under the Clinton Administration, Washington pursued a policy that achieved a moratorium on missile testing by Pyongyang and began a series of high-level meetings and visits. President Clinton came close to concluding a deal to halt North Korea's missile test and export programs.<sup>23</sup> The new Bush Administration, however, suspended talks with Pyongyang for six months. During this time, a visit to North Korea by European Union President Goran Persson secured a renewed pledge by Kim Jong Il to maintain the missile testing moratorium until 2003. On June 6, 2001, President Bush announced that negotiations with North Korea would resume. <sup>24</sup>








If North Korea were taken out of the equation there would be very little left to the current ballistic missile threat estimate. Admiral Dennis Blair, the commander-in-chief of U.S. Pacific forces, said that if there were a verifiable agreement ending the North Korean missile program it would have "a very big effect" on the timetables for deploying both theater and national missile defenses. While North Korea "is not the only place that the U.S. forces face theater missiles," he said, without a North Korean threat, missiles "would not be the main part of the Northeast Asian problem." And "on a national missile defense...the North Korean development and the Taepodong launch is clearly one of the key, if not the key factor, in determining the parameters and the deployment schedule and the capabilities of that system." A negotiated resolution to that threat "would make a big difference." <sup>25</sup>

Under some other plausible scenarios, by the time the a potential NMD system reaches full operational capability in 2010, North Korea might have collapsed; democratizing trends in Iran could have altered the direction of the nation's program; a post-Saddam Iraq could have restored friendly relations with the West; or, China and Taiwan could be proceeding along a peaceful path to unification. The international political, diplomatic and legal environment is highly relevant to the prospects for global development of ballistic missiles. These factors should be included in any "could" assessments of the threat.

In sum, the threat to interventionary forces or neighboring countries from nations with emerging medium-range ballistic missile programs should not be taken lightly. Although neither North Korea, Iran, nor Iraq is thought to have a nuclear warhead for these missiles, it is possible that over time these missiles could add to the threats U.S. troops abroad and U.S. allies must

confront. This medium-range challenge should not be confused, however, with an immediate threat to the territory of the United States. That threat is actually diminishing but is nonetheless being used to justify a decision to rush into production of an untested weapons system that will have significant strategic, stability and security implications and that could exacerbate the very threat it hopes to deter (see Chapter V).

**Figure 3.b - The Decreasing Global Ballistic Missile Threat**

Threat	Status (1985 vs. 2000)	Trends
ICBM (>5500 km)	52-percent decrease	
IRBM (3000-5500 km)	99-percent decrease	
MRBM (1000-3000 km)	3 new national programs	
SRBM (<1000 km)	Scud inventories aging in several nations, but growing in others.	
Number of nations with ballistic missile programs of concern	Fewer, less advanced (9 in mid-1980s, 7 today)	
Potentially hostile nations with ballistic missile programs	More (3 in mid-1980s, 5 today)	
Potential damage to the U.S from a missile attack	Vastly decreased.	

Footnotes:

- \* This paper is an update and expansion of analysis originally presented in testimony to the Senate Governmental Affairs Committee on February 9, 2000. It will be published in a forthcoming White Paper on Ballistic Missile Defense by the Lawyers' Alliance for National Security. Official intelligence assessments referenced in this paper can be found through the [Carnegie Non-Proliferation Project's website](#)
- 1 Secretary William Cohen, Press Briefing, January 20, 1999.
- 2 National Intelligence Council, "Foreign Missile Developments and the Ballistic Missile Threat to the United States Through 2015."
- 3 Office of the Secretary of Defense, "Proliferation: Threat and Response," January 2001.
- 4 Statement by Vice Admiral Thomas R. Wilson, Director of DIA, before the Senate Select Committee on Intelligence, "Global Threats and Challenges Through 2015," February 7, 2001.
- 5 Statement by Robert D. Walpole, before the Senate International Security, Proliferation and Federal Services Subcommittee, September 21, 2000.
- 6 Office of the Secretary of Defense, "Proliferation: Threat and Response," January 2001.
- 7Ibid.
- 8 Testimony by Robert Walpole before the Senate Governmental Affairs Subcommittee on International Security, Proliferation, and Federal Services, February 9, 2000.
- 9 National Intelligence Council, "Global Trends 2015: A Dialogue About the Future with Nongovernment Experts," December 2000.
- 10 Executive Summary of the Report of the Commission to Assess the Ballistic Missile Threat to the United States, July 15, 1998, p. 5.
- 11 Robert Gates, Chairman, Independent Panel Review of Emerging Missile Threats to North America During the Next 15 Years, December 1996.
- 12 National Intelligence Council, "Foreign Missile Developments and the Ballistic Missile Threat to the United States Through 2015."
- 13 Secretary William Cohen, Press Briefing, March 24, 2000
- 14 ABC News Interview with National Security Adviser Condoleezza Rice, May 6, 2001.



- 15** Robert Norris and Thomas Cochran, *Nuclear Weapons Databook: U.S.-U.S.SR/Russian Strategic Offensive Nuclear Forces, 1945-1996*, Natural Resources Defense Council, January 1997, pp. 13 and 46.
- 16** National Resources Defense Council, "Russian Nuclear Forces 2001," *Nuclear Notebook*, available in the *Bulletin of Atomic Scientists* May/June 2001. The latest Memorandum of Understanding between the United States and the Russian Federation (January 2001) counts 5,462 warheads on ICBMs and SLBMs. Hundreds of these warheads, while officially counted for the purposes of the START Treaty, are not operationally deployed.
- 17** Jon Brook Wolfsthal, Cristina-Astrid Chuen, and Emily Ewell Daughtry, ed., *Nuclear Status Report: Nuclear Weapons, Fissile Material, and Export Controls in the Former Soviet Union* (Washington D.C.: Carnegie Endowment for International Peace and Monterey Institute of International Studies, 2001).
- 18** Office of the Secretary of Defense, "Proliferation: Threat and Response," January 2001.
- 19** Ibid.
- 20** Regarding India's pursuit of longer-range missile capabilities, "Proliferation: Threat and Response" notes that: "Development is underway for an IRBM, which would allow India to target Beijing." (Office of the Secretary of Defense, January 2001).
- 21** Janne E. Nolan, *Trappings of Power: Ballistic Missiles in the Third World* (Washington D.C.: Brookings Institution, 1991).
- 22** For a complete table of countries possessing ballistic missiles, see the [Carnegie Non-Proliferation Project Web site](#).
- 23** See article by Wendy R. Sherman, "Talking to the North Koreans," *New York Times*, March 7, 2001.
- 24** See article by Jane Perlez, "U.S. Will Restart Wide Negotiations with North Korea," *New York Times*, June 7, 2001.
- 25** See the address of [Admiral Dennis Blair](#) to the Carnegie International Non-Proliferation Conference, March 16, 2000.

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