

Thank you, Mr. Chairman, for the opportunity to be able to testify before your subcommittee on the missile threats to the United States and its interests. The ballistic missile remains a central element in the military arsenals of nations around the globe and almost certainly will retain this status for at least the next fifteen years. States willingly devote often scarce resources to develop or acquire ballistic missiles; build the infrastructures to sustain development and production; and actively pursue technologies, materials, and personnel on the world market to compensate for domestic shortfalls, gain expertise, and potentially shorten development timelines.

Could vs. Likely. As you know, the Senate requires that the Intelligence Community produce annual reports on the missile threat; these reports are required to include a discussion of nonmissile threats as well. Our most recent report was published as a National Intelligence Estimate in December of last year. My testimony today is drawn from our unclassified summary of that NIE.

Our NIE describes missile developments and our projections of *possible* and *likely* ballistic missile threats to the United States, US interests overseas, and military forces or allies through 2015; updates our assessments of theater ballistic missile forces worldwide; discusses the evolving proliferation environment; and provides a summary of forward-based threats and cruise missiles.

To address the uncertainties associated with this work, we assess both the earliest date that countries could test various missiles, based largely on engineering judgments made by experts inside and outside the Intelligence Community, on the technical capabilities and resources of the countries in question, and, in many cases, on continuing foreign assistance; and when countries would be *likely* to test such missiles, factoring into the above assessments potential delays caused by technical, political, or economic hurdles. I want to underscore that we judge that countries are much less likely to test as early as the hypothetical "could" dates than they are by our projected "likely" dates.

The Threat-Now and in the Future. With that as a backdrop, I would note that most US Intelligence Community agencies project that during the next 15 years the United States most likely will face ICBM threats from North Korea and Iran, and possibly Iraq-barring significant changes in their political orientations; that, of course, is in addition to the strategic forces of Russia and China. One agency assesses that the United States is unlikely to face an ICBM threat from Iran before 2015. In any case, the threats to the US homeland will consist of dramatically fewer warheads than today owing to significant force reductions in Russia.

I would underscore that short- and medium-range ballistic missiles already pose a significant threat overseas to US interests, military forces, and allies.

- Emerging ballistic missile states continue to increase the range, reliability, and accuracy of the missile systems in their inventories-posing ever greater risks to US forces, interests, and allies throughout the world.
- A decade ago, the Scud was the emerging missile of concern; today it is the No Dong; during the next few minutes, I will discuss the missiles of tomorrow.

Proliferation Has Not Stopped. The proliferation of ballistic missile-related technologies, materials, and expertise-especially by Russian, Chinese, and North Korean entities-has enabled emerging missile states to accelerate the missile development, gain previously non-existent capabilities and lay the groundwork for the expansion of domestic infrastructures to potentially accommodate even more capable and longer range future systems.

- North Korea has assumed the role as the missile and manufacturing technology source for many programs. North Korean willingness to sell complete systems and components has enabled other states to acquire longer range capabilities earlier than otherwise would have been possible-such as with the sale of the No Dong MRBM to Pakistan. The North also has helped countries to acquire technologies to serve as the basis for domestic development efforts-as with Iran's reverse-engineering of the No Dong in the Shahab-3 program. Meanwhile, Iran is expanding its efforts to sell missile technology.
- States with emerging missile programs inevitably will run into problems that will delay and frustrate their desired development timelines. The impact of these problems increases with the lack of maturity of the program and depends on the level of foreign assistance. Most emerging missile states are highly dependent on foreign assistance at this stage of their development efforts, and disturbance of the technology and information flow to their programs will have discernible short-term effects. The ready availability of assistance from multiple sources, however, makes it likely that most emerging missile states will be able to resolve such problems and advance their missile programs, albeit with a slippage in development time.

Relative Likelihood of Missile and Nonmissile Strikes. All this leads us to assess that the probability that a missile with a weapon of mass destruction will be used against *US forces or interests* is higher today than during most of the Cold War, and it will continue to grow as the capabilities of potential adversaries mature. More nations have ballistic missiles, and they have already been used against US and allied forces during the Gulf war. Although the missiles used in the Gulf war did not deliver weapons of mass destruction, Iraq had weaponized ballistic missile warheads with biological and chemical agents and they were available for use.

Moreover, some of the states armed with missiles have exhibited a willingness to use chemical weapons with other delivery means. In addition, some nonstate entities are seeking chemical, biological, radiological, and nuclear materials and would be willing to use them without missiles. In fact, we assess that US territory is more likely to be attacked with these materials from nonmissile delivery means-most likely from terrorists-than by missiles, primarily because nonmissile delivery means are less costly, easier to acquire, and more reliable and accurate. They also can be used without attribution. Nevertheless, the missile threat will continue to grow, in part because missiles have become important regional weapons in the arsenals of numerous countries. Moreover, missiles provide a level of prestige, coercive diplomacy, and deterrence that nonmissile means do not.

In short, the Intelligence Community must work both threats. We do not have the luxury of choosing to work one at the exclusion of the other. Neither is a no likelihood situation.

Russia. Let me turn now to some of the countries with missile forces or programs. First, Russia.

Russia maintains the most comprehensive ballistic missile force capable of reaching the United States, although force structure decisions resulting from resource problems, program development failures, weapon system aging, the dissolution of the Soviet Union, and arms control treaties have resulted in a steep decline in Russian strategic nuclear forces over the last 10 years. From approximately 10,000 warheads in 1990, Russia now maintains almost 4,000 warheads on its ICBMs and SLBMs.

- **Russia currently has about 700 ICBMs with 3,000 warheads and a dozen ballistic missile submarines equipped with 200 missiles that can carry 900 warheads.**
- **In the current day-to-day operational environment-with all procedural and technical safeguards in place-an unauthorized or accidental launch of a Russian strategic missile is highly unlikely.**
- **Russia's Strategic Rocket Forces is extending the service lives of its older ICBMs in part to compensate for the slow deployment of its newest ICBM, the SS-27. Russia also faces significant ballistic missile submarine program delays and the requirement to simultaneously extend the service lives of older systems while maintaining newer, more capable systems.**
- **Unless Moscow significantly increases funding for its strategic forces, the Russian arsenal will decline to less than 2,000 warheads by 2015-with or without arms control.**
- **Nevertheless, Russia has the most technologically evolved and best-equipped, maintained, and trained theater ballistic missile force in the world today. The SS-21 and SS-26 SRBMs provide Russian general-purpose ground forces with a rapid, precision-guided, theater deep-strike capability.**

China. Let's look next at China. We project that Chinese ballistic missile forces will increase several-fold by 2015, but Beijing's future ICBM force deployed primarily against the United States will remain considerably smaller and less capable than the strategic missile forces of Russia and the United States.

- **China's current ICBM force consists of large, liquid-propellant missiles armed with single nuclear warheads. Of these ICBMs, about 20 are CSS-4 silo-based missiles that can reach targets in the United States. The Chinese also have about a dozen CSS-3 ICBMs that are almost certainly intended as a retaliatory deterrent against targets in Russia and Asia. China also has the medium-range JL-1 SLBM.**

Beijing is concerned about the survivability of its strategic deterrent against the United States and has a long-running modernization program to develop mobile, solid-propellant ICBMs. The IC projects that by 2015, most of China's strategic missile force will be mobile.

- **China has three new, mobile, solid-propellant strategic missiles in development-the road-mobile CSS-X-10 ICBM (also called the DF-31), which is being flight tested; a longer range version of the DF-31; and the JL-2 SLBM. This modernization effort, which dates from the mid-1980s, forms the foundation of Beijing's efforts to field a modern, mobile, and more survivable strategic missile force.**
 - **China could begin deploying the DF-31 ICBM during the first half of this decade, and the DF-31 follow-on ICBM and JL-2 SLBM in the last half of the decade.**

We have differing projections of the overall size of Chinese strategic ballistic missile forces deployed primarily against the United States over the next 15 years, ranging from about 75 to 100 warheads. Deployment of multiple re-entry vehicles on missiles and missile defense counter-measures would be factors in the ultimate size of the force. In addition, China would have about two dozen shorter range DF-31 and CSS-3 ICBMs deployed primarily against Russia and parts of Asia, but which could reach parts of the United States.

- China has had the capability to develop and deploy a multiple reentry vehicle system for many years, including a multiple independently targetable reentry vehicle system or MIRV. We assess that China could develop a multiple RV system for the CSS-4 ICBM in a few years. Chinese pursuit of a multiple RV capability for its *mobile* ICBMs and SLBMs would encounter significant technical hurdles and would be costly.

On the theater front, China maintains a robust CSS-5 MRBM force and continues to increase significantly the capabilities of its SRBM force deployed opposite Taiwan. China's leaders calculate that conventionally-armed ballistic missiles add a potent new dimension to their military capabilities, and they are committed to continue fielding them at a rapid pace. Beijing's growing SRBM force provides a military capability that avoids the political and practical constraints associated with the use of nuclear-armed missiles. The latest Chinese SRBMs provide a survivable and effective conventional strike force and expand conventional ballistic missile coverage. We project an SRBM force in 2005 of several hundred missiles.

North Korea. Now to North Korea, which has hundreds of Scuds and 1,300 km range No Dong missiles, and continues to develop the longer range Taepo Dong-2. In May 2001, however, Kim Chong-il unilaterally extended the North's voluntary flight-test moratorium-in effect since 1999-until 2003, provided negotiations with the United States proceeds. Despite the moratorium, the North continues to develop missiles.

The multiple-stage Taepo Dong-2, which is capable of reaching the United States with a nuclear weapon-sized payload, may be ready for flight-testing. The North probably also is working on improvements to its current design.

- The Taepo Dong-2 in a two-stage configuration could deliver a several-hundred-kilogram payload up to 10,000 km-sufficient to strike Alaska, Hawaii, and parts of the continental United States.
- If the North uses a third stage similar to the one used on the Taepo Dong-1 in 1998, the Taepo Dong-2 could deliver a several-hundred-kg payload up to 15,000 km-sufficient to strike all of North America.
- A Taepo Dong-2 flight test probably would be conducted as a space launch vehicle with a third stage to place a small payload into the same orbit attempted in 1998.

The Intelligence Community judged in the mid-1990s that North Korea had produced one, possibly two, nuclear weapons. Since then, the North has frozen plutonium production activities at Yongbyon in accordance with the Agreed Framework of 1994. North Korea also has chemical and biological weapons programs.

Iran. Let me now turn to Iran, which is pursuing short- and long-range missile capabilities. Iran's missile inventory is among the largest in the Middle East and includes a few hundred SRBMs, some 1,300-km-range Shahab-3 MRBMs, and a variety of unguided rockets. Tehran's longstanding commitment to its ballistic missile programs-for deterrence and war-fighting-is unlikely to diminish.

In addition to SRBM and MRBM development, Iran is likely to develop space launch vehicles to put satellites into orbit and to establish the technical base from which it could develop ICBMs/ICBMs capable of delivering weapons to Western Europe and the United States. Iran is likely to test these vehicles initially as space launch vehicles to demonstrate an inherent IRBM/ICBM capability without risking the potential political and economic costs of a long-range ballistic missile test. Iran certainly is aware of the North Korean space and missile program and the benefits P'yongyang has tried to gain from the inherent ICBM capability posed by the Taepo Dong-1 and -2.

- All agencies agree that Iran could attempt to launch an ICBM about mid-decade, but believe Iran *is likely* to take until the last half of the decade to do so. One agency further judges that Iran is unlikely to achieve a *successful* test of an ICBM before 2015.
- Iranian acquisition of complete systems or major subsystems-such as North Korean TD-2 or Russian engines-could accelerate its capability to flight-test an ICBM.

If Iran were to acquire complete TD-2 systems from North Korea, it could conduct a flight test within a year of delivery, allowing time to construct a launch facility. Iran is unlikely to acquire complete ICBM or space launch vehicle systems from Russia.

In contrast, a halt or substantial decrease in assistance would delay by years the development and flight-testing of these systems.

- Foreign assistance-particularly from Russia, China, and North Korea-will remain crucial to the success of the Iranian missile program for the duration of this Estimate.

The Intelligence Community judges that Iran does not yet have a nuclear weapon. Most agencies assess that Tehran could have one by the end of the decade, although one agency judges it will take longer. All agree that Iran could reduce this time frame by several years with foreign assistance. Iran has biological and chemical weapons programs.

Iraq. Next, Iraq, which is constrained by international sanctions and prohibitions, but probably retains a small, covert force of Scud-variant missiles with conventional, chemical, and biological warheads. Baghdad also wants a long-range missile. Iraq's goal of becoming the predominant regional power and its hostile relations with many of its neighbors are the key drivers behind Iraq's ballistic missile program. Iraq has been able to maintain the infrastructure and expertise necessary to develop missiles, and we believe it has retained some Scud-specific production equipment and support apparatus. For the next several years at least, Iraq's ballistic missile initiatives probably will focus on reconstituting its pre-Gulf war capabilities to threaten regional targets and probably will not advance beyond MRBM systems.

Prior to the Gulf war, Iraq had several programs to extend the range of the Scud SRBM and became experienced working with liquid-propellant technology. Since the Gulf war, despite UN

resolutions limiting the range of Iraq's missiles to 150 km, Baghdad has been able to maintain the infrastructure and expertise necessary to develop longer range missile systems.

We cannot project with confidence how long UN-related sanctions and prohibitions will remain in place. They plausibly will constrain Iraq during the 15-year period of our Estimate. Scenarios that would weaken the prohibitions several years from now also are conceivable, allowing Iraq to reconstitute its missile infrastructure and begin developing long-range missiles before the end of the decade.

Should UN prohibitions be significantly weakened in the future, Iraq probably would use the first several years to reestablish its SRBM inventory to pre-Gulf war numbers, continue developing and deploying solid-propellant systems, and pursue MRBMs to keep pace with its neighbors. Once its regional security concerns are being addressed, Iraq may pursue a first-generation ICBM space launch vehicle.

- Initially, Iraq is likely to use its experience with Scud technology to resume production of the pre-Gulf war 650-km-range Al Hussein, the 900-km-range Al Abbas, or other Scud variants, and it could explore clustering and staging options to reach more distant targets. Iraq *could* resume Scud-variant production-with foreign assistance-quickly after UN prohibitions ended.
- With substantial foreign assistance, Baghdad *could* flight-test a domestic MRBM by mid-decade. This possibility presumes Baghdad's willingness to risk detection of developmental steps, such as static engine testing, before the erosion of UN prohibitions. An MRBM flight test *is likely* by 2010. An imported MRBM *could* be flight-tested within months of acquisition.

After observing North Korean missile developments the past few years, Iraq would be likely to pursue a three-stage TD-2 approach to an ICBM or space launch vehicle, which would be capable of delivering a nuclear weapon-sized payload to the United States:

- If Iraq could buy a TD-2 from North Korea, it *could* have a launch capability within a year or two of the purchase.
- It *could* develop and test a TD-1-type system within a few years.
- If it acquired No Dongs from North Korea, it *could* test an ICBM within a few years of acquisition by clustering and staging the No Dongs-similar to the clustering of Scuds for its failed Al Abid space launch vehicle.
- If Iraq bought TD-2 engines, it *could* test an ICBM within about five years of the acquisition.
- Iraq *could* develop and test a Taepo Dong-2-type system within about ten years of a decision to do so.

Most agencies believe that Iraq *is unlikely* to test before 2015 any ICBMs that would threaten the United States, even if UN prohibitions were eliminated or significantly reduced in the next few years. Some believe that if prohibitions were eliminated in the next few years, Iraq would be *likely* to test an ICBM probably masked as an SLV before 2015, possibly before 2010 with

significant foreign assistance. In fact, foreign assistance is key to Iraqi efforts to develop longer range missiles quickly. Iraq relied on extensive foreign assistance before the Gulf war and will continue to seek foreign assistance to expand its current capabilities.

Baghdad had a crash program to develop a nuclear weapon for missile delivery in 1990, but coalition bombing and IAEA and UNSCOM activities significantly set back the effort. The Intelligence Community estimates that Iraq, unconstrained, would take several years to produce enough fissile material to make a weapon. Baghdad has admitted to having biological and chemical weapons programs before the Gulf war; we believe Iraq maintains those programs.

Libya. Now to Libya. The imposition of UN sanctions has impeded Libyan efforts to obtain foreign assistance for its longer-range missile programs. Nevertheless, Libya wants longer-range missiles, even beyond the No Dong-class MRBM. Tripoli would be likely to continue to try for longer range systems to increase the number of US and NATO targets it can hold at risk. If a missile were offered with range sufficient to strike 2,500 kilometers into Europe, Libya would try to obtain it.

Libya lacks the infrastructure required to develop by 2015 a ballistic missile system with sufficient range to target US territory. Libya's paths to obtaining an ICBM during the 15-year period of our Estimate probably would be to purchase a complete missile system or to set up a foreign assistance arrangement where foreign scientists and technicians design, develop, and produce a missile and the necessary infrastructure in Libya. Libya's missile program depends on foreign support, without which the program eventually would grind to a halt.

Libya has biological and chemical weapons programs. Libya would need significant foreign assistance to acquire a nuclear weapon, but Tripoli's nuclear infrastructure enhancements remain of concern.

Syria. Let's look now at Syria, which maintains a ballistic missile and rocket force of hundreds of Scud and SS-21 SRBMs, and FROG rockets. With considerable foreign assistance, Syria has progressed to Scud production using primarily locally manufactured parts. Syrian regional concerns may lead Damascus to seek a longer range ballistic missile capability such as North Korea's No Dong MRBM. We judge that Syria does not now have and is unlikely to gain an interest in an ICBM capability during the 15-year period of our Estimate. Foreign assistance will remain critical to Syrian efforts to improve its production capabilities and to gain access to export-controlled components and technology.

Syria has developed chemical warheads for its Scuds and has an offensive biological weapons program. We remain concerned about Syria's intentions regarding nuclear weapons.

India. Let me turn briefly to India and Pakistan. New Delhi believes that a nuclear-capable missile delivery option is necessary to deter Pakistani first use of nuclear weapons and thereby preserve the option to wage limited conventional war in response to Pakistani provocations in Kashmir or elsewhere. Nuclear weapons also serve as a hedge against a confrontation with China. New Delhi views the development, not just the possession, of nuclear-capable ballistic missiles as the symbols of a world power and an important component of self-reliance. Growing

experience and an expanding infrastructure are providing India the means to accelerate both development and production of new systems.

The 150-km-range Prithvi I SRBM continues to be India's only deployed ballistic missile.

The Prithvi II SRBM is a modified Prithvi I with an increased range of 250 km.

The Agni series, which probably will be deployed during this decade, will be the mainstay of India's nuclear-armed missile force.

The Sagarika SLBM probably will not be deployed until 2010 or later.

India continues to push toward self-sufficiency, especially in regard to its missile programs. Nevertheless, New Delhi still relies heavily on foreign assistance.

Pakistan. Pakistan sees missile-delivered nuclear weapons as a vital deterrent to India's much larger conventional forces, and as a necessary counter to India's nuclear program. Since the 1980s, Pakistan has pursued development of an indigenous ballistic missile capacity in an attempt to avoid reliance on any foreign entity for this key capability. Islamabad will continue with its present ballistic missile production goals until it has achieved a survivable, flexible force capable of striking a large number of targets throughout most of India. Pakistan's missiles include:

- The short-range Hatf I, which Pakistan also is attempting to market, as it is relatively inexpensive and easy-to-operate.

M-11 missiles that Pakistan acquired from China in the 1990s. (The M-11 SRBM-called the Hatf III in Pakistan-is a single-stage, solid-propellant missile capable of carrying a payload at least 300 km.)

- Ghauri/No Dong MRBMs that Pakistan acquired from North Korea.
- The Shaheen I, a Pakistani-produced single-stage, solid-propellant SRBM.
- The Shaheen II, a road-mobile two-stage solid-propellant MRBM that Pakistan is developing. (Based on several mockups publicly displayed in Pakistan, the Shaheen II probably would be able to carry a 1,000-kg payload to a range of about 2,500 kilometers.)

Foreign support for Pakistan's ambitious solid-propellant ballistic missile acquisition and development program has been critical.

Forward-based Missiles. Several countries are technically capable of developing a missile launch mechanism to use from forward-based ships or other platforms to launch SRBMs, MRBMs, or land-attack cruise missiles against the United States. Some of these are likely to develop and deploy such systems-more likely for cruise missiles-during the next 15 years. Nevertheless, long-distance strikes against the United States probably would be operationally difficult.

- An SRBM or MRBM could be launched at the United States from a forward-based sea platform within a few hundred kilometers of US territory. Using such a sea platform

would not pose major technical problems, but the accuracy of the missile probably would be reduced significantly because of the movement of the ocean. Still, the accuracy probably would be better than for some of the ICBMs discussed in our Estimate. The simplest method for launching a shipborne ballistic missile would be to secure a TEL onboard the ship and launch the missile from the TEL. Somewhat greater accuracy could be obtained by placing the TEL on a stabilization platform to compensate for wave movement. Another option would be to add satellite-aided (GPS or GLONASS) navigation to the missile.

One to two dozen countries probably will possess a land-attack cruise missile capability by 2015 via indigenous development, acquisition, or modification of such other systems as antiship cruise missiles or unmanned aerial vehicles. Most of these cruise missiles will have a range of a few hundred kilometers-posing primarily a theater-level threat-but with sufficient range to be forward-deployed on air- or sea-launch platforms.

Nonmissile Delivery. Nonmissile means of delivering weapons of mass destruction (WMD) do not provide the same prestige or degree of deterrence and coercive diplomacy associated with ICBMs. Nevertheless, concern remains about options for delivering WMD to the United States without missiles by state and nonstate actors. Ships, trucks, airplanes, and other means may be used. In fact, as noted earlier, the Intelligence Community judges that US territory is more likely to be attacked with WMD using nonmissile means, primarily because such means:

- Are less expensive than developing and producing ICBMs.
- Can be covertly developed and employed; the source of the weapon could be masked in an attempt to evade retaliation.
- Probably would be more reliable than ICBMs that have not completed rigorous testing and validation programs.
- Probably would be much more accurate than emerging ICBMs over the next 15 years.

Probably would be more effective for disseminating biological warfare agent than a ballistic missile.

- Would avoid missile defenses.

Foreign nonstate actors-including terrorist, insurgent, or extremist groups-have used, possessed, or expressed an interest in chemical, biological, radiological and nuclear materials. Most of these groups have threatened the United States, and all of them have the ability to attack the United States or its interests. The events of September 11 and its aftermath have caused the Intelligence Community to focus significantly more resources on the threat from terrorism, and we are obtaining more information on potential terrorist actions.