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**DEFENDING AMERICA
REDEFINING THE CONCEPTUAL BORDERS
OF HOMELAND DEFENSE**

**China and the US: National Missile Defenses and
Chinese Nuclear Modernization**

A Background Paper

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Introduction

The following report is a rough initial draft of a section of a full report on Homeland Defense being prepared as part of the CSIS Homeland Defense project. It is a rough working draft, and reflects solely the views of the author and not of the CSIS team working on the project. It is being circulated for comment and reaction and will be substantially modified and updated before being included in the final report.

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Chinese Strategic Force Deployments

The case of China is very different from the case of Russia. As Chart III.2 and Table III.5 show, China now has relatively limited nuclear forces. From China's perspective, even a relatively limited US NMD program would seriously degrade current China missile attack capabilities if China launched anything but its entire ICBM force in a single volley. China is, however, developing the new generation of missiles summarized in Table III.6, and is deploying many of the theater-range missiles listed in this table. These developments raise the prospect that China will increase its strategic and theater range missile forces in proportion to any US NMD system, although there are no clear unclassified indications of how China presently intends to size its future threat against the US – with or without US deployment of NMD.

The National Intelligence Council report summarizes the Chinese ballistic missile threat to the US as follows:¹

“Chinese strategic nuclear doctrine calls for a survivable long-range missile force that can hold a significant portion of the US population at risk in a retaliatory strike.

- China's current force of about 20 CSS-4 ICBMs can reach targets in all of the United States.
- Beijing also is developing two new road-mobile, solid propellant ICBMs.
- —It conducted the first flight test of the mobile DF-31 ICBM in August 1999; we judge it will have a range of about 8,000 km and will be targeted primarily against Russia and Asia.
- —We expect a test of a longer range mobile ICBM within the next several years; it will be targeted primarily against the United States.
- China is developing the JL-2 SLBM, which we expect to be tested within the next decade. The JL-2 probably will be able to target the United States from launch areas near China.
- By 2015, China will likely have tens of missiles targeted against the United States, having added a few tens of more survivable land- and sea-based mobile missiles with smaller nuclear warheads—in part influenced by US technology gained through espionage.
- China has had the technical capability to develop multiple RV payloads for 20 years. If China needed a multiple-RV (MRV) capability in the near term, Beijing could use a DF-31-type RV to develop and deploy a simple MRV or multiple independently target able reentry vehicle (MIRV) 1 for the CSS-4 in a few years. MIRVing a future mobile missile would be many years off.
- China is also significantly improving its theater missile capabilities and is increasing the size of its SRBM force deployed opposite Taiwan.
- We assess that an unauthorized launch of a Chinese strategic missile is highly unlikely.”

It is important to note, that much depends on Chinese perceptions of the US and the seriousness of a potential clash over Taiwan and the extent to which a US decision to deploy will inhibit China's ability to win a regional conflict or use the threat of military force to achieve its regional goals. China has no current strategic interest in being able to attack or threaten the US except in the context of its regional ambitions and security needs.

It is equally important to note that China, like Russia, might take a more subtle path to objecting to the US deployment of an NMD system and retaliate by increasing the flow of expertise, technology, and equipment to hostile states. The January 2000 report by the Director of Central Intelligence referred to earlier makes this clear, as well as the fact that Chinese firms have not halted the sales of relevant technology to potential threat states,²

China joined the Zangger Committee-which clarifies certain export obligations under the NPT-in October 1997 and participated in the Zangger Conversion Technology Holders meeting in February 1999. This was China's first opportunity to participate in a discussion of this type.

China pledged in late 1997 not to engage in any new nuclear cooperation with Iran but said it would complete work associated with two remaining nuclear projects-a small research reactor and a zirconium production facility-in a relatively short period of time. The Intelligence Community will continue to monitor carefully Chinese nuclear cooperation with Iran.

During the reporting period, firms in China provided missile-related items, raw materials, and/or assistance to several countries of proliferation concern-such as Iran. China also was a supplier of ACW to Iran through the first half of 1999.

Prior to the reporting period, Chinese firms had supplied CW-related production equipment and technology to Iran. The US sanctions imposed in May 1997 on seven Chinese entities for knowingly and materially contributing to Iran's CW program remain in effect. In June 1998, China announced that it had expanded its chemical export controls to include 10 of the 20 Australia Group chemicals not listed on the CWC schedules.

China has provided extensive support in the past to Pakistan's WMD and ballistic missile programs, and some ballistic missile assistance continues. In May 1996, Beijing promised to stop assistance to unsafeguarded nuclear facilities, but we cannot preclude ongoing contacts. China's involvement with Pakistan will continue to be monitored closely.

...Pakistan acquired a considerable amount of nuclear-related and dual-use equipment and materials from various sources-principally in the FSU and Western Europe-during the first half of 1999. Islamabad has a well-developed nuclear weapons program, as evidenced by its first nuclear weapons tests in late May 1998. (The US imposed sanctions against Pakistan as a result of these tests.) Acquisition of nuclear-related goods from foreign sources will be important if Pakistan chooses to develop more advanced nuclear weapons. China, which has provided extensive support in the past to Islamabad's WMD programs, in May 1996 promised to stop assistance to unsafeguarded nuclear facilities-but we cannot rule out ongoing contacts.

Chinese and North Korean entities continued to provide assistance to Pakistan's ballistic missile program during the first half of 1999. Such assistance is critical for Islamabad's efforts to produce ballistic missiles. In April 1998, Pakistan flight-tested the Ghauri MRBM, which is based on North Korea's No Dong missile. Also in April 1998, the US imposed sanctions against Pakistani and North Korean entities for their role in transferring Missile Technology Control Regime Category I ballistic missile-related technology. In April 1999, Islamabad flight-tested another Ghauri MRBM and the Shaheen-1 SRBM.

... For the first half of 1999, entities in Russia and China continued to supply a considerable amount and a wide variety of ballistic missile-related goods and technology to Iran. Tehran is using these goods and technologies to support current production programs and to achieve its goal of becoming self-sufficient in the production of ballistic missiles. Iran already is producing Scud short-range ballistic missiles (SRBMs) and has built and publicly displayed prototypes for the Shahab-3 medium-range ballistic missile (MRBM), which had its initial flight test in July 1998 and probably has achieved "emergency operational capability—i.e., Tehran could deploy a limited number of the Shahab-3 prototype missiles in an operational mode during a perceived crisis situation. In addition, Iran's Defense Minister last year publicly acknowledged the development of the Shahab-4, originally calling it a more capable ballistic missile than the Shahab-3, but later categorizing it as solely a space launch vehicle with no military applications. Iran's Defense Minister also has publicly mentioned plans for a "Shahab 5."

Iran, a Chemical Weapons Convention (CWC) party, already has manufactured and stockpiled chemical weapons, including blister, blood, and choking agents and the bombs and artillery shells for delivering them. During the first half of 1999, Tehran continued to seek production technology, expertise, and chemicals that could be used as precursor agents in its chemical warfare (CW) program from entities in Russia and China. It also acquired or attempted to acquire indirectly through intermediaries in other countries equipment and material that could be used to create a more advanced and self-sufficient CW infrastructure.

China pledged in October 1997 not to engage in any new nuclear cooperation with Iran but said it would complete cooperation on two ongoing nuclear projects, a small research reactor and a zirconium production facility at Esfahan that Iran will use to produce cladding for reactor fuel. The pledge appears to be holding. As a party to the Nuclear Nonproliferation Treaty (NPT), Iran is required to apply IAEA safeguards to nuclear fuel, but safeguards are not required for the zirconium plant or its products.

The Department of Defense reached virtually identical conclusions in its report on proliferation in January 2001,³

China has made numerous nonproliferation pledges since 1992, publicly supports a number of nonproliferation regimes, and has ratified several nonproliferation related treaties. China has maintained that it will not assist any country in developing nuclear weapons or the MTCR-class missiles to deliver them, and has taken numerous steps over the last several years to strengthen its control over sensitive exports. Nevertheless, Chinese entities have supported some nuclear, chemical, and missile programs in countries of proliferation concern, driven by China's overall strategic interests in South Asia and the Middle East and by domestic economic pressures. China joined the Zangger Committee, which clarifies certain nuclear export obligations under the NPT, in October 1997 and participated in the Zangger Conversion Technology Holders meeting in February 1999.

This was China's first opportunity to participate in a discussion of this type that could result in changes to the Zangger trigger list coverage. In late 1997, China pledged not to engage in any new nuclear cooperation with Iran and to complete work on two remaining nuclear projects—a small research reactor and a zirconium production facility—in a relatively short period of time. An Agreement for Peaceful Nuclear

Cooperation between the United States and China would have entered into force on 30 December 1985, but Congress intervened owing to concerns about China's nonproliferation policies and practices. Following these major and positive changes in China's approach to its nuclear nonproliferation obligations and responsibilities, the United States in March 1998 made the certifications necessary to permit peaceful U.S. nuclear cooperation, including some exports, under the U.S.-China Agreement.

In the past, Chinese firms supplied chemical warfare-related production equipment and technology to Iran. The U.S. sanctions, imposed in May 1997 on seven Chinese entities for knowingly and materially contributing to Iran's chemical warfare program, remain in effect. In June 1998, China announced that it had expanded its chemical export controls to include 10 of the 20 Australia Group chemicals not listed on the CWC schedules.

In October 1994, China reaffirmed its commitment not to export ground-to-ground MTCR-class missiles. In November 2000, China made a clear policy commitment not to assist, in any way, other countries to develop ballistic missiles that can be used to deliver nuclear weapons, and to further improve and reinforce its export control system, including by publishing at an early date a comprehensive export control list of missile-related items, including dual-use items. This pledge provides constraints on China's missile exports. In consideration of China's commitment to strengthen its missile-related export control system, the U.S. government decided to waive sanctions required by U.S. law for past assistance by Chinese entities to missile programs in Pakistan and Iran.

...In recent years, Chinese firms have provided some important missile-related items and assistance to several countries of concern, such as Iran, Libya, and North Korea. China also has provided extensive support in the past to Pakistan's nuclear and ballistic missile programs, and some ballistic missile assistance continues.

Potential Sources of Chinese and US Confrontation

As is the case with Russia, it is possible that the US may be able to negotiate some kind of ceilings on Chinese strategic forces in response for clear limits to a US NMD system. Unlike Russia, however, China sees a serious prospect for military confrontation with the US over issues like the Taiwan Straits. A Department of Defense report on the Taiwan Straits issue makes the following comments about Chinese attitudes and force developments:⁴

"Although the PLA is still decades from possessing a comprehensive capability to engage and defeat a modern adversary beyond China's boundaries, Beijing believes that the PLA can develop *asymmetric* abilities in certain niches--such as advanced cruise missiles and conventional short-range ballistic missiles (SRBMs). Asymmetric warfare generally is defined as attacks by a weaker or more technologically backward opponent on a stronger foe's vulnerabilities using unexpected or innovative means, while avoiding the adversary's strengths. China's effort to "leapfrog" generations of technology in weapons programs is often times perceived as an effort to develop new and surprising capabilities, but most of the actual programs are derivative of efforts already well underway in more developed countries. Rather than technological breakthroughs, Beijing's military modernization effort could more accurately be described as a focus on *asymmetric engagement* capabilities. China is seeking to identify innovative tactics and employment parameters for systems and technologies which the PLA has successfully employed or can be reasonably expected to employ in the next two decades.

“... Beijing's military modernization program, underway for the past two decades, is designed to prepare the PLA to conduct regional active defensive warfare in support of Chinese economic interests and sovereignty claims--a doctrinal shift away from a focus on the large-scale, land-based guerrilla warfare of Mao's classic "People's War." Chinese doctrine and tactics, however, still bear the indelible mark of Mao's teachings, particularly as they apply to concentration of power by a technologically inferior force at select times and places on the battlefield to overcome a foe armed with superior weapons.

“... China's modernization programs thus seek to realize short-term improvements in anti- surface warfare (ASuW) and precision strike and longer term advances in missile defense, counter- space, and information warfare (IW). Concurrently, the PLA is acquiring weapons that would be useful in countering potential adversaries operating on naval platforms or from bases in the East and South China Seas, particularly stand-off weapons such as anti-ship cruise missiles (ASCMs) and long-range land-attack cruise missiles (LACMs), as well as SRBMs. Beijing also is working to address problems associated with integrating advanced weapons systems into their inventory; and weaknesses in command, control, communication, computers, and intelligence (C4I); training; and logistics, so as to improve the PLA's overall warfighting capability.

“As demonstrated in military exercises in the Taiwan Strait in 1995 and 1996, China views its growing conventionally armed ballistic missile force as a potent military and political weapon to influence Taiwan's populace and their leaders. New LACM designs, when operational, will increase China's capability to strike regional targets accurately with conventional warheads. These kinds of weapons systems will play an increasingly important role in modern combat. By 2005, the PLA likely will have deployed two types of SRBMs and a first generation LACM. An expanded arsenal of accurate, conventional SRBMs and LACMs targeted against critical facilities, such as key airfields and C4I nodes, will complicate Taiwan's ability to conduct military operations.

“*Short-Range Ballistic Missiles (SRBMs)*. Within the next several years, the size of China's SRBM force is expected to grow substantially. The PLA currently has one regimental-sized CSS-6 (DF-15/M-9) SRBM unit deployed in southeastern China. The CSS-6 is a solid propellant, road mobile missile which can deliver a 500-kilogram conventional payload to a maximum range of 600 km. The CSS-X-7 SRBM—better known by its export designator, the M-11—also is a solid propellant, road-mobile SRBM with an estimated range of 300 km. This missile, however, has not yet entered the PLA's inventory; and an improved, longer range version may be under development. Moreover, both the CSS-6 and the CSS-X-7 are expected to incorporate satellite-assisted navigation technology to improve their accuracy. In an armed conflict with Taiwan, China's SRBMs likely would target air defense installations, airfields, naval bases, C⁴I nodes, and logistics facilities.

“*Land -Attack Cruise Missiles (LACMS)*. China also is developing LACMs. These missiles appear to have a relatively high development priority. Chinese research and development of LACMs is being aided by an aggressive effort to acquire foreign cruise missile technology and subsystems, particularly from Russia. The first LACM to enter production probably would be air-launched and could be operational early in the next century.

“*Antiship Cruise Missiles (ASCMs)*. Technological improvements to the C-801/SARDINE and the C-802/ SACCADE are providing a gradual upgrade to China's current force of antiquated, first generation, CSS-N-1/SCRUBBRUSH ASCMs. Despite the obsolescence of many of its ships, its lack of operational experience and its inability to resupply ASCMs at sea, the PLA Navy could assemble a sizeable ASuW force against Taiwan and, most likely, saturate the Taiwan Navy with barrages of ASCMs. In addition, B-6D bombers subordinate to the PLA Naval Air Force (PLANAF) are capable of firing the C-601/KRAKEN ASCM. The Navy's new FB-7 bomber likely will carry C-801/C-802 ASCMs. China's ASCM capability is expected to improve further with the planned acquisition of two Russian-built SOVREMENNY-class destroyers armed with the SS-N-22/SUNBURN ASCM.

“... Exclusive Taiwan reliance on active missile defenses and associated BM/C3I, however, will not sufficiently offset the overwhelming advantage in offensive missiles which Beijing is projected to possess in 2005.

“...Despite anticipated improvements to Taiwan's missile and air defense systems, by 2005, the PLA will possess the capability to attack Taiwan with air and missile strikes which would degrade key military facilities and damage the island's economic infrastructure. China will continue to give priority to long-range precision-strike programs. Similarly, despite improvements in Taiwan's ability to conduct ASW operations, China will retain the capability to interdict Taiwan's SLOCs and blockade the island's principal maritime ports. Should China invade Taiwan, such an operation would require a major commitment of civilian air and maritime transport assets, would be prolonged in duration, and would not be automatically guaranteed to succeed. In the end, any of these options would prove to be costly to Beijing--politically, economically, diplomatically, and militarily.

“Beyond 2005, development of a modern military force capable of exerting military influence within the region, achieving deterrence against potential enemies, preserving independence of action in domestic and foreign affairs, protecting the nation's economic resources and maritime areas, and defending the sovereignty of the nation's territory will remain one of China's national priorities. Beijing will strive to create a smaller, more modern, better trained, more professional, and better logistically supported force, with an emphasis on air, naval and missile forces. China will continue to improve its regional force projection capabilities, but will not possess the conventional military capabilities to exert global influence.”

It is clear that the regional asymmetric strategy that China is pursuing towards Taiwan could just as easily become the Chinese nuclear and ballistic missile strategy for dealing with the US:⁵ Moreover, China has repeatedly warned that any US sale of theater missile defense to Taiwan will be seen as a violation of the 1979 US-Chinese pact in which the US agreed to recognize Beijing, end its defense pact with Taiwan, and withdraw US forces from the island. Lt. General Xiong Guangkai, director of intelligence and deputy chief of the general staff of the PLA, reinforced this view during a visit to Washington in January 2000. He also stated that any US transfer of TMD capability “would damage US and Chinese relations.”⁶

Chinese versus Russian Attitudes towards a US NMD System

China and Russian have steadily increased their cooperation in opposing a US NMD system, but they have different reasons for doing so. China differs from Russia in that its opposition to NMD is not a matter of relatively esoteric issues like political status and maintaining parity in offensive systems. From China's perspective, it already is a distinctly marginal nuclear power relative to the US with relatively limited credibility to deter, threaten, or pressure the US. China is also an emerging power with the wealth and resources to deploy

significant nuclear forces, but which lacks the near to mid-term ability to compete with the US in conventional warfare capabilities. Therefore, there is a reasonable probability that China will not negotiate some form of nuclear forces agreement with the US, and will react to US development of an NMD system by systematically upgrading its strategic nuclear forces to ensure that it can saturate and defeat any NMD system the US deploys.

Chinese and Russian Cooperation in Opposing NMD

Under these conditions, it is scarcely surprising that Russia and China began to cooperate in opposing US deployment of NMD. President Jiang Zemin and Russian President Vladimir Putin both condemned the US NMD program during their first meeting as heads of state on July 5, 2000.⁷ The US also failed to make any significant progress in easing Chinese concerns during arms control talks in Beijing, which were the first US-Chinese arms control talks in over a year, and which took place at the same time the US conducted a failed test of its interceptor. If anything, the talks almost certainly raised Chinese concerns. The senior US arms control adviser, John Holum, stated that "We don't rule out the possibility that some time in the future Taiwan may have TMD capabilities." Holum also made it clear that the PRC remained strongly opposed to NMD, "They were clear, as they have been publicly, on their position on National Missile Defense."⁸

On July 14, 2000, Sha Zukang, the director general of the Chinese Foreign Ministry's department of arms control and disarmament, attacked both NMD and any sale of US technology to Taiwan for a smaller-scope theater missile defense system during Defense Secretary William S. Cohen's first trip to China in nearly three years. Sha said that such a sale would "lead to serious confrontation...This is of supreme national interest...It will be defended at any cost." China had stated earlier that it might expand its nuclear forces to compensate for the proposed US defense system, but Sha broadened China's threats to include a possible Chinese renunciation of undertakings barring nuclear or chemical weapons proliferation and nuclear testing. "I have spent the most valuable and important part of my life, 16 years, on these issues...Now all of these achievements are at risk."

Sha predicted that if President Clinton or his successor went ahead with NMD, the decision would actually hurt US security, "Instead of enhancing your security, your security policy will be further compromised," he said. "The United States will play the role of a fire brigade. Rushing from one place to another to extinguish fires." He rejected US claims that an NMD system would not be aimed at China but at unpredictable and hostile "states of concern," such as North Korea, Iran and Iraq. "That doesn't matter, the consequences are still terrible for us," he said. Asked if China would reconsider its commitment to nuclear disarmament and a halt to sensitive weapons sales, he responded: "To say the least, our enthusiasm and our participation in all of those regimes, particularly in cooperating with the United States, our mood, let me say, would be severely dampened.. To say the least, it would seriously dampen our interest. . . We have not reached a stage to say we will forget our commitments, yet...It is too early to say what we will do," he said. "All I can say is that China will do everything possible to ensure its security, and the measures it will take will be in proportion to the success."

Sha said that any NMD system would risk negating China's limited arsenal and the "strategic stability" that ensures deterrence around the world. He also said that exporting theater missile defense technology to Taiwan would constitute a belligerent act on the part of the United States and would mark the first step in resumption of a U.S. military alliance with Taipei. That "Wear our cap for a moment...Imagine we are pumping arms to one of your states and supporting their independence. How would America feel about it?"⁹

On July 17, 2000, Chinese President Jiang Zemin and Russian President Vladimir Putin issued a joint statement opposing NMD that went much further. Zemin and Putin held closed-door talks, and then gave held a public signing ceremony in which they issued a joint attack on U.S. plans to build an anti-missile system.

One of the five documents they signed accused the US of using the system "to seek unilateral military and security advantages that will pose the most grave, adverse consequences" to China, Russia and the United States. The Russian and Chinese leader called upon the US to continue to adhere to Anti-Ballistic Missile Treaty and warned that altering the treaty "will

trigger an arms race and lead to an about-face in the positive trend that appeared in world politics after the end of the Cold War." They also stated that, "the pretext of a missile threat is totally unjustified."¹⁰

The Russo-Chinese statement contained eight points, one of which explicitly linked opposition to NMD and opposition to the deployment of any TMD system in Taiwan.¹¹ The "Beijing Declaration" stated that, "Any sort of talk of channeling foreign missile defense systems into Taiwan is unacceptable, and both (sides) stressed that it would destroy the region's stability." China and Russia also pledged to "defy hegemonism, power politics and group politics."¹²

- The nature of this plan is to seek unilateral military and security advantages. Implementing this plan will have the most grave adverse consequences not only for the security of Russia, China and other countries, but also for the security of the United States and global strategic stability.
- Therefore China and Russia are firmly opposed to such a system.
- The 1972 ABM treaty remains the cornerstone of global strategic stability and international security.
- Any damage to the ABM will trigger a new arms race.
- A non-strategic missile defense system which is not banned by the ABM and international cooperation in this area should not undermine security interests of other countries.
- Incorporating Taiwan in any foreign missile defense system in any way is unacceptable and will seriously undermine regional stability.
- China and Russia will continue their close cooperation on these issues.
- China and Russia will strengthen ties in related areas to ensure their own national security as well as that of the region and the world, in line with the international obligations undertaken by the two countries.

The Impact of Chinese Nuclear Modernization

China has been cautious about threatening to improve its offensive capabilities in response to NMD. Senior Chinese officials like Sha Zukang, the director general of the Foreign Ministry's department of arms control and disarmament, have, however, reiterated the theme that NMD would lead to a new arms race, and that the sale of US technology to Taiwan for a smaller-scope theater missile defense system would "lead to serious confrontation." When Sha spoke at

the end of Defense Secretary William S. Cohen's trip to China in July 2000, Sha stated that China would link its attitude toward nonproliferation and modernization of its nuclear forces to the success of the national missile defense program,¹³

"It is too early to say what we will do," he said. "All I can say is that China will do everything possible to ensure its security, and the measures it will take will be in proportion to the success" of national missile defense.

At present, there is no way to estimate the size of current Chinese modernization and force expansion plans or the future Chinese definition of strategic sufficiency. A Department of Defense report on Chinese military developments issued in January 2001 describes Chinese capabilities and intentions as follows:¹⁴

China currently has over 100 nuclear warheads and is increasing the size, accuracy, and survivability of its nuclear missile force. It is likely that the number of deployed Chinese theater and strategic systems will increase in the next several years. However, as its strategic requirements evolve, it may change the pace of its modernization effort for its nuclear missile force (particularly if the United States deploys NMD); any warhead improvements will complement China's missile modernization effort. China currently is not believed to be producing fissile material for nuclear weapons, but has a stockpile of fissile material sufficient to improve or increase its weapons inventory. China has ratified the NPT and signed the CTBT, and has declared it will never use its nuclear forces against a non-nuclear weapons state. China maintains a no-first-use pledge in its strategic nuclear doctrine and regards its strategic nuclear force as a deterrent against intimidation or actual attack. Thus, China's stated doctrine reportedly calls for a survivable long-range missile force that can hold a significant portion of the U.S. population at risk in a retaliatory strike. As China's strategic forces and doctrine further evolve, Beijing will continue to develop and deploy more modern ICBMs and SLBMs

...China continues to maintain some elements of an offensive biological warfare program it is believed to have started in the 1950s. China possesses a sufficiently advanced biotechnology infrastructure to allow it to develop and produce biological agents. Its munitions industry is sufficient to allow it to weaponize any such agents, and it has a variety of delivery means that could be used for biological agent delivery. China is believed to possess an offensive biological warfare capability based on technology developed prior to its accession to the BWC in 1984. China actively participates in international efforts to negotiate a BWC compliance protocol.

Since 1984, China consistently has claimed that it never researched, produced, or possessed any biological weapons and never would do so. Nevertheless, China's declarations under the voluntary BWC declarations for confidence building purposes are believed to be inaccurate and incomplete, and there are some reports that China may retain elements of its biological warfare program.

...Beijing is believed to have an advanced chemical warfare program including research and development, production, and weaponization capabilities. China's chemical industry has the capability to produce many chemicals, some of which have been sought by states trying to develop a chemical warfare capability. Foreign sales of such chemicals have been a source of foreign exchange for China. The Chinese government has imposed restrictions on the sale of some chemical pre-cursors and its enforcement activities generally have yielded mixed results. While China claims it possesses no chemical agent

inventory, it is believed to possess a moderate inventory of traditional agents. It has a wide variety of potential delivery systems for chemical agents, including cannon artillery, multiple rocket launchers, mortars, land mines, aerial bombs, SRBMs, and MRBMs.

Chinese military forces most likely have a good understanding of chemical warfare doctrine, and its forces routinely conduct defensive chemical warfare training. Even though China has ratified the CWC, made its declaration, and subjected its declared chemical weapons facilities to inspections, we believe that Beijing has not acknowledged the full extent of its chemical weapons program.

...China has continued to modernize its ballistic missile force over the last several years and its industrial base can support production of the full range of ballistic missiles. China's missile force is designed to serve as a strategic deterrent against Russia and the United States. While the ultimate extent of China's strategic modernization is unknown, it is clear that the number, reliability, survivability, and accuracy of Chinese strategic missiles capable of hitting the United States will increase during the next two decades.

China currently has about 20 CSS-4 ICBMs with a range of over 13,000 kilometers, which can reach the United States. Some of its ongoing missile modernization programs likely will increase the number of Chinese warheads aimed at the United States. For example, Beijing is developing two new-road mobile solid-propellant ICBMs. China has conducted successful flight tests of the DF-31 ICBM in 1999 and 2000; this missile is estimated to have a range of about 8,000 kilometers. Another longer-range mobile ICBM also is under development and likely will be tested within the next several years. It will be targeted primarily against the United States.

China currently has a single XIA class SSBN, which is not operational; it is intended to carry 12 CSS-NX-3 missiles; these missiles have a range greater than 1,000 kilometers. In addition, the Chinese are designing a new SSBN that will carry the JL-2 ballistic missile, which is expected to have a range of over 8,000 kilometers. The JL-2 likely will be tested in the next decade, and, when deployed, it probably will be able to target the United States from operating areas near the Chinese coast.

In addition, China increasingly sees conventionally armed ballistic missiles, such as the solid-propellant road-mobile CSS-6, with a range of 600 kilometers, as important weapons for a regional conflict and for their political and military deterrent effect. The size of this SRBM force is expected to grow in the next several years, as China will augment it with more modern CSS-7 road-mobile solid-propellant missiles, which have a range of 300 kilometers. These missiles are expected to incorporate satellite-assisted navigation technology to improve their accuracy. While continuing to increase the number of missiles and launchers in its inventory, Beijing also is concentrating on replacing liquid-propellant missiles with mobile solid-propellant missiles, reflecting a preference for diminished maintenance and improved survivability and reliability.

...China produces several types of land-, sea-, and air-launched cruise missiles, which are potential means of delivery for NBC weapons. While most are short-range and are deployed for anti-ship operations, China is developing land attack cruise missiles (LACMs) as well as a submarine-launched anti-ship cruise missile; this effort appears to have a relatively high priority. China's research and development of LACMs is being aided by an aggressive acquisition of foreign technology and subsystems, particularly from Russia. The first LACM will be an air-launched version, and may be operational in the next few years. China has exported several versions of anti-ship cruise missiles to countries in the Middle East and South Asia, and to North Korea. China also has a variety of fighters, bombers, helicopters, artillery, rockets, mortars, and sprayers available as potential means of delivery for NBC weapons.

Some experts feel, for example, that China will be able to test launch its new Julang JL-2

SLBM early in 2000.¹⁵ In addition, China is reportedly about to begin construction of a new nuclear-powered ballistic missile submarines (SSBNs) Type 094. The new sub is expected to carry the three-stage Julan-2 SLBM, a variant of the DF-31. The deployment of this system, however, is many years away.¹⁶ Coupled to the existing test program for the DF-31, this could give the PRC significantly greater capabilities to deploy ICBMs and SLBMs against the US long before 2010. It might be able to deploy a submarine-launched cruise missile threat much earlier.

China is believed to have obtained access to some of the surviving portions of Tomahawk cruise missiles that the US has fired against rogue states, and had the opportunity to reverse engineer them. It is believed to have started its own long-range cruise missile program, called the X-600 as early as 1977, to have begun testing turbofan engines in 1985, and to have deployed cruise missiles with a range of 600 kilometers as early as 1992 (possibly the Hong Niao-1 or HN-1). It has made major progress in developing advanced air-launched cruise missiles similar to the Russian Kh-55/AS-15 Kent missile as early as 1995, and to be developing advanced versions of the Hai Ying 3 and Hair Ying 4 sea-launched cruise missiles. There are reports that the HN-2 entered service in 1996 with a range of 1,500-2,000 kilometers, and that the HN-3 will have a range of 2,500 kilometers. There are unconfirmed reports that such missiles will be fitted for use in the torpedo tubes of the new Chinese Type 093-class of submarines.¹⁷

Press reports on an NIE called "Foreign Responses to U.S. National Missile Defense Deployment" in the summer of 2000 indicate that US intelligence experts from CIA and DIA also see Chinese force modernization as a serious threat.¹⁸ The NIE had been delayed by disagreements among the various intelligence agencies that contributed to the report, but the majority of analysts believed that construction of a U.S. missile defense system would cause China to significantly accelerate its production of nuclear weapons beyond current plans. It concluded that China was already is working to modernize and modestly expand its strategic force of some 20 fixed-silo, single-warhead intercontinental missiles, and that China probably would try to develop both mobile and multiple-warhead weapons in response to the deployment of NMD, expanding its force to as many as 200 warheads by 2015 to be able to overwhelm

American defenses, causing India and Pakistan to respond with their own buildups.¹⁹

A number of other experts do question how quickly China can modernize its strategic nuclear forces and implement an asymmetric strategy or react to the US deployment of an NMD system. For example, Robert Norris -- Senior Analyst at the Natural Resources Defense Council, discussed the likely shape and pace of China's nuclear modernization program comments that,²⁰

“The submarine program is in sad shape. There were endless predictions that China was producing a *Xia* class nuclear ballistic missile submarine, and that it was being tested. Finally, there was one submarine. Can you imagine our military deciding to spend billions of dollars for a submarine program that produces one submarine? This is a massive failure. We know that the Chinese have not mastered nuclear reactor technology or underwater ballistic missile firing technology. There are rumors that a new submarine class is in development. When Joseph Cirincione holds this seminar again 3 years from now and invites me back, I will probably repeat the quote that I just stated this morning: it continues in development.

Chinese weapons programs take an enormous length of time to be researched, developed, tested, produced, deployed and fully fielded. This is the case when we look at the whole range of weapons beginning back in the 1950's, and it continues to be the case today. There is an excellent paragraph that I've borrowed from David Shambaugh: "It is important not to confuse ambition with capability. The PLA's doctrinal desires at present stand in sharp contrast to its severely limited capabilities. The PLA's current weapons inventory remains 10 to 20 years behind the state-of-the-art in almost all categories, although some gaps are being closed."

US intelligence experts raised other issues during the debate over the NIE on the subject in the summer of 2000.²¹ In what seems to be a reliable report in the Washington Post, one such expert was quoted as saying, “The question is whether NMD will really make China beef up, or whether they planned to ramp up anyway,” Another official was stated to have said that many felt Beijing was less concerned with NMD, and more with the possibility that the US might someday provide a theater missile defense system to protect Taiwan.

There is no way of resolving all of the uncertainties involved. Nevertheless, China becomes is likely to be able to sustain a major missile and nuclear modernization plan and to be able develop forces which have substantially larger capability to target the US than China now possess. Furthermore, if China does deploy the additional systems necessary to offset a US NMD, it will probably increase the rate of production of its ICBM and SLBM forces to levels that make large-scale deployments much cheaper.

NIC and Department of Defense estimates also seem to be correct in warning that China

will see any combination of the US deployment of NMD and any Japanese, South Korean, and Taiwanese deployment of a theater missile system as an “encircling” threat. Under these conditions, China is even more likely to react by increasing its nuclear threat to the US. Certainly, the Chinese leadership has long seen missile defenses as a threat to both its regional military posture in dealing with Taiwan and its ability to exercise strategic leverage over the US:²²

“At the beginning of this year, one country breached the existing arms control treaty by announcing its decision to accelerate the research and development of missile defense systems. At the same time, that country also has ambitious programs to extend its weaponry system to the outer space. The aim of such program is to seek absolute military dominance. These programs will certainly have negative impact on bilateral and multilateral nuclear disarmament process and on the global strategic security and stability as well. All these developments make the [Conference on Disarmament’s] deliberation on [prevention of an arms race in outer space] ever more relevant and pressing.” -- Ambassador Li Changhe, Chinese representative to the Conference on Disarmament, (May 27, 1999, Conference of Disarmament, Geneva).²³

“The research, development, deployment, and proliferation of sophisticated anti-missile systems, and revision of, or even withdrawal from, the existing disarmament treaties, on which global strategic equilibrium hinges will inevitably exert an extensive negative impact on international security and stability and trigger a new round of arms races in new areas, thereby seriously obstructing or neutralizing international efforts of nuclear disarmament and nuclear non-proliferation.” -- President Jiang Zemin, (March 26, 1999, Conference of Disarmament, Geneva).²⁴

“We are against TMD. We are especially firm in our opposition to including Taiwan under TMD. TMD would constitute a violation against international agreements on missiles as well as an encroachment on China’s sovereignty, territorial integrity and an interference in China’s internal affairs.” --Premier Zhu Rongji, (News conference).²⁵

“China maintains that the international community, the big powers with the capacity to utilize outer space in particular, should take the following realistic steps to prevent a weaponized outer space: A complete ban on weapons of any kind in outer space, including anti-missile and anti-satellite weapons, so as to keep outer space free of weapons; a ban on the use of force or conduct of hostilities in, from or to outer space; and all countries should undertake neither to experiment with, produce or deploy outer space weapons nor to utilize outer space to seek strategic advantages on the ground, for example, using disposition of the important parts of ground anti-missile systems in outer space for the purpose of developing strategic defensive weapons. In addition, negotiations should be held as soon as possible for the conclusion of a legally-binding international agreement with the above-mentioned contents.” -- Information Office of the State Council of the PRC, China’s National Defense, July 1998.

Assessing the Chinese Reaction to NMD

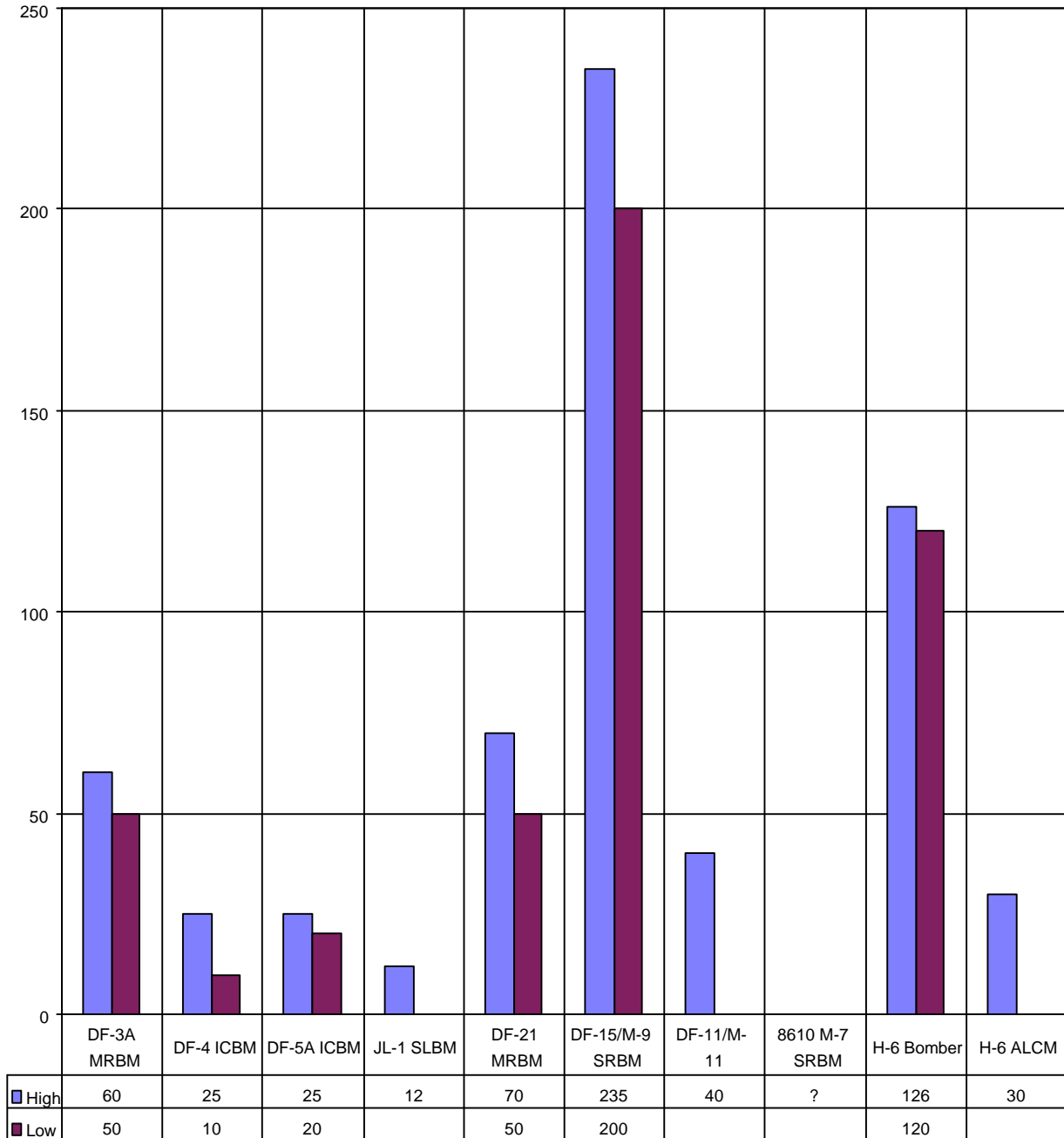
While such conclusions are speculative, the net threat China poses to the American homeland probably will be larger if the US deploys an NMD system than if the US did not. At the same time, China seems likely to increase its ICBM, SLBM, and cruise missile threat against

the US in any case. The same is true of Chinese efforts to strength China's theater delivery capabilities if theater missile defenses are deployed.

The Taiwan Straits issue, Chinese fear of Japan and US ties to Japan, and India proliferation are all major forces that are likely to increase China's present theater missile forces. The US deployment of NMD and TMD may accelerate this process, but it is scarcely the only catalyst. While Clinton only mentioned China in terms of its support to Iran during his September 1st delay speech, China's reaction to NMD was considered as a serious issue during the discussions in the NSC before Clinton's announcement.

There is little prospect that the President Bush can easily change China's position or resolve the issues that could lead China to increase the nuclear missile forces it targets on the US and targets in Asia. This, however, raises a number of major issues that the US has not yet addressed. The US would have to decide whether or not to react to China's actions by deploying a more robust NMD system and theater missile defenses. There are US experts who feel that the threat from China may ultimately be more serious than any threat from nations like Iran, Iraq, and North Korea, and that the US has made a major mistake in not designing its NMD system to defend against the Chinese threat. This could mean engaging in the new kind of three cornered arms race with China and Russia discussed earlier. This, in turn, would create major new problems for the US in dealing with arms control, and could require a much more sophisticated and costly NMD system than the one the US contemplated under the Clinton Administration.

Chart III.1
Chinese Deployed Nuclear-Capable Delivery Systems



Source: Adapted by Anthony H. Cordesman from IISS, Military Balance, 2000-2001, and Shirley A. Kan, China: Ballistic and Cruise Missiles, Congressional Research Service, CRS 97-391 F, September 28, 1998.

Table III.5Estimate of Chinese Nuclear Forces, 2000-2001

Type/ Designation	Launchers Deployed	First Deployed	Range (km)	Warheads x yield	Warheads
LAND - BASED MISSILES					
DF-3 (3A)	30-40	1971	2,650 (2,800)	1 x 3.3 MT	50
DF-4	20-30	1980	4,750	1 x 3.3 MT	20
DF-5 (5A)	20+	1981	12,000 (13,000)	1 x 4-5 MT; MIRV tested	~20
DF-21 (21A)	40-50+	1985-6	1,700 (1,800)	1 x 200-300 kt	36
DF-25	0	development	1,700	n/a	0
DF-31	0	Tested in 1999	8,000	1 x 200-300 kt; 50-90 kt; MIRV?	10-20 to be built
DF-41	0	development	12,000	250 kt; MIRV	12 to be built
SEA LAUNCHED BALLISTIC MISSILES					
Julang-1	12	1986	1,700 (2150)	1 x 200-300 kt	12
Julang-2	0	development	8,000-9,000	1 x 100-200 kt	16 to be built?
AIRCRAFT					
H-6	120	1965	3,100	1-3 bomb (10kt -3MT)	120
Q-5	30	1970	400	1 bomb (10kt - 3 MT)	30
TACTICAL WEAPONS					
Artillery/SRMs	low kt				120
TOTAL				~410 MT	400

Sources for this table include: Rodney Jones and Mark McDonough, Tracking Nuclear Proliferation, 1998 (Washington D.C.: Carnegie Endowment for International Peace, 1998); William Arkin, Robert Norris, and Joshua Handler, Taking Stock: Worldwide Nuclear Deployments, 1998 (Washington, D.C.: NRDC Nuclear Program, 1998); "Table of Chinese Nuclear Forces," Natural Resources Defense Council, nrdc.org/nuclear/nudb/datab17.asp; Center for Nonproliferation Studies, Proliferation Challenges and Nonproliferation Opportunities for New Administrations, Occasional Paper No. 4, Monterey Institute of International Studies, September 2000; IISS, Military Balance, 2000-2001, and Department of Defense, Proliferation and Response, January 2001, p. 54-56.

1. There are varying reports as to the number of DF-5 (CSS-4) missiles in China's inventory. Unconfirmed reports by anonymous intelligence officials have placed the number as high as 24, while the International Institute for Strategic Studies places the total count at 7. See Bill Gertz, "China adds 6 ICBMs to arsenal," *The Washington Times*, July 21, 1998, p. A1, and "China Targets Nukes at U.S.: CIA Missile Report contradicts Clinton," *Washington Times*, May 1, 1998, p. A1; Most recently, Robert Walpole, National Intelligence Officer for Strategic and Nuclear Programs placed the number at "about 20." in [remarks given at the Carnegie Endowment, September 17, 1998](#).
2. Recent reports have claimed that China is increasing its ballistic missile force aimed at Taiwan. (see Bill Gertz, "Chinese Missiles Menace Taiwan," *Washington Times*, February 11, 1999. The report claimed that China had produced 150 M-9 and M-11 (short-range ballistic missiles) and was facing the majority of the force toward Taiwan. It should be noted that these are non-nuclear systems, and are not represented in this chart.
3. 310 MT is a good estimate for the yield of China's ballistic missile forces. The bombs, however, with a range of 10kt to 3MT pose a slight problem. We estimate the bomb force to have a yield of approximately 100 megatons.
4. China's first test of the mobile three-stage DF-31 intercontinental ballistic missile (ICBM) took place on August 2, 1999, at Wuzhai, 250 miles southwest of Beijing.

Table III.6

<u>Chinese Missile Programs and Developments</u> ²⁶									
<u>Type</u>	<u>Chinese Name</u>	<u>US Name</u>	<u>No. Deployed</u>	<u>Range (Km)</u>	<u>Warhead (Kg)</u>	<u>CEP (M)</u>	<u>Launch Platform</u>	<u>Fuel</u>	<u>Status</u>
ICBM	DF-4 ¹	CCS-3	10-25	4,750	2200	1370	cave	liquid	in service 1980 (3.3 megaton warhead)
ICBM	DF-5A ¹	CSS-4	20	13,000	3,200	500	hardened silos	liquid	in service 1981 (4-5 megaton warhead)
ICBM	DF-31 ²	-	-	8000	700	?	land-mobile	solid	2002
ICBM	DF-41 ³	-	-	12,000	800	?	land-mobile	solid	2005
MRBM	DF-3A ⁴	CSS-2	30- 40+	2800	2150	1000	land-mobile	liquid	in service 1971 (3.3 megaton warhead)
MRBM	DF-21/ 21A ⁵	CSS-5	10-50+	1800	600-800	?	Mobile-TEL	solid	in service (200-300 kiloton warhead)
MRBM	DF-25 ⁶	-	-	1700	2000	?	land-mobile	solid	after 2000
SLBM	JL-1 ⁷	CSS-N-3	12-24	1700	600	?	Xia SSBN	solid	in service

¹ Deployed since 1981, most targeted on the US. Gyroplatform inertial guidance with on-board computer and storable liquid fuel. Deployed in hardened underground silos. Normally kept unfueled and without warheads

² Possible MIRVing capability. Booster tested in 1998.

³ Supposedly road, rail, river mobile.

⁴ Deployed since 1971, strap-down inertial guidance. Reaction time 110 minutes. China sold 36 to Saudi Arabia.

⁵ Same fuel and guidance as JL-1. Automatic command-control-firing system from TEL. Reports of terminal guidance, possible radar. May be a DF-21A. First regiment deployed in 1985.

⁶ Land mobile for truck transfer from semi-hardened sites to launch sites. No reports of test firings. One report that development has been abandoned

(200-300 kiloton warhead)										
SLBM	JL-2 ⁸	-	-	8000-10,000	700	?	094 SSBN	solid	after 2005	
SRBM	DF-15 ⁹ M-9	CSS-6	200+	600	500	300	Mobile TEL (50-350 kiloton warhead)	solid	in service 1995	
SRBM	DF-11 ¹⁰ M-11	CSS-7	40+	280-300	500-800	?	Mobile TEL	solid	in service 1995	
SRBM	8610 ¹¹ M-71	CSS-8 (mod HQ-2 SAM)	?	150	190	?	Mobile launcher	solid	in service	

Note: High side of range deployed is generally most likely to be correct with the exception of the JL-1. Low side reflects doubt as to actual operational reliability of systems Chinese regard as deployed and combat operational. DF: Dong Feng means "East Wind." JL: Julang means "Giant Wave." According to "The Bulletin of the Atomic Scientist, Chinese Nuclear Forces, 2000," China canceled the development of a sixth type of Dong Feng missile, the DF, it has begun developing a new mobile. Solid-propellant ICBM. The nuclear capability of the 600-kilometer range M-9 and the 300-kilometer range m-11 is unconfirmed. The Chinese define missile ranges as follows: short range, <1,000 kilometers; medium-range, 1,000-3,000 kilometers; long-range, 3,000-8,000 kilometers; and intercontinental range, >8,000 kilometers

¹ Deployed since 1980. Response time of 2.5 hours, strap-down inertial guidance. Stored in caves and mountainside tunnels.

² Deployed since 1981, most targeted on the US. Gyroplatform inertial guidance with on-board computer and storable liquid fuel. Deployed in hardened underground silos. Normally kept unfueled and without warheads

³ Possible MIRVing capability. Booster tested in 1998.

⁴ Supposedly road, rail, river mobile.

⁵ Deployed since 1971, strap-down inertial guidance. Reaction time 110 minutes. China sold 36 to Saudi Arabia.

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⁷ Land mobile for truck transfer from semi-hardened sites to launch sites. No reports of test firings. One report that development has been abandoned

⁸ All seem to be on one Jia submarine. Deployed since 1983, successful underwater launch tests in 1988. Operational status uncertain. Gyroplatform inertial guidance with on-board computer.

⁷ All on one Jia submarine. Deployed since 1983, successful underwater launch tests in 1988. Operational status uncertain. Gyroplatform inertial guidance with on-board computer.

⁸ To be deployed on new 094 SSBN with 16 tubes each. First SSBN that could target US from waters near China.

⁹ Launch from mobile TEL with preparation time of 30 minutes. Strap-down inertial guidance with on-board computer with terminal velocity correction. May be seeking GPS guidance. Four fired in Taiwan crisis in 1995. Three landed in general target area, one crashed prematurely. Four more fired in Taiwan crisis in 1996. Four landed in general target area. Some reported indicate that 20-30 more had been prepared for firing.

¹⁰ US imposed sanctions on China and Pakistan because this system was sold to China.

¹¹ Unconfirmed reports that Iran has acquired this missile technology.

Adapted from Jason D. Ellis and Todd M. Koca, "China Rising: New Challenges to the US Security Posture," Strategic Forum, No. 175, October 2000, IISS, Military Balance, 2000-2001, and Department of Defense, Proliferation and Response, January 2001, p. 54-56.

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² Non-Proliferation Center, Director of Central Intelligence, "Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions 1 January Through 30 June 1999," ODCI/CIA, January 2000.

³ Department of Defense, Proliferation and Response, January 2001, China section.

⁴ Department of Defense, "The Security Situation in the Taiwan Straits," Report to Congress Pursuant to the FY1999 Appropriations Bill, February 1999.

⁵ Department of Defense, "The Security Situation in the Taiwan Straits," Report to Congress Pursuant to the FY1999 Appropriations Bill, February 1999.

⁶ The Washington Post on-line, January 27, 2000, p. A-22.

⁷ Washington Post Foreign Service, July 6, 2000, p. A-14.

⁸ Reuters, July 8, 2000, 0634.

⁹ Washington Post Foreign Service, July 14, 2000; Page A-1.

¹⁰ Associated Press, July 18, 2000, 0644.

¹¹ Reuters, July 18, 2000, 0604.

¹² Associate Press, July 18, 2000, 0733.

¹³ Washington Post Foreign Service, July 14, 2000; Page A01

¹⁴ Department of Defense, Proliferation and Response, January 2001, China section.

¹⁵ "China to Test JL-2 ICBM," Inside China Today, insidechina.com:80/news.php3?id=116300

¹⁶ Adapted From nuclear note book, Chinese Nuclear forces 2000, prepared by Robert S.Norris and William M Arkin of the Natural Resources Defense Council (NRDC).

¹⁷ Jane's Defense Weekly, January 12, 2000, p. 12.

¹⁸ Washington Post, July 7, 2000; p. A-13.

¹⁹ New York Times, August 10, 2000; Washington Post, April 10, 2000, internet editions

²⁰ Carnegie Endowment for International Peace, "Non-Proliferation, China's Changing Nuclear Posture, Vol. 2. No. 10, May 11, 1999.

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²⁴ Zemin, Jiang, "Promote Disarmament Process and Safeguard World Security," 26 March 1999. <http://www.china-embassy.org>.

²⁵ Pottinger, Matt, "Zhu Denies Missile Buildup, Blasts U.S. Umbrella," Reuters, 15 March 1999.

²⁶ Adapted from work by Shirley A. Kan in China: Ballistic and Cruise Missiles, Congressional Research Service, CRS 97-391 F, September 28, 1999