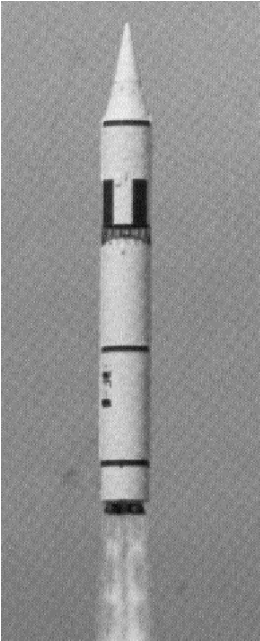
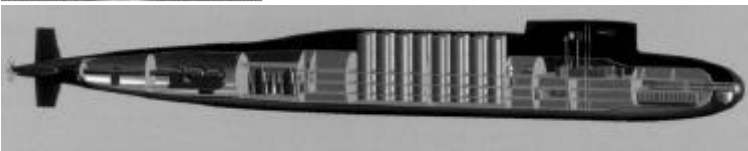




SECTION III



CHINA: THE STRATEGIC OUTLOOK



Although China's nuclear, missile, and submarine forces are smaller and less sophisticated than those of the United States, they pose a growing threat to both the continental United States and U.S. allies and forces in the northeast Asian region. China has undertaken a steady modernization of all of its strategic forces, which promises to create more accurate, survivable, and capable nuclear weapon systems in the future.

PART A - CHINA'S NUCLEAR PROGRAM

According to a recent Pentagon report, China has decided to improve its nuclear arsenal to achieve two aims. First, a more powerful arsenal would enhance deterrence of major strategic rivals such as the United States or a resurgent Russia; second, it would improve China's "status as an international power." In addition to these aims, an improved arsenal would give China the ability to defeat American-supplied theater missile defenses, which might someday shelter Taiwan and Japan.

Historical Development

China's nuclear weapon program officially began in 1955, when China and the Soviet Union began a series of nuclear cooperation agreements. The Soviet Union rapidly built up China's nuclear infrastructure until relations cooled in the 1960s. China tested an A-bomb in 1964 and three years later tested its first thermonuclear weapon. Since then, China has produced an arsenal estimated at around 400 warheads, of which about 250 are on land-based ballistic missiles, bombers, and submarine-launched ballistic missiles, and some 150 are tactical nuclear weapons.

China is now modernizing its nuclear forces by developing lighter warheads for the longer-range, more accurate missiles it is building. Currently, China is not believed to be producing fissile material, but it has a stockpile sufficient to increase or improve its weapon inventory significantly. It is estimated that China has up to 4 tons of plutonium and 23 tons of high-enriched uranium, enough material for more than 2,000



nuclear weapons. While the Chinese rely on a far smaller number of warheads than that to achieve deterrence, the existence of this stockpile facilitates Chinese modernization efforts and keeps strategic options open for the future.

China's Modernization Efforts

Until the Comprehensive Test Ban Treaty (CTBT) was opened for signature in September 1996, the Chinese braved international condemnation to continue to test nuclear weapons. China conducted about two tests per year until July 1996, after which China declared a self-imposed moratorium. In September 1996, China signed the CTBT but it has yet to ratify it.

Chinese Nuclear Tests After 1990

| Date of Test | Estimated Yield |
|---------------------|------------------------|
| May 21, 1992 | 660 kT - 1 MT |
| September 25, 1992 | 1-20 kT |
| October 5, 1993 | 40-80 kT |
| June 10, 1994 | 10-100 kT |
| October 7, 1994 | 40-150 kT |
| May 15, 1995 | 40-150 kT |
| August 17, 1995 | 20-80 kT |
| June 8, 1996 | 20-80 kT |
| July 29, 1996 | 1-5 kT |

China detonated its largest nuclear device at its Lop Nur test site on May 21, 1992. The device was widely reported by the media to have a one megaton yield, but one respected group of analysts put the yield at closer to 660 kilotons, roughly 50 times the power of the bomb dropped on Hiroshima. This large underground test greatly exceeded the 150 kiloton limit agreed to by the United States and the Soviet Union in 1976. The device was reportedly a warhead for one of China's new intercontinental ballistic missiles, either the DF-31 or DF-41.

The purpose of China's last sequence of tests was modernization. China wanted to develop smaller, more potent warheads before it could no longer conduct underground tests under the CTBT. With smaller warheads, China would be able to increase the range of its ballistic missiles by reducing their payload. In addition, China appears to be interested in deploying multiple re-entry vehicles (MRVs)

or multiple independently-targeted re-entry vehicles (MIRVs) on ballistic missiles. In order to do so, China must develop warheads small enough to be grouped on the top of a single rocket.

PART B - CHINA'S BALLISTIC MISSILES

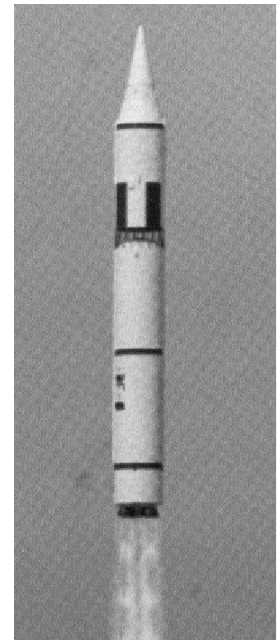
Although in June 1998 Chinese President Jiang Zemin said that he and President Clinton agreed “we will not target each other with the strategic nuclear arms under our control,” Robert Walpole, the CIA’s National Intelligence Officer for Strategic and Nuclear Programs, said in September 1998 that China has about 20 CSS-4 (DF-5) intercontinental ballistic missiles (ICBMs), most of which “are targeted against the United States.” According to Walpole, China’s “modernization efforts will likely increase the number of Chinese warheads aimed at the United States.” These efforts include the new 8,000 km range road-mobile Dong Feng-31 (DF-31), which will be able to reach western parts of the United States, and the 12,000 km range DF-41, which could reach any part of the United States. China will also be able to target the United States with its forthcoming submarine launched ballistic missile, the Julang-2.

Historical Development

China’s missile program began in 1956, when Chairman Mao Zedong urged Chinese industry to start building nuclear weapons and the missiles to deliver them. Within a decade, China had tested both an atomic bomb and a nuclear-capable missile, the Dong Feng-2. The latter benefitted greatly from Russian tutelage and technology. China would proceed to build a series of DF missiles, each of greater range than the last.

The liquid-fuel DF-2 was initially aimed at U.S. military bases in Japan. A copy of the Soviet R-5 missile, it was turned against the Soviet Union when Sino-Soviet relations soured in the late 1960s. The liquid-fuel DF-3, tested in 1966, more than doubled the DF-2's range to 3,000 kilometers. The DF-3 engines are used in the DF-4 missile and to power China's Long March-1 space launcher. It also earned China nearly \$3 billion from sales to Saudi Arabia in 1988. The DF-4 was designed to target U.S. forces in Guam, but it could also strike Moscow and the Middle East.

Since 1981, the mainstay of China’s long-range ballistic missile force has been the liquid-fuel, silo-based DF-5 (right), China’s first ICBM. China has about twenty of these missiles, most of which are targeted at the United States. According to a Pentagon study, China had more than 100 nuclear warheads deployed on operational ballistic missiles by 1997.



China's Missiles and Rockets

These are some of China's nuclear-capable missiles and rockets. Dong Feng means "East Wind," but the missile is better known in the West as the CSS (Chinese surface-to-surface). China's Long March space launchers are derived from Dong Feng missiles.



| | Dong Feng-3A (CSS-2) | Dong Feng-4 (CSS-3) | Dong Feng-5A (CSS-4) | Long March-2E space rocket | Dong Feng-11 (M-11 missile) | Dong Feng-15 (M-9 missile) |
|-------------------------|---|--------------------------------------|--|---|---------------------------------------|--|
| Range (in kilometers) | 2,800 | 4,750 | Intercontinental | Low-earth orbit | 300 | 600 |
| Payload (in kilograms) | 2,150 | 2,200 | 3,200 | 8,800 | 800 | 950 |
| Weight (in metric tons) | 64 | 80 | 183 | 462 | N/A | 6.2 |
| Propulsion | Single-stage, liquid fuel | Two-stage, liquid fuel | Two-stage, liquid fuel | Three-stage liquid fuel; four strap-on motors | Two-stage; solid fuel | Single-stage; solid fuel |
| Mission | Nuclear-armed | Nuclear-armed | Nuclear-armed | Launch satellites | Nuclear-armed | Nuclear-armed |
| Status | First flight, December 1966; current production uncertain | First flight, January 1970; deployed | First flight, September 1971; deployed and in production | First flight, July 1990 | First flight, mid-1990; in production | First flight, June 1989; in production |

Source: Official Chinese publication by the Commission on Science, Technology and Industry for National Defense (COSTIND); *China Today: Defense Science and Technology*, 1992; Natural Resources Defense Council, *Nuclear Weapons Databook*, 1994; John Lewis and Xue Litai, *China Builds the Bomb*, 1988.

China's Modernization Efforts

The Chinese are now modernizing their ballistic missile forces. This modernization consists in part of an increase in numbers, but also includes a move to more mobile, solid-fuel missiles with multiple warheads. Solid-fuel missiles can be launched faster than liquid-fuel missiles, which makes solid-fuel missiles less vulnerable. Mobility also adds a dimension of strategic surprise, since missiles may be launched from more than one area. According to one report, China is currently upgrading its medium-range missile forces with improved mobile systems designed to hit targets in Russia, India, Taiwan and Japan. In addition, all of China's newest and future ICBMs – the DF-21, DF-31, and DF-41 – are or will be mobile.

There are reports that China is trying to deploy MIRVs on the DF-31 and the DF-41. MIRV capability would enable China to increase the threat from its ballistic missiles significantly. Because China has far fewer missiles than either Russia or the United States, MIRV capability would maximize China's strategic deterrent. MIRVs would also help defeat any potential missile defenses that the United States or its allies may develop and deploy.

China's modernization effort is centered on the DF-21, DF-31, and DF-41 missiles.

DF-21:

The DF-21, a land-based version of the submarine-launched JL-1, is a two-stage solid-fuel, mobile intermediate-range ballistic missile. With a range of 1800 km and a payload of 600 kg, the DF-21 has a diameter of 1.4 m, weight of 14.7 tons, and length of 10.7m. It carries a single nuclear warhead with a yield of 200-300 kilotons. The missile underwent its first test flight in May 1985 and has subsequently been deployed. Estimates of the number of DF-21 missiles deployed vary.

DF-31:

In 1978, China began the development of another road-mobile, solid-fuel ballistic missile, the DF-23, which was renamed the DF-31 in January 1985. The DF-31 reportedly will be a three-stage solid-propellant ICBM, with an 8,000 km range carrying a 700 kg payload. Before firing, the transporter-erector-launcher would move the missile to a preselected launch site. Its nuclear warhead is estimated to have a yield between 250 and 500 kilotons. According to a report in the *Washington Times*, quoting a classified report by the National Air Intelligence Agency, the DF-31 will carry at least one nuclear warhead and penetration aids, such as decoys or chaff. It will be able to hit targets along the western coast of the United States. It is estimated that the DF-31 may enter service by the turn of the century, and that ten to twenty may be deployed. China is reported to have tested a solid-fuel rocket motor for the DF-31 on July 1, 1998, at the Wuzhai Space and Missile Test Center. The test occurred during President Clinton's visit to China. In late 1998, U.S. satellites reportedly detected Chinese plans to conduct an "ejection test" at the Wuzhai Space and Missile Test Center, in which a missile is ejected outside its launch canister shortly before the engines ignite.

DF-41:

China is also developing the DF-41, which will be a road-mobile, three-stage missile. This solid-fuel ICBM will have a 12,000 km range, with a reported payload of 500-700 kg. The DF-41 may also have multiple independently-targeted re-entry vehicles. It is scheduled to replace the DF-5 in the first decade of the 21st century. This missile will be capable of reaching most of the United States.

Submarine-based Missiles

In addition to these three land-based missiles, China has been expending great effort to develop a longer-range follow-on to its current submarine-launched ballistic missile, the JL-1. This new missile will be called the JL-2.

China currently possesses an aging force of Romeo- and Ming-class diesel submarines, as well as five nuclear-powered Han-class (SSN) submarines. China deploys only one Xia-class nuclear-powered ballistic missile submarine (SSBN) (right), which carries twelve Julang-1 (JL-1) missiles. The Xia is assumed to be patrolling only in its own regional waters, though theoretically, it would be capable of coming to the U.S. coast to launch its missiles, which could then reach into the western United States.

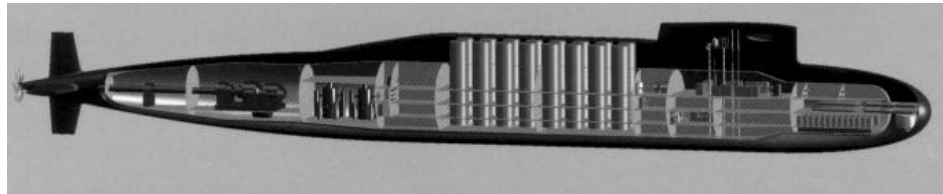


To modernize its forces, China has turned to both foreign suppliers and its own development and production for new, more capable submarines. Improvements sought include increased stealth, more capacity to carry submarine-launched ballistic missiles, enhanced survivability for nuclear weapons, and the ability to project naval force globally.

China has ordered a total of four Kilo-class submarines from Russia. The Kilo is a medium-range diesel-powered attack submarine, used primarily for anti-submarine and anti-surface ship warfare. Russia delivered the first Kilo in February 1995, the second in October 1995. Both were the 877EKM model, an export version. Two additional Kilos of a more advanced design were ordered as well. The first arrived in January 1998 and second was sent in late 1998. These Kilo-636 submarines had not previously been exported. They are among the most quiet diesel submarines in the world. Their weapons package includes both wake-homing and wire-guided acoustic homing torpedoes. The Kilo can carry up to 18 torpedoes, which are fired from 6 tubes in its bow. While it does not carry ballistic missiles, the submarine could be upgraded to carry an anti-ship cruise missile system. These Kilos, in addition to filling out its force, will help China to improve sonar design and quieting technologies for its own submarines.

China has also been busy constructing several new classes of submarines on its own. The first Song-class diesel attack submarine is in sea trials, and two more are under construction. The Song has a quieter propeller and more hydrodynamic hull than the Ming-class submarine it succeeds. In order to enhance their sophistication, these indigenously-produced submarines will incorporate Russian technology. The Song-class submarine is expected to be the first Chinese submarine capable of firing a submerged-launch anti-ship cruise missile.

In addition, China is designing a Type 093 nuclear-powered guided missile submarine (SSGN), the launch of which is expected in the



next century. It will supplement China's five existing Han-class nuclear submarines. The Type 093 will be a multi-purpose nuclear attack submarine with enhanced quieting, weapons, and sensor systems. It will carry torpedoes, possibly anti-submarine warfare missiles, and a submerged-launch anti-ship cruise missile, probably a follow-on to the C-801.

China's most ambitious project is a new nuclear-fueled submarine that will carry ballistic missiles. The first Project 094 SSBN (above) is expected to enter service early in the next century. This submarine, the largest ever constructed in China, will be a significant improvement over the Xia-class submarine, featuring better quieting, sensor systems, and propulsion. It is likely to carry sixteen Julang-2 (JL-2) ballistic missiles, which are the longer-range follow-on to China's current stock of Julang-1s. China's new SSBN would be able to target the entire United States; however, Chinese time lines from concept to deployment have historically been very long, so it is uncertain when this capability will actually come on line.

The importance of these submarine developments lies in the prospect of China projecting its naval force regionally and deploying nuclear missiles. The former capability will enable China to threaten sea lanes or Taiwan; the latter will enhance China's strategic standing and the survivability of its nuclear forces.

China currently relies upon the Julang-1 (JL-1/CSS-N-3) as its sole nuclear-capable submarine-launched ballistic missile. Twelve are deployed on its Xia-class submarine. The JL-1 is a single-warhead, two-stage missile, which has a range of 1700 km and carries a payload of 600 kg. With a diameter of 1.4 m, a weight of 14.7 tons, and a length of 10.7 m, the JL-1 is the first Chinese missile to use only solid fuel. The yield of its warhead is reported to be in the 200-300 kiloton range. China is estimated to have produced at least 50 JL-1s.

The Julang-2 (JL-2/CSS-N-4) missile, now under development, is reported to be a three-stage solid fuel missile with a range of over 4,000 nautical miles. It is derived from the DF-23 road-mobile, solid-fuel intermediate-range ballistic missile (which was later named the DF-31). China successfully test fired the rocket engine for the missile at the end of 1983 and flight tested the land variant (DF-31)

in May 1995 for the second time. According to one report, the test flight included multiple reentry vehicles, suggesting the missile will carry multiple warheads. It is estimated the warheads will yield 200-300 kilotons each. With these missiles, China will be able, for first time, to target Hawaii from submarines operating near the Chinese coast.

Outlook

China's ballistic missile program poses a growing threat to the United States and its security interests. China targets the United States with its long-range missiles and targets U.S. forces and allies in the Asia Pacific region with its medium- and short-range missiles. Although this threat currently is a limited one, it is growing.

A larger issue is how China is likely to use its increased capability. One clear rationale for the modernization of China's ballistic missile forces is to provide a better strategic deterrent against a global foe, in particular the United States. The Director of the Defense Intelligence Agency, General Patrick Hughes, stated in 1999 that "China will modernize and expand its relatively small and dated strategic deterrent force, and the number of Chinese warheads capable of hitting the United States will increase." Although Chinese President Jiang Zemin said in June 1998 that China would no longer target the United States with strategic missiles, CIA officials have cast doubt on whether this pledge has been fulfilled.

A second objective for China is to protect its interests with respect to Taiwan. During a 1995-1996 winter visit to China by former Pentagon official Charles Freeman, a Chinese official asserted that the United States would not challenge China militarily over Taiwan because American leaders "care more about Los Angeles than they do about Taiwan." In other words, China's strategic deterrent would give it the ability to act against Taiwan without fearing reprisals from the United States. It is important to note that the Chinese government's July 1998 paper on National Defense does not rule out the use of force to reunify mainland China and Taiwan. When testifying on Taiwan before Congress in February 1999, CIA Director George J. Tenet noted that China "refuses to renounce the use of force as an option and continues to place its best new military equipment opposite the island." And according to one report, China conducted military exercises in late November through early December 1998 that included simulated missile firings against Taiwan and, for the first time, also included mock attacks against U.S. troops in the region. Road-mobile CSS-5s (DF-21) and silo-housed CSS-2s (DF-3A) were included in the exercises, though the missiles were not actually fired.

In the past few years, China has been vastly increasing its deployments of DF-11 (M-11) and DF-15 (M-9) missiles in its southern regions facing Taiwan. The Chinese military has reportedly stationed from 150 to 200 M-9 and M-11 missiles in these regions and is planning to increase this number to 650 missiles over the next few years. By comparison, China had only 30 to 50 such missiles stationed there in 1995-1996 when it launched missile "tests" into the waters off Taiwan. The new deployments show China's intent to use such missiles in a regional conflict.