The current status of Chinese nuclear forces and nuclear policies

Dingli Shen

February 1990

PU/CEES Report No. 247

The center for energy and environmental studies

Princeton University
Contents

1. The Development of the Chinese Nuclear Projects: A Brief Review .......................... 1

2. Strategic Nuclear Weapon Inventory and Characteristics ................................. 4

   Ballistic Missiles ......................................................................................... 4
   Bombers .................................................................................................... 5
   Nuclear-capable Submarines ...................................................................... 6

3. Tactical Nuclear Weapons ............................................................................ 7

   T-5 Unguided Rocket .................................................................................. 8
   Model M (or M-9) Mobile Missile ................................................................ 8

4. Other Nuclear Aspects .................................................................................... 9

   Command and Control ................................................................................ 9
   Air Defences .............................................................................................. 11
   Nuclear Weapon Expenditure ................................................................... 12
   Missile Sales and Technology Transfers .................................................. 12

5. Chinese Attitudes towards Peaceful Nuclear Regime ..................................... 14

   ABM Treaty and Space Arms Control ...................................................... 14
   Nuclear Weapons Arms Control ................................................................ 15
   Test Ban and Non-proliferation Policy ...................................................... 16

6. Prospects .................................................................................................... 18

   Neutron Bomb ............................................................................................ 18
   MIRVing ..................................................................................................... 19
   Longer-range Missile .................................................................................. 19
   Mobile Tactical Force .................................................................................. 19
   Nuclear Submarine ...................................................................................... 19
   Fuel Solidification ....................................................................................... 20
Appendix 2: The Nuclear Weapons Infrastructure of China ...................... 24
Appendix 3: United Nations 41/59F Resolution ....................................... 28

Notes and References ........................................................................... 30

Table 1: Known Chinese Nuclear Tests, 1964-1988 ......................... 38
Table 2: Chinese Strategic Nuclear Forces, 1989 .............................. 41
Table 3: Characteristics of Chinese Strategic Nuclear Weapon Systems .... 44

Figure 1: Long March 3 carrier rocket blasts off from Jiuquan in northwest China ... 46
Figure 2: CSS-N-3 SLBM in a test launch from Xia Class SSBN underwater ........ 47
THE CURRENT STATUS OF CHINESE NUCLEAR FORCES
AND NUCLEAR POLICIES

Dingli Shen
Center for Energy and Environmental Studies
Princeton University

1. The Development of the Chinese Nuclear Project: A Brief Review

On October 16, 1964, The People's Republic of China (hereinafter referred to as China) detonated its first nuclear weapon, a historic feat for a backward and poverty-stricken nation. China's nuclear warheads grew steadily after 1964, and today China possesses a nuclear weapons inventory greater than the French and British forces combined. Aside from the USA and the USSR, China has become the only other country acquiring intercontinental-range ballistic missiles.

The program to develop Chinese nuclear weapons was initiated by Mao Zedong and other Chinese leaders on January 15, 1955. This program was headed by Army Marshall Nie Rongzhen and taken up directly by Premier Zhou Enlai. Liu Jie (vice-minister and minister of the 2nd Ministry) and Li Jue (head of the 9th Bureau of the 2nd Ministry of Machine-Building, and director of the 9th Academy) were the main government bureaucrats responsible for the development of the atomic bomb. Deng Jiaxian (head of the theoretical design work in the 9th Academy whose identity was kept secret for nearly 30 years) made great contributions to the theoretical basis of both the Chinese atomic bomb and hydrogen bomb. Yu Min, as a deputy head under Deng Jiaxian, also made special contributions to the theoretical design of China's hydrogen bomb.

The decision to build the Chinese bomb was driven largely by security considerations, and China's desire to gain appropriate weight in the global strategic chessboard. From a historical perspective, it can also be understood that possession of
the atomic bomb helped China get rid of the heavy legacy of long being humiliated by foreign invasion and "imperialist bullying". It was motivated in part also by the Korean War, by events in Indochina, and by the Taiwan-Straits (Quemoy-Matsu) Crisis. In January 1957, Deng Xiaoping, then the General Secretary of the Chinese Communist Party (CCP), expressed his views on nuclear deterrence as follows:

The Soviet Union has the atom bomb. Where does the significance lie? It lies in the fact that the imperialists are afraid of it. Are the imperialists afraid of us? I think they are not. ... The United States stations its troops on Taiwan because we have no atom bombs or guided missiles.8

From 1956 to 1958, China sought and received an extensive amount of Soviet technological help. One of the no-less-than six Sino-Soviet accords, New Technology for National Defense signed on October 15, 1957910, required the Soviet Union to supply China with a prototype atomic bomb and with ballistic missiles. In return, the Soviets extracted Chinese uranium for their own weapons programs. An open rupture between the two communist countries occurred in the early 1960's9 and resulted in the withdrawal of Soviet experts from the joint nuclear-development venture. China then carry through its nuclear program without foreign assistance. (In March 1969, China became the only nuclear weapon state that had engaged in armed clashes with the Soviet Union.) However, Soviet assistance did result in the transfer of many important military technologies to China, including virtually all of China's early missile, aircraft and submarine designs, except the nuclear warhead technology.

The Chinese nuclear program, like those of the other nuclear powers, was characterized by large-scale mobilization of manpower and resources. Some forty Chinese locations have been identified as uranium mining and enrichment facilities. These facilities were built to produce and process uranium and plutonium at the Lanzhou Gaseous Diffusion Plant (producing weapons-grade U\textsuperscript{235} since 1963), the Jiuquan Atomic Energy Complex in Gansu Province (producing Pu since 1967), and other places like Yumen, Baotou, Hong Yuan and Urumchi et al. An estimated 23,550
kg of weapon grade U\textsuperscript{235} and Pu\textsuperscript{239} has been produced.\textsuperscript{11} The nuclear weapons production and assembly plants have been identified at Lanzhou, Baotou and Haiyan \textit{et al.} A design laboratory, the 9th Academy (Northwest Nuclear Weapon Research and Design Academy), was established on Oct. 8, 1956 at Haiyan\textsuperscript{12}, east of Lake Qinghai. The test site at Lop Nur was established in October 1959. Both the Lop Nur testing center and the Lanzhou Gaseous Diffusion Plant were built with Soviet assistance.

After its first bomb exploded in 1964 over the Lop Nur test site in the Gobi desert in the Xinjiang Uyghur Autonomous Region (the only nuclear test center in China), the Chinese Government announced that it had broken the nuclear "monopoly" of the two superpowers. The following announcement explained the Chinese nuclear policy, as has often been quoted in China's official statements:

The Chinese Government and people always stand for nuclear disarmament. The small quantity of nuclear weapons China possesses is solely for the purpose of self-defence. We have solemnly declared time and again that at no time and in no circumstances will China be the first to use nuclear weapons and that it unconditionally undertakes not to use nuclear weapons against non-nuclear states and regions. China has never participated, nor does it intend to participate in the nuclear arms race or shirk its responsibility in regard to nuclear disarmament.\textsuperscript{13}

Recently, Chinese military and scientific officials gathered to celebrate the 25th anniversary of its first nuclear mushroom.\textsuperscript{14}

During the past 25 years, the Chinese nuclear program has made great strides. As of today, the Chinese strategic weapons arsenal includes about 350 nuclear warheads.\textsuperscript{6}

The derision of nuclear weapons as "paper tigers"\textsuperscript{15} has been gradually phased out and replaced implicitly by a \textit{de facto} recognition of effective nuclear deterrence. The Chinese Government has lately deemphasized the risk of nuclear war, though it insists regional and localized conflicts may still occur.
With the deployment of its new intercontinental ballistic missile (ICBM), the DF-5 (the CSS-4, according to the U.S. designation) with range of about 13,000 km, China has gained the ability to strike Moscow, Europe and the North America, while its nuclear-powered ballistic missile submarines (SSBNs) give its nuclear forces mobility and survivability. Fieldhouse believes that "survival of Chinese forces under any conceivable attack is assured."17

In light of the Intermediate-range Nuclear Forces (INF) Treaty and of the Strategic Arms Reduction Talks (START) between the United States and the Soviet Union which are now at an advanced stage, the role that the "medium" nuclear powers will play in the future is increasingly important. Below we review the current structure of the Chinese nuclear forces.

2. Strategic Nuclear Weapon Inventory and Characteristics

China maintains a relatively small arsenal of nuclear forces, deliverable by a "triad" of land-based missiles, bombers and submarine-launched missiles.

_Ballistic Missiles_

Most Chinese nuclear warheads are carried by ballistic missiles with ranges varying from 1,400 km to 13,000 km. The relatively small number of Chinese nuclear tests suggests an arsenal of probably a half dozen types of bombs and missile warheads. (See appendix 1.)

Estimates of the total number and total megaton of Chinese nuclear warheads are in the range of 250-350 and 400-550, respectively. The US intelligence community predicted in 1986 that China's nuclear arsenal will double by 1996.28 Today perhaps 10 missiles with limited and 10 with full intercontinental range can strike targets throughout the Soviet Union, Europe and North America. However, since the late 1960's, the USSR has been China's major military adversary and it is believed that most, if not all, Chinese nuclear weapons are targeted on the Soviet Union. Table 2
lists the Chinese strategic weapon systems, with information on their characteristics detailed in table 3.

China has taken considerable measures to ensure that its M/IRBM ballistic missiles not be vulnerable to a surprise attack. The majority of its mobile M/IRBM launch units will likely be dispersed to take advantage of mountainous terrain and camouflage and remain concealed during an enemy's first strike.

All Chinese nuclear missiles currently carry only one warhead each, but it is reported that China has begun pursuing MIRV technologies. The successful deployment on September 20, 1981 of three separate satellites from a single booster may demonstrate China's ability to master the MIRV technology. A series of missile tests conducted from the autumn of 1985 till early 1986 may be indicative that China is proceeding towards a small force of MIRVed ballistic missiles, particularly longer-range missiles such as IRBMs, ICBMs and SLBMs. The modified nose cone of CSS-2 vehicle has been described by Chinese authorities as containing MIRVs.

Bombers

Bombers provided China with its first nuclear delivery capability, and were used to drop at least 11 nuclear test "devices". There are two types of aircraft currently available for nuclear bombing missions: the Il-28 Beagle and the Tu-16 Badger, both modelled after Soviet designs (thus the use of Western names for Soviet models). The Chinese names for these bombers are translated by the West as H-5 and H-6 (H: Hongzhaji), respectively. The older Tu-4 Bull (H-4) seems to have been discontinued. All these bombers are 1950's design, although China started producing them quite recently.

The medium-range Il-28 Beagle is the most numerous of Chinese bombers, with over 400 deployed, and is assumed to have been available as a strategic weapon carrier since 1974 (see table 2). A small portion of the Il-28 force may be configured for

---

* Some weapon systems, like DF-3/CSS-2, DF-4/CSS-3, DF-5/CSS-4 and JL-1/CSS-N-3, were ceremonially paraded in Beijing on October 1, 1984 to celebrate the 35th anniversary of the founding of the PRC.
nuclear weapon missions. The Beagle is capable of carrying 3,000 kg of bombs to a combat radius of 1,000 km. The limited range of the aircraft suggests that it might also be used in a theater support role.

The mainstay of Chinese nuclear bomber is the intermediate-range Soviet Tupolev Tu-16 Badger, which China began producing in 1968-69. Roughly 100 Badgers are in the force. (Another 150 Beagles and 50 Badgers are deployed as maritime patrol aircraft.) Although the Badger has a combat radius of 3,000 km without refuelling and bomb-carrying capacity of 4,500 kg, its capability to penetrate Soviet defence systems is believed to be poor. Its effectiveness may be enhanced by the use of air-to-surface missiles. The H-6D version has been updated with cruise missile. Though there has been no plan to develop a new heavy bomber, modern navigation and bombing systems are being introduced to H-6.

As a result of the government policy towards concentration on civil programs, production is near zero at factories that once built up to 100 fighters a year. Only a few, perhaps three, intermediate-range bombers are produced in 1987 at the Xian aircraft plant, where 22 H-6 bombers were built per year during the 1970's.

A new supersonic bomber under design will undoubtedly enhance China's ability to penetrate air-defenses. There have been frequent but unconfirmed reports that one of China's fighter aircraft, the F-9, is nuclear-capable.

**Nuclear-capable Submarines**

China's most difficult nuclear weapon development program has been that of its SSBN force and its complementary SLBM, the CSS-N-3. These efforts have been hampered by technical difficulties in producing the solid-fuel missile and the nuclear power reactor for the submarine. The SSBN has been under various stages of development for nearly 15 years, and the SLBM was first tested in 1982 after 10 years of development. In April 1981, China launched its first Xia-Class submarine (displacement of 7,000 imperial tons when dived) which went on sea trials in 1983, and the following year, 1982, launched its first successful SLBM test missile from under water.
from Bohai Gulf to a target area in the East China sea. The SLBM test-flights were continued on Oct. 15, 1985 and Sept. 27, 1988\textsuperscript{62} (see figure 2).\textsuperscript{73} The second Xia-Class SSBN was launched in October 1982.\textsuperscript{53}

Since 1974 on, China has built 5 Han Class nuclear-powered attack submarines (SSNs) to develop nuclear propulsion designs and operations. China has also one conventionally-powered Golf Class ballistic-missile submarine (SSB), which was assembled in 1964 from Soviet components. It has been used as a test/training vessel for ballistic missile and submarine crews, and was used to launch the first submerged test of the CSS-NX-3 SLBM on Oct. 12, 1982. The Golf Class submarine may also be available as an operational submarine in a crisis, since it can launch two/three CSS-NX-3 missiles.

As of today, 2\% of Chinese major warships and submarines are nuclear capable. There are four ballistic missile submarines in operation in total, of which two are Xia Class SSBNs (each with a single nuclear reactor and 12/14 tubes). It is believed that China is building a small fleet of SSBNs, with perhaps three more currently under construction. Up to 6~12 Xia Class SSBNs may be planned.\textsuperscript{41,53,56}

In 1987, the Chinese Navy announced the improvement of a VLF (very low frequency) station with worldwide range, probably at Changde, that has been in operation since 1980. This is used to establish communication with its submerged submarines.

The only ocean-going ships in the Chinese Navy are its fleet of missile-tracking, telemetry, and recovery ships, which are used to support Chinese missile testing but also could monitor U.S. and Soviet testing in the Pacific.

3. Tactical Nuclear Weapons\textsuperscript{57}

\textsuperscript{**}. The widely distributed report of the destruction of the launching submarine by the first ocean test-launch of the CSS-NX-3 missile was false, and may have been politically motivated, according to Richard W. Fieldhouse.
Non-strategic nuclear weapons are far more likely to be used before strategic nuclear weapons.

Many Chinese shorter-range nuclear systems could serve for such "non-strategic" role, i.e., "theater support" or "tactical" missions. China sees some utility in deterring Soviet conventional and tactical nuclear superiority by using its own tactical nuclear weapons.

According to Jane's Special Report of 1989, China's nuclear weapon inventory is believed to consist of about 1,455 devices, both strategic and tactical, with yields in the two kilotonne to five megatonne range. The Chinese arsenal is estimated to consist of 354 strategic systems capable of carrying about 930 warheads (taking into account potential MIRVing development); at least 150 land and sea-based tactical missiles along with some 375 deployable munitions.

A number of Chinese non-strategic missiles have been developed and put into service: battlefield support missiles (the T-5 unguided rocket and Model M tactical missile), the anti-tank/assault Red Arrow 8 missile, coastal defence weapons (the HY-2 missile and C801 missile⁶⁵), mobile surface-to-air (SAM) guided missile systems (the HQ-2J defence missile and HQ-61 SAM system), the portable anti-aircraft HN-5A missile system, shipborne missiles (the YJ-6, FL-1, FL-2, FL-7 surface-to-surface missiles [SSMs]; and the CS-AX? SAM), and airborne weapon systems (the PL-5B air-to-air missile [AAM], C-601 anti-ship missile, C-801 cruise missile), etc. Of these at least two may be nuclear-capable.

**T-5 Unguided Rocket**

Unconfirmed reports have mentioned that T-5 unguided rockets, with range of around 100 km, have been fitted with tactical nuclear warheads. Some of these systems may have been deployed along the Chinese/Soviet border.

**Model M (or M-9) Mobile Missile**

8
In 1986 CPMIEC (China Precision Machinery Import and Export Corporation [China Great Wall Corporation])\textsuperscript{60} is understood to have started flight trials of the Model M short-range ballistic missile (SRBM). The development of the M series began in the early 1980's and the missile will probably enter service in the 1990's. This single-warhead missile system was developed to meet the requirements of the Chinese Army for a highly road mobile missile system, with a maximum range of 600 km and a capability of being fitted with both conventional (high explosive) and nuclear warheads.

The M missile can be brought into action in about 30 minutes and has a solid propellant rocket motor. It is believed to be intended for both the Chinese military and for export. A full-scale model with the following advertised characteristics was displayed at a defence exposition in 1987:

- **Length**: 9.1 m
- **Diameter**: 10 cm
- **Launch weight**: 6,200 kg
- **Maximum range**: 600 km
- **Guidance**: Inertial
- **Propulsion**: Single stage, solid propellant

4. Other Nuclear Aspects

**Command and Control**

The guiding principle of Chinese command and control is that "the Party controls the gun". In a very recent interview with high ranking officers, Deng Xiaoping restated that "the People's Liberation Army (PLA) belongs to the Party, the Socialism, and the People".\textsuperscript{61}

Command is centralized in Beijing with the Communist Party's Military Commission interposed between the Politburo Standing Committee and the military high command. With the military commission as the nucleus, the military chain of command is organized to facilitate central control of the main force units from Beijing. Traditionally, it is assumed that the Chairman (General Secretary) of the Central Committee of the CCP has the final authority to order the use of nuclear weapons. The Military Commission of the Central Committee (also known as the Central Military
Commission, or CMC) is the highest-level political decision-making body for military and nuclear weapon affairs; its Chairman has usually been the Chairman of the CCP Central Committee, as in the recent succession in which Jiang Zemin replaced Deng Xiaoping. The CMC membership is generally, but not necessarily, drawn from the Politburo. It is now comprised of Yang Shangkun (1st Vice-Chairman of CMC, and President of China), Liu Huaqing (Vice-Chairman of CMC), Yang Baibing (Secretary-General of CMC, and also the Director of General Political Department of PLA), Hong Xuezhi, Qin Jiwei (also the Minister of the National Defence Department), Chi Haotian (also the Army’s Chief of Staff) and Zhao Nanqi (also the Director of General Logistics Department of PLA, which controls the weapon arsenals).61-62

From roughly 1964 until 1984, it is believed that all Chinese nuclear weapons were controlled by the Second Artillery Forces of the PLA, an echelon considered equal in the command structure to the Air Force, Navy and other support branches.63 In 1984 China first reported that its nuclear weapons were controlled by a new "strategic wing", which is assumed to be the successor command to the 2nd Artillery Corps.64 This change may reflect China’s increasingly long-range nuclear forces and the differences between the control of strategic forces from an "artillery corps". Strategic Missile Force headquarters is in Beijing, and its service academy and staff college are at Jinxi. Since 1985 the force commander has been Li Xuge, a former member of the army’s general staff. The Missile Force now consists of six to seven divisions with about 90,000 men65, comparing the total personnel of Chinese Army, Navy and Air Force of about 2,980,000.

Lines of command, control and communication (C³) are always maintained from Beijing to China’s nuclear forces in two paths: a standard one in peacetime, and a streamlined one for crisis.66 Since China’s ICBMs have only a little more than 10 minutes countdown time, it is urgent for China to pursue modernization efforts on its C³ system.66 The planning and command system controls all of the activities in the Chinese nuclear weapon infrastructure. A more detailed description in this context is listed in appendix 2.
There are several think tanks to assist China’s decision-making body: Institute of International Studies associated with the Ministry of Foreign Affairs, Institute for Strategic Studies (formed in 1985, announced in 1986) which is associated with Ministry of National Defence and is absorbed into the National Defence University, Institute of Contemporary International Relations which provided special analyses to the Party Secretariat and the State Council. The Institute of U.S. Studies, the Institute of Soviet and East European Studies, and the Institute of World Economy and Politics, are within the Academy of Social Sciences.

**Air Defences**

It is reported that China has in service about 50 SAM sites and some 4,500 anti-aircraft guns of various types. An interceptor aircraft force of over 4,000 aircraft is maintained, consisting of MiG-17, MiG-19 (A-5), MiG-21 (F-7II) and F-8** types. A New all-weather fighter of Chinese design recently entered service.

Associated with all of these weapons are about 1,500 radars, but little is known of the detailed deployment of these systems or their organizational structure beyond the general information that the radars constitute a network for air surveillance and control and a missile early-warning system for the detection of ICBM launches against China.

At least one very large phased-array radar has been constructed in Western China — presumably as part of the missile warning system. There seems little doubt that China is engaged in an indigenous surveillance radar development program. In November 1986, Chinese authorities stated in Beijing during the Asian Defence Technology Exposition (ASIANDEX) that an OTH (over-the-horizon) early warning radar program was being implemented on full-scale.

Improved versions of the SA-2 Guideline missiles acquired from the Soviet Union are being produced as the HQ-2J. As far as it is known, this missile system is virtually identical to SA-2. The actual missile comprises two stages, the sustainer stage (stage II)
and the booster stage (stage I). The warhead is however an improved design with multiple fragments and a large scattering angle.

Even though the defenses are being substantially modernized, a recent American assessment still considers the Chinese air defence system to have weaknesses, such as an outmoded command and control system.

**Nuclear Weapon Expenditure**

Under China's "four modernizations" the military has been accorded the lowest place. The demands of domestic economic and political reforms requires that more resources be released to the civilian economy. Official figures for Chinese military expenditure have been declining in real terms since 1982. The share of the defence budget in the total budget has diminished from over 15% in the early 1980's to around 8% in 1988, amounting in that year to 10.8–11.6 billion US$ (at official exchange rate).

It is noted that certain military investments take place through off-budget accounts.

Nuclear weapons are considered separately and have the highest priority of all military programs. The US Central Intelligence Agency (CIA) has estimated that from 1965 to 1979 China spent 50% of its military R & D funds on nuclear weapon programs. Also according to CIA projections, research and development spending from 1978 to 1987 increased by roughly 25%, despite a simultaneous reduction in the army's operating expenditures, and a reduction of about 1/8 in defence investment.

**Missile Sales and Technology Transfers**

It is clear that in the 1980's, aid programs no longer play a central role in Chinese arms export policy, as was the case up to late 1970's, when political and ideological gains were chiefly pursued. The Chinese arms export policy has been reoriented in recent years and has become increasingly directed by commercial motives and the search for hard currency. Market campaigns have been carried out through advertising and participation in international military exhibitions. Like other new, low-
cost suppliers, China exports most of its weapons to crisis areas where foreign currency can be obtained, such as Iraq and Iran. (Chinese officials either routinely deny the existence of such sales or maintain silence.)

It was alleged that China's Hai Ying-2 (Silkworm) anti-ship missiles, which Iran may have acquired indirectly in 1987, might have helped cause the establishment of an enormous multinational peace-keeping fleet in the Persian Gulf. China's unwillingness to cooperate with United Nations peace efforts in this area in 1987 leaves little doubt that it hopes to preserve its role as a large neutral supplier. China earned $1.5 billion from Iraq before 1985 by supplying military hardware, when it then signed a $1.6 billion arms deal with Iran that included the sale of "Silkworm" missiles.

It was disclosed on March 18, 1988 that China had concluded an agreement signed in 1985 to transfer dozens of modified DF-3A (CSS-N-2) ballistic missiles to Saudi Arabia. It has been claimed that the arms sales to Saudi Arabia in 1987 accounted for almost $1-3.25 billion, including 50-60 DF-3 missiles to be deployed at the Al-Kharj air base (50 km south of Riyadh), support and launch facilities, training and assistance. This deal, confirmed very recently by Chinese Ministry of Foreign Affairs, has raised considerable international concern about the nuclear proliferation dangers. The missile agreement came as a surprise also to many nations because Saudi Arabia did not even have diplomatic relations with China prior to the deal. Chinese Foreign Minister Wu Xueqian justified the sale as conducive to the stability in the Middle East. China may also have expected that the sale would lead to an early establishment of diplomatic relations between Riyadh and Beijing.

China's sale of ballistic missile was considered a serious setback to the efforts of US Administration to stem the spread of such weapons. Recently there has been new fear that the "Chinese may again sell missiles." The revenue made available through such missile sales is used to help finance force modernization at home, to compensate shortages in the military budget, to support procurement program of PLA, and to upgrade China's obsolete military technologies.
There have been charges in the United States press and in Congress that prior to 1984 China gave Pakistan enough highly enriched uranium for two bombs, and that in the same period it provided Pakistan with some assistance in their design and testing. These suspicions was a major factor in generating Congressional opposition to a US-PRC nuclear cooperation agreement initially signed during Reagon's visit to China in April 1984. But there have been no public indications that China has offered or given any of these types of assistance to any other country.

5. Chinese Attitudes towards Peaceful Nuclear Regime

In many cases, The Chinese accepted the concepts behind a lot of international treaties related to arms control and disarmament, but objected to their content as fraudulent or hypocritical.

In recent years, however, the Chinese have expressed support for a number of international agreements they previously denounced, and have begun to work actively at the Conference on Disarmament (CD) in Geneva. They have demonstrated some flexibility on the NTB (Nuclear Test Ban) and CTB (Comprehensive Test Ban) questions. Some notes are given below to summarize Chinese policies on these issues.

**ABM Treaty and Space Arms Control**

It is believed that the Soviet ABM (anti-ballistic missile) system is capable of preventing China from successfully attacking Moscow with the current Chinese ICBMs. China is well aware of the Soviet ballistic missile defence (BMD) program and has denounced the US Strategic Defence Initiative (SDI) since 1984, because it is much concerned that any such defensive system would undermine the deterrent value of its own nuclear forces. "We cannot permit China to become strategically obsolete..." China

***. Negotiations were reopened in an effort to elicit stronger Chinese commitments to appease Congressional opponents. A new, though unchanged, agreement was signed in July 1985 and submitted to Congress, see note 79.
signed the Outer Space Treaty in December 1983 and has since become an enthusiastic advocate of the peaceful use of outer space. Space arms control appears to be the premier arms control and disarmament issue for China. Some options, including the development of modern bombers or nuclear-armed cruise missiles, are being left open should USSR proceed to develop BMD system.

In the meantime, it is understood that an attempt to expand Chinese strategic nuclear force triad into a nuclear deterrent "self defence" tetrad which includes the realm of outer space could well become a major national effort for the 1990's.

Nuclear Weapons Arms Control

Chinese diplomats has viewed the nuclear arms race as a phenomenon of U.S.-Soviet competition, and thus see no necessity to limit their own nuclear weapons, especially without greater dedication to limitation and reduction on the part of the superpowers. But for some time they have been exhibiting "new thinking" regarding nuclear arms, strategy and arms control. Foreign Minister Huang Hua outlined China's proposal at a second U.N. special session in June 1982, that only after the U.S. and the USSR cut back their arsenals by one-half will China enter into disarmament negotiation with all the nuclear weapon nations.80

On October 30, 1986, China submitted its own arms control resolution entitled "Nuclear Disarmament" in the First (Political) Committee of the U.N. General Assembly. In introducing it on November 3, China stated that it was important that the two major Powers carry out negotiations in earnest on the basis of their mutually agreed principles and that they start a process of nuclear disarmament as soon as possible, so as to create conditions in which other nuclear-weapon States could participate in it. That constituted, China held, a reasonable and practical approach to nuclear disarmament and the gradual achievement of the complete elimination of nuclear weapons. Those objectives were in keeping with the interests of the small- and medium-sized nations, as well as with the fundamental interests of the Soviet Union and the United States.
On November 10 of that year, China submitted a revised draft resolution, from which it had deleted an operative paragraph appealing to nuclear-weapon States other than the Soviet Union and the United States to participate in the process of nuclear disarmament once the two major Powers had drastically reduced their nuclear weapons. China explained that the revision had been made to accommodate the concerns of some other countries and declared that it, as a nuclear-weapon State, would not evade its own responsibilities. It would continue to oppose the nuclear-arms race and remained committed to the total elimination of all nuclear weapons. The First Committee approved the revised draft resolution on November 11 without a vote. The General Assembly adopted the draft resolution on December 3, without a vote also, as resolution 41/59F. (See appendix 3 for this resolution.)

In the 44th Session of the U.N. General Assembly, China proposed a new resolution on nuclear disarmament, in which it underlined the special responsibilities that the Soviet Union and the United States should assume to halt the nuclear arms race and to disarm their nuclear arsenals. China stated that "while in coping with the quantitative problems in arms control, particular concern should be paid to the qualitative aspects". This resolution was unanimously passed in the General Assembly on December 15, 1989.

Now that the superpowers are negotiating deep cuts by half in their existing strategic ballistic missile warheads, the time for multilateral co-operation on arms control which includes Chinese nuclear weapons may be coming. The US and USSR's implementation of the INF agreement to eliminate nuclear weapon launchers in the 500 to 5,500 km range, coupled with announced trends in START, has significantly expanded the importance of China's arsenal. It may well provide China with a near monopoly in the intermediate range class, particularly with nuclear payload.

Test Ban and Non-proliferation Policy

For quite a period of time, China championed the right of Third World nations to have nuclear weapons. As the Chinese stated in the CD in 1980:
China is against big-power monopoly of nuclear weapons. We hold that when the superpowers are constantly expanding their nuclear arsenals and carrying out nuclear threats, it is clearly not fair to ask all non-nuclear weapons states to give up their right to acquire nuclear weapons for self-defence.\textsuperscript{65}

The Partial Test Ban Treaty (PTBT) was criticized by the Chinese Government as a big fraud to fool the people of the world, since it was considered "an attempt to consolidate the nuclear monopoly of the three nuclear powers [U.S., UK and USSR] and tie the hands of all peace-loving countries ..."\textsuperscript{86} China was concerned that any focus on CTB or NTB as critical to disarmament would place too much responsibility for the arms race on itself. The Chinese have argued that a five-power agreement to halt the testing or production of nuclear weapons is not the first step to nuclear disarmament.

When China exploded its first nuclear bomb, it proclaimed:

when those who oppose them ["U.S. imperialists and their partners"] also have such weapons, ... the possibility of complete prohibition and thorough destruction of nuclear weapons will increase.\textsuperscript{86}

On that occasion, the Chinese Government proposed to the governments of the world that a summit conference of all the countries of the world be convened to discuss the question of the complete prohibition and thorough destruction of nuclear weapons. China pledged that it will, as always, exert every effort to promote, through international consultations, the realization of the lofty aim.

China is not a party to the Treaty on the Non-Proliferation of Nuclear Weapon (NPT) and continues to describe NPT as a discriminatory instrument of superpower hegemony to perpetuate US and Soviet nuclear dominance while preventing smaller states threatened by the superpowers from developing their own appropriate military responses. China has repeated that US-Soviet nuclear reductions are the key first step in a truly non-discriminatory global non-proliferation regime. However, China has begun to insist its own non-proliferation commitments in policy language in the recent
years\textsuperscript{87}, and joined the International Atomic Energy Agency (IAEA) in 1983/(Jan. 1984)\textsuperscript{88}. China is a party to Protocol II to the Treaty of Tlatelolco (1973/1974) which includes commitments to fully respect the aims and provisions of the Latin American nuclear-weapons free zone treaty; not to contribute to its violation, and not to use nuclear weapons against its Latin American parties. China endorsed also in 1987 the concept of a nuclear-free zone in the South Pacific under the Treaty of Rarotonga. As well known, France is the other declared nuclear weapons state that is not a signatory of the NPT. But France has taken the position that it will behave "as though it were a member". It would be worthwhile if China could also adopt this attitude. China’s unconditional no-first use pledge is a verbal commitment to non-proliferation insofar as it might reduce fears in smaller states of Chinese attack and therefore reduce the pressure for those states to acquire nuclear weapons. The strong self-interest that all other nuclear weapons states have recognized in avoiding the ultimate acts of proliferation, sometimes after reflecting upon cases in which they had already made moves in that direction, as did France with Israel and the Soviets with the Chinese, seems likely to be operative for China and make it unlikely that it will provide nuclear weapons or assistance to other non-nuclear weapon state.

The change in Beijing’s stance goes beyond rhetoric. It is hoped that China would participate more actively in the future global peaceful nuclear regime.

6. Prospects

The path China will take as a nuclear power in the future is unclear. It seems that China is carrying out R & D efforts on a number of nuclear weapon programs, keeping as many options as possible open for the future. Among these programs, one may find the following:

\textit{Neutron Bomb}
The reported explosive device of neutron bomb, which is to be confirmed, tends to belie Chinese assertions that China wants to have only a minimal yet credible nuclear force.\textsuperscript{85}

**MIRVing**

An updated version of the CSS-2 IRBM with MIRVed warheads may be operational shortly, a major change in force structure and one of the most significant Chinese nuclear weapon developments. MIRVed missiles would permit a rapid increase in the number of Chinese nuclear warheads without expanding the size of the missile force and would probably raise concerns of the other powers.

**Longer-range Missile**

At one stage it was thought that China's CSS-1 MRBM would either be produced in large numbers or be replaced by solid-fuel missiles. It now seems more likely, however, that China will put the majority of its efforts into the ICBM and IRBM programs and eventually remove the MRBM from service.

**Mobile Tactical Force**

Mobile tactical weapons, suitable for options short of resorting to the longer-range weapons, are now under development. The US Defense Intelligence Agency (DIA) has stated that atomic demolition munitions (ADMs) "may be used" by China.\textsuperscript{90} These nuclear land mines could be used on Chinese territory to create obstacles before an invading force. It is apparent that some Chinese military officials advocate building a force of distinctly tactical nuclear weapons for fear of the imagined deficiency of its strategic weapons and inadequacy of conventional forces.

**Nuclear Submarine**

China could have produced far more land-based missiles than has been the case but has chosen to limit the program for unstated reasons. Whatever the possibility, it
might not be for lack of nuclear materials, technology or interest in nuclear weapons. Presumably, China has simply chosen to invest its limited economic resources in the most survivable nuclear forces — submarines. It seems that China is concentrating on the survivability of its strategic nuclear forces, which may be both cheaper and more suitable to its retaliatory posture than trying to improve the accuracy or number of land-based missiles.

**Fuel Solidification**

It is well known that liquid fuels work quite well for land-based missiles, provided that there are procedures and facilities for safe storage, transfer and loading of fuel. But they are volatile and dangerous to handle under the best of circumstances. Liquid-fuelled missiles must be kept still in a vertical position when fuelled. They cannot be placed or transported in a horizontal position. It generally takes hours to prepare a liquid-fuelled missile for operation. The use of solid fuel for most land-based missiles, as has been the case of CSS-N-3 and M-9, would increase the mobility and survivability of the Chinese missiles.

The Sino-Soviet split (in 1960) and China’s subsequent realignment with the USA (beginning in the early 1970’s) have changed the entire nature of the East-West competition. However, China’s nuclear policy seemed not to be much affected by these changes.

Where once the USA feared a Chinese "threat", it came, until quite recently, to see China assuming a vital role of keeping a check on the Soviet military in the Far East. Even though there has been a Chinese-Soviet rapprochement, as evidenced by President Gorbachev’s visit to Beijing in May 1989, it is probable that many Chinese people still see the Soviet Union as a potential threat, for both historical and geopolitical reasons. Whether or not the grand strategic triangle will continue to exist
in an era of thawing US-USSR relations, China's significance as a nuclear-weapon nation will be more far-reaching in the international community, in the forthcoming century.

All Chinese tests have been conducted at the Lop Nur (Lop Nor) test base on the Qinghai Plateau at an average elevation of more than 3,200 meters (41.5° north, 89° east). The extensive site is in northwest China, about 900 miles southeast of the Soviet test site in Kazakhstan. Malan, which is called Atom City and does not appear on Chinese maps, is the headquarters for the Lop Nur test center.

Two years after the first nuclear explosion on Oct. 16, 1964, China succeeded in testing its first missile armed with a nuclear warhead. (The first test of a Chinese-made ballistic missile was conducted in the autumn of 1960.)\(^{10,12}\) In June 1967 China tested its first H-bomb, only 32 months since it became the fifth number of the "nuclear club", an interval less than the half that in the U.S., Soviet or French nuclear programs. A Chinese official truthfully boasted: "Our development of nuclear weapons is the fastest in the world".\(^{18}\)

China publicly discussed only a few of its atmospheric nuclear tests between 1964 and 1980, notably those successful tests that represented development milestones in the Chinese nuclear weapon program. Otherwise, the Chinese Government has the policy of neither confirming nor denying its nuclear explosions. However, nuclear tests can be detected in seismic recordings. Table 1 describes known Chinese nuclear tests since 1964 with comments. In 1986 several official Chinese publications stated that China had conducted 32 nuclear tests, 3 more than what had been listed by the then non-Chinese published compilations. These three tests, whose dates had previously been unknown, are marked with asterisks in table 1. There had been 34 known Chinese nuclear tests as of the end of 1988 (including 22 known atmospheric tests), representing less than 2% of the more than 1,800 known nuclear tests conducted by the acknowledged nuclear powers. About two thirds of the Chinese tests have been conducted in the months September through December.

Although China is not a signatory to the 1963 Partial Test Ban Treaty, China has conducted all of its tests underground since 1980. Premier Zhao Ziyang announced
on March 21, 1986 that China had renounced atmospheric testing. Thus far, about one third of Chinese tests have been carried out underground.

At least 7 tests have resulted in yields below 20 kt, perhaps an indication of an effort to develop tactical nuclear weapons. The nuclear test conducted on September 29, 1988 was estimated by foreign seismic experts to be a very-low-yield explosion. It has been suggested in the Western press to be a "miniaturized" enhanced-radiation or so-called neutron bomb design. If this turns out to be true it would confirm the existence of Chinese effort to develop distinctly tactical nuclear weapons that could be used, for example, against adversary armor and troop formations. This would mark a considerable departure from the visible thrust of Chinese nuclear weapon programs, which have previously concentrated on relative long-range weapon delivery systems (above 1,000 km) that would be targeted on foreign territory, most likely against cities.

China tests its missiles from Shuangchengzi in Gansu Province, the Wuzhai rangehead in Shanxi Province, and Jinx on the Bohai Gulf in Liaoning Province. Impact area included the East China Sea and the Pacific Ocean, as far south as the Gilbert Islands.
Appendix 2: The Nuclear Weapons Infrastructure of China\(^{67, a}\)

<table>
<thead>
<tr>
<th>Arsenals &amp; Bases(^{5})</th>
<th>Warhead Production(^{4})</th>
<th>Research &amp; Testing(^{3})</th>
<th>Early Surveillance(^{6})</th>
<th>Communications(^{5})</th>
<th>Planning &amp; Control(^{6})</th>
<th>Civil Defence</th>
<th>(\Sigma)</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>16</td>
<td>16</td>
<td>n. a.(^{j})</td>
<td>17</td>
<td>8</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

(n. a: not available)

\(^{a}\) All the Chinese nuclear weapons infrastructures are domestic. Data as of 1985.

\(^{b}\) C\(^{3}\)I: Command, control, communications and intelligence. Pronounced as "see-cubed-eye).

\(^{c}\) The arsenals (the missiles, ships, aircraft, guns, and warheads) and the bases involved in training, maintenance, storage, and supply of nuclear forces.

\(^{d}\) The production complex manufacturing and designing nuclear warheads and radioactive materials.

\(^{e}\) The research, development and testing complex comprised of laboratories and test facilities.

\(^{f}\) The early-warning and "attack-assessment" complex of radars and processing stations which detect and describe attacks.

\(^{g}\) The surveillance system, particularly as a part of ocean surveillance and monitoring foreign nuclear tests, collects information related to nuclear weapons. A growing complex of satellite tracking and control stations also supports the nuclear arsenals.

\(^{h}\) The communication system links all of these activities.

\(^{i}\) The planning and command structure controls the nuclear battlefields.

\(^{j}\) Early warning radar has been developed since 1985. See the section Air Defences of this report.
<table>
<thead>
<tr>
<th>Location</th>
<th>Organization and Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antu</td>
<td>satellite tracking station</td>
</tr>
<tr>
<td>Baotou (Paotow)</td>
<td>production plant for nuclear weapons material • missile production and flight test center</td>
</tr>
<tr>
<td>Beijing</td>
<td>HQ, PLA: command and control of entire military and nuclear forces, commands include the 2nd Artillery, responsible for nuclear weapons (the name of the 2nd Artillery was changed in 1984) • Ballistic Missile Technology Institute • Aerodynamics Research Institute: operates wind tunnel facilities similar to NASA’s Langley Research Center</td>
</tr>
<tr>
<td>Bohai Gulf</td>
<td>SLEM test launch site south of Huludao</td>
</tr>
<tr>
<td>Changchun</td>
<td>satellite tracking station • laser research and development center supporting defense/space programs</td>
</tr>
<tr>
<td>Changde</td>
<td>VLF transmitter with worldwide communications coverage</td>
</tr>
<tr>
<td>Changxing</td>
<td>missile test center and launch site for IRBM and SLEM test range</td>
</tr>
<tr>
<td>Chengdu</td>
<td>missile component factory • satellite tracking station</td>
</tr>
<tr>
<td>Chongqing</td>
<td>new space launch center, used for geosynchronous orbit satellite launches</td>
</tr>
<tr>
<td>Dalian</td>
<td>(see Lüda)</td>
</tr>
<tr>
<td>Datong</td>
<td>VLF transmitter with regional communications coverage to naval forces</td>
</tr>
<tr>
<td>Fuzhou</td>
<td>VLF transmitter with regional communications coverage to naval forces • satellite tracking station</td>
</tr>
<tr>
<td>Guangzhou</td>
<td>naval base and submarine construction yard</td>
</tr>
<tr>
<td>Haikou, Hainan Island</td>
<td>HQ, 2nd Submarine Flotilla, South Sea Fleet</td>
</tr>
<tr>
<td>Hainan Island</td>
<td>missile test center and launch site for IRBM test range</td>
</tr>
<tr>
<td>Haiyan (Koko Nor)</td>
<td>Haiyan Nuclear Plant: nuclear weapons development and assembly center</td>
</tr>
<tr>
<td>Harbin</td>
<td>bomber production plant • Heilongjiang Laser Infrared Experimental Center: supports defense/space programs</td>
</tr>
<tr>
<td>Hohhot</td>
<td>hardened underground central government shelter • airfield with underground control facilities • missile fuel factory</td>
</tr>
<tr>
<td>Hong Yuan</td>
<td>uranium enrichment plant for nuclear weapons material production</td>
</tr>
<tr>
<td>Huludao</td>
<td>North Sea Fleet naval base • Han-Class attack submarine and Xia-Class missile submarine construction yard • submarine-launched ballistic missile (SLBM) test-launch center</td>
</tr>
<tr>
<td>Jiangnan</td>
<td>shipyard constructing Romeo-Class attack submarines</td>
</tr>
</tbody>
</table>

25
<table>
<thead>
<tr>
<th>Location</th>
<th>Organization and Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jinxi</td>
<td>Jinxi Missile Test and Development Center: main military test, development, and launch</td>
</tr>
<tr>
<td></td>
<td>center for SLRMs and ICBMs • 2nd Artillery Corps command training center and college:</td>
</tr>
<tr>
<td></td>
<td>missile and nuclear weapons training</td>
</tr>
<tr>
<td>Jingyu</td>
<td>missile test-launch center</td>
</tr>
<tr>
<td>Jiuquan</td>
<td>uranium mine and processing plant producing enriched uranium</td>
</tr>
<tr>
<td>Jiuzhan</td>
<td>uranium mine used for nuclear weapons material production</td>
</tr>
<tr>
<td>Kashi</td>
<td>satellite tracking station</td>
</tr>
<tr>
<td>Koko Nor</td>
<td>(see Haiyan)</td>
</tr>
<tr>
<td>Kunming</td>
<td>astrophysics research center supporting defense/space programs</td>
</tr>
<tr>
<td>Lanzhou (Lanchow)</td>
<td>Lanzhou Gaseous Diffusion Plant: uranium enrichment, major nuclear weapon material</td>
</tr>
<tr>
<td></td>
<td>production facility (15 miles north of Lanzhou) • ordnance factory: produces missile and</td>
</tr>
<tr>
<td></td>
<td>warhead components</td>
</tr>
<tr>
<td>Lhasa</td>
<td>satellite tracking station</td>
</tr>
<tr>
<td>Lop Nur (Lop Nor)</td>
<td>only Chinese nuclear weapons test site • terminus of missile flight tests from Shuangchengzi</td>
</tr>
<tr>
<td>Lüda (Dalian)</td>
<td>Hongqi Shipyard: homeport and construction site of Golf-Class missile test submarine (SSB)</td>
</tr>
<tr>
<td></td>
<td>• North Sea Fleet naval base</td>
</tr>
<tr>
<td>Lüshun</td>
<td>North Sea Fleet naval base and submarine school • VLF transmitter with regional</td>
</tr>
<tr>
<td></td>
<td>communications coverage to naval forces</td>
</tr>
<tr>
<td>Maashan</td>
<td>uranium mine used for nuclear weapons material production</td>
</tr>
<tr>
<td>Nagqu</td>
<td>CSS-1 and CSS-2 missile base and test center (300 kilometer north of Lhasa)</td>
</tr>
<tr>
<td>Nanjing</td>
<td>satellite tracking station</td>
</tr>
<tr>
<td>Nanning</td>
<td>satellite tracking station</td>
</tr>
<tr>
<td>Nanyang</td>
<td>uranium mine used for nuclear weapons material production</td>
</tr>
<tr>
<td>Ningbo</td>
<td>VLF transmitter with regional communications coverage to naval forces</td>
</tr>
<tr>
<td>Qingdao</td>
<td>HQ, North Sea Fleet • 1st Submarine Flotilla: most likely future Xia-Class strategic</td>
</tr>
<tr>
<td></td>
<td>submarine base • submarine school</td>
</tr>
<tr>
<td>Shanghai</td>
<td>HQ, East Sea Fleet • naval base • ship and submarine construction yard for Romeo-Class</td>
</tr>
<tr>
<td></td>
<td>attack submarines • missile factory • fuel factory • Institute of Technical Physics: supports</td>
</tr>
<tr>
<td></td>
<td>defense/space programs • laser research and development center • space tracking station</td>
</tr>
<tr>
<td>Shenyang</td>
<td>aircraft factory producing H-6 (Tu-16) bomber • missile assembly plant • fuel factory</td>
</tr>
<tr>
<td>Location</td>
<td>Organization and Activity</td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Shuangchengzi (Shuang</td>
<td>Shuangchengzi Launch Complex: primary space/defense missile test launch and satellite launch center (satellite launch complex and 2nd Artillery missile launch facility located on opposite sides of Rao Shui river)</td>
</tr>
<tr>
<td>Ch‘eng Tso)</td>
<td></td>
</tr>
<tr>
<td>Taklimakan desert</td>
<td>MRBM/IRBM missile impact point from northwest Manchuria launch site</td>
</tr>
<tr>
<td>Taiyuan</td>
<td>missile component factory • missile fuel factory</td>
</tr>
<tr>
<td>Tianjin</td>
<td>satellite tracking station</td>
</tr>
<tr>
<td>Urumchi</td>
<td>uranium enrichment/fabrication plant for nuclear weapon material production • satellite tracking station</td>
</tr>
<tr>
<td>Weinan</td>
<td>Weinan Center for Space Tracking, Telemetry and Control: central space tracking facility, controls a seven-station network</td>
</tr>
<tr>
<td>Wuzhai</td>
<td>MRBM missile test center and range, also used for SLBM testing and development from 1975-78</td>
</tr>
<tr>
<td>Wuzhang</td>
<td>shipyard building Romeo-Class diesel attack submarines</td>
</tr>
<tr>
<td>Xia Chuan</td>
<td>uranium mine used for nuclear weapons material production</td>
</tr>
<tr>
<td>Xian (Sian)</td>
<td>missile assembly plant • fuel factory • space tracking station</td>
</tr>
<tr>
<td>Xiangxiang</td>
<td>missile fuel factory</td>
</tr>
<tr>
<td>Xingyang</td>
<td>missile test tracking facility</td>
</tr>
<tr>
<td>Xisha, Paracel Islands</td>
<td>satellite tracking station</td>
</tr>
<tr>
<td>Yaxian</td>
<td>VLF transmitter with regional communications coverage to naval forces</td>
</tr>
<tr>
<td>Yulin, Hainan Island</td>
<td>HQ, 3rd Submarine Flotilla: possible future SSBN base • submarine school</td>
</tr>
<tr>
<td>Yumen</td>
<td>nuclear materials production facility</td>
</tr>
<tr>
<td>Zhanjiang</td>
<td>HQ, South Sea Fleet • VLF transmitter with regional communications coverage to naval forces</td>
</tr>
<tr>
<td>Zhaosu</td>
<td>satellite tracking station</td>
</tr>
</tbody>
</table>

(Note: names in parentheses indicate Wade-Giles spelling)

Appendix 3: United Nations 41/59F Resolution

The General Assembly,

Reaffirming the determination to save succeeding generations from the scourge of war expressed in the Preamble to the Charter of the United Nations,

Convinced that the most acute and urgent task of the present day is to remove the threat of a world war — a nuclear war,

Recalling and reaffirming the statements and provisions on nuclear disarmament set forth in the Final Document of the Tenth Special Session of the General Assembly, and in particular, the provisions that "effective measures of nuclear disarmament and the prevention of nuclear war have the highest priority", contained in paragraph 20, and that "In the task of achieving the goals of nuclear disarmament, all the nuclear-weapon States, in particular those among them which possess the most important nuclear arsenals, bear a special responsibilities", contained in paragraph 48,

Bearing in mind that the ultimate goal of nuclear disarmament is the complete elimination of nuclear weapons,

Noting that the leaders of the Union of Soviet Socialist Republics and the United States of America agreed in their joint statement issued at Geneva on 21 November 1985 that "a nuclear war cannot be won and must never be fought" and the common desire they expressed in the same statement calling for early progress in areas where there is common ground, including the principle of 50 percent reductions in the nuclear arms of the Soviet Union and the United States appropriately applied,

Also noting that the Union of Soviet Socialist Republics and the United States of America have held further bilateral negotiations on various issues of disarmament,

Further noting that the Conference on Disarmament has not played its due role in the field of nuclear disarmament,

Bearing in mind that the Governments and peoples of various countries expect that the Union of Soviet Socialist Republics and the United States of America will
reach agreement on halting the nuclear-arms race and reducing nuclear weapons, so as to start the process of nuclear disarmament,

1. Expresses its deep concern that negotiations on nuclear disarmament should yield concrete results at the earliest possible time;

2. Urges the Union of Soviet Socialist Republics and the United States of America, which possess the most important nuclear arsenals, to discharge their special responsibility for nuclear disarmament, to take the lead in halting the nuclear-arms race and to negotiate in earnest with a view to reaching early agreement on the drastic reduction of their nuclear weapons;

3. Reiterates its belief that bilateral and multilateral efforts for nuclear disarmament should complement and facilitate each other;

4. Decides to include in the provisional agenda of its forty-second session an item entitled "Nuclear disarmament".
Notes and References

Dingli Shen, research associate at the Center for Energy and Environmental Studies (CEES) of Princeton University, is on leave from the Center for American Studies of Fudan University, Shanghai, P. R. China.

This research is under the joint auspices of CEES and CIRSPRC, Committee on International Relations Studies with the People's Republic of China, an organization associated with Institute of International Education (IIE) which is based in New York. The author is grateful to Prof. Xide Xie, Prof. Yimin Lu, Prof. Frank von Hippel, Prof. Robert H. Socolow, Dr. John Watt and Ms. Frances J. Bassett, and many others, for their efforts to render this visit possible.

This survey is based on published sources, of which the most important may be “Chinese nuclear weapons: an overview” by Richard W. Fieldhouse (SIPRI Yearbook 1986). The author is greatly indebted to Prof. Frank von Hippel and Prof. Hal A. Pevsner, for their providing sources and critical reading throughout the writing of this report. Much help from other colleagues of this Center is deeply appreciated.

Chinese nuclear industry, including nuclear power stations currently under construction, along with Chinese space technology, could have been parts of this report. Such subjects may be incorporated in future drafts.


2. McGeorge Bundy has the opinion that (China is) a nuclear-weapon state of roughly the same strength and standing as Britain and France, expressed in his book, Danger and Survival, Choices About the Bomb in the First Fifty Years (Random House: New York, 1988), p. 535. Gerald Segal considered also that, by most measures, China is the World's third largest nuclear weapons power. See his paper "Nuclear Forces", in Gerald Segal and William T. Tow eds., Chinese Defence Policy (Univ. of Illinois Press: Urbana and Chicago, 1984), p. 99.


5. See note 1, pp. 246-250.


9. The Soviet "tore up the agreement" to stop providing "a sample of an atomic bomb" on June 20, 1959, by the Chinese account. See note 3, p. 528.


Dingli Shen

The Current Status of Chinese Nuclear Forces and Nuclear Policies

21. See note 1, pp. 244-245.


29. See note 16, p. 104.


31. See note 24, p. 44.

32. See note 25, p. 20.


36. See note 16, p. 106.

37. See note 10, p. 145.

39. See note 10, p. 146.


43. See note 33, p. 56.


47. See note 30, p. 34.


52. See note 25, p. 34.
53. See note 33, p. 50.
55. See note 35, p. 1114.
56. See note 30, p. 36.
57. See note 35, pp. 112, 1016.
58. See note 11, p. 109.
59. This is employed in both shipborne and coastal defence role. Its service designation is YJ-6 (Ying Ji = Eagle Strike).
60. In 1980 the Chinese Government founded six companies to be the export and import arms of the key Chinese military-related ministries and industries. The six firms are CATIC (China National Aero-Technology Import and Export Corp.), NORINCO (China North Industries Corp.), CPMIEC (China Precision Machinery Import and Export Corp.), CSSC (China State Shipbuilding Corp.), CEIEC (China National Electronics Import and Export Corp.) and CNEIC (China Nuclear Energy Industry Group). These firms are grouped under the corporate management of the China Xinshidai (New Era) Co. See Defence News, 17 Nov. 1986, pp. 21-22.
65. See note 40, p. 36, also, note 11, p. 117.

67. See note 33, pp. 66, 290-291.

68. See note 35, pp. 37, 217.

69. China's newest fighter is F-8II, a high-altitude (ceiling: 20,000 m), high-speed interceptor in service in limited numbers along the Soviet border. See note 29, p. 197; See also, "An Outline of Chinese Naval Air Force", People's Daily (Overseas Edition), 9 Oct. 1989, p. 4; and, "Shenyang Focuses on Commercial Projects as Military Aircraft Requirements Shrink", Aviation Week & Space Technology, 11 Dec. 1989, pp. 70-75. F-7M Airguard, with a top speed of Mach 2.05, is the most advanced fighter within the Chinese F-7 series, including all the successful upgrading of the other F-7 fighters and adopting seven items of foreign avionics. See, "A Visit to the Chief Designer of China's Airplanes", People's Daily (Overseas Edition), 12 Dec. 1989, p. 2.

70. See note 25, p. 158.

71. See note 38, p. 12.


88. But Beijing did not accept provisions for the inspection of all Chinese nuclear facilities by outside observers, and, it is still unsettled that China would accept IAEA inspection to ensure its imports of nuclear technology are not diverted from civilian to military programs.


90. See note 44, pp. 3-15.
### Table 1: Known Chinese Nuclear Tests, 1964-1988

<table>
<thead>
<tr>
<th>Date</th>
<th>Time (GMT)</th>
<th>Yield</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/16/64</td>
<td>07:00:00.0</td>
<td>20 kt</td>
<td>First nuclear test. Tower (120 m)/A. Fission, U^{235}.</td>
</tr>
<tr>
<td>05/14/65</td>
<td>02:00:00.0</td>
<td>20-40 kt</td>
<td>Air dropped (Tu-16/Hong-6 bomber)/A. Weaponized version of 1st fission device; U^{235}. The U.S. State Department announced that the yield was &quot;somewhat higher than the 1st test.&quot;</td>
</tr>
<tr>
<td>05/09/66</td>
<td>08:00:00.0</td>
<td>~200 kt</td>
<td>Air dropped (Hong-6 bomber)/A. Fission, U^{235}. Thermonuclear material (L^6) was present, presumably indicating that the test was part of a thermonuclear weapon program. The U.S. State Department said the yield was in the lower end of the intermediate range.</td>
</tr>
<tr>
<td>10/27/66</td>
<td>01:10:00.0</td>
<td>20~25 kt</td>
<td>1st test of armed missile/A. 2nd Artillery Corps soldiers at Shuangchengzi, near Jiuquan, launched a CSS-1/DF-2 medium ballistic missile (Soviet type SS4 over 400 miles), with a U^{235} fission warhead 800 km west to Xinjiang. AEC announced test as in low to low-intermediate range.</td>
</tr>
<tr>
<td>12/28/66</td>
<td>04:00:00.0</td>
<td>300+ kt</td>
<td>Tower/A. The fission device used U^{235}. More thermonuclear material, probably L^6, was involved.</td>
</tr>
<tr>
<td>06/17/67</td>
<td>00:19:07.9</td>
<td>3 mt</td>
<td>Air dropped (Hong-6 bomber)/A. 1st successful thermonuclear detonation, fission-fusion-fission type using U^{235}, U^{238}, heavy hydrogen, L^6. 32 months after the 1st atomic test.</td>
</tr>
<tr>
<td>12/24/67</td>
<td>04:00:00.0</td>
<td>15-25 kt</td>
<td>Air dropped (Hong-6 bomber)/A. U^{235} and U^{238} plus L^6. Only one fission cycle was completed: probably an unsuccessful test of a thermonuclear device. 1st test not be announced by China.</td>
</tr>
<tr>
<td>12/27/68</td>
<td>07:30:00.0</td>
<td>3 mt</td>
<td>Air dropped (Hong-6 bomber)/A. Thermonuclear devices using U^{235} with lithium plus some plutonium.</td>
</tr>
<tr>
<td>09/22/69</td>
<td>16:15:00.0</td>
<td>25 kt</td>
<td>UG. 1st Chinese underground test. AEC announced yield as low-intermediate. Fission.</td>
</tr>
<tr>
<td>09/29/69</td>
<td>08:40:26.0</td>
<td>3 mt</td>
<td>Air dropped (Hong-6 bomber)/A. Announced by China on October 4, 1969. Thermonuclear warhead suitable for ICBM.</td>
</tr>
</tbody>
</table>
Table 1 (continued)

<table>
<thead>
<tr>
<th>Date</th>
<th>Time (GMT)</th>
<th>Yield</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. 10/14/70 07:29:58.9</td>
<td>3 mt</td>
<td>Air dropped (Hong-6 bomber)/A. Thermonuclear. Statement by Zhou Enlai in an interview with Edgar Snow (March 27, 1971, New Republic) is the only official Chinese confirmation.</td>
<td></td>
</tr>
<tr>
<td>12. 11/18/71 06:00:00.0</td>
<td>20 kt</td>
<td>Tower/A. Fission, possibly containing Pu.</td>
<td></td>
</tr>
<tr>
<td>13. 01/01/72 07:00:00.0</td>
<td>&lt;20 kt</td>
<td>Air dropped (Hong-6 bomber)/A. Fission, possibly containing Pu. 1st test believed to be under 20 kt. Apparently a partial failure.</td>
<td></td>
</tr>
<tr>
<td>14. 03/18/72 06:00:00.0</td>
<td>20-200 kt (possibly closer to 200 kt)</td>
<td>Air dropped (Hong-6 bomber)/A. Possibly a trigger device, containing Pu, for a thermonuclear warhead. Apparently a partial failure.</td>
<td></td>
</tr>
<tr>
<td>15. 06/27/73 03:59:51.0</td>
<td>2-3 mt</td>
<td>Air dropped (Hong-6 bomber)/A. Thermonuclear.</td>
<td></td>
</tr>
<tr>
<td>16. 06/17/74 05:59:49.0</td>
<td>200 kt-1 mt (probably near 1 mt)</td>
<td>A. Thermonuclear.</td>
<td></td>
</tr>
<tr>
<td>17. 10/26/75 00:59:59.0</td>
<td>&lt;20 kt</td>
<td>UG. Fission. The yield may have been as low as 2-5 kt.</td>
<td></td>
</tr>
<tr>
<td>18. 01/23/76 06:00:00.0</td>
<td>&lt;20 kt</td>
<td>A. Fission. The yield may have been as low as 2 kt.</td>
<td></td>
</tr>
<tr>
<td>19. 09/26/76 06:00:00.0</td>
<td>20-200 kt</td>
<td>A. Fission; partial failure of fusion. &quot;Special weapon&quot;.</td>
<td></td>
</tr>
<tr>
<td>20. 10/17/76 05:00:03.8</td>
<td>10-20 kt</td>
<td>UG. Fission.</td>
<td></td>
</tr>
<tr>
<td>21. 11/17/76 06:00:17.6</td>
<td>~4 mt</td>
<td>Air dropped (Hong-6 bomber)/A. Thermonuclear. Largest Chinese test to the end of 1985.</td>
<td></td>
</tr>
<tr>
<td>22. 09/17/77 07:00:00.0</td>
<td>&lt;20 kt</td>
<td>A. Fission.</td>
<td></td>
</tr>
<tr>
<td>23. 03/15/78 05:00:00.0</td>
<td>&lt;20 kt</td>
<td>A. Fission. Perhaps as low as 6 kt.</td>
<td></td>
</tr>
<tr>
<td>24. 10/14/78 10:00:00.0</td>
<td>5-50 kt</td>
<td>UG. Fission.</td>
<td></td>
</tr>
<tr>
<td>25. 12/14/78 ?</td>
<td>&lt;20 kt</td>
<td>A. Fission.</td>
<td></td>
</tr>
<tr>
<td>26. 09/13/79 ?</td>
<td>?</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>27. 10/16/80 04:40:28.9</td>
<td>200 kt-1 mt</td>
<td>A. Last atmospheric test conducted by any nuclear power.</td>
<td></td>
</tr>
<tr>
<td>28. 10/05/82 ?</td>
<td>?</td>
<td>UG</td>
<td></td>
</tr>
<tr>
<td>29. 05/04/83 ?</td>
<td>?</td>
<td>UG</td>
<td></td>
</tr>
<tr>
<td>30. 10/06/83 10:00:02.8</td>
<td>20-100 kt</td>
<td>UG</td>
<td></td>
</tr>
<tr>
<td>31. 10/03/84 ?</td>
<td>15-70 kt</td>
<td>UG</td>
<td></td>
</tr>
<tr>
<td>32. 12/19/84 ?</td>
<td>5-50 kt</td>
<td>UG</td>
<td></td>
</tr>
</tbody>
</table>
Table 1 (continued)

<table>
<thead>
<tr>
<th>Date (mm/dd/yy)</th>
<th>Time (GMT)</th>
<th>Yield</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>33. 06/05/87(^{24})</td>
<td>04:59:58.4</td>
<td>~150 kt</td>
<td>UG</td>
</tr>
<tr>
<td>34. 09/29/88(^{25})</td>
<td>06:59:57.0</td>
<td>very low</td>
<td>Reported as to test a neutron device, but has not been confirmed by the Chinese authorities.(^{26}) Similar in size to the explosion of 12/19/84, with yield below 1 kt and well below 5 kt.</td>
</tr>
</tbody>
</table>


\(^{a}\) There is a discrepancy about the bomb carrier of this test:
\(^*\) Tu-16 Badger/Hong-6 bomber, see note 21, p. 244.
\(^*\) Tu-4 Bull/Hong-4 bomber, see note 20, p. 102 and note 22, p. 36.

\(^{b}\) R. W. Fieldhouse cited the following from note 23:
"... the warhead detonated 1,750 km downrange at Lop Nur ...". See note 16, p. 106.

\(^{c}\) Discrepancy about the test date:
\(^*\) September 22, 1969, see note 6, p. 57, note 19, p. 48, note 20, p. 102 and note 22, p. 36.
\(^*\) September 23, 1969, see note 21, p. 244.

\(^{d}\) Discrepancy about the test date:
\(^*\) January 1, 1972, see note 19, p. 48.
\(^*\) January 7, 1972, see note 20, p. 102, note 21, p. 245 and note 22, p. 37.

\(^{e}\) Discrepancy about the test date:
\(^*\) June 26, 1973, see note 20, p. 102.
\(^*\) June 27, 1973, see note 19, p. 48, and note 16, p. 245.

\(^{f}\) Discrepancy about the test date:
\(^*\) October 26, 1975, see note 19, p. 48, and note 20, p. 102.
\(^*\) October 27, 1975, see note 21, p. 245.

\(^{g}\) As stated in note 21, p. 245. But SIPRI Yearbook 1986 claimed that the warhead was carried by missile, see note 16, p. 102. Chong-Pin Lin considered it was delivered with a limited-range ICBM launcher. See note 10, p. 146.
### Table 2: Chinese Strategic Nuclear Forces, 1989

<table>
<thead>
<tr>
<th>Weapon system</th>
<th>Type</th>
<th>No. deployed</th>
<th>Year deployed</th>
<th>Range (km)</th>
<th>Warhead × yield</th>
<th>No. in stockpile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aircraft</strong></td>
<td>H-5 (Il-28 Beagle)</td>
<td>15-30</td>
<td>1974</td>
<td>1,850</td>
<td>1 × bomb</td>
<td>15-30</td>
</tr>
<tr>
<td></td>
<td>H-6 (Tu-16 Badger)</td>
<td>100</td>
<td>1966</td>
<td>5,900</td>
<td>1-3 × bombs</td>
<td>100-130</td>
</tr>
<tr>
<td><strong>Land-based missiles</strong></td>
<td>DF-1 (CSS-1)</td>
<td>10-30</td>
<td>1966</td>
<td>650</td>
<td>1 × 2-10 kt</td>
<td>10-30</td>
</tr>
<tr>
<td></td>
<td>DF-2 (CSS-2)</td>
<td>30-50</td>
<td>1966</td>
<td>1,450</td>
<td>1 × 15-20 kt</td>
<td>30-50</td>
</tr>
<tr>
<td></td>
<td>DF-3 (CSS-3)</td>
<td>75-100</td>
<td>1970/1</td>
<td>2,600</td>
<td>1 × 1-3 mt (old)</td>
<td>75-100</td>
</tr>
<tr>
<td></td>
<td>DF-4 (CSS-4)</td>
<td>~10</td>
<td>1971</td>
<td>4,800-7,000</td>
<td>3 ? × 100 kt (new: MIRVed)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>DF-5 (CSS-5)</td>
<td>~10 (may be 8³)</td>
<td>1979/80</td>
<td>13,000</td>
<td>1 × 4-5 mt (payload: 1,400 kg)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>DF-6 (CSS-X-5)</td>
<td>~5</td>
<td>1984</td>
<td>19,000</td>
<td>10 ? ×</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DF-7 (CSS-6)</td>
<td>1+</td>
<td>1989</td>
<td>15,000</td>
<td>3 ? ×</td>
<td></td>
</tr>
<tr>
<td><strong>Submarine-based missiles</strong></td>
<td>JL-1 (CSS-N-3)</td>
<td>24</td>
<td>1983</td>
<td>3,300</td>
<td>1 × 200 kt-1 mt</td>
<td>26-38³</td>
</tr>
<tr>
<td></td>
<td>CSS-NX-4</td>
<td></td>
<td></td>
<td></td>
<td>? × 2 mt</td>
<td></td>
</tr>
</tbody>
</table>

DF: Dong Feng = East Wind, Chinese designation. JL: Ju Lang = Giant Wave, Chinese designation. CSS: Designation assigned by the US Pentagon, standing for Chinese Surface-to-Surface. MIRV: Multiple independently targetable re-entry vehicle.

---

* Here by "Strategic", it indicates those nuclear forces which are of strategic value, not necessarily satisfying the definition regarding the range of the missile.

b According to official Chinese reports, the PRC's 2nd Artillery Corps completed a series of tests on its strategic missiles' software in December 1985 which increased the range of its missiles.
All figures for those aircraft refer to nuclear-capable versions only. Hundreds of these aircraft are also deployed in non-nuclear versions. It is estimated that there are about 100 airfields in China that can accommodate these bombers, which are reported rotated randomly among them to complicate Soviet targeting.  

H-4 (Tu-4 Bull) bombers are no longer active.

Yields of bombs are estimated to range from below 20 kt to 3 mt.

These H-6s are deployed into three regiments. See, note 33.

Apparently the DF-1 is an earlier model of a short-range ballistic missile (SRBM) and may be no longer in service. Data from note 34. The first successful flight of DF-1 was conducted on November 5, 1960. See note 10.

In Jean’s Weapon System 1987-88, it is reported that DF-2 was operational since 1970.  

DF-2 was first tested in 1963. See note 10, p. 145.

Before 1989, the range of DF-2 is believed to be 1,100 km or 1,200 km.

The number of CSS-3 is also reported to be 30. See, note 11, p. 117.

Before 1989, it was believed that DF-4 had been deployed since 1978/9.

CSS-4 began to be developed in about 1970 (First inland test, 1971) Its 1st public appearance came with two test flights over the Pacific Ocean in May 1980. Chinese sources maintain that DF-5 became operational in 1984.

In May 1980, China launched into an impact area in the Pacific Ocean two test rockets for what is provisionally understood to be a new strategic ICBM weapon DF-5. The range figures quoted by different observers vary quite appreciably, some higher (up to 15,000 km) and some lower, and the impact area was within the area bounded by the Solomon Islands, Fiji and the Gilbert Islands. At least one DF-5 was tested on May 18, 1980.

DF-6 (CSS-X-5) ICBM is believed under development and will be deployed in 1990’s. See note 40. The "X" stands for experimental. Data from note 11, p. 112.

DF-7 (CSS-6) is the military version of the new CZ-4 three stage missile capable of launching a 1.5 tonne spacecraft into a sun synchronous orbit. Data from note 11, p. 112.

CSS-N-2 (the Chinese designation is probably SY-1, Shangyou Yihao), is a copy of Soviet Styx anti-ship missile. The coast defence version of the CSS-N-2 is called HY-2 (Hai Ying = Sea Eagle, "Silkworm"), while the naval surface-to-surface version is called FL-1 (Fei Lung = Flying Dragon).
Two missiles are presumably to be available for rapid deployment on the Golf Class submarine (SSB). Additional missiles are being built for new Xia Class submarines (SSBN). Xia Class is designated by the West and it is reported to be Daqingyu Class in China.

The updated Chinese missile warhead at sea is 39, see note 41.

The PRC Liberation Army Journal in late 1985 announced the "success" of a SLBM (submarine launched ballistic missile) underwater test-firing the previous September that may be well associated with this reported CSS-NX-4 program. The "N" stands for naval. CSS-N-4 may be deployed in 1990's.
Table 3: Characteristics of Chinese Strategic Nuclear Weapon Systems

<table>
<thead>
<tr>
<th>Weapon system</th>
<th>Length (m)</th>
<th>Diameter (m)</th>
<th>Weight (kg)</th>
<th>Propulsion</th>
<th>Basing*</th>
</tr>
</thead>
<tbody>
<tr>
<td>DF-2/CSS-1 MRBM</td>
<td>21</td>
<td>1.6</td>
<td>26,000</td>
<td>Liquid-fuelled single stage N204/UDMH engine.</td>
<td>North-eastern and north-western China. Soft sites. CSS-1 from their bases in Shanxi Province can strike Far Eastern Soviet targets.</td>
</tr>
<tr>
<td>DF-3/CSS-2 IRBM</td>
<td>20.62</td>
<td>2.46</td>
<td>27,000</td>
<td>Old ver. : 1 stage. (storable hypergolic liquid propellants) New ver. : 2 stages, liquid-fuelled MIRV.</td>
<td>Permanent sites from which targets in Central and Eastern Asia can be reached. Probably semi-hardened shelters.</td>
</tr>
<tr>
<td>DF-4/CSS-3 ICBM</td>
<td>26.77</td>
<td>2.43</td>
<td>n. a.</td>
<td>Two-stage liq. propulsion. Inertial guidance is assumed.</td>
<td>Silos in western China from where targets in European USSR would be accessible.</td>
</tr>
<tr>
<td>DF-5/CSS-4 ICBM</td>
<td>43.25</td>
<td>3.25</td>
<td>202,000</td>
<td>Three-stage liquid propulsion with inertial guidance is likely.</td>
<td>Two sites in hardened silos in central China (US reports).</td>
</tr>
<tr>
<td>JL-1/CSS-N-3 SLBM</td>
<td>c10</td>
<td>c1.5</td>
<td>13,800</td>
<td>Two-stage solid propellant.</td>
<td>Operational and deployed aboard &quot;Xia&quot;-class SSBN with 12 launch tubes in each of the two boats, may be modified to carry 16 tubes in the future.</td>
</tr>
</tbody>
</table>

(n. a.: not available)

* Chinese nuclear weapons, according to the judgement of most observers, "appear to be targeted almost exclusively on the Soviet Union."

b About 50 short range MRBM were in soft sites by at least the middle of 1970's. See note 42.

c Believed also as mobile system, deployed in underground silos as well as man-made caves. The U.S. DIA stated that the CSS-2 missile "is probably intended for relatively large population centers in central and eastern Russia."
Table 3 (continued)

<table>
<thead>
<tr>
<th>Weapon system</th>
<th>Comments</th>
</tr>
</thead>
</table>
| DF-2/CSS-1 MRBM | 1. This missile is similar to the Soviet SS-3 Shyster MRBM.  
2. It was the (experimental forerunner) missile used in 1966 in the 1st test of a ballistic missile armed with a nuclear warhead, China's 4th nuclear test.  
3. The production ended in 1969 at 100 missiles.  
4. It is probable that those recently deployed carry thermonuclear warhead. |
| DF-3/CSS-2 IRBM | 1. Payload usually described as 2,200 kg, accuracy estimated at a CEP of 2 km.  
2. The old version was native-designed. The US DIA estimated that CSS-2s have been produced at a rate of about 20 per year for the period 1977-81.  
3. First test was in December 1966. An updated version with MIRVs was undergoing flight tests since June 1986.  
4. Recent estimates suggest a capability for relocation of launch facilities without necessarily implying a mobile system. Other reports consider CSS-2 as mobile system. |
| DF-4/CSS-3 ICBM | 1. 1st multiple-stage missile. First test was in Jan. 1970.  
2. CZ-1/CZ-1C are Chinese designations for "Long March" series satellite launching rockets developed from the DF-4. |
| DF-5/CSS-4 ICBM | 1. Development of this missile was partly the countermeasure against the upgrading of the Moscow Anti-Ballistic Missile system.  
2. CZ-2/CZ-3 are Chinese designations for satellite launching versions, the former is a two-stage rocket, with a length of 32.57 m and satellite payload of 3,000 pound. |
| JL-1/CSS-N-3 SLBM | 1. To some extent, it was developed from DF-3 IRBM.  
2. Believed to be comparable in size and capacity to the early US POLARIS missile.  
3. Test firings were carried out on April 30, 1982 reportedly from a submerged pontoon near Huludao, and later on October 12, 1982. In 1985 it was estimated that the CSS-NX-3 system was nearing operational status. |

CEP : Circular Error Probable. DIA : (U.S.) Defense Intelligence Agency.  
MRBM : Medium-range ballistic missile. IRBM : Intermediate range ballistic missile.  
ICBM : Intercontinental ballistic missile. SLBM : Submarine launched ballistic missile.  
SSBN : Nuclear-powered ballistic missile submarine.
FIGURE 1: Long March 3 carrier rocket blasts off from Jiuquan in northwest China.

FIGURE 2: CSS-N-3 SLBM in a test launch from Xia Class SSBN underwater on 27 Sept. 1988. The missile flew about 1,400 km and impacted on a target area in the East China Sea (400 km South-east of Shanghai and 400 km north-west of Taiwan).