CHAPTER IV
STRATEGIC THREATS TO INDIA’S SECURITY FROM CHINA

China enjoys superiority both in conventional and nuclear weapons over India and keeping in view the geographic proximity and nature of somewhat ‘uneasy’ relationship between New Delhi and Beijing, particularly the unresolved border dispute, strategic threats to India’s security from china are serious. In order to comprehend the magnitude of these threats, it is essential to ascertain China’s nuclear weapon and missile capabilities and the consequential strategic implications for India. According to broad estimates, China had maintained an arsenal of about 400 warheads of two basic categories, some 250 ‘strategic’ weapons structured in a ‘triad’ of land-based missiles, bombers, and submarine-launched ballistic missiles and 150 ‘tactical’ weapons by the close of the 1990s. The emphasis of China's arsenal is predominantly on the land-based missile leg of the triad. Furthermore, China is thought to possess about 150 ‘tactical’ weapons, comprising some or all of the following: low yield bombs for tactical bombardment, artillery shells, atomic demolition munitions, and possibly short range missiles.
According to US defence organization, Pentagon’s 2008 report, China has now deployed approximately 176 warheads, plus an unknown number of stored warheads, for a total stockpile of about 240 warheads.¹

China’s nuclear forces are expected to be deployed at about 20 locations and are under the control of the Central Military Commission (CMC). While China is believed to have 250 strategic nuclear weapons, only about 20 of these are deployed on missiles capable of traveling intercontinental distances; 100 are deemed to be deployed on missiles and bombers with ranges from 1,800 to 4,750 kilometers. To date, China has neither officially acknowledged its possession of tactical nuclear weapons nor has it discussed the qualitative or quantitative state of its nuclear arsenal.²

Beijing possesses six types of operational land-based nuclear-capable ballistic missiles viz., the DF/5/5A, DF-4, DF-3A, DF-21/21X, the DF-15, and the DF-11. China has 40 DF-3 missile launchers deployed at Jianshui, Kunming, Yidu, Tonghua, Dengshahe and Lianxiwang. However, these are being replaced by the DF-21 at the Tonghua, Jianshui and Lianxiwang sites. The DF-4 is a longer range missile deployed at Da Qaidam, Delingha, Sundian, Tongdao, and Xiao Qaidam. The DF-5A, China's longest range
missile, is capable of striking targets throughout the continental United States. 18-26 of these DF-5A missiles are deployed in silos and caves at Luoning and Xuanhua. It is not currently known exactly where the DF-15 and DF-11 missiles are deployed. The new DF-31 has reportedly been deployed in southern China; there is no confirmation of this report. It is generally assumed that large numbers of ballistic missiles are deployed along the coastline in Fujian province in an effort to intimidate Taiwan.\(^3\)

China has only one type of operational submarine-launched ballistic missile (SLBM), the Julang-1 (JL-1). Twelve Julang-1 are deployed on China's single Xia-class ballistic missile nuclear submarine (SSBN). The warheads for the Julang-1 are reportedly stored at the Jianggezhuang Submarine Base. Beijing is seemingly developing a longer range SLBM known as the JL-2 which is the sea-based version of the DF-31. According to reports, China has yet to test the JL-2 from any submarines.

Having carried on its first nuclear test in 1964, China tested its first hydrogen weapon in 1967, embarked on series production of nuclear weapons in 1968 and initiated production of thermonuclear weapons in 1974. According to Robert Norris, China has tested and deployed following six nuclear warhead designs:
a. 20-40 kiloton (kT) fission gravity bomb  
b. 20 kT missile warhead  
c. 3+ megaton (MT) thermonuclear missile warhead  
d. 4-5 MT warhead for the DF-5 ICBM  
e. 3+ MT thermonuclear gravity bomb;  
f. 200-300 kT warhead possibly for the DF-31 and DF-41 and JL-2 SLBM.\(^4\)

According to reports emanating from Western sources, China may also possess low-yield fission warheads for tactical nuclear weapons. In July 1999, the Chinese government announced that in the early 1980s it had "mastered neutron bomb design technology,"\(^5\) but Beijing did not indicate whether it had actually produced or deployed any neutron bombs. This statement about the neutron bomb was the first time that China had publicly discussed any of its military nuclear programs. China reportedly tested an experimental 1-5 kT enhanced radiation (neutron) warhead in September 1988; this step would seem to validate the recent Chinese statement about having developed a neutron bomb. China likely developed the neutron bomb to protect against the possibility of a large Soviet invasion of the mainland during the height of the Cold War.

From the available sources, very little is known about China's chain of command for authority over nuclear weapons. It is believed that ultimate authority to use nuclear weapons rests with the Chairman of the Central Military Commission after top leaders have
reached a consensus. A decision to use nuclear weapons may also require a consensus decision within the Central Military Commission and other senior military leaders. China is believed to store most of its nuclear warheads and bombs separate from its delivery vehicles and the warheads and bombs are only mated with the missiles or aircraft during launch preparations. In this sense, China's nuclear forces are not on alert. Also, China may have central storage locations for its missile warheads and gravity bombs which are accessible by a number of missile and bomber bases.

**Size of Chinese Arsenal**

Actual size of the Chinese nuclear arsenal is shrouded in mystery. In late 1990s, only a few US government sources had discussed the size of China's nuclear arsenal. In the Pentagon's November 1997 report entitled, *Proliferation: Threat and Response*, the US Defense Department stated: "China has over 100 nuclear warheads deployed operationally on ballistic missiles while additional warheads are in storage." In addition, a classified CIA study reportedly stated that 13 of China's 18 DF-5A ICBMs were targeted at the United States while the remaining five were targeted at countries closer to China. Yet, this targeting strategy might have
changed after the US and China signed a "non-targeting agreement" in June 1998 in which each side promised not to target its missiles at the other.

With regard to future deployments of Chinese nuclear weapons, Robert Walpole, US National Intelligence Officer, in testimony before the Senate Subcommittee on International Security, Proliferation, and Federal Services, stated: "By 2015, China will likely have tens of missiles targeted against the United States, having added a few tens of more survivable land- and sea-based mobile missiles with smaller nuclear warheads."  

While endorsing this surmise, another analyst, Ming Zhang, wrote: "Ten years down the road. . . the Chinese nuclear arsenal. . . may grow from today's 20 ICBMs (with warhead yields in the megaton range) to perhaps 50 or 100 ICBMs with multiple warheads with yields in the kilotons."  

China’s current nuclear arsenal in terms of stockpile, delivery systems and deployments is shown in Table-1

Table-4.1

CHINA'S CURRENT NUCLEAR ARSENAL - STOCKPILE, DELIVERY SYSTEMS, AND DEPLOYMENTS
<table>
<thead>
<tr>
<th>System Name</th>
<th>Year</th>
<th>Range and Payload</th>
<th>Nuclear Delivery Capability</th>
<th>Number of Systems and Warheads Deployed</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>DF-3/3A [CSS-2]</td>
<td>1971</td>
<td>2850 km 2150 kg</td>
<td>Single nuclear warhead, 1-5 MT (3.3 MT)</td>
<td>40 missiles (one warhead per missile)</td>
<td>120-150 minute launch prep. time; road-mobile; reportedly deployed on 40 refire-capable launchers at six field garrisons and launch complexes; being phased out and replaced by DF-21/21A</td>
</tr>
<tr>
<td>DF-4 [CSS-3]</td>
<td>1980</td>
<td>4850-5500 km 2200 kg</td>
<td>Single nuclear warhead, 1-5 MT (3.3 MT)</td>
<td>20 missiles (one warhead per missile)</td>
<td>60-120 minute launch prep. time; also used as booster for CZ-1 SLV; cave-based and rolled out to launch; will likely be replaced by DF-31 missiles after 2010</td>
</tr>
<tr>
<td>DF-5/5A [CSS-4]</td>
<td>1981</td>
<td>13000+ km 3200 kg</td>
<td>Single nuclear warhead, 1-5 MT (4-5 MT)</td>
<td>18-26 single warhead missile (estimates vary)</td>
<td>30-60 minute launch prep. time; also used as booster for CZ-2, CZ-3, CZ-4 SLVs; deployed in silos at 3 locations; longer range Mod 2 to replace Mod 1 by 2005</td>
</tr>
<tr>
<td>DF-21/21A [CSS-5]</td>
<td>1988</td>
<td>1700-1800 km 600 kg</td>
<td>Single nuclear warhead, 200-300 kT</td>
<td>48 missiles (one warhead per missile)</td>
<td>10-15 minute launch prep. time; same missile as the JL-1 SLBM; deployed in areas close to China's borders; replacing DF-3 in some areas on converted DF-3 launchers; new model has greater range and accuracy through GPS and a</td>
</tr>
<tr>
<td><strong>Weapon System</strong></td>
<td><strong>Range</strong></td>
<td><strong>Warhead Weight</strong></td>
<td><strong>Missiles</strong></td>
<td><strong>Remarks</strong></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-----------</td>
<td>--------------------</td>
<td>--------------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>DF-15/ M-9 [CSS-6]</td>
<td>600 km</td>
<td>950 kg (500 kg)</td>
<td>300 missiles</td>
<td>30 minute launch prep. time; nuclear role for CSST-600 is as yet unproven; deployed along China's east coast to target Taiwan; M-9 version designed explicitly for export; enhancing accuracy with GPS technology</td>
<td></td>
</tr>
<tr>
<td>DF-11/M-11 [CSS-X-7]</td>
<td>280 km</td>
<td>800 kg</td>
<td>200 missiles</td>
<td>30-45 minute launch prep. time; M-11 version designed explicitly for export</td>
<td></td>
</tr>
<tr>
<td>JL-1 SLBM [CSS-N-3]</td>
<td>1986</td>
<td>2150 km</td>
<td>12 missiles on one Xia-class submarine</td>
<td>Same missile as the DF-21/21A</td>
<td></td>
</tr>
<tr>
<td>Hong-6 (H-6) bomber [B-6]</td>
<td>1965</td>
<td>3100 km</td>
<td>120 aircraft</td>
<td>Redesign of Soviet Tu-26 Badger</td>
<td></td>
</tr>
<tr>
<td>Qian-5A (Q-5A) attack aircraft [A-5A]</td>
<td>1970</td>
<td>400 km</td>
<td>30 aircraft</td>
<td>Redesign of Soviet MiG-19</td>
<td></td>
</tr>
<tr>
<td>Tactical warheads</td>
<td>mid-1970s</td>
<td>Low kT</td>
<td></td>
<td>150 warheads in storage</td>
<td></td>
</tr>
</tbody>
</table>

"DF" stands for "Dong Feng" ("East Wind")
"JL" stands for "Julang" ("Giant Wave")
"CSS" stands for "Chinese Surface-to-Surface"
"CSS-N" stands for "Chinese Surface-to-Surface Naval"
"CSST" stands for "Chinese Surface-to-Surface Tactical"
H stands for "Hong" (bomber)
Q stands for "Qian" (fighter/attack aircraft)
B designates bomber aircraft; A designates attack aircraft


It is revealed from Table-4.1 that Beijing has deployed 40 DF-3/3A missiles, also known as CSS-2 class missile, having a range of 2850 km and payload capacity of 2150 kg., since 1971. It is a road-mobile missile and each missile is capable of delivering a single nuclear warhead of 1-5MT. with the introduction of more sophisticated missiles, this class is being phased out. In 1980, China inducted 20 DF-4 class missiles, which are designated as CSS-3 class missiles by Western experts. Having a range of 4850-5500 km and a payload capacity of 2200kg each DF-4 missile is capable of delivering a single nuclear warhead of 1-5MT capacity. According to available indications, these missiles are likely to be replaced by more sophisticated DF-31 class missiles by 2010. It is further observed from Table-1 that in 1981, China deployed DF-5/5A class
missiles, designated as CSS-4 by the West, having a range of over 13,000 km and payload capacity of 3200 kg. Each missile is capable of carrying a single nuclear warhead of 1-5MT. Total number of DF-5/5A missiles deployed varies from 18 to 26, and these are deployed in silos at three strategic locations.

It becomes discernible from Table-4.1 that China has deployed about 48 DF-21/21A class missiles, designated as CSS-5, in areas close to its borders. Having a range of 1700-1800 km and a payload capacity of 600 kg, each missile is capable of delivering a single nuclear warhead of 200-300 kg. These missiles are reportedly deployed in areas close to China’s borders. Besides, China has also deployed 300 DF-15/M9, also known as CSS-6 class missiles along its east coast to cover Taiwan. These missiles have a range of 600 km, with a payload capacity of 950 kg. Each missile is capable of carrying a single nuclear warhead weighing between 50 to 350 KT. China has developed about 200 DF-11/M11 class missiles, also known as CSS-X-N missiles, having a range of 280 km and payload capacity of 800 kg. Each missile is capable of carrying a single nuclear warhead with 350 KT. This class of missiles is designed explicitly for exports purposes.
It also becomes evident from Table-4.1 that China has developed JL-1 class of Sea-Launched Ballistic Missiles (SLBMs), having a range of 2150 km and payload capacity of 600 kg. This class of missiles is capable of carrying single warhead weighing between 250 to 500 KT. Each Xia-class submarine is equipped with 12 JL-1 SLBMs. China has about 120 Hong-6 (H-6) class bomber aircraft, having a range of 3100 km and a payload capacity of 4500 kg. Each aircraft is capable of delivering one to three bombs of capacity ranging between 3 KT and 3 MT per bomb. China is reported to have 150 nuclear gravity bombs. It is further revealed from Table-1 that China is having 30 Qian-5A (Q-5A) class attack aircraft with a range of 400 km and a payload capacity of 1300 kg. Each aircraft is capable of delivering one nuclear bomb of capacity varying between 10 KT and 3 MT. China has a stockpile of 150 nuclear gravity bombs for its aircraft. Besides, China is also reportedly has 150 tactical nuclear warheads of low KT in its arsenal.

The stockpile of tactical nuclear weapons available with China is shown in Table-2 below:

**Table-4.2**
### CHINA’S ESTIMATED TACTICAL NUCLEAR WEAPONS STOCKPILE

<table>
<thead>
<tr>
<th>YEAR</th>
<th>TACTICAL NUCLEAR WEAPONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972</td>
<td>0</td>
</tr>
<tr>
<td>1975</td>
<td>5</td>
</tr>
<tr>
<td>1978</td>
<td>30</td>
</tr>
<tr>
<td>1981</td>
<td>75</td>
</tr>
<tr>
<td>1984</td>
<td>120</td>
</tr>
<tr>
<td>1987</td>
<td>135</td>
</tr>
<tr>
<td>1990</td>
<td>150</td>
</tr>
<tr>
<td>1993</td>
<td>150</td>
</tr>
</tbody>
</table>


It is revealed from Table-4.2 that by the mid-1970s, China had successfully embarked on its ambitious programme of manufacturing tactical nuclear weapons. In 1975 Beijing had 5 tactical nuclear weapons, which registered a six-fold increase in 1978 when the total number of such weapons stood at 30, as compared to 1975. The subsequent period witnessed phenomenal growth in China’s tactical nuclear weapons, in 1981 there were 75 such weapons available with China and by 1984 its number grew to 120 and by 1990 it had increased to 150 tactical nuclear weapons. Since then till 2007 China has maintained the same number of...
tactical nuclear weapons. The Chinese government has not, to date, officially confirmed its possession of tactical nuclear weapons.

**China's Ballistic Missiles**

China has six types of operational land based nuclear-capable ballistic missiles, the DF-3A, DF-4, DF-5/5A, DF-11, DF-15, and the DF-21/21X. China flight tested the DF-31 in August 1999, but it is unknown if it has been deployed. A longer range road mobile ballistic missile, the DF-41, is also being developed, but has not been flight tested. China has only one type of operational submarine launched ballistic missile (SLBM), the Julang-1. Twelve Julang-1 are deployed on China's single Xia-class ballistic missile nuclear submarine (SSBN). The warheads for the Julang-1 are believed to be stored at the Jianggezhuang Submarine Base. China is developing a longer range SLBM known as the JL-2 which is the sea-based version of the DF-31. The JL-2 has not yet been tested from any submarines.

**Chinese versus Western Missile Classification**

China defines specific ballistic missile types and ranges somewhat differently than other countries. The different views about China’s missile classification are shown in the following Table-3:
Table-4.3
Chinese versus Western Missile Classifications

<table>
<thead>
<tr>
<th>Ballistic Missile Category</th>
<th>China</th>
<th>US Department of Defense</th>
<th>International Institute for Strategic Studies (IISS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-range (SRBM)</td>
<td>Under 1,000 km</td>
<td>Under 1,100 km</td>
<td>Under 800 km</td>
</tr>
<tr>
<td>Medium-range (MRBM)</td>
<td>1,000 km</td>
<td>1,100 km</td>
<td>800 km</td>
</tr>
<tr>
<td></td>
<td>3,000 km</td>
<td>2,750 km</td>
<td>2,400 km</td>
</tr>
<tr>
<td>Intermediate-range (IRBM)</td>
<td>3,000 km</td>
<td>2,750 km</td>
<td>2,400 km</td>
</tr>
<tr>
<td></td>
<td>4,800 km</td>
<td>5,500 km</td>
<td>5,500 km</td>
</tr>
<tr>
<td>Long-range (LRBM)</td>
<td>3,000 km</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>8,000 km</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Intercontinental-range (ICBM)</td>
<td>Over 8,000 km</td>
<td>5,500 km</td>
<td>Over 5,500 km</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14,800 km</td>
<td></td>
</tr>
</tbody>
</table>

As can be seen from Table-4.3, China has traditionally defined ‘tactical’ missiles as those with ranges fewer than 1000 kilometers, whereas it considers ‘strategic’ missiles to be those with ranges over 1000 kilometers. In a 20 June 1991 press briefing, Chinese Foreign Ministry spokesman Wu Jianmin stated: "China's short-range missiles [are] those with a range of about 200 kilometers...On the range of missiles, there are different definitions in the international community. China hopes an international common understanding on this issue will be reached through consultations on an equal footing." In addition, various treaties and regimes offer definitions of missile types and ranges. For example, the Intermediate Nuclear
Forces (INF) Treaty includes missiles with ranges between 500-5,000 km, and defines missile categories as follows: "shorter-range" missile: 500-1,000 km; "intermediate-range" missile: 1,000-5,500 km.”\(^\text{12}\) The Strategic Arms Reduction treaties (START) contain the following definitions: “Intercontinental Ballistic Missile (ICBM): over 5,500 km; and Submarine-Launched Ballistic Missile: over 600 km.”\(^\text{13}\) The Missile Technology Control Regime (MTCR) covers missiles either capable of delivering a 500kg payload or intended delivery of a WMD payload (regardless of payload) to a range of 300 kilometres.\(^\text{14}\)

China has deployed its most of the missiles in areas bordering its neighbours and along the east coast. The possible targets of China’s currently deployed ballistic missiles are shown in Table-4.

\begin{table}[h]
\centering
\caption{Possible Targets of China’s Currently Deployed Ballistic Missiles}
\end{table}
<table>
<thead>
<tr>
<th>Missile Designation</th>
<th>Type</th>
<th>Possible Targets/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>DF-3/3A</td>
<td>Medium Range</td>
<td>Countries surrounding China, including Japan, India and possibly Southeast Asian countries</td>
</tr>
<tr>
<td>DF-4</td>
<td>Intermediate Range</td>
<td>Countries surrounding China, including Russia, Japan, Southeast Asian countries and Guam.</td>
</tr>
<tr>
<td>DF-5/5A</td>
<td>Intercontinental Range</td>
<td>All of Russia, the United States and Europe</td>
</tr>
<tr>
<td>DF-11</td>
<td>Short Range</td>
<td>Targets along China's border, including Taiwan.</td>
</tr>
<tr>
<td>DF-15</td>
<td>Short Range</td>
<td>Targets along China's border, including Taiwan. Used in missile exercises off the Taiwan coast in 1996.</td>
</tr>
<tr>
<td>DF-21</td>
<td>Medium Range</td>
<td>Countries surrounding China, including Japan and Southeast Asian countries</td>
</tr>
<tr>
<td>JL-1</td>
<td>Medium Range SLBM</td>
<td>Targets surrounding eastern China, including Japan and Southeast Asian countries when deployed in China’s home waters.</td>
</tr>
</tbody>
</table>


It is observed from Table-4.4 that DF-3/3A medium range ballistic missiles deployed by China in areas along neighbouring countries can target Japan, and India and possibly Southeast Asian countries. The DF-4, intermediate range ballistic missile (IRBM) can
possibly target Russia, Japan, Southeast Asian countries as well as Guam. DF-5/5A is also an IRBM capable of targeting whole of Russia, entire United States and Europe. It is further revealed from Table-5 that DF-11 class missile is a short range ballistic missile (SRBM) which is capable of targeting regions along China’s borders, including Taiwan. DF-15 class missile, a SRBM, entails the capability of targeting along China’s borders, including Taiwan. It is worth mentioning here that these missiles were used in the missile exercise off the Taiwan Coast in 1996. DF-21 class missile is Medium Range Ballistic Missile (MRBM) and it can target countries surrounding China, including Japan and Southeast Asian countries. It is also observed from Table-4 that JL-1 class missile is a medium range Sea-Launched Ballistic Missile (SLBM) and it is capable of targeting countries surrounding East China, including Japan, and Southeast Asian countries when deployed in China’s internal waters.

**Current Status of Chinese Nuclear Forces**

Current status of China’s nuclear forces including land-based missiles, submarine-Launched ballistic missiles (SLBMs), aircraft and short range tactical nuclear weapons is shown in Table-4.5.

**Table-4.5**

*Chinese Nuclear Forces, 2008*
<table>
<thead>
<tr>
<th>China Designation</th>
<th>U.S./NATO designation</th>
<th>Year deployed</th>
<th>Range (kilometers)</th>
<th>Warhead x yield</th>
<th>Missiles deployed</th>
<th>Warheads deployed</th>
</tr>
</thead>
<tbody>
<tr>
<td>DF-3A</td>
<td>CSS-2</td>
<td>1971</td>
<td>3,100a</td>
<td>1 x 3.3 Mt</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>DF-4</td>
<td>CSS-3</td>
<td>1980b</td>
<td>5,500</td>
<td>1 x 3.3 Mt</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>DF-5A</td>
<td>CSS-4 Mod 2</td>
<td>1981</td>
<td>13,000</td>
<td>1 x 4.5 Mt</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>DF-21A</td>
<td>CSS-5 Mod 1/2</td>
<td>1991</td>
<td>2,150</td>
<td>1 x 200-300 kt</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>DF-31</td>
<td>CSS-X-10</td>
<td>2008</td>
<td>7,250+</td>
<td>1 x 200-300?</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>DF-31A</td>
<td>n.a.</td>
<td>2008</td>
<td>11,270+</td>
<td>1 x 200-300?</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>93</td>
<td>93</td>
</tr>
<tr>
<td><strong>Land-based missiles</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Submarine-launched ballistic missiles (SLBMs)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JL-1</td>
<td>CSS-NX-3</td>
<td>1986</td>
<td>1,770+</td>
<td>1 x 200-300 kt</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>JL-2</td>
<td>CSS-NX-4</td>
<td>2008-2010?</td>
<td>8,000+d</td>
<td>1 x 200-300?</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12</td>
<td>12</td>
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<tr>
<td><strong>Total strategic ballistic missiles</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aircraft</strong>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>105</td>
<td>105</td>
</tr>
<tr>
<td>Hong-6</td>
<td>B-6</td>
<td>1965</td>
<td>3,100</td>
<td>1-3x bomb</td>
<td>100 DH-10</td>
<td>20</td>
</tr>
<tr>
<td>Attack</td>
<td>(Q-5, others?)</td>
<td></td>
<td></td>
<td>1 x bomb</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40</td>
<td></td>
</tr>
<tr>
<td><strong>Short-range tactical weapons</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DF-15e</td>
<td>CSS-6</td>
<td>1990</td>
<td>600</td>
<td>1 x low</td>
<td>~300</td>
<td>?</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>~145g</td>
<td></td>
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b The DF-4 may have become operational already in 1975. U.S. Central Intelligence Agency, PRC Defense Policy and Armed Forces, National Intelligence Estimate 13-76, November 11, 1976, p. 47.
c The U.S. intelligence community says that China might decide to deploy multiple warheads (up to three) on each DF-5A in an effort to overcome the U.S. missile defense system.
d The DIA stated in February 2006 that the range of the JL-2 is “8,000+ kilometer”. Lieutenant General Michael D. Maples, U.S. Army, Director, Defense Intelligence Agency, Current and Projected National Security Threats to the United States, statement for the record before the Senate Armed Services Committee, February 28, 2006, p. 11.
e Mainly used as a conventional missile. May have nuclear capability.
f The DOD says that one of China’s forthcoming land-attack cruise missiles may be nuclear.
g Additional warheads are believed to be in storage for a total stockpile of approximately 200 nuclear warheads. Extra fissile material is also in storage.


There is undoubtedly a fresh need to reassess previous estimates of China’s nuclear stockpile in view of the newly available information on the Chinese nuclear arsenal as revealed from the data furnished in Table-4.5. China is believed to be increasing its nuclear arsenal, boosting its numbers by roughly 25 percent since 2005, according to Pentagon estimates. Other significant nuclear-related events in China include the deployment of the long-predicted **Dong Feng** (DF)-31 and DF-31A nuclear-Capable ballistic missiles and the **Dong Hai** (DH)-10 nuclear-capable cruise missile.
The American defence organization Pentagon has been publishing an annual unclassified assessment of Chinese military power since 1997. Pentagon’s 2008 report concluded, “China has the most active ballistic missile program in the world.” Undoubtedly, the claim is not quantified, the report elaborated that China was developing and testing offensive missiles, forming additional missile units, qualitatively upgrading certain missile systems, and developing methods to counter ballistic missile defenses.

Taking these assessments into consideration, it is estimated that China now has just about 176 deployed warheads, in addition an unknown number of stored warheads, for a total stockpile of around 240 warheads. Over the coming decade, China is expected to deploy more warheads on new systems but also retire others as it phases out older systems; however, there continues to be substantial uncertainty about the composition of China’s future forces.

**Land-based Missiles**

The most important nuclear development of the between 2005 and 2008 in China has been its deployment of the new DF-31 and DF-31A missiles. China deploys a total of approximately 120 land-based, nuclear-capable ballistic missiles, including four other types:
the DF-3A, DF-4, DF-5A, and DF-21. Contrary to common speculation that Chinese ballistic missiles carry multiple warheads, the U.S. intelligence community has consistently assessed that they are single-warhead weapons.

The DF-31A is a solid-fueled, three-stage intercontinental ballistic missile (ICBM) launched from a road-mobile transporter-erector-launcher (TEL). Although it can fly beyond 11,200 kilometers (7,000 miles), the DF-31A has a shorter range—and a smaller payload—than China’s only other full-range ICBM, the DF-5A. China has deployed fewer than 10 DF-31As.

In the absence of authentic data, it is difficult to say whether the DF-31A has ever been flight-tested by since 1997, which may suggest that its development and certification were based on flight tests of its shorter-range parent missile, the DF-31. The number of DF-31As that China will eventually deploy is unknown, but the U.S. intelligence community projects that China will have 75–100 warheads targeted primarily against the United States by 2015—an estimate that hinges largely on several dozen DF-31As being deployed over the next seven years. The missile’s payload will most likely be a single warhead, along with decoys and penetration aids to confuse missile defense systems.
The first DF-31s have also reportedly become operational, with fewer than 10 missiles deployed. The solid-fueled, two-stage, road-mobile missile is carried on a six-axle TEL within a 15-meter canister. The DF-31 carries a single warhead and penetration aids; it is a long-range missile, but it cannot reach the continental United States. It is expected to replace the DF-3A and DF-4 as China’s main weapon for regional targeting.

China has deployed solid-fueled, road-mobile missiles for nearly two decades, starting with the first DF-21s in the late-1980s as it began to replace the DF-3A. Deployment of the medium-range DF-21 did not get under way in earnest until 1991, and significant increases in the number of DF-21s have occurred only very recently.

In 2005, the Pentagon estimated that China had 19–23 DF-21s for approximately 36 launchers. The 2008 Pentagon report lists ‘upwards of 50’ nuclear-capable DF-21s deployed for 60 launchers, a 148 percent increase in missiles over four years. The Pentagon estimates China’s total DF-21 inventory at 60–80 missiles, with the balance being conventionally armed anti-ship ballistic missiles “based on the CSS-5 (DF-21) airframe.” Some DF-21s may also have an anti-satellite mission, a capability demonstrated in 2007
when China destroyed one of its satellites with a DF-21-launched interceptor.

Display of photos of a new missile launcher similar to the one used for the DF-21 circulated on the internet in 2007, triggering rumors that China may have revived its abandoned DF-25 programme. Some even speculated that each missile might have as many as three nuclear warheads. The U.S. National Air and Space Intelligence Center (NASIC) declined to comment when we asked about the image, and the 2008 Pentagon report does not mention the DF-25 or any other new missile.

The DF-5 is China’s largest missile, capable of delivering a multi-megaton warhead further than 13,000 kilometers (8,100 miles). China has used the liquid-fueled, silo-based DF-5 to target the United States and Russia since 1981. A programme to upgrade the DF-5 to the DF-5A by increasing its range and payload has been ongoing since the 1980s. The ICBMs are thought to be deployed in silos at two locations, with their nuclear warheads stored separately nearby. If China decides to deploy multiple warheads on a portion of its ICBM force as a countermeasure to U.S. ballistic missile defenses, the DF-5A is a likely candidate that might use up to three lighter-weight warheads with penetration aids. It is unclear whether
China plans to keep the DF-5A in operation along with the DF-31A or will maintain only the newer DF-31A.

China also deploys about 17 two-stage, liquid-fueled DF-4 long-range missiles and roughly the same number of launchers. Probably intended for regional targets, the DF-4s are expected to be replaced by DF-31s.

The oldest missile in China’s inventory, the liquid-fueled, medium-range DF-3A, is slowly being retired after nearly four decades of service; about 17 missiles (and perhaps 10 launchers) remain operational. The Pentagon expects the DF-3A to be retired by 2010.20

**Submarines and sea-based Missiles**

China has only one *Xia*-class nuclear-powered ballistic missile submarine (SSBN) and is building at least two, possibly more, *Jin*-class SSBNs. By analyzing commercial satellite imagery in July 2007, we identified one Jin at the Xiaopingdao Submarine Base south of Dalian from an image taken in October 2006.21 A more recent satellite image from May 2007 also revealed two subs docked at the Bohai Shipyard in Huludao; this might indicate two new
boats, or the image might have captured the first boat, returned from Xiaopingdao.\textsuperscript{22}

This second image also shows what appears to be the end of a third submarine extending from beneath a covered assembly hall. A third satellite image, taken on February 27, 2008, revealed the first deployment of a Jin sub to the expanding Yulin Naval Base on Hainan Island in the South China Sea. This might have been the submarine we spotted at Xiaopingdao, in which case three Jins have been launched. The image also showed that a submarine demagnetization facility has been added to Yulin since 2005, the first such Chinese facility.

Demagnetization improves stealth by removing residual magnetic fields in the metal of the hull. A submarine cave similar to the one we disclosed at Jianggezhuang Naval Base in 2006 has also been constructed at the Yulin base, as well as extensive underground facilities.\textsuperscript{23} The reports about the Yulin cave first appeared in 2006.\textsuperscript{24} How many Jin-class submarines China plans to build is unknown, but the U.S. The American Office of Naval Intelligence (ONI) estimated in December 2006 that “a fleet of probably five SSBNs will be built in order to provide more
redundancy and capacity for a near continuous at-sea SSBN presence.”

Some media reports assumed that ONI meant China is building five Jin-class SSBNs; we interpreted the statement as more of a projection. The 2007 Pentagon report ignored the ONI estimate, but the 2008 report estimates that by 2010 China likely will have “up to five” Jin-class SSBNs. A fleet of four SSBNs would be similar to those of Britain and France; four to five Jin-class SSBNs would carry 48–60 missiles, a significant increase from the 12 on the Xia.

The ONI’s projection of “a near-continuous at-sea SSBN presence” assumes that China plans to operate its SSBNs in a fashion similar to the United States, Britain, and France. This would be a dramatic change. China has no experience with operating SSBNs; its single operational SSBN has never gone on patrol. The new SSBNs’ Julang (JL)-2 missiles cannot reach the continental United States from Chinese waters and in a crisis would face considerable threats from hostile attack submarines if trying to venture into the Pacific Ocean, especially in such chokepoints as the narrow strait between South Korea and Japan or the Malacca Strait.

The Jin-class SSBN is approximately 135 meters long (443 feet) and has 12 launch tubes for the JL-2 submarine-launched ballistic
missile (SLBM). The JL-2 was previously credited with a range of 8,000 kilometers (5,000 miles), but the 2008 Pentagon report has lowered that estimate to 7,200 kilometers (4,500 miles), the same as the parent missile, the DF-31.

As with the DF-31 and DF-31A, there is speculation that the JL-2 may be equipped with multiple warheads, but the U.S. intelligence community credits the missile with only a single warhead. The Pentagon predicts initial operational capability for the JL-2 in 2009 or 2010, but given China’s previous difficulties with ballistic missile submarine technology, this remains unlikely.

China’s sole first-generation SSBN, the Xia, is no longer considered fully operational. In 2003, the Pentagon predicted that China would deploy the JL-1 SLBM that year and that the sub’s service life would be extended past 2010, but the Xia has never sailed on a deterrent patrol. The 2008 Pentagon report does not include the JL-1 on its list of Chinese missile forces.

**Cruise Missiles**

According to the Pentagon estimates, China’s nuclear-capable DH-10 land-attack cruise missile is now operational and that China deploys 50–250 of the missiles—a range that reveals significant
uncertainty about the status of the weapon system. The DH-10, which can fly farther than 2,000 kilometers (1,200 miles), apparently exists in both ground- and air-launched nuclear-capable versions that “improve the survivability, flexibility, and effectiveness of China’s nuclear forces,” according to the Pentagon.\textsuperscript{28} However, it is still unclear as to how many of the new cruise missiles might be nuclear-capable.

**Nonstrategic Nuclear Weapons**

Several CIA documents have been declassified within the last two years that provide new insight into the U.S. assessment of possible Chinese nonstrategic weapons. In July 1990, the CIA reported that China’s second nuclear test of the year “may be related to development of a warhead for a Chinese short-range ballistic missile.”\textsuperscript{29} In February 1993, an intelligence report concluded that part of the purpose of China’s testing series at the time was “possibly to test for tactical systems to be developed in the future.”\textsuperscript{30}

Later that year, another CIA assessment said the Chinese testing probably would enable China “to develop new warheads for its ... tactical missile systems by 1996.”\textsuperscript{31} In 1995, the agency thought a
Chinese test scheduled for that June “may include warhead testing for ... a cruise missile.”³² Although unknown, it is possible that this cruise missile might be today’s DH-10. The same year, another CIA assessment said a Chinese nuclear test scheduled for September 1995 possibly involved “a uranium artillery shell,” and speculated, “China could be seeking to confirm the reliability of a nuclear artillery shell design in advance of a nuclear test ban. Such a weapon would be primarily defensive, for use along China’s perimeter against massed formations such as an amphibious landing or a Russian ground attack.”³³

These assessments add to evidence that China pursued or possessed several types of nonstrategic weapons: ballistic missiles, cruise missiles, and artillery. The overwhelming majority of China’s short-range ballistic missiles, perhaps all of them, are thought to be conventional.

**Warheads**

China possesses the technical capability to develop multiple reentry vehicles (MRVs) and multiple independently targetable reentry vehicles (MIRVs) but has chosen not to deploy such systems on its missiles. In March 2006, NASIC listed all Chinese long-range
ballistic missiles with a single warhead, and the 2008 Pentagon report says only that China continues to research MIRVs.34 Despite this, some institutions, publications, and private websites frequently credit many of China’s long-range ballistic missiles as having MIRVs. Jane’s *Strategic Weapon Systems*, for example, lists MIRVs for the DF-5A, DF-31, and DF-31A.35

Estimating the size and composition of the Chinese nuclear stockpile is exceedingly difficult; China does not publicize details about its nuclear forces. U.S. and other intelligence sources release very little information—often contradictory or even exaggerated—about what they know, and unofficial publications and the Internet are awash in inaccurate and unsubstantiated claims.

Production of new warheads for the DF-31, DF-31A, and JL-2—assuming they will carry new warheads—has probably already taken place, increasing China’s stockpile. This warhead increase probably will be offset by the retirement of old warheads for the shorter-range DF-3, DF-4, and JL-1 as those systems are withdrawn during the next several years.

The Pentagon projects that by 2010, the Chinese nuclear force will have DF-4s; “enhanced” DF-5s (DF-5As); DF-21s; “solid-fueled, road-mobile DF-31 and DF-31A ICBMs”; and “up to five Jinchass
SSBNs, each carrying between 10 and 12 JL-2 SLBMs.” Faced with U.S., Russian, and Indian nuclear force modernizations, China apparently believes this posture will reduce the vulnerability of its nuclear deterrent.

Viewed in a broad spectrum there exist three primary explanations for China’s pursuit of strengthening its nuclear arsenal. First, China may simply wish to update their aging weapons systems and replace them with more modern systems. Second, China may be seeking a stronger fighting capacity to increase the survivability of its nuclear deterrent. As other countries (particularly the United States) continue to increase their military capabilities, China may feel more vulnerable. From Desert Storm through the 2003 war in Iraq, the United States has continuously demonstrated its ability to use conventional forces to destroy fixed targets with tremendous accuracy. U.S. efforts to develop a ballistic missile defense system also threaten the deterrence capability of China’s aging nuclear forces. China’s leaders may fear that their older, immobile nuclear forces are vulnerable or ineffective as a deterrent, and should be replaced by newer, road-mobile nuclear forces and ICBMs such as the DF-31 and DF-41 missiles. Finally; China’s efforts to increase
its nuclear capabilities may indicate an important, yet undeclared, shift toward a more aggressive nuclear policy. Proponents of this explanation argue that, “More Chinese missiles might signal a possible shift from a retaliatory counter-value posture to an offensive counterforce posture, particularly if accompanied by necessary improvements in accuracy.” According to (Paul) Godwin, a sufficient number of weapons could permit China for the first time to attempt intra-war escalation control, since Beijing would retain enough forces to respond at a higher level if the aggressor chooses to escalate a nuclear exchange."

**India’s Threat Perceptions**

China is a major determinant of Indian security concerns. Beijing’s existing and emerging military capabilities, both in conventional and nuclear terms, have been a cause of worry for New Delhi. Undoubtedly, China’s vast nuclear arsenal is not specifically directed against India, nonetheless, it provides China with the wherewithal to address its security concerns and project its other interests when interacting with India.

The stark reality that China is in occupation of large chunks of Indian territory in the Ladakh region of Jammu and Kashmir and
Beijing’s claim over large areas in Arunachal Pradesh cannot be ignored, and these remain potential ‘flash points.’ China’s continued military and nuclear collaboration with Pakistan and inroads into Myanmar are of strategic concern to India. China’s gradual move of the strategic encirclement of India by means of military, nuclear and economic assistance to Pakistan and Myanmar are significant developments because these entail the potential of reducing India’s military capability against China and limits its strategic options.

Viewed in a broad perspective, China’s military link with Pakistan remains intact, continuing to shore up Pakistan’s nuclear and conventional capabilities in order to contain India. This nexus not only portends a direct threat to India’s security, but also bolsters Pakistan to conduct proxy wars within Indian borders with a fair amount of impunity. New Delhi viewed evidence of China’s assistance to Pakistan’s missile and nuclear programs as strong indication of less-than-benign Chinese intent.\textsuperscript{40} Besides, China has acquired naval facilities in Pakistan as well as in Myanmar, which can provide easy access to China’s navy to the Indian Ocean region, where it seeks to expand and ultimately dominate. However, China’s naval forces are confronted with major logistic constraints in the
way of dominating the Indian Ocean or posing a threat to India from the sea in the near future.

India cannot afford to ignore China’s ever-growing nuclear-weapons capability and it devolves on India to acquire its own autonomous nuclear deterrent. The effective answer in a nuclearized region lies in fielding a viable nuclear deterrent on one’s own. China possesses a full-fledged nuclear triad with global capabilities. It has also developed and deployed a wide range of tactical nuclear weapons to support its conventional forces in combat. While the induction of tactical nuclear weapons has military significance for a conflict in the Himalayas, even more worrisome are the Chinese navy’s SSBN forces and nuclear-tipped SLBMs. However, the possibility of deploying these offensive military assets in the Pacific Ocean by China seem remote in the foreseeable future because the Pacific region is controlled and guarded by the superior forces of the United States and its allies. Thus, while current constraints restrict the efficacy of the SSBNs to China’s coastal waters and the South China Sea, the long-term objective may see China becoming active in the Indian Ocean.

China has been a primary cause for India’s decision to go nuclear, even though from the Indian standpoint, the Chinese threat
was not direct or immediate. In a 1998 letter to President Bill Clinton, the then Prime Minister of India A. B. Vajpayee justified his decision to test a nuclear weapon openly by pointing to the threat from China, which Indian Defense Minister George Fernandes more bluntly characterized as “potential threat number one.”\(^{41}\) Indian concerns about China’s nuclear aid to Pakistan and the larger issue of its efforts to contain India (through an enhanced presence in Myanmar, for example) are yet to be assuaged. Chinese concerns about India’s steadily expanding missile reach are likewise growing.\(^{42}\)

Despite the persistence of sources of tension, India and China have managed their relationship remarkably well. The border problem has been kept in abeyance through the mechanism of annual talks since the early 1980s, and a Joint Working Group was established in 1988. Meanwhile, other aspects of the relationship have flourished. Trade grew from $1.1 billion in 1995 to nearly $3.5 billion in 2001\(^{42}\) and by 2007 it had reached the level of $10 billion. In April 2003, India’s Defence Minister visited China and expressed “a deep sense of satisfaction and the conviction that this visit will be the beginning for drawing a road map for the near future.”\(^{43}\) In July and August 2003, a confrontation between border patrols at the Line
of Actual Control in the region of Arunachal Pradesh was met with a diplomatic rather than a military response.\textsuperscript{44}

The overall picture that emerges is akin to ‘oligopolistic competition,’ in which large rivals compete but do so in a stable market. India and China appear to have reached an understanding that their persistent differences on the border and on the nature of the Chinese-Pakistani relationship should not be allowed to prevent the stabilization of their strategic relationship as a whole. A measure of this stability is India’s disinterest in attempting to catch up with China’s nuclear arsenal either in qualitative or quantitative terms, although there is an ongoing effort to ensure its ability to reach additional Chinese targets through the development of the \textit{Agni-III} missile, which has a range of more than 3,000 kilometers.\textsuperscript{10}

Notably, while Indian and U.S. critics have fretted that the planned U.S. ballistic missile defense system will have a ‘cascading’ effect on China, India, and Pakistan, generating expanding arsenals and consequent tensions, Indian officials have expressed no such fears.

\textbf{Conclusion}

China’s nuclear assets are comparatively much larger than India and in recent years have witnessed phenomenal growth in China’s
strategic nuclear force in terms of quality and quantity. China’s security considerations are different from that of India, hence Chinese nuclear build-up should not be construed solely in terms of vis-à-vis India alone, because China’s threat perceptions are governed by the nuclear stockpiles of United States, Russia and other nuclear powers and their nuclear postures as well. However, China remains a major determinant of India’s security concerns and some China’s strategic nuclear weapons are capable of destroying India. It is in the wake of this scenario that India has to develop its nuclear deterrence to face Chinese threat and ensure its security.

Undoubtedly, recent years have seen remarkable growth of friendly relations between New Delhi and Beijing along with increased interaction in economic, political, cultural, science and technology fields and a Joint Working Group is overseeing the ways and means of resolving the contentious border issue. However, this does not mean that threat to India from China is either minimized or reduced, especially in the wake of China’s continuous support to Pakistan’s missile and nuclear programmes, apart from making inroads into Myanmar, in India’s neighbourhood. China’s long-range tactical nuclear weapons vis-à-vis United States are faced with some technical constraints while the Indian territory is conveniently under
the target range of Chinese nuclear-tipped missiles. India’s progress in the development of long-range missiles, particularly Agni-III etc. are still at the development stage. Thus, India has to build up a credible deterrence vis-a-vis China.

Notes

2. This information is available at www.nunntunrerinitiative.org/db/china/nuclearweapons.htm, accessed on 17 April 2007.


18. Ibid.


20. Ibid., p. 25.


32. CIA, National Intelligence Council, “China: Nuclear Test [Deleted],” *National Intelligence Digest*, CPAS NID 95-053CX, March 7, 1995, p. 11. Partially declassified and released under FOIA to National Security Archive. This possible cruise missile warhead might have been for the DH-10 land-attack cruise missile, which the U.S. intelligence community in 2006 said had nuclear capability and the Defense Department in 2008 reported had been deployed.


44. Times of India, 26 April 2003.
45. Amit Barua, "Indian, Chinese Foreign Ministers to Meet later This Year", Hindu, 8 August 2003.
46. Times of India, 6 April 2003.