Pakistan's Nuclear Factor

ADITI MALHOTRA

With a series of six nuclear explosions, on 28 and 30 May 1998, Pakistan declared itself a nuclear power, putting an end to its long-practiced policy of nuclear ambiguity. The Chagai Hills nuclear tests by Pakistan were in response to India's nuclear tests conducted two weeks earlier at Pokharan. The perceived Indian threat was the primary reason for Pakistan unveiling its nuclear card. After the nuclear explosions, Nawaz Sharif, the then Pakistani Prime Minister (PM) announced, "Today, we have settled the score with India"[1] making it amply clear that Pakistan's nuclear explosion was a response to India's tests. In addition to act as a deterrent against India's nuclear threat, Pakistan's nuclear doctrine also aims to counter India's conventional capability.

Pakistan's leadership believes that nuclear capability would be an ultimate guarantor against the perceived Indian threat. Even in the present context, Pakistan is reportedly continuously enhancing its nuclear capabilities and ramping up India-centric nuclear arsenals.

The Nuclear Evolution

The creation of Pakistan Atomic Energy Commission (PAEC) in 1953 initiated the country's nuclear program. But the program could not be launched due to an unstable and weak domestic socio-political climate prevailing in the country. Pakistan was administered by bureaucrats on civil matters, and the security issues were majorly decided upon by the military. In 1958 the military took direct control of the government with the help of civil bureaucrats. Changing the complete nature of governance in Pakistan, Army Chief General Mohammad Ayub Khan headed the government.

International events during the period facilitated Pakistan's nuclear ambitions. US' efforts to contain Communism and the Soviet influence proved advantageous for Pakistan. The two countries signed a defense agreement in 1954, which assisted Pakistan with unprecedented military assets. The arms flow from the US was considered reasonable enough to counter the threats from India.

Hence, the first nuclear project, the Karachi Nuclear Power Plant was purely for civilian use.

With the tide of time, the relations between India and Pakistan became increasingly strained. In order to divert the domestic ire over the inefficiency of military rule, the Pakistani government turned towards the Kashmir issue in 1965. The defeat in the 1965 war and the Tashkent Agreement in 1966 was a severe blow for Pakistan and provided no concessions on Kashmir.

As a punitive step towards India and Pakistan, the United States of America prohibited any flow of weapons to the subcontinent, thus creating a disparity between Indian and Pakistani military assets. India's pursuit of a nuclear weapon was seen as a decisive threat posed to Pakistan. The ultimate seeds of the present nuclear weapons program can be traced back to Zulfikar Ali Bhutto, when he endorsed the statement, "If India develops an atomic bomb, we too will develop one even if we have to eat grass, because there is no conventional alternative to [the] atomic bomb."

After the Bangladesh War of 1971, Pakistan's quest towards developing a nuclear weapon got accelerated due to the humiliation suffered by the loss of its East wing. When Zulfikar Ali Bhutto took over as premier, his anti-India stance became shriller. To reinforce a sense of confidence within its military and the civil population at large, Bhutto laid the foundation for a nuclear weapons program in 1972. The rationale remained that the acquisition of a nuclear weapons program would enhance the feeling of pride among the populace and military of Pakistan.

After India conducted its first nuclear test in 1974, the work of enriching uranium was exclusively consigned to AQ Khan, a metallurgy scientist who had approached Bhutto, exhibiting his eagerness to develop a nuclear weapon for Pakistan. Khan left URENCO, Netherlands (where he worked previously) with secret blueprints for the uranium enrichment process. The US pressure to stop any attempts of developing a nuclear weapon did not discourage Pakistan's ambitions. Another political change was witnessed in 1977, when a military coup led by General Zia-ul-Haq ousted Bhutto and established a military regime. The nuclear program was now under the strict command of the military, while the bureaucrats contributed through the scientific wing. General Zia-ul-Haq skillfully siphoned off benefits from the financial and military assistance provided by the US in the wake of the conflict against the Soviet Union in Afghanistan in 1979. As Pakistan's strategic location in South Asia became more important, the international pressure to call off the nuclear program eventually faded. This

aided the military to enhance their nuclear capabilities and successfully control the domestic opposition.

Lacking a strong foundation for a successful nuclear program, Pakistan relied on Khan's clandestine network for the basic components that were illegally procured from URENCO's key suppliers in Western Europe. At the time of Zia's death, Pakistan was close to achieving its nuclear ambitions. In 1989, sidelining Bhutto, the then Pakistan Army Chief General Mirza Aslam Beg had set up a shadow military government. In 1990, Nawaz Sharif came to power. Even though the country seemingly walked towards democracy, the nuclear command remained with the army.

With the end of the Cold War, the strategic importance of Pakistan waned. The US imposed the Pressler Amendment, which inflicted military and monetary sanctions, should Pakistan continue to nurture their nuclear ambitions. In 1991, when Prime Minister Nawaz Sharif supported the freeze of uranium enrichment to appease the international pressure, the army held the strings of the nuclear program. This was revealed in Sharif's interview, stating that he was unable to cap the nuclear program without the army's consent. It was the perpetual vulnerabilities of the new governments that forced them to concur with the army's aspirations. This remains a defining characteristic of all incoming administrations, limiting any scope of stopping the nuclear weapons program. In May 1998, India discarded its nuclear ambiguity by conducting nuclear tests. Pakistan followed suit claiming to rightfully conducting their tests, due to the threat posed by the now nuclear India.

Nature of Nuclear Control

Pakistan's nuclear control has primarily been retained by the army. The degree of participation enjoyed by the civil government has always been restricted. All major decision making related to security and nuclear issues rests with army. Pakistani observers believe that civilian government may not have any access to nuclear information, which includes the number of nuclear warheads, delivery vehicles in Pakistan's account, future expansion and so forth.[2]

Former Pakistani PM Benazir Bhutto maintained that she was not acquainted with any sensitive nuclear information and the military retained the control and decision-making process of nuclear issues.[3] It is believed that Nawaz Sharif shared a relatively cordial relation with the military which may have given him more access to nuclear information. Nawaz's administration initiated the creation of a National Command Authority, which comprised of some civilian posts. In spite of this, the actual control remained with the military.

An outline of the evolution of nuclear command and control reforms is given in Table. 1

Table 1[4]

Nuclear command and control reforms and other steps

1998

- **May:** Pakistan tests six nuclear devices
- **October**: General Pervez Musharraf appointed chief of army staff
- **December**: Strategic Plans Division (SPD) informally commences activity

1999

- Musharraf submits plan for a national command authority (NCA), with the SPD as secretariat, to take charge of operational, financial and security controls over all strategic organisations
- **October**: Musharraf deposes Prime Minister Sharif in a military coup
- Musharraf formalises military's role in Pakistan's policymaking process through creation of National Security Council (NSC)

2000

- **February**: NSC consolidates nuclear command-and-control structure and establishes full accountability for all nuclear laboratories
- **November**: All organisations in nuclear and missile programmes put under NCA control

2001

- **January**: The National Engineering and Scientific Commission, headed by a PAEC official, created on top of the National Development Complex (NDC); new division of labour makes PAEC responsible for mining and reprocessing, KRL for enrichment, and NDC for weaponisation issues
- **January:** Pakistan Nuclear Regulatory Authority begins to oversee safety procedures and radiation protection in civilian nuclear facilities
- **June**: Musharraf declares himself president of Pakistan
- **September:** Pakistan agrees to join US-led effort against al-Qaeda and supporters in Afghanistan
- **October:** US learns two retired Pakistani nuclear scientists had been meeting with al-Qaeda leaders; ISI detains the scientists for three months

2004

- Exposure of Khan network
- **April:** UNSCR 1540 mandates all countries to develop effective measures to prevent illicit trafficking of sensitive nuclear materials
- **September**: Pakistan's parliament adopts 'Export Control on Goods, Technologies, Material and Equipment Related to Nuclear and Biological Weapons and their Delivery Systems Act'
- **October:** Pakistan provides 11-page report on national measures to implement UNSCR 1540

2005

- **August:** Pakistan observes a Proliferation Security Initiative (PSI) exercise for the first time
- **September:** Pakistan provides 125-page follow-up matrix of national compliance to UNSCR 1540

2006

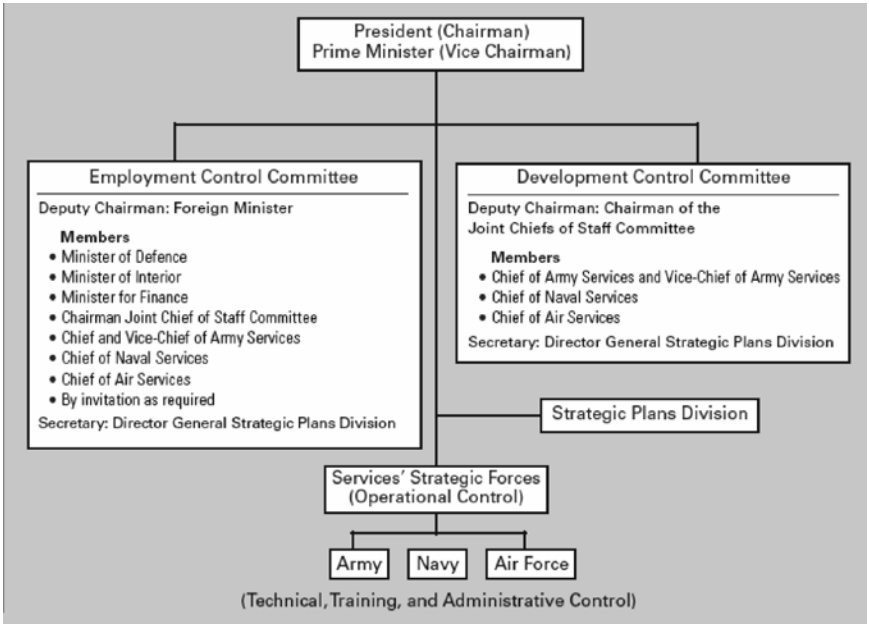
- **March:** Pakistan joins Container Security Initiative (CSI)

Structure of Nuclear Command and Control System

Considering the present structural set-up of Pakistan's nuclear command, there are two landmark establishments namely, the National Command Authority (NCA), established in 2000 and the Strategic Plans Division (SPD), the permanent secretariat of the NCA. More specifically, the NCA is responsible for devising the

national nuclear strategy, in command of nuclear armed forces and nuclear target planning. Apart from this, NCA is the highest decision-making body and administers the affairs of arms control, export controls and safety of nuclear facilities and components.[5] A graphical representation of the NCA's command is given in Table 2[6].

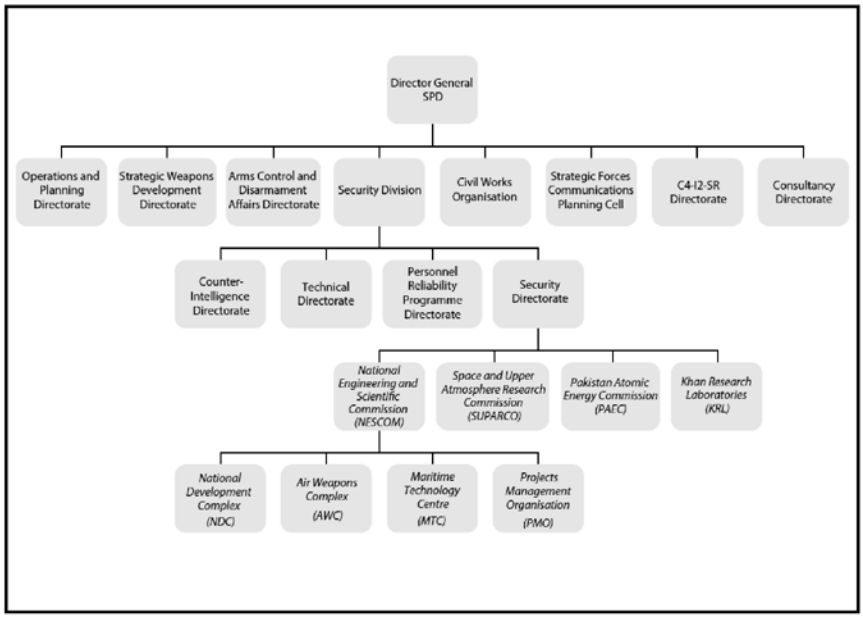
Table 2 NCA Command



The table does reflect a fair combination of military and civilian command, but is not practiced in reality. The command of the country's nuclear affairs is purely under the army's control. This practice is evident from Pakistan's history, where the nuclear issues have not had any civilian control or say. Notably, in early 2003, instead of the head of the government, the Prime Minister, Mir Zafurullah Fervaiz Jamali, the NCA was chaired by head of the state, President Musharraf.[7] Also, it is interesting to note that the PPP and Pakistan Muslim League Nawaz (PML-N) highlighted in their election manifestoes, the need to change the nuclear command structure. They advocated the need to replace the NCA by a cabinet defense committee headed by the PM. Nonetheless, the PPP-led government (April 2008) seemed satisfied with the unchanged nuclear command and control system after coming to power.[8]

Parallel to the NCA, the SPD is involved in establishing policy guidelines and develops and maintains the command and communication links. The graphical structure of SPD's command is given in Table 3.

Table 3[9] SPD Command



Pakistan's Nuclear Capability

As established before, Pakistan's nuclear weapons program is India-centric. Ever since it developed nuclear weapons, Pakistan has followed a 'first use' nuclear doctrine. Interestingly, in late 2008, Pakistan President, Asif Ali Zardari backed no first use of nuclear weapons but added a rider by asking India to sign the South Asian Non-Nuclear Treaty. Experts commented that such a statement did not represent a doctrinal change.

It has been continuously pronounced that information pertaining to Pakistan's nuclear forces is well guarded and not much is known from the records that have been made public. Fathoming the stockpiles from various estimates, the nuclear warheads range from 60-120.[10] It is important to note that present Pakistani warheads employ highly-enriched uranium (based on Chinese designs), but they intend to shift to plutonium and are continuously establishing

facilities for the extraction and reprocessing of plutonium. The use of plutonium would further make the weapons far more lethal. Pakistan is believed to have produced approximately 2,000 kilograms of highly enriched uranium (HEU) and 90 kilograms of separated military plutonium by early 2008. While these are sufficient for between 80-130 implosion-type warheads, (assuming 15–25 kilograms of HEU are used for each warhead's solid core), it is unlikely that all of this material has been turned into weapons.[11]

Pakistan has a total of 15 nuclear sites. Out of them, only three sites, viz Karachi, Chashma and Pakistan Institute of Nuclear Science and Technology (PINSTECH) are under International Atomic Energy Agency (IAEA) safeguards. Others remain unsafeguarded and thrive under control of the army. Pakistan has reportedly been expanding its nuclear capabilities. This development includes new laboratories at plutonium enrichment plants in PINSTECH.[12]

Additionally, it has also been reported that Pakistan may soon become capable of developing thermonuclear weapons that could be fitted into warheads.[13] China has been very supportive of Pakistan's nuclear program. On 20 September 2010, China National Nuclear Corp (CNNC) revealed that it had entered into negotiations with Pakistan for the export of a one-Gigawatt (GW) nuclear plant to the latter. China had previously constructed nuclear reactors Chashma-1 (operational in 2000) and Chashma-2 (set for completion in 2011). In April 2010, China had initiated the plans of building two additional 300 MW reactors, Chashma 3 and 4, alongside its previous projects. Pakistan has allegedly approached Kazakhstan and France for nuclear cooperation, but not much is known about the accuracy or nature of agreements.[14]

Development of Pakistan's nuclear delivery systems has mainly been assisted by China and North Korea while some systems are domestically produced. Pakistan has two types of delivery vehicles for nuclear weapons: aircraft under the PAF and surface-to-surface missiles under the Pakistan Army.[15] Pakistan has an inventory of 35 American F-16, an important medium for nuclear delivery complemented by French-built Mirage V and the Chinese built A-5 Fantan, which could be made nuclear capable.[16] In August 2007 and May 2008, Pakistan tested the air-launched cruise missile (ALCM) Raad (Haft 8), which is claimed to be nuclear capable, possessing a range of 350 km.[17]

The following table provides a detailed picture about Pakistan's nuclear delivery systems.[18]

Aircraft/Missile	Range	Source	Status
F-16 A/B	925 km	United States	35 planes in inventory
Mirage 5 PA	1,300-2,100 km	France	50 planes in inventory
Hatf 1	80-100 km	Indigenous	In service since mid-1990s
Hatf 2 (Abdali)	180 km	Indigenous/China	Tested in May 2002 & March 2011, in service
Hatf 3 (Ghaznavi)	300 km	Indigenous/China	M-11, tested May 2002, in service
Hatf 4 (Shaheen 1)	600-800 km	Indigenous/China	First tested in October 2002, in service
Hatf 5 (Ghauri 1)	1,300-1,500 km	Indigenous/DPRK	Nodong, tested May 2002, in service
Hatf 5 (Ghauri 2)	2,000 km	Indigenous/DPRK	Nodong, tested May 2002, in service
Hatf 6 (Shaheen 2)	2,000-2,500 km	Indigenous/China	First tested March 2003, in development
Hatf 7 (Babur)	500 km GLCM	Indigenous/ China/?	First tested in August 2005, in development
Hatf (Ra'ad)	350 km	Indigenous/ China/?	First tested on 25 August 2007, later on 8 May 2008

Aditi Malhotra is an Associate Fellow at CLAWS.

Notes

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