

CHAPTER-3

INDIA'S STRATEGY FOR NUCLEAR DETERRENCE

To understand the significance of nuclear weapons as a determinant in the overall security calculus in India, it is essential to view India's nuclear doctrine as a set of beliefs that identifies the role of nuclear weapons and the rationale for which these weapons have been acquired by India. Attempts were made in the early 1980s to develop a nuclear doctrine. Strategists like K. Subrahmanyam, who is considered as the 'father of Indian strategic thought' and Chief of Army Staff, Gen K. Sundarji, was among the very few Indian Army officers who gave a serious thought to the issue of nuclear weapons, and had organised a semi-formal study of nuclear doctrine in 1981. The outcome of that study was that nuclear deterrence "will add to stability and peace and that the only salvation isto follow policies of cooperation and not confrontation... [and] a mutual minimum nuclear deterrence will act as a stabilising factor"(Sundarji, 1995, p. 59). India's strategic community considers nuclear weapons as a political instrument and not a military instrument of war fighting. As explained by Air Cmde Jasjit Singh over a period of time it has become obvious that a 'nuclear war cannot be won and therefore must never be fought' (Singh, 1998, p. 11). Taking this argument further, K. Subrahmanyam asserts that India does not pledge to the war-fighting doctrine and its nuclear weapons are meant solely for deterrence (Subrahmanyam, 1998). President, K.R. Narayanan, addressing the nation on the occasion of the golden jubilee of India's independence said, "nuclear weapons are useful only when they are not used. They can only be a deterrent in the hands of the nation" (Narayanan, 1998).

Threat Perception

In Chapter IV, it is stressed that India has two nuclear armed neighbors, China and Pakistan, with whom it has fought conventional wars in the past. The Chinese and Pakistani threats in the 1980s and 1990s may have prompted demonstration of nuclear tests by India. The non-proliferation set-back in the 1980s and 1990s as a result of clandestine assistance to the Pakistan's nuclear program by its all weather friend China,

continued to be a danger to India. India therefore finds herself in an uncertain situation where it is threatened by two nuclear armed states which have common strategic interests. There was a kind of strategic stability between the two main players during the cold war, but in a triangular affair between India, China and Pakistan the strategic instability is bound to creep in. Consequently India's nuclear doctrine, policy and posture essentially a response to tense relations of India against China and Pakistan.

3.1 INDIA'S NUCLEAR DOCTRINE

After India's demonstration of Shakti in May 1998, the newly constituted National Security Advisory Board (NSAB)¹ presented the Draft Nuclear Doctrine (DND) to the Prime Minister. Vajpayee and to the cabinet on August 17, 1999,² The National Security Advisor Brajesh Mishra subsequently released the draft for public debate. It constituted a major move toward clarifying most of the India's nuclear issues, even though it has not been approved by parliament. The Draft Nuclear Doctrine of India is distinctive in the sense that it was produced as a consensus document, even before the development of an operational Indian nuclear force.³ The Indian government first chooses the appropriate nuclear strategy, mentioned in the draft doctrine and afterward planned for building the capabilities mentioned in the draft. It is quite sensible and rational here that strategy should drive the technology and not the other way around. All five nuclear weapon states had manufactured their nuclear weapon in complete secrecy. Moreover they had accumulated their nuclear stockpiles before the articulation of nuclear doctrine.

The draft of India's nuclear doctrine has evoked a wide range of responses, both in India within the region and from across the world. However a closer reading of the doctrine indicates that despite certain interpretative deficiencies, it represents a new approach to the dreaded nuclear weapon that must first needs to be devalued, delegitimised and then finally eliminated.⁴ India is the first and the only state with nuclear weapons that has put its doctrine into the public domain for a debate. In fact, no other nuclear states have discussed their doctrine in the public forum, though France had some public discussion on the peaceful use of nuclear energy but nothing with regard to its nuclear weapons. India's "nuclear option" was debated from 1964 to 1998, as no other nuclear states has directed such an extended public discourse on this subject.

The release of the DND in August 1999, just before the Lok Sabha elections, raised eyebrows and sparked off writings and discussions within and outside the country. This is due to the fact that the Vajpayee Government had been just a caretaker government which had lost its majority in the Lok Sabha. The new election had already been called for October 1999 and the precise timing of the release of the draft was seen more as a political stunt or merely to reinforce BJP's electoral advantage. Additionally it may be likewise proposed that the nuclear doctrine was detailed just to formalize BJP's nuclear policy announced after the 1998 nuclear test. However, the other view was to formally legitimise India's nuclear weapons through the formulation of DND.

Nevertheless, the objective of India's nuclear doctrine was to determine the conditions under which nuclear weapons could be utilized and also lay out the methods and procedures for the handling of the utilization of these weapons. Some nuclear doctrines are inherently more dangerous than others, since they increase the possibility of accidents and unintentional use of nuclear weapons. India has adopted minimum credible deterrence with a no first use doctrine and has firmly rejected arms race Lahiri, 1999, p. 565). The Cabinet Committee on Security on January 4, 2003, summarised the salient features of the India's Nuclear Doctrine as follows:

- Building and maintaining a "credible minimum deterrent."
- Policy of "No First Use" (NFU): nuclear weapons will only be used "in retaliation against a nuclear attack on Indian Territory or on Indian forces anywhere."
- Nuclear retaliation to a first strike by the opponent will be "massive" and designed to inflict "unacceptable damage."
- Nuclear retaliatory attacks can only be authorized by the "civilian political leadership" through the Nuclear Command Authority
- "Non-use" of nuclear weapons against non-nuclear weapon states
- India retains the option of "retaliating with nuclear weapons" in the event of a major attack against it or its forces anywhere, by "biological or chemical weapons"

- "A continuance of strict controls" on export of nuclear and missile related materials and technologies, participation in the "Fissile Material Cutoff Treaty negotiations, and continued moratorium on nuclear tests"
- "Continued commitment to the goal of a nuclear weapon free world", through global, verifiable and non-discriminatory nuclear disarmament.⁵

3.2 USE OF NUCLEAR WEAPON: THE POLICY OF NO-FIRST USE (NFU) FOR RETALIATION ONLY

Prime Minister Atal Behari Vajpayee in the parliament on August 4, 1998, categorically stated that India's nuclear doctrine will be based on concept of "No-First-Use" which morally justifies India's stand and that India will maintain "a minimum but credible nuclear deterrent" (Subrahmanyam, *Times of India*, August 5, 1998). The proposed nuclear doctrine emerged on a "No-First-Use policy" and the need to develop a "credible minimum deterrent". The draft and the statements from the government and its spokesperson stated that India will not be the first to launch a nuclear strike and shall pursue a doctrine of credible minimum nuclear deterrence. The survival of India's arsenal is critical in this policy of "retaliation only", the draft also states that "India would not resort to the use or threat of use of nuclear weapons against states, which do not possess nuclear weapons."⁶ India does not see nuclear weapons as weapons of war, but their role was to make certain that India is not subjected to nuclear threats or coercion. Moreover the NFU policy has been formulated by the government so that civilians retain complete control over nuclear weapons. India's NFU has been carefully articulated, and it reflects the maturity and restraint adopted by India, which will suit India's availability of warning time before any significant military attack by either of its adversaries-nuclear armed China or Pakistan.

Strategic thinkers who are in favour of NFU are optimists about the nuclear deterrence, as they generally expect that attaining deterrence is relatively easy as long as nuclear weapons capability exist. They are not especially worried about the possibility that no striking first has any deterrence disadvantage. As argued by K. Subrahmanyam

that "deterrence is more about perception than numbers, and as long as the other side perceives a survivable nuclear capability, deterrence will hold" (Subrahmanyam, 2009). Along these lines moderates considers NFU as the core of India's nuclear doctrine and argues that NFU posture provides multiple advantages to India. One of the staunch supporter of NFU Manpreet Sethi, rationalised India's NFU posture as it puts the burden of escalation on the adversary, without preventing India from defending itself and further points out that the most imperative favorable point is that it deters the requirement for the costly nuclear weapons infrastructure that is related with a first-use doctrine. She suggests that NFU is actually "liberating" by giving away the initiative to the opponent (Sethi, 2009). If India faces any nuclear threat it can limit its reaction to nuclear attack mainly because of its purely retaliatory posture. There is hardly any need for India to have nuclear forces on hair-trigger alerts, which are highly risky (Sharma, 2014). NFU permits India to keep its weapons dismantled and unassembled, thus forestalling the need for systems such as Permissive Action Links, which are essential to maintain control over nuclear weapons if they are stored ready to fire.

The No-First-Use strategy fits well into India's strategic culture. In any case it can be asserted that the first use of nuclear weapons is a better form of deterrence, and further, India does not have to justify its second strike capabilities against "decapitative strike" by China. The second strike capabilities could be possible with Pakistan, but India needs to rethink this policy in the case of China. NFU is consistent with the emerging Indian nuclear posture, which provides at least some affirmation, however not decisive evidence -that India is not committed to first use of nuclear weapons in the event of a deterrence breakdown.

India's No-First-Use policy is very well crafted, and the Indian government remains committed on its decision to abide by NFU policy, which thus reflects India's traditional abhorrence of nuclear weapons. It indicated that India as of now wants to limit nuclear weapons solely to deterrence purposes, and has no intention of using them as an instrument for fighting or winning wars. The no first use pledge is further, consistent with India's traditional approach toward nuclear disarmament and its refusal to legitimize nuclear weapons as ordinary instruments of war. It allows India to draw attention to its

dovish intentions vis-à-vis Pakistan and China and thereby gain all the political benefits from being a moderate and peace-loving state in the international system (Tellis, 2001). Reputation considerations are also important here to the extent that India wants to project the image of a responsible nuclear weapon state and one that has kept nuclear capability for deterrence and status purposes only. It also wants to distinguish its policy from that of its rival, Pakistan.

India does not seek to obtain territorial goals by using or threatening to use nuclear weapons. By incorporating a no-use policy against non-nuclear states in its nuclear doctrine, India is signaling to different categories of states its adherence to a more robust tradition of non-use, of which it has been an early and active advocate.

3.3 NUMBER OF NUCLEAR WEAPON: CREDIBLE MINIMUM DETERRENCE (CMD)

The keystone of India's nuclear doctrine is the concept of "credible minimum deterrence". It coexists with the "No First Use" (NFU) and "Non Use" against nuclear weapon states, this clearly indicates that India consider its nuclear weapons only as a deterrent for defensive purposes and not to undermine others, India emphasis on building "minimum" and not large nuclear arsenal and that it will not engage in arms racing.

Minimum deterrence may be defined as "a small force of survivable nuclear weapons that would deter an adversary from initiating military action that would threaten a nation's vital interests" (Kanwal, 2000. p. 9). The rationale behind embracing minimum deterrence is that India is committed to avoid a nuclear arms race. India has no aspiration to seek parity with any other nuclear powers. India will only seek to build a nuclear force that will meet its security needs.

Deterrence requires that India maintain:

- a) "Sufficient, survivable and operationally prepared nuclear forces;"
- b) "A robust command and control system;"

- c) "Effective intelligence and early warning capabilities;"
- d) "Comprehensive planning and training for operations in line with the strategy;" and
- e) " The will to employ nuclear forces and weapons."⁷

In nuclear phraseology, deterrence is essentially a check or restraint on the unfriendly or antagonist powers. Minimum credible nuclear deterrence implies that India should be viewed by rival leadership as capable of inflicting such damage upon their country, that they would be effectively denied the option to use nuclear weapons against India. The basic assumption of nuclear deterrence is that the opponent leadership believes that India has both the ability and the will to respond promptly with means that are credible and militarily effective. Deterrence is preventing an adversary from carrying out a nuclear attack through the threat of punishment. The credibility of deterrence depends not only on the actions of the state which is trying to deter, but also on the state which is being deterred for example, during the Cold War both US and USSR based their deterrence on Mutually Assured Destruction (MAD). If we say India deters Pakistan, it means that India is apprehensive about Pakistan intentions to act against its interests and takes steps to persuade Pakistan that this would be as unwise as it would be unwelcome. The main objective of India is to pursue a credible deterrence which is based on "punitive retaliation" with nuclear weapons to "inflict unacceptable damage" to the aggressor.

For the purpose of minimum credible deterrence, however, it is not necessary that warheads should match with warheads and missiles with missiles. Nuclear deterrence does not depend on superiority, because an increase in the deterrent effect is not necessarily proportional to an increase in the magnitude of potential destruction. A secure retaliatory force is sufficient, especially when the goals of deterrence are modest (Zuberi, 1999). After the 1998 nuclear test in his first meeting with US Deputy Secretary Strobe Talbott, Jaswant Singh asserted that the Indian minimum deterrence posture is not a physical quantification. In fact it's the articulation of a fixed number and it is determined in accordance with the assessment of reality of the security situation, which moreover alters with the time (Chengappa, 2000, p. 433). Various statements by the government in the wake of the NSAB's proposed draft suggest that India envision a modest deterrent.

The Indian government's commitment to a NFU policy is also commensurate with the minimum deterrence (Bajpai, 2000, p. 71).

Since the opening of public discussion on the Indian Draft Nuclear Doctrine, a number of analysts have suggested their own assessment of the minimum number of nuclear weapons required by India in order to deter its adversaries and thereby keep a nuclear war at bay. The recommendations of India analysts vary from a minimalist two dozen nuclear bombs to a maximalist figure of over 400, which is close to rival China's current arsenal.

The determination of CMD would depend on the threat perceptions and technological developments of self and the adversary, India does not intend any parity, dominance or superiority with any nuclear state in terms of number, types or yields of nuclear weapons. India, in this manner, has liberated itself of any prerequisite to seek for nuclear arsenal that would be equivalent to or superior than any of its adversaries. Rather, the emphasis has been on building adequate and survivable nuclear force that would be fit for bringing about a size of annihilation that would constitute undesirable damage in the view of the adversary. The CMD remains a feasible option for India. It is a legitimate decision that India has made since it requires nuclear weapons only for a strategic purpose. India does not have a policy of nuclear war-fighting. Furthermore, CMD is dynamic and flexible in nature and allows responding to challenges as they emerge besides taking into account future contingencies.

A credible deterrence against its adversaries, China and Pakistan, should not only be based on the quantity of nuclear weapons India has, but also on other factors such as political will, transparency in policy and organization, force level, and the active involvement of the military who will be the operators of these weapons.

3.4 CIVILIAN IN CONTROL OF NUCLEAR WEAPONS: COMMAND AND CONTROL STRUCTURE OF INDIA

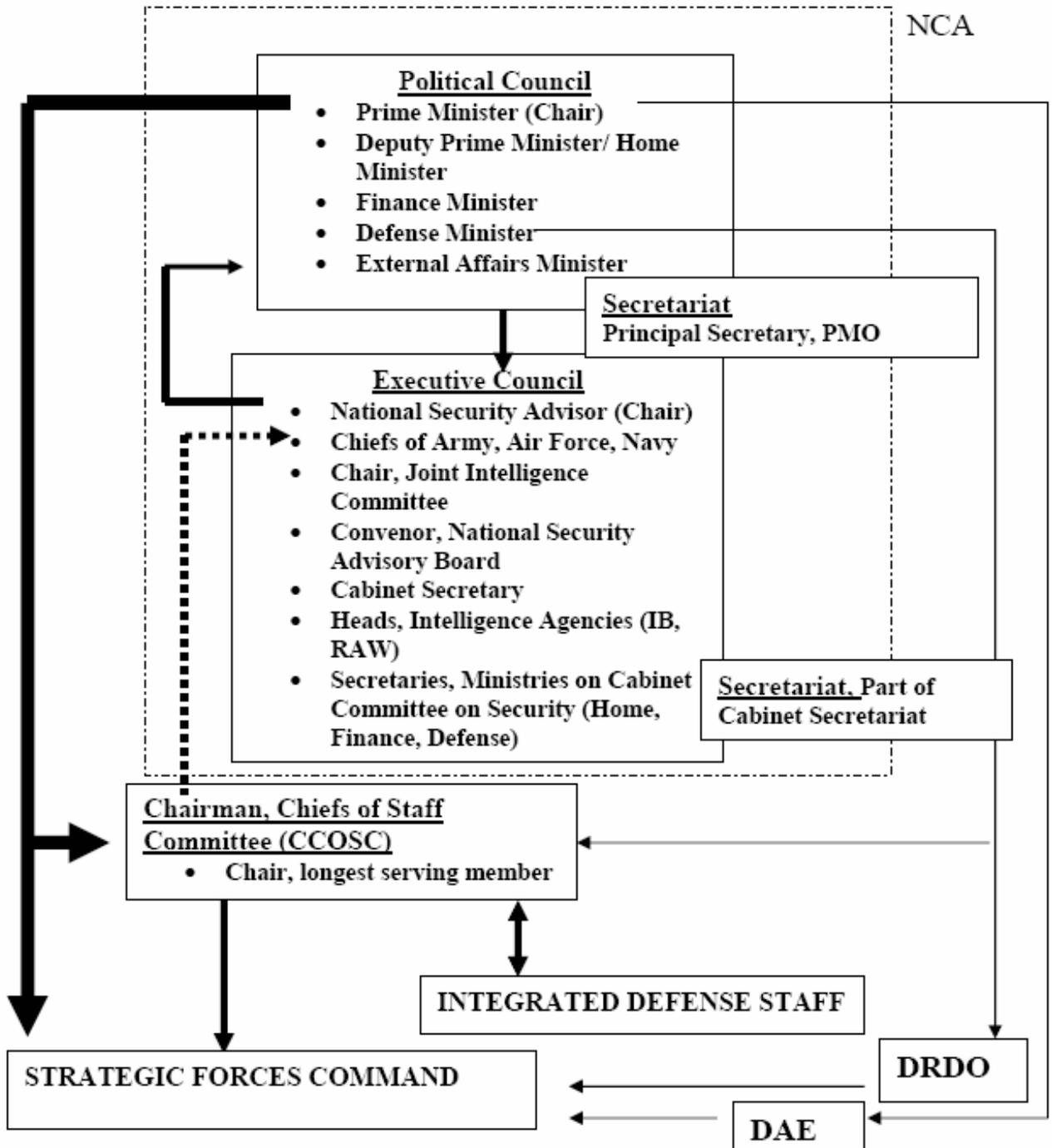
3.4.1 National Command Authority:

India's NFU and CMD require an effective and survivable command and control system with requisite flexibility and responsiveness. According to India's nuclear doctrine, "Nuclear weapons shall be tightly controlled and released for use at the highest political level."⁸ "The authority to release nuclear weapons for use resides in the person of the Prime Minister of India, or the designated successor (s)"⁹ (Kanwal, 2000, p. 1721). There is strict civilian control over any decision to use nuclear weapon in conflict, likewise over the charge of the nuclear warheads in peacetime.

- The National Command Authority (NCA) is highest body responsible for all matters relating to national security.
- NCA is a two-layered body consisting of Political Council (PC) and Executive Council Headed by Prime Minister .
- The PC comprises members of the Cabinet Committee on Security (CCS) and the National Security Advisor (NSA) .
- The Executive Council led by National Security Advisor and consist of civilian and military officer- includes the Chairman Chiefs of Staff Committee (COSC), the three Service chiefs, heads of intelligence agencies, and the scientific organizations engaged in the nuclear program.
- A tri-service command called the Strategic Forces Command (SFC) was created in January 2003 and the official press release on January 4, 2003 described the role of SFC as to manage and administer all strategic Forces.

The Prime Minister of India is the sole body to authorize the use of nuclear weapons. Within the Executive Council, the Nuclear Command Authority provides necessary inputs for decision-making and executes the directions given to it by the Political Council. In the event that the Political Council orders a nuclear retaliatory strike, the Prime Minister can be expected to directly contact the SFC and not work through the office of the Executive Council, which is indicated by the heavy bold arrow in figure 3.1.

Figure 3.1 A Schematic Description of the Indian National Command Authority¹⁰



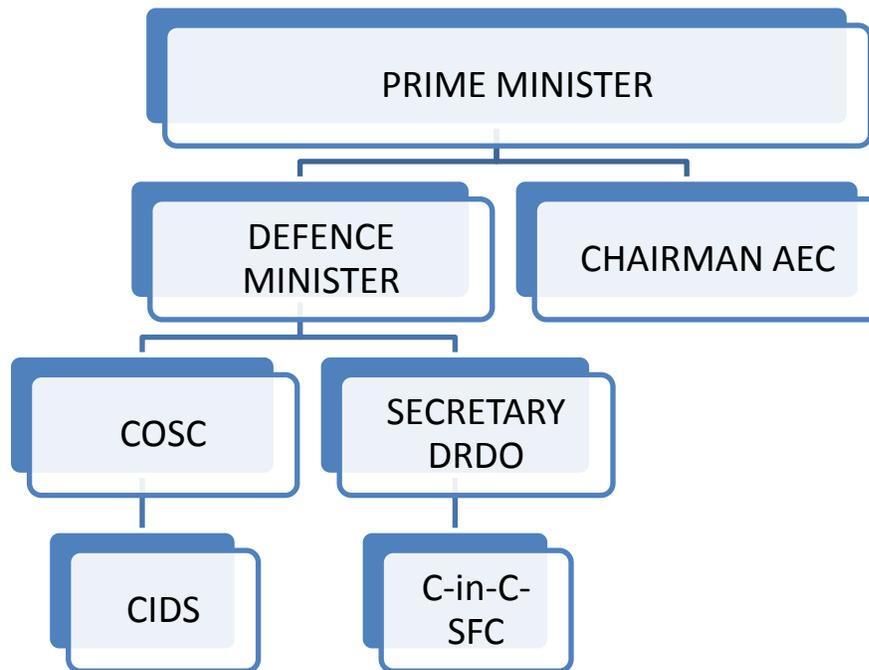
3.4.2 Command and Custody

The command and control of Indian nuclear operations, which relies on upon NFU, can be divided into four operational tasks of command of the force, custody, integration and delivery (Tellis, 2001, p. 443). India's nuclear force is kept in the form of separated components and the responsibilities for the command, custody, integration and use of the weapons is distributed amongst the civilians and military (Tellis, 2001, p. 442). The command and control structure of India's nuclear weapons is under the strict non-military control. Under NFU policy India has placed her nuclear weapons in a "de-mated" posture during the peacetime which indicates that warheads are kept separately from delivery vehicle. The warheads are under the control of Indian scientist and the operation of the delivery vehicles under the armed forces. A nuclear warhead consist of two major parts, nuclear core and the trigger assembly which are stored separately by the Department of Atomic Energy (DAE) and the Defense Research and Developmental Organization (DRDO) scientists respectively.¹¹ The DAE is under the personal charge of Prime Minister and the DRDO is under the Defense Minister.

3.4.3 Command and Control

In the cycle of command and control of nuclear weapon, the role of military actually begin after the nuclear attack on India has taken place, and before that it can be assumed that only command and custody is in force. After the decision to retaliate has been determined with the inputs from NCA (see Figure 2) the Prime Minister of India will initiate the process of integration of the nuclear weapons. The process of integration requires a high level of coordination amongst the DAE, DRDO and the military. Within the military there is coordination among the Chairman Chief of Staff Committee (COSC), Chief of Integrated Defense Staff (CIDS) and the Commander-in Chief Strategic Force Command (C-in-C SFC). The COSC normally reports to the Defense Minister, but on nuclear matters it will to the NCA (Kanwal, 2000). It can be presumed that as the crisis escalates, under the authorization of the Political Council and with the involvement of the DRDO and DAE, the SFC will receive the fissile cores well before any final authorization for use by the Indian Prime Minister as indicated in figure 3.2 below.

Figure 3.2: Indian Nuclear Command and Control

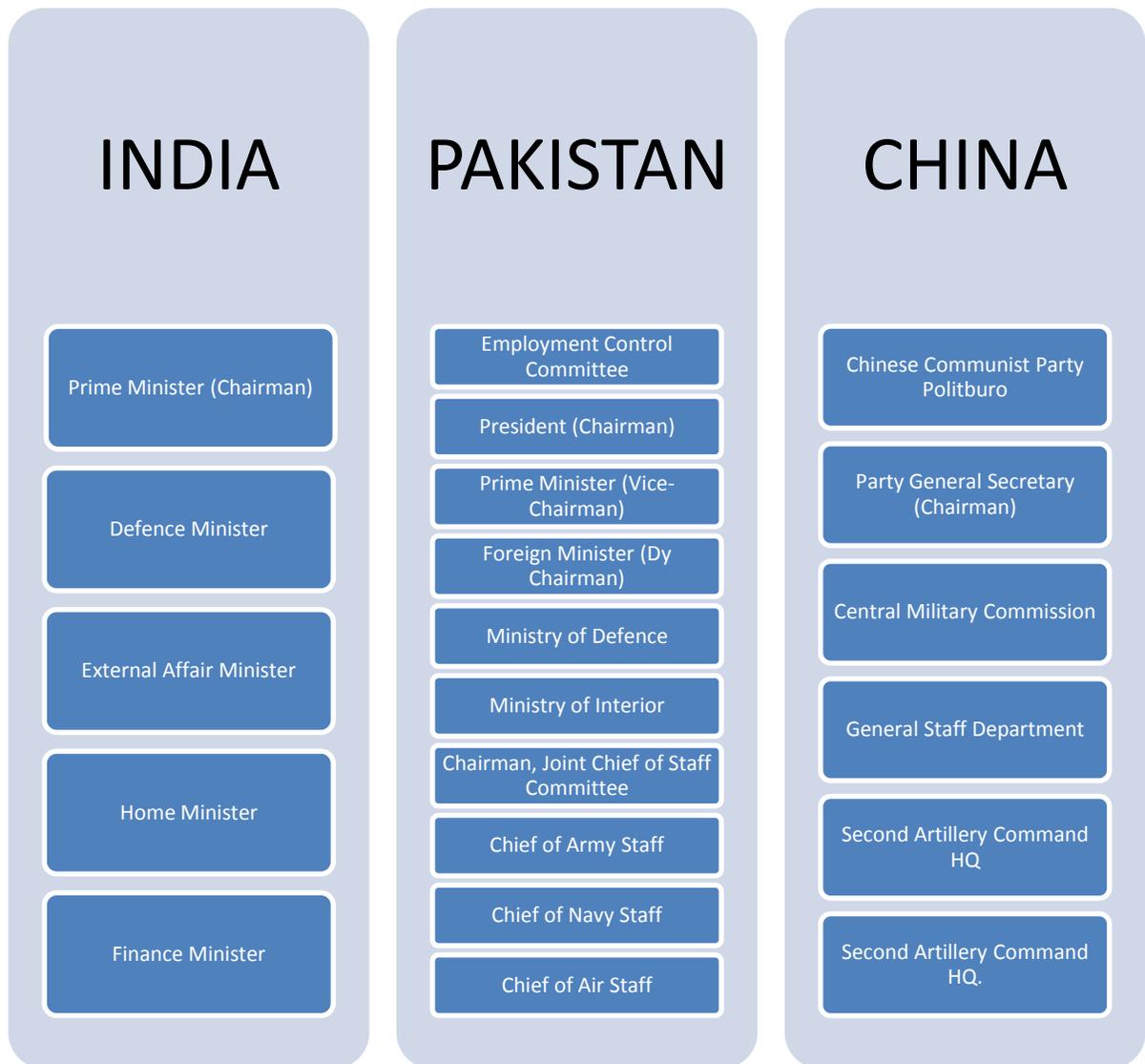


There is a clear demarcation of responsibility for the command, custody, maintenance and use of weapon between civilians and military. The command over the use of nuclear weapon lies exclusively with the civilian leadership. If ever the deterrence break down and the Prime Minister issues nuclear release order then the nuclear components would be integrated into a usable weapon system and custody transferred to the military, which would exercise sole responsibility for executing nuclear use options.

It is evident that there is no predominant role of military in the Indian nuclear command and control system during peacetime. The decision to use nuclear weapon, a remote possibility, is the prerogative of Political Council, which does not include the Chiefs of the three services on an institutionalized basis however, the PC, can only be invited when considered necessary. Comparatively, in Pakistan's there is a military dominated nuclear command system and their presence is formally established in the

Employment Control Committee that in charge of taking decision of nuclear use. Likewise, in China's command and control system, the authority of taking decision of the use of nuclear weapon lies with the Party but it is noteworthy that most of the senior military officials are Party members. Therefore, in the case of the Pakistan and China the military leadership has an institutionalized presence in the decision-making body, as indicated in figure 3.3.

Figure 3.3: Composition of the Decision-making Bodies for Nuclear Use in India, Pakistan and China.



However, irrespective of who authorizes the nuclear command and control, the important issue is the capability of the system to effectively enforce controls that can ensure the utilization of nuclear weapon "once it is authorized and only when it is authorized" (Sethi, 2009, p. 57).

3.5 ABOLITION OF NUCLEAR WEAPON: A DOCTRINAL ASPIRATION

Unlike any other nuclear state, India is the only nuclear weapon state that has doctrinal commitment to the abolition of nuclear weapons. India's nuclear doctrine clearly expresses its desire for a nuclear weapons free world (NFWF). As stated in the doctrine that "global, verifiable and non-discriminatory nuclear disarmament is a national security objective, this is to be expected from a country that has pursued the goal of complete abolition of nuclear weapons for decades in order to remove its own security dilemma as well as ensure greater prospects for international peace and security."¹² India firmly believes that its nuclear security is best guaranteed in a nuclear free world. Therefore in case of universal nuclear disarmament India has no doubt to divest its own nuclear capability. India is consistent over its position of universal nuclear disarmament as it considers nuclear weapons for no other purpose except for deterrence. India's nuclear weapons would have no justification or role if there were no nuclear weapons in the possession of the adversaries that had to be deterred. This narrow articulation of the role of nuclear weapons makes it far easier for India to contend for and seek for universal nuclear disarmament, when compared with the nuclear doctrines of other nations like Pakistan, that identify a more multi-role capability (deterrence against conventional wars) in their nuclear arsenal (Sethi, 2009).

Many claim that India's nuclear doctrine maintains double standards, as on one hand it appears to advocate the quest for a NFWF, and on the other hand, provides direction for building credible nuclear deterrence. It has been criticized on the ground of just verbalizing "empty platitudes" for nuclear disarmament, while the actual intention is on building and refining nuclear arsenal. However, the point of fact is that the existence of the two aspirations in India's nuclear doctrine indicates a mix of cautiousness and

rationality. While considering the nuclearized Indian neighbourhood, it is reasonable to establish a relationship of credible deterrence with the adversaries so as to avoid nuclear intimidation or war. India has rationalised its need for nuclear weapons on its desire to resist nuclear coercion or blackmail and it will be use only for self-defence. At the same time, India realizes a state of nuclear security through the abolition of weapons of mass destruction. Despite the fact that the prospects of an NFWW appear dim, India will continue to contribute meaningfully to the process of abolition of nuclear weapon in order to realize a nuclear free world which would be the best guarantee of its own security.

3.6 INDIA'S NUCLEAR FORCES: POSITION AND REQUIREMENT

In order to understand India's minimum credible deterrence one must discuss the position and requirement of India's nuclear force structure. As the draft stated:

India's nuclear forces will be effective, enduring, flexible, and responsive to the requirements in accordance with the concept of credible minimum deterrence. These forces will be based on a triad of aircraft, mobile land-based missiles and sea-based assets in keeping with the objectives outlined above (in the draft). Survivability of the forces will be enhanced by a combination of multiple redundant systems, mobility, dispersion and deception. (Draft Report of National Security Advisory Board on Indian Nuclear Doctrine. Para 3.1)

The sole purpose of India's nuclear capability is for self-defence and it seeks to ensure that its independence, integrity and security are not threatened in the future. India is not interested in any kind of nuclear parity or arms race, which is the underlying principle of India's nuclear policy of minimum deterrence and no first use. In the emerging regional environment, in order to deter any aggression given the security challenges confronting the country, India needs to maintain a desired level of military strength and preparedness in order to maintain "minimum credible deterrent" against any use of threat of use of nuclear weapon, India needs an accurate and refine delivery system¹³ which will further

enable India to positively contribute towards the promotion of peace and stability in the region.

Assessing India's possession of nuclear arsenal is quite difficult, as it is covered in the "thick veil of secrecy" with regard to nuclear development and research. Estimation of nuclear weapon is based on the amount of unsafeguarded enriched uranium or plutonium that India may have accumulated over the years. Additionally it is difficult to calculate the total yields of warheads mainly because with the same amount of material, it is inconceivable to produce the same number of thermonuclear bombs with much higher yields than fission bomb. According to Kanwal (2001) a rough estimate of nuclear warheads can be made with similar margin of error by using the same method of calculation. Such estimates should be sufficient to serve the purpose of computing relative nuclear capabilities. The most widely accepted estimate of India's plutonium production has been made by Federation of American scientists' David Albright. According to him by the end of 1999, India possessed weapon grade plutonium for weapon production, between 240 and 395 Kg with a median value of 310 k which was sufficient for 45-95 weapons.¹⁴

The first statement by Indian Government with regard to design capabilities of its nuclear weapon came in the year 2000, when Minister of State Vasundra Raje Scindia informed the parliament that India's nuclear arsenal was to consist of fission, sub-kiloton, boosted fission and thermonuclear weapons with the yield up to 200 kts.¹⁵ Oppose to Indian claim, the US Congressional Research Service, who advises the US Congress, has asserted that India has 30 to 35 nuclear weapons with yields differing between 5 to 25 kt. The report states that India has become virtually self-sufficient in its missile programme, enabling it to avoid the international export control regime and difficulties arising out of foreign involvement in its programme. Unlike Pakistan, India maintains a second strike or retaliatory option of its nuclear weapons arsenal that is currently based on nuclear triad of air based nuclear fighter aircraft, land based road-and rail mobile nuclear armed ballistic missiles and sea based ballistic missiles. The Rand Corporation study commissioned by the Pentagon in 2001, noted that India does not possess or seek to build a ready nuclear arsenal but India's objective is to create a "force-in-being" which it

described as a nuclear deterrent that consists of available but dispersed components. Essentially, India possesses unassembled nuclear warheads, with their components stored separately under strict civilian control. Its dedicated delivery systems are kept either in storage or in readiness away from their operational areas—all of which can be brought together as rapidly as required to create a usable deterrent force during a supreme emergency.

Apart from massive conventional military strength, China retained a sizeable advantage in the nuclear sphere. Due to the secrecy of its strategic program, it is a difficult task to accurately estimate China's nuclear arsenal. The Bulletin of Atomic Scientists estimated that China had approximately 400 nuclear warheads in 1999,¹⁶ but the organization downsized the arsenal to approximately 200 warheads in 2006.¹⁷ The recent report, describes adding up of 10 warheads tallying to 260.¹⁸ These increases would make China the only UN permanent Security Council member nation actively expanding its nuclear arsenal.¹⁹ India, by contrast, has had a much more spectacular increase, going from 30–35 warheads in 2002²⁰ to 80–100 in 2011²¹ and 110–120 in 2016. Yet, despite India's progress, China still maintains more than twice as many weapons which can be delivered by aircrafts, land-based intercontinental ballistic missiles and submarine launched ballistic missiles.²² China has four different nuclear capable land-based ballistic missiles with ranges that span from 1,800 to 13,000 Km. China's missile ranges are as follows; short-range, less than 100 km; medium range, 1000–3000 km; long-range, 3000–8000 km; and intercontinental range, over 8000 km.²³ China is believed to have approximately 150 air delivered nuclear weapons. The current fleet of 120 B-6/H-6 bomber aircraft is quite outdated, but it has purchased 48 SU-27 from Russia and are indigenously producing 6 to 7 of the Soviet version of aircraft every year at Shenyang. Further China has bought the advanced 60 SU-30 MKK from Russia which is capable of carrying tactical nuclear weapons.²⁴ China's sea based deterrent is relatively new. The navy currently possesses Xia Class (Type 092) SSBM. It is equipped with 12 JL- SLBM with the range of 2150–2500km. Type 094 submarine has been developed by China which is estimated to carry 12 long ranged JL-2s with approximate range of 14000km. Global Security Newswire has claimed that China is also developing Type 096 submarine which is capable of carrying up to 24 JI-2 ballistic missiles.²⁵ Moreover China has also

retained its technological advantage as it modernizes its ballistic missiles.²⁶ China has already deployed missiles, such as the “new DF-21 IRBMs,” near “Da Qaidam in Qinghai Province, as well as new DF-31s in central China,” which can “provide coverage of major strategic targets in India.”²⁷

According to the latest data on the breakdown of worlds nuclear forces released by SIPRI in 2014, reveals that Pakistan had more nuclear warheads than India.²⁸ Pakistan is estimated to possess nuclear weapon stockpile of 130-140 warheads, with the development of several delivery systems four plutonium production reactors and its expanding uranium enrichment facilities, Pakistan has a stockpile that will likely increase further over the next decade.²⁹ Pakistan is modifying its nuclear posture with new short-range nuclear-capable weapon systems to counter military threats below the strategic level. Siddique and Faisal argues that Pakistan's nuclear modification efforts seek to create a full-spectrum deterrent that is intended not only to respond to nuclear attacks but to counter an Indian conventional attack onto Pakistani territory.³⁰ Pakistan possesses a wide variety of nuclear capable medium range ballistic missiles with ranges up to 2500 km, it includes Half-I with a range of 80-100 km; Half-2, range 190 Km; Half-3, Range 280 Km; Shaheen-I, range 750 Km; Ghauri-I, range 1300 km; and Gharui-2, range 2,300 km. Pakistan is also developing number of other missiles. Hans Kristensen stated that the US manufactured F-16s are considered to be the first aircraft that are nuclear-capable in the Pakistan arsenal and the French mirage III/V fighter squadrons was upgraded to carry a new air launch cruise missile. Pakistan is developing two new nuclear-capable cruise missiles, the ground-launched Babur (Hatf-7) and the air-launched Ra’ad (Hatf-8). According to ISPR Report of 2011 Pakistani Government stated that, “the Babur and Ra’ad both have stealth capabilities and pinpoint accuracy, and each is described as a low-altitude, terrain-hugging missile with high maneuverability.”³¹ The Babur has been test launched 11 times, last in 2014 and is probably operational with the armed forces. All of the Pakistani nuclear weapons are India specific to deter India's conventional military superiority.

India needs a viable nuclear force structure, survivable operationally prepared nuclear force to ensure that it professed minimum credible deterrent in genuinely

credible. It is essential to reconcile varying views regarding “how much in minimum” numbers of nuclear warheads that India needs to manufacture and stockpile for effective minimum deterrent. The recommendation from analysts and strategists vary from minimum “two - three dozen” nuclear bomb as propagated by military strategist Jasjit Singh to a maximum of over 400 bombs as emphasized by Bharat Karnard. General K. Sunderji argued that India needs a minimum of 20 nuclear weapons of 20 Kt, each to deter a small country like Pakistan and about 50 such weapons to provide a credible nuclear deterrence against a large country like China.³² Gurmeet Kanwal has insisted on the requirement of 200 nuclear warheads, which is based on the assumption that it would be necessary to be able to destroy eight to ten high value targets like cities and industrial centers of one’s adversary in a retaliatory strike for deterrence to be credible.

For India nuclear deterrence means the possession of minimum number of weapon of mass destruction that will ensure the survivability of the country as an independent sovereign state. The objective of nuclear deterrence is to restrain the adventurousness of the political leadership of the adversarial nations that may threaten to use nuclear weapon against India.³³ However, no official statement has been made by Indian Government regarding the size of its nuclear arsenal. By taking into consideration the estimate made by Federation of American Scientist on status of world nuclear forces, India has 110 - 120 nuclear weapons in its possession. India's nuclear force consists of land-air- sea based capabilities. It has deployed 56 Prithvi and Agni series of ballistic missiles. Indian Army is in control of and can deploy the land-based nuclear weapon which currently consists of three different variant of ballistic missiles, the Agni-I, Agni-II, and Agni-III. Additional long range Agni-IV and Agni V has been successfully tested and are due to enter full operational service in future. Agni V has near inter-continental range and will be capable to reach deep targets in China.³⁴ Apart from Agni and Prithvi series of missiles, there are speculation doing the round that India is developing ICBM named Agni VI/Surya, rumour to have a range between 12000 -16000 Km. However its status has not been confirmed by Indian Government see figure 3.4.

India's current status of air-based nuclear weapon is unclear, however it is believed to possess three types of bombers capable to provide a second strike nuclear

strive role. They are Dassault Mirage 2000s, SEPECAT JAGUARS and MIG- 27, Moreover Indian Government has concluded an Inter-Governmental Agreement (IAG) with France in 2016 to purchase the forth fighter planes the Rafales.³⁵ In the year 2012 India announced the successfully deployment of a submarine launched ballistic missile (SLBM) K-15 Sagarika, which was a significant move closer to nuclear triad. Other than US, Russia, France and China, India became the fifth state to produce SLBMs. A week later Chief of Naval Staff Adm. Nirmal Verma marking his retirement speech said that Indian navy is "poised to complete the triad "(Venport, 2012, p. 32) and the first indigenously built submarine platform for K-15, the INS Arihant " will commence sea trial in the coming months" (Venport, 2012, p. 32). He further states that giving India's no first use pledge the sea based nuclear deterrent is " credible and invulnerable is and imperative for India [and India's ability to] deploy SLBMs will align naval capabilities with its nuclear doctrine" (Venport, 2012, p. 33) India had stated it intension of building nuclear triad in its nuclear doctrine and is constructively working towards achieving nuclear triad for deterrent purpose.

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Figure 3.4 INDIA'S NUCLEAR FORCE 2017 ³⁶

	~ 16	1985	1,8050	1x bomb	~ 16
<u>Aircraft</u>	~ 32	1981	1,600	1x bomb	~ 32
1.Vajra (Mirage 200H)	~ 48				~48
2.Shamsher(JaguarIS/IB)					
Subtotal					
<u>Land Based Ballistic Missile</u>					
1.Prithiv- 2	~ 24	2003	350	1x12	~ 24
2. Agni - 1	~ 20	2007i	700+	1x40	~20
3. Agni - 2	~ 16	2011ii	2,000+	1x40	~8
4. Agni - 3	~ 8	2014?	3,200+	1x40	n.a
5. Agni - 4	n.a	(2018)	3,500+	1x40	n.a
6. Agni - 5	n.a	(2020)	5,200+	1x40	~ 68
Subtotal	~ 68				
<u>Sea-based Ballistic Missile</u>					
1. Dhanush	2	2013	400	1x12	2
2. K- 15 (Sagarika)	(12)	(2017)	700	1x12	(12)
3. K-4	n.a	?	~ 3,000	1x?	n.a
	(14)				(14)
SUBTOTAL					~118(130)iii

i. Agni I was first inducted in 2004 with 334th Missile Group and was operational in 2007.

ii. Agni II was first inducted in 2008 with the 334th Missile Group and operational in 2011.

iii. 12 warheads possibly produced by first SSBN but not operational is included in parenthesis making a total of 130 warheads.

3.7 CONCLUSION

The rationale behind India's need for nuclear weapon is to resist any nuclear coercion or blackmail, and therefore its utility is only for self-defence. Consequently India has articulated nuclear doctrine that ascertains the political role of deterrence for its nuclear weapons. India's nuclear doctrine attributes to NFU posture and considers that nuclear weapons are political weapons and not for war fighting but only to deter its adversaries, is in fact the essence of Indian strategic culture. Nuclear policies are not country specific and are subjected to the strategic culture of a country. The NFU policy indicates the intention of India to maintain the strategic stability in the region and signals out to both its nuclear armed neighbours to follow the path of restraint. But if ever an adversary uses nuclear weapon against India under such circumstances the doctrine has made provisions for "massive retaliation to inflict unacceptable damage." Consequently India's nuclear doctrine aspires for a nuclear deterrence whose credibility is established on survivability of its arsenal to "inflict unacceptable damage".

The operational nuclear strategy as flows from India's nuclear doctrine provides the least risk option in a situation where nuclear weapons are present. India nuclear deterrence is premised on a small nuclear stockpile that is not on hair trigger alert thus make it less possible for accidental use or miscalculation. Along with India's commitment towards no first use and if used for punitive retaliation then the nuclear doctrine in the first place seeks to limit the odd of nuclear use. This supposition, however, assumes the centrality of survival of the nation as a core value held equally by the adversary. It demands rationality or the basic assumption that states will not want to risk their extinction, or be willing to suffer enormous destruction, which will be inevitable with nuclear use, or be able to rationally make a cost benefit analysis of their behaviour. If these preconditions go missing (as they could with non state actors), classical deterrence would not hold. However, as long as national leadership (civilian or military) is not willing to place the survival of the state at stake, nuclear deterrence would apply.

NOTES/REFERENCES

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