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A Comparative Study of Nuclear Doctrines of India and Pakistan

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Abstract

The strategic culture of South Asia is characterized by the hostility between India and Pakistan. Conventional arms' race, wars, growing insecurity and ultimately nuclearization of the region is the consequence of this continual enmity. To match this threatening environment both Pakistan and India has opted nuclear arms. After the nuclear explosions of 1998 the world started to talk about the nuclear doctrine for the region. This present study is an effort to understand doctrine, nuclear doctrine and it's ramifications for South Asia. It will be analyzed whether these doctrines fulfill the required qualities and what implication they do have on both countries in general and the region in particular. It is essential to analyze them as the changing global scenario demands for the clear picture of the nuclear posture of both paramount states of the South Asian region. This region casts its impact not only on the residing actors but the neighboring region as well. The research concludes that the re-establishment of constant dialogue and diplomatic efforts are more beneficial for the region to counter the threat and insecurity.

Keywords: Nuclear Doctrine, Nuclear Deterrence, Command and Control, Nuclear Posture, Strategic Culture

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Introduction

The strategic culture of South Asia is characterized by the hostility between India and Pakistan. This enmity and hostility has further ramifications. Conventional arms race, wars, growing insecurity and ultimately nuclearization of the region is the consequence of this continual enmity.

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In order to understand the real standing of both states on issue of nuclearization, it is important to understand the nuclear doctrine of both sides and to analyze the implication of these doctrines on the total security of South Asian region.

What is a Doctrine?

Theoretically doctrine means a rule or principle that forms the basis of a theory or policy. In other words doctrine is the set of principles or rules governing the employment of a capability. There is a passive use of this concept in political, military and strategic aspects. Political and ideological doctrines encompass practice and promulgation of a political philosophy. When the word doctrine is implemented in military matters it stands for the environment within which armed forces operate. This word also extends to prescribe the methods and circumstances within which army should be employed (Viotti, 1999; 190).

What is a Nuclear Doctrine?

Nuclear doctrines of the contemporary world are different from the rest of the classical doctrines. After having nuclear capability, two things which a state had to address, first thing is to efficient deployment and second is management of these nuclear weapons. To tackle all these and related issues, every state needs to develop a doctrine that pertains under what circumstances, how, and for what purposes such weapons will be used. Second thing in this issue is the need to have a foolproof command and control to ensure specific use according to the plans mentioned in the nuclear doctrine. Proper and efficient command and control system may be used as a deterrent purpose while unauthorised or accidental use may result in chaos for the mankind and humanity (Bhumitra Chakma, 2006).

The nuclear doctrines are mainly of two basic types; aggressive or offensive nuclear doctrine, non aggressive or defensive nuclear doctrine. It defines principles and policies about the development, deployment and employment of nuclear forces. A doctrine is a guideline for the policy makers and decision makers. The definition of a nuclear doctrine actually elaborates the qualities of a perfect doctrine. A complete doctrine must be able to provide guideline for the policy makers and direction for the arms forces for the deployment and employment of the nuclear forces (Freedman, 2003; 45-69).

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While discussing Pakistan and India's nuclear doctrine it will be analyzed whether these doctrines fulfill the required qualities and what implication they do have on both countries in general and the region in particular. It is essential to analyze them as the changing global scenario demands for the clear picture of the nuclear posture of both paramount states of the South Asian region. This region casts its impact not only on the residing actors but the neighboring region as well.

Evolution of Indian Nuclear Program

India's first attempts to begin nuclear program published by Guarav Kampani in *Nuclear Overview: Historical Overview* identifies as "India's nuclear program was conceived in the pre-independence era by a small group of influential scientists who grasped the significance of nuclear energy and persuaded political leaders from the Indian National Congress to invest resources in the nuclear sector" (Guarav Kampani, 2007). A chief promoter regarding this program was Dr. Homi Jehanjir Bhabba, and he forwarded his proposals to Sir Dorab Tata Trust to initiate a research institute in the area of nuclear technology. His logic to shift to the nuclear energy was that when nuclear energy will be utilized with success for power and production purposes, India will not dependent of foreign experts after a couple of decades from now"(George Perkovich, 1999).

During this debate related to nuclear technology the country quietly shifted from uranium based production to plutonium based one. Initianly this shift was because of shortage of natural uranium and so much so that plutonium case be used as doubly beneficial as first stage and second stage fuel (unending) with the help of India's first reactor, the 1MW Aspara Research Reactor, a reactor that was built with British help in 1955. Canada agreed to provide the 40MW Canada-India Reactor (CIR) after long deliberations (as first step). (M.V. Ramana, 2007).

As far as the India is concerned India followed Nehru's declared "peaceful nuclear program," in the 1950s and 1960s, with an agenda that they will not develop nuclear weapons, but will only utilize this form of energy as to provide energy for the public, but there were some indicators that some key figures in India's nuclear program thought differently.

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Phase 1964- 1974 (China Dimension)

Evolution of the Indian nuclear weapon program traces back to its inception. As it is discussed earlier India had mature nuclear thoughts in 50s. China-India conflict added a serious dimension in it. There were serious discussions on the acquisition of nuclear capability on intellectual, official and professional level. In 1964 China had done its first atomic explosion. This incident induced a surge of tension throughout India. Dr. Bhabha openly expressed the possibility of the development of Indian nuclear weapon at the occasion of 12th Pugwash conference. He openly and vividly suggested 'recourse to nuclear weapons to redress the imbalance against the China's military dominance.' That was the stage when India was in need of a decade or more for the development of a nuclear weapon but Dr. Bhabha was of the view that it could be made possible in the span of one and a half year. Although it was a boasted and a lofty claim yet it showed the urgency on Indian side for the acquisition of nuclear weapon.

As compare to China India's nuclear program is predated. India had developed CIRUS and TRP, which offer the essential facilities of developing a nuclear weapon, before the Chinese atomic explosion in 1964. Incidents did not stop here. Next jolt was felt severely when Chine gave ultimatum to India during the Pak- India war of 1965. This incident actually refueled nuclear weapon debate in India. Indian Prime Minister Shastri sanctioned the work on SNEP (Subterranean Nuclear Explosion Project). This sanction was granted on the recommendation of Dr. Bhabha. Prime Minister Shastri and Dr. Bhabha were very much willing to develop nuclear weapon. They wanted to acquire same nuclear capability as a weapon test without openly going for bomb. The zeal and speed of this project was interrupted by the tragic deaths of Dr. Bhabha and Prime Minister Shastri. It was a big loss for the development of Indian nuclear program. Dr. Vikram Srarabhai was the next chairman of AEC. Dr. Sarabhai had different perspective on nuclear weapon issue with that of Dr. Bhabha. From 1966 till 1972 India maintained nuclear option. Till this time there was no expression of any nuclear doctrine on official and public level. There has been a policy regarding the nuclear program since inception but this policy was not combined with a nuclear doctrine. As a part of regional strategy Indian nuclear program kept on developing but without an obvious and well declared nuclear doctrine.

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Phase 1974 to date (Pakistan Dimension)

In India's nuclear history, most significant incident was happened on May 18, 1974, when India conducted its first nuclear explosions near Pokhran (India). According to estimates these blasts were between 8-12 ki (less in power dropped on Hiroshima in 1945). According to official statements the test was "peaceful nuclear explosion" (PNE). In the same year Indra Gandhi had to face public unrest and she declared unpopular emergency. Because of this emergency she lost elections in 1977. Murarji Desai had taken charge as a new Prime Minister. His administration had shown no zest for nuclear option as compare to the administration of Indra Gandhi. In 1980 Indra Gandhi came back as the Prime Minister of India.

The regional scenario had considerably changed in 1980. Pakistan was well on the route to nuclearization and Russian invasion in Afghanistan had provided a golden chance to Pakistan to develop its nuclear weapon program successfully and speedily.

India was not unaware of all these developments. India, in response, had used all possible measures to contain Pakistan's nuclear weapon program. India could not use the norms and framework of nonproliferation and regional arms control measures because in this case India itself had to face the reciprocal limitations and rules on the nuclear issue. On the other hand Pakistan was frontline state in the Soviet Afghan war. USA and China were assisting Pakistan on both economic and military fronts to make it more capable against Soviet challenge. It was during this time that India had given serious thoughts to prosecute a preventive war doctrine. This shows the height of Indian frustration regarding Pakistan's nuclear program. Such were the circumstances and events that kept on giving shape to the future Indian nuclear doctrine.

India, consequently adopted a preventive war/ pre- emption doctrine. Prevention means to attack the nuclear capabilities of an opponent before it acquires WMD. Pre-emption on the other hand, strands for the idea of attacking an opponent before the actual use of WMD by an adversary is visible and certain. Preventive measures are taken before the acquisition of WMD by an adversary and pre-emption is done when WMD are acquired by an adversary and their actual use is pre- eminent. The third term in relation with the nuclear weapon is decapitation.

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This option is taken for the complete destruction of adversary's nuclear capability including its nuclear infrastructure, command and control. Indian adoption of such a dangerous thinking is the vivid example of its frustration about Pakistan's nuclear program and its failure to contain and halt this program.

Throughout the decade of 80s India kept on threatening Pakistan of conventional preventive strikes. It was because India was well aware of its conventional military edge over Pakistan. In 1982 US shared this information with Pakistan that India was well in this position to carry such preventive strike. It was a peak time of Soviet Afghan war and Pakistan was fighting as the frontline state from US side. In such a scenario US deemed it important to equip Pakistan army with latest F-16 aircrafts. In response to the Indian threat General Zia ul Haq gave an ambiguous signal that in case of any preventive strike Pakistan will use all available means. Pakistan will even use F-16 aircrafts to strike Bombay nuclear facilities and air base. Hence the concept of preventive strike against Pakistan's nuclear sites was refuted by Indra Gandhi administration. It was clearly judged by the Indian military experts that any such attack could induce retaliatory action in Pakistan and ultimately it could be turn out as a full fledge war. Apart from US support to Pakistan, India was well aware that Kahuta was a well defended target. India had less chances of success in such an adventure. In this way a pre-emptive attack to destroy or seriously degrade the adversary's nuclear assets had finally been laid to rest. Indian nuclear doctrinal thinking was deeply affected by this crisis. Such hostile Indian thinking enhanced the perception of threat in Pakistan and the regional strategic scenario also became more intense.

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With these realities India entered a new turn of its nuclear doctrinal thinking. Till this time it was an obvious fact the any kind of pre-emptive strike will earn no gain for India. In late 80s India went for **Brasstack exercises**, it was an open attempt to threaten and pressurize Pakistan. Brasstacks was the last incident when India faced only conventionally equipped Pakistan, afterwards it was nuclear armed Pakistan which entered in the Indian strategic calculation.

During 1990 crisis India employed heavy forces in Kashmir. There was a considerable armed deployment on the Rajisthan in the South. During this crisis it was nuclear factor on the side of Pakistan that put restraints on the Indian ambitions.

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This crisis also ended in fear of escalation of full-fledged war, nuclear deterrence and US mediation. All these incidents contributed in the development of future Indian nuclear doctrine.

Indian Nuclear Doctrine

As a matter of fact Indian army was not given the task to design nuclear doctrine till 1980s. There are several reasons behind it. At first place Indian nuclear program was not much advanced in 80s that required a nuclear doctrine. Secondly, Indian threat perception was not at that stage that required some doctrine. Lastly, Indian army was not asked to formulate a doctrine not because a doctrine was not required but also this delay was due to Indian military and strategic culture. Till late 70s and early 80s Indian nuclear program was not well acknowledged as it was in 1998, that was another reason of non formulation of nuclear doctrine.

The formulation of Indian nuclear doctrine initiated in April 1998. A task force was set and the report of that task force was followed by Cabinet Committee on Security, National Security Advisor and a National Security Advisory Board (NSAB). The preparation of Indian nuclear doctrine was now the task of NSAB. NSAB hurried its work on the draft after Kargil Crisis of 1999. On 17th August 1999 NSAB presented its report titled 'Draft Report of National Security Advisory Board.' This nuclear doctrine draft was published but it had yet to obtain the approval of government and was made public in order to gather the public opinion. Draft Nuclear Doctrine (DND) is a document that highligts nuclear thinking of India. It is worth explaining that such drafts are time bound declarations and there are chances of many changes in them with the passage of time.

India has made clear in the DND the rationale of keeping and developing nuclear weapons. The way this rationale is presented is quite self defeating. Besides explaining the 'gravest threat' to the sovereignty of India and danger to the humanity, India reserves the right of keeping nuclear weapons. There was absolutely no need of this wolf crying. The other important Indian stance is the rationale behind developing nuclear technology is the economic boost of the country. Again this claim is not absolutely true and the proof is Indian approach to acquire nuclear weapons and its failure to meet with the complete nuclear disarmament (Spector, 1992; 63-81). The DND also deals with the concept of 'Credible Minimum Deterrence'.

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There is no obvious estimation of Credible Minimum Deterrence. There are several ambiguities regarding this concept and DND describes;

"India's peacetime posture aims at convincing any potential aggressor that: (a) any threat of use of nuclear weapon against shall invoke measures to counter the threat: and (b) any attack on India and its armed forces shall result in punitive retaliation with nuclear weapons to inflict damage unacceptable to the aggressor" (Cheema, 2010).

Measures are not described in DND. It gives a wide range of options including pre- emptive strikes and other conventional means. There is declaration of Indian intention of 'no first use of nuclear weapon.' Historically India itself did not accept such declaration from China. As a matter of fact, such declarations have no credibility unless or until they are translated into a bilateral declaration.

India published an official nuclear doctrine on January 04, 2003, which was then made public, with the following points.

1. India's stance will be to build and maintain a credible minimum deterrent.
2. Main punch of India's stance will be "No First Use", but these will be used against nuclear attack, in retaliation, on territory or on its forces. This retaliation will be massive and effect unbearable damage.
3. Civil political leadership only can authorize these retaliation attacks, naming Nuclear Command Authority.
4. Non-nuclear states will not be hit by nuclear weapons. But, in case of major attack (biological or chemical), India will have the option of nuclear weapons.
5. Strict control on the export of fissile material as mentioned in Fissile Material Cut-off Treaty (FMCT) declaration will be followed.
6. India will strictly follow the guidelines for a nuclear free world on non-discriminatory basis on all across the globe.

This doctrine contain for the establishment of Nuclear Command Authority with organs of political as well as executive councils. Prime Minister will be the head of chairs the Political Council, and this is the only body, to authorize the use of nuclear weapons. (Rifaat Hussain, 2005, p 24)

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Operationalisation of Nuclear Doctrine of India

Indian Cabinet Committee on Security reviewed this document on 4 January 2003. The principles set in DND were changed in the Operationalisation. The principle of no first use has been modified in favor of Indian needs and necessity. Originally this principle states that India reserves the right of using nuclear weapon in retaliation of the opponent attack. In Operationalisation this principle was modified in the way that if Indian forces were attacked on or outside Indian Territory, India reserved the right of nuclear attack. The aspect of Operationalisation of this principle leaves NFU rather ineffective when it clarifies that in case of major attack against India, India reserves the right of using all options including biological, chemical and nuclear weapons against the opponent (Chaudhuri, 2004; 275-280).

The DND describes 'deterrence' the purpose of Indian nuclear weapons. In the Operationalisation aspect it is not explained that how and what kind of retaliation India would show in case of any nuclear threat. DND also explains the concept of credible minimum deterrence but the Operationalisation aspect does not include the development of triad of strategic nuclear forces. There are long-term objectives of these developments. Although India has put moratorium on the next nuclear explosions but while signing Indo-US Nuclear Agreement India has retained its right of conducting future nuclear tests. All these aspects of Operationalisation belie the original DND statements.

Another important clause of DND is regarding the survivalabilty of the nuclear forces. These weapons must be deployed in such way that could survive the first use of nuclear weapons. Article 5.4 of DND describes the link between survivalability of nuclear arsenal and C4I1 (command, control, communications, computing and information). Survivalability depends upon the size of nuclear forces. DND provides broad spectrum of development, deployment and employment of nuclear forces. In Operationalisation aspect, this doctrine allows India to have multiple redundant systems. Overall scenario prescribes unlimited space for the nuclear development for India which again belies its other claims of peaceful use of nuclear technology.

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Evolution of Pakistan's Nuclear Program

According to Congressional Research Service, June 2012, USA, Nuclear program of Pakistan was initiated in 1950s, but the incident that boosted it was the loss of East Pakistan, in war against India, and the political leadership decided to start secretly this program just after one month of this tragic incident of Bangladesh in 1972. Main attribute or primary mission of going nuclear Pakistan is the deterrence of India's nuclear power and also inferiority in the conventional arms with relation to India. It was also evident that India's **"peaceful"** nuclear explosion of 1974 also worked for the urgency in this regard. Nuclear scientists of Pakistan mastered to produce fissile material by using gas centrifuge based technology of uranium enrichment in the years of 1980s. Fissile material for nuclear weapons is of two types, highly enriched uranium and plutonium. Main enrichment facility of the country is located at Kahuta including other sites. As far as sources to enrichment for these materials it is pertinent to mention here that Pakistan acquired from many sources, like Europe and China as well. Accordingly, Pakistan constructed a uranium enrichment facility in the 1970s, and according to Dr. Abdul Qadeer Khan the country started uranium enrichment in 1978 and highly enrichment uranium in 1983.

Officially it was stated that Pakistan is only producing only low enriched uranium (which is not used in nuclear weapons), according to U.S. and Pakistan government officials in 1990 in a meeting announced that the country decided to resume producing HEU sometime after October 1989 (indicated in 1994). U.S. had information that Pakistan is going to be a nuclear state but at what pace to a workable experience was not clear to her. Dr. Khan stated in an interview published in May 1998 that the country had acquired the capability to explode nuclear device during 1984.[2] Similarly, Dr. Khan stated in a speech (in January 2010) that Pakistan had become a nuclear power in 1984 or 1985. Moreover, in June 1998, senior Pakistani politicians told to parliamentary committee of Canada that Pakistan had reached the nuclear 'threshold' by 1984-85. Whatsoever was the case, it was the failure of President Bush to certify in 1990 that the country did not possess any nuclear device. And due to this Pressler Amendment was introduced to a cut-off in military and financial aid of Pakistan.

[2] Qadeer Khan Interviewed on Pakistan N-Test," *The News*, May 30, 1998.

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When on May 11 and May 13, 1998 India conducted nuclear tests, government Pakistan had to respond on May 28 and May 30 with six tests in *Chaghi* (area in western Pakistan). According to seismic analysis the test yields were about 10 kilotons and 5 kilotons. (Congressional Research Service, June 2012, USA)

Pakistan's Nuclear Doctrine

Pakistan acquired nuclear power in order to establish a strong deterrence against India. Initially Pakistan intended to stick with the concept of the Atom for Peace. With passage of time and occurrence of hostile acts from Indian side Pakistan had to change its vision. It was conventional victory of India over Pakistan when it lost its Eastern wing at the hands of India in 1971. When India conducted its first nuclear test in 1974, threat perception in Pakistan was on peak. Keeping in view Indian nefarious designs against Pakistan, the leadership of Pakistan resolved to get nuclear weapon in order to get reliable deterrence against India. Infect the same vision is the basis of Pakistan's nuclear doctrine (Khalid, 2011; 128-136).

It is equally necessary that nuclear capability must be kept under a well devised doctrinal concept. India announced her nuclear doctrine in August, 1999 as 'offensive, and threatening regional and global stability.' (The News Rawalpindi, 1999 August 26) Defense Committee of Cabinet, held its session under former Prime Minister Nawaz Sharif in order to devise a policy regarding Pakistan's nuclear doctrine and strategic culture. Usually Pakistan's policies had remained India centric mostly because of hostile posture of the later. Pakistan's nuclear policy has also been India centric since 1974. Bhutto described Indian nuclear tests as 'fateful development, a threat to Pakistan's security' (The Pakistan Times, 1974 June 8).

According to Smart (1975) strategic doctrine of Pakistan is based upon following three principles that includes, first is the guarantee of independence and geographical integrity second is mutual deterrence among nuclear states and to control total war while third principle is "offense-defense", as these weapons made it possible for weaker states to defend themselves effectively against aggressors and powerful countries. These perceived security and deterrence benefits underpin Islamabad's to stay away from the policy of no first use. According to most authoritative sources Pakistan's nuclear doctrine is based on the following claims:-

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1. Nuclear weapons are assurance for the territorial integrity of the country as well as national independence and sovereignty.
2. Pakistani threat perceptions (as narrated above) are only India-centric and sole aim to having these weapons is to deter India from aggression. Such as,

- Nuclear weapons are essential for India's conventional superiority.
- As conventional balance of forces between India and Pakistan, benefitted India so nuclear use is for Balance of Power in conventional force ratios between the two sides.

3. Deterrence strategy of Pakistan is based on threat of punishment with counter value targets.
4. Pakistan's strategic stance is that of minimum credible deterrence, it is minimum because as these weapons have no other role but to deter the adversary.
5. As India has advantage in conventional army, so Pakistan cannot commit to a policy of no first use (NFU). As this will enable India to fight conventional war with impunity.
6. The National Command Authority (NCA), comprising the Employment Control Committee, Development Control Committee and Strategic Plans Division, is the center point of all decision-making regarding nuclear issue.
7. Nuclear assets are considered to be safe, secure and almost free from risks of improper or accidental use.

These were the main attributes of the Pakistan's undeclared nuclear doctrine. It has three distinct policy objectives: a) deter a first nuclear use by India; b) enable Pakistan to deter Indian conventional attack; c) allow Islamabad to "internationalize the crisis and invite outside intervention in the unfavorable circumstance"– the external balancing factor. Some analysts have suggested that this capability may also be used as deterrent to cover a low-intensity war in Kashmir (Rifaat Hussain, 2005)

Pakistan principally decided to adopt the option of 'Credible Minimum Deterrence' (The News, 1999 August 26). This concept had remained central to all nuclear policy and planning of Pakistan.

Posture of Credible Minimum Deterrence

Posture of Credible Minimum Deterrence has remained a principle option of Pakistan's nuclear policy. Many Pakistani decision makers have referred to this policy at many occasions.

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This principle underlines an understood notion that Pakistan's nuclear policy is mainly India centric. Nuclear capability is required only to the extent that could ensure nuclear deterrence against Indian unscrupulous posture as the country had experienced in 1971 (The News, 1999 August 26).

Pakistan has maintained only that much nuclear force that would be enough to inflict unacceptable damage to India in case if the later intend to jeopardize the security of the former. During the crisis situation after overt nuclearization, Pakistan had clearly signaled India of nuclear deterrence and certainly this fact had contained India in Kargil crisis and military confrontation of 2002 (Chakma, 2009, p.127). Pakistan had refrained from the term of nuclear weapons in these confrontations instead the term of 'unconventional weapons' or 'unconventional war' is used by the authorities (The News, 2002 May 30).

CMD confirms Pakistan's disinterest in any kind of nuclear arms race in the region. In November, 1999 Pakistan's Foreign Minister Abdul Sattar stated while addressing in a conference, 'more is unnecessary while little is enough' (The Muslim, 1999 November 28). At the same time he made it clear that it is required to upgrade and update nuclear technology in order to maintain meaningful deterrence (The Dawn 1999 November 25). In 2003 General Pervaiz Musharraf also stated that number did not matter 'beyond a point.' He further stated that Pakistan has acquired sufficient deterrence to take care of her security (The Hindu 2003 Mach 7).

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Command and Control of Nuclear Weapons

Command and control system of Pakistan's nuclear weapons is comprised of NCA (National Command Authority) and SPD (Strategic Plans Division) which work under the command of NCA. Hence, a compact and coherent system was developed for the command and control of the strategic assets. All components of the command and control system have well defined roles and responsibilities to perform.

National Command Authority (NCA)

After nuclear explosion Pakistan had devised a well conceived and elaborated system of C3I (Command, Control, Communication and Intelligence). This system remained informal till 1999.

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In February, 2000 a formal system of command and control was established by the Government. The purpose of NCA is development and deployment of the nuclear weapons. This organization is comprised of highest decision makers from politics and military leadership. This organization centrally controls all aspects of development and deployment matters of Pakistan's nuclear weapons (Ramdas, 2001).

Employment Control Committee (ECC)

This committee is given the task of gathering latest information on threats to the national authority, strategic weapons program and deployment of weapons programs. It retains its authority in both peace and war time. In the time of peace this committee makes appropriate approvals for the development and in the time of war it has full authority to control and deploy the tri-services strategic forces. This committee contains both military and military leadership. This committee has eleven members. In case of requirement, professional experts may be invited. The President of Pakistan is the chairman of this committee while prime minister is the vice chairman and deputy chairman is the foreign minister of Pakistan. Its members include federal ministers of defense, finance and interior, the CJCSC, three service chiefs. DG SPD is as member secretary (Albright, 2001).

This set-up is devised in order to make sure the involvement of both political and military leadership in the process of vital decision making.

Development Control Committee (DCC)

It is a military-scientific committee. Main function of this committee is the preparation and up-gradation of nuclear capabilities in order to keep deterrent capability in a ready and vigorous form. This function is being performed since 1998. President of Pakistan is the chairman of this committee and prime minister is the vice chairman while the CJCSC is the deputy chairman of DCC. This committee has the same members as ECC. The only difference in this committee is the affiliation of atomic bureaucracy. Head of KRL, chairman PAEC and chairman of National Engineering and Scientific Commission (NESCOM) are the members of this committee (Bowen & Wolven, 1999). Main tasks of this committee include the formation of administrative policy about the development of nuclear weapons, missile system, related infra structure and technologies. Another important function of this committee is to determine the size of Pakistani deterrence.

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vi) Coordinating and ensuring C4I2SR (Command, Control, Communication, Computerization and Surveillance and Reconnaissance) system for NCA (The Business Recorder 2007 December 14).

Personnel and Transportation Security Measures

Pakistan has devised an elaborate personnel and transportation security mechanism. This is called PRP/HRP (The Personnel and Human Reliability Programs). These arrangements are made to counter the threat to nuclear arsenals in meaningful ways. The scrutiny of all personal involved in the safety, security and deployment of nuclear material is included in it. All the personnel involved in the nuclear security arrangements have to undergo rigorous screening program (Luongo & Salik, 2007, p.15-17, Khan, 2003). Their backgrounds are checked, their contacts and traveling and communication is kept under strict surveillance. Beside this there is an extensive procedure of psychological screening as well.

Pakistan Nuclear Regulatory Authority

PNRA was established in December, 2001. PNRA is basically responsible for the safety and security of the peaceful aspect of Pakistan's nuclear program. PNRA developed criteria and checklists for the maintenance of the highest standards of security measures for nuclear weapons. PNRA had taken great advantage and benefits from IAEA sponsored workshops and seminars on the issues like Designed Based Threat (DBT). PNRA invited IAEA experts to review its activities. It has also shared its reports with IAEA in order to enhance the level of expertise in this field. (Irum, K. 2012)

A five year plan on National Nuclear Safety is also developed by NPRA which had undergone the necessary funding by the government. This program included the training of personnel involved in emergency rescues in case of the release of radiation. All these measures are taken in order to ensure a reliable security of nuclear and radioactive material in order to avoid unauthentic use (Luongo & Salik, 2007, Cheema, 2010, p.189).

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Pakistan - India Nuclear Postures and its Implication on South Asia

South Asian region consists of SAARC members. Pakistan and India are the paramount states of the region. The entire politics of region revolves around these two states. After nuclearization the responsibility of both states has enhanced in the region. Both states have devised their nuclear doctrines. These doctrines established a reliable deterrence in the region. There are many significant steps that are emanated out of these doctrines. (Irum, K. 2012).

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