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Foreword

It has been almost a decade since Pakistan opted to shed-off ambiguity in favour of an overt nuclear posture. Essentially the decision had its merits. The rationale was to offset the tremendous pressure and challenges faced by Pakistan in the wake of India's nuclear tests and its leadership's aggressive rhetoric. However, the succeeding years have shown a mix of achievements and setbacks pertaining to Pakistan's nuclear policy issues.

On the optimistic side, Pakistan has demonstrated successful minimum credible deterrence and a high sense of maturity in handling crisis situations in a nuclear environment. Pakistan's security problems vis-à-vis India have so far been managed quite well. Nonetheless the deterrent equation may not remain static. There are two serious challenges in this regard;

- Pakistan needs to continuously review its requirements pertaining to the up-gradation of its nuclear arsenal in the light of India's future plans.
- Any future threat scenario against Pakistan shall most probably have complex multidimensional facts i.e. sub conventional, conventional and un conventional actors too. Therefore, to cover such a large spectrum of threat dimensions, a reappraisal of Pakistan's nuclear capabilities as well as policy is urgently required.

On the downside of it, A.Q.Khan Saga has emerged as one of the darkest episodes in Pakistan's nuclear history. Undoubtedly, a lot of actions have been taken to ensure prevention of any such episodes in the days to come, the level of damage it has already done is too difficult to mitigate. Moreover, given the prevalent state of instability within Pakistan, there is a growing sense of skepticism over Pakistan's nuclear arsenal's safety and security, creating more serious problems for Pakistan. There are much spelled out apprehensions over the possibility of continuing "sanctioned" and "unsanctioned" proliferation from Pakistan. Such perceptions need to be changed in time.

Keeping these issues in view, ISSRA at NDU organized a Seminar "Nuclear Pakistan: Ten Years On" in order to stimulate intellectual thinking and generate academic discussion on various issues pertaining to Pakistan's nuclear future. This special edition of Margalla Papers is a compilation of papers presented in the above-mentioned Seminar. It presents a review of Pakistan's policies related with nuclear weapons in the last ten years, assessment of gains and losses, identifies challenges and then recommends policy options for future. It is hoped that the material would serve as a source for reference and guidance for further development of strategies and policies in this regard.

Major General Azhar Ali Shah
Director General
Institute for Strategic Studies, Research & Analysis

Overview

This special edition of Margalla Papers covers two major themes pertaining to Pakistan's Nuclear Program and Policy. First theme is "Reviewing Pakistan's Nuclear Policy and Revisiting Deterrent Stability". It addresses a host of questions that broadly include the following;

- Are nuclear weapons adequately placed in Pakistan's defence policy?
- What are the gains made and losses suffered by Pakistan due to nuclear weapons?
- Has a balance been attained between nukes and conventional weapons in terms of their effective employment?
- Where do nukes fit in Pakistan's broader threat perception in the near and distant future?
- Will the policy of Minimum Nuclear Deterrence work? If yes, for how long?
- What are the possible challenges to Pakistan's future deterrent posture and what are the proposed ways and means to sort them out?
- Does Pakistan need to officially declare a document on Nuclear Doctrine?
- Is there a need to change existing perceptions over the Pakistan's doctrinal issues, especially at the international level?

Second theme is "Pakistan's Nuclear Weapons and Global Concerns: Addressing the Challenges". Following questions are given more attention in this context;

- Are international concerns over the security and safety of Pakistan's nuclear arsenal genuine?
- Is it really the myth of an "Islamic Bomb" that is the source of concern for the West? If yes, how to resolve this dilemma?

- Is there a potential possibility of future proliferation from Pakistan?
  - If Yes, how to prevent it?
  - If No, how to assure the international community?
- What would make the world accept Pakistan's nuclear status and what do we need to do to make the world learn to live with it?

Major challenges that have been identified during the course of discussion include the issue of conceptual ambiguities regarding nuclear deterrence, internal instability as a source sending wrong signals abroad and the dilemma created by Pakistan's engagement in the War on terror, unacceptability of Pakistan's support for the US at home, possible threats because of the presence of ERF near Pakistan's borders and the possible implications of all these factors on Pakistan's nuclear arsenal.

Cluster of recommendations have been floated both by the speakers and participants. Some of these are as follows;

- Pakistan's nuclear policy needs to be revised in accordance with the broadening spectrum of threats. Deterrence strategy needs to keep into account the presence of extra-regional forces on Pakistan's borders and the possibility of threats emanating out of their presence in the near future.
- Pakistan needs to work out a thorough response to the Indian Cold Start Strategy.
- Internal instability needs to be mitigated as soon as possible because it is sending negative signals to the international community raising doubts about the safety and security of Pakistan's nuclear arsenal. No loophole should be left at home to be exploited by the foreign powers as a pretext to take action against Pakistan or its nuclear facilities.
- Pakistan's defence policy does not reflect any major change in terms of the mindset or strategic thinking. There is a need to work out a more effective nuclear

policy that should help evolve a strategy with lesser reliance on conventional weapons.

- There is an urgent need to produce a rebuttal from the academic community of all that is so frequently coming out from Western print and electronic media accusing Pakistan as an alleged Proliferator.
- Minimum Credible Deterrence is based on subjectivity. Also it is a highly relative term. What is sufficient today may not really be sufficient tomorrow to ensure minimum credible deterrence. Hence there is a dire need to continuously upgrade Pakistan's nuclear weapons arsenal and to acquire assured second strike capability as soon as possible.
- Political positions are becoming more important than legal positions in the world of arms control. Therefore there is a need to do a lot of preparatory work on all the issues that are likely to cause problems for Pakistan in this regard. One such issue is the idea of Nuclear Weapons Free World that is gaining currency these days in most of the debates on nuclear proliferation. There is a need to do the homework on all such issues beforehand.
- Pakistan needs to openly maintain that the question of its adherence to the NPT is not linked with that of India. And that Pakistan can not sign the NPT unless it is conferred with the status of a Nuclear Weapon State.
- In context of nuclear weapons there is a need to maintain a low-media profile. Exposure of the nuclear scientists to media is one such area where caution is must.
- Last but not the least, there is an urgent need to take corrective measures to make Pakistan's economy vibrant. Only a vibrant economy helps a state ensure sustainable development of both its conventional and nuclear defence systems.

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NUCLEAR WEAPONS AND PAKISTAN'S DEFENSE

Dr. Pervaiz Iqbal Cheema

The last two decades have seen a gradual rise in public concern about strategic weapons proliferation. Smaller nation's interest in acquiring nuclear weapons, which had waned in the late 1980s and early 1990s, is again on the rise. Not only the existence of vast surpluses of usable fissile material in the USA, Russia, Japan and Europe have also further intensified concerns over its possible leakage and theft but also the prospect of terrorist use of nuclear, chemical or biological munitions that was so dramatically highlighted by the Japanese subway sarin attacks of 1995 and London attack of July 2005 on underground tube train is also a source of continuous headaches. Finally, the last decade has also seen the increasing pace of space technology proliferation underscored by ever more advanced Chinese, North Korean, Iranian, Indian and Pakistani missile and satellite launches[1]. This paper initially discusses the question why nations go nuclear and then focuses on the dilemma confronting Pakistan and why it eventually opted for the acquisition of nuclear weapon's capability.

Why nations go nuclear?

Security perceptions of almost all nations are directly linked with the real and perceived threats confronting them from time to time. Threat is a geopolitical environmental condition for which the price and penalty will have to be paid by the target state if it fails to build its own effective warding-off mechanism. Since the environmental conditions are constantly changing, the threats to the security of a state often either recede or acquire alarming proportion depending on the direction of change. To obviate real or perceived threats, nations seek power, allies or support of a large and influential group. Because of the inability of international political system to evolve its own effective collective security arrangement coupled with operative economic and power disparities and inequalities, most nations of the world are left with no option but to fall back upon the age old recognized principle of self-help. Thus one witnesses a phenomenon in which almost all that nations are

constantly striving to create that kind of power equilibrium or disequilibrium which affords maximum security to them. Pakistan is no exception to this general rule. Pakistan's security policy has changed periodically in order to accommodate the geopolitical realities of the time. Initially Pakistan sought security through alignment but, recently it has opted for security through non-alignment.

While there exists a vast body of preventive measures to contain nuclear proliferation and in cases even force has been used in the name of preventive measures, the prospects for further proliferation cannot be ruled out or discounted altogether. Different nations have different reasons to opt for nuclear weapon option

Four sets of arguments are frequently advanced by states contemplating to acquire nuclear weapon; military security, political prestige and influence, economic gains, and domestic pressures and compulsions. Nations feeling insecure and lacking resources to match their major adversaries' military capabilities tend to argue that the possession of a limited nuclear deterrence could dissuade the enemies from committing aggression. To be able to deter a militarily superior rival, especially a nuclear adversary, or to acquire military superiority over any enemy or potential enemy or to strengthen one's bargaining lever, or to reduce military dependence upon an ally in particular and on external sources of military hardware in general, or to acquire complete military independence, are frequently expressed factors that influence nations to opt for nuclear option. The Soviet Union (in 1949), the UK (1952), France (1960) and China (1964) all acquired the desired nuclear capability in pursuit of the objective of being able to deter their nuclear adversaries.

Second major motivation inducing nations to go nuclear is the belief that the acquisition of nuclear weapons enhances a country's prestige and status. It is often stated that the Chinese explosion accelerated the process of according the Peoples Republic of China its due status. Similarly, General de Gaulle's decision to go nuclear was tremendously influenced by his desire to see France securing its legitimate place in world forums and organizations.

Closely trailing the status-motivation is the quest for international recognition by those nations that are confronted with recognition problems. The indigenous production of nuclear weapons demonstrates self-reliance and political independence. States seeking domineering regional role and leadership tend to believe that the acquisition of nuclear weapons' technology would accelerate the process of attaining the desired status. India is often quoted in this category.

Third major argument revolves around the economic gains that accrue from going nuclear. The nuclear energy is regarded a relatively cheap source of power, particularly in the those countries that lack sufficient oil, gas and coal deposits on the one hand and have no great hydro potential on the other. Acquisition of nuclear energy not only tends to reduce their dependence upon external sources of energy but also lessens their budgetary pressures. Besides, the acquisition of nuclear energy can provide economic and military spin-off benefits.

Final set of considerations and pressures are of purely domestic nature. A country facing serious economic, political and social problems may find its panacea in a dramatic technological breakthrough. A high visibility technical breakthrough can easily divert attention from complex internal problems. Pressure groups like civil and military bureaucracies, scientific community, political parties etc., can also generate pressure to tilt the balance towards nuclearization of the country. Again India is also quoted in this regard.

Dilemma: Signing or not signing the NPT

A close look at Pakistan's domestic scene and its regional situation clearly indicates that sufficient considerations existed to compel Pakistan to opt for nuclear path. Equally powerful factors were also operative to dissuade Pakistan from undertaking the forbidden road to nuclearization. Instead of discussing the incentives and disincentives influencing Pakistan's nuclear pursuits, perhaps, a more appropriate approach would be to spell out the options that were available to Pakistan and then within each option highlight the

advantages and disadvantages.

In many ways Pakistan's nuclear choices, directly or indirectly, were and still are linked with the developments in the region; more specifically the Indian nuclear policy. Besides the operative internal and international constraints, developments on its periphery tend to curtail its options. Under the then existing circumstances there seemed to be four basic options that can be discussed. The first option was to sign the NPT and resolve quickly its acute energy problem by securing the requisite power plants with the goodwill and help of the members of the NPT system. The second option was to refuse to sign the NPT and strive for nuclear weapons status with a view to acquire at least a limited deterrence. Since Pakistan could never hope to match India's conventional might, a limited nuclear deterrence could keep India at a safe distance. A third option was to carry on with the policy of nuclear ambiguity with a view to keep India uncertain and simultaneously perfecting nuclear technology for both peaceful and military purposes but drumming only plough share pursuits. And the fourth option was to declare the nuclear weapons capability but scrupulously refrain from embarking upon a route leading to nuclear weapons acquisitions.

Given the operative energy situation and the consequent long spells of load shedding, many thought that perhaps the best option for Pakistan was to sign the NPT. Among the major advantages that could have accrued from the signing of NPT, the most important one would have been the installation of much desired power plants. Although Pakistan had floated international tenders for power plants, the response was extremely poor. The total reserves of fossil fuels (including oil, coal, gas and hydro) are extremely limited in relation to the fast increasing population and rapidly growing economy. A very high percentage of its oil needs are being met through imports; and the oil imports alone are consuming equally high percentage of the total foreign exchange earnings. In the light of continuously escalating cost of external sources of energy and the existing deficiency of internal sources of energy, it was thought to be rational at the time that Pakistan should develop nuclear energy quickly, at least to meet its increasing power requirements, over the

next 20 years. Needless to assert that the signing of the NPT would have enormously facilitated the installation of much desired power plants. Membership of the NPT would provide access to advanced technologies and would have invoked greater willingness among the suppliers to provide the desired material enabling Pakistan to quickly perfect its nuclear projects and programs.

Secondly, the unilateral signing of NPT could have generated enormous pressures for India to adhere to the NPT system and would make India's position somewhat awkward; awkward because such pressures will embarrass the Indians who would be unable to change their stance. India regards the NPT as an unsatisfactory and discriminating treaty. The indefinite extension of NPT was not viewed favorably by the Indians. Why would India bind its hand while the other powers continued experimentations in the nuclear field? Over the years resistance to the signing of the NPT had further strengthened and almost all factions of Indian Society began to see the NPT as unacceptable. Besides, India was known to be unwilling actor to give up its nuclear weapons option unless China had decided to destroy its nuclear stockpiles. China's declaratory commitment not to use or threaten to use nuclear weapons under any circumstances had not been able to alleviate India's apprehensions. In addition, India had already upgraded its missile programme and successfully launched both Agni and Prithvi.

Third, abandoning the quest for weapon technology implied that we opt out of the nuclear race. India and Pakistan were already locked in a nuclear arms race. Opting out meant that cost involved in perfecting the nuclear device and its delivery system would be drastically reduced. The costs of acquiring, maintaining and delivering the nuclear arms are undoubtedly enormous. To be able to maintain the existing large establishments of the armed forces and simultaneously incur the cost of nuclear weaponization may prove to be greatly strenuous for weak economy. Admittedly, it is true that the relative cost of nuclear weapons is lot less than the maintenance of large scale of conventional forces but it still is an additional cost which **a country** has to bear. Besides, the acquisition of weapons does not necessarily reduce the cost incurred by the maintenance of large establishments of conventional forces. This is especially true

of Third World countries because military offers perhaps the largest number of employment opportunities. Fourth, signing of the NPT by Pakistan could have signaled the other aspiring states to realize the futility of acquisition of nuclear weapons influence their thinking in a psychological sense.

Just as there were many advantages in signing the NPT, there were also few disadvantages. First, signing the NPT implied giving free hand to India in its nuclear pursuits. Although India's declared nuclear policy had been and continued for quite sometimes that it would not build nuclear weapons, however reports frequently appeared in world press that had categorically emphasized that India would never abandoned its secret pursuit to eventually weaponize its nuclear program. A close scrutiny of comprehensive nature of India's nuclear programme in conjunction with various periodic press reports, clearly reflected that India was storing weapon grade nuclear material for eventually weaponization when its government so decides. Many Pakistanis thought that giving up nuclear weapons option entailed encouragement for India to embark upon its customary coercive path towards its neighbors. India had been known to have introduced its combat troops in neighboring countries whenever the need arose (either on its own initiative or on the request of the neighboring country).

Second, the signing Of the NPT would have invoked strong reaction among some of the political parties that had openly been advocating that Pakistan should make the 'bomb'. Given the then existing political scenario of Pakistan, with the ongoing intense political divide, abandoning such an option could have placed the incumbent government in a somewhat embarrassing position. In a society where the transfer of civilian bureaucrat and a military officer can generate so much political reaction, an issue like abandoning the nuclear option within the context of existing regional situation was bound to invoke unnecessarily strong reaction.

Third, many of the regional neighbors looked toward Pakistan with hidden admiration for highlighting India's hegemonistic regional designs, the signing of the NPT could have

been interpreted as giving into India's pressure. Such a situation could have adversely influenced the thinking of regional neighbors. If a regional solution had been accepted by India, then they would have readily accepted it as they would also remain partners in the regional approach.

Opting for Nuclear Weapons

Advantages: The argument that Pakistan should make the 'bomb' had been periodically voiced in Pakistan, though not so consistently and forcefully as it was frequently done in India. Following the Indian explosion of 1974, former Prime Minister, Zulfiqar All Bhutto expressed a strong desire to acquire nuclear capabilities comparable to that of the Indian accomplishment. The basic rationale of Pakistani 'bomb' was twofold: to avoid a likely Indian nuclear blackmail in the future, and to adopt the theory of limited deterrence. Given the then Indian drive for quantitative and qualitative expansion of its armed forces, the goal of even attaining near parity situation seemed certainly beyond Pakistan's resources. To be able to check aggressive designs that may be entertained by the Indian decision-makers, the most feasible option needed to concentrate on acquiring the ability to raise the cost to an unacceptable level and this could be only done through the acquisition of even a limited nuclear capability which, in turn could deter the Indians or at least generate sufficient pressures to initiate a process of rethinking.

Secondly, a case for the bomb could also be made out on the basis that uncertainty of situation which tended to encourage the adversaries to undertake preemptive strikes. If the actual work regarding the perfection of nuclear device continued but its existence was publicly denied, a ring of uncertainty grows which, in turn, could eventually prepare the nation for the worst case scenario and could have tempted them to contemplate selective preemptive attacks. But on the other hand, if the, nation has already publicly opted for the bomb, deterrence steps tend to inhibit the potential adversary from contemplating such actions.

Thirdly, it was often argued that if both India and Pakistan

acquired nuclear bombs, the chances of a nuclear war would rapidly increase mainly because of their demonstrated' antagonism, the frequent use of force to settle their disputes in the past, proximity of borders, and the continuing complex disputes like Kashmir etc. The underlying assumption was that the volatility of relationship made the risk of conflict much higher in South Asia than between any other antagonistic nuclear pairs. The abilities of the Indians and the Pakistanis to act rationally was not really given deserving weight even though the evidence of caution and statesmanship had been demonstrated by both Rajiv Gandhi and Benazir Bhutto when they signed in December, 1988, an agreement not to attack each others' nuclear installations. In addition, many more confidence building measures had been taken in order to reduce tension between the two countries and lessening the chances of war.

Fourthly, an argument was also made out in favor of the bomb as its acquisition would make Pakistan the first Muslim country to acquire nuclear weapons capability. Pakistan has always sought to establish a special relationship with the Muslim countries and has made every effort to strengthen the existing bonds at bilateral as well as multilateral level. Technologically, Pakistan was and in many ways still is regarded as relatively advanced when compared with Middle Eastern states, despite their enormous oil wealth and consequent rapid drive towards modernization and industrialization. Pakistan was probably the only country in the Muslim world with a reasonable nuclear base. Indeed many thought that the acquisition of advanced nuclear technology would make Pakistan one of the most important and respected members of the Muslim Bloc.

Disadvantages: Among the major disadvantages that the acquisition of the bomb would be that it would provide the much awaited and much desired legitimization excuse to India. Although evidence existed at the time, in many forms, that indicated that India was already well set on route to nuclear weaponization. India had never publicly acknowledged that she intended to acquire nuclear weapons but simultaneously India was defending her right to retain weapons option rather vigorously. Besides, a Pakistani bomb would generate sufficient pressures inside India, to compel the incumbent

government, to opt for weapons even if the government of the day was not too inclined towards this direction. Already a strong pro-weapon lobby existed in India and also sizeable section of the scientific community had formed a pressure group of its own, supporting the lobbyists. "Since we can, why should we not go in for nuclear weapons" was another line of argument put forth by the Indian lobbyists. A Pakistani bomb would have equipped the lobbyists with an invincible weapon. The publication of reports, mostly in the Western press, in 1979 that Pakistan had secretly acquired the requisite components of a uranium enrichment plant provided the much needed boost to the pro-weapons lobby in India. Convinced that Pakistan was about to acquire the bomb, the lobby activated its campaign with all the resources it could muster. The lobby urged the government ~not only to stay ahead of Pakistan in nuclear weapons technology but also to stop wasting any more time and start building a nuclear arsenal.

Second major disadvantage would have been the huge cost that would have been incurred in perfecting the weapon system. Linked with the acquisition of weapons technology was the problem of a delivery system. Even if Pakistan had successfully exploded an atomic device, disregarding its dangerous implications, how would it cope with the issue of a delivery system? A bomb without a delivery system was just as useless as high velocity gun without ammunition. Compared to Pakistan, India was far ahead in its carrier system program. It was making its own aircrafts and missiles.

Third major disadvantage would be earning the wrath of the NPT community. A Pakistani bomb was likely to adversely affect its relations with almost all donor countries as well as other members of the NPT system. Pakistan, being not only a developing country but one which had acute security problems, was vulnerable to Western economic sanctions. Long delays or total denial of World Bank of IMF loans or its consortium's aid could have seriously impaired its developmental progress and security mechanism. To check Pakistan's nuclear conduct and to plug various existing loopholes, the American Congress passed several interrelated laws threatening to punish Pakistan if it acquired nuclear weapons or even contemplated to do so. Despite Pakistan's repeated assertions that

are had not acquired nuclear weapons, the Americans invoked Pressler Amendment in the autumn of 1990 and terminated US economic assistance and military sales of Pakistan.

Fourth disadvantage that needs to be highlighted here was that acquisition of nuclear bomb would further encourage nuclear proliferation. Most of the threshold countries would use Pakistan's entry into the exclusive nuclear weapons club as a legitimate excuse to embark upon their own nuclear weapon programme. A world of nuclear plenty may become little more dangerous than the world in which the acclaimed possession of nuclear weapons was confined to only limited number of states.

Concluding Remarks

Given the advent of 21st Century and the nature of currently operative international system many factors can influence the decision makers to opt for the acquisition of hitherto forbidden nuclear weapons or abandon their quest in this regard. These include the major shift in most powerful nation's (US) foreign and security policy, a breakdown of the global non-proliferation regime, domestic imperatives, erosion of global and regional security, and increasing availability of technology. A close examination of those states that have already acquired nuclear weapons and those which are engaged in the acquisition of dreaded arsenal clearly reveals that one of the above mentioned factors was operative and heavily influenced the decision makers of particular country. Besides, the discriminatory nature of policy pursuits of certain countries or of a system further paved the grounds for the acquisition of nuclear weapon capability.

Given the past history of acrimonious relationships with India, Pakistan's nuclear posture is unlikely to change unless a major development takes place and the Pakistanis stop perceiving threats to its security. Undoubtedly Pakistan's quest for the acquisition of nuclear weapons was mainly motivated to counter threats emanating from its larger next door neighbor though one cannot deny the minor contributions of other factors. Not only the nuclear weapons are seen as balancer but these weapons are also

viewed as weapons of last resort in Pakistan.

Cognizant of increasing gap in conventional capabilities between India and Pakistan, it was realized that Pakistan can neither hope to match the rapidly increasing conventional weapons strength of India nor afford to be trapped in the undesired arms race. The acquisition of nuclear weapons could provide the much sought after panacea. While it is not too fetched to assume that the defense of Pakistan was the major motivating factor in influencing the decision to opt for nuclear weapons. However the other factors also contributed their share in facilitating the final decision.

Admittedly Pakistan has not yet clearly outlined in its nuclear doctrine specifically mentioning the eventuality in which the deployment of nuclear weapon would be seriously contemplated but it has been reported that an Italian writer quoted an interview with the Director General of Strategic Plans Division (DGSPD) and described certain situations in which the use of nuclear weapons could be seriously considered. Among these eventualities included Indian conquest of large part of Pakistani territory, destruction of large part of Pakistan's land and air forces, Indian pursuit of effective economic strangulation, Indian successful push for Pakistan's political destabilization and creation of large scale internal subversions etc. [2] It needs to be mentioned here that the DGSPD later denied the use of the wording of the above mentioned contingencies.[3]

Compared to Indian quest for nuclear weapons, Pakistan's rational for nuclear weapon program is indeed security driven. Not only Pakistan has consistently faced a looming threat from India, the main determinant for its defence and foreign policies has always been Indian policies. While Pakistan's main objective is deterring rather than fighting a war with India, other objectives of Pakistani nuclear doctrine in dealing with perceived threat from India are to maintain an overall strategic equilibrium, to neutralize conventional military asymmetries against India, and to maintain its territorial integrity and political sovereignty.[4]

Author

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End Notes

1. Emerging threats about proliferation of weapons, these views had been discussed by various prominent scholars of the world.
2. Quoted in Zafar Iqbal Cheema's article ' The Role of Nuclear Weapons in Pakistan's Defense Strategy' in **IPRI Journal**, Vol.iv, No.2, Summer 2004, pp.59-80.
3. **Ibid.**
4. **Ibid**.

PAKISTAN'S NUCLEAR POLICY & DOCTRINE
TEN YEARS HENCE – WHERE DO WE GO FROM HERE?

Brigadier Tughral Yamin

"If India builds the bomb, we will eat grass or leaves, even go hungry, but we will get one of our own. We have no other choice"

Zulfiqar Ali Bhutto – 1965[1]

Introduction

May 2008 marks the tenth anniversary of Pakistan's nuclear tests. The strategic choice to go nuclear was made in the aftermath of the loss of East Pakistan in 1971. On 24 January 1972 ZA Bhutto convened a meeting of his top scientists in Multan and launched his nation irrevocably on the nuclear path.[2]

The nuclear journey was not an easy one. Those opposed to the Pakistani nuclear program used all stratagems including denial of technology, economic sanctions, military threats, political coercion and a rabid vilification campaign to block Pakistan's inexorable advance.

The Pakistani leadership refused to buckle under pressure resulting in the Persistence, faith and belief that nuclear deterrence was essential for national security got us the Bomb in the teeth of stiff opposition. Now that we have achieved the *de facto* nuclear status and a modicum of strategic stability has been introduced into the South Asian context, where do we go from here? To answer this question, one needs to explore the current strategic thought.

Prevalent Strategic Thought

Pakistan does not have a formal nuclear doctrine but policy statements of the top government officials provide sufficient material to construct the putative Pakistani nuclear doctrine and policy.

The underlying feature of these official statements is that nuclear weapons are solely intended to *deter* military aggression. This basic aim is qualified by the proviso that Pakistan's nuclear policy is one of *restraint* and *responsibility*. The four salient features underpinning Pakistan's nuclear policy are: Deterrence of all forms of external aggression; ability to deter a counter strike against strategic assets; stabilization of strategic deterrence in South Asia; and conventional and strategic deterrence methods.[3]

Pakistani Concept of Nuclear Deterrence – Different Points of View

Most Pakistani scholars agree with the official version that nuclear weapons deter Indian aggression. According to Dr Zafar Iqbal Cheema, the fundamental objective of having nuclear weapons is deterring rather than fighting a war with India. Other objectives of the Pakistani nuclear doctrine are: to maintain an overall strategic equilibrium and to neutralize conventional military asymmetries against India, with the view to safeguarding its territorial integrity and upholding its political sovereignty. Conventional military disparities *vis-à-vis* India and lack of strategic depth compel Pakistani military leaders to threaten the use of nuclear weapons as a deterrent against a large-scale Indian invasion threatening its territorial integrity. Cheema contends that such threats have been deliberately made on a number of occasions.[4] Nuclear deterrence has over the past two decades helped diffuse various conflict-situations between India and Pakistan.[5] More recently, nuclear deterrence held during the multiple crises of Kargil 1999 and the year long military standoff during 2002.

Non-Pakistani nuclear analysts are of the view that security considerations alone haven't shaped Pakistani strategic thought. They suggest that Pakistani nuclear aspirations have also been prompted by reasons of prestige and the urge to become the leader of the Islamic world. Smruti Patnaik, an Indian scholar feels that the drivers for Pakistani nuclear motivation are *deterrence against India, self reliance, dealing with US sanctions, leadership of the Islamic World, protection against international conspiracy,* and *national pride*.[6] Peter Lavoy of the US Naval Post Graduate School

(NPS), Monterey has constructed a similar list. According to him the key elements of Pakistan's strategic culture are *opposition to Indian hegemony, primacy of defence requirements, nuclear deterrence, acceptance but not reliance on outside assistance,* and *identification with conservative Islamic causes.*[7] While these lists cover the essential ingredients, some elements have been deliberately added to give it a twist. In Lavoy opinion Pakistan's strategic policy is not only based on the requirements of neo-realism, but is also flavoured by *strategic myths, strategic myth makers* and the process of *strategic mythmaking*. According to Lavoy Pakistan's national security policy is influenced by the composition, scope, and logical consistency of the strategic myths themselves. He feels that identity, background and skills of the strategic myth maker, or carrier of these beliefs; and the process of strategic myth making legitimises, popularises and institutionalises strategic arguments.[8]

Pakistan's defence policy to deter Indian aggression is based on the hard fact that all Indian missile groups and strike corps are strategically deployed to target Pakistan.[9] No mythmaking is required to conjecture this threat. Western sources, such as Jane's Intelligence Review and US Department of Defense (DoD) agree that Pakistan's motive for pursuing a nuclear weapons program is to counter the threat posed by its principal rival, India, which has superior conventional forces and nuclear weapons.[10]

Linkage with Conventional Deterrence

Nuclear deterrence is intrinsically linked with conventional deterrence in the overall defence strategy of Pakistan. The armed forces of Pakistan form a very thick and visible layer of its multilayered defence policy. Years of war and near wars with India have resulted in the creation of a very large and credible military force equipped with conventional weapons. These conventional forces are meant to provide sufficient space before a nuclear option is contemplated.

Pakistani conventional thought perceives a defensive battle along the Line of Control (LoC) and the international border. The most likely threat scenario suggests the development of multiple

offensive thrusts from across the eastern border to capture core areas in Pakistani territory. These attacks are to be absorbed by holding formations, before local reserves and strike formations execute ripostes and counter offensives, with the aim of regaining lost area and taking the war into the enemy territory and thus ending the war on a favourable note.

How exactly or when the war would transit from conventional to nuclear mode has not been publicly articulated.

Minimum Credible Deterrence (MCD)

Publicly, Pakistani leaders have emphasised that minimum deterrence is the cornerstone of Pakistan's security policy. In May 1999, Prime Minister Nawaz Sharif, announced the principle of 'minimum credible deterrence,' stating that Pakistan's nuclear policy was 'to deter all forms of external aggression that can endanger our national security' by maintaining a minimum credible deterrence. He promised that 'Pakistan will not use or threaten to use nuclear weapons against non-nuclear weapon states' and vowed that it was against an open-ended arms race in South Asia. It would be of interest to note, that in this statement Pakistan did not seek an arsenal equivalent to that of India. [11]

The Minimum Credible Deterrence (MCD) posture means maintaining an adequate stock of nuclear warheads and dependable means of delivery, which can survive the first strike before being launched.[12] According to a US Congressional Research Service (CRS) Report, Pakistani officials have already determined the arsenal size needed for a minimum nuclear deterrent. The same report states that as of January 2008 Pakistan has 60 nuclear warheads using an implosion design with a solid core of HEU, approximately 15 to 20 kg per warhead. These can be delivered either by Pakistan Air Force's nuclear capable aircraft or Army's surface to surface missiles.[13]

No No-First-Use (NFU) Policy

Pakistan does not subscribe to the policy of No-First-Use (NFU).[14] It reserves the right to use nuclear weapons, if its very

existence is threatened. This unequivocal rejection of a self imposed restraint in face of an existential threat has been evidenced in a number of leadership level statements. During the 2002 military standoff with India, President Musharraf went on record to state that Pakistan did not want a conflict with India but if it came to war between the nuclear-armed rivals, his country would "respond with full might." This statement was interpreted to mean that if pressed by an overwhelming conventional attack from India, with its superior conventional forces, Pakistan might use its nuclear weapons.[15]

Pakistan's rejection of India's NFU pledge suggests that nuclear weapons are integral to its defence and deterrence doctrine. Pakistani leaders consider India's NFU offer as declaratory posturing, rather than actual policy. A Pakistani NFU would undermine the credibility of its deterrence against an Indian attack or coercion. Pakistan has no choice but to indulge in nuclear signalling to prevent an Indian aggression at an early stage. Under these circumstances, an NFU policy does not fit into the present scheme of things.

Nuclear Command & Control

Pakistan's nuclear weapons are controlled by the Nuclear Command Authority (NCA). Created in February 2000, the NCA comprises the President, the Prime Minister, several cabinet ministers, the Chairman of the Joint Chiefs of Staff Committee and the services chiefs. It oversees nuclear research and development, command and control during wartime and advice to the president about the use of nuclear weapons.[16]

The Pakistani nuclear command and control system has three layers:

- The NCA, is the top decision making agency consisting of country's ten highest decision makers;
- The Strategic Plans Division (SPD) acts as the secretariat to the NCA and is tasked with developing and managing Pakistan's nuclear capability in all dimensions; and

- The Strategic Forces Commands (SFC) for each service of the armed forces are responsible for planning and control as well as operational directives for nuclear weapons deployment and use.[17]

Policy of Nuclear Restraint

Position on International Non Proliferation Regimes. Pakistan has followed a consistent policy on global norms on restraints with regards WMDs. It acceded to the Geneva Protocol on April 15, 1960, the Biological Weapons Convention (BWC) in 1974 and the Chemical Weapons Convention (CWC) on October 28, 1997.[18]

The Partial Test Ban Treaty (PTBT) was signed in August 1963 and ratified in 1988.[19] In 1999 Pakistan signed the *Lahore Accords*, with India, agreeing to a bilateral moratorium on nuclear testing.[20]

Pakistan supports the Non-Proliferation Treaty (NPT) and the Comprehensive Test ban Treaty (CTBT), while strongly indicating that its policy is contingent upon Indian position and behaviour. When the CTBT was introduced directly into the UN General Assembly on 9 September 1996, only India, Bhutan and Libya voted against it, while Pakistan abstained. As one of the 44 nations possessing nuclear reactors, the CTBT cannot go into effect without India's and Pakistan's signatures.[21]

Domestic Non Proliferation Measures. A number of internal measures have been introduced to prevent proliferation of nuclear technology. These include the formation of bodies like the Pakistan Nuclear Regulatory Authority (PNRA), the Strategic Export Control Division (SECDV) at the Foreign office and an associated Oversight Board.[22]

In September 2004 Pakistan passed a legislation entitled "Export Control on Goods, Technologies, Material and Equipment Related to Nuclear and Biological Weapons and Their Delivery Systems Act, 2004." The regulations, which carry up to 14 years of imprisonment and Rs5 million in fines, apply to Pakistani citizens at

home or abroad, foreign nationals in Pakistan's territory, as well as ground, air, or ship transport registered in Pakistan.[23]

Bilateral Non-Proliferation Proposals. At the bilateral level Pakistan has proposed a number of measures to India to stop the inexorable proliferation of WMDs in the region. These have included among others, proposals of a No War Pact, a Nuclear Weapon Free Zone (NWFZ) and Missile Free Zone (MFZ). Unfortunately, there has been an utter lack of reciprocity from the other side. Some of these proposals are listed below:

- **Nuclear Weapon Free Zone (NWFZ*).*** The idea of a South Asian nuclear free zone was first mooted by Pakistan in 1974.[24] It evoked international interest. The Chinese supported the idea.[25] The Carter administration offered security guarantees along with the USSR, and China.[26] The idea failed to resonate with India, which along with its feudatory Bhutan chose to vote against, it when it was passed with overwhelming majority in the UN General Assembly, in December 1979.[27]
- **Simultaneous Signing of NPT.** During the era of nuclear ambiguity, Pakistan had suggested the simultaneous signing of the NPT, the joint agreement for inspection of all nuclear sites by the IAEA and a pact to allow for mutual inspection of sites.[28]
- **Proposal for Bilateral or Regional Nuclear Test Ban Treaty, Non Proliferation Conference & Missile Free Zone.** Other proposals, which went unheeded, included the 1987 proposal for an agreement on a bilateral or regional nuclear test ban treaty, the 1991 proposal for commencement of a multilateral conference on the nuclear proliferation in South Asia and the 1993 proposal for the creation of a missile-free zone in South Asia.[29]
- **Strategic Restraint Regime Proposal (SRR).** After the May 1998 tests, Pakistan and India announced a moratorium on further nuclear weapons tests. Pakistan also proposed a "strategic restraint regime" or SRR. Principally this meant that the two nuclear armed

neighbours not conduct any further nuclear tests.[30] This proposal has yet to find a matching response from India.

Nuclear CBMs. Some nuclear CBMs, which have been agreed upon so far are:

- **Non Attack on Nuclear Facilities Agreement.** The first significant confidence building measure was a non-formalized 1985 agreement not to attack each others nuclear facilities.[31] This agreement entered into force in 1991. As a part of this agreement Pakistan and India agreed to exchange lists of nuclear installations in 1988. The first exchange took place in 1992.[32]
- **Pre Notification of Ballistic Missile Tests.** The February 1999, Lahore Agreements between Prime Ministers Vajpayee and Sharif included confidence building measures (CBMs), such as the pre-notification of ballistic missile testing and a continuation of the unilateral moratoria on nuclear testing.[33]
- **Agreement on Reducing the Risk from Accidents Relating to Nuclear Weapons.** In an expert level meeting held in 2007 it was agreed upon to take all possible measures to reduce the risk of nuclear accidents and to keep each other informed, should such an accident takes place.[34]
- **Hotlines.** A dedicated communication link, or "hotline" was established between the Pakistani and Indian Director Generals of Military Operations (DGMOs) in the aftermath of the 1971 war. In December 1990, India and Pakistan agreed to revive the DGMO hotline and to use it on a weekly basis. At the February 1999 Lahore Summit, it was agreed to review all existing communication links and to upgrade the existing hotlines.[35] In June 2004 the decision was taken to establish dedicated hotlines between the foreign secretaries and to upgrade the existing military hotlines. These improvements were meant to prevent misunderstandings and help avoid an accidental nuclear war.[36]

Nuclear Thresholds

Pakistani nuclear thresholds have been a subject of intense debate. Analysts have drawn their conclusions from the statements of high officials. In 1987, Gen Zia is reported to have told Prime Minister Rajiv Gandhi: 'if your forces cross our borders by an inch, we are going to annihilate your cities.' In the same year Dr AQ Khan stated that Pakistan would retaliate with nuclear weapons 'if our existence is threatened.' Announcing the 1998 tests, Nawaz Sharif stated that 'these weapons are to deter aggression, whether nuclear or conventional.' Government of Pakistan told India in 1998 that an attack against its nuclear installations would elicit 'swift and massive retaliation with unforeseen consequences'. In 1999 Nawaz Sharif promised the use of all kind of weapons to 'defend the territorial integrity' of Pakistan. In 2000 Pervez Musharraf vowed to use nuclear weapons if Pakistan's 'national integrity was threatened.' In 2001 Lieutenant General Khalid Kidwai stated that the nuclear weapons would be used 'only if the very existence of Pakistan as a state is threatened.'[37] The most quoted statement about the so-called nuclear thresholds is also attributed to Gen Kidwai. He reportedly gave four possible scenarios: spatial, military, economic, political, wherein Pakistan might be compelled to use nuclear weapons, to a team of Italian physicists in late 2001.[38] Commenting on these thresholds an IISS report stated:

- **The Spatial Threshold**. The penetration of Indian forces into Pakistani territory on a large scale may elicit a nuclear response. The critical distance would vary according to the location: the threshold could be low in Kashmir because of the symbolic value of the region, and also in the 'core' areas located in Punjab. This would be particularly true if the major city of Lahore, located only 30 km from the border, were threatened. Many analysts, including some Indians, believe that the Indus Valley, the 'lifeline' of Pakistan, is another 'red line' that Indian forces should not cross. The capture of key objectives in this crucial northeast–southwest axis (such as Multan, Rahimyar Khan, Sukkur or Hyderabad) might well provoke nuclear retaliation.

- **The Military Threshold.** The destruction of a large part of Pakistani land or air forces could drastically reduce their combat potential and lead to a nuclear response. Here Pakistani thinking is identical to the guidelines given to the NATO commanders during the Cold War. This criterion is even more important for the Pakistani army because of the critical role it plays in maintaining the country's stability. As noted above, an attack on a nuclear installation has also been posited as a threshold.
- **The Economic Threshold**. Economic strangulation is also a potential nuclear red line. This primarily refers to a possible Indian Navy blockade of the main port of Karachi, or the stopping of the 'lifeline' of Pakistan, the Indus water flow. It could also refer to the capture of vital tributaries of the Indus.
- **The Political Threshold**. Finally, Pakistani planners suggest that a destabilisation of the country by India could also be a nuclear threshold if Islamabad believed that the integrity of the country were at stake. Stated scenarios are political destabilisation or large-scale internal destabilisation. One example would be encouraging the breakaway of one or more Pakistani provinces.[39]

Pakistani planners insist that these thresholds are indicative scenarios and that they should not be viewed in isolation from one another. These also do not cover instances of the pre-emptive use of nuclear weapons including firing of nuclear shots on Pakistani territory or the Arabian Sea.

Nuclear Planning and Targeting Policy

Massive Retaliation or Flexible Response?. Some analysts view President Musharraf's 2002 statement that 'any incursion by the Indian forces across the Line of Control will unleash a storm that will sweep the enemy' and that Pakistan has the ability to inflict 'unbearable damage to the enemy,' indicating a nuclear policy of 'massive retaliation.'[40]

Others feel that being in a situation of perceived conventional inferiority *vis-à-vis* a mortal enemy, Pakistan's concept of nuclear planning is close to NATO Cold War thinking and its employment policy may very well look like flexible response. [41]

Escalation Ladder and Escalation Dominance. Given the small size of its force, the lack of territorial depth, limited early warning time and short flight times, one suspects that there would be no recourse to the 44 rung escalation ladder proposed by Herman Kahn for a Cold War scenario. Under the circumstances, a more appropriate reference might be the French two-rung escalation ladder of a final warning, followed if needed by unacceptable damage. Peter Lavoy emphasises that escalation dominance will operate at all rungs of the military ladder – from low-intensity conflict through to nuclear war.[42]

Nuclear Targets. According to Henry Sokolski, Pakistani nuclear targeting policy may follow the following trajectory: "Its (Pakistan's) doctrine may involve stages of escalation from a purely demonstrative use of nuclear weapons to battlefield use, to counter force use to, as a last resort, counter value target."[43]

Others are of the opinion that a nuclear war in South Asia may not be so gradual. President Musharraf is reported as saying that Pakistan's aim is to have 'enough missile capacity to reach anywhere in India and destroy a few cities, if required'. Pakistani analysts regularly mention numbers in the region of a dozen cities. According to an IISS report, Delhi is probably the first and foremost amongst them. The reason given is that since Pakistan has a small number of low-yield warheads, it is likely to have a strategy akin to that of the UK during the Cold War, which primarily targeted Moscow. The same report quotes Brigadier Naeem Salik, formerly of the ACDA Directorate, SPD identifying 'major population centres, industrial complexes, major military bases, and communication hubs' as possible targets.[44]

Pakistani counter force targets could include hostile strike formations, reserves and missile sites. There is a possibility that such strikes may be carried out on own territory. Invading forces

might be targeted by low-yield weapons. Technically, a strike on an Indian formation would be feasible without excessive collateral damage, since many areas along the border are sparsely populated, and prevailing winds blow eastward.[45]

Safety and Security of Nuclear Weapons

Western media has from time to time created a scare about the safety and security of the Pakistani nuclear weapons. The current frenzy is about the possibility of Pakistani nuclear weapons falling into the hands of religious extremists. Last year's political instability has added to these concerns. There has been a stream of news coming from official quarters that the US administration had planned contingencies to secure Pakistani nuclear weapons in case of an 'Islamic coup.' During her confirmation hearing in the senate for the post of the Secretary of State, Condoleezza Rice stated that her government had noted the possibility of such an eventuality and was 'prepared to deal with it.'[46] The concept of contingency plans to take over Pakistan's nuclear assets was sensationalised much earlier in 2001 by investigative reporter Seymour Hersh.[47] Such statements had an intense demoralising effect on the common Pakistani citizen, who is at times left to wonder whether to dread the so called Islamists or their very own American allies. Such fears, notwithstanding all possible measures have been taken to ensure that these weapons are secure from both internal and external threats i.e.

Warheads in Unassembled State . The danger of accidental firing during peacetime has been removed by neither deploying any nuclear weapons nor placing these on hair trigger alerts. The warheads are reportedly stored in an unassembled condition i.e., the fissile cores are separate from non-nuclear explosives, and these are not mated with the delivery vehicles.[48]

Dispersed Storage. Pakistan nuclear weapons are also dispersed for safety and security purpose. A report appearing in the November 11 edition of the Washington Post claimed that after the 9/11 attacks the Pakistani nuclear weapons were moved to at least six different locations.[49]

The Two Man Rule. The two-man rule is a control mechanism designed to prevent accidental or malicious launch of nuclear weapons by a single individual.[50] The Pakistani authorities claim that they follow the three man rule for accessing and arming their nuclear weapons.[51]

Permissive Action Links (PAL's) [52]. Pakistan nuclear community asserts that they have indigenously developed PAL's for their nuclear warheads.[53] According to an IISS report Pakistan is seeking 'enhanced nuclear detonation safety' by developing indigenous PAL's and environmental sensing devices (ESD's).[54] Pakistan is unlikely to seek assistance from outside in these two technologies. Keeping the weapons in a disassembled form, along with the use of authorisation codes, reduces the risk of capture or unauthorised use. Although Pakistani equivalent may not be as sophisticated as US PALs, it is deemed reliable enough to preclude unauthorised arming or launching of its nuclear weapons.[55]

Physical Security. Elaborate physical security is provided to the nuclear assets by a 10, 000 men strong Security Division headed by a two star general.[56] A Personal Reliability Program has also been introduced to forestall any insider threat.[57]

Future Doctrine & Policy

The future nuclear policy and doctrine should be based on five fundamental principles i.e.:

- Reorientation.
- Reorganisation.
- Legitimisation.
- Formalisation.
- Perception making.

Reorientation of Defence Policy Planning

For the past six decades Pakistan's foreign and defence policies have been predominantly influenced by its adversarial relations with India. Three wars and a number of periods of high tension have created a basic threat model, which hypothesises

multiple conventional offensives emanating from across the eastern borders. Ever since, the cataclysmic events of 9/11, the nature and shape of threat has dramatically changed in the global context and Pakistan is no exception. While, the introduction of the nuclear dimension has lent stability to the South Asian relations, terrorism has become the major destabilising factor internally. There is therefore, the need to overhaul the existing security policy and redefine threat with reference to the ground realities and the evolving situation.

The Eastern Threat. Truth be told, the eastern threat hasn't vanished. The India – Pakistan bilateral relations are presently in a flux and are still not completely stable. Nonetheless, many things have changed and at the moment, there is more engagement and lesser scepticism. More communication channels are now open to meet, discuss and debate contentious issues than ever before. Since the Low Intensity Conflict in Kargil in 1999 and the military 'stand-off' of 2002, tensions have eased and the nuclear deterrence has introduced a measure of strategic stability in the bilateral relationship of the two countries. There has been no major violation across the LoC since November 2003. Peace talks begun optimistically in 2004, under the rubric of the 'composite dialogue', to address a number of outstanding issues, including the core issue of Kashmir were suspended following the spasmodic instability, which rocked Pakistan last year and the transition to a new civil government. The dialogue resumed in the third week of May in a mood note of cautious optimism.[58] There has been little progress on substantial issues, but these meetings have restored domestic confidence, reduced suspicions and developed comfort levels hitherto unknown. The situation cannot be called ideal but the possibility of another war or period of high tension appears remote at the moment.

The War on Terror. On the other hand as a spill over of American war on terror in Afghanistan, a vicious brand of a regenerating hydra-headed threat has emerged. There are two dimensions to it: First is the presence of US, NATO and the multi-national forces grouped together as *International Security Assistance Force* or ISAF in Afghanistan.[59] These forces backed by naval

vessels patrolling the Persian Gulf Area are on a long term deployment with no exit strategy.[60] The frequent declarations that the American or NATO troops may be sent into the Pakistani tribal areas to eliminate the so-called 'safe havens' are disquieting.[61] The cross border Predator raids into the border village of Damadola in Bajaur Agency are grim reminders that these are far from idle threats.[62] There are genuine fears, that any foreign incursion into the insurgency affected tribal belt will be part of the bridgehead operations to gain a toehold to seize or neutralise Pakistani nuclear weapons.

Secondly, the war in Afghanistan has manifested itself in form of tribal insurgencies sponsored and supported by hostile agencies in Pakistani tribal areas, Frontier Regions and even settled areas like Swat. This nebulous conflict has transcended administrative boundaries and has spared neither rich nor poor.

Internal stability is the flip side of external stability. If a country is internally in turmoil, its external relations would be far from normal. Those who intend having any sort of dealings would adopt a wait and see posture before making any decision. Therefore it is of utmost importance that an environment is created in which there is peace and harmony and that the common man has freedom from fear and equal opportunities to access sources of human happiness.

Comprehensive National Security Policy. This confusing threat spectrum needs to be put into perspective. A comprehensive and imaginative new defence policy has to be prepared to counter all kinds of internal and external threats emerging from all directions. This policy should not be a study in isolation. It should suggest a combined response to all aspects of *National Security* i.e. energy security, food security, water security, education security, economic security, trade security, monetary security, industrial security, agrarian security, external and internal security. A poor, hungry and illiterate nation doesn't need a foreign enemy to attack and sack it. It is more likely to suffer a painful and slow death from internal causes rather than external ones. Nuclear deterrence would fail to prevent an internal collapse.

Nuclear technology is not limited to military applications alone; it forms an important facet of energy security. The civil nuclear technology has the potential to partially address our galloping energy needs. The US has recognised the energy needs of India and is all out to share civil nuclear technology, sell nuclear reactors and use its influence on Nuclear Suppliers Group (NSG) to release nuclear fuel for the Indian reactors.[63] We need to have a well thought out strategy to convince the world at large that we need similar treatment to cover our energy deficit.

Reorganisation of Conventional and Nuclear Forces

Civil Armed Forces. While the structures and equipment of our armed forces have been constantly upgraded, to bring them in line with the requirements of modern warfare, our law enforcement agencies remain woefully under equipped, under trained and under staffed. They are in no condition to adequately perform the task of maintaining law and order in the age of terrorism. Poor law and order condition has brought life to a standstill. To restore investor confidence and resume development projects in the tribal areas, the law enforcement agencies should be provided more teeth. Presently, the century old Frontier Corps (FC), a paramilitary force traditionally employed on anti smuggling and border patrolling duties, is embroiled in an open ended counter insurgency battle.[64] The Frontier Constabulary and the local police force is too antiquated, ill equipped and poorly led to handle the challenges thrown up by the scourge of terrorism.

The only solution to this otherwise grim situation is to raise efficient local paramilitary forces. Fortunately, the US is already providing help in this regard.[65] A rejuvenated and motivated civil armed forces, led by well trained regular officers of the Pakistan Army should not only be capable of undertaking internal security duties but should also be adept at performing the tasks of national defence. Pakistan has a large defence budget, in terms of percentage of GDP,[66] therefore instead of raising new forces, intelligent reorganisation and restructuring needs to be done.

Conventional Forces. This reorganisation should extend to regular forces. These are presently designed to fight a prolonged battle of manoeuvre in the fashion of the Second World War. With the nuclear weapons in place, there is little likelihood that international players with interests in the region would allow Pakistan or for that matter India to indulge in a full blown conventional war that might lead to exchange of nuclear weapons. If the possibility of a conventional or sub-conventional recedes and a quick end to fighting an asymmetric war in the insurgency riddled areas of North and South Waziristan, Darra Adam Khel, Swat and Balochistan is not in sight, than a new concept of internal and external defence needs to be conceptualised. Instead of maintaining large infantry formations and heavy armoured reserves, these should be transformed into a light, nimble, highly mobile, rapid response, modular forces capable of not only fighting an internal threat but also resilient and robust enough to deter a conventional attack, providing the decision makers sufficient time to mull over strategic decisions.

Strategic Forces. There is also a requirement to critically analyse the structure of our existing nuclear forces. The Strategic Forces are organised into Army Strategic Forces Command (ASFC), Air Force Strategic Forces Command (AFSC) and the Naval Forces Strategic Command (NFSC). The ASFC with its missiles forms the main effort of Pakistan's nuclear forces.[67] If the existing structures of small nuclear forces are any guide, it would be worthwhile to note that both the French and British primarily bank on their submarine borne nuclear forces.

The British nuclear stockpile of less than 200 warheads is carried by Vanguard-class nuclear-powered ballistic missile submarines (SSBN). As of 1998, air-delivered weapons have been removed from service. Only one submarine is on patrol at a time, with its missiles de-targeted and with a reduced number of warheads (maximum of 48). Britain is currently in the process of replacing its four nuclear missile submarines with three newer versions and further reducing its nuclear warheads, to less than 160 warheads. The Trident is now Britain's only nuclear weapon system and is expected to remain in service for approximately 30 years.

Additionally there are American nukes on British soil. Additionally 110 tactical US nuclear bombs are stored at a base in the UK. These weapons remain in American custody.[68]

The French have fewer than 300 warheads. More than half of these are believed to be on board submarines, with the rest on warplanes. *Le Terrible* is the fourth vessel in France's new generation of nuclear-powered submarines that carry underwater-launched missiles with multiple atomic warheads.[69]

Submarines are the most dependable strategic platform for small nuclear forces and is the only assured second strike option.

Legitimisation through the Involvement of the People

Pakistan has a legitimate nuclear program to deter foreign aggression. Nonetheless, detractors both internal and external often question its credentials. They profess discomfort with the lack of civilian controls and an impenetrable veil of secrecy surrounding the program. Secrecy was an essential part of developing the Bomb. Now that Pakistan is a *de facto* nuclear power and a fledgling democracy, it is time to involve the people, whose safety is the *raison de être* of this program. This could be achieved by creating a feeling of *ownership* through *awareness* and *education*.

Political Ownership. Fortunately, there is a clear understanding within the strategic community of Pakistan that the command and control of the nuclear assets rests with the top political leadership of the country. The military as the custodians of nuclear weapons set a good precedence by inviting the Prime Minister of Pakistan Syed Yusaf Raza Gilani to the JS Headquarters and the SPD within the first month of assuming his new office. The PM was given a thorough briefing on the nuclear assets. [70] He later saw the live firing of Shaheen II (Hatf VI) missiles.[71] According to reports the Premier felt reassured that these weapons were in safe hands. He expressed his satisfaction over the effectiveness of command and control structures and reiterated his government's commitment to the strategic program and the need to maintain *minimum credible deterrence*. He also added that as a responsible,

declared and acknowledged nuclear power, Pakistan would continue to play a positive role in international efforts aimed at non-proliferation.[72]

Such comments should be a source of confidence to those who lament the lack of involvement of the political leadership in the nuclear program of the country.

Awareness. Not only the topmost leadership needs to draw confidence from the national nuclear program but also those representing the people should understand the place that nuclear deterrence occupies in the defence and foreign policies of Pakistan. The security workshops conducted in the National Defence University (NDU) have played an important role in increasing the awareness about security issues among the elected members of the parliament and officials of the local bodies. The stated aim of these workshops is to enable senior leadership of various segments of the society to understand national security issues and the process of policy formulation.[73] This could also become a forum for awareness about nuclear matters.

Realising the importance of the press in shaping public opinion, DG SPD has on a number of occasions spoken directly to the domestic press corps, as well as members of the international media about Pakistan's nuclear policy and the efforts undertaken to permanently stem any chances of nuclear proliferation. There is a need to have regular press briefings by a designated spokesperson of the SPD.

Education. Nuclear policies can be drafted by a well-educated corps of young men and women educated in nuclear matters at the university level. There is a plan to introduce 'nuclear studies' in the syllabus of the Faculty of Contemporary Studies at the NDU. Similar disciplines could also be introduced in other public and private sector universities.

There is also a need to create general awareness among the citizens about their duties and tasks, if comes to a nuclear war. The Civil Defence Department needs to prepare a comprehensive plan to

train the people in cities and villages to protect themselves from nuclear, biological and chemical attacks. These individual and collective safety procedures should be demonstrated and practiced and should also include rescue and decontamination drills.

Formalisation of Nuclear Doctrine

So far Pakistan has avoided releasing a written document outlining its nuclear doctrine and policy. The logic behind this oft stated policy of ambiguity is that it allows Pakistan greater freedom and liberty of action.[74] It is clear, however, that overtime so many statements have been issued on the subject by state functionaries, that an entire corpus can be prepared on Pakistan's strategic thought. It is about time we formalise our nuclear thought and prepare a 'National Nuclear Doctrine.'

War Gaming. In the first phase, a nuclear war should be played out and analysed under all possible threat scenarios, including the possibility of internal instability and aggression from across the western borders. This exercise should be carried out at the NDU, under the auspices of the SPD involving all important cabinet level policy makers, the commanders of conventional and strategic forces. In the second phase, the non-classified aspects of the doctrine could then be debated in the Parliament. Finally, a committee comprising people from all walks of life, particularly intellectuals, scientists and military men could finalise the doctrine before it is released for public consumption.

Institutionalising. Nuclear debate should be institutionalised at the level of the Cabinet Committee of the Defence. This would end a long game of conjecturing and speculation and would forthrightly inform the world and the citizens of the country, what Pakistan wants to achieve with its nuclear weapons. Necessary corrections could be provided to the official doctrine from time to time and revised editions be published as and when required. During times of war, the doctrine could be suitably amended to suit the obtaining environment.

Perception-Making

If anything has hurt the Pakistani nuclear program, it is the international perceptions created by a hostile media.[75] In a 2004 paper Maj Gen Mahmud Ali Durrani (retired) spelled out the following western apprehensions regarding Pakistan's nuclear program:

- It's a source of nuclear proliferation.
- It's in the imminent danger of falling into wrong hands.
- It's not under democratic civilian control.
- It can be a cause of war by miscalculation causing immense damage to people and destroying the political and economic infrastructure of South Asia. This can be avoided by
  - Creating greater transparency.
  - Establishing risk reduction centres.
  - Introduce additional CBMS and arms control measures.
- The *Islamic bomb* concept arouses fears. International confidence can be increased if
  - Nuclear weapons are disassembled and not mated.
  - Nuclear weapons are not hair trigger alerts.
  - There are verifiable nuclear risk reduction regimes.
- The associates of AQ Khan are disagreeable to the Americans and they should be removed. [76]

A January 2008 CRS report states that many of these issues have been addressed e.g.

- There is ongoing cooperation by the Pakistani authorities with the US to ensure the security of their nuclear weapons.
- After the nuclear tests in 1998 increased attention has been given to reduce the risk of war in South Asia and a number of risk reduction measures have been introduced.

- Nuclear command and control systems have been developed and the security of the civil and military nuclear facilities has been improved.
- Additional efforts have been made to improve the export controls and monitor nuclear personnel to prevent a repeat of the AQ Khan saga.[77]

As mentioned earlier, a number of practical measures have been undertaken to improve the safety and security of Pakistan's nuclear assets. Presently a National Security Action Plan is being implemented with the assistance of the IAEA. Pakistan is also an active member of the global effort to prevent nuclear terrorism and has joined both the Container Security Initiative[78] and the joint US-Russia led Global Initiative to Combat Nuclear Terrorism.[79]

Despite such concrete steps Pakistan cannot get rid of the stigma of being an irresponsible nuclear state. The negative propaganda about our nuclear program refuses to die down and critics keep belittling Pakistan on account of its non-proliferation track record. There is a dire need to prepare a well thought out plan to counter this rabid and hurtful campaign. This can be done, if all the resources at the disposal of the government are harnessed to give a candid and correct picture of our nuclear program.

It is recommended that as a first step a national policy on the positive projection of our nuclear policies and security and safety of our strategic be prepared at the cabinet level. As a second step, this policy should be executed through a *Perception Building Committee* (PBC) composed of media managers representing the government (Ministry of Information, Spokesperson of the Ministry of Foreign Affairs, ISPR, Press Information Department, APP, PTV, and Radio Pakistan etc) and private sector in consort with the SPD.

The policy should target both the foreign as well as domestic audiences. The policy document should provide our missions abroad with a clear cut guidance of how to articulate the official stance at various forums. The domestic media should be taken on board by providing them regular press briefings about all issues related to our nuclear program. It has often been the case that our national media

has published reports, which have been happily lapped up by the critics e.g. the alleged fallout from nuclear waste in Baghalchur[80] and gas leaks in Chashma have received a lot of adverse comment in the press.[81] The domestic media needs to be taken into confidence on important nuclear developments before they start making their own analyses and publishing their own conclusions. Effective damage control is a part of good media management.

Conclusion

A detailed analysis of the Cold War – the only available model of nuclear rivalry, shows that the nuclear policies of the superpowers were constantly evolving. To begin with the Americans enjoyed sole propriety rights over nuclear weapons and they adopted the policy of *Massive Retaliation*. Then the Soviets caught up and produced their own weapons. So the operative concept within the framework of nuclear deterrence became the notion of *Mutually Assured Destruction* or MAD. The American policy changed to that of *Flexible Response*. As the nuclear arsenals reached the levels of 60 to 70, 000 warheads, the two superpowers saw the futility of indulging in an arms race and initiated a process of arms control negotiations. When the Soviets invaded Afghanistan, the American started investing in the space borne Strategic Defence Initiative or SDI. Another round of open ended arms race, an imperial overstretch, the escalating costs of war, and alienation of the common man from the communist system led to the demise of the Soviet Union. There was no longer a need to have nuclear weapons in Europe. The Americans changed tack. They still wanted to retain their position of nuclear pre-eminence. To achieve this objective, the have arrogated the right to pre-empt a nuclear war, have reinvigorated their campaign to stop the so-called *rogue states* from becoming nuclear powers and have undertaken to revive the SDI, in form of a global Ballistic Missile Defence Shield (BMDS).

Similarly from time to time, Pakistan has also witnessed changes in its geo-strategic landscape. Its defence policy evolved within the context of its dispute with India over Kashmir. After the disastrous 1971 war, those on the helm of affairs realised, that the only option to stand up to an all powerful India, was by developing

its own nuclear deterrence. The political leadership over the next three decades refused to buckle under international sanctions and isolations and provided all kinds of support to its scientists to develop nuclear weapons and delivery means. Meanwhile, they also developed the fine art of nuclear signalling to prevent the Indians from carrying out any further aggression. After the nuclear tests of 1998, there were two more occasions, when India and Pakistan could have indulged in a no holds barred war. International pressures and the stark realisation of *mutually assured destruction* kept things under control. Both India and Pakistan are currently engaging in peace talks, which continue on a low key but provide people hope that a new war is not imminent in the near future.

So much for the present! What does the future portend for us and what should be our strategic choice in the second decade of twenty first century? This would depend to a large extent on whether these weapons would continue to provide us security and stability in the next ten to twenty years. If we have an answer to this core question, we have the following choices to choose from:

- Keep investing in these weapons for our national survival.
- Seek a balance in nuclear arms and nation building.
- Give them up and divert the monies on developmental projects.

These are stark choices. We have to make the right move to shape are destiny in the best interest of the nation.

Author

The author is a Brigadier in the Pakistan Army, with three decades of service behind him. Commissioned in the Frontier Force Regiment in 1976, he has been trained in prestigious military institutions at home and abroad. He also has a vast experience of command, staff and instructional appointments. Presently he is associated with an R&D project and is concurrently pursuing doctoral studies in Quaid-i-Azam University, Islamabad. His chosen area of study is nuclear stability in South Asia.

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PAKISTAN'S POSTURE OF CREDIBLE MINIMUM DETERRENCE: CURRENT CHALLENGES AND FUTURE EFFICACY

Dr. Zafar Iqbal Cheema

Introduction:

Pakistan's security policy entails a posture of **Credible Minimum Deterrence** (CMD) which is incrementally in place since the country's overt nuclearisation in May 1998. A few dimensions of the CMD posture have been formally pronounced, albeit piecemeal, while the overall nuclear doctrine remains to be fully stated. Pakistan formally announced a National Command Authority (NCA) in 2000 and its constituents, with an embedded policy of continual updates. CMD has been the doctrinal foundation of Pakistan's deterrent strategy and has successfully served its policy objectives since its inception.[1] This is not to say that the CMD posture is perfect or continues to be flawless. Pakistan has neither aimed nor completed the full integration of nuclear weapons into its armed forces. [2] This puts a time lag on a ready response capability; no matter how immediate and efficient are the emergency procedures to mate warheads with delivery vehicles during red alerts when faced with crisis and conflict-situations. Pakistan's stockpiles of fissile material and current nuclear force levels are only adequate for CMD regime, unless immediate expansion is undertaken. The country does not possess an advanced reconnaissance satellite system for an independent strategic surveillance, though it has been successful in launching an elementary satellite. India's deployment of a BMD system, its technological augmentation and improvement of nuclear force levels, doctrinal postulation and its strategic partnership with the United States have a definite impact on Pakistan's posture of minimum credible deterrence. What began as 'minimum credible' a decade ago may not be credible tomorrow.

After a decades' successful functioning of the CMD regime, a reappraisal is imperative vis-à-vis a number of structural deficiencies, doctrinal challenges, and the threats to the safety and security of nuclear weapons. The regime also needs to be re-

examined against epigenetic fault-lines (disproportionate growth), organizational flaws, ideational incongruities, escalatory pressures, instability syndrome, dangers of accidental and unauthorised use of nuclear weapons, risks of being technologically outpaced and adversary's strategic responses: all of which may unilaterally or cumulatively impinge upon its future functioning, adequacy and credibility. It therefore necessitates a posture review to determine whether the CMD regime needs to be upgraded within its current strategic framework or be substituted by a more advanced nuclear deterrence regime. This paper aims to analytically evaluate Pakistan's CMD posture and assess its adequacy vis-à-vis the future challenges.

Nuclear Deterrence and Minimum Credible Deterrence: A Brief Review

Nuclear Deterrence is generally recognized an ability to dissuade an entity / state to desist from embarking upon a course of action prejudicial to one's vital security interests, on the basis of a **demonstrated capability** which is **credible enough to deliver unacceptable damage** and **firmly communicated** to the entity / state: as a result it (that entity / state) deviates from the stipulated course of action based upon the cost benefit calculus in which the potential loss (inflicted damage) from the stipulated action would far exceeds the likely gains. Although, there are no clearly defined parameters of various types / form of deterrence, the generally recognized categories are:

- Sufficient Deterrence (MAD with multiple capabilities).
- Extended Deterrence (Nuclear Umbrella to Allies).
- Graduate Deterrence (Proportionate to the Threat/s).
- Minimum Deterrence / Minimum Credible Deterrence)
- Existential deterrence (Deterrence as condition Vs Policy)
- Non-Weaponized Deterrence

The concept of minimum credible deterrence is widely adhered, but less clearly described in the jargon of nuclear strategy.[3] It originates from the notion that nuclear weapons, given their

immense destructive power and being "absolute weapons" have such a great equalizing impact in the calculus of deterrence that unacceptable damage can be delivered by relatively small number of nuclear weapons. A numeric equilibrium of nuclear weapons, like a conventional military balance, is unnecessary and even undesirable. An adversary possessing large nuclear weapons capability can be effectively deterred with small but credible nuclear forces.[4] The advocates of minimum deterrence argue that it helps avoid arms race, saves stupendous resources direly needed to other essential social services and development, and is less dangerous. Minimum deterrence has also been described in terms of its strategic objectives, which may themselves be limited. [5] It enables a relatively small and even industrially less developed country to muster resources for a minimum deterrent capability in the absence of alternative means of ensuring its security and survival. According to Kenneth Waltz, unlike conventional strategy, a deterrent (nuclear) strategy does not rely upon extent of territory, thus removing major cause of war, and deterrence effectiveness is dependent upon one's capabilities and the will to use these capabilities.[6]

Apparently, the above rationale inspired France under Charles De Gaulle to develop '**force de frappe**' as minimum credible French deterrent. Although, Britain had already adopted minimum deterrence posture as an important constituent of its nuclear strategy, the British raison d'être was different. It felt comfortable with the American and NATO nuclear umbrella unlike France which was skeptical about the credibility of American assurances for punitive retaliation against the former Soviet Union if France was attacked. China declared minimum credible deterrence as a doctrinal postulation for its small nuclear forces in the 1960s and 1970s to deter both, the United States and the former Soviet Union. Even today, despite a large disparity of nuclear forces, China aims to deter the United States with a limited number of ICBMS. Britain, France, and China each postulated deterrence at much lower levels of nuclear forces than the United States and the former Soviet Union, largely due to a complex interplay of economic, technical, political, and strategic factors. The three countries could not invest more resources into nuclear weapons without sharply impairing their national economies. The enormous destructive power of their

nuclear and thermonuclear weapons enabled each of these countries to hold at risk a sizeable percentage of their larger adversaries' population and industrial targets, with relatively lesser weapons. Strategically, each concluded that beyond a reasonable level of such assured destruction, no matter how academic these calculations were, more nuclear weapons were superfluous. In short, each country made a virtue of its limitations.[7]

Based on the above discussion, one should not assume that minimum deterrence level is a constant number which is unaffected by other related developments or is it immune to politico-strategic and technological developments taking place in the broader security landscape. The ultimate size of a minimum deterrence force is for instance, inversely proportional to factors such as the survivability of the force: the greater the survivability of the force, the smaller would be its size and the lesser the survivability of the force, the larger its size.[8] This in turn is related to the force configuration of the adversary. If the opponent has more accurate weapons and delivery systems capable of carrying out counter force strikes, the survivability of the force would be adversely affected by the same proportion. The second related factor is the degree of surety that the weapons would reach their intended targets once launched, which in turn depends on whether the adversary has deployed missile defence systems, and their capability to intercept and prevent the incoming missiles/aircraft from reaching their targets. If the survivability is low and/or the opponent has deployed missile defences, then obviously the size of the minimum deterrence force would be on the higher side.[9]

Chinese strategists take the concept of minimum credible deterrence as a relative one, defined not only by pure numbers, but more importantly by such key criteria as invulnerability of nuclear forces, assurance of retaliation, and credibility of counter-attack.[10] Echoing the Indian viewpoint, Jaswant Singh as Foreign Minister of India stated in 1998:

> The minimum is not a fixed physical quantification. It is a policy approach dictated by, and determined in, the context of our security environment. There is no fixity. Therefore, as

> our security environment changes and alters, and as new demands begin to be placed on it, our requirements too are bound to be evaluated.[11]

This description of minimum credible deterrence suggests that the concept needs to be understood in a fluid and dynamic context that would have multiple and constantly changing meanings.

However, minimum nuclear forces are not without their own fallacies. According to Lawrence Freedman: "Minimum deterrent forces are vulnerable to first strikes, compelling premature use, and hair-rigger responses and restricted to counter-city attacks."[12] To overcome these shortcomings of minimum deterrence to a possible extent, some nuclear states have started using the term, minimum credible deterrence.[13]

Rodney Jones points out that it is difficult to pinpoint what minimum means in the context of Pakistan and India. He asks:

> Does 'minimum' imply the sufficiency of small numbers of nuclear weapons? Nuclear weapons held in reserve? Low readiness or alert rates of a nuclear force? Renunciation of nuclear war fighting? Mainly counter-value targeting? Alternatively, does the term minimum merely make virtue of today's facts of life in the Subcontinent's limited resources, scarce weapons materials, unproved delivery systems, and still undeveloped technical military capabilities.[14]

Challenges and Threats to PCMD:

India poses a variety of challenges and threats to the Pakistan, foremost of which is **ideational**: its aggressive intent expressed and enacted through multiple ways: The **Indian nuclear doctrine** though does not mention Pakistan by name; it contains provisions, which can apply only against Pakistan. The **Indian armed capability**, especially **ballistic missiles** some of which are Pakistan specific pose a serious danger to Pakistan security and may undermine the credibility of PCMD posture. The Indian nuclear forces are relatively larger than Pakistan and are a strong

counterweight Pakistani deterrent capability. The **Ballistic Missile Defence (BMD)** has although a limited capacity to intercept ultra-supersonic ballistic missiles and cruise missiles, but it can still undermine the credibility of deterrence by intercepting some of the missiles and thereby limit damage, which would be prejudicial to deterrent stability between the two countries. These Indian threats to PCMD are analyzed in detail in the succeeding paragraphs.

Indian Doctrine of Credible Minimum Deterrence:

Although, the aim of this paper is not to offer an independent analysis of the Indian doctrine of minimum credible deterrence, the study of Pakistan's CMD posture would remain deficient without bring India into the focus. In the pursuit of its **Strategic objectives,** which are: the development of strategic power, security and power equilibrium vis-à-vis China, regional supremacy in South Asia against regional and extra-regional great-power, and international status equated with the possession of nuclear weapons (great power ambitions & behavior, UNSC seat etc.). India followed a leapfrog policy to develop its nuclear deterrent capabilities, while continuously denying their development. The May 1998 Indian nuclear tests were an overt demonstration of what India has been acquiring for the last three decades. On 17 august 1999, India pronounced a draft Indian Nuclear Doctrine, which proclaims the development and maintenance of credible minimum deterrence based upon a strategic triad of nuclear forces (land-based, air based and sea-based), second strike capability and punitive retaliation with nuclear weapons if deterrence were to fail. [15] The central part of the Indian Draft Nuclear Doctrine (DND) enunciates ***Credible Minimum Deterrence***.[16] Article 2.3 states that "India shall pursue a doctrine of **credible *minimum* nuclear deterrence**," but article 2.6 lays down a list of requirements, first two of which describe that deterrence requires India to maintain: "***Sufficient***, survivable and operationally deployable nuclear forces, with robust command and control system, and effective intelligence and early warning capabilities."[17] Article 2.3 proceeds to state: "This is a dynamic concept related to strategic environment, technological imperatives and the needs of national security. The actual size, components, deployment and employment of nuclear forces will be decided in the

light of these factors."[18] There is no official estimate or assessment of the credible minimum deterrence. Since the proclamation of the DND, India has been equivocal to describe or answer queries about 'minimum' deterrence. However, individual views of the some members of the National Security Advisory Board and others range around 400 nuclear and thermonuclear weapons.[19]

The DND outlines:

> "India's peacetime posture aims at convincing any potential aggressor that: (a) any threat of use of nuclear weapons against India 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."[20]

However, the doctrine does not specify the measures India might undertake against any threat of use of nuclear weapons. If such stipulated measures were pre-emptive in nature, they would lead to strategic miscalculation and might generate an unintended conventional or nuclear clash, which ostensibly is its purpose to avoid. Article 2.7 of the draft Indian doctrine lends support to the possibility of pre-emptive measures when it says:

> "Highly effective conventional capabilities shall be maintained to raise the threshold of outbreak both of conventional military conflict as well as that of threat or use of nuclear weapons."[21]

The threat of conventional pre-emptive strikes against adversary's nuclear forces will generate chances of a nuclear war. Pakistan considers India's doctrine as offensive, provocative, and threatening regional security and global stability.[22] According to Rodney W. Jones, the Indian nuclear doctrine is based upon an expansive war-fighting force structure, without specifying adversaries, or an actual threat, and whose language alluded provocatively to using conventional pre-emptive capabilities offensively against any party that might threaten to use nuclear weapons against India and its armed forces.[23] Conventional wisdom

suggested that the Indian strategic elite considered nuclear weapons as essentially political weapons, only meant to enhance strategic power and status, but a close reading of the draft nuclear doctrine indicates that it is an aggressive war fighting doctrine. It is escalatory in nature, generates pre-emptive threats and therefore, would undermine deterrent stability if it were to be adopted in totality by the Indian government.

Command and control aspects are specifically addressed in the article 5 of the Indian draft nuclear doctrine. Article 5.1of the doctrine requires:

> "Nuclear weapons shall be tightly controlled and released for use at the highest political level. The authority to release nuclear weapons for use resides in the person of the Prime Minister of India, or the designated successor (s)."[24]

In actuality however, the Indian Prime Minister has not designated his successor (s), in public at least, which some quarters would expect, given his fragile state of health. The Indian nuclear doctrine generates ambiguity, some suggest deliberately, by saying that "authority to release nuclear weapons" for use rests with the Prime Minister without specifying any contingencies under which nuclear weapons would be released. It does not exclude a peacetime release or in any length of time earlier to a crisis-situation, or who knows that the weapons might have already been released. India has left open for its adversaries to guess the contingencies under which it would release or have already released nuclear weapons for use. Given the geographic proximity between India and Pakistan and extremely short early warning time, which is bound to be shorter than the time to release nuclear weapons, India's adversaries would consider it safer to presume that nuclear weapons have already been released to Indian military.

On January 4, 2003, the Indian Cabinet Committee on Security reviewed the operationalisation of India's nuclear doctrine and summarized a version, which in some ways significantly departs from the August 1999 DND.[25] The "No First Use" posture has been modified in two ways. First, a word "***anywhere***" has been added to

the provision on the No First Use, which now reads as follows, "nuclear weapons will only be used in retaliation against a nuclear attack on Indian territory or on Indian forces **anywhere**." [emphasis added]. It seems inclusive in case the Indian armed forces happen to be on another state's territory as an occupation force or even if in an aggressive mode.[26] Second, article VI of the operationalised nuclear doctrine renders the "No First Use" (NFU) declaration invalid by stating: "However, in the event of a major attack against India, or Indian forces anywhere, with biological or chemical weapons, India will retain the option of retaliating with nuclear weapons."[27] It is no more a "no-first use" of nuclear weapons declaration. As opposed to the original draft where only the use of nuclear weapons against India could have invited the 'punitive retaliation,' the use of chemical or biological weapons against the Indian forces even outside India would activate the Indian nuclear retaliation. Not only the NFU commitment has now been annulled but the threshold for the threat and use of nuclear weapons has also been lowered significantly. More so, the scope of possible use of nuclear weapons in geographical terms has been effectively expanded. The Operationalisation document also makes the article 2.5 of the DND fructuous. The article 2.5 stated that, "India will not resort to the use or threat of use of nuclear weapons against States which do not possess nuclear weapons, or are not aligned with nuclear weapon powers."[28] If any of these states henceforth possess any forms of WMD, they may be subjected the provisions of the Indian nuclear doctrine, to threats or potential use of nuclear weapons by India.

In an illustrative article, M. V. Ramana points out three specific dangers, which the deployment of nuclear weapons by India would pose to the security and stability of the South Asian region. He suggests that the reported "Indian policy to deploy nuclear weapons would open up the possibilities of accidental or unauthorised use of the weapons, and development of more weapons as a result of inter-service rivalry".[29] Ramana opines that so long as the low-intensity conflict in Kashmir continues unabated, it would continue to inject instability in the fragile nuclear relations of India and Pakistan. Deployment of nuclear weapons will inevitably demand delegating authority to military officers on the field for a host of reasons such as poor communications, short distances and

geographic contiguity between India and Pakistan, and resultantly, less early warning time. It reported that the Boeing 737-200 that took the Indian Prime Minister, A.B. Vajpayee, on a three-nation tour abroad in 2001 was not equipped with direct dialing facility. [30]

Indian Ballistic Missiles:

Indian ballistic missiles pose the most serious threat to Pakistan's posture of CMD. Although the origins of missiles development in South Asia go back to 1983 with launching of IGMDP:[31] the threat actualized after the deployment of various types and ranges of ballistic missiles in the Indian inventory. Prithvi (all the three versions) and Agni's two versions are deployed against Pakistan. On February 12, 2003, India test-fired Brahmos, the supersonic anti-ship cruise missile with a 280-290 kilometer range, purportedly a joint venture India and Russia. The Brahmos induced a new family (Cruise) of missile in South Asia, which compelled Pakistan to seek a counter-weight, which came in the form of Hatf-VII Babar cruise missile. The whole range of Indian ballistic missiles, whose details are listed below indicate the various challenges each one of them poses to deterrent stability in South Asia.

On August 25, India's Defense Minister authorized production of 300 short-range, nuclear-capable Prithvi missiles. The decision was taken in response to a reported August 15 test of the Ghauri III by Pakistan, an intermediate-range, nuclear-capable ballistic missile.[32] In a policy speech in the Parliamentary Consultative Committee, Jaswant Singh, as Defence Minister for a brief period, announced that Agni would be inducted into the Indian armed forces by 2002.[33] It is reported that the Government of India has decided to develop ballistic missiles with a longer range than the presently developed versions of Agni.[34]

Table-I

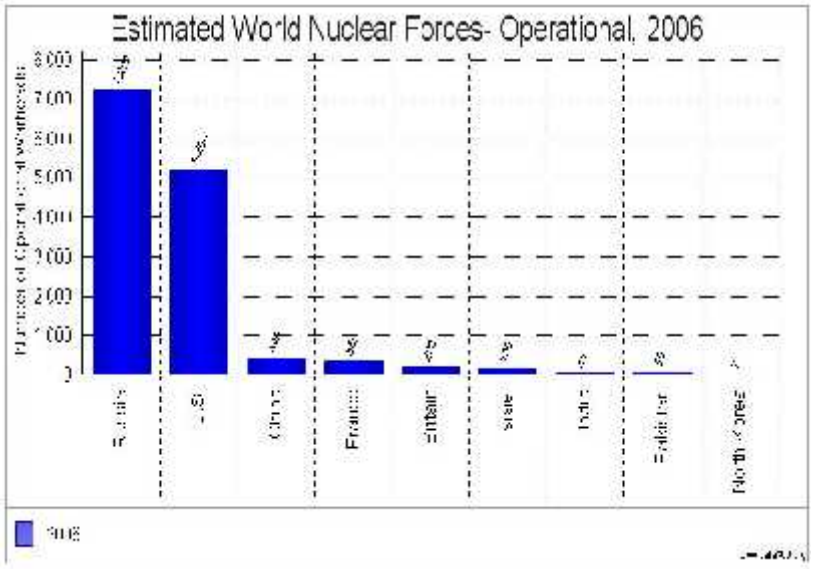
INDIAN BALLISTIC MISSILES

Missile	Type	Range (km)	Payload (kg)	Warhead	Propulsion	Guidance	Accuracy /CEP	Status
Prithvi – I	SRBM	150	1000	All	Liquid	Inertial	200m	Tested/D
Prithvi – II	SRBM	250	500	All	Liquid	Inertial	250	Tested/-
Prithvi – III	SRBM	350	500-700	-	Liquid	-	-	Tested
Agni – I	MRBM	1400	1000	All	Solid-Liquid	Inertial with terminal guidance	-	Tested/D
Agni – I	SRBM	700-750		All	Solid	-	-	Tested/D
Agni – II	MRBM	2000-2500	1000	All	Solid-liquid	Inertial with terminal guidance	-	Tested/D
Agni-III	IRBM	3700	?	All	Solid	-	-	Test plan stage
Agni-IV	ICBM	5000	?	All	Solid-cryogenic	-	-	Test plan stage
Surya	ICBM	12000-20000	?	-	Solid-cryogenic	-	-	Test plan stage
Brahmos	Cruise	280-290km		All		-	-	Tested/ND
Sagarika/Danush	SB	300-500	500	All	Liquid	-	-	-

Indian Nuclear Forces:

According to 2004 Indian MOD (Ministry of Defence) annual report, India had a stockpile of approximately 40-50 assembled nuclear warheads, but this number is likely to increase over the next decade. An unnamed MOD source told Defence News in late 2004 that in the 5 - to -7 years, India would have 300-400 nuclear and thermonuclear weapons distributed to air, sea, and land forces.[35] According to a recent estimate by the Institute of Peace and Conflict Studies (IPCS) in New Delhi, to maintain credible deterrence with China, India needs 425 nuclear warheads.[36] In the light of the Indian efforts to develop a strategic equilibrium with China, there is likelihood an increase in both fields of Indian nuclear forces: weapons and ballistic missiles. This will leave Pakistan to face a Hobson's choice: to upgrade minimum credible deterrence vis-à-vis India or accept the Indian strategic primacy in South Asia with attendant ramifications, something Pakistan has long rejected. A cautiously average account of many sources suggests that Indian now has an arsenal 50 deployed nuclear weapons.

Table-II



Indian Ballistic Missile Defence (BMD)

Indian BDM systems, though at various stages of development has the serious potential of undermining the efficacy of the PCMD. The table below indicates the type of system, its range, capability and status, which indicates their effectiveness against the corresponding Pakistani aircraft and missiles systems.

Table-III

Indian Ballistic Missile Defence (IBMD)

BMD System	Origin	Range	Capability	Status
S-300 SA 12 A SA 12 B	Russia	75 km 100km	Aircraft Limited effectiveness against TBM	Deployed
S-400	Russia		Aircraft Limited Effectiveness against SRBM, MRBM	Deployed
Antey-2500	Russia	200 km	8 IRBMs with 2500 km range or 16 TBM with 3000 km range	Unknown
Arrow 2	Israel	500 km	SRBM and MRBM	Uncertain
PAC-3	US		Cruise missiles, aircrafts, SRBM, MRBM	Under gotiation
Akash	India	27	Aircraft	Deployed

Source: This table is collated from a wide range of academic and internet sources.

Pakistan's Threat Perceptions and Strategic Objectives:

Pakistan's **strategic objectives** may be summarised as under: First, to institute a nuclear deterrent regime vis-à-vis India, and add strategic stability to the volatile South Asian deterrence, though this stability had been precarious at times, with India and Pakistan narrowly retreating from the brink of war in the dangerously escalating conflict scenarios, e.g., Kargil conflict in 1999 & 2001-2002 military confrontation. Second, to deter an all out conventional war between India and Pakistan, and contain

limited conflicts from intentional or inadvertent escalation.[37] Third, during conflict scenarios in 1990, 1999 and 2001-2002, the CMD ensured the maintenance of crisis stability and blocked it from degenerating into violent military hostilities and accidental spill over by imposing caution on the civilian and military leadership on both sides. Fourth, its purpose is to undercut the possibility of armed aggression against Pakistan's armed forces in any pre-emptive or preventive mode through a credible deterrence for assured punitive retaliation and debilitate the chances of even a remotely conceived advantage to the aggressor. Fifth, CMD needs to help create and maintain a strategic equilibrium in an otherwise highly asymmetric conventional military balance against an overwhelmingly large adversary in an increasingly difficult, intricate and rapidly changing environment. Sixth, it is believed to be the surest guarantee of safeguarding Pakistan's territorial integrity, national sovereignty and security of its people against external threats.[38] As a protective strategic equilibrium, it has successfully thwarted such threats to Pakistan's national security since the institution of the CMD. Finally, it has been psychologically reassuring to enable Pakistan to recover from the depressing aftermath of 1970-71 dismemberment, and enabled it play active in the surrounding regions and the wider international community.

Indian challenges to Pakistan's CMD posture are summarized as under:

- Growing Disparity of Strategic Forces and Asymmetry / imbalance
- Indian BMD.
- Lack of adequate second Strike Capability, especially Sea-based assets.
- Unreliable Strategic surveillance and Reconnaissance in due to lack of an advanced national satellite system.
- Less Early Warning.
- Technological disadvantages.
- Absence of Ready-response Capabilities.
- Relative Vulnerability of Strategic Air Bases and Ballistic Missiles.

- Intentional or inadvertent nuclear escalation / Escalation dominance.
- Challenges to Strategic / Deterrent / Crisis Stability
- Defensive Deterrent Posture

Pakistan and Credible Minimum Deterrence:

On 27 October 2007, Gen Kidwai stated at the Naval Postgraduate School, Monterey, that Pakistan has dealt with the formidable challenges by developing a nuclear policy based on restraint and responsibility with four salient features, (i) deterrence of all forms of external aggression, (ii) ability to deter a counterstrike against strategic assets, (iii) stabilization of strategic deterrence in South Asia, and (iv) conventional and strategic deterrence methods.[39] However, some of the challenges / threats to Pakistan's security demand a constant maintenance and augmentation of strategic weapons capabilities.

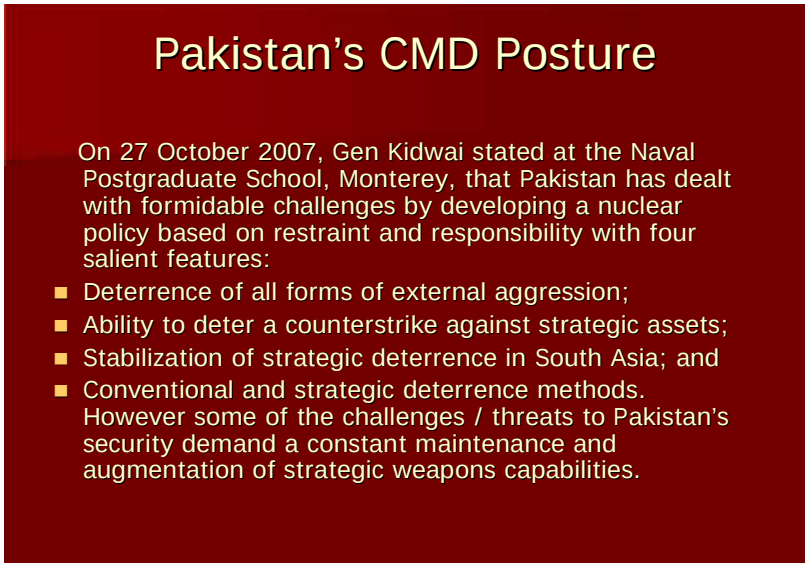
Describing the basic essential of CMD, Pakistan's former foreign minister stated: "More is unnecessary where little is enough."[40] Lt. Gen. Khalid Kidwai, however acknowledged that Pakistan's current nuclear strategy is defensive rather than aggressive, it is based on credible minimum deterrence, and driven by security concerns, not great power ambitions.[41] Kidwai further stated: "Additionally Pakistan faced difficulties due to the geographical and technological specifics in South Asia, including the ongoing military competition with India over the Line of Control in Kashmir, the lack of strategic depth and inadequacies of an assured second strike that made Pakistani strategic assets relatively vulnerable, and the inadequacy of real-time surveillance and early warning on both sides that make strategic miscalculations more likely."[42]

The general contingencies, which would warrant the threat or use of nuclear weapons, are described below:

- Threat from large conventional military asymmetries.

- Escalation from limited war / conflict
- Threat from Indian chemical weapons in a conventional conflict
- Intentional or inadvertent nuclear escalation / Escalation dominance.
- Strategic / Deterrent / Crisis Stability.
- Growing disparities in strategic equilibrium

Table-IV



The CMD is not only the officially proclaimed nuclear posture of Pakistan, but there is a general recognition within the domestic deterrent optimists lobby that credible minimum deterrence has been the most suitable policy under the prevailing strategic environment. Addressing a conference in Islamabad, Pakistan's Foreign Minister in General Pervaiz Musharraf's government declared in November 1999, "Minimum nuclear deterrent will remain the guiding principle of our nuclear strategy."[43] He stated that as India builds up its nuclear weapons arsenal: "Pakistan will have to maintain, preserve and upgrade its capability," in order to ensure survivability and credibility of the

nuclear deterrent.[44] Since then this theme has been consistently reiterated at relevant occasions by General Musharraf and his top advisers. This policy in fact dates back to Musharraf's regime. Responding to the pronouncement of draft Indian nuclear doctrine in August 1999 as "offensive, and threatening regional and global stability," the Defence Committee of the Cabinet (DCC) under the former Prime Minister Nawaz Sharif, stated that future development of Pakistan's nuclear weapons program will be "determined solely by the requirement of our minimum deterrent capability, which is now an indispensable part of our security doctrine."[45] Musharraf reiterated on March 6, 2003 that in nuclear matters numbers did not matter "beyond a point' and Pakistan has sufficient deterrence to take care of its security."[46] Musharraf further stated that Pakistan seeks peace in South Asia, but will not compromise on its minimum defence needs. He said Pakistan was not in pursuit of an arms race and maintained that consolidation of `minimum deterrence' was the cornerstone of Pakistan's security policy.[47]

As former Chief of Army Staff, General (Retd.) Mirza Aslam Beg went a step further to say, "as oxygen is basic to life and one does not debate its desirability, nuclear deterrence has assumed the life-saving property for Pakistan."[48] Indian analyst Giri Deshingkar suggests:

> "If for any reasons, India were to threaten the existence of Pakistan as a state as presently constituted, they are expected to use nuclear weapons against India first. With a doctrine of this kind, which can usefully be termed "Volatility", Pakistan would not be deterred by India's nuclear capability or even overt weaponization."[49]

Three senior Pakistani officials Abdul Sattar, Agha Shahi and Zulfiqar Ali Khan in a joint article contended that:

> Of course minimum cannot be defined in static numbers. In the absence of mutual restraints, the size of Pakistan's arsenal and its deployment pattern have to be adjusted toward off dangers of pre-emption and interception. Only then can deterrence remain efficacious." [50]

Pakistan has not given up its right of first-use of nuclear weapons, partly because it had no confidence in India no-first use declaration and partly because it is perceived to undermine its [nuclear] deterrence. Pakistan faced the ordeal of several wars and its dismemberment in 1971. It revealed that conventionally Pakistan could not deter India from crossing its borders. After acquiring the nuclear capability, Pakistan succeeded to thwart Indian forces from invading it in 1987, 1990, 1999, and 2001-2002 compound military crises.

It is quite obvious that given Pakistan's limited resource base and financial constraints, that minimum deterrence is the most cost-effective and pragmatic option for Pakistan. President Musharraf stated: 'Pakistan believes in maintaining a minimum credible deterrence and does not want to direct its available resources towards the race of weapons of mass destruction.' [51] An Indian analyst remarked: It is easier to build an effective command and control system if the nuclear arsenal is small, which suits to Pakistani conditions. [52] It is apparent that only a minimum deterrent posture can help avoid a ruinous nuclear arms race with India, and Islamabad is well aware that if a nuclear arms race were to eventuate, it would hurt Pakistan more than its larger neighbour India. Shamshad Ahmad, Pakistan's foreign secretary has echoed thoughts: "In South Asia nuclear deterrence may…usher in an era of durable peace between Pakistan and India, providing the requisite incentives for resolving all outstanding issues, especially Jammu and Kashmir."[53] Musharraf has referred to Pakistan's nuclear achievements in the same vein. In a speech delivered on March 27, 2001, on the retirement of A.Q. Khan, he said, "In a general sea of disappointment, the development of Pakistan's nuclear capability is a unique national success story."[54] Acknowledging Pakistan's achievements in developing its credible minimum deterrence, Brahma Chellaney observed:

> The rapid technological advances by Pakistan in recent years are a symbol of nationalistic pride in a country which has overcome major political, technical, and industrial challenges to mount a program with a team of dedicated

> scientists. Pakistan is showing the world —as China did in the sixties —how a country with limited technical resources and a narrow industrial base can acquire nuclear weapons and ballistic missile capabilities by riding a wave of nationalism.[55]

The presence of nuclear weapons makes war less likely. Deterrent strategies induce caution and thus reduce the incidence of war.[56] For fear of escalation, nuclear states do not want to fight. A conventional war may escalate to a higher level of force, but in a nuclear world, one cannot afford to escalate to a level of force anywhere near the top, without risking its destruction.

Pakistan's Command and Control:

Command and control (C^2) is an arrangement of facilities, personnel, and procedures used in planning, directing and controlling military operations.[57] Any C^2 system must be able to convey the orders of the command hierarchy to military in any environment across the spectrum of conflict, no matter how simple or complex the orders might be.[58] Nuclear C^2 have assumed extraordinary significance in the contemporary era of "information revolution" and "information Warfare." Focus on C^2 system, and cyber and electronic warfare has introduced a comprehensive paradigm shift in war fighting, rendering the classical military deterrence obsolete. To be effective the nuclear C^2 system must evolve into a real time planning and dissemination system that will provide a truely survivable, redundant and flexible planning capability.

Pakistan faces a difficult choice in calibrating the operational dimensions of its command and control system: whether to opt for a centralized or delegative command and control system, which Peter Fever describes as, an "always / never dilemma."[59] Another dilemma of command and control accompanying nuclear arsenals is the optimization of two conflicting requirements. The first is the military one: to be prepared to ride out a surprise nuclear attack, however unlikely, and retain the ability to retaliate swiftly and

effectively. Second, there is the need to have a foolproof system that precludes the remotest possibility of unauthorised or accidental use. Military professionals know well that any system heavily biased towards the latter will be per force sluggish enough on the former. According to a US Congressional report published in November 2007, "Pakistan's nuclear weapons are not fully assembled. Warheads, detonators and missiles are stored separately, but there are contingency plans for quick assembly in the event of a national crisis."[60] While such a policy has its utility for safety and security of nuclear arsenal, and it provides a safety valve against unauthorized nuclear use, it undermines rapid response capability.

Given the lack of strategic depth, geographical proximity and concomitant less early warning time, the imperatives of maintaining a ready response capability, and a small nuclear force, Pakistan may have opted for a delegative command and control. Pakistan's lack of geographical depth makes its nuclear assets and command structure vulnerable to Indian pre-emptive or surprise air attack.[61] The difficulty of maintaining communications with mobile launchers and dispersed silos in the hardening area for the survivability of nuclear weapons also suggests the desirability of a delegative control system. Pakistan Armed forces have however maintained the legacy of centralized control. The delegative system is also prone to inadvertent use of nuclear weapons, which is a major concern is India and Pakistan. The overall Pakistani choice is an assertive / centralized command and controls system.

In February 2000, Pakistan spelled out its command and control structure dealing with nuclear weapons. It announced the setting up of a National Command Authority (NCA) to deal with nuclear weapons development, employment and C^4I^2. [62] Under the NCA is a newly set up Strategic Plans Division (SPD), which formulates planning to deal with C^2 of nuclear weapons. The NCA is chaired by the President of Pakistan and Prime Minister is its Vice-Chairman. Pakistan announced two special committees to deal with nuclear weapons issues: an Employment Control Committee and a Development Control Committee. Foreign Minister is the Deputy Chair of the Employment Control Committee, and the ministers for defence and interior, the CJCS (chairman Joint Chiefs

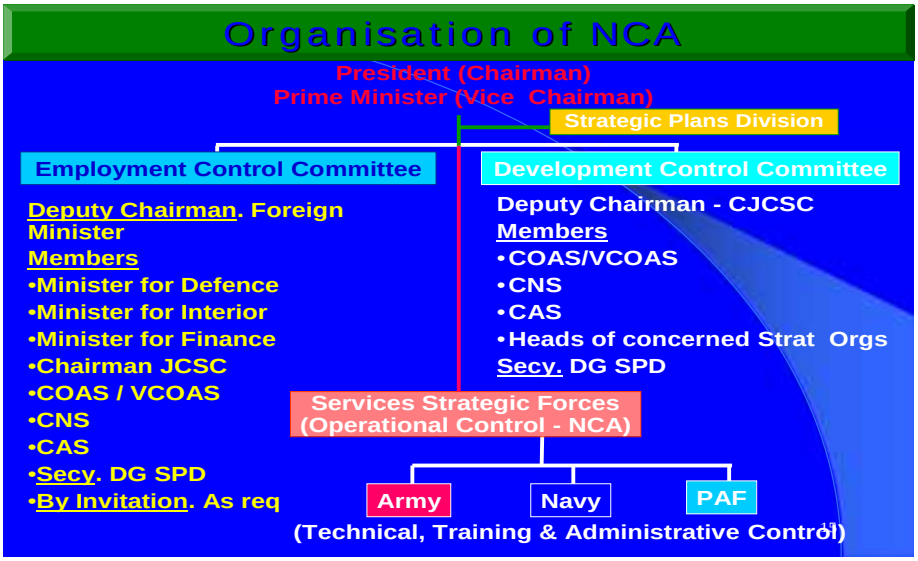
of Staff), three service chiefs and Director General SPD as its members. The Development Control Committee's Deputy Chair is CJCSC and has more or less similar membership, except that it is joined by the atomic bureaucracy, i.e., Head of the KRL (Kahuta Research Laboratories), Chairman PAEC (Pakistan Atomic Energy Commission), and Head of the NESCOM (National Engineering and Scientific Commission). The Employment Control Committee is a policy formulation organization regarding the employment of nuclear weapons in various contingencies. The identification of these contingencies is also the responsibility of the Employment Control Committee. The Development Control Committee deals with administrative policy about the development of nuclear weapons and missile systems. It is responsible for keeping the Pakistani nuclear deterrent in a credible state.

Pakistan's Command and Control Organization has three constituents, as described below.[63]

Table-V

National Command Authority (NCA)

- Constituent 1 – National Command Authority
- Constituent 2 – Strategic Plans Division
- Constituent 3 – Strategic Forces Command



Source: http://www.forisb.org/NCA.org)

Pakistan's Ballistic Missiles Capability:

Ballistic missiles are great **force multipliers** and Pakistan' ballistic missiles capability is the most potent dynamic of its nuclear deterrence to counterpoise the Indian conventional military and nuclear forces, especially missiles equipped with nuclear warheads. Although a late starter, like in the field of nuclear weapons, Pakistan has made great strides in the development of various category of ballistic and cruise missiles. Despite India's larger geographic and demographic size, greater financial and industrial resources, asymmetric conventional military forces and wider strategic depth, Pakistan has successfully achieved qualitative solutions to threat from India. Indeed, the issue of quantity versus quality guided Pakistan to seek indigenous technological alternatives and consequently turned her to developing its ballistic and cruise missiles, e.g. Shaheen, Babar and Ra'ad. Pakistan's drive to develop indigenous ballistic missiles capabilities enabled her to restore **strategic equilibrium** with India. Inaugurating the induction of Shaheen-I ballistic missiles in the Pakistan Army on March 6, 2003, the President of Pakistan reiterated that Pakistan sought peace in South Asia but emphasized the need to consolidate minimum deterrence as a cornerstone of Pakistan's security policy.[64]

MRBM Ghauri-I and IRBM Ghauri-II and III, once deployed will cover the entire Indian territory and India will lose the advantage of strategic depth, at least in terms of invulnerability and enhancing the threshold of unacceptable damage. MRBM Shaheen-I and IRBM Shaheen-II and III have highly advanced feature like terminal guidance, accuracy and speed to penetrate Indian BMD systems. Cruise missile Babar with stealth features can be launched from both ground, and sea, but its naval versions will enhance Pakistan's second-strike capability as well as penetration in the Indian strategic air defence systems, including BMD. ALCM Ra'ad, which also has stealth features, adds to Pakistan Air Force's nuclear strategic striking capability from a safe relatively safe distance, but still effectively engages counterforce and counter-value targets in southwestern India. **Ra'ad** is designed with stealth features. The missile has a very low detection probability due to its stealthy design and materials used in its construction. Ra'ad can carry all type of

warheads. Ra'ad will most likely be used for precision air strikes on enemy command centers, radars, surface to air missiles, ballistic missile launchers, stationary warships etc.

Hatf-II Abdali and Hatf-III Ghaznavi (SRBM) are suitable for battlefield deployment conventional military concentrations, .e.g. 1987 *Brasstacks* or the 2001-2002 largest ever Indian troops' mobilization against the Pakistani border. They can also engage counterforce targets along the border like large military-strategic establishments / air bases from where potential air and missile strike may be launched against Pakistan.

Pakistan's missile programme is India-specific and driven largely out of security concerns. It does not seem to aim at the augmentation of strategic power for a political rationale like a great-power status. Pakistan's missile programme is not a derivative of its space programme because it does not have a sufficiently developed space programme.[65] The development programme began in early 1980s. It was reported that on 25 April 1988, Pakistan for the first time claimed carrying out ballistic missile tests, which was confirmed by Gen. Aslam Beg in his National Defence College speech on 5 February 1989. Hatf-I and Hatf-II missiles were displayed at the Republic Day parade on 23 March 1989, which was interpreted as a great event in the history of the country. Since then Pakistan has rapidly developed different categories of highly advanced ballistic and cruise missiles, which form the foundation of its credible minimum deterrence posture. A table on the various types of Pakistani missiles is produced below.

Table-VI

Pakistan's Ballistic Missiles

Designation	Range	Payload	First test/ Status	Inventory	By
Hatf-I/IA (SRBM)	80/100 km	500 kg	Tested 1989 Deployed in1996	100+	KRL
Hatf-II	180-260 km?	500 kg	Tested 1989	Unknown	KRL

Abdali (SRBM)			Deployed, Under production		
Hatf-III Ghaznavi (SRBM)	290 – 300 km	500 kg	1997 Deployed	75- 100	? M-9, M-11?
Hatf-IV Shaheen-I (MRBM)	750 km	750 - 1000 kg	April 1999 Deployed, Under production	75?	NDC
Hatf-V Ghauri-I (MRBM)	1100 - 1500 km	700-1000 kg	April 1998 Deployed, Under production	100?	KRL
Hatf-VA Ghauri-II (MRBM)	2400 km, More range with lighter payload.	1000-1200 kg	1999 Operational, Under production	?	KRL
Hatf-VI Shaheen-II (IRBM)	2000-2500 km, More range with lighter payload.	1000+ kg	2004 Deployed, Under production	200+	NDC
Hatf-VII Babur (Cruise Missile)	700 km	500 kg	2005 Deployed	?	?
Hatf-VIII Ra'ad (ALCM)	300 km		2008 Tested	---	AWC-NESCOM
Ghauri-III (IRBM)	3,500+ km	1000+ kg	Under Development		
Shaheen-III (IRBM)	3,500+ km	1000+ kg	Under Development		
M-9 M-11 (SRBM)	300 km	500 kg	In service	Unknown	

Note: Not every missile has nuclear payload. This tabulation maynot be 100 % accurate given the diversity of sources material from which it has been prepared and the fact that some of the real data about such weapons systems always lies in the realm of secrecy, which government do not release for a variety of reasons.

Technological Challenges:

One sector in which Pakistan is far behind India is the development space technologies and satellite communications. Pakistan launched its first satellite Badr-1 in low earth orbit (LEO) by a Chinese Long March LM-2E rocket in July1990. Badr-1 provided the platform for Pakistan to develop satellite technology further. During December 2002, Pakistan deployed a communication satellite, PAKSAT-1 (geostationary orbit), as an interim solution to cater for communication needs. In order to implement an operational communication satellite programme, Pakistan's SUPARCO is presently conducting a detailed study towards the launch of a national communication satellite, PAKSAT-1R.[66] The existing PAKSAT-1 satellite is a third-hand satellite bought from Turkey at an initial cost of $ 4.5 million. Boeing originally developed this satellite for Indonesia. Turkey later bought it, and finally Pakistan purchased it and launched it. SUPARCO has established a satellite ground receiving station at Islamabad to acquire LANDSAT, SPOT, and NOAA data in real-time.[67] Pakistan's military dependence on space technologies is peacetime specific and the commissioned satellite inputs could only for military planning purposes and may not have much military utility other than their use for predicting meteorological conditions on the battlefield. According to available information, Pakistan is using LANDSAT, SPOT and NOAA images for civilian purposes. The military potential of such commercial satellites mainly depends on factors like optical resolution, spectrum, orbital features, sun-angle, and return time. For military reconnaissance purposes, satellite 'resolution' plays a major role towards providing quality input. Satellites with resolutions of 10 to 15 meters can provide useful information for strategic planning. Today, Pakistan receives SPOT images with a resolution of 10 meters or even less. At the same time, it should be kept in mind that the military utility of systems with resolutions of between 15 to 30 meters is limited. Such images do not have much significance at the tactical level. Hence, Pakistan's dependence on SPOT and LANDSAT may not be of much use during the actual operations phase. The very low-resolution images may not be sold during the war period or they may even be totally be blocked by the company. In addition, the Badr-II system does not

have a good resolution (approximately 250 meters). [68] DG SPD Lt. Gen Khalid Kidwai had stated that Pakistan and India both have "the inadequacy of real-time surveillance." [69] In this overall situation, the proposed launch of PAKSAT-1R may help Pakistan to improve its military communication network.

Deterrent Stability between India and Pakistan:

There is a near consensus among the deterrent optimists that a minimum deterrence regime is successfully working between India and Pakistan, though various descriptions of this deterrence differ from each other. The pre-1998 deterrence regime has been described as non-weaponized deterrence, recessed deterrence and existential deterrence.[70] For a stable non-weaponized deterrent regime, India and Pakistan refrained from assembling or deploying nuclear weapons and nuclear-capable ballistic missiles. With the May 1998 nuclear tests the non-weaponized deterrent regime is consigned to the dustbin of history.

The weaponization policies proclaimed to be followed after India - Pakistan nuclear tests in May 1999 and attendant doctrinal development has added transparency and enhanced deterrent stability, although at a higher level of threshold, and provided other essential pre-requisites of nuclear deterrence are fulfilled. These may include early warning systems, C^4I^2 networks, survivable weapons capabilities including second strike capabilities and credible delivery systems. [71] However, the present state of strategic stability between India and Pakistan is a precarious one, which needs a more constant monitoring and vigil than the former Cold war models. The geographical proximity between India and Pakistan does not permit enough early warning information and time: three to five (3 – 5) minutes at present, is inadequate for a rational and calculated response. This might prompt launch on warning responses enhancing the chances of miscalculation. The relatively less sophisticated command and control systems may cause difficulties to deal with problems of accidental and unauthorized launch of nuclear weapons. The increase in mistrust and hostility between India and Pakistan in the wake of the Kargil crisis and the unresolved Kashmir dispute compounds the problems of nuclear

arms competition, missiles proliferation and deployment and adds to divergent perceptions about strategic stability and regional security in South Asia.

Stability – Instability Paradox:

The central tenet of the stability – instability paradox is that offsetting nuclear weapons capabilities will maintain peace at the higher end of the conflict spectrum, while increasing tension at the lower end. A serious competition between states that possess nuclear weapons reinforces the caution of national leaders to avoid full-scale conventional or nuclear war, while increasing the instances of risk-taking below the threshold. Military balance is stable at the level of all-out conventional / nuclear war; it is instable at the lower levels of violence. The following are some of the dynamics of stability and instability between India and Pakistan. [72]

Dynamics of Stability

- Existence of tested / declared nuclear weapons capabilities.
- Dedicated ballistic missiles and aircraft delivery systems.
- Establishment of Command and Control systems.
- Formulation of nuclear doctrine / contingencies of employment of nuclear weapons.
- Development of 2nd strike capabilities.
- Limited Institution of S& CBMs.[73]

Dynamics of Instability

- Divergent political perceptions
- Existence of outstanding disputes, especially Kashmir.
- Existence of low-intensity conflict.

- Occasional outbreak of crisis and conflict-situations.
- Geographical proximity and less early warning time.
- Divergent perceptions about nuclear and security doctrines.
- Lack of dedicated hotlines between the top leadership and risk reduction mechanism.
- Ideological / Religious Diversity and Historical Antagonism.74

Additional challenges to the credible minimum deterrence:

Pakistani CMD is built around the notion of defensive deterrence. However, deterrence per se, being an ability to inflict unacceptable damage and thereby dissuade an adversary, by its very nature entails an aggressive intent without which it is difficult to establish deterrence. Unlike India, Pakistan does not have enough strategic depth to opt for an exclusively retaliatory deterrence and therefore cannot rule out first strike option. That first-strike option, in order to be credible to thwart any real and serious threat to Pakistan's integrity with no other viable alternative, has to be a massively debilitating strike, disabling Indian nuclear forces to retaliate. Any first-strike nuclear attack on India would be suicidal if Indian nuclear forces are destroyed, at least functionally if not physically, and some of their capability is left intact to retaliate, because in a retaliatory strike, India has large enough capability to deliver unrecoverable damage to Pakistan. However, it must be born in mind that complete decapitating nuclear strikes, especially against deployed and operationally ready nuclear forces, is an extremely dangerous impossibility and not tried in the nuclear history since 1945. That generates an imperative for Pakistan to augment its nuclear force: fissile material, advanced generation of nuclear weapons and ballistic missiles, and improve its satellite communications and surveillance. Whether it is achieved within the realm of CMD posture or through an expansion into a sufficient deterrence regime is inconsequential in the short-term. In the long-

term, say 5 to 8 years, as its capacities improve, Pakistan would be compelled by geo-strategic realities around the region, especially keeping in mind the pre-figured expansion of the Indian nuclear weapons and long-range ballistic missiles capabilities, to shift its CMD posture into a sufficient deterrence regime with an assured second-strike capability.

Non-Indian Challenges to PCMD:

Unlike India, Pakistan neither seeks a revision of the international power structure nor a place in it.[75] Pakistani decision-makers have demonstrated a *status quo* mindset, reconciled to a strategic subsistence. There is also a lack of initiative and ability to translate a strategic capability and deterrence into diplomatic influence.[76] It is equally essential that Pakistan must try to get out from the India-centric mode into a wider role in South West Asia to take advantages of the existing opportunities and face the emerging threats. There are current as well as new threats on the south-western horizon, like terrorism, and the safety and security of Pakistan's nuclear assets. Strategic defence of Pakistan's deterrent infrastructure is east-oriented, but prone to vulnerabilities from the south-west. There are numerous appearances in the Western and national press about the scenarios posing safety and security threats to Pakistani nuclear weapons and the U.S. contingencies of taking over control of Pakistani nuclear assets cloaked into a policy of saving them from falling into the terrorists' hands.[77] Despite the fact that Pakistan has a secure command and control system for its nuclear weapons capabilities and stringent measures about their safety and security, about which almost every visiting delegation from the U.S. and European Union is officially briefed, the tirade against the safety and security of Pakistani nuclear weapons is still persisting. There is a concerted campaign being forcefully re-engineered to de-legitimize Pakistan's *de facto* nuclear weapons status in the backdrop of its Muslim identity. It is reported that the internal security at Pakistan's nuclear storage sites is the responsibility of a 10,000-man security force commanded by a two-star general, and every member of the force is vetted through a PRP (Personnel Reliability Program). However, these measures do not

contain contingency against aerial or missile attack on the Pakistani nuclear assets from the westward and southward directions.

There are incessant reports and academic scenarios about the urgency of threats to Pakistani nuclear assets and that "the U.S. Special Forces snatch squads are on standby, awaiting orders to seize or disable Pakistan's nuclear arsenal in the event of a collapse of government authority or the outbreak of civil war in Pakistan."[78] It is reported that the snatch teams including volunteer scientists from America's Nuclear Emergency Search Team organization, are under orders to take control of an estimated 60 warheads located in six to 10 high-security Pakistani military bases.[79] The U.S. military sources leave no doubt that "contingency plans are being continually being reviewed and re-evaluated" to seize Pakistani atomic weapons if President Pervaiz Musharraf's administration is removed through the civil unrest, which has been underway in the year 2007. The report further suggests, "Members of the special forces are already believed to be nearby in neighboring Afghanistan and are on alert, awaiting orders to launch the mission. Satellite surveillance of Pakistan has also been heightened to keep track of the possible movement of nuclear weapons and missile delivery systems."[80] This raises a fundamental question: is the Pakistani government constantly moving its nuclear weapons to secure them from being captured by the so-called terrorists, or saving them from air attacks from any quarter as are being stipulated. Officially, the U.S. has frequently stated that it trusts Pakistan's military having its nuclear arsenal "under effective technical control", but Secretary of State Condoleezza Rice admitted if there was a radical Islamic coup, the US was "prepared to try to deal with it".[81] It is alleged that the U.S. diplomatic and military initiatives since 2001 have concentrated on trying to ensure that pro-western commanders were in charge at the most sensitive sites, and there has also been pressure to keep Pakistan's ISI intelligence agency, "thought to contain a number of high-ranking pro-Taliban supporters", out of the nuclear loop.[82]

These reports and scenarios warrant that Pakistan must develop contingency plans to preempt any strikes against its nuclear arsenal and assets, which might originate from Afghanistan either by India or by the United States, or may be jointly, no matter under

what pretext or rationale. The possibility of such preemptive strikes from the south and Arabian Gulf must not be discounted. Israel is often declared its hostile intentions against Pakistan's nuclear weapons capability, but by itself alone, it is not fully capable to decapitate Pakistani nuclear weapons capability. Given the Indo-Israeli military collaboration, the possibility, no matter how remote, cannot be discounted, and it demands a clearly planned and practiced military operation to thwart and neutralize, if and when, such threats materialize.

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End Notes

1 Pakistan's strategic objectives to acquire nuclear weapons include the development of a protective equilibrium to neutralise threats to its national security; and to deter a large-scale conventional war or any other armed aggression in a pre-emptive or preventive mode against its armed forces. It also include to maintain an otherwise highly asymmetric conventional strategic equilibrium vis-à-vis India, to institute and maintain a nuclear deterrent regime in South Asia, and finally, to safeguard its territorial integrity, security of its people and its national sovereignty. A broader review of these objectives will be offered in the main body of the paper later.

2 It is believed that nuclear weapons are kept in separate storage sites and are not mounted on delivery systems during peacetime by Pakistan, and there are emergency procedures in place for their mating in crisis-situations.

3 According to Baylis and Booth, "Minimum Deterrence is an attempt to prevent enemy attack through reliance on a small nuclear retaliatory force capable of destroying a limited number of key targets." John Baylis and Ken Booth, eds., Contemporary Strategy Vol-1, (London: Croom Helm, 1987), p-312.

4 William T.R. Fox put it in following words: "When dealing with the absolute weapon arguments based on relative advantage lose their point." William T. R. Fox, "International Control of Atomic Weapons", in Bernard Brodie, ed., The Absolute Weapon (New York; Harcourt, Brace, 1946), p. 181.

5 Herbert F. Yark contended: To me minimum deterrence is minimal in two different senses: one in terms of its goals and other in terms of its means. In terms of goals, the purpose is to deter the use of nuclear weapons by someone

else and not something broader than that. In terms of means, minimum deterrence involves very small numbers. Herbert F. Yark, Arms and the Physicist (New York: American Physical Society, 1994), p. 273.

6 Kenneth Waltz, "The Spread of Nuclear Weapons: More May be Better, Adelphi Paper No. 171 (London: International Institute for Strategic Studies, 1981), pp. 5-6.

7 Gregory Giles,' Minimum Nuclear Deterrence Research, http://www.dtra.mil/documents/asco/publications/MinimumNuclearDeterrencePhase2.pdf. (accessed on 20 May 2008).

8 Naeem Salik, 'Minimum Deterrence and India Pakistan Nuclear Dialogue: Case Study of Pakistan,' http://www.centrovolta.it/landau/content/binary/MinimumdeterrenceandIndia-Pakistandialogie.Case Study Pakistan.pdf (accessed on May 10, 2008).

9 Ibid.

10 Yao Yunzhu, 'Chinese Nuclear Policy and the Future of Minimum Deterrence,' Strategic Insights, Volume IV, Issue 9 (September 2005).

11 India's foreign minister's speech in Parliament on December 16, 1998, http://www.meadev.gov.in

12 Lawrence freedman, 'The Rationale for Medium Sized Deterrence Forces,' in Christopher Bertram, ed., The Future of Strategic Deterrence (London, Macmillan Press Ltd, 1981), p. 49.

13 This view is expressed by one of my M. Phil student, Nasir Mahmood.

14 R. W. Jones, 'Minimum Nuclear Deterrence Postures in South Asia: An Overview,' Final Report, Defense Threat Reduction Agency Advanced Systems and Concepts Office, 2001, pp. 2-3, http://www.dtra.mi /ASCO/pubications/southasia.pdf

15 The succeeding pages of Indian nuclear doctrine have been adopted from my own work in the form of a forthcoming book on *Indian Nuclear Deterrence: Its Evolution and Development*, and partly in, "Command and Control Infrastructure: Operational Asymmetries and Dichotomies," a research Paper published in IPRI Journal, Volume II, Number II, Summer 2002, Islamabad – Pakistan.

16 Ibid.

17 Ibid.

18 Ibid.

19 Bharat Karnad, "Going Thermonuclear: Why, With What Forces, At What Cost, "Journal of United Services Institution, July – September 1998.

20 Ibid.

21 See footnote 15.

22 "Pakistan says Indian nuclear plan threaten global stability," The News, 26 August 1999.

23 Rodney W. Jones, "Pakistan's Nuclear Posture," Dawn (Karachi), September 14, 1999.

24 See footnotes 15.

[25] Please see footnote 15.
[26] Ibid.
[27] Ibid.
[28] Ibid.
[29] M. V. Ramana, "NUCLEAR ISSUES", *Frontline*, Volume 18 - Issue 25, Dec. 08 -21, 2001
[30] Bhavna Vij, "Minor embarrassment: Vajpayee cannot dial direct from his aircraft", *The Indian Express*, November 7, 2001.
[31] It is not intended here to provide a chronology of missiles development, but to highlight the threat the Indian ballistic missiles pose to the PCMD.
[32] P. R. Chari, "India's Slow-Motion Nuclear Deployment," *Proliferation Brief*, Vol. 3, No 26, September 7, 2000
[33] "Agni, Other Missiles to be Inducted by 2002", *Deccan Herald*, June 1, 2001.
[34] "Govt. Okays Longer-range Agni Missiles", *The Times of India*, June 1, 2001.
[35] Defence News, November 1, 2004.
[36] Ammara Khan, "Imbalance of Terror," *The Post*, Tuesday May 27, 2008.
[37] India was effectively deterred from horizontally escalating the Kargil conflict in 1999. She was also prevented from imposing a war on Pakistan during the 2001-2002 eye-ball-to-eye-ball confrontation despite her incessantly bellicose and combative posturing.
[38] Pakistani officials have described general contingencies, which would warrant the threat or use of nuclear weapons. For example, an Italian report based upon interview by Lt. General Khalid Kidwai, Director-General of the Strategic Plans Division (SDP) by a team of Italian researchers, describes some scenarios for Pakistan's employment of nuclear weapons. (Paolo Cotta-Ramusino and Maurizio Martellini, *Nuclear Safety, Nuclear Stability and Nuclear Strategy in Pakistan* (Como: Landau Network, January 2002). The interview-based report offers an analysis of Pakistan's nuclear posture and outlines contingencies under which Pakistan might resort to the threat or use of nuclear weapons. It states that Pakistan would resort to nuclear weapons' employment in the following eventualities: i) India attacks Pakistan and conquers a large part of its territory. ii) India destroys a large part of its either land or air forces. iii) India proceeds to the economic strangling of Pakistan. iv) India pushes Pakistan into political destabilization or creates a large-scale internal subversion. General Kidwai has later on denied that the use of wording of the contingencies. The stated contingencies are as under: (The wording of these thresholds is that of the Italian interviewers, Paolo Cotta-Ramusino and Maurizio Martellini, p. 5.
[39] The Director General of Pakistan's Strategic Plans Division (SPD), Lt. Gen. Khalid Kidwai presented a special guest lecture to the faculty, students, and guests of the Naval Postgraduate School on 27 October 2006. http://www.ccc.nps.navy.mil/news/kidwaiNov06.asp (assessed on 14 May, 2008). Lt. Gen. Kidwai provided a remarkably candid address on the

status of Pakistan's nuclear weapons program and the challenges it faces as a new nuclear power.

40. "The Nuclear Divide with the United States", The Muslim, November 28, 1992.
41 Ibid.
42 Ibid.
43 "Pakistan to upgrade nuclear deterrent," Dawn (Karachi), 25 November 1999.
44 Ibid.
45 "Pakistan says Indian nuclear plan threaten global stability," The News (Rawalpindi), August 26, 1999.
46 Muralidhar Reddy, "Pak. has sufficient deterrence: Musharraf," He was speaking at a function where the indigenously-produced Hatf-IV (Shaheen-I) medium range ballistic missile was handed over by the National Defence Complex to the Pakistan Army's Strategic Force Command. Shaheen-I, having a range of 750 km, can carry all types of warheads and is considered `highly accurate'.
47 Ibid.
48 General ® Mirza Aslam Beg, Development and Security: Thoughts and Reflections (Rawalpindi, FRIENDS, 1994), PP, 168-79.
49 Giri Deshingkar, "Indian politics and arms control: recent reversals and new reasons for optimism," in Eric Arnett, Nuclear *Weapons and Arms Control in South Asia after the Test Ban* (Oxford University Press, SIPRI, 1998), p. 32.
50 Agha Shahi, Zulfiqar Khan & Abdul Sattar, 'Securing Nuclear Peace,' The News (International), October 5, 1999.
51 Dawn, November 25, 1999.
52 Bhumitra Chakma , 'Pakistan's Nuclear Doctrine and Command and Control System: Dilemmas of Small Nuclear Forces in the Second Atomic Age', http://www.securitychallenges.org.au/SC/VolNo2/Chakma.pdf (assessed on 20 May, 2008)
53 Shamshad Ahmad, "The Nuclear Subcontinent: Bringing Stability to South Asia", Foreign Affairs, Vol. 78, No.4 (July/August 1999), p. 125.
54 Gordon Corera, Shopping for Bombs: Nuclear Proliferation, Global Insecurity and the Rise and Fall of the A.Q. Khan Network (New Delhi: Foundation Books,2006), p.150.
55 Brahma Chellaney, "South Asia 's Passage to Nuclear Power," International Security,vol.16,issue 1,1991, p.43.
56 Scott D. Sagan and Kenneth N. Waltz, The Spread of Nuclear Weapons: A Debate Renewed (New York: W.W. Norton, 2003), pp.33-35.
57 Shaun Gregory, Nuclear Command and Control in NATO (London, Macmillan, 1996), pp.3-4
58 Ibid.

[59] According to Peter Fever, "Leaders want a high assurance that weapons will always work when directed and a similar assurance that they will never be used in the absence of authorized direction,"[59] which are apparently contradictory objectives. (Peter D. Fever, "Command and Control in Emerging Nuclear States," International Security, Vol. 17, Winter 1992-93, p.163.

[60] U.S. Special Forces On Standby To Safeguard Pakistan Nuclear Arsenal, The **National Terror Alert** Response Center, December 30, 2007, http://www.nationalterroralert.com/updates/2007/12/30/us-special-forces-on-standby-to-safeguard-pakistan-nuclear -arsenal/, accessed on 10 July 2008 at 0135 hours.

[61] E. Arnett, 'Nuclear Stability and Arms Sales to India: Implications for U.S. Policy,' *Arms Control Today*,' Vol. 27, No. 5, 1997, pp. 7-11.

[62] Command, control, communications and computerization, and intelligence, Pakistan's Ministry of Foreign Affairs, November 13, 2002, available at: http://www.forisb.org/NCA.org.

[63] Pakistan's Ministry of Foreign Affairs, November 13, 2002, at: http://www.forisb.org/NCA.org

[64] Shaheen-I handed over to Army", The Nation, 7 March 2003.

[65] Space and Upper Atmosphere Research Committee (SUPARCO) was set up in September 1961.

[66] http://www.paksef.org/suparco.htm, Pakistan's second satellite, Badr-B/Badr-II, was launched on December 10, 2001, from the Baikonour Cosmodrome, Kazakhstan, on a Zenit-2 rocket with the cooperation of Russia. It was launched in a sun-synchronous orbit of 1,050 km altitude. The satellite is tracked from the TT&C Station at Lahore and has an expected life period of two to three years. Details of Badr-II are from http://www.suparco.gov.pk/sat_badr1.html, and http://www.fas.org/spp/guide/pakistan/earth.

[67] AJEY LELE, 'Pakistan's Space Capabilities,' Air Power Journal Vol. 2, No. 1, Spring 2005.

[68] http://www.au.af.mil/au/awc/awcgate/grayspc/graysat/surv.htm

[69] The Director General of Pakistan's Strategic Plans Division (SPD), Lt. Gen. Khalid Kidwai presented a special guest lecture to the faculty, students, and guests of the Naval Postgraduate School on 27 October 2006. Organized by the Center for Contemporary Conflict, Lt. Gen. Kidwai provided a remarkably candid address on the status of Pakistan's nuclear weapons program and the challenges it faces as a new nuclear power.

[70] The concept of non-Weaponized deterrence was proposed by George Perkovich, which recognized that India and Pakistan could retain nuclear weapons capabilities and fissile material, but remain short of manufacturing nuclear warheads. (George Perkovich, "Non-Weaponized Deterrence: The Case for Pakistan," *Strategic Studies*, Vol. XVII, Autumn – Winter 1994, Islamabad, pp. 142-46).

[71] Kenneth Waltz, *The Spread of Nuclear Weapons: More May Be Better* (London, International Institute for Strategic Studies, 1981), pp. 20-24).

[72] Zafar Iqbal Cheema, "Conflict, Crisis and Nuclear Stability in South Asia", SASSU Conference 2004, Bradford University, U.K. available at: www.sassu.org.uk/pdfs/Cheema.pdf

[73] Ibid.

[74] Ibid.

[75] India seeks a seat at the U.N. Security Council and other recognitions of a great-power status.

[76] "The task of a strategic doctrine is to translate power into policy". Henry Kissinger

[77] David Albright, Securing Pakistan's Nuclear Weapons Complex* By *Paper commissioned and sponsored by the Stanley Foundation for the 42nd Strategy for Peace Conference, Strategies for Regional Security (South Asia Working Group), Airlie Conference Center, Warrenton, Virginia, October 25-27, 2001, http://www.isis-online.org/publications/terrorism/Stanleypaper.html, accessed on 9 July 2008 at 2345 hours.

[78] U.S. Special Forces On Standby To Safeguard Pakistan Nuclear Arsenal, The **National Terror Alert** Response Center, December 30, 2007, http://www.nationalterroralert.com/updates/2007/12/30/us-special-forces-on-standby-to-safeguard-pakistan-nuclear -arsenal/, accessed on 10 July 2008 at 0135 hours.

[79] Ibid.

[80] Ibid.

[81] Ibid.

[82] Ibid.

PAKISTAN AND THE ISSUE OF NUCLEAR PROLIFERATION

Mr. Zafar Nawaz Jaspal

Since the Non-Proliferation Treaty (NPT) entry-into-force,[1] the horizontal proliferation of nuclear weapons has been one of the major security issues facing the world. After the indefinite extension of NPT in April 1995, concerns about proliferation have grown rather than subsided. India and Pakistan nuclear explosions in May 1998; the systematic deterioration of Nuclear Non-Proliferation Regime (NNPR); unaltered Cold War strategies to fight and win a nuclear war justify preservation rather than elimination of nuclear weapon arsenals by Nuclear Weapon States in a new strategic environment; and above all promotion of nuclear technology—nuclear power reactors, nuclear fuel, i.e. exploitable to develop atomic weapons—by nuclear entrepreneur under the disguise of peaceful purposes have created incentives for a few Asian states to develop expertise to acquire nuclear weapons capability. In this context, nuclear weapons proliferation is inevitable.

Presently, there are eight overt nuclear powers and numerous states having nuclear weapons potential in their basement,[2] but controversy rages around the world over on Pakistan's nuclear weapons program. Majority of Western analysts seem convinced that Pakistan will fan the fires of proliferation, especially after the discloser of Dr. Abdul Qadeer Khan's involvement in the illicit nuclear trafficking. Nonetheless, the story did not end here. They often offer, either explicitly or implicitly, dangerous probabilistic hypotheses, such as, drifting of Pakistani nuclear weapons in the hands of radical Islamist.

Holding Pakistan alone responsible for the future horizontal proliferation of nuclear weapons is a detrimental approach. The subjective conclusion not only pose grave challenge to Pakistan's image, but also thwart the formation of holistic approach to reduce the incentives for more states to acquire nuclear weapons. The objective analysis obliges the understanding of determinants of nuclear proliferation in the global politics. There is no shortage of

academic theories to account for the spread of nuclear weapons. These theories provide the guide to understand motives to go nuclear and also assist for forecasting potential future proliferators. Thus, it is imperative to benefit from the practicability of this theoretical literature to address the horizontal nuclear proliferation puzzle.

Combating the international condemnation and confrontation intended to impede, slow or reverse its nuclear weapon program has been a top security concern for Islamabad since 1972, when the then Prime Minister Zulfiqar Ali Bhutto laid the foundation of Pakistan's nuclear weapon program. Ever since then, abundant government resources have been levied in the struggle to prove that Islamabad pursue nuclear weapons to offset New Delhi security threat and to institute foolproof nuclear security system. Two central questions are: Is Pakistan stimulating horizontal nuclear proliferation? How effective is Islamabad's counter-proliferation apparatus?

This study is structured into four sections. The first section deals with the principal desire and fear that drive nuclear weapons proliferation. Second section contains a brief review of so-called linkages between Dr. Khan and potential proliferators and also factors that generate perception about Pakistan's possible role in the future horizontal nuclear proliferation. Third section illustrates the real causes of nuclear proliferation. The stringent measures adopted by Islamabad to jealously guard its nuclear infrastructure would follow it.

Proliferation: Conceptual Framework

The review of literature on the nuclear proliferation reveals that nuclear weapons proliferation is strongly associated with the level of international anarchy, the external threat environment, lack of great-powers' positive security guarantees, discriminatory nature of Nuclear nonproliferation regime,[3] and a low level performance of the United Nations in disarmament politics plus in the global military security realm. As Nina Tannenwald notes, "Troubling developments in recent years include the Indian and Pakistani

nuclear tests of May 1998 and policy changes in the United States and Russia in the late 1990s and early 2000s suggesting new missions for, or renewed reliance on, nuclear weapons."[4] These features of global politics resulted in the domination of Realist Approach on the potential future proliferators thinking about proliferation. Realism emphasizes the role of material power and interests, and the anarchical structure of international system, in explaining the political outcomes. According to the realist camp states develop or acquire military capabilities due to their security demands and the practice of self-help in the international system. Similarly, in the nuclear age, militarily insecure states, especially non-nuclear states that live daily in a nuclear security dilemma prefer to develop their indigenous nuclear weapons capabilities or at least attain positive nuclear security assurances.[5] Jacques E. C. Hymans opined, "states in international anarchy need to deter potential attackers; and in the nuclear age, the gold standard of deterrence is nuclear."[6]

The potential future proliferators lack extended deterrence or nuclear umbrella—referred to as positive security assurances—from the nuclear weapon state. Absence of credible security assurance might instigate insecure states to develop their own nuclear arsenals. In this background, it is easier for actors, whom Peter Lavoy calls 'nuclear mythmakers' to convince the political leadership of the necessity of nuclear weapons.[7] Joseph Cirincione notes that, "Three sets of actors play the dominant roles in nuclear decisions: the scientists, the soldiers, and the state leaders."[8] According to these nuclear mythmakers nuclear weapons could be used just exactly as one could use a bullet or anything else.[9] Thus, the deep attraction nuclear weapon capability present to national leaders is as the ultimate weapon, a guarantor of national security. In simple terms 'Proliferation begets proliferation.'

First we got the bomb and that was good, Causes we love peace and motherhood. Then Russia got the bomb, but that's O.K., Causes the balance of power's maintained that way! Who's next? India ignores the ban and therefore so does Pakistan Who's next, who's next, who's next? ---Tom Lehrer (revised by Jeremy Bernstein)[10]

Mythology: Proliferation from Pakistan

Numerous security analysts including Western governments' officials have frequently expressed their concerns about Pakistan's nuclear program safety and security. Some of them had categorically stated that Pakistan would be a source for potential horizontal proliferators. They cite numerous factual and biased reasons for justifying their point of view about Pakistan's future role in the horizontal nuclear proliferation. The larger question here is from where 'perceptions about proliferation from Pakistan' come from; how and why they develop; and how they are maintained, disseminated, and strengthened. The adequate answer necessitates critical analysis about the raison d'être of preceding assessment. A few mythmaking variables are the following:

First, Pakistan is a non-signatory of NPT to which vast majority of states in the international system subscribe. Many analysts believe that the principal problem in establishing the NPT as a universal treaty drives from the apparently unalterable decisions of India, Pakistan and Israel not to join the Treaty.[11] This prompts them to pressure on the three to join the Treaty. But in practice, they ignore Israel and India and stiff pressure only directed at Islamabad. More precisely, the US and its like minded states focus seemed to be closing in on Pakistan's nuclear weapon program, while the screw-tighteners seemed to put blinders on when Washington helped India and Israel. For instance, serious opposition was missing on Indo-US nuclear deal. Despite Islamabad's best efforts, Bush Administration refused to treat Pakistan like India in the realm of nuclear cooperation.[12] This denial attitude of Bush Administration generates misperceptions about the intentions of Pakistan and undermines its credibility to act as a responsible nuclear weapon state.

Second, Pakistan wears the scarlet letter of Dr Abdul Qadeer Khan, which negatively impacts perceptions about its efforts to improve nuclear command, control and security upgrades in nuclear management. Actually, once Dr. Khan prestige grew exponentially, he began to run the export of nuclear weapons technology as a business. As Jeremy Bernstein

points out, "He opened an office in Dubai operated by his nephew. They soon produced a kind of menu from which you could order, complete with prices. The Iranians bought centrifuge designs and parts of actual centrifuge for several million dollars, which they should have declared to the International Atomic Energy Agency. The centrifuge that the Iranians claim to have used to enrich is called the P-1, where 'P' stands for 'Pakistan'."[13] Moreover, in November 2003, Moammar Gadhafi's decided to renounce Libya's weapons of mass destruction program and opened his country's weapons laboratories to international inspection. The Libyan government gave a package of documents to the U.S. officials. Experts from the United States, Britain and the International Atomic Energy Agency analyzed the documents. These experts concluded that bomb designs and other papers turned over by Libya had yielded evidence of Pakistani-led trading network in transferring nuclear know-how to Libya. Moreover, on February 20, 2004, Malaysian Police reported that the former head of Pakistan's nuclear programme, Dr Abdul Qadeer Khan, sent enriched uranium to Libya in 2001 and sold nuclear centrifuge parts to Iran in the mid-1990s.[14] Naeem Salik, the former Director of Arms Control and Disarmament Affairs at the Strategic Plans Division pointed out that "The actions of Abdul Qadeer Khan from the late 1980s through the 1990s that resulted in the transfer of sensitive technologies to Iran and Libya, among other activities, are an example of the flaws in the previous oversight system."[15]

Dr. Khan network was unearthed by the United States. The American officials provided government of Pakistan authentic proofs about Khan's involvement in the illicit nuclear trafficking.[16] Consequently, he was arrested on January 31, 2004 under the Security Act of Pakistan 1952 for allegedly transferring nuclear technology to other countries.[17] On February 7, 2004, General Pervez Musharaf, the President of Pakistan in his press conference stated that one of the country's senior scientist, Dr. Abdul Qadeer Khan, and a few his associates were guilty of illicit nuclear trade.[18]

Dr Khan was convicted and punished, but his Western colleagues were not prosecuted. The unaccountability of the Western members of underworld nuclear network generates an impression, even though remote, of reviving of this underworld network having member from Pakistani scientific bureaucracy.

Third, since the late 1980s, Pakistan's earnest need has been to get a missile program that ought to go along with the nascent nuclear weapons development. According to Western sources, for the sake of long-range missiles, Islamabad approached North Korea, which had developed the medium range Nodong ballistic missile. The deal was to pay the North Korean in cash installments that would total about three billion dollars. Realizing that it might run out of cash before all the payments were made, Islamabad opted for barter—missiles for centrifuges.[19] Though the government of Pakistan rejected barter trade allegation,[20] but in reality had failed to convince the international community that it was not assisting North Korea in its pursuit for nuclear weapons. Jon Wolfsthal opined:

> Given its capabilities and its history of dealings with North Korea, Pakistan is the most likely source for the centrifuges and the know how to operate them…. Later, it purchased scud and no-dong missiles from North Korea. Analysts have wondered for years what North Korea got in exchange for the missiles, and one explanation is that the centrifuge technology was part of the larger transaction.[21]

Fourth, the state-system level of analysis manifests the fissiparous tendencies within the domestic socio-political structure of Pakistan.[22] It highlights that the concept of a modern nation-state is alien to various influential factions of Pakistani society and therefore the policy makers find difficult to command an overriding loyalty and identification of its citizens.[23] They have to compete with a host of sub-and supranational identities based on ethnic, linguistic, tribal, religious and ideological affiliations. These fissiparous tendencies within the domestic context frequently exploited by the external competitors for manipulation, intervention and influencing decision making process in Islamabad. For example,

geographical, ethnic, tribal, historical, cultural and religious factors in Persian Gulf states and Pakistan are so closely entwined as to have created a very special kind of relationship between them.[24]

The Western analysts believe that this special kind of relationship between the people of Pakistan and other Muslim communities could be utilized by nuclear aspirant Muslim states, such as, Iran, and Saudi Arab, for receiving assistance from Pakistanis for developing their nuclear weapons infrastructure.[25] As Kenneth N. Luongo and Brig. Gen. (Ret.) Naeem Salik pointed out;

It is also suspected that some percentage of younger physicists and military personnel in Pakistan are more influenced by Islamic radicalism than previous generations. Two physicists from Pakistan with knowledge of the nuclear program, retired Pakistan Atomic Energy Commission (PAEC) scientists Sultan Bashiruddin Mahmood and Abdul Majid, have admitted to speaking with Bin Laden, although they denied that any sensitive information was divulged.[26]

Fifth, Western ethnocentrism was very important in building myth that Pakistan was incapable to guard its nuclear arsenals or likely to be involved in illegitimate nuclear weapons trade for sake of monitory reimbursements or ideological motivation.[27] They chalk out and propagate hypothetical threat scenarios about Pakistan's nuclear program. For example: David Albright, Kevin O'Neill and Corey Hinderstein argued, "A troubling question in the current situation is that a nuclear weapon or fissile material could fall into the wrong hands. Available information suggests that, despite official statements to the contrary, the Pakistani government may not have full confidence in the security of its nuclear arsenal."[28] Mansoor Ijaz and R. James Woolsey argued "the main nuclear security problem posed by Al Qaeda today is access to radioactive materials in Pakistan."[29] Paul Richter opined, "While the nuclear program was conceived to protect Pakistan from the perceived nuclear threat from India, some groups in the region view its nuclear arsenal as the *Islamic bomb* that could be used to defend the broader interests of the Muslim world."[30] The basis of this allegory is that

the recognition of Pakistan as a responsible nuclear weapon state would erase the distinction between the technologically advanced Western nuclear weapon states and less developed Muslim state. It is a replica of sixteenth century European nobles. Nobles in the sixteenth century, for example, objected to firearms and tries to ban them, partly on the grounds that they erased the distinction between nobleman and commoner.[31] Thus, this mindset evolved out of, and is sustained by, a combination of strategic interest and superiority opprobrium.

Sixth, a renewed and widespread international antinuclear weapons movement and its focus on Pakistan; this movement challenged both the morality and the rationality of nuclear deterrence. It regards nuclear weapon illegitimate and abhorrent. Agreed they demand that all nuclear weapon states should eliminate their nuclear arsenals, but in practice they focus more vigorously on the developing states nuclear programs.

Nuclear Proliferation: Realistic Account

The primary reason for the both horizontal and vertical proliferation of nuclear weapons is the failure of nuclear weapon states to accept a time-bound framework for nuclear disarmament. The nuclear weapon states merely pay lip service to the nuclear disarmament instead of opting practical measures to dismantle or eradicate their nuclear arsenals. The NPT established norms against nuclear weapons acquisition, disarmament, trade, modernization, and use,[32] but the Treaty has been unsuccessful in achieving its desired objectives. In fact, the nuclear-weapon states have failed to carry out their disarmament commitments made in article VI of the Treaty.[33] Nevertheless, the US and Russian Federation claimed that their May 2002 Strategic Offensive Reduction Treaty (Moscow) was an important contribution to the process of nuclear disarmament and a demonstration of their commitment to Article VI. Whereas, the Non-Aligned Movement stated that the Strategic Offensive Reductions Treaty reductions do not meet the "unequivocal undertaking under Article VI of the NPT to accomplish the total elimination of…nuclear arsenals leading to nuclear disarmament."

In addition, it does not require the destruction of the weapons; does not include tactical nuclear weapons; and does not have any verification provisions.[34]

At the 1995 Review Conference, for example, the decision to extend the NPT indefinitely was taken in conjunction with two other decisions, one of which contained a set of agreed Principles and Objectives for Nuclear Nonproliferation and Disarmament. The objectives included: completion of the Comprehensive Test Ban Treaty (CTBT), which bans nuclear tests, by 1996; commencement and early conclusion of negotiations on a nondiscriminatory and universally applicable convention banning the production of fissile material for nuclear weapons or other nuclear explosive devices; and determined pursuit by the nuclear weapon states of systematic and progressive efforts to reduce nuclear weapons globally, with the ultimate goal of eliminating those weapons, and of all states of general and complete disarmament under strict and effective international control.[35]

The non-compliance of Nuclear Weapon States led number of states to believe that the nuclear weapon states do not intend to fulfill their end of the NPT bargain -- their pledge to eliminate nuclear weapons. In addition, the sole super power—the US— is less willing to agree to further measures that would bolster the nuclear non-proliferation regime. Ashton B. Carter argued, "The NPT has been disparaged in the United States in recent years because, it is said, the 'bad guys' can ignore it with impunity (since it has inadequate verification and enforcement provisions) and the 'good guys' would be good even without the agreement."[36] In October 1999, the U.S. Senate rejected CTBT ratification and obstructed its entry into force. In February 2005, it decided to renew its funding request for research on new, earth penetrating nuclear weapons, which Congress denied last year.[37] The Bush administration also deviated from the consensus document of Conference on Disarmament on fissile material cutoff treaty (FMCT).[38] Thus, the current US policies run directly counter to the full implementation of the thirteen practical steps it and other nuclear states agreed to during the NPT Review Conference held in 2000, as well as to its obligations under Article VI of the NPT to

work for the elimination of nuclear weapons.[39] These developments undermine efforts to strengthen the nuclear nonproliferation regime. More precisely, there is no progress in nuclear disarmament leading to the abolition of nuclear weapons. In the words of CIA Director George Tenet, "The desire for nuclear weapons is on the upsurge…. The domino theory of the 21st century may well be nuclear".[40]

The NPT allows the non-nuclear weapon states to peacefully use nuclear energy and for the nuclear weapon states to help them. The problem here is, as the situation in Iraq, Iran and North Korea showed, that the difference between peaceful and military uses of nuclear energy is difficult in practice to make. In the absence of on-the-ground nuclear inspectors it is almost impossible until a state actually tests a weapon. Importantly, when International Atomic Energy Agency inspectors, during their permitted surprise inspection of the centrifuge facility at Natanz, questioned Iranian Uranium enrichment activity, they simply replied that NPT entitles them to carry out peaceful nuclear development. In addition, Iranians have been building light-water reactor at the seaport of Brushehr, with the assistance of Russian Federation. This would be fueled with the Russian supplied enriched uranium. Though the reactor would not be ideal for plutonium production, but it could be used for the production of plutonium. Simultaneously, a heavy-water reactor being built at Arak that is more suitable for plutonium production.

The Global underworld nuclear bazaar has been working since 1940s. In spite of tightened control regimes, the nuclear bazaar has prospered far beyond anything anyone had predicted, with buyers and sellers from countries around the globe. The representatives of potential proliferators scouted Europe without restraint to buy the elements needed to make the Zippe centrifuges. They accomplish their missions uninterrupted for the reason that many of the things they needed were dual use, so the real use could be disguised. In the words Jeremy Bernstein, "In most cases, the sellers did not care."[41] For instance, after the bombing of reactor by Israel on June 7, 1981, Iraqis decided to enrich their own uranium using Zippe-type centrifuges. They paid one million dollars to a German group for the design.[42] Degussa, one of the largest chemical

companies in Germany—which is involved in nuclear weapons material business—sold the Zippe centrifuges to Iranian.[43] Jeremy Bernstein argued "The Dagussa representatives made it clear that they did not care if the Iranians were going to use the material to make weapons. That was fine with them, as long as they paid their bills."[44]

The reports about multinational nuclear Mafia unearthed in 2004 revealed that the citizens of both developed and underdeveloped worlds were involved in this illicit trade. The network included suppliers from Switzerland, the United Kingdom, the United Arab Emirates, Turkey, South Africa, Malaysia and elsewhere.[45] These individuals including various countries scientific bureaucracies were involved in elicit nuclear trade only for monitory benefits.[46] Importantly, the chief of International Atomic Energy Agency, Muhammad El Baradei stated, Dr. Khan was merely the "tip of the iceberg." His reference to the tip was meant to remind the international community that there exists a large underworld nuclear market. This nuclear black market trade in nuclear related expertise, technologies, components or material that is being pursued for non-peaceful purposes, mostly by covert or secretive means. This trade is not necessarily illegal, but is designed to exploit existing loopholes in national export regulations.[47]

According to the International Atomic Energy Agency (IAEA) record, there were 16 confirmed incidents involving trafficking in Highly Enriched Uranium (HEU) or plutonium between 1993 and 2005.[48] The nuclear material's smuggling history reveals that a great deal of nuclear material, equipment, and component for nuclear weapons programs have been, and are being, smuggled from the United States and Russian Federation in the past. An early example of the illicit acquisition of nuclear material was the smuggling of the enriched uranium to Israel between 1962 and 1965. About 100 kilograms of highly enriched uranium disappeared from a factory in Apollo, Pennsylvania, owned by the Nuclear Materials and Equipment Corporation.[49] Moreover, in January 2003, Japanese officials admitted that their pilot plutonium reprocessing plant at Tokai-mura "lost" 206 kilograms of weapons-usable plutonium (roughly 40 crude bombs worth) over the previous 15

years.[50] Where this material might have gone? The British, meanwhile, have experienced similar losses at their plutonium reprocessing plant at Sellafield. There, 19 kilograms of separated plutonium went missing in 2003, and another 30 kilograms of separated plutonium were unaccounted for in 2004.[51] The international community vociferously condemns Dr. Khan and question safety and security apparatus of Pakistan's nuclear installations, but inaptly remains tight-lipped over Western members of the nuclear mafia and missing of nuclear material from the Western states nuclear facilities.

Americans rewards the Indians for what is said to be good behavior on the nuclear front. To keep the record strait one needs to know the Indian nuclear activities. The Indians got a heavy-water reactor—suitable for plutonium production—from the Canadians. New Delhi violated the agreement. For instance, India's 1974 nuclear weapon test explosion used plutonium produced by a Canadian –supplied reactor (CIRUS) moderated with heavy water supplied by the United States under a 1956 contract stipulating that it be used only "for research into and the use of atomic energy for peaceful purposes. To this day, India does not deny the 1974 test device used Canadian and U.S. equipment and material. [52] Hence, the 40-megawatt Canadian supplied CIRUS reactor, located North of Mumbai was proof of an apparent diversion.

In addition, there have been reported cases of theft of fissile material from the Indian nuclear facilities. On August 27, 2001, the police in West Bengal (India) disclosed that it had arrested two men with more than 200 grams of semi-processed uranium.[53] On July 23, 1998 India's Central Bureau of Intelligence seized six kilograms of uranium from GR Arun, a city engineer, and S Murthy, his associate in Tamil Nadu. The scientists at the Indira Gandhi Center for Atomic Research (IGCAR) at Kalpakkam, stated that the seized uranium was capable of radiation emission, having energy corresponding to natural Uranium-238 and U-235.[54] There is a long (reported) list of the illicit nuclear trade in India. It proves that a nuclear mafia is operating in India. Despite these facts, Americans have signed the nuclear deal with India. Importantly, the Indo-US nuclear agreement was tacit violation of the actual provisions of the

Nuclear Non-Proliferation Treaty. Jeremy Bernstein, argued "Here the problem, as many see it, is that a country that has refused to sign the non-proliferation treaty is to become a partner in nuclear activities because of its alleged good behavior, as decided unilaterally by the United States."[55]

In simple terms, it agreed to lift a ban on civilian nuclear technology sales to nuclear-armed India, despite its refusal to sign the nuclear non-proliferation treaty or give up its nuclear arms. This cooperation would effectively grant India highly sought-after access to sensitive nuclear technology only accorded to states in full compliance with global nonproliferation standards. It would also treat India in much the same way as the five original nuclear-weapon states by exempting it from meaningful international nuclear inspections.[56] It is a virtual endorsement of India's nuclear weapons status. Conversely, the previous U.S. administrations adopted the stance that India's nuclear arsenal, which was first, tested in 1974, was illegitimate and should be eliminated or at least seriously constrained.

Pakistan's Non-Proliferation Efforts

Although Nuclear Non-Proliferation Regime has failed to gain a significant domestic constituency in Pakistan, yet Islamabad took a few nuclear related policy decisions, in order to be freed of sanctions and to break its diplomatic isolation in the aftermath of nuclear explosion in May 1998. While categorically rejecting United Nation Security Council Resolution 1172,[57] Islamabad attempted to restore the confidence of International community about the safety and security of its nuclear program and its resolute to abide by the nuclear nonproliferation norms laid down by the NPT and Nuclear Supplier Group. Accordingly, Islamabad deferred conversion of its tested nuclear weapons into deployment, announced moratorium on further nuclear testing and censured transfer of nuclear weapons know-how to any party. In order to accomplish these objectives Islamabad undertook the following measures:

Islamabad offered India 'Nuclear Restrain Regime' almost similar to the then United State Deputy Secretary of State Strobe Talbott and his negotiating team's five conditions for India and Pakistan to meet in order to be freed of sanctions and to break their diplomatic isolation.[58] The regime based on credible nuclear deterrence at the minimum possible level, including non-induction of anti-ballistic missiles and submarine-launched ballistic missiles in the region.[59] Though India responded negatively to Pakistan's Strategic Restraint Regime proposal, yet Pakistan remains committed to adopting of minimal credible deterrence. It supports nuclear stabilization and restraint in the region and is opposed to any arms race. In January 2006, the then Prime Minister Shaukat Aziz while reiterateing Pakitan's earlier stance, once again proposed a Strategic Sestraint Regime to endure with interlocking elements of, one, conflict resolution; second, nuclear and missile restraint; and third, conventional balance.[60]

Pakistan instituted a powerful and coherent National Command Authority (NCA) to manage nuclear infrastructure and strategic assets. Though NCA became operative in March 1999,[61] but the formal announcement in this regard came on February 2, 2000.[62] It disseminated information about the three tier institutional structure over country's nuclear weapons. The Employment Control Committee and Development Control Committee, constituted one tier; the Strategic Plans Division (SPD) second tier; and the three services' strategic forces command third tier. The Chairman and Vice Chairman of the NCA were the Head of the state (President) and Head of the government (Prime Minister), respectively. The Strategic Plans Division was the secretariat of NCA.

The head of state, President of Pakistan, chaired the apex Employment Control Committee. As the names suggested the Employment Control Committee dealt with what could be defined broadly as "nuclear strategy" including targeting policy and the conduct of nuclear operations. It provides policy directions in the peacetime and has the authority to order, control and direct use/employment of tri-services strategic forces during war. On January 6, 2003, the NCA headed by President General Pervez Mushaaraf announced that a "unanimous decision" would be taken

for using nuclear weapons. It was made clear that not any individual, including the president of Pakistan, was authorized to use nuclear weapons. This arrangement thwarts the possibility of any irrational decision by an individual. Hence, the decision making process was based on the concept of consensus. Secondly, the list of the members of the committee manifested that overwhelming civilian representation was in the Employment Control Committee. In addition to the Chairman (Head of the state) and vice chairman (Head of the government), the other members were: Minister of foreign affairs (deputy chairman), the other members were Minister of Defense, Minister of Interior, Chairman of Joint Chiefs of Staff Committee, Services chiefs, Director-general of Strategic Plans Division and, technical advisers and others, as required by the chairman.

The Development Control Committee dealt with the planning and development of nuclear forces. It exercises day-to-day technical, financial and administrative control over the strategic organizations and also oversees the systematic development of strategic weapons program. The Chairman was Head of the State, Vice Chairman is Head of the Government and Deputy Chairman was CJCSC. The other members were: Services chiefs—Army, Air force and Navy; head of concerned strategic organizations i.e. scientists and Director General Strategic Plans Division as a secretary.

The Strategic Plans Division was a secretariat to the NCA and is entrusted with the task of developing and management Pakistan's nuclear capability in all dimensions whether these be operational, planning, weapons development, arms control and disarmament affairs, command and control, storage, safety, budgets, etc. It simple words SPD works on behalf of the NCA. Director General heads it. In addition to SPD, the separate strategic forces commands had been raised in all the three services. The services retain training, technical and administrative control over their strategic forces. But the operational planning and control rests entirely with the NCA.

President Pervez Mushaaraf promulgated the NCA Ordinance on December 13, 2007.[63] The Ordinance No. LXX of 2007, which came into force at once and extends to the whole of Pakistan, provides the constitution and establishment of National Command Authority. The careful reading of the Ordinance reveals that it does not contradict or reverse the existed NCA system. It stated "The National Command Authority already established by the competent authority shall deem to be the Authority established under this Ordinance." The Chairman of the Authority shall be the President of Pakistan and vice-chairman of the Authority shall be the Prime Minister. The other ex-officio members of the Authority shall be the Minister for Foreign Affairs; Minister for Defense; Minister for Finance; Minister for Interior; Chairman Joint Chiefs of Staff Committee; Chief of Army Staff; Chief of Naval Staff; Chief Air Staff; and Director General Strategic Plans Division. The Director General SPD shall act as the Secretary of the Authority. The important aspect of the Ordinance LXX—2007 is that it provides a legal document on the NCA containing details regarding the command and control over research, development, production and use of nuclear and space technologies of Pakistan. It also provides the information about the safety and security mechanism that ensure safety and security of all personal (employees serving and retired), facilities, information, installations or strategic organizations—Pakistan Atomic Energy Agency Commission, Dr. A Q Khan research laboratories (KRL) and Space and Upper Atmosphere Research Commission.[64]

In November 2006 Lt. General Khalid Kidwai, head of the SPD, announced that each Pakistani warhead was fitted with permissive action links (PALs), code-lock, which require the entry of a code before the weapon can explode.[65] In addition, Pakistan follows a two-man rule to authenticate the codes that call for the release of the weapons. It may in fact be a three-man procedure in some cases. Such authentication processes are standard in advanced nuclear-weapon states.[66] In addition, since 1998, the SPD has been conducting external audits on all nuclear inventories and implementing regular and surprise inspections at facilities. Pakistan participates in the IAEA Illicit Trafficking Database, which allows countries to share information on incidents involving theft, loss, or

pilferage of radiological materials. For augmenting security and physical protection of nuclear facilities SPD had laid a credible multi-layered perimeter security approach, i.e. inner perimeter, outer perimeter, and third tier.[67] In addition, a personnel reliability program (PRP) similar to the United States PRP system has been institutionalized. Hence, any individual assigned to a strategic project or a sensitive task now undergoes a security clearance by Inter-services Intelligence, Intelligence Bureau, Military Intelligence, and the SPD.[68]

On September 4, 2000 Pakistan ratified the 1979 Convention on the Physical Protection of Nuclear Material. Since then, SPD has been ensuring to meet all the guidelines included in the convention, which covers domestic and international transportation of nuclear materials. Pakistan is also party to the Convention on Early Notification of a Nuclear Accident and Nuclear Safety Convention. The international Convention on Nuclear Safety envisages complete separation between the regulatory and promotional aspects of nuclear energy. Accordingly, the government of Pakistan promulgated Pakistan Nuclear Regulatory Authority Ordinance in January 2001. The Ordinance established a complete independent regulatory authority called Pakistan Nuclear Regulatory Authority (PNRA), which is responsible for regulating all aspects of radiation and nuclear energy. The PNRA issues licenses for imports and exports of radiological substances and controls, regulates, and supervises all matters relating to nuclear safety and radiation protection. The Authority evaluates its credibility against a set of performance indicators. These include peer reviews conducted by the IAEA International Regulatory Review Team and the IAEA Radiation Safety Infrastructure Appraisal mission. In addition, the PNRA continuously reviews and updates safety and security measures according to recommendations and guidance received from the IAEA. More precisely, this authority has been entrusted with the control, regulation and supervision of all matters related to nuclear safety and radiation protection measures in Pakistan.[69]

On April 28, 2004, in its 4956th meeting the United Nation Security Council adopted a non-proliferation resolution by which it decided that all States shall refrain from supporting by any means

non-state actors that attempt to require, use or transfer nuclear, chemical or biological weapons and their delivery systems. The Security Council unanimously adopted resolution 1540 (2004) under Chapter VII of the UN Charter. The Council decided also that all States would establish domestic controls to prevent the proliferation of such weapons and means of delivery, in particular for terrorists' purposes, including by establishing appropriate controls over the related material and adopt legislative measures in that respect. In response to it, Pakistani Parliament legislated the Act—Export Control on Goods, Technologies, Material and Equipment related to Nuclear and Biological Weapons and their Delivery Systems Act, 2004—in September 2004.[70] The purpose of this Act was to further strengthen controls on export of sensitive technologies particularly related to nuclear and biological weapons and their means of delivery. To ensure the successful implementation and enforcement of the Act, a Strategic Export Control Division (SECDIV) was established. This division is housed in the Ministry of Foreign Affairs, but it is multidisciplinary and includes personnel from customs; the Ministries of Foreign Affairs, Commerce, and Defense; the Central Board of Revenue; the PAEC; the PNRA; and the SPD. Salient features of the Export Control Act are:

- Controls over export, re-export, transshipment and transit of goods, technologies, material and equipment, including prohibition of diversion of controlled goods and technologies;
- Wide jurisdiction (also includes Pakistanis visiting or working abroad);
- Envisages an authority to administer rules and regulations framed under this legislation which also provides for the establishment of an Oversight Board to monitor the implementation of this legislation;
- Comprehensive control lists and catch all provisions;
- Penal provisions: up to 14 years imprisonment and Rs. 5 million fine or both, and on conviction offender's property and assets, wherever they may be, shall be forfeited to the Federal Government.

In October 2005, the government of Pakistan notified national Control Lists of Goods, Technologies, Materials and Equipment related to Nuclear and Biological Weapons and their delivery systems, which were subject to strict export control. The Control Lists encompass the lists and scope of export controls maintained by the Nuclear Suppliers Group, the Austrailian Group which relates to biological agents and toxins, and the Missile Technology Control Regime. The classification system is based on the European Unions's integrated list which constitutes the latest international standards in this regard.[71]

In March 2006, Pakistan joined the US-sponsored Container Security Initiative (CSI) by signing the CSI declaration of principles. It was selected as a model state by the US Customs and Border Protection agency for the Pilot Program of the CSI. In addition Pakistan supports the spirit of the Proliferation Security Initiative (PSI), without joining it. It also attented a few PSI exercises as an observer.[72]

Importantly, the Indo-U.S. nuclear deal—paradigmn shift in the U.S. antiproliferation policy—and the U.S. unwilling to extend similar cooperation to Pakistan generate misperceptions about Islamabad's nonproliferation commitments. Pakistan felt discriminated, yet it advocates regional restraint approach in the nuclear realm. On April 10, 2007 Pakistan's UN Ambassador Munir Akram, while spaeking in the UN Disarmament Commission called for evolving a "new security consensus" to address the objectives of disrmament and nonproliferation. Pakistan also circulated a working paper for developing a new consensus on nuclear disarmament and nonproliferation.[73]

Conclusion

Pakistan, a non signatory to NPT, present itself as a unique case of state, which appears willing, to voluntarily observe all the restraints imposed by the Nuclear Non-Proliferation Regime—promoting safe commerce and developing effective international export control mechanisms—and to subject its civilian nuclear facilities to full scope safeguards, ensure strict controls to

stop the transfer of technologies and materials. Despite it, many allegedly claim that Pakistan would instigate horizontal proliferation. In fact, Dr. Khan network and vibrant anti-Pakistan lobby had done a great damage to Pakistan's credibility—'responsible nuclear weapon state'. Islamabad's integrity is in a desperate need of repair with the intention that the international community accepts a nuclear-armed Pakistan as a fully responsible and fully entitled member of the international community. In this context, it is imperative that Islamabad should demonstrate through acts and deeds that it neither encourages nor assists the potential horizontal nuclear proliferators. This intention requires multifaceted long-term sustainable strategy, which includes transparent vocalized official nuclear policy, institutionalization of nuclear export control apparatus, and above all unapologetic cum firm congruous national stance on nuclear proliferation by all segments of the Pakistani society.

Author

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End Notes

[1] The Treaty on the Non-Proliferation of Nuclear Weapons, popularly known as the Non-Proliferation Treaty or NPT went into effect in 1970 with almost one hundred nations as original signatories. Joseph Cirincione, *Bomb Scare: The History and Future of Nuclear Weapons* (New York: Columbia University Press, 2007), pp. 29-30.

All countries except India, Israel and Pakistan eventually signed NPT. These three countries did not sign, and each of them constitutes a special case. North Korea withdrew from the NPT in January 2003. Iran threatened to withdraw.

[2] Britain, China, France, India, North Korea, Pakistan, Russian Federation, the United States all have (tested) nuclear weapons. Israel also have nuclear deterrent. Tel Aviv opted a policy of opacity, neither confirming nor denying its nuclear capability. Nonetheless, it is an open secret that Israel developed its first nuclear weapon in1966-67, and currently may have 100-170 nuclear weapons deployed on missiles, aircrafts and submarines. In 1985, a Moroccan-born Jew named Mordechai Vanunu, who had been fired from his job working at the plutoinium-producing reactor in the Negev, defected and sold his story, with photographs, to the *London Sunday Times.* Jeremy Bernstein, *Nuclear Weapons: What you need to know* (New York: Cambrideg University Press, 2008), p. 5.

In addition, some 40-plus countries have industrial and technological infrastructure to make the nuclear weapons if they so chose.

[3] Under the 1968 Nuclear Non-Proliferation Treaty, the vast majority of states are prohibited from acquiring or possessing nuclear weapons. However, the five 'declared' nuclear weapons states (United States, Britian, France, Russian Federation, and China) are allowed by the treaty to possess nuclear weapons temporarily pending complete disarmament and to prepare to use them. Under the Article VI of the Nuclear Non-Proliferation Treaty, the declared nuclear states are obliged to pursue complete nuclear disarmament. But this article is silent on the issue of when the nuclear weapons states start and accomplish complete nuclear disarmament.

[4] Nina Tannenwald, *The Nuclear Taboo: The United States and the Non-Use of Nuclear Weapons since 1945* (New York: Cambridge University Press, 2007), p. 10.

[5] In the Korean War and Quemoy and Matsu crisis of 1954, for example, some (but not all) top American decision makers talked openly, loosely, and apparently about using nuclear weapons to end these crisis, and they introduced plans to back up their talks. During the 1991 Gulf War, the Americans implicitly expressed the possibility of nuclear retaliation incase Sadam Hussain used chemical and biological weapons against the coalition forces. As Nina Tannenwald pointed out; "US leaders seriously considered the use of nuclear weapons and threatened their use on more occasions than any other nuclear power. The United States relied on nuclear weapons most heavily in its defense and alliance policies (the Soviet Union, in contrast, possessed large conventional forces, while China has had a "no-first-use nuclear policy from the beginning), and use was well institutionalized in US military doctrine and operational planning." Nina Tannenwald, *The Nuclear Taboo: The United States and the Non-Use of Nuclear Weapons since 1945*, Op. cit., p. 22.

In the aftermath of May Nuclear Tests the Indian Home Minister L. K. Advani threatened Islamabad to change its Kashmir policy. "Islamabad should realize the change in the geo-strategic situation in the region and the

world. It must roll back its anti-India policy especially with regard to Kashmir. Any other course will be futile and costly for Pakistan." Sabina Inderjit, "Advani Tells Pakistan to Roll Back Its Anti-India Policy," *Times of India*, May 19, 1998

6 Jacques E. C. Hymans, "Theories of Nuclear Proliferation: The State of the Field," *Nonproliferation Review*, Vol. 13, No. 3, November 2006, p. 455.

7 Peter R. Lavoy, "Nuclear Myths and the Causes of Nuclear Proliferation," *Security Studies*, Spring/Summer 1993, p. 199.

8 Joseph Cirincione, *Bomb Scare: The History and Future of Nuclear Weapons*, Op. cit, p. 64.

9 President Dwight Eisenhower declared at a press conference on March 16, 1955, that nuclear weapons should be "used just exactly as you would use a bullet or anything else." Quoted in Nina Tannenwald, *The Nuclear Taboo: The United States and the Non-Use of Nuclear Weapons since 1945*, Op. cit., p. 9.

10 These lyrics were selected from a poem written by Jeremy Bernstein. Jeremy Bernstein, *Nuclear Weapons: What you need to know*, Op. cit, pp. 255-256.

11 Richard Latter, "Non-Proliferation and the 2005 NPT Review," *Wilton Park Paper*, January 2004.

12 For the discussion on Indo-US nuclear deal see Zafar Nawaz Jaspal, "Indo-U.S. Nuclear Deal: Implication for Indo-Pak Peace Process," *Margalla Papers*, 2006. Zafar Nawaz Jaspal, "Indo-US Nuclear Deal: Endeavor to Surpass Restrains," *Defense Journal*, November 2007.

13 Jeremy Bernstein, *Nuclear Weapons: What you need to know*, Op. cit., p. 267.

14 "Malaysian police report implicates Dr A.Q. Khan," *Dawn*, February 21, 2004. Thalif Deen, "New US plans for nukes hypocritical, say experts," *Dawn*, February 13, 2004.

15 Kenneth N. Luongo and Brig. Gen. (Ret.) Naeem Salik, "Building Confidence in Pakistan's Nuclear Security," *Arms Control Today*, December 2007.

16 "Nuclear Black Markets: Pakistan, A. Q. Khan and the rise of proliferation networks: A net assessment," *On ISS strategic dossier* (London: The International Institute for Strategic Studies, 2007), pp. 96-100.

17 Syed Irfan Raza, "A.Q. Khan appears in public after 4 years," *Dawn*, May 22, 2008.

18 President of Pakistan claimed in his news conference on February 7, 2004 that the Pakistani civil and military bureaucracy was not a part of this illicit nuclear trafficking.

19 Jeremy Bernstein, *Nuclear Weapons: What you need to know*, Op. cit., p. 271.

20 "There is no truth in these reports whatsoever," said presidential spokesman Major-General Rashid Qureshi. "I do not know where the New York Times gets its information from. I am convinced that they need to update their intelligence gathering system." "Pakistan dismisses DPRK arms deal report," *The News International*, November 25, 2002.

[21] Jon Wolfsthal, "North Korea's Nuclear Breach" *Carnegie Analysis* (October 17, 2002).
<http://www.ceip.org/files/nonprolif/templates/article.asp?NewsID=3832>

[22] The individual, state, international system levels of analysis explain the complexities in the foreign policy making process in Pakistan. For understanding the Three Level of Analysis approach see John Spanier, *Games Nations Play,* Seventh Edition (Washington D.C.: Congressional Quarterly Inc, 1990), pp. 19-41

[23] President Pervez Musharraf referred in his book about the social heterogeneity. He wrote; "… the and worst of all, was our social weakness. We lack the homogeneity to galvanize the entire nation into an active confrontation. Pervez Musharraf, *In the Line of Fire: A Memoir* (New York: Simon & Schuster, 2006), p. 202.

[24] All constitutions of the GCC states and Iran have in their first section an article stating that Islam is the official religion of the state and that Sharia is a source of Legislation. Article 2 of the 1973 Constitution of Pakistan says, Islam is a state religion. Moreover, like them Pakistan oppose Israel, etc. Hassan Hamadan al-Akim, *The GCC States in an Unstable World: Foreign Policy Dilemmas of Small States* (London: Saqi Books, 1994) p 34.

[25] A. Q. Khan said it was an error of judgment.

[26] Kenneth N. Luongo and Brig. Gen. (Ret.) Naeem Salik, Op. cit.

[27] Since 1970s identical suspicions and fears regarding Pakistan's nuclear program have been expressed. One cannot miss similar antagonism and malicious propaganda in the writings of Steve Weisman and Herbert Krosney in *The Islamic Bomb* and William E. Burrows and Robert Windrem in *Critical Mass- The Dangerous Race for Superweapons in a Fragmenting World.* These writers criticized Pakistan's nuclear program and stated that it is working for Islamic Bomb. William E. Burrows and Robert Windrem, *Critical Mass- The Dangerous Race for Superweapons in a Fragmenting World* (New York: Simon and Schuster, 1994).

[28] David Albright, Kevin O'Neill and Corey Hinderstein, "Securing Pakistan's Nuclear Arsenal: Principles for Assistance," *ISIS Issue Brief,* October 4, 2001.
http://www.isis-online.org/publications/terrorism/pakassist.html#back3.

[29] Mansoor Ijaz and R. James Woolsey, "How Secure Is Pakistan's Plutonium?," *The New York Times*, November 28, 2001

[30] Paul Richter, "Pakistan's Nuclear Wild Card," *Los Angeles Times,* September 18, 2001.
< http://www.latimes.com/news/nationworld/nation/la-091801nukes.story>.

[31] Nina Tannenwald, *The Nuclear Taboo: The United States and the Non-Use of Nuclear Weapons since 1945,* Op. cit., pp. 20-21.

[32] The NPT permits all signatories to enrich uranium (in order to make fuel for power reactors) and reprocess plutonium (an inevitable byproduct in spent fuel removed from the reactor after it is used up), provided they declare what they are doing and submit to periodic inspections.

[33] Article VI of NPT calls on parties to the treaty to "pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race...and to nuclear disarmament." However, The NPT did not set out a timetable for achieving the goals of Article VI.

[34] Lawrence Scheinman, "Disarmament: Have the Five Nuclear Powers Done Enough", *Arms Control Today*, January/February 2005.

[35] Lawrence Scheinman, "Disarmament: Have the Five Nuclear Powers Done Enough", *Arms Control Today*, January/February 2005.

[36] Ashton B. Carter, "How to Counter WMD", *Foreign Affairs*, September/October 2004, p. 79.

[37] The Department of Energy's fiscal year 2006 budget request includes $4 million for research on the Robust Nuclear Earth Penetrator. It also envisions spending $14 million on the project in fiscal year 2007. The Department of Defense's fiscal year 2006 budget request also includes $4.5 million for work on the project, and it foresees spending $3.5 million in fiscal year 2007. Whereas, the US, as a nuclear-weapon state, is obligated under Article VI of the treaty to end the nuclear arms buildup and pursue nuclear disarmament.

[38] The Bush administration's policies have been viewed by many in Moscow and Beijing as arrogant and unilateralist.

[39] "Statement of the Pugwash Council", *Pugwash Newsletter*, Vol. 40, No. 2, December 2003, p. 5.

[40] Statement by CIA Director George Tenet, (February 2003). Quoted in Paolo Cotta-Ramusino, " Report of the Secretary General", *Pugwash Newsletter*, Vol. 40, No. 2, December 2003, p. 53.

[41] Jeremy Bernstein, *Nuclear Weapons: What you need to know*, Op. cit., p. 266.

[42] Jeremy Bernstein, *Nuclear Weapons: What you need to know*, Op. cit., p. 269.

[43] The Zipp centrifuge can produce as many as ninety thousand revolutions per minute. One of the innovations was to heat the bottom so as to produce countercurrents. The heavier uranium-238 is collected in a downward-moving current at the outside while the lighter uranium-235 moves on an upward current on the inside, where it can be collected. The original centrifuges used aluminum rotors, but aluminum has now been replaced by specialized steels. Jeremy Bernstein, *Nuclear Weapons: What you need to know*, Op. cit., p. 263.

[44] Jeremy Bernstein, *Nuclear Weapons: What you need to know*, Op. cit., p. 263.

[45] William D. Hartung and Frida Berriganp, "Arms and Terrorism: Tracing the Links," in Sean S. Costigan, & David Gold, ed. *Terrornomics*, (England: Ashgate Publishing Limited, 2007), p. 95.

[46] The Global underworld nuclear bazaar has been working since 1940s. In spite of tightened control regimes, the nuclear bazaar has prospered far beyond anything anyone had predicted, with buyers and sellers from countries around the globe.

[47] "Chemical, Biological, Radiological and Nuclear (CBRN) Terrorism: Mapping The Threat," *Report on Wilton Park Conference WP860*, May 16-19, 2007, p. 7.

[48] International Atomic Energy Agency, "Illicit Trafficking and Other Unauthorized Activities Involving Nuclear and Radioactive Materials: Fact Sheet," *International Atomic Energy Agency*, 2006.

[49] Frank Barnaby, *The Role and Control of Weapons in the 1990s* (New York: Routledge, 1992), p. 64.

[50] These reported losses were in addition to the 70 kilograms of plutonium Japan previously conceded remained unaccounted for at a plutonium-based fuel fabrication plant it was operating. Henry Sokolski, "After Iran: Back to the Basics on "Peaceful" Nuclear Energy", *Arms Control Today*, April 2005.

[51] Ibid.

[52] See "Historical Documents Regarding India's Misuse of Civilian Nuclear Technology Assistance", *Arms Control Today*, <http://www.armscontrol.org/country/india/Historic_Documents_India_Nuclear_Test.asp?p…> accessed on May 16, 2006.

[53] Dr. Shireen M. Mazari and Maria Sultan, "Nuclear Safety and Terrorism: A Case Study of India," *Islamabad Papers*, No. 19 (Islamabad: ISS, 2001), p. 6. T. Lalith Singh, "Doubts over BDL Safety Norms," *The Hindu*, January 9, 2001.

[54] "Uranium racket unearthed", *Press Trust of India*, July 24, 1998. http://www.indian-express.com/ie/daily/19980724/20550804.html.

[55] Jeremy Bernstein, *Nuclear Weapons: What you need to know*, Op. cit., p. 271.

[56] According to the NPT, the members of nuclear club are United States, United Kingdom, Russian Federation, France and China. These states qualified to be called as nuclear weapon states, because they tested their nuclear devices prior to January 1, 1967 and remaining all states (party to the NPT) are nuclear non-weapon states. India is not party to the NPT.

[57] On June 6, 1998 UN Security Council adopted resolution 1172, which urges Pakistan in conjunction with other states that have not yet done so, to become Parties to the NPT and CTBT without delay and without conditions. Resolution 1172 (1998), adopted by the Security Council at its 3890th meeting on 6 June 1998. <http://www.un.org/Docs/scres/1998/sres1172.htm>

[58] According to Michael Krepon, "The topmost condition was signing the CTBT. Next was cooperation in negotiating a permanent ban on the production of fissile material and, pending this negotiation, a freeze on further production of bomb-making material. Third, the United States wanted both countries to accept a 'strategic restraint regime' that would limit ballistic missile inventories to versions that had already been tested. Other parts of the strategic restraint regime included pledges by India and Pakistan not to deploy missiles close to each other's borders and also not to maintain warheads atop missiles or stored nearby. Fourth, the United States demanded that both countries adopt 'world class' export controls. The fifth condition called on India and Pakistan to 'resume dialogue to address the root causes of tension between them, including Kashmir.' Michael Krepon, "Looking Back: The 1998 Nuclear Tests of Indian and Pakistani," *Arms Control*, May 2008.

[59] UN General Assembly documented A/56/136 add.2, August 21, 2001.

[60] Shaukat Aziz, Prime Minister of Pakistan, "Pakistan-U.S. Relations: Building a Strategic Partnership in the 21st Century," *Council on Foreign Relations*, New York: January 18, 2006.

[61] Kenneth N. Luongo and Brig. Gen. (Ret.) Naeem Salik, Op. cit.

[62] "National Command Authority formed", *Dawn*, February 3, 2000.

[63] *Dawn*, December 14, 2007.

[64] Zafar Nawaz Jaspal, "NCA Ordinance: debate awaited, *Weekly Pulse*, December 21, 2007-January 3, 2008.

[65] Lt. General Khalid Kidwai, "Pakistan's Evolution as a Nuclear Weapons State," Address to the Center for Contemporary Conflict, November 1, 2006.

[66] Kenneth N. Luongo and Brig. Gen. (Ret.) Naeem Salik, Op. cit.

[67] Inner perimeter. This has traditionally been the responsibility of the respective organizations, but the security in these facilities is now overseen by the elements of the coordinated security division of the SPD. This division is headed by a two-star general. These forces operate on a permanent basis and receive special training. Certain facilities are also protected by air defense elements and are designated as no-fly zones. Outer perimeter. Fencing has recently been strengthened at facilities, and new technologies and electronic sensors, including closed-circuit television cameras, have been installed. Third Tier. Counter-intelligence teams work on identifying external threats to facilities. Kenneth N. Luongo and Brig. Gen. (Ret.) Naeem Salik, Op. cit.

[68] After an initial screening, there are periodic clearance rechecks every two years or when a person is transferred from one area of the program to another. Additionally, random checks can be carried out when required. This process includes complete background checks on family, educational career, political affiliations, and inclinations.

[69] Zafar Nawaz Jaspal, "Safety and Security of Pakistan's Nuclear Capabilities: A Critical Analysis," *IPRI Journal*, Vol. 2, No. 1, Winter 2002.

[70] The control list for the act encompasses the lists and scope of export controls maintained by the Nuclear Suppliers Group, the Missile Technology Control Regime, and the Australia Group (for biological agents).

[71] Riaz Ahmed Syed, ed., *Foreign Office Year Book 2005-2006*, Ministry of Foreign Affairs, Government of Pakistan, pp. 111-112.

[72] "Nuclear Black Markets: Pakistan, A. Q. Khan and the rise of proliferation networks: A net assessment," Op. cit., p. 116.

[73] "Pakistan for 'new security consensus' on nuclear proliferation," *The News International*, April 12, 2007, p. 12.

ADDRESSING GLOBAL CONCERNS & CHALLENGES: A WAY FORWARD

Ambassador Tariq Osman Hyder

Ten years after Pakistan became a nuclear weapons state, it is useful to asses where this has taken us, and the challenges that we face. There can be no doubt that in the face of the overt nuclearization of India, we had no choice but to follow to preserve the strategic balance. Our demonstrated nuclear capability, coupled with our conventional capability, has been responsible for limiting crises with India from spiralling to unwanted levels. The Indian coercive arms build up on our borders in 2000-2001 neither achieved its aims, nor led to an outbreak of hostilities due to this factor.

At the same time the very possession of nuclear weapons carries with it an overriding national and international responsibility that these weapons, the assets, materials, technologies, on which they are based, are under strong and failsafe custodial and operational control, that their purpose is meant to deter and that they would only be used in an extremis necessity. In essence every nuclear state has to credibly demonstrate and project that it is "a responsible nuclear state".

Important Concerns and Challenges

At the national and international level, there are a number of important concerns and challenges that Pakistan faces, which are as follows:

- Global concerns about the safety and security of our nuclear assets.
- Internal public concerns on the prioritization of scarce resources to defence sector at a time of rising food and energy prices, inadequate delivery of Government services in education, health and civic services, as well as inflation.

- Generating resources for Pakistan's socio-economic and technological development to enhance the resource base for building up our civil nuclear programme and strengthening our nuclear capability as well.
- A more specialized critique that since we have a nuclear capability to deter, less should be spent on conventional defence.
- A minority view that the nuclear capability is not required to deter India, and the alternative view that it is inadequate to deter India.
- The challenge of the appropriate mix of conventional and nuclear deterrence to face India.
- Future nuclear and conventional CBMs with India.
- The public articulation of our nuclear strategy.
- Enhancing capability to counter India's growing potential nuclear capability. Its correlation does international efforts towards an FMCT.

Global Concerns

An important global concern about nuclear weapons and nuclear capabilities in general revolves around the potential threat of nuclear terrorism. We may debate the extent of such a threat, and its use to enforce controls, both national and pluri-lateral, and also as a pressure point. However the concern is real and has to be appreciated and met.

The IAEA in the context of potential nuclear terrorism has highlighted four key areas:

- Theft of a nuclear weapon
- Theft of material to make an improvised nuclear explosive device
- Theft of other radioactive material for an RDD
- Sabotage of a facility or transport

In the context of Pakistan, there have been concerns regarding the nuclear security of Pakistan in general, based on a number of assumptions that will be examined in this essay.

The perceived threats to Pakistan's nuclear assets, which have been highlighted by the western media and academics, revolve around four main scenarios.

- Extremist Government in Power
- Radicals' take over
- Terrorist attacks on nuclear installations
- The Insider Dimension

The scenarios of an extremist Government gaining power in Pakistan, or of a take over by radical elements, were mainly projected before the elections in Pakistan. The holding of free and fair elections, in which the previous government was voted out of power, and replaced by major political parties at the federal and provincial level should take care of this apprehension.

At the same time we have to recognize that strengthening the democratic process, and the attainment of long term political stability is vital for our credibility as a responsible nuclear state. Our command and control, custodial and export control systems are second to none. It is also not fully appreciated that unlike some of the other nuclear states, apart from technical controls and safeguards, in addition, as a developing country, we can and do afford maximizing specialized personnel and troops dedicated for safeguarding our assets against internal and external threats.

Therefore the threat of any terrorists attack on our facilities to try to seize any of our assets or fissile material, in reality, does not exist. Multiple physical and personnel reliability systems, as well as inventory controls and checks, rule out any insider-outsider threats.

However, terrorist attacks and incidents within Pakistan, coupled with extremist movements and tendencies, while they have no bearing on our nuclear assets, will continue to give grounds for motivated and other concerns being expressed. As political stability

increases and terrorism and extremism is brought under control, such apprehensions and projections will abate.

On the subject of best practices, and export controls, Pakistan has interacted with other countries, including Japan, U.K, U.S and the EU. In the field of nuclear security, without in any way compromising its national security, Pakistan has also interacted with the U.S. While we do not need a good chit from any quarter, it is but prudent to meet international concerns, and this is the policy of every nuclear state. We have fully projected our strong, world class command and control and custodial systems as well as our strategic export controls. It is for this reason when media hype was at its high water mark, those foreign officials and academics, who were best informed, including for that matter the official spokesman of the U.S Government, expressed full confidence on the safety and security of our nuclear assets.

We should also have no doubt that for Pakistan; we are not standing still on what we have achieved in the field of safeguarding our assets and capabilities. There is a constant process of reviewing all aspects of our controls with a view of improving them continually.

Coming to the nuts and bolts of our nuclear security and safety systems, we have put in place a comprehensive institutional framework. At the apex is the National Command Authority (NCA). It is for Policy Formulation, Employment and Development of Strategic Systems. I have given at table 1, the Organization of the NCA. The President, who is a civilian, is the Chairman, with the Prime Minister as the Vice Chairman. The Strategic Plans Directorate (SPD) is the Secretariat to the NCA.

There are two Committees. The Employment Control Committee has as its Deputy Chairman, the Foreign Minister. Its members are, the Minister for Defence, the Minister for Interior, the Minister for Finance, the Chairman JCSC, the Chief of Army Staff (COAS), the Chief of Naval Staff (CNS) and the Chief of Air Staff (CAS). Others if required, can attend, by invitation. Its Secretary is the Director General of the SPD.

The Development Control Committee has as its Deputy Chairman, the Chairman Joint Chiefs of Staff Committee, with its members, the COAS, the CNS, the CAS, and the Scientists who head the Strategic Organizations. DG SPD is the Secretary of this Committee as well.

Then there are the Services Strategic Forces of all the three Armed Forces of the Army, Navy and Air Force. While technical, training & administrative control rests with the respective services, operational control is vested with the NCA.

I have given at Table 2, a chart of the Security Division of the SPD. It can be seen that this important Division, which has been significantly expanded since its inception, maintains a close watch on all aspects and organizations of the nuclear programme, with a special security emphasis on sites, activities, materials management, materials inventory, personnel reliability and counter intelligence. It also controls a significant armed security force for physical security as well. There is also a training academy to impart specialized training and skills.

There is also now the NCA Ordinance which gives legislative cover to the administrative and executive order which set up the NCA in 2000, formulizing at that time the structure put into place in 1998. The purpose of the Ordinance is to establish an Authority for complete command and control over research, development, production and use of nuclear and space technologies and other related applications in various fields and to provide for the safety and security of all personnel, facilities, information, installations or organizations and other activities or matters connected therewith or ancillary thereto.

In effect, the Ordinance provides a legislative basis covering the functioning of the already existing NCA with three major areas of responsibility;

- effective command and control of the strategic programmes;
- safety and security of strategic programmes and

- Maintenance of a system of personnel reliability. The Ordinance has a very wide scope extending to the whole of Pakistan and applies to any person who commits an offence under the Ordinance. The application of the Ordinance is, therefore, not limited to the employees of the strategic organization only. It empowers the NCA to bring charges against any citizen of Pakistan as well foreign nationals.

There are a variety of legislations which deal with the safety, security and export control in the strategic field, and these have been legislatively brought under the overarching centralized control of the NCA.

Our export controls are amongst the best in the world. Pakistan's export controls legal framework is governed by the following legal and administrative instruments:

- The Import and Exports (Control) Act, 1950 Act No. XXXIX of 1950. This Act authorizes the Federal Government to prohibit, restrict or control the import or export of goods and regulate all practices and procedures connected therewith. Section 5(1) of the Act provides for penalty of an individual, without prejudice to any confiscation to which he may be liable under the provisions of the Customs Act 1969-(IV 0f 1969), as applied by sub-section (3) of this Act, be punishable with imprisonment for a term which may extend to one year, or with fine, or with both.
- Pakistan Nuclear Safety and Radiation Protection (PNSRP) Ordinance of 1984 and Regulation of 1990 which contains provisions for control of import/export of nuclear substances and radioactive materials, extending to whole of Pakistan, has been further strengthened with Pakistan Nuclear Regulatory Authority Ordinance 2001.
- Pakistan's Trade Policy 2004-05: This encompasses Import Policy Order and Export Policy Order to regulate trade on all items. These orders take into account all previous Statutory Regulation Orders (SROs) and

Ordinances issued by the Government of Pakistan from time to time. Under (a) Import Policy Order 2004 and (b) Export Policy Order 2004 (EPO), import and export of sensitive materials is regulated.

- Chemical Weapons Convention Implementation Ordinance- 2000, Ordinance No. LIV of 2000. The law enables the full implementation and enforcement of the provisions of the Chemical Weapons Convention and fulfils Pakistan's obligations under Article VII of the Convention mandating national implementing measures. This legislative framework regulates and controls the import and export of chemicals in accordance with the CWC and provides for criminal penalties in case of violations. Para 12 of the EPO 2000 pertains to export control of chemicals as required under the Chemical Weapons Convention. The National Authority established in the Ministry of Foreign Affairs is the focal point for the implementation and enforcement of the provisions of the Ordinance. These measures constitute fulfilment of the requirements of resolution 1540 in the context of CWC.
- Pakistan Nuclear Regulatory Authority Ordinance (PNRA), 2001. Ordinance No. III of 2001. Under this Ordinance, PNRA issues the required "no objection certificate" (NOC) for all imports and exports of any radioactive materials or radiation sources. The PNRA is responsible for controlling, regulating and supervising all maters related to nuclear safety and radiation protection measures in Pakistan. Any person who contravenes any of the provisions of sections 19, 20, 21, 22 or 23 of the Ordinance shall be punishable with imprisonment for a term which may extend to 7 years, or with fine which may extend to one million rupees, or with both. Notification SRO.III(1)2004 as amended on 16 February 2004; Nuclear substances, Radioactive Materials and any other substance or item covered by PNRA Ordinance, 2001 (III 0f 2001); and Equipment used for production, use, or application of nuclear energy or activity, including generation of electricity and spares, are subject

to NOC from PNRA as per procedure notified by the Pakistan Nuclear Regulatory Authority (PNRA).

In September 2004, new legislation was enacted, Act No. V of 2004 to provide export control on goods, technologies, material and equipment related to nuclear and biological weapons and their deliver systems. It was passed by the National Assembly on 14th September, 2004 and by the Senate on 18th September, 2004. The Act received the assent of the President on 23rd September, 2004 and entered into force the same day.

Salient elements of the new Export Control Act include:

- Controls over export, re-export, transhipment and transit of goods, technologies, material and equipment covered. Prohibition of diversion of controlled goods and technologies.
- Wide jurisdiction (also includes Pakistanis visiting or working abroad).
- Provide for an authority to administer rules and regulations framed under this legislation. Also provides for the establishment of an Oversight Board to monitor the implementation of this legislation.
- Comprehensive control lists and catch all provisions.
- Licensing and record keeping provisions.
- Penal provisions: Up to 14 years imprisonment and Rs.5 million fine or both, and on conviction, offender's property and assets, wherever they may be, shall be forfeited to the Federal Government. Right of appeal provided for.
- For the purposes of the Export Control Act, the authority rests with the Federal Government and the Federal Government, as and when necessary, may -
  - make such rules and regulations as are necessary for
  - implementation of this Act;
  - delegate authority to administer all activities under this Act to such Ministries, Division, Departments and Agencies as it may deem appropriate;
  - establish a government Authority to administer export controls established under this Act;

- designate the agency or agencies authorized to enforce this Act;
- establish an Oversight Board to monitor the implementation of this Act;
- require licenses for exports from Pakistan of goods and technology, and the re-export of goods and technology that originated in Pakistan.

- Moreover, officials of the designated agency or agencies are authorized to inspect consignments declared for export and review, acquire or confiscate records or withholding an export license under this Act. The Federal Government may vest any investigatory powers and powers of arrest authorized by law in officials of the customs administration or other appropriate agencies.

It should also be noted that the Act provides for catch-all controls, and covers intangible transfers. Section 5(3): An exporter is under legal obligation to notify to the competent authority if the exporter is aware or suspects that the goods or technology are intended, in their entirety or in part, in connection with nuclear or biological weapons or missiles capable of delivering such weapons.

Under the Act the definition of 'technology' includes: on-the-job training, expert advice and services attached therewith. The definition of 'services' includes: 'training and technical assistance including intangible transfer such as disclosure of technical data relating to the purposes of the Act'.

Under this Act in October 2005, under a Statutory Notification, the GoP notified comprehensive control lists of goods, technologies, material and equipment. These lists fully covered the control lists of the NSG, MTCR and the Australia Group, which are the world class goal standard in this respect.

Under the Act in 2007, the Strategic Export Control Division (SECDIV) was set up in the Ministry of Foreign Affairs, as the authority to implement the 2004 Act. SECDIV is staffed by officials from the various departments and Ministries dealing with

all aspects of this important task. SECDIV includes official from the Ministry of Foreign Affairs, the Strategic Plans Division, Pakistan Nuclear Regulatory Authority (PNRA), Pakistan Atomic Energy Commission (PAEC), Ministry of Commerce, and Pakistan Customs and Customs Intelligence.

An Oversight Board to monitor the implementation of the Export Control on Goods, Technologies, Materials and Equipment related to Nuclear and Biological Weapons and their Delivery Systems Act No.V of 2004, and also the setting up and functioning of SECDIV, has also been set up in 2007. It has 11 members, 10 of whom are Government officials in their *ex-officio* capacity. It is headed by the Secretary of the Ministry of Foreign Affairs. Director General SECDIV is a member and acts as the Secretary to the Oversight Board. The other Members of the Board are the Additional Secretary (UN&EC) of the Ministry of Foreign Affairs, the Additional Secretary (CS&M), Cabinet Division, Additional Secretary (III), Ministry of Defence, Additional Secretary (I), Ministry of Interior, Member Exports, Central Board of Revenue, Director General Security Division, National Command Authority(NCA), Director Arms Control and Disarmament Affairs, Strategic Plans Division (SPD), Executive Member, Pakistan Nuclear Regulatory Authority(PNRA), and a Pakistani Expert, with experience in export controls, serving in an honorary capacity.

In the process of improving and institutionalizing our export control system, which was built on a number of longstanding ordinances, rules and practices, there was frequent interaction with friendly countries to learn and to benefit from best practices elsewhere in export controls against WMD proliferation.

Under UN Security Council Resolution 1540, in whose negotiation Pakistan as a member then of the Security Council fully participated, national export controls against WMD proliferation are enjoined and reports have to be submitted. The second required report had an extensive matrix requiring detailed information. Pakistan's response to this matrix, in its second report, can be said to be a model in this respect.

The Government of Pakistan, through the Ministry of Foreign Affairs and its Missions abroad, and through the SPD, in interactions within the UN, in the IAEA, bilaterally, in academic conferences, and with the media has constantly projected our strong national commitment against proliferation of WMD, our second to none, command and control and custodial systems, and our export controls, as well as the institutional basis on which they rest. Some have argued that we should do more, while a few have argued that perhaps we have overdone it since criticism at times is motivated and is not lessened by our efforts. The second argument is somewhat emotional. We have to continue our efforts across the board.

I will now turn to challenge the assumptions behind which international concern is being focused on Pakistan. The question can be asked why there is focus only on Pakistan, despite the fact that political uncertainty is largely over after the elections, and our strong safety, security and export systems are in place. Those quarters which raise concern about Pakistan in the nuclear field, do not make comparisons with the security of nuclear weapons, fissile material and nuclear facilities in other nuclear weapons states, including Russia and India.

In Russia, the threat has been much greater. It necessitated the American, Nunn-Lugar legislation for assistance for safeguarding Russian facilities and fissile material after the breakup of the Soviet Union. Russian nuclear and other WMD production facilities deteriorated and some Russian scientists went abroad. There has been some leakage of fissile material. One of Russia's leading military commanders stated that some of Russia's suitcase nuclear bombs, designed for their Special Forces operations, had gone missing. While this was refuted by the Russian Government, there are causes of concern across the spectrum. However, international attention is muted.

In the context of India, arguably fissile material and nuclear weapons, are in greater danger. Unlike as in Pakistan, many Indian facilities are under the supervision of civilian security. There are 17 ongoing insurgencies which are pertinent to potential terrorist

threats. India has also displayed an unwillingness to engage with other countries on security practices.

Furthermore, most of the Indian reactors are outside IAEA safeguards. Even if the US-India nuclear deal goes through, 8 of the existing reactors will be outside safeguards, India having the discretion of placing future reactors within or without IAEA safeguards. Since the majority of the Indian reactors have been outside safeguards, it is difficult for the international community to asses the status of past and present safety of the spent fuel generated by these reactors.

Indian scientists working in Iran have been sanctioned by the U.S. There have been some media reports of trans-border leakage of some fissile material. There have also been some reports of problems faced in Indian reactors during their operation cycles. Due to fact that the reactors are not under IAEA safeguards, and because India ratified the Convention on Physical Protection of Nuclear Material (CPPNM) only last year, information is limited.

In the field of countering WMD proliferation, Pakistan took firm steps to deal with the A.Q Khan affair and to completely shut down the entire network as it pertained to Pakistan. A.Q was only part of a much wider network or networks, which in fact have existed in one way or another since the dawn of the nuclear age. However the same firm and decisive action has not been taken by other countries. Many key individuals who were part of the network into which A.Q was drawn, have been let go off by the countries to which they belong or in which they operated.

In December 2002, the then Iraqi Government presented to the Security Council its full disclosure of its WMD programme, in an effort to avoid the serious consequences with which it has been threatened with. This some 12,600 page documentation contained details and names of the foreign suppliers and companies which had significantly contributed to Iraq's nuclear weapons, missiles, chemical and biological weapons programmes. However the western members of the UN Security Council directed that all names and identifications of the individuals and companies which had supplied

materials, weapons and technologies for Iraq's WMD programme should be blacked out. This extensive list of some 283 individuals and companies has never been made public. The IAEA inspection teams and the UN inspection teams have yet to publish the voluminous material available to them which includes details of the contracts entered into by Iraq with foreign companies and individuals of various networks.

Recently Iraqi scientist responsible for Iraq's centrifuge programme has published a book which details how Iraq obtained the schematics and plans for advanced URENCO centrifuges from representatives of the MAN Company of Germany. While its representatives may carry the main blame, the company itself has gone on to thrive and according to media reports, not long ago, it purchased the SCANIA Company's transport Division for around $ 5 billion.

All this leads to an examination of what are the objectives and motivations about certain media and international concerns about Pakistan in the nuclear context. It would be fair to conclude that either these apprehensions are due to unrealistic fears of what can happen in Pakistan, or due to a deliberate campaign. Whatever the rationale, these concerns have generated suspicion that such a campaign is part of a plan to try to destabilize Pakistan and to try to neutralize Pakistan strategic assets and nuclear deterrent capability.

A number of other conclusions can be drawn. The reality is that there is no credible threat to Pakistan's nuclear assets, and that potential threats are under control. There are similar or higher levels of threat elsewhere. This issue should not be used to try to destabilize Pakistan or to try to neutralize or erode its strategic capability.

It can also be said that international concerns from the west are closely linked to a lack of comfort at Pakistan, a Muslim state, having a nuclear capability. The occupation of Iraq and of Afghanistan, with their attendant consequences for the Muslim world, including the blow back for Pakistan in terms of accentuated extremist and terrorist movements; the task of Pakistan to counter

terrorist and extremist tendencies through a multidimensional strategy has been compounded by this blow back effect, particularly from the continuing turmoil in Afghanistan and the need for NATO and ISAF to support the Government of Afghanistan in implementing an effective strategy for a political settlement and developmental package which accords with the traditional structures of the Afghan state and society, while avoiding collateral damage in its military efforts.

This entire situation arising from Iraq and Afghanistan has unfortunately generated perceptions of mistrust both in the Western and Muslim societies, which has led to its own dynamics accentuated pre-existing misgivings, which have impacted on the nuclear issue as well.

On the nuclear concerns issue, a new approach is required. Two ways confidence should be the overall objective of the international community. It should be recognized that Pakistani authorities are not complacent and are continually upgrading their systems and vigilance. The suspicion gene has to the clearly countered. Unreasonable suspicions and allegations would be counterproductive. Presently Pakistan's nuclear weapons are not on alert status. However if this campaign questioning Pakistan's nuclear safety and security continues, there will be voices within Pakistan calling for keeping its nuclear weapons on high alert. This is not what Pakistan and its declared policy of restraint and credible minimum deterrent wants nor would any such change serve the interest of overall international and regional security, which Pakistan fully subscribes to.

I will now turn to some internal areas of concern, which we also must take into account. The civic society in Pakistan is extremely patriotic but is facing systemic problems, which have accentuated over time. Better economic planning and implementation required to meet the emerging food and energy crises, which due to rising global prices for food crops and energy supplies, will continue to be factors requiring mitigation strategies. We also need to improve public education, observance of the rule of law, infrastructure, internal security and the delivery service of the

Government. If this is not done, over time, more people will question resource utilization by the defence budget, of which our nuclear capability maintenance is a part.

We have to generate more resources for socio-economic development. It is generally held that the gearing ratio for defence purposes is usually 1:3 over any offensive force in terms of conventional capabilities. India is some 6 times larger than Pakistan in terms of population and economic resources. Therefore, for our defensive objectives, to match India's defence expenditure, per capita we have to spend at least twice as much. This leads to the simple conclusion that we must grow and expand our economy at least as much as that of India in percentage terms, to comfortably maintain a defensive capability, or we will have to sacrifice more.

A strong civil nuclear power infrastructure is essential for our economic growth, and energy security, given our limited fossil fuel reserves, and increasing worldwide energy prices. I have no doubt that if we had funds to outright purchase civil nuclear power stations, the attitude of the major suppliers would change over time. I give this as another example of the need for economic growth.

I believe that given limited resources, concentration on education and infrastructural development the keys for economic take off. Reliance on external assistance is subject to various conditionalities which hamper our freedom of action in all fields including foreign relations.

The argument has been made by some national observers that our nuclear capability should lead to less spending on conventional forces Our deterrence is based both on preserving a conventional balance, as well as on the nuclear deterrent. Reducing the conventional capability would lead to reduction of our deterrence in general. It would also lead to lowering the nuclear threshold. We are pursuing both nuclear and conventional CBMs with India, within the peace process. India has shown little or no interest in conventional CBMs, or on the need for conventional balance and strategic restraint to avoid an arms race, which are our stated objectives.

Other critics, from Pakistan have maintained that we do not need a nuclear capability to deter India. Others, mainly academics from abroad, including from India, have argued that our nuclear capability is inadequate to deter India, and will remain inadequate. No Pakistani can forget India's policy and actions which resulted in the 1971 dismemberment of Pakistan.
The 2000-2001 stand off with India, which I have already mentioned, demonstrated the deterrent value of our strategic capability.

Some foreign and Indian strategists have postulated that India's nuclear weapons capabilities and stockpiles will grow to out match our capabilities, thereby offsetting our deterrent. They also try to make the point that due to our lack of territorial depth, in any hypothetical nuclear exchange forced on us, we would lack an effective 2nd strike capability. This they hold would make us vulnerable to limited strikes, particularly location specific in AJK and Southern Pakistan, as well as to proxy irregular low intensity conflict. The Indian "cold start" doctrine is viewed by some Indian strategists as a credible ability to inflect territorial and political damage while remaining under the nuclear threshold.

Such arguments do not take into account a number of ground realities. When faced with the possibility of initiating any chain of events which may lead to a nuclear exchange, the political leadership of any country would not be guided by estimated calculations of the strike capability of the other side and projection of the ability to discount its impact. At the same time, Pakistan will always strive to maintain a conventional capability to meet conventional threats as well. To my mind, the Indian cold start doctrine, while it represents a continuing aggressive approach, and cannot be discounted by our military planers, is largely motivated to try to mount physiological pressure. It may also represent in part a mechanism for increased for gaining increased funding and inter service claims from the Indian Armed Services.

Our strategic and conventional capabilities are sufficient to deter India now, and we have the will and ability to enhance our capabilities to meet future requirements.

There has also been some discussion on Pakistan's counter force and counter value capability. Undoubtedly, as is the case with targeting planners in other nuclear powers, our targeting strategy in case we are faced with this ultimate scenario due to aggression, will consist of a pragmatic mix of counter force and counter value targets. Some analysts have theorized that for Pakistan, theatre nuclear weapons have been ruled out. It would be unwise to come to such a conclusion, in the case of Pakistan, as in the case of any other nuclear country.

For Pakistan there is the continuing challenge of putting into place an appropriate mix of conventional and nuclear forces to face India, and for that matter any other threats that may arise. Given scarce resources, inter se allocation is a continuing process requiring constant readjustments, by assessing all potential threats. Conventional defence needs constant revisiting to address threats on our eastern and now western borders. There is still room for innovative or modified approaches. Selective conscription, as in the case of many other countries, including Turkey, may become necessary and provide a partial answer for a smaller standing establishment. A better tooth to tail ratio always remains a prime objective. The challenge of improving indigenous conventional production is another important objective. Till then we have a major reliance on high tech arms imports, which require good relations with the major exporters.

What is the future of Nuclear and Conventional CBMs with India? There has been some progress on both these fronts, which stand out as substantial achievements in relation to what has been achieved in the entire peace dialogue process. Two nuclear CBMs have been concluded and put in place. Both sides agreed in the first Nuclear CBM meeting in June 2004, that the nuclear capabilities of both countries, which are based on their national security imperatives, constitute a factor for stability. The Nuclear CBM process has a useful linkage in the bilateral and international context. The nuclear flashpoint perception is now over for both countries. It is no longer a bar to external investment. At the same time India has not been willing to discuss our longstanding proposal

for a strategic restraint regime, which would incorporate strategic restraint, conventional balance and dispute settlement.

There has been some modest progress on conventional CBMs. The new hotline put in place between the two Foreign Secretaries, during the nuclear CBM talks, serves for a direct channel of communication for relations in general. The up gradation of the existing hotline between the two Director Generals of Military Operations also provides a faster and more reliable means of communication in case of need. Some others conventional CBMs are near finalization. These include an agreement to avoid incidents at sea between Naval vessels, and measures along the line of control.

However, on the conventional CBM side, the Indian response has been slow. Other conventional CBMs proposed by Pakistan, which are either Kashmir related, or for across the international border have not been accepted by India. While India projects in these talks, as it does in its national statements that it has no aggressive or coercive designs against Pakistan, despite its continuing military build up which is 95% directed against Pakistan, its military doctrine continues to be dominated by aggressive concepts, such as its relatively new, post 2001 standoff, 'cold start' doctrine and the attendant military exercises along Pakistan's borders.

Despite some forward movement in the nuclear and conventional CBMs processes, there has been no movement by India on substantive issues, including on the core dispute issue of Kashmir, on Siachin, the Sea border, and on the issue of up river dams. If all the projected series of upriver Indian dams, were all constructed, in violation of the Indus Water Treaty limiting dams for run of the river power generation usage, and not for purposes beyond that for storing water, this series of dams would have the capability of denying water to Pakistan for up to 40 days during the Rabi season.

There is also a need to more clearly publicly articulate our nuclear doctrine. Probably now that a new Government in place, this will be done. So far it has been based on certain high level

statements. The main elements of what has been declared are; Pakistan is a responsible nuclear state; that Pakistan believes in a policy of restraint; would like to avoid any arms race; and that Pakistan's policy is to maintain a credible minimum deterrence for defensive purposes and to maintain this capability to meet all emerging eventualities.

In terms of what has not been said is that Pakistan does not subscribe to any no first use doctrine. In respect of this strategic ambiguity, the policy is the same as that of the USA, the NATO alliance, Russia, the U.K and France. India which has a declared no first use policy, has qualified it somewhat by declaring that it will not apply if it is subject to any biological or chemical weapons attacks anywhere. In practical defence terms, India does not place any reliance on the no first use policy of the People Republic of China.

For India, any declaration of no first use by Pakistan could provide encouragement and comfort for a conventional attack doctrine, given its larger conventional forces. Pakistan has also ways countered suggestions by India implying the need for mutual policies in this regard, by recommending that agreement should be reached for a no first use of force policy and commitment by both sides.

The nuclear strategy policy, when it is articulated, should be very brief and to the point. Apart from the already declared elements of responsibility, restraint, against an arms race, and for a credible minimum deterrence, should reiterate that Pakistan will never use nuclear weapons against a non-nuclear weapons state, and that these weapons will only be used if the existence of Pakistan and its people are at stake. This would also cover a response to any attack on Pakistan's nuclear facilities and assets. While our capabilities have been geared to deter threats from India, the policy should also make it clear that it is to deter threats from any other quarter as well that fields nuclear weapons.

There is also the continuous challenge of maintaining strategic capability to counter India's growing nuclear potential. The

US-India Agreement would free India's limited uranium reserves for fissile production. Under the U.S-India nuclear agreement, the Pu production capacity of the 8 Indian CANDU reactors which will be kept out of safeguards, if run for weapons grade Pu production as a potential of 2000 kg annually, sufficient for some 400 nuclear weapons. If run for electricity generation, coupled with some fissile material production due to the online fuelling system of the heavy water CANDU design, these 8 reactors could produce some 5000 kg of weapons grade Pu annually, sufficient for some 100 nuclear weapons. The online fuelling capacity of these natural uranium heavy water reactors makes them most suitable for fissile material production, whether run as dedicated facilities for this purpose or combined with power generation. Nowhere else in the world are power reactors kept outside safeguards? I give at table 3 a brief analysis of the fissile production capability of the 8 Indian reactors, with both high case and low case projections.

The ambitious Indian breeder reactor programme, aiming for some 13 breeder reactors will also remain outside safeguards. Indian Government scientists have emphasized in their statements that keeping the breeder reactor programme is essential for national security. All other breeder reactor programmes in other countries have been based on Pu generated by civil power reactors utilizing Pu from fully burnt up fuel, which is not suitable for efficient nuclear weapons design. The penalty of higher natural uranium usage for weapons grade production is the main factor behind such a practice, where the objective has been to extent fuel availability and usage for greater utilization for civil power programmes to surmount probable declining world uranium reserves, both proven and potential.

Therefore there is no rational justification to keep breeder programmes, their reactors and the fissile material produced outside safeguards. The only possible justification is to keep the option of enhancing potential weapons grade fissile stocks.

In the Nuclear CBMs talks between Pakistan and India, both sides had agreed in their first Joint Statement of June 2004 that the strategic capabilities of both countries are a factor of stability in South Asia. Maintaining this strategic stability is essential for South

Asia and indeed international stability. As the National Command Authority inter alia noted on 2 August 2007, "the US-India Nuclear Agreement would have implications on strategic stability as it would enable India to produce significant quantities of fissile material and nuclear weapons from un-safeguarded nuclear reactors. The objective of strategic stability in South Asia and the global non-proliferation regime would have been better served if the United States had considered a package approach for Pakistan and India, the two non-NPT Nuclear Weapons States, with a view to preventing a nuclear arms race in the region and promoting restraints while ensuring that the legitimate needs of both countries for civil nuclear power generation are met."

India is developing its submarine based second strike capability. It is also working on a nuclear submarine and continues to lease Russian nuclear submarines, whose nuclear reactors also remain outside safeguards, in violation of Russia's NPT obligations. We have no option but to develop a submarine based second strike capability of our own. Submarine based capability constitutes the only secure long term second strike capability for deterrence. This we will need not only because of Pakistan's lack of depth, but also as such a capability is relied upon by all the nuclear powers.

Unlike India, we have been slow to develop our space launch capability, even though we have held our own in missiles technology. SLV capability gives any country not only immense peaceful uses options for development and communications, but also the ability to launch and maintain observation satellites.

In the Conference on Disarmament in Geneva, efforts have been initiated to begin negotiations on a Fissile Material Cut Off Treaty (FMCT). The draft FMCT circulated earlier by the U.S calls for an unverified FMCT, where production of fissile material would not be curtailed, but only not for use in nuclear weapons. The Shannon mandate for a verifiable FMCT, which has guided the CD, and also adopted in the 13 steps of the NPT review conference, has been jettisoned. For Pakistan which has always called for a verifiable FMCT and for existing stocks to be taken into account, it is not possible to join any consensus for initiating negotiations in the

CD which do not include the essential verification and stockpiles requirements in the negotiating mandate.

In light of the US-India deal, Pakistan will have no option but to maintain a fissile production capability for the foreseeable future to meet the challenge.

In conclusion I would stress a number of important and continuing objectives. First of all addressing global concerns is a constant process to demonstrate that we are a responsible nuclear power. Maintaining political stability and countering extremism are important factors in this regard, because irrespective of our very strong command and control systems and export controls, these it is the optics of these factors which fuel global concerns, motivated or otherwise. At the same time we have to continually strengthen our export controls, while interacting with others to learn from their evolving best practices.

Secondly the NCA has to constantly upgrade protection of our assets from any internal and external threats. The NCA and the SPD may find it useful, as is done in other countries on important issues, to have a "B Team" to assess challenges and responses to counter check what is no doubt being done.

Thirdly we have to project all dimensions of this issue so that any national concerns, from however limited a circle they may come from, are responded to through dialogue and understanding. Fourthly the base of our national security rests on our socio-economic, educational and technological development.

Fourthly, we are a nuclear power, and we do not need recognition or legitimization from any quarter in this regard. As a nuclear power we should display the self-confidence that goes with this status.

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