PAKISTAN AND THE ISSUE OF NUCLEAR PROLIFERATION

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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.

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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.