Chapter III
NUCLEAR PROLIFERATION AND SECURITY IN SOUTH ASIA

3.1. Geo-strategic significance of South Asia

South Asia occupies a pivotal position in the contemporary world due to its unique geo-strategic location and the possession of nuclear weapons by India and Pakistan. These countries locations have evoked much interest among the major powers as well as among other small countries around the world. The growing influence of Non-State Actors and the looming threat of nuclear terrorism give the region such unique place in the current global security debate. South Asian subcontinent mainly comprises of seven nation states. They are Pakistan, India, Nepal, Bhutan, Bangladesh, Maldives, and Sri Lanka. Pakistan is considered as geo-strategically more important than all other South Asian states. Pakistan acts as a bridge that connects both South Asia and South West Asia. Among the South West Asian nations, Iran and Afghanistan are having rich energy resources at the same time both India and China are not self sufficient in energy resources. India and China are in great need to get access into these states and Pakistan has the advantage of connecting them to South West Asian states. India has an advantage to make trade with Iran through other routes other than through Pakistan but they are really expensive. For India trade with Iran through Pakistan is much cheaper and same is the case with Afghanistan too. The geo-strategic location of Pakistan has created many troubles for that country during and after the cold war. United States has always used Pakistan as a tool in their proxy war against Soviet Union. during 1979 S U attack on Afghanistan, the United States did utilized Pakistan’s location because the latter country has a large border with Afghanistan, and now in the global war on terror (WOT) Pakistan pays a lot because of its geographic connections with Afghanistan, U.S chose Pakistan’s land to fight against WOT. U.S had several interests in this region. Among them the major interest is to contain the growing China strategically, nuclear projects of Iran, containing the terrorism in Afghanistan, and also to make benefit out of market in India. Security and Business are the main
interest of the U.S in the region. The geopolitical location of Pakistan is near Central Asian Republics. These countries are rich in oil and gas natural resources. These nations are landlocked states and they need a port for exporting their energy resources and a route for trade and commerce. Pakistan has the ability to provide these countries route for trade and commerce. So for Afghanistan and CARs, Pakistan’s geostrategic position is very significant for trading purposes. (Steve Weissman:1981)

3.2 Nuclear proliferation in South Asia – origin

The legacy of partition between both India and Pakistan has a key role behind the nuclear standoff that now exists between both nations. Partition made both these nations get separated. And these separations of both nations split apart a region that had been united for millennia. Amid communal massacres on a scale never before seen, leaving in its wake the unresolved issue of contested Kashmir, Kashmir which is a Muslim majority region held by Hindu majority India and this was the way in which people in Pakistan have been viewing the issue. But the reality is different at the time of formation of states in India. Raja Hari Singh of Kashmir chose to be sided with India and he even sought the help of Indian army for protecting Kashmir from falling into the hands of Pakistani aggressors. And several times there were attempts from the part of Pakistani troops and there were even times when the Pakistani spy agency ISI began to train the Afghani militants and made them fight against Indian troops. But it was later found out that the Afghans were controlled by Pakistanis. Indian army had to take control of Loc due to criticality of the situation at that time onwards Pakistan began to raise the situation in every international spaces as a part of Hindu Muslim enmity. But the reality is different. The disputes among both nations had been continuing for more than 60 years. The rivalry between both nations had even led to full scale war in the years of 1947, 1965, and 1971 and also there was a limited war in 1999 which even made the world aware the criticality of the Indo-Pak dispute. All these reasons have given both nations enough motivation to develop massive capability weapons to gain Comparative advantage over one another. They claim their arms race is to restore balance with the other country. (Cary Sublette:2000)
3.3 Evolution of South Asian Nuclear Weapon Programme

Pakistan's nuclear programme began on 24 January 1972. On this date President Zulfikar Ali Bhutto made Pakistan to acquire nuclear weapons. This was at a secret meeting held in Multan. This was done after the country’s devastating defeat in the 1971 Bangladesh war. But Pakistan had already begun a national nuclear programme. The Pakistan Atomic Energy Commission (PAEC) was constituted in the year 1956 so that it can participate in the Atoms for Peace programme initiated by the Eisenhower administration in United States. The nuclear programme of Pakistan got a new push after the appointment of the Minister of Mineral and Natural Resources, Zulfikar Ali Bhutto. In 1960 Dr. Ishrat H. Usmani was appointed as the Chairman of the PAEC. Usmani was made responsible for initiating motions for many of the critical programmers and institutions that would later give Pakistan nuclear weapons. Usmani started Pinstech (full name variously given as the Pakistan Institute of Nuclear Sciences and Technology, and the Pakistan Institute of Science and Technology), and the Karachi Nuclear Power Plant. One of Usmani’s most momentous achievements is said to be the training programme under which brilliant young Pakistanis were selected and sent for training abroad. Between 1960 and 1967 some 600 were selected of whom 106 eventually returned with doctorate degrees. He watched with growing concern as China moved closer to nuclear capability, and in response India’s domestic rhetoric on the subject grew more bellicose.

India’s interest

During the year of 1964, when China tested its first nuclear bomb many factions in India including the country’s most politically prominent scientist were openly started to argue for initiating programs to develop nuclear weapons. There were many evidences which proved that India’s new interest in the nuclear option was of great concern to Pakistan. After the Bangladesh independence Pakistan began to worry about its own existence after the great Indian victory. But on the contrary Indian side which thought that the strength of Pakistan-China axis will eventually turn back against India turned out to be wrong. The so called Pakistan-China axis eventually turned out to be a mere "paper tiger". At this stage, Pakistan’s objective in holding a meeting with its well renowned scientists was not to consult
them but was to pursue them with the blind ambitions for acquiring nuclear weapons.

A major motivation for this programme was about the concern shown over towards the India's well known progress toward having its own nuclear option, and the public declarations by top Indian leaders in India that they must acquire nuclear arms. Years later, after India's 1974 nuclear test, when Pakistan's nuclear programme became public knowledge, persistent attempts were made to paint the weapons programme as a response to the test. It was a response to India's developing nuclear challenge, but not to the Pokhran test per se. Although Pakistan did not know it at the time, when Bhutto made his decision to proceed with a weapons programme in 1972, an Indian team had already been engaged for a few years in developing a prototype nuclear explosive device. By then the basic design for India's first nuclear device was already complete. (K.Alen:2000)

During the period of mid-1971 Bhutto contacted the North Korea to achieve critically needed weapons. The agreement was suddenly reached and on September 18, 1971 the first weapons shipment came from the DPRK to Karachi. India's first nuclear test, known variously as "Smiling Buddha", the PNE (for "Peaceful Nuclear Explosive"), and Pokhran-I, occurred on 18 May 1974. It acted as a catalyst to increase the speed of Pakistani weapons programme, which had made little Progress at that point. Bhutto rose the funding for the programme after the Indian test. One consequence of the test was ironically to hamper Pakistan's programme as the test sharply escalated international attention to proliferation and led to increased restrictions on nuclear exports to all nations, not just India. Over the next three years, these restrictions would change the entire course of the Pakistani nuclear programme. U.S also boosted aid to Pakistan, including restarting military aid, which helped to improve Pakistan's conventional military position and released domestic funds for other purposes. (Clary,Khan:1999)

3.4 Nuclear Terrorism in South Asia

Risks that are related to nuclear terrorism have been on a rise for recent years in south Asia mainly because of three factors: the growth and spread of nuclear
weapons across the world, the expansion of civilian nuclear programs like medical programs and the increase in extremist political groups waging campaigns of terror. Inadequate security over nuclear materials and weapons in one country could be exploited to trigger atomic blackmail and terrorism elsewhere. Inadequate security at nuclear facilities also could provide extremists waging a campaign of terror within a nation an opportunity to create a situation of national terror by sabotaging a civilian nuclear power plant or a research reactor or a laboratory. Nuclear power stations, research reactors and laboratories are always vulnerable to the acts of sabotage and also there is the risk involving terrorist attacks that could cause the release of dangerous amounts of radioactive materials to the atmosphere. Expanding civil commerce in weapons usable nuclear materials has raised the specter of theft of plutonium or uranium in significant quantities in plots aimed at political blackmail or terror. The risk of theft of nuclear arms by terrorists is also a main concern. (Paul L. Leventhal: 1987)

In Southern Asia, the potential for the act of nuclear terrorism is a matter of special concern for many reasons. One main reason is the rapidly expanding nuclear programs in India and Pakistan involving massive investments in the construction and operation of civilian nuclear power plants, research reactor, laboratories and reprocessing and enrichment facilities. Another reason is that the growing stockpiles of nuclear fissionable materials, possibly of actual weapons, in each country protecting them requires special technologies, safety systems and security checks and surveillance. A third reason for nuclear terrorism is that both neighbors continue to be cracked by high levels of terrorist activities that pose major political challenges to their national leaders. A fourth reason which is turning out to be the major reason is the growing sophistication of terrorist methods of operation and attack and the increasing availability of portable weapon systems like shoulder-fired rockets that can be used to accurately strike nuclear installations. (Brian Jenkins:1987)

Factors that increase the international dangers of nuclear terrorism include the clear evidence of state support, even sponsorship of terrorist groups. In South Asian subcontinent, we witness the ominous spectacle of India accusing Pakistan of training and arming Sikh dissidents, and Pakistan charging the Kabul regime with
sponsoring terrorism inside Pakistan. The other general factors which supports the threat are growing number of possible terrorist targets in the civil nuclear programs, the possibility of procuring nuclear equipment and fissile materials from illegal nuclear black markets and the growing incidence, sophistication and lethality of conventional forms of terrorism, often for shock value. Pakistan's nuclear programme is built on what is documented as a State organized campaign of nuclear espionage and smuggling, carries some inherent dangers. It is agreeable that some Pakistani officers might seek to emulate the exploits of fellow countrymen involved in nuclear smuggling and be tempted to sell nuclear technology to political extremists in their own country or to agents of any other country that they would perceive as friendly. (Paul.L Leventhal:1987)

South Asia, which once had experienced very low levels of threats due to organized terrorism until the early 1980s, has now undergone a dramatic transformation and it is becoming an active scene of the bloodiest terrorist violence in the world. In terms of casualties also it ranks easily in the list of world's most terrorism-battered region and they are been followed by the Middle East and Western Europe. (Warren Donally:1988)

3.5 Terrorism in India

India is bearing the burden of the terrorist violence in South Asia for many years. The events of terrorist attacks in India have risen sharply in recent years. Several other parts of India like the North eastern region, the northern hills of West Bengal, the states of Tamil Nadu, Kashmir, Haryana and Himachal Pradesh, and the territories of Chandigarh and New Delhi, also have been ravaged by what can be described as terrorist-related violence. Ethnic unrest and rebel violence have been major Indian security concerns since the Chinese-aided Naga and Mizo separatist insurgencies flared in the 1960s. But the recent growth and expansion of various forms of terrorism across the nation strikes at the very heart of India’s democratic system. (Leo E.Rose, PR Chari:1987) While hit-and-run attacks have declined in the northeast except in Tripura, terrorist violence has in recent years spread to the hills of Darjeeling, the plains of Tamil Nadu and the farms of Punjab. Groups which are blamed for terrorist attacks in India include the exiled Tamil militants from Sri
Lanka, Gurkha nationalists, Kashmiri Muslim fundamentalists and Tripura tribal rebels. There are several Sikh terror groups whom have helped turn the rich farms of Punjab into India's "killing fields." They include the Khalistan Commando Force, the Babbar Khalsa, the All-India Sikh Students Federation, the Khalistan Liberation Army, the Dal Khalsa and the Dashmesh Regiment. At least two of these groups, the Babbar Khalsa and the Dashmesh Regiment, are believed to be funded from overseas, particularly from Canada and West Germany. (New York Times:1988)

3.6 Terrorism in Pakistan

Unlike India Pakistan has been wrecked by ethnic and sectarian conflict. The Unrest in Pakistan has been sparked by what is perceived by ethnic and linguistic minorities such as the Sindhis, Baluchis and Pathans. The Shiite sect has also been very agitated. The secession of the Bengali speaking East Pakistan in 1971 was a result of the failure of the democratic system of Pakistan to integrate the country's five main ethnic communities into a central system. The frequent military intervention in the national politics and also the absence of democratic institutions had created more unrest in that country. Pakistan has a turbulent domestic politics that has always been helpful to fuel the violence in her society. There has been a steady increase in the ethnic disturbances and terrorist attacks in that country. (Shaukat Hassan:1998) The use of Pakistan as a base to operate by several Afghan terror outfits and the arrival of millions of Afghan refugees has helped the internal situation to be more complex and uncontrollable. The supply and steady flow of large quantities of arms in Pakistani society is the main cause of all these troubles. The law and order system has always been in peril because of this. Pakistan is a major arms-purchase centre and also has a functional weapons black market which is constantly accessed by international terrorists, particularly from the countries in the Middle East. In 1987, 17 per cent of the 832 incidents of international terrorism recorded in the world occurred in Pakistan. Pakistan's strategic relations with the United States government due to the threats possessed by Russia have made it a good location for staging terrorist attacks on U.S and other targets in that country. (Paul Leventhal:1998)
In South Asian subcontinent, terrorism often appears to draw its strength from several factors. They are:

1. Ability of these terror groups to work across different national frontiers, which helps these organizations to cooperate and carry out attacks effectively.

2. Technological sophistication. Most of the groups which operate in these areas are technically sophisticated. One of the major terror outfits which operated in India was the LTTE and it even had small submarines which helped them to transport drugs as well as weapons through international waters.

3. State sponsorship for terror. In many occasions it has been discovered by international agencies that many terror outfits are working by the support of some nations especially Pakistan. Pakistan has many times funded several terror outfits that actually carried out deadly attacks on India.

4. Drug-dealing. Although extortion, "protection" fees and bank robberies are important means to finance terror, drug trafficking is beginning to play a key role. In Afghanistan Taliban was heavily funded because of the presence of opium fields in that country. The amount of money that the drug business brings to the hands of terrorists often helps them to purchase high end weapons.

5. Halo of martyrdom. Many terror organizations make it a holy cause that martyrdom or suicide bombing is a holy cause. Such propaganda always fits right into underdeveloped societies and these terror organizations can easily get potential suicide bombers from the society.(Amir Taheri:1987)

Trends in terrorism indicates that the South Asian nations will have to focus on giving large amount of resources to combing efforts against terrorism. The changing character and the new levels of terrorist operations often call for an increased amount of investments in physical protection systems at nuclear installations. Close monitoring of shipments of nuclear materials, rigorous surveillance of nuclear facilities and installation of updated anti-sabotage systems would help to deter
atomic terrorism. Risks of nuclear terrorism appear relatively high in South Asia for three reasons.

1. **The extreme, civilian-targeted nature of terrorism.** Several groups have found their enemies in a very broad sense. They often select their enemies who are members belonging to a rival community, sect or organization. The amount of intensity of violence is reflected in the indiscriminate targeting of such people in terrorist bombings, shootings or ambushes. This facet of South Asian terrorism should be of the greatest concern to officials involved in building protection systems for nuclear plants and weapons-usable materials. There are many nuclear sites in India and Pakistan that could be so defined by indigenous extremists or by trans-border terrorists. (New York times: vol.40)

2. **Availability of portable weapon systems.** Another major reason for concern about nuclear terrorism in South Asia is that the growing availability of powerful and portable weapon systems that can be used to attack many nuclear installations in the sub continent. These weapons include surface-to-air rockets (like the shoulder-fired Stinger missiles) and anti-tank rockets. (The Christian Science Monitor: 1998)

3. **The internationalization of domestic terrorism.** Another reason for Concern about growing terrorism in South Asia is that the underground groups are establishing links with other organizations overseas for training, procuring arms and receiving funds. They help each other in setting new terror training camps and raising funds for their activities.

   The general tendency rising towards the centralization and personalization of political authority in South Asian countries has increased the inability of state structures to accommodate ethnic concerns which in turn fueling unrest and violence. Political leaders should be able to continue to search for solutions to the problems of terrorism in South Asia. The expansion of the nuclear programs in India and Pakistan calls for new steps to protect nuclear facilities and nuclear weapons-usable fissile materials. The features to protect nuclear faculties can be building double containment walls designed to trap radioactive releases within a reactor, an emergency cooling system, an automatic shutdown system and a fail-safe design.
But the main concern is that the plants which are currently in operation do not have all these safety features. The expansion of the nuclear programs in the two rival countries place heavy burdens of safety and security responsibilities on authorities. (Paul Leventhal: 1998)

3.7 Nuclear development in India

India has already launched a futuristic and ambitious civilian nuclear expansion programme. The Aim of this program is to raise the nuclear power capacity to 10,000 MWe by 2000. Now, in India there are six nuclear power reactors with a total capacity of 1,230 MWe which are already in operation at Tarapur, Rawatbhata and Kalpakkam. And there are Eight new Indian-designed CANDU reactors, each of 235 MWe, which are under construction at four sites: Narora, Kaiga, Kakrapar and Rawatbhata. India's nuclear plans also aims at the completion of six additional 500-MWe plants by the year end of 2000, but these plants are likely to change because of a decision by Prime Minister Rajiv Gandhi to import two large reactors from the Soviet Union. An agreement on the purchase of two VVER-1000 reactors is likely to be signed this winter during a visit to New Delhi by Soviet leader Mikhail Gorbachev. The Rs. 48-billion deal is going to be a great deal among the India's largest import contract. The decision to import nuclear reactors has already been severely criticized by many Indian policy makers, and there are several indications that the proposed nuclear deal might actually become a quid pro quo for the Soviet Union lease of a nuclear powered fleet of submarines to India last January. India's whole stocks of separated civilian plutonium are projected to rise sharply in the next 10 years since the country began to expand its already significant reprocessing capacity. According to the head of India's atomic programme, M.R. Srinivasan, the country's stockpile of separated plutonium outside the scope of international safeguards is expected to be thousands of kilograms in the next 10 years. But there are No official figures which have been released on the amount of plutonium which has already been separated by India, but one study on this area estimates that India could have stockpiled 100 to 200 kilograms of plutonium by mid-1987. (K.R Narayanan:1988) Indian nuclear propulsion project, which involves scientists from the Defense Research and Development Organization, the Bhabha
Atomic Research Center and other institutions, has began a uranium enrichment project by having a very few details available. Nuclear submarines in the United States, the Soviet Union and Britain are which are fueled by weapons-grade uranium (93 to 97 per cent U235). But the new French Rubis design which generates a high propulsion power in a small reactor core by using uranium enriched by a factor of less than 10 percent, far below the 20- per cent threshold for weapons applications. Indian scientists involved in the SSN project should consider developing propulsion fuel of similar enrichment level to avoid the security risks associated with weapons-grade U-235. By the year 2000, India might also have separated more civilian plutonium than the plutonium which China now has in its nuclear arsenal. (Nord Land:1998)

3.8 Nuclear development in Pakistan

The death of former Pakistan President Mohammed Zia-ul-Haq has created a cloud above the future of the Pakistani nuclear programme. General Zia played a major role in rapidly expanding Pakistan's nuclear base in the 11 years he was in power. The method in which Islamabad has been managing to acquire sensitive nuclear equipment and materials by circumventing nuclear-export controls has proved the ineffectiveness of the current international nonproliferation regime. It has been clearly documented that the Kahuta plant in Pakistan has been built with the stolen plans of the Almelo enrichment nuclear facility in the Netherlands. (Simon Menderson:1987) Pakistan also built another facility at Dera Ghazi Khan in order to manufacture uranium hexafluoride, which is the feedstock for the enrichment process of uranium, with smuggled sophisticated equipment and the important fact is that almost the whole equipment for the installation was illegally received piecemeal from West Germany between 1977 -1980. After conducting sixty five raids on various industrial firms in three major European countries in 1987 revealed a huge plot by West Germany's Leybold-Heraeus to illegally export nuclear equipment and allied nuclear components for building a sophisticated enrichment plant in Pakistan. This proves that Pakistan will be building a second enrichment facility at Golra Sharif. (Specter:1986)
Pakistan is believed to be working in reprocessing facilities which is situated in Chashma and Rawalpindi's PINSTECH and "New Labs" nuclear complex. However, it is unknown to have any unsafeguarded spent fuel to reprocess as both KANUPP and the PARR research reactor are always under IAEA inspections. The Chashma nuclear plant of Pakistan, which is the largest one in Pakistan and which is also designed to have a 100 ton nuclear reprocessing capacity. This plant is also capable of producing 100 to 200 kilograms of weapons grade plutonium a year when completed. Pakistan always claims that the Kahuta facility is intended to manufacture only LEU for its civilian nuclear programme. Various nuclear experts question this claim because Pakistan's sole operating power reactor does not need LEU. The Ronald Reagan Administration nevertheless, has continued military and economic funding to Pakistan, because of its role as a key U.S ally, by waiving the nonproliferation provisions of the Foreign Assistance Act. President Reagan has several times certified to the U.S Congress that Pakistan has no nuclear explosive devices in its possession. (Richard P. Cronin:1988) The U S President on January 15, 1988, also announced about the requirement of the Solarz Amendment for an aid cutoff to any country found trying to smuggle nuclear items that may add to its nuclear-weapons capability. It is very clear from the ongoing discussions that the importance for anti-terrorism measures at various nuclear facilities and also the safeguarding of nuclear weapons materials will increase as the nuclear programs in both India and Pakistan is in the growth path. When we analyse the situation we can find that in the long run the growing ability of India, and to a lesser extent of Pakistan, to export nuclear reactors, nuclear equipment or nuclear materials can further intensify the risks of wide scale nuclear terrorism. New nuclear markets could mean that the large global stocks of weapon grade nuclear materials already being processed, stored and shipped (often across national frontiers) will increase more than the current rate. Nuclear technology denial by the major nuclear suppliers are being viewed by some analysts to have ignited indigenous research and development in major under developed countries, which leads to the gradual emergence of Argentina, Brazil, China, India, Israel, South Korea, Taiwan, Pakistan and South Africa as potential members of a new club of emerging nuclear exporters.
Among these seventy three, several of these potential nuclear suppliers have already been entered in the international nuclear market during the period 1990s. (Brahma Challaney:1999)

Regionally analyzing, both the countries, India and Pakistan should evolve a proper framework of periodic bilateral discussions on counterterrorism and other nuclear safety and protection systems. The oral agreement between Mr. Gandhi and Gen. Zia about not to attack each other nation's nuclear facilities, and the visit of the late Pakistani President to India's Kalpakkam nuclear plant, held promise of increasing bilateral cooperation between the two neighbors. The national -security interests of both countries would be enhanced by cooperation between them to diminish the dangers of conventional and nuclear terrorism through effective confidence-building measures. In a much broader context of the situations, such cooperation between India and Pakistan should be applied towards allaying on mutual suspicions by striving for greater bilateral transparency in their various nuclear programs. By "transparency" on discussions we mean both countries exchanging information and also frequent reciprocal site visits. The difficulty of achieving such a transparency under present circumstances cannot be minimized in particular, without the cooperation and participation of China. India will be reluctant even to consider it. In this regard, every effort should be made to minimize or avoid altogether the further production and use of bomb-grade nuclear materials, not only in this region but also in other parts of the world.(Nordland:1998)

3.9 Nuclear risk reduction in South Asia

Nuclear restraint and the nuclear risk reduction measures have been practiced by the major nuclear powers ever since the dropping of atomic bombs in Japan in 1945. These proper efforts of major powers have led to various agreements on measures to bring down the risk of an outbreak of major nuclear Wars. “These efforts include signing of various agreements like, Anti Ballistic Missile Treaty (1972); Treaty on the Elimination of Intermediate Range and Shorter Range Missiles, (1987); START-I and START-II.” The various processes have served to contain and minimize the number of nuclear weapons in the arsenal of the nuclear-weapon states. The major
nuclear powers like United States and Russia have also began some preliminary steps to de-target and de-alert their weapons.

The agreements also facilitated placement of systems of Notification of Ballistic Missile launches between Great Britain, Canada, Russia, and Norway. These agreements have also served as a guideline for both India and Pakistan on the same matter. Along with the immediate catastrophic effects of nuclear explosions which will bring in large scale devastation, there are several short and long term environmental problems that should be brought to the attention of the general public and the policy makers.

Some of these environmental problems effects include acid rain, Ozone depletion and atmospheric turbidity. These would be especially important in the case of South Asia since the two nuclear powers are close neighbors and they are also account for one sixth of total world population. The first effect after a nuclear bomb burst would be the emission of large amounts of dust into the atmosphere. In addition to this, there will be changes in the complete temperature structure of the atmosphere. (The Washington Post vol.29).Human race will face acute reduction in precipitation, despite the abundance of water vapour and condensation of nuclei following the nuclear explosions and fires. “The total intensity of the inversion plus the persistence of pollution would also cause major changes in atmospheric circulation patterns. It is estimated that even a relatively small nuclear exchange of 100 Megatons could create a situation making the life on earth almost unbearable” (Richard P. Cronin:1988)

“The Draft of Nuclear Doctrine of India not only provides doctrinal support to an ambitious and patently provocative nuclear programme, but it also advocates enhanced conventional military capability under the garb of raising Indian threshold of nuclear tolerance. This would mean continued development and updating of its delivery systems, which includes missiles, ground, air and submarine launched. Missiles, especially the ones capable of delivering weapons of mass destruction to any place within minutes have become a symbol of prestige and national pride. Missile technology, being dual use, has also benefited satellite launch vehicle technology for space exploration as well as launching of satellites for navigation,
communications, surveillance, reconnaissance and scientific missions.” (Brahma Chellaney. :1997) When missile technology was developed, the world began to realize the risks and dangers that it brought about by missiles and their heavy proliferation. There emerged the importance of Risk reduction measures therefore, required to weaken motivation in favour of missile possession and proliferation, there is need to:

- Institutionalize missile launch transparency.
- Develop a mechanism for encouraging and rewarding the states that relinquish possession of missile weapon delivery systems.
- Guaranty security of such states against nuclear threats.

The missile launch programs transparency will make for voluntary presentation of related information in the form of alerts of ballistic missiles launches and also space launch vehicles that have been affected or are underway. Such a framework actually does exist between India and Pakistan. But the arrangement is highly simplistic and there is also a need to put in place a comprehensive system that would make sure that missile and missile technology non-proliferation, transparency of missile use, and international monitoring. “It is ironic that the rocket technology that has created danger for the modern world, in the form of long range missiles armed with nuclear weapons has also made possible the means of reducing this threat, in the form of satellites” says Bundestag report. (Bundestag report:1988)

3.10 South Asia and Security Dilemma

“Increase in the nuclear arms proliferation in South Asian sub continent is in part a consequence of the Security Dilemma that exists in the region. These forms of Security dilemmas arises when a state’s mechanisms for increasing its security negatively impact the security and threat perceptions of other states” (Charles L. Glaser;1997) The South Asian nuclear security complex involves several security dilemmas, including Pakistan/India, India/China, and Russia/United States. A further security dilemma dyad is that of the United States and China, since it has an impact on attitudes in India and Pakistan, and helps shape their nuclear decisions. According to India’s perspective, the threat from China is given most prime
importance, and therefore New Delhi’s has its nuclear and missile development program is geared, in part, toward countering Beijing with a secure deterrent. However, Beijing’s primary threat perception is from the United States and consequently, one must consider the possibility that Beijing may conduct nuclear tests in the coming years if Washington goes ahead with plans to construct newer, more reliable warheads. China’s has intense desire to catch up with the U S that would oblige India to prevent an adversely affecting strategic balance. India’s need for a more reliable and practical nuclear deterrent against China also involves expanding New Delhi’s nuclear weapons and also the delivery systems capabilities. The so called advanced capabilities include the development of a thermonuclear weapon and second strike capabilities with the use of long-range ballistic missiles, such as the Agni-Ill or submarine launched ballistic missile capabilities, within the proposed nuclear submarine project and the Sagarika missile. (Naeem Ahmed Salik:2006)

3.11 Security Disputes, Nuclear Doctrines, and Proliferation Trends

The Proliferation issues in South Asian region must be understood in the context of a vertical and horizontal proliferation. The Vertical proliferations are taking place as nuclear states modernize their nuclear arsenals with more and more reliable delivery systems and warheads. Major Countries including the United States, China, India, and Pakistan, are in the ongoing process of modernizing their arsenals through various actions such as proposals for “a reliable replacement warhead” (just like in the case of the United States). And also in the context of South Asia, nuclear modernization will mainly be a function of prevailing threat perceptions arising out of various levels of security dilemmas. Modernization of nuclear arsenals includes the development and testing of longer range of missiles such as the tests of the Agni-Ill by India, and the Shaheen-Ill by Pakistan in the first half of 2007. The Horizontal proliferation on the contrary is the spread of nuclear weapons technology from nuclear states to other entities which can be state actors or non state actors Horizontal proliferation mostly involves a important role for WMD supply networks that does not have a connection to official entities in a nuclear state.
Sub continental Rivalry

South Asian region is one of the most populated regions of the world, this region has India and Pakistan alone accounting for about 1.35 billion people. Both these countries have been hardcore rivals since partition of the subcontinent in 1947 which led to the creation of independent state of Pakistan and independence for India. Both countries have fought two wars over Kashmir (1947, 1965), one over East Pakistan/Bangladesh (1971), one limited war (Kargil, 1999) and the ongoing insurgency in Kashmir (since 1989). The 2001-2002 crisis further intensified the dangers of terrorist violence provoking a conventional conflict that could lead to a nuclear disaster. Since the 2001-2002 crisis, Islamabad and New Delhi several times have conducted several rounds of peace talks aimed at bringing an everlasting peaceful settlement to the Kashmir issue. This peace process has involved several types of confidence building measures. Apart from the conventional notions of sovereignty and nationhood, Kashmir has lot of strategic importance. Rivers originating in the Kashmir region often provide crucial water supplies for food producing areas in the heartland. And also, the Siachen glacier which is present in the region is also a region of military significance. The glacier, to the north of Kashmir, the commands of India has a strategic overlook of the small border between Pakistan and China and can potentially be used as a point of attack on India from northwest Kashmir. The glacier became a battle ground between the two armies in April 1984 and despite several talks, there have been no actions that are taken by both nations toward demilitarization. The extremely complex rivalry between both India and Pakistan involves several levels of territorial disputes based on the notions of national identity as well as terrorist issues. Another important element of the sub continental security problem is the role of China. The role of China in South Asian security issues as well as in future conflict scenarios is crucial when considering two realities

(a) The historical animosity between India and China.

(b) The long standing ‘all-weather’ political and military alliance between Pakistan and China.
Indian analysts often point out that transfer of nuclear and missile technology from Beijing to Islamabad as evidence of an encircled threat to India. (Raja Mohan:2007)

Thus, in the South Asian region, which has several security disputes, is based on territorial rivalry and terrorist violence. It is combined with a need to expand the nation’s global and regional position which encourages future uncertainties that will shape the actors’ nuclear policy decision-making. As mentioned above, apart from the Indo-Pakistan age old rivalry, strategic uncertainty, and suspicion in New Delhi has also generated by Pakistan’s most close military links with China. With China in the picture as a major rival of India and a strategic ally of Pakistan, even if Delhi and Islamabad move towards a everlasting peaceful resolution of the Kashmir dispute, the Beijing is likely to be the biggest element in Indian threat calculations. The present threat perceptions between both India and China are not the same just like the threat perception between India and Pakistan, which are more immediate and based on a ‘hot’ territorial dispute and state-sponsored terrorism. Nevertheless, the major analysts in New Delhi have long pointed to Chinese military modernization as a coercive threat projecting towards India. This modernization includes various sorts of missile development, like the current deployment of the DF-21 and DF-3 missiles in the provinces of Qinghai and Yunnan in china. The Sino-Indian security dilemma has also a dimension of China’s desire to establish close relationships with other countries in the Indian Ocean region (most notably Myanmar), a major policy that has been seen as a potential threat by India and termed as “strategic containment.” For India and China, the various levels of security dilemma also arise from threat perceptions based on consequences of future nationalistic tendencies. Both nations fear that a huge rise in the nationalism could lead to more hostile attitudes.(John W.Garvee:2002)

3.12 Non-state Actors and Security in South Asia

The Nuclear weapons development and enhancement facilities in South Asian region are duly related to long-standing rivalries between the concerned parties. However, the instability does not just stem from the risk of a nuclear warfare that can happen between states in the region. Non-state actors whom are also play a very significant role in the nuclear security framework, apart from their role in
facilitating the nuclear proliferation. There are several groups like that among them. The first, terrorist groups that are closely connected to the Pakistani religious and political establishments can always provoke tensions between India and Pakistan through mass casualty attacks and mutually assured destructions. This was clearly demonstrated following the December 2001 attack on the Indian Parliament by Jaish-e Mohammed militants, which led to a ten month highly threatful stand-off between the two armies. A second danger is by a Kargil style incident in which any militant organization, in cooperation with official Pakistani agencies can occupy territory in Kashmir. As the July 2007 siege of the Lal Masjid (Red Mosque) in the complex which is in Islamabad showed, militant groups who are steadily and rapidly expanding their geographical area of influence, by adversely affecting the stability of Pakistan. However the nuclear weapon complex is under Pakistani military control, but there might be pockets within the military which are sympathetic to fundamentalist groups. At the very least, political and religious instability in the Pakistan creates uncertainty in the minds of policymakers within and outside the region. (Seymour Hersh:2002) Finally, the fears have been heightened from 9/11. Over the possibility of nuclear weapons technology transfers from Pakistani military to several terrorist networks, especially after it was revealed that some senior Pakistani nuclear scientists met with the Al Qaeda leadership prior to 9/11. In a general understanding the complex nuclear weapons scenario in South Asian region is mainly shaped by two major factors. First, the most intense nature of the dispute between the states of India and Pakistan that strikes at the very core of their nationhood. It involves several levels of territorial disputes and most importantly terrorist violence, and the situation is further complicated by the desire of some terrorist groups to acquire non conventional technology. Second, South Asian region is a part of a bigger and broader nuclear weapons context which includes China and the U S. the Military developments or movement by either Washington or Beijing, which are perceived as a clear and direct threat, also make an impact on the military policies (both conventional and non-conventional) in South Asian region. (C.Raja Mohan:2007)
3.13 Nuclear Policies in South Asia

By keeping the various levels of security disputes and different attitudes in mind, the next step is to consider the various nuclear doctrines and policies of protagonists in the south Asian region. Both nations, India and Pakistan strive for a minimum level of deterrent. The primary objective of India’s nuclear strategy is for a credible minimum deterrence (CMD), meaning more secure and reliable second-strike capability even after absorbing an adversary's first strike. The estimated main potential targets of this projected deterrence capability are Pakistan and China. Pakistan’s nuclear doctrine also seeks a credible deterrent, against India, and according to one senior nuclear weapons planner, its weapons are “aimed solely at India.” In particular this seeks to deter New Delhi even from launching a conventional military attack even after such an offensive for limited war objectives, including destruction of terrorist training camps, as well as attacks on nuclear facilities. Thus, both India and Pakistan always strive for a assured and secure second-strike capability as an integral element of their credible minimum deterrent doctrines. Since neither side has constructed systems that are deemed completely satisfactory and reliable, nuclear modernization continues.(S.M Hali;2006) For India, this means a survivable delivery mechanism that can conceivably strike major cities in China. At present the longest range deployed missile is believed to be the Agni-II with a range of 2,000-2,500 km, and can reach parts of western China. To have an increased range capability, the Indian Defense Research and Development Organization (DRDO) is developing the Agni 111 intermediate range ballistic missile, which was successfully tested for the first time in April 2007 and has a range of about 3,500 km. Nevertheless, reports have stated that the Indian military is not altogether satisfied with the nuclear capable missiles that are in its arsenal Prithvi I (short range ballistic missiles) and the Agni I & 2. Thus, India’s nuclear delivery systems are deemed far from adequate and for the time being. In the opinion of the Indian Air Force, there will be considerable reliance on fighter bombers such as the Mig 27, Jaguar, and Mirage-2000 for a nuclear delivery role.(Rahul Bedi:2007)
NOTES

1. India’s approach to the Indian Ocean is primarily as a solo player. So far, it has been weary of direct involvement in multinational enterprises such as international anti-piracy organizations. It has sought other ways to coordinate with the other nations concerned – cooperation rather than joint operations. Anti-piracy ought to be the major arena for international organizations to shape regional policymaking, but it has thus far been a relatively ineffective one as far as India is concerned. India has participated in the Indian Ocean Rim Association for Regional Cooperation (IORARC), an organization founded in 1997 and dedicated to strengthening economic cooperation among the coastal states.

2. The United States is probably not looked on by Pakistan as a reliable partner in shoring up its Indian Ocean security, especially in light of the high profile of the Indian Ocean in the growing U.S. security dialogue with India. But Pakistan is an active participant in the multilateral anti-piracy task force.

3. The legacy of partition is a key driving force behind the nuclear standoff that now exists between India and Pakistan. Partition split apart a region that had been united for millennia amid communal massacres on a scale never before seen, leaving in its wake the unresolved issue of contested Kashmir - a Muslim-majority region held by Hindu-majority India under dubious political and legal circumstances. The skirmishing that has continued now for over fifty years, punctuated by outbreaks of full-scale war (in 1947, 1965, and 1971), and limited war (1999), have given both nations ample motivation to develop potent weapons to gain advantage over or restore balance with the other.

4. India's first nuclear test, known variously as "Smiling Buddha", the PNE (for "Peaceful Nuclear Explosive"), and most recently Pokhran-I, occurred on 18 May 1974. It provided an additional stimulus to the Pakistani weapons programme, which had made little headway up to that point. Bhutto increased the funding for the programme after the Indian test. One consequence of the test was ironically to hamper Pakistan's programme as the test sharply escalated international attention.
to proliferation and led to increased restrictions on nuclear exports to all nations, not just India.

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Nuclear Weapons and South Asian Security, op. cit., p. 16. The report estimates the number of centrifuges operating at Kahuta could be from 1,000 to 14,000.
Because the Pakistanis have faced difficulties in operating the centrifuges, it bases its figures on what it draws as conservative calculations of 1,000 to 3,000 centrifuges in operation.

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BBC Newscast, September 20, 1988. To cite another example, terrorism in the Middle East and its spillover into Western Europe left 295 people dead and 770 wounded last year (source: the U.S. State Department).


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