Introduction

The global nuclear development took a new turn with the catastrophic detonation of the nuclear bombs towards the end of the Second World War. The very distinctive character of the nuclear energy was revealed to the whole world. Moreover, this destructive and annihilating feature of the atom bomb charmed a number of nations to nuclear weapon programme. In fact the two events, Hiroshima and Nagasaki, had created a new history of war and peace. The threat of another war with the involvement of nuclear weapons led to urgent and coherent efforts to avert confrontations and install peace. This was because everyone found that another war would be catastrophic to the whole world. However, these peace movements went along with a rapid arms race, even the proliferation of nuclear weapons. The security perception shifted with deep security dilemma arising out of the advent of nuclear weapon. This dilemma indeed accelerated the arms build-up by nation states.

The controversy regarding the application of nuclear energy categorised people into three groups. Some argued for the complete elimination of nuclear energy (both peaceful and military programmes). They argued that nuclear energy would cause environmental and health challenges. The next category perceived that nuclear energy should be applied only for peaceful and constructive purposes. The third group viewed nuclear energy as being used for both peaceful and military purposes. A faction of the last category pointed out that military programme eventually orient towards the establishment of peace. A crucial aspect of the great global debate is the confusion that prevails among the ordinary people to distinguish peaceful programmes from military programmes. Under such circumstances several irrational and irrelevant arguments and interpretations interrupted the nuclear decision-making process. The great global nuclear energy debate continues even in the streets with sound and fury.

The first phase of the nuclear weapon programme projected a ‘uni-nuclear’ world with the US hegemony in nuclear power. The US was the only nation that possessed nuclear weapons. The US policy and strategy to deal with the nuclear capability to a greater extent was offensive, to use the bomb against the enemy. American nuclear weapon capability was a threatening stick to the entire world. It
was a period when first use policy and offensive strategy seemed to be apt. The nuclear weapon hegemony helped the US to deal with its enemies efficiently. The US strategy as a nuclear power contained containment and integration (Dueck; 2011: 37). To make it clear the US used it not just for its military advancement and security but for the ideological win. The US followed the strategy of containment of the Soviet Block with a nuclear threat and integration of its allies by providing protection under the nuclear umbrella. This extended deterrence after all eventually made the US the super power. Indeed many analysts observe that the Hiroshima and Nagasaki bombings by the US could be treated as signals of American power to the Soviet Union.

The US developed the nuclear weapon as it was afraid of the German alliance attempt to develop nuclear weapons. The impetus behind the atom bomb-project in Britain and the United States came from a fear of the consequence of the unilateral German success in the military exploitation of the atomic energy. “Hitler presumably would have viewed atom bombs in the same manner he viewed ‘V’ weapons: as an instrument of counter –terror which if produced and delivered to the enemy in sufficient quantities might well turn the tide of the war” (Freedman; 1981: 15). However the decision to continue and expand its nuclear capability was driven by the desire to maintain the super power status. The US presumed that the nuclear weapon could provide a balance of power with the erstwhile USSR.

The ‘uni-nuclear’ world existed for only a very short period from 1945 to 1949, until the USSR conducted its first test². The weapon capability of the US was limited to a few weapons. Though the weapon capability was numerically less, it had massive striking capability adequate to rule the world. Moreover it was the monopoly that the US maintained that helped it to rule the world with unanswered threat and impregnable protection. In the early phases the US followed a ‘first –use’ policy with an offensive strategy. It was very clearly revealed in the Second World War that the nuclear weapon was treated more as a weapon of war than of deterrence. The strategy was to use nuclear bombs just like using new weapons. This offensive strategy was driven by primarily two factors- that only America possessed nuclear weapon-capability and that there was no proven experience of the catastrophic effect of the nuclear bomb. Further, there was no Mutually Assured Destruction (MAD), as only
one side--more precisely one nation- possessed the atom bomb. The destructive power of the nuclear weapon was not yet revealed to the world and therefore nuclear deterrence seemed to have a very marginal role in the security calculus. But it added new dimension of fear to the nations and placed them in a security dilemma.

Another policy option of the US related to nuclear weapons was to preclude nuclear weapon capability of other nations. Many nations at this stage had their nuclear weapon programme at the basement. It had adopted two strategies to execute this policy-threat and cooperation. It offered protection under its nuclear umbrella to its allies. The concept of extended nuclear deterrence is relevant here. It forced many nations to either avoid or slow down their nuclear weapon programmes. The NATO is a clear example of this co-operative framework of the US. The US nuclear protection exhorted its major allies Britain and France to delay their nuclear weapon development programme, although these nations were capable in constructing them.

After the nuclear attacks in the Second World War nuclear weapons became the core of the US strategic calculus. There was a notion that the nuclear weapon could be the ultimate arbitrator of international differences (Polmar & Norris; 2009), and so it became a decisive force in the deterrent strategy. Therefore, the nuclear weapon became the most depended strategic weapon in the American defence policy. During this period the US worked closely with the NATO allies, especially for the development of Intermediate Range Ballistic Missiles (IRBMs). The US nuclear weapon strength provided security to those European nations who were members of NATO. Two basic aims of the nuclear weapon at this stage were to maintain it undisputable leadership of the NATO and to deal with its own defence.

The nuclear bomb, according to some scholars, played a very feeble role in the Second World War. What it did was to speed up the surrender of Japan in the War and it was towards the end of the war. To Freedman “the use of atom bomb in the Second World War was like administering poison on the death bed” (Freedman; 1981: 20). The atom bomb could just speed up the defeat or make the win early. However, it revealed that the atom bomb is a weapon to be used at the last phase of the battle. It would bring an abrupt end to the war by elevating the winner to an unchallengeable position. Therefore it was treated as a weapon used as the last resort. The nuclear
weapon thus turned to be a decisive weapon determining the course and result of the war. In fact, the Japanese surrender was a political decision. However, it was due to the defeat Japan was about to face, perhaps the decision to surrender came from it. The nuclear weapon could accelerate this political decision. The bomb brought an abrupt end to the War. The question that would be relevant here is whether the bomb was used to win or end the war. Many viewed the bomb as a means to stop the war. To a greater extent this perception is true. The defeat of the triple alliance was about to occur even without the use of the nuclear bomb. The bomb adversely influenced the will of the Japanese people to continue the war. Of course the immediate surrender of Japan left the impression that the strategic concepts that led to the use of nuclear bomb were valid. Freedman says that the atom bomb offered an independent and soft route to a total victory.

The ‘bi-nuclear world’ was very complex with the security predicament more severe than the ‘uni-nuclear’ world. The period witnessed a cold war between the two blocks headed by the super powers. The real hero of this proxy war was the nuclear weapon. But even under such complex security conditions there existed a kind of ‘peace’, which is similar to that of the ‘unstable peace’ that exists in South Asia under the nuclear context. This argument finds its basis on the balance of power which the super powers maintained during the cold war. However, the Cuban crisis and the Berlin crisis were two events that perturbed the global security. Amidst these challenging dilemmas, deterrence also played a significant role. MAD (Mutually Assured Destruction) was the key doctrine that built up the concept of deterrence.

The International community found itself in a severe security predicament during this period. Many, in exaggeration, remarked that it marked the end of the world. The nuclear weapon was the central focus of this security estimates. The second strike capability of the nuclear weapon became a strategic turn out of the period. Any of the two powers striking first must be ready to receive the response with the atom bomb. So the strategies and policies should be framed in such a way as to face it. The U.S formally adopted first use policy, while the U.S.S.R the second use policy. Though many view that this proxy war was ideological, its realization was seen in the military build-up of both these super powers. In the uni-nuclear world the balance of power shifted in favour of the U.S due to its nuclear weapon capability.
However as the U.S.S.R attained this capability the earlier status was regained. Therefore the ‘bi-nuclear’ world became more complex with unstable peace.

With the Hurricane nuclear test on 3rd October 1952 by the United Kingdom the nuclear world transformed to a new phase. The nuclear weapon is now no more the monopoly of the two super powers. The British ambition to possess and use the nuclear bomb was grounded in the notion of deterrence. Even if the Nazis successfully developed the weapon, they would not dare to use it against Great Britain due to fear of British retaliation with the atom bomb (Arnold and Brown; 2010: 274). However, the US nuclear umbrella served this purpose during the II World War and delayed the development of their atom bomb for a short period of time. When USSR manufactured the atom bomb Britain was forced to develop its own, targeting them (Heuser; 2000:86). This, to a certain extent, points to the failure of extended deterrence. The US policy during this period consisted of a hybrid strategy of containment and bargaining with the USSR and regime change and integration with other nations (Dueck; 2011: 38). Great Britain also supported this policy of the US, being a leading member of the NATO as well as a US ally. Both horizontal and vertical proliferation proceeded at a high pace during the period. The dilemma it raised also multiplied with the emergence of new issues and challenges of security and safety.

The multi nuclear world witnessed different strategies and policies. The US, Britain, France and China follow first use policy and USSR and India follow no first use policy. Conventionally weak (weak to the opponent) nations usually adopted first use policy. Further, states with first use policy followed two policies within themselves- first use against nuclear weapon states and no use against non nuclear weapon states. No use against a non nuclear weapon state but conventionally powerful and superior is considered to be less reliable. The moment a nuclear weapon state finds a severe threat to its very survival, it would use the nuclear weapon against a conventionally powerful state. So the framing of the nuclear policy, particularly no use policy, depends on the conventional force too. No first use and no use policies are best suited for conventionally powerful nations with second strike capabilities and first use policy is good for conventionally weak nations. But it should be noted that a mighty nation like the US considers its nuclear arsenal as an offensive weapon.
George Bush’s policy of the ‘New Triad’ treats nuclear weapons as an integral part of military strength. It shall not be limited to deterrence but to actual use for task attainment (Cimbala, 2011: 43). So it is not a weapon of last resort for the US. Another factor that determines the nuclear policy is the external environment in which a state exists. An environment with mutually antagonistic relations will force states to adopt a very hard line of policies. Nuclear policy-making is determined by conventional strength, nuclear second strike capability and the environment dealing with the foreign relation of a country. As a whole, there has been a greater strategic shift with the advent of the nuclear bomb. The strategy of cumulative pressure was replaced by the use of nuclear bomb as a strategy of shock which could bring about a sudden and crucial decision.

The multi-nuclear world comprised both de-facto and de-jury nuclear weapon nations. At present there are 9 de-facto nuclear states and five de-jury nuclear powers. India, Pakistan, Israel and North Korea along with the other de-jury members constitute the de-facto nuclear weapon states. This division indeed doesn’t make any significant influence on the security dimensions. Whether it is de-facto or de-jury nuclear states the threat and security dilemma it raises is the same. Indeed, it is the character of the state, resulting from the socio-political conditions that create the difference in the implication of the nuclear weapon.

Both horizontal and vertical proliferations simultaneously have taken place during this period. Seven nations have joined the nuclear club by successfully acquiring nuclear bombs. Some nations are developing their own nuclear bombs, while some others have demolished their programmes. Nuclear weapon states have doubled, tripled or quadrupled their nuclear strength paving the way for high level vertical proliferation. At the same time, treaties and agreements for reduction and stopping of proliferation are signed by nations. The big powers have signed treaties like START to reduce the use of nuclear weapons and PTBT and NPT are signed to avoid further proliferation. Security fear and dilemma that pervades particularly now arises from nuclear terrorism and nuclear capability of rogue states. Reports about the attempts made by terrorist groups to accumulate nuclear arsenals and materials along with a feeble command control mechanism existing in some nuclear states, especially in the wake of September 11, 2011 have created the fear of nuclear terrorism. This
forced many nations to begin the mission for combating terrorism, especially led by the US and now seen in Afghanistan and Pakistan. Nuclear black marketing and illegal nuclear trade supported by rogue states poses severe security threat in the multi-nuclear world.

The global nuclear trend suggests that some of the nuclear weapon states are reducing their nuclear weapons. But most of them are modernizing the weapons. They believe in quality rather than quantity. So, only a minimum number of nuclear weapons, sufficient to meet their security needs are now demanded by these states. After peaking in 1986, global nuclear weapon levels have declined. Over the past two decades, two trends have emerged: Russia has been decreasing its deployed/operational forces, and at the same time it has been reducing its number of intact warheads via an ongoing dismantlement effort of the more than 70,000 warheads that the United States has produced since 1945, more than 60,000 have been disassembled (Norris & Kristensen; 2010: 75). French President Nicola Sarkozy in his speech on March 21, 2008 announced a planned reduction of nuclear arsenal to fewer than 300 warheads (Norris & Kristensen; 2008: 52). The United Kingdom has moved the furthest toward establishing a minimum nuclear deterrent, announcing its plans last year to reduce its total stockpile to no more than 180 warheads over the next 15 years (Norris & Kristensen; 2011: 93). Pakistan and India, the two nascent states among the nuclear weapon states has an exception with an increase in the nuclear weapons. Pakistan has a nuclear weapons stockpile between nearly 90 and 110 nuclear warheads, which is an increase from the estimated 70 to 90 warheads in 2009 (Norris and Kristensen; 2009).

The high cost and technological barriers have not restricted ambition for nuclear weapon by states. Until now, reports suggest that a total of 30 countries have sought nuclear weapons, and 10 are known to have succeeded in the production of the weapon. United States, Russia, Britain, France, China, India, Pakistan, North Korea, Israel and South Africa are the nations which have succeeded. However, South Africa has dismantled its nuclear weapon programme (ISIS; 2004). Iran, Libya, Iraq, South Korea, Taiwan, Algeria, Syria are some nations which attempted to develop the weapon unsuccessfully. It has been reported that before the commencement of the nuclear Non-proliferation Treaty (NPT) in 1970, many nations in Europe showed their interest in the
atom bomb. Australia, Egypt, Sweden and Canada are some of the nations that ended their nuclear weapon development by the beginning of NPT. Italy Japan, Germany and Norway sought to manufacture the bomb but ended with the NPT.

Table-1

<table>
<thead>
<tr>
<th>Country</th>
<th>Deployed warheads</th>
<th>Other warheads</th>
<th>Total Inventory</th>
</tr>
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<tbody>
<tr>
<td>USA</td>
<td>2 150</td>
<td>5 550</td>
<td>7 700</td>
</tr>
<tr>
<td>Russia</td>
<td>1 800</td>
<td>6 700</td>
<td>8 500</td>
</tr>
<tr>
<td>UK</td>
<td>160</td>
<td>65</td>
<td>225</td>
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<tr>
<td>France</td>
<td>290</td>
<td>10</td>
<td>300</td>
</tr>
<tr>
<td>China</td>
<td>.</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>India</td>
<td>.</td>
<td>90–110</td>
<td>90–110</td>
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<tr>
<td>Pakistan</td>
<td>.</td>
<td>100–120</td>
<td>100–120</td>
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<tr>
<td>Israel</td>
<td>.</td>
<td>80</td>
<td>80</td>
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<tr>
<td>North Korea</td>
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<td>6–8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4 400</strong></td>
<td><strong>12 865</strong></td>
<td><strong>17 270</strong></td>
</tr>
</tbody>
</table>

All estimates are approximate and are as of January 2013.
(Source: SIPRI; 2013)

From the above figure, estimated in the beginning of 2013, eight states possessed approximately 4400 operational nuclear weapons. Nearly 2000 of these are kept in a state of high operational alert. Sum total of all nuclear warheads of United States, Russia, the United Kingdom, France, China, India, Pakistan and Israel possess a total of approximately 17, 270 nuclear weapons. As on September 1, 2012, the United States was counted under the New Strategic Arms Reduction Treaty (New START) as having 1,722 strategic warheads attributed to 806 deployed missiles and bombers (Norris & Kristensen; 2013: 77). USA, Russia Britain and France have their nuclear warheads deployed. North Korea joined the group last with a successful test in
2006. It is also to be noted that out of the total inventories numbering 17270, 16200 are possessed by USA and Russia. This accounts for nearly 93% of the total inventories.

It was during the Cuban crisis and the Indo-Pak Kargil crisis that the whole world found two conditions close to nuclear war. Despite the numerical strength on both the contexts the use of nuclear forces could have been catastrophic. But in both these situations nuclear deterrence played an emancipating role. The Cuban crisis ended without any use of weapons. The Kargil crisis, however, found low scale war without the involvement of nuclear weapon.

Today, the world is confronted with many significant issues related to the development of nuclear technology and nuclear weapons. Nuclear proliferation, or the spread of nuclear weapons, is one of the greatest security threats in the world. When the Cold War ended, many people came to believe that the threat of nuclear annihilation was a thing of the past. Since nuclear weapons were built to wage the Cold War, the fall of the Soviet Union would lead to the end of the nuclear threat. Tragically, the hopes of the 1990s bred complacency rather than action. Although the likelihood of a nuclear war between superpowers has diminished over the years, a serious nuclear threat remains. Some experts are even arguing that the threat of an attack with a nuclear device may be more potent today than during the height of the Cold War.

The nuclear tests conducted by India and Pakistan in May 1998 represent one of the most dramatic developments in the field of nuclear non-proliferation after the Cold War. The tests caused shock and disappointment among those interested in the maintenance of the international non-proliferation regime. Globally, there was great concern about what the tests in South Asia might mean for the non-proliferation effort. Regionally, there emerged an acute challenge to preserve and enhance peace and stability causing security dilemma aftermath the nuclear tests. The international community is really sceptic about the security of South Asia in particular, as Pakistan has attained nuclear capability. Pakistan has a legacy of political instability, military dictatorship and state sponsored terrorism. There have been many views about the nuclear development program by Pakistan. Some have asserted that it was only
natural for Pakistan to develop nuclear weapons for purposes of self defence. Still some view it as a negotiation card for securing political and economic benefits. Many analysts see Pakistan's apparent efforts to accelerate its nuclear programme as a response to adverse changes in its external environment that has had serious internal repercussions for its economy. In the case of Pakistan the geographical proximity to India, which is a traditional rival and superior in economic and defence spheres, has prompted them to initiate the nuclear programme. However, it is obvious that Pakistan’s nuclear programme is an attempt to answer the security dilemma with nuclear deterrence.

Nations are not ready to compromise their security for which any kind of uncertainty on their security forces them to respond. This response in most of the cases is to strengthen their military force. Security dilemma and arms race have a very close link in this regard. Military build-up is often influenced by security dilemma. Moreover security dilemma and arms build up are complementary. Security dilemma causes arms race, which in turn causes security dilemma. Security fear forces a nation to strengthen its arms and this arms-build up cause security dilemma for the other state and forces them to respond. If one state increases its military strength another state might feel that they are taking the safe option by doing the same, which could inadvertently alarm the first state and hence set an arms race in motion (Gilgrist; 2008). Peace or war is the only point that breaks this chain. Peace through co-operation and diplomatic pursuits would stop or reduce this arms race as well as the uncertainties. Security dilemma forces states to co-operations. Nuclear proliferation in a chain reaction placed nations in alarm. The fear of such a chain reaction compelled most states to back the Nuclear Non-Proliferation Treaty (NPT) (Muller, Fischer and Kotter; 1994). It is the security dilemma that brought super power states in cooperation to reach on arms reduction treaties like SALT, START, ABM Treaty etc. But at the same time security dilemma has brought states in cooperation to form military blocks such as the WARSAW and NATO.

The nuclear weapon capability of both India and Pakistan was indented to reduce the security dilemma. On the contrary it gave birth to security dilemma of new shape and form. Dilemma is a situation where “what one does to enhance one’s own security causes reactions that, in the end, can make one less secure” (Posen; 1993:
The dilemma that a nuclear weapon places ahead is not potentially equal to that of the conventional weapons. It is important to analyse how dilemmas arise from actions and cause security crises. Interpretation of the intention and capabilities of the other nation forms the first dilemma and the second dilemma relates itself to responding to the interpreted action of the other nation (Wheeler & Booth: 2008:133). Many have argued that after nuclearization, South Asian region has become highly volatile with issues ranging from low scale war to an all out war. Conversely, others consider that the nuclear bomb in South Asia have reduced the security issues and established a kind of peace termed as ‘unstable peace’.

**Statement of the Problem**

The arms race, especially the nuclear programme and weaponization had a tremendous impact on the political and economic conditions of the South Asian countries. To a certain extent the security dilemma encountered by these nations, forces them to invest in their military build up and manufacture advanced weapons like the atom bomb. But this military build up further leads to a security dilemma. In the wake of the nuclear test conducted by India and Pakistan, the security threat in South Asia has doubled. The nuclear programme by Pakistan brought new security dimensions in South Asia. It also has a greater impact on the socio-economic and political life of Pakistan. The Pakistani economy showed negative indications after it had conducted the nuclear test. Pakistani economy is a high-profile dependant of foreign assistance. The nuclear test and the ban on economic sanctions have had an adverse impact on the economy of Pakistan. Further, the frequent military coup, political instability and the activities of terrorism in Pakistan have increased the security threat with socio-economic and political dimensions. As each state is an integrated and indispensable chain of the regional sub system, weak Pakistani state would cause multidimensional security challenges across the borders. This would entrap the other states in the region in security dilemma.

The proposed study is an attempt to analyze the new strategic dimensions of the nuclear Pakistan in context of the theory of security dilemma. The study will identify the nuclear risks in South Asia and the relevant strategies for combating the menace of nuclear politics. It will also investigate the socio-economic impact of
Pakistan’s nuclear programme, the reliability of nuclear doctrine and the command control challenges. In short, the nuclear weapon construction aiming at reducing the security fears and dilemma with basically deterrent strategies have brought in newer areas of threat and fears.

**Background of the Problem**

In the middle of the twentieth century, when the nuclear weapon came into the international scene as the most powerful and destructive weapon, two important questions raised by scholars were the security threat and the economic cost of the nuclear weapon. Scholars like Kenneth Waltz, with a pro-nuclear weapon perception maintained the spread of nuclear weapon as better. To others, the use of nuclear weapons would be catastrophic to the entire world. At the same time it was also viewed that the economic cost of the nuclear programme would not be affordable to the developing countries. But bewildering this group of scholars two developing countries of South Asia, India and Pakistan succeeded in obtaining the nuclear weapon capability. In recent years, experts have closely studied two main aspects with regard to South Asian nuclear issues. First, nuclear modernization in the region continues with the development of longer-range and more reliable delivery systems, as well as qualitative and quantitative increases in fissile materials and warheads. Initiatives, such as the Indo-U.S. nuclear deal, have brought renewed focus on this issue due to its potential impact on proliferation in South Asia. Second, the A.Q. Khan network confirmed the entry of non-state actors into the realm of nuclear proliferation. Lingering questions regarding the network's activities suggest that its impact has not yet been fully assessed. There is still considerable demand for nuclear technology, both through horizontal proliferation from aspiring nuclear states such as Iran, and terrorist networks looking out to augment their capabilities. With protracted confrontation between India and Pakistan, these developments would cause security dilemma in the region. This study will analyze these varied developments and investigate proliferation trends in the region.

Proliferation issues in South Asia must be understood in the context of vertical and horizontal proliferation. Vertical proliferation takes place as nuclear states modernize their nuclear arsenals with more reliable delivery systems and warheads.
Countries including the United States, China, India, and Pakistan are in the process of modernizing their arsenals through actions such as proposals for "a reliable replacement warhead" (as in the case of the United States). In the context of South Asia, nuclear modernization is mainly a function of prevailing threat perceptions arising from security dilemmas. Modernization of arsenals includes the development and testing of longer-range missiles-such as the tests of the Agni-III by India, and the Shaheen-II by Pakistan in the first half of 2007. Horizontal proliferation is the spread of nuclear weapons technology from nuclear states to other entities, including aspiring nuclear weapon states, as well as non-state actors such as terrorist groups. Horizontal proliferation generally involves a significant role for WMD supply networks that may or may not have a connection to official entities in a nuclear state. In the South Asian context, this variant of proliferation is especially pertinent, given the history of the A.Q. Khan network and its assistance to states such as North Korea and Iran. In addition, horizontal proliferation includes second-tier proliferation, where developing countries trade and barter nuclear technology with each other. While vertical and horizontal proliferations are variants of the proliferation dynamic, it is entirely possible that a nuclear state (such as Pakistan) could make use of non-state networks in the pursuit of nuclear modernization, especially since it has a legacy of a stolen nuclear programme.

South Asia is one of the most populated regions of the world, with India and Pakistan alone accounting for about 1.35 billion people. Both countries have been bitter rivals since the partition of the subcontinent in 1947 that led to the creation of independent Pakistan and India. The two countries have fought two wars over Kashmir (1947, 1965), one over East Pakistan or Bangladesh (1971), one limited war (Kargil, 1999) and the ongoing insurgency in Kashmir (since 1989). The 2001-2002-crisis further highlighted the dangers of terrorist violence, provoking a conventional conflict that could lead to a nuclear crisis. Kashmir, which lies at the heart of the dispute, is more than a simple territorial problem. The problem should be looked into from multiple angles of territorial, religious and ideological realms. With regard to the perceived self-identities of both these nations, Kashmir is an integral part to them.

Since the 2001-2002-crisis, Islamabad and New Delhi have conducted several rounds of peace talks aimed at bringing a lasting settlement to the Kashmir issue. This
peace process has involved several confidence-building measures such as strengthening of transport links between the two countries. The two sides also signed a crucial agreement on reducing the risk of nuclear accidents in February 2007. Nevertheless, the key dispute, Kashmir, is nowhere near resolution. This implies that both New Delhi and Islamabad are more inclined toward strengthening existing military capabilities, both conventional and non-conventional, to prevent an unfavourable scenario in a future standoff. Amidst these co-operative movements, the fear of nuclear war, nuclear terrorism and accidents still raise security dilemma.

**Scope and Significance of the Study**

The atomic policy and programme have stirred up controversial and contradictory events in the international scene. On the one hand there is a significant role that the atomic energy plays in the advancement of mankind and on the world economy. On the other hand the devastation caused by atom bombs, like in Hiroshima and Nagasaki, projects the danger that could be caused by nuclear energy. The atom has become a highly significant source of energy and is expected to replace oil in future. The big powers attempt to maintain their monopoly of nuclear power because nuclear energy would serve them strategic and industrial interest. They are doing their utmost to prevent the developing countries from acquiring nuclear power on the pretext that the nuclear energy will be used for military purposes such as the production of nuclear weapons. Peace and security in South Asia have become the center of attraction after the nuclear tests conducted by India and Pakistan. In the context of the Khan Network, the international community is very closely observing the nuclear policy and doctrine of Pakistan. It is also important to note that, while the Pakistani economy faces retardation and the social conditions are pathetic, their military expenditure is steadily increasing.

The study will analyze the changing patterns of security dilemma in South Asia under nuclear competition. Nuclearization has transformed security dilemma in South Asia, giving rise to new and different types of fears. This is particularly significant as the theory of security dilemma suggests that any move by Pakistan to alter the existing balance of power will result in retaliation by India.
Review of the Literature

A large volume of literature exposes the security dimensions of nuclear South Asia. Tellis, Denmark and Tanner (2013); Chandran (2013), Chari (2013) and Shanker (2013) examine the nuclear stability factor in South Asia. Kapur (2011) and Dittmer (2005), deal with complex factors associated with nuclear security in South Asia. The study looks into the political economy of minimal deterrence and the power structure of South Asia several years after the 1998 nuclear explosions there. The work contains topics such as nuclear crisis stability, nuclear-related programmes and aspirations at sea, the Chinese assessment of a rising India after the 1998 nuclear tests, great power-involvement in the region, and the causes and consequences of nuclear development in South Asia. A distinctive feature of the study lies in its analysis of the relationship between nuclear development and economic monetization in the subcontinent. The questions of how economic development affects nuclear proliferation and how the acquisition of nuclear weapons affects development are explored. Sagan (2009) and (2004) gives a fresh insight to the domestic aspects and organizational interest in framing the nuclear policy. He also connects the security issues with ‘preventive war problems’.

Barsur (2008) analyses in particular, the Indo-Pakistan nuclear relation in comparison with the cold war period. The work attempts to identify the similarities and dissimilarities existing in nuclear South Asia. The geographical proximity and the role of non-state actors are two important aspects of difference, but crucial in South Asia. According to Barsur there were basically three crisis situations under the nuclear shadow in the sub-region. He also examines the success and survival of nuclear deterrence in the region. Narang (2009) and Tellis (2008) say that the problem of nuclear security in South Asia represents a very complex and difficult cluster of problems. They analyse the different levels and types of stabilities such as deterrence stability, nuclear and conventional stability, crisis stability, arms race stability and technical stability.

There are several scholarly works that give a very clear profile picture of the state of Pakistan, its nuclear programme and strategies. Paul (2014), Malik (2011), Shuja (2006) and Pandey (2005) trace the internal dynamics of Pakistan such as the
religious, military ethnic and ideological components of the state. Malik examines the key political choice taken by the political leaders for the political survival in Pakistan. Shuja argues that the religion has made greater impact on the statecraft, status and minority rights in Pakistan. He relates the security in Pakistan with the religion and militant Islam. To him 'the conflict over the issue of religion in politics and militant Islam is the main source of insecurity in Pakistan'. Jetly (2009) examines the political developments particularly of the period between September 11, 2001 and 2008. The book points out how military dominance, Islamic fundamentalism and ethnic conflicts hinder socio-economic and political development in Pakistan. The book also explains the geopolitical and strategic significance of Pakistan regionally as well as globally. Siddiqa (2007) shows how Pakistan's Generals possess a predominant place in the state. On an average, senior commanders of the Pakistan armed forces retire with legally acquired assets of between $ 2.5 and $ 6.9 million, depending on their rank. This shows the dominant status of military personnel in Pakistan. Soofia, Raine & Imran Anwar Ali (2005) address some of the major issues Pakistan is encountering. These include the historiography of partition, ongoing ethnic and sectarian violence and the democratic challenges. The socio-economic and political lives of the state are clearly depicted by the authors.

The formation of the Pakistani state and the identity factor is discussed by Talbot (2009, 2003 & 1998), Farzana (2009) and Ziring (2005). They analyse the role of Islam in the formation of the state. They also analyse the socio-economic and political life of Pakistan. Talbot finds that there is the predominance of the army, feudal lords and bureaucrats in the social and political spheres in the state. In his biographical work, If I am Assassinated, Ali Bhutto (1979) describes how military regimes overturned democratic and constitutional governments. The work gives a clear picture of the tug of war between the democratic institutions and the army. Kukreja (2003) and Burki (2004) examine the role of the military and the struggle for democracy in the state. They argue that military hegemony and authoritarianism in the state have been a challenge to democratic and constitutional development in Pakistan. Ahmed (2002) assesses the role of army, the working out of security and ideology and the socio-political life in Pakistan. The book is at once a theoretical and practical study on the delusions of nuclear deterrence in Indo-Pak relations. Albeit, the most
significant riding factor of nuclear capability of Pakistan is India, he regards the army and Islam did play a very vital role in the nuclear ambition. The presence of instability and insecurity in Pakistan is highlighted by Hussain (2008) and Bahadur (1998). They focus on the crises, conflicts, political and militant violence in the state.

Husain (2004) points out that the Pakistani economy is a developing one and at the same time faces many challenges. He regards that Pakistan was one of the few developing countries that had achieved an average growth rate of over 5 percent over a four-decade period ending 1988-89. Consequently, incidents of poverty had declined from 40 percent to 18 percent by the end of the 1980s. He analyzes the role of Pakistan in the geostrategic space as an important one in South Asia. ‘Pakistan is the second most populous Muslim-majority country in the world, and within a few decades will be the world’s fifth largest country. It is located at the strategic crossroads of Asia and the Middle East, and is adjacent to the Middle East’s vast oil fields and to some of the globe’s most sensitive sea lanes. It is a key player in the global war against terrorism, and itself a victim of terrorism.’ Ahmad (2004) analyses the role of Islamic economics in Pakistan. “As to the Pakistan situation, the concept of Islamic economics is an essential part of the very concept of Pakistan. The Objectives Resolution passed by the Constituent Assembly of Pakistan in 1949 and the Constitution of Pakistan contain essential elements of the vision of Islamic economics. Islamic economics, although rooted in the values, principles and commands contained in the Quran and Sunnah, is neither a branch of theology nor of law. It represents an approach to the fundamental questions of economics i.e., what is to be produced, how is it to be shared, and what is to be the shape of final consumption in a society?’ Wolfgang and Zingal (2000) point out that a smaller country would enhance its military strength to create parity with other countries, which is stronger in other realms, may be economically. Hence the balance of power may be maintained in such ways. Still, ‘if a smaller country is not aiming at defence parity, it would lose out on economic growth.’

Pattnayik (2003) explains Pakistan’s nuclear strategy in the context of security threat, to create a parity with India and to take the issue to the international community. Zulkar Ali Bhuto said that, “If India developed atom bomb, we too will develop one. It is because there is no conventional alternative to the atomic bomb.”
Smruti identifies two aspects with this statement—*one linkage to India and the other the emphasis on atom bomb as the ultimate weapon*. Scher (2004) analyses the fear factors of the nuclear programme by Pakistan and the internal dynamics that influences the nuclear strategy. He expresses the fear of poor control mechanism of Pakistan nuclear arsenals in the backdrop of the political instability and insecurity existing in the state.

Subramaniam (1986) analyses the role of foreign assistance in evolution of Pakistan as a nuclear power. He remarks that until the close of 1970s Pakistan was getting heavy water from the United States and fuel rods from Canada. Pakistan nuclear weapon design group known as the 'Wah Group' also gets assistance from China. Pakistan is reported to have received weapons designed by Chinese.

Albright (2001) views that Pakistan's deteriorating economic situation would make the first-use policy more attractive. He argues that Pakistan had to make huge investment in strengthening its conventional forces so as to compete with India. But the nuclear weapon with its massive striking capability require a few and economically viable. So the nuclear weapon was economically advantageous to Pakistan. He also points out that the financial assistance from the Gulf countries helped Pakistan in its nuclear weapon programme. Wolfgang and Zingal (2000) explain the arms race in South Asia from an economic perspective. They explain how the economic cost of military development affects the national economy. This is a comparative analysis of the economic burden on the two South Asian nuclear powers.

Wilson and Robert (2004) observe the two views on the command and control of the nuclear weapons that ‘nuclear weapons are controlled by military organizations and civilian bureaucracies, not by states or by statesmen. Organization theory, not just deterrence theory, should therefore be used to understand the problem and predict the future of security in the region’. The paper also analyzes the nuclear safety measures. There are four requirements for stable nuclear deterrence: prevention of preventive war during periods of transition when one side has a temporary advantage; the development of survivable second-strike forces; the avoidance of accidental nuclear war; and finally the ability to keep nuclear weapons out of the hands of terrorists.
Ali (2007) analyzes the various arguments for and against the possibility of nuclear terrorism and other nuclear accidents in Pakistan. He expresses the suspicion raised by the western states about the vulnerability of nuclear weapons to non-state actors. About the command and control of nuclear weapons in Pakistan he says, Pakistan Nuclear Regulating Authority (PNRA) controls regulates and supervises all matters related to nuclear safety. Augustus, Norton and Martin (1979) discuss the possibilities of non-state actors occupying nuclear arsenals. They regard the political conditions of the regimes possessing nuclear weapon as the crucial factor causing nuclear terrorism. Kucibhotla and Mckinzie (2005) view the insecurity and instability in the form of illicit nuclear trade, nuclear terrorism and theft of nuclear weapons. They point out that there is always a possibility for nuclear accidents in South Asia especially for nuclear terrorism.

Sreedhar (2003) assesses the role of non-state actors in Pakistan. The militant groups challenge the international security, raising issues like cross border terrorism, especially those that are state sponsored. The work explains the agenda of Pakistan in supporting the US after September 11, such as its safety, future economic benefits and the support in Kashmir demand. Also he analyses the attitude of the state towards terrorist and non-state actors. Cortright and Lopez (2002) address the issue of nuclear terrorism. The book explores the intentions and capabilities of militant groups particularly Al Quida in acquiring nuclear weapons. Analysing the most vulnerable locations of nuclear terrorism, they consider Pakistan as the most suitable place for Al Quida to attain nuclear weapons. This is because of the overwhelming role of terrorists in the country and the poor command control of the nuclear materials in the state.

Sreedhar (1986) explains the nuclear weapon development programme of Pakistan in detail. To him Pakistan had to undergo multifaceted problems during the course of its nuclear development. The book reveals the status of Pakistan’s nuclear production and capabilities up to the 1990s. Jones (2002) gives a detailed study on the Pakistani nuclear programme. The book exposes the history of nuclear development in Pakistan. Jones finds that it was the inefficiency of the then nuclear club that actually helped Pakistan to develop the weapon. The work further explores Pakistan’s nuclear doctrine and its implications for South Asia, especially the functioning of nuclear deterrence in the region.
Matinuddin (2004) explores the nuclear weapon programme of Pakistan. Mohammad Ayub Khan, Zia Ul Huq, Z. A. Bhutto and other personalities of Pakistan have greatly contributed to the nuclear weapon programme. Barnaby (1993) explores the causes and course of Pakistan’s nuclear programme. He finds that a peaceful nuclear programme was diverted to military nuclear programme. The book highlights the secrecy Pakistan maintained in its nuclear weapon production.

A vast array of books and literary sources contain various dimensions of nuclear weapons and strategies, as well as the different theories and concepts associated with it. Alagappa (2009) discusses various aspects of nuclear strategies. According to him limited war is likely to take place under the shadow of the nuclear umbrella. In his opinion nuclear weapons would provide for strategies like deterrence, compellence and coercive diplomacy. He analyses the strategic importance of nuclear weapon in the South Asian under the backdrop of India Pakistan conflicts.

Sagan and Waltz (2003) discuss the reason for spread of nuclear weapons and its implications. Waltz regards the spread of weapon as good from the perspective of nuclear deterrence. They argue that the nuclear weapon, particularly due to its massive striking capability, would attract more nations to occupy nuclear weapon. Behera and Joseph (2004) analyse the changes in the strategic environment in the sub-region. The book makes an enquiry into the strategic advantage that Pakistan would make. Moreover, the nuclear weapon capability has enhanced the autonomy of decision-making despite its economic vulnerability. Cirincione (2007) makes an inquisitive study about the cause and impact of nuclear weapon development. He finds out mainly five drivers and five barriers of nuclear weapon construction, and also looks into how nation states overcome these barriers. Further he describes the motivating factors of Pakistani nuclear weapon production.

Gray (2006) explains the concept of nuclear strategy in the book. The book analyses various nuclear strategies and the nuclear risk involved in each. Also he considers M A D (Mutually Assured Destruction) as the basis of the strategy of deterrence. Alam (2001) exposes various strategic implications of nuclear South Asia in his work. He expects unstable deterrence, regional strategic action against Pakistan and further weakening of non proliferation as the consequences of Pakistan’s nuclear
weapon power to follow. Ran N. (2008) sketches out the strategic scene immediately after the nuclear test in South Asia. Quoting General Parvez Musharaf, he says the nuclear weapon capability has brought Pakistan in an equilibrium position. Pakistan is not talking to India from a weak position. The book explains the strategic calculus of nuclear Pakistan.

Nilsson (2012) argues that security dilemma and the risk of war is very severe under offence dominant areas. The work makes a detailed study on the offence-defence strategies and security dilemma in the contemporary world. Tang (2009) & Tailaferro (2008) provide a fresh insight to the concept of security dilemma. Tang analyses the prospects of the theory of security dilemma in nuclear world of the future. Tailaferro outlines the cause-course-effect of security dilemma in the background of offence-defence balance. Snyder (1984) traces the reason for security dilemma and how the attempt by nation states put them in vicious cycle of insecurity. Wheeler and Booth (2002) comment that security dilemma is an exemplary and core aspect in the theory and practice of international politics. They view security dilemma as being comprised of dilemmas of interpretations and response. Posen (1993) and Jervis (1979) explain security dilemma in terms of action and response. To them, the attempt of a state to enhance its security causes reaction from another state and makes both less secure. Morgan (2007) and Wendt (1992) explore the conditions of security dilemma and place the anarchic condition of the world as the root cause of it. Gilchrist (2008) and Ahmed (2005) relate the concept of security dilemma with Pakistan’s nuclear programme. They regard security dilemma faced by Pakistan is due to Indian nuclear as well as conventional power. The Pakistani perception that by achieving nuclear capability they can enhance their security forced them to construction of nuclear weapon.

Research Questions

1) How does the nuclear programme affect the strategic and security scenarios in South Asia?
2) How do the internal and external dynamics influence Pakistan to go nuclear?
3) What are the characteristics of the sub-continental rivalry that make nuclear proliferation in South Asia such a crucial security issue?
4) How far is the nuclear doctrine of Pakistan reliable? What will be the strategic effects of these nuclear weapons developments?

5) How does the foreign assistance influence nuclear programme by Pakistan?

6) How will the nuclear programme help Pakistan to so meet its future energy needs?

7) Is there any possibility of nuclear terrorism emanating from Pakistan?

Objectives of the Study

1) To analyze the impact of nuclear programme on the political-economy of Pakistan

2) To study the Indian factor in the nuclear programme by Pakistan

3) To analyze the internal and external dynamics of the nuclear programme by Pakistan

4) To examine whether poor economic growth compels Pakistan to prolong or abandon its nuclear programme

6) To explore the new threats and fears that Pakistani nuclear weapon programme would bring forth

7) To find out the working of nuclear deterrence in South Asia

Hypotheses

1) Pakistan’s nuclear programme was to respond the Indian nuclear power.

2) Foreign assistance, both capital and technology is essential for Pakistan to run its nuclear programme

3) The internal dynamics of Pakistan induced it to go nuclear

4) Security benefits superseded the economic cost of the nuclear programme of Pakistan.

5) Pakistan’s nuclear weapon programme caused security dilemma of new forms and types.

6) Political instability and lack of transparency in Pakistan’s nuclear doctrine poses serious strategic challenges to the South Asian region, particularly to India.
Methodology

The study on the topic is carried out by a historical analysis of the influence of nuclear programme in international relations, the nuclear development programme of Pakistan and the economic problems associated with it. Scientific methods and tools are used to study the nuclear technology, capabilities and strategies of Pakistan. An interdisciplinary approach is made to study the economic, social and strategic dimensions of the nuclear crisis. Interviews and discussions with scholars on the topic are carried out. A comparative approach is made to analyse various security threats originating from Pakistan’s nuclear weapons. Various statistical tools are used to analyze the political economy dimensions of the Pakistan nuclear programme. The method of deductive reasoning is applied to study the problem and to draw the inferences.

Chapter Scheme

The study is divided into six chapters. The first chapter, Nuclear Weapon: Theoretical and Conceptual Analysis, attempts to give a theoretical foundation to the study. The chapter explores various dimensions of nuclear weapon in the background of different theories and eventually focuses on the theory of security dilemma. The second chapter, Strategic Dimensions of Nuclear South Asia, provides the geo-strategical and political sketch of South Asia. The chapter further examines the security predicament, balance of power status and shifts in the security perception after the advent of nuclear weapon in the region. The third chapter, State, Society and Economy of Pakistan – A profile, is a brief account of the nature of the state and political economy of Pakistan. It analyses the last 69 years of socio-economic and political life of Pakistan. Further, it traces the instability and insecurity factor and internal dynamics particularly the role of military, Islam and ethnic groups in Pakistan. The fourth chapter, Evolution of Pakistan’s Nuclear Programme, is an inquisitive study on the cause and course of nuclear Programme of Pakistan. The chapter contains the historical development of the nuclear programme answering two basic questions related to the nuclear programme. – Why Pakistan developed the nuclear weapon? and How it developed the bomb? The Fifth chapter, Nuclear Policy and Doctrine- the Command, Control Challenges, principally examines the
operational side of the nuclear programme. It makes a detailed study on the nuclear policy, doctrine and command control system that primarily affect the safety and security of the nuclear programme. The sixth and final chapter, Nuclear Pakistan: Issues and challenges in the New Century attempts to explore the expected security threat emanating from nuclear Pakistan in the background of the theory of security dilemma. It attempts to answer why Pakistan is considered as major source of security dilemma. It also contains a brief description about the impact the nuclear weapon programme on the economy of Pakistan and how it would affect in the future.

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Effect of a Korean nuclear detonation on Pakistan’s nuclear posture. If the nuclear taboo was broken either by North Korea or the United States, nuclear weapons would likely not minimize in significance in Pakistan’s national security policy. Indeed, it might further strengthen the justification for its first-use nuclear doctrine. A first use posture has significant stability implications for India-Pakistan relations as the strategy embraces the use of preemptive, counterforce strikes on Pakistani nuclear assets. Two, the change in India’s posture would increase nuclear risk on the subcontinent by forcing both the states to increase nuclear readiness by mating warheads to delivery systems, and thus increasing the chances of a nuclear exchange or accidental nuclear detonation. Pakistan’s nuclear arsenal probably consists of approximately 110-130 nuclear warheads, although it could have more. Islamabad is producing fissile material, adding to related production facilities, and deploying additional nuclear weapons and new types of delivery vehicles. Pakistan’s nuclear arsenal is widely regarded as designed to dissuade India from taking military action against Pakistan, but Islamabad’s expansion of its nuclear arsenal, development of new types of nuclear weapons, and adoption of a doctrine called “full spectrum deterrence” have led some observers to express concern about Pakistan's first nuclear reactor was established with help from the United States in 1965 during the regime of military dictator Gen Ayub Khan. Gen Khan's protege and then foreign minister, Zulfiqar Ali Bhutto, was the driving force behind the programme, which was based at Nilore near Islamabad. It was set up under the Atoms for Peace programme initiated by President Dwight D Eisenhower. At the time it was strictly peaceful and intended to help meet Pakistan's civilian energy needs under the supervision of the International Atomic Energy Agency. A few years later Zulfiqar Ali Bh