CHAPTER VI : CONCLUSION

This chapter presents the summary of concluding observations and the findings of the study. Further the limitations and scope of the study with some possible directions for further research have also been brought out.
Chapter VI

Conclusion

The history of missile race and proliferation is as old as nuclear weapons themselves. Several global efforts towards ensuring a world free from nuclear weapons seem to be a mirage. The nuclear weapons states have taken a number of initiatives to ban nuclear test, prevent nuclear proliferation, cease missile race and eliminate nuclear weapons in the process. However, this seems to be a distant probability, in view of the differences in perception and approach by nation states on this as could be seen in the case of India and Pakistan. The issue of nuclear missile proliferation and non-proliferation acquired a new momentum in the post-cold war era in view of India acquiring a range of capabilities in nuclear technology, and Pakistan bent upon matching India’s missile capabilities. In the South Asian context, regional security is patterned by the intense missile rivalry between the two countries. The motivated endeavour of Pakistan to match India in all spheres, more so militarily, reveals the basis of the security dynamics. The South Asian security complex is represented by the dynamics characterised by intense competition, rivalry and missile race, principally India-Pakistan. Since missile race and arms rivalry is often a product of a ‘security dilemma’ as discussed in the international relations literature three core research questions were framed, namely:

a) Is there an enduring Missile Race and Missile Rivalry between India and Pakistan?

b) What factors drive India-Pakistan missile race and rivalry?

c) What are the strategic implications of such a missile race and missile rivalry on both the countries in general, and South Asia in particular?

To answer the above research questions, the following hypotheses were formulated.

H 1 There is an enduring missile arms race and missile rivalry between India and Pakistan.

H 2 The divergence in India and Pakistan missile development and testing can be seen as a result of change in the national security orientation towards each other and the perceived credibility gaps in deterrence. In addition, strategic, security and political variables are also driving India-Pakistan missile race and rivalry.
The impending race in missiles is fraught with increasing uncertainties and asymmetries, for both the countries are not sure of touching the finish line or the end line in the race.

The foregoing pages, it is hoped, make it clear that the motivations that drive India-Pakistan missile race are not only the security considerations. The complexity of India’s economic, political and security environment determines that there are many attributing factors to this missile race and rivalry between the two countries. Further, the "complex dynamic" in missile acquisitions is primed by different threats -- Pakistan fears India, India feels threatened by Pakistan and the Pakistan-China nexus, and China feels the need to match the United States. This circle cannot be squared. These "missile races" will therefore, continue in the years to come with their own resultant implications for South Asia in general, and India and Pakistan in particular.

To understand the intensity and implications of the impending missile race it is imperative to theorize missile proliferation, missile race, missile rivalry and the various types and classification of missiles, and the latest advances in the area of missile technology and missilery under development. Chapter II therefore offers theoretical perspectives relating to the area of research for better understanding. The findings of this chapter are summarised below. The study also confirms the significance of the theorizing nuclear missile race and the related concepts pertaining to the area of research. There have been many positive developments in the past decade, as new theories have been developed and scholars have increasingly used multiple methods to test their theories. Despite this progress, however, the new quantitative and qualitative research on the causes of proliferation has been limited by the information available on the very small number of cases of nuclear weapons proliferation.

Indeed, there is a deep and abiding uncertainty about the basic data on which states have sought nuclear weapons, and when they started and ended their programs. We must therefore improve on the historical proliferation of data sets, and yet, given the secrecy surrounding nuclear programs, some uncertainties are likely to remain.
Theorizing Nuclear Missile Proliferation and Non-Proliferation

Conceptual Issues

Considerable attention has been paid to the theoretical aspects of nuclear missile proliferation. One question that has provoked concerted interest is what constitutes nuclear missile proliferation: does it refer to a single decision to acquire a nuclear weapon or is it part of a process that may stretch over several years and consequently no single identifiable factor can be located. Research on ‘the proliferation puzzle’ has thus embraced an increasingly complex array of variables and conceptual issues that need to be understood.

Nuclear Motivations

Traditional analysis of the motivations for nuclear missile proliferation has tended to focus at the state and inter-state levels. For much of the post-second World War period, the pattern of nuclear weapons and missile acquisitions established by the five acknowledged Nuclear Weapons States (NWS) was considered to be the one most likely to be followed by any future proliferating state. Therefore the analysis of the motivational aspect consequently focussed on the strategic, political, and prestige rationales that led these states to seek nuclear weapons and nuclear missiles.

The strategic motivation focused on the role that nuclear weapons and missiles played in the context of the Second World War and its immediate aftermath, when initially they were seen as war-fighting or war-winning weapons. Later, attention shifted to the role that nuclear weapons and missiles played in deterrence, leading to the assumption that one of the principal motivations for acquisition was as a deterrence for other nuclear weapons-capable states. Similarly, the political and prestige benefits that nuclear weapons and missiles conferred on those states with the wherewithal to manufacture them, were also deemed significant. Thus, it could be predicted that any new nuclear state would pursue a dedicated military nuclear programme, conduct an overt nuclear test, produce a stockpile of weapons and missiles, and finally acquire an effective means of delivery of the weapons to their target. While this explanation of the acquisition process and the motivations for embarking on a nuclear weapon programme is still relevant, over time the understanding of the dynamics of nuclear missile proliferation has become increasingly more complex. And hence to offer any reason for nuclear missile proliferation to a single variable would be untenable.
Therefore it is necessary to consider a range of factors that may influence nuclear weapons/missile acquisitions. These may include: traditional technological factors, the availability of nuclear technology, and a cadre of trained nuclear scientists who encourage acquisition; domestic politics, imperatives within a political party, or the domestic political situation or a change in strategic circumstances may propel a state towards nuclear weapons; diplomatic bargaining, that acquisition of a nuclear capability can be used to influence or bargain politically or economically with both perceived allies and enemies; and non-intervention, that a nuclear capability can deter or prevent intervention by other states.

A number of states have the potential to manufacture nuclear weapons if they wanted, and a few actually embarked on military nuclear programmes before abandoning them. A second nuclear age has emerged and this raises new future risks for nuclear missile proliferation in the world in general and South Asia in particular. Understanding the complexities of missile proliferation in the post-cold war era in South Asia cannot be justified by mere acknowledgement of India and Pakistan as the parties to this emerging missile race and rivalry.

The study found that states are investing in missiles and in the underlying skills and technologies to improve them, because missiles are effective and efficient weapons capable of meeting a range of national security missions. Over 25 nations have ballistic missile capabilities today. Even though the aggregate number of missiles may be low relative to the cold war, statistics shows that reductions by the superpowers is over shadowed by the growth of missiles observed elsewhere in the world. The expansion of missile arsenals and the diverse uses contemplated for these arsenals explains the growing interest in missile technology and missile defences that are becoming commonplace. Nowhere is this transformation better seen than in Asia.

As ballistic missile arsenals grow in size, variants and sophistication, nations throughout Asia are investing in the development of defences too, to counter those threats. Ballistic missile defence (BMD) programs run from Japan and South Korea in the north through Taiwan, south to Australia, then west to India into the Gulf States, including Israel, and ending in Turkey. Also included are Russia and China. For nuclear-armed states, this situation places a premium on securing nuclear weapons assets against surprise attack. It also raises first-order questions about nuclear escalation, which brings us to the second reason more missiles in more hands is a major worry: these missiles can act as conventional catalysts for nuclear war.
Increasingly, with precision guidance and sub munitions technologies, it is possible to destroy targets that once required nuclear weapons - e.g., large air strips and air fields, command centres, naval ports, and moving surface ships - with a handful of conventionally armed missiles instead. This has raised the prospect of states being able to knock out a significant portion of an opponent’s key military forces without having to use nuclear weapons. The good news is that this scenario makes the initial use of nuclear weapons far less likely. The bad news is that with enough precision guidance capabilities, a state might be tempted to initiate combat in the expectation of winning without ever having to go nuclear, and end up miscalculating fatally.

The missile threat is increasing both quantitatively and qualitatively, and is likely to continue to do so over the next decade. Current global trends indicate that ballistic missile systems are becoming more flexible, mobile, reliable, survivable and accurate, while also increasing in range. Accentuated by the spread of technology, further maturation of indigenous capabilities, and the deepening of experiential knowledge that comes with the design, construction, and testing of ballistic missile systems, the ballistic missile is a fixture of modern arsenals and will remain so for years to come. Missiles are attractive to many nations because they can be used effectively with a formidable air defence system, where an attack with manned aircraft would be impractical or too costly. In addition, missiles can be used as a deterrent or an instrument of coercion. Missiles also have the advantage of lesser maintenance, training and logistic requirements over manned aircraft. Even limited use of these weapons could be devastating, because missiles could be armed with chemical, biological or nuclear warheads as well.

In view of the strategic importance of these missile trends, Chapter III and Chapter IV discuss in detail the nuclear programmes of India and Pakistan and the development of different missile variants, the diversity and composition of their missile inventory. Both these chapters also focus on the motivations, compulsions, strategic interests and their respective nuclear postures. Nuclear proliferation and missile competition in South Asia have many dimensions, and therefore Chapter V makes a strategic assessment of the missile race and the emerging implications arising out of the enduring race and rivalry. India-Pakistan missile race remains crucial in the South Asian regional security calculus. This complex scenario seems to arise out of the difference in perception and approach to key nuclear issues and missile race, and the intense rivalry between the two countries as explained in Chapter V. The summary of the findings of Chapters III, IV and V are given below.
Existing and Potential Missile Competitions

The missile competitions and rivalries among India, China and Pakistan are complex: each country’s missile force architecture is based on its own threat perception. China has global aspirations, and the United States is its main rival and potential adversary. If China builds a capability sufficient for its objectives against the United States, then that capability will also be sufficient for it to deal with its lesser threats. China does not compete with India directly; it does this obliquely, by regulating the flow of strategic arms and material to Pakistan. India’s ambitions are less grandiose, and limited to maintaining an adequate defence capability against its hostile northern and western neighbours. The threat posed by China is the main driver that determines India’s missile force architecture, in addition to Pakistan. An area of doubt is the quantitative interpretation of India’s aim for a credible minimum deterrent. Pakistan’s view is focused on India’s capability; it aspires to build-up its missile force to equal India’s. As India seeks to balance its capability with China, Pakistan perceives an imbalance in relation to India and acts to rectify it.

China and Pakistan are allied against India for strategic, if not military, purposes; this unusual triangle is not a stable one, with two sides pitted against the third. And therefore the missile competition in South Asia is worrisome, because conditions are so different that harking back to history is of little benefit. Thus, the biggest risk in the India-Pakistan context is an accidental, mistaken, or unauthorized missile launch, or the evaluation of an incoming conventional missile as a nuclear attack or the precursor of one. With a long common border and its geographic characteristics, Pakistan may choose to disperse its missiles widely, and the operational preference would be for delegative rather than assertive control. Pakistani statements emphasise that the country’s nuclear weapons are its great equalizer, and that they will be brought into use in a critical situation. Over time, this military teaching can erode the inhibitive element and condition the authorized commander to err on the side of aggression.

The first nuclear age that began in 1945 with the American possession of nuclear weapons has ended and we now live in a new nuclear era — the Second Nuclear Age. However, India’s and Pakistan’s overt nuclear tests in May 1998 marked the actual beginning of the new nuclear era. While the second nuclear age can be understood by a conspicuous absence of awesome superpower nuclear rivalry, beyond that, there is less certainty about the new nuclear era. Indeed, its defining
features are yet to take a definite shape except, perhaps, that regional nuclear rivalries are an important feature of the new nuclear age. More proliferation of nuclear weapons in the coming years is all but certain, and regional nuclear issues are likely to remain, at least in the foreseeable future, as important factors in the nuclear politics of the second nuclear age. The key difference between the first and second nuclear age is that while in the first nuclear age, regional nuclear issues were smothered by the awesome superpower strategic rivalry, in the second nuclear age they dramatically ascended to strategic significance and have emerged as important factors in the global security agenda.

South Asia is generally considered to be a nuclear flashpoint and the implications of South Asia’s nuclear tests for global nuclear proliferation are formidable. Also alarming is the possibility that these weapons may fall into the hands of terrorists; the likelihood of this is greater in the second nuclear age than at any time in history. These examples highlight the significance of horizontal nuclear proliferation and regional nuclear issues in the contemporary global security structure. Pakistan is one of the most critical cases of nuclear proliferation in the second nuclear age. It is a recipient as well as a provider of nuclear technology and expertise through clandestine means, which makes it a critical case in the problem of nuclear weapons proliferation. Pakistan is also an example of the dimensions of the network-centric, as well as the state-centric, proliferation problem. The implications of Pakistan’s nuclear proliferation are far-reaching and long-term. Therefore, the insights and lessons that Pakistan presents about the problem of nuclear weapons proliferation are invaluable for theory-building, as well as for policy-making.

The A.Q. Khan network integrated the erstwhile fragmented sources of proliferation into an integrated whole and turned itself into a ‘globalized supply chain’; it helped to make nuclear technology, expertise, and production capabilities more globalized and diffused. It shortened the time frame for building nuclear weapons. Another critical implication of the Khan network is that it showed the means and sources by which dissatisfied small states in the second nuclear era could pursue a clandestine nuclear weapons programme. Indeed, the Khan network has made network-centric nuclear weapons proliferation a central problem in the prevention of the proliferation of nuclear weapons. More critically, the implications and legacy of the Khan network will be long-term, given that the black market networks, courtesy of the Khan network, have acquired lives of their own, and will continue to challenge the efforts of the international community to stop nuclear
weapons proliferation in the years to come. Further, the Khan network has exposed the limits of the effectiveness of the global non-proliferation regime and the existing global mechanisms to prevent the proliferation of nuclear weapons. It has also exposed the limits of supply cartels, and the supply-side approach of the West to tackling the problem of nuclear weapons proliferation. The ability of the supply cartels and the global non-proliferation regime will continue to erode as technology diffuses through globalization, and as black market networks exploit this global situation.

Therefore Pakistan as a real and small nuclear weapons state in the second nuclear age presents interesting insights about the management of nuclear weapons, the decision-making process and the nuclear strategy, that may have significant implications for understanding the dynamics of nuclear politics, as well as the evolving structure of a new nuclear era. Pakistan offers crucial lessons which are not clearly understood or expressed, as a horizontal proliferator and as the second state - after India - to have carried out nuclear tests after the conclusion of the Non-Proliferation Treaty (NPT).

For one thing, the nuclear tests of Pakistan (and India as well) and its emergence as an overt nuclear power have made a substantive impact on global nuclear politics. The nuclear order based on the NPT began to crack, and the legal and normative foundation of the Treaty was substantially weakened as a result of the South Asian nuclear tests. The impact of these tests on the system of abstinence was particularly significant because they damaged the NPT politically, and impaired the NPT-centred global non-proliferation norm. Hence, the policies of the de facto nuclear weapons states, including Pakistan, will have a significant bearing on the global non-proliferation politics and the efficacy of the global non-proliferation regime in the years to come. How Pakistan will behave with its nuclear weapons and what nuclear posture it will undertake is uncertain. The dilemmas and challenges that Pakistan confronts have significant implications for understanding the dynamics of nuclear politics in the second nuclear age as other regional, small nuclear powers may face similar challenges and strategic dilemmas. The legacy of A. Q. Khan’s activities, and the nuclear technology and materials proliferation from Pakistani sources will continue to haunt the global proliferation control managers and regimes for years to come. The network-centric nuclear proliferation will be an important aspect of nuclear politics in the second nuclear age. As Pakistan’s political order remains in disarray and its future stability is in doubt and uncertain, questions arise about its
ability to safeguard the country’s nuclear assets, and further the possibility of more nuclear proliferation from Pakistani sources, while the likelihood of these weapons falling into ‘wrong hands’ cannot be completely ruled out. Pakistan’s strategic collaboration with North Korea highlights the rise of a novel proliferation phenomenon which may have profound implications for the control of nuclear proliferation in the years to come. There are credible circumstantial indications of a missile and nuclear technology swap between Pakistan and North Korea. Collaboration between second-tier nuclear and missile proliferators has made the traditional supply-side approach of preventing nuclear proliferation mostly redundant. Therefore, Pakistan not only contributed to the rise of the network-centric proliferation problem, it also is a case of a (second-tier) state-centric proliferator. Strategic collaboration between second-tier proliferators may be more widespread in the coming years.

The Pakistani approach to the NPT has significant implications for the activeness and the future of the global non-proliferation regime and, by implication, the international community’s efforts to control the proliferation of nuclear weapons in the second nuclear age. From the very beginning some non-signatories, such as Israel, India and Pakistan, have posed the most critical challenge to the effectiveness, and even survival, of the global regime, and it is the non-signatories who would eventually put the NPT in a state of crisis after the demise of the first nuclear age. In the coming years, Pakistan’s policy approach toward the global regime will be significant because the policy Pakistan (and other non-signatories) pursues will largely define the effectiveness of the global non-proliferation regime.

The political future of a nuclear-armed Pakistan remains uncertain. Its democratic institutions are fragile, political culture is very divisive, and serious concerns remain regarding the internal stability and cohesion of the country. No doubt Pakistan’s nuclear policy will certainly be shaped by India’s nuclear posture and stance. A crucial challenge to Pakistan’s strategic viability derives from its ability to manage the tendency to be involved in arms races with India. By implication this means that Pakistan will have to continuously struggle to maintain the credibility of its nuclear deterrent against the bigger adversary. In reality Pakistan would be naturally drawn into the Sino-Indian strategic rivalry and/or arms race. The management of an arms competition with India will remain a key challenge for Pakistan in the years to come. Indeed, how Pakistan rises to this challenge will be
important to the maintenance of its future strategic viability. Another major trend noticed in the missile race is the inevitable tit-for-tat syndrome.

The Inevitable Action-reaction Cycle/Tit-for-tat Syndrome

Pakistan uncovered its nuclear veil by carrying out six nuclear tests on 28 and 30 May 1998 in a ‘tit-for-tat’ fashion and a series of missile tests thereafter, in response to Indian nuclear tests and missile testing. After the Indian tests it was a foregone conclusion that Pakistan would follow suit, validating its long-pursued India-oriented nuclear posture. The Indian nuclear tests created a tremendous strategic pressure on Pakistan to follow suit in order to establish deterrence credibility. It also triggered a vigorous domestic nuclear policy debate. Although in the next two weeks Pakistanis debated what should be the nature of Pakistan's response, the country finally followed a past pattern, and conducted six reactive nuclear tests.

The ‘tit-for-tat’ tests proved that Pakistan had persistently, albeit clandestinely, worked to acquire nuclear weapons capability over the years, since the decision to build nuclear weapons had been taken in the early 1970s. Despite formidable constraints from both internal sources - resource scarcity, lack of necessary infrastructure - and from external sources - opposition from Western countries and strict nuclear export control - Pakistan was determined to acquire nuclear weapons capability. In Islamabad’s view, nuclear capability constituted the most effective way to ensure the survival of Pakistan.

Factors affecting Pakistan’s evolving nuclear posture

There are three sets of factors emanating from regional, international, and domestic sources that have influenced, and will continue to affect, Pakistan's nuclear posture. They are: (1) the perceived level of the Indian threat and the requirements for maintaining a robust minimum nuclear deterrent capability vis-à-vis India; (2) the external pressure deriving from the global non-proliferation regime and the key systemic players such as the US to limit or roll back Pakistan's nuclear deterrent; and (3) the internal dynamics and configuration of domestic political forces and the ability to generate resources for the nuclear programme.

Nuclear Control in India

The National Command Authority (NCA) is in charge of India’s nuclear deterrent. At its apex is the Political Council which is headed by the Prime Minister
and includes all ministerial members of the Cabinet Committee on Security such as the Ministers of Defence, Home and External Affairs. Below the Political Council is the Executive Council which is headed by the National Security Adviser and includes the Chiefs of the three armed forces, the C-in-C of India’s Strategic Forces Command and a three-star officer, among others. There is an alternative NCA which would take up the functions of the nuclear command in case of any contingency when the established hierarchy is rendered dysfunctional. The NCA has access to the radiation-hardened and fully secured communications systems where, too, redundancies have been put in place as back-up facilities.

In order to support the NCA, a Strategy Programme Staff has been created in the National Security Council Secretariat to carry out general staff work for the NCA. This unit is charged with looking at the reliability and quality of our weapons and delivery systems, collate intelligence on other nuclear weapon states, particularly those in the category of potential adversaries, and work on a perspective plan for India’s nuclear deterrent in accordance with a 10-year cycle. The Strategy Programme Staff has representatives from the three services, science and technology establishments, and experts from other related domains, including External Affairs. A Strategic Armament Safety Authority has been set up to review and update storage and transfer procedures for nuclear armaments, including the submarine-based component. It will be responsible for all matters relating to the safety and security of our nuclear and delivery assets at all locations. This will function under the direct authority of the NCA. The NCA works on a two-person rule for access to armaments and delivery systems.

Thus if we look at the current status of India’s nuclear deterrent and its command and control system, it is clear that at least two legs of the triad referred to in our nuclear doctrine are already in place. These include a modest arsenal, nuclear capable aircraft and missiles both in fixed underground silos as well as those which are mounted on mobile rail and road based platforms. These land-based missiles include both Agni-II (1,500 km) as well as Agni-III (2,500 km) missiles. The range and accuracy of further versions, for example Agni-V (5,000 km) that was tested successfully only recently, will improve with the acquisition of further technological capability and experience. The third leg of the triad, which is submarine based, is admittedly a work in progress. We need at least three Arihant class nuclear submarines so that at least one will always be at sea. Submarine-based missiles systems have been developed and tested in the form of the Sagarika but these are still
relatively short in range. It is expected that a modest sea-based deterrence will be in place by 2015 or 2016. There is also a major R&D programme which has been in place since 2005 for the development of a new, longer range and more accurate generation of submarine-based missiles which are likely to be ready for deployment around 2020.

Nuclear Control in Pakistan

The Strategic Planning Group is in charge of Pakistan’s nuclear assets, and it ensures the safety and security of these weapons. However among nuclear-weapon states today, Pakistan is the only country where nuclear assets are under the command and control of the military and it is the military’s perceptions and ambitions which govern the development, deployment and use of these weapons. This is a dangerous situation precisely because the military’s perceptions are not fully anchored in a larger national political and economic narrative. The pursuit of a more powerful, effective and sophisticated nuclear arsenal, dictated by the military, may run parallel to a steadily deteriorating political, social and economic environment.

India’s Nuclear Doctrine

India’s strategic interests require effective nuclear deterrence and therefore India needs to maintain

- Sufficient, survivable and operationally prepared nuclear forces
- A robust command and control system
- Effective intelligence and early warning capabilities
- Comprehensive planning and training for operations in line with the strategy
- The will to employ nuclear forces and weapons

India and Pakistan’s Nuclear Doctrines

- The nuclear doctrine of India was perhaps the first of its kind among the known nuclear weapon states of the world. India prepared the expansive nuclear doctrine document before obtaining the capability mentioned in it. This draft, with minor alterations, effectively became India's nuclear doctrine on January 4, 2003 when the Cabinet Committee on Security Affairs (CSA) reviewed the operationalization of India's nuclear doctrine.
• India’s strategic perspective for its nuclear doctrine encompasses wider latitude than South Asia in keeping with its strategic potential.

• Pakistan's perspective and approach is India centric.

• India proclaims "no-first-use' as a matter of principle. Pakistan is averse to it and is disinclined to give any such guarantees, feeling that a bland ‘no-first-use’ policy invalidates its deterrence advantage against India.

• India’s nuclear weapons system will be "TRIAD" (land based ballistic missiles, sea based assets and air borne platforms). Pakistan’s current capacity in this regard is limited to land based and aircraft delivery systems.

• India and Pakistan’s nuclear doctrines emphasize a 'credible minimum deterrent.' However, Pakistan’s capabilities in this direction need to be evaluated in proper perspective.

• India has revised its nuclear doctrine in 2003 by including any chemical, biological and nuclear attack on its territory to be responded to through massive nuclear retaliation. Pakistan has not made any such specific formulations so far.

• India’s nuclear arsenal will be under civil political control at all times. Pakistani’s nuclear arsenal is under a fragile civilian leadership and will remain to be under de-facto control of the Army Chief and ISI.

• India will not resort to use, or threat of use, of nuclear weapons against non-nuclear weapons states or those not aligned with nuclear weapon powers. Pakistan has not made any such explicit pledge in its nuclear policy.

• ‘Kargil’(1999) and 'Operation Parakram'(2001-02) crises demonstrated that Mutually Assured Destruction deterrence is operating in South Asia, and that both sides have fairly recessed redlines for launching a nuclear strike on the other side. Provocative statements are made, often for consumption of domestic or third-party audience, which has the potential of sending mixed signals to the adversary.

• On the positive side, recent crises have shown three potentially stabilising trends between India and Pakistan: a growing sense of strategic restraint in
each country's crisis management behaviour, growing transparency and openness in their strategies, and growing US involvement in crisis resolution.

**The Role of Command Authority**

As the second nuclear age unfolds, the question that arises is what type of command and control system is it that the new nuclear nations intend to build. It is important to note that the type of command and control system that the new nuclear powers build will have a profound impact on the deterrence stability in various regions. In fact, this issue has been of intense debate in recent years. Proliferation optimists argue that the command and control systems of the small nuclear powers can be simple and effective enough to maintain deterrence, as the nuclear arsenals are small and simple compared to the ones that the superpowers had during the Cold War. Pessimists, on the other hand, posit that serious questions remain with regard to the ability of small nuclear powers in building proper command and control structures. Hence, the possibility of unauthorized or accidental nuclear use is greater in the context of small nuclear powers. Moreover, pessimists argue, regardless of the size and sophistication of the nuclear arsenals, certain dilemmas are universal for all nuclear powers, including the small ones.

According to official pronouncements, the NCA comprises a Political Council and an Executive Council. The Political Council is chaired by the Prime Minister and is the single body that can authorize the use of nuclear weapons. The Executive Council is chaired by the National Security Advisor to provide inputs for decision making by the NCA and to execute the directives given to it by the Political Council. A Strategic Forces Command (SFC) headed by an Indian Air Force officer has also been established as the custodian and manager of the nuclear assets. The composition of the supreme Political Council, however, has not yet been officially declared. But it is believed to include the Prime Minister, the Deputy Prime Minister and the Ministers of Defence, External Affairs and Finance. The alternative chain of command, when the first tier command is hypothetically immobilized or obliterated, is said to be in place even though, for security reasons, it has not been officially announced.

No-First-Use (NFU) predicaments revolve around two factors - the nuclear arsenals survivability and the deployment strategy. The NFU posture should ideally be based on credible arsenals and the force structure to handle them in emergency

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situations. To survive a first strike needs deception, mobility and camouflaging of existing nuclear arsenals. Presumably, at current levels of preparedness, India can launch nuclear strikes through aircraft bombers and missiles. However, it has not yet been confirmed whether its fighter fleet has been accordingly nuclear-wired. By posturing NFU, New Delhi has reassured of being a responsible nuclear weapon power state. With the civilian control over the country's nuclear arsenals, the NCA structure announced by the government sounds democratic in decision-making for NFU. Still, there are critical loose ends in defence preparedness of the nuclear forces on which will depend the efficacy of the country’s NFU policy. The government may have its own security reasons for not elaborating on the status of nuclear force deployment. However, a little more transparency will help in clearing confusion for those who either underestimate or ignore the deterrence value of the existing arsenals. It will, in turn, also provide greater legitimacy to the nuclear command structure.

The Perception of the Indian Threat

The most critical factor that has influenced Pakistan's nuclear posture since the inception of its nuclear weapons programme has been the perception of a threat emanating from its chief security rival — India. This factor will continue to dominate its nuclear strategy and force build-up in the years to come. Indeed, since Independence Pakistan has pursued a security strategy based on its deep suspicion that its bigger neighbour, India, intends to undo the creation of Pakistan. Its defence planning since 1947 has consistently centred on thwarting the ‘India threat’. India, as argued in the preceding chapter, has been the primary impetus for the building of nuclear weapons by Pakistan. In the aftermath of the 1998 nuclear tests, Islamabad’s chief concern has been, and will continue to be, to maintain a credible nuclear deterrent capability against the perceived Indian conventional and nuclear threat.

Not only will Islamabad need to take into account the possibility of an Indian pre-emptive strike in its nuclear strategy in the future, it also will have to factor in India's actual and probable nuclear force build-up as well as New Delhi’s contemplation of building a missile defence system. Pakistan's nuclear identity will remain at odds with the global non-proliferation regime, in particular with the NPT. There is no scope that the NPT can accommodate Pakistan as an overt nuclear power as this would be completely opposed to, as discussed earlier, Article IX of the Treaty. This necessarily means that the global non-proliferation regime will remain opposed to Pakistan's nuclear identity as a nuclear weapons state. The implications are that the
regime will put pressure on Pakistan to give up its nuclear weapons and join the NPT as a non-nuclear state and constrain its force build-up through technology denial, and moral and politico-diplomatic pressure. That is, the pace of Pakistan's nuclear force-building will be substantially affected by the global non-proliferation regime.

Moreover, the revelation of the A. Q. Khan proliferation network, that threw Pakistan into global spotlight as a serious problem in relation to proliferation, will keep the country and its nuclear scientists under the close watch of Western powers and the global non-proliferation regime for some time to come. Many of the questions surrounding this network have remained unanswered, which means that Islamabad will continue to face suspicion and pressure from the West on the issue of proliferation.

Pakistan government has not announced or formally adopted a nuclear-use doctrine as yet, but from operational as well as stated policy since 1998, one can discern the following key aspects of Pakistan's evolving nuclear posture:

- Indo-centric minimum nuclear deterrence
- Principle of massive retaliation
- Policy of nuclear first-use
- Counter-value nuclear targeting strategy.

Pakistan's nuclear policy is primarily India-reactive and its nuclear-use doctrine is unmistakably Indo-centric. Since the inception of the nuclear weapons project in the early 1970s, the India-specificity of the Pakistani nuclear policy in general, and nuclear use plan in particular, has remained constant, and, in all likelihood, it will continue to be so at least in the foreseeable future. Pakistan's nuclear-use doctrine seeks to deter not only India's nuclear threat, it also aims to counter, what Pakistanis perceive to be more pressing, Indian conventional aggression. In Islamabad’s view, Indian threat to Pakistan in the future will be largely at the conventional level, and Pakistan will have to maintain adequate readiness in conventional strength in combination with nuclear deterrent capability. In particular, such a defence posture was reinforced in the aftermath of the 1999 Kargil War and the 2001-02 military stand-off with India.

Minimum nuclear deterrence is claimed by the Pakistani political and military leaders to be one of the fundamental features of Pakistan's nuclear strategy. Pakistani officials frequently assert that Islamabad does not intend to build ‘parity’ with India;
instead it intends to build a minimum nuclear deterrent force which can ‘inflict unacceptable damage’ on India. Prime Minister Nawaz Sharif, for example, stated on 20 May 1999 at National Defence College that: ‘Nuclear restraint, stabilisation and minimum credible deterrence’ constitute the basic elements of Pakistan's nuclear policy. In a similar fashion, the Defence Committee of the Pakistani government also posited minimum nuclear deterrence as an ‘indispensable’ principle of Pakistan's security doctrine. In essence, these assertions imply that Pakistan aspires to build a small, but credible, nuclear force to deter perceived Indian aggression.

**Doctrinal Concepts and Nuclear Principles**

The doctrinal concepts and nuclear principles are not made in vacuum; they are formed in response to ever changing strategic circumstances. Following the May 1998 nuclear tests, with changes in the contour of the South Asian strategic environment, Islamabad quickly realized that minimum deterrence could not be viewed in static terms and the force posture could not be based merely on the number of nuclear warheads. The efficacy of a minimum deterrent force depends on the survivability of a limited number of nuclear weapons that would make a retaliatory threat credible. Hence, minimum deterrence needs to be conceived of in a dynamic context, and its force structure must be determined by the level of threat that exists at a particular time and in a given context.

**Missile Proliferation Control Challenges in the Second Nuclear Age**

The two sides of the nuclear proliferation coin are the demand for nuclear weapons and the supply of nuclear technology and expertise. The proliferation of nuclear weapons does occur, and has occurred in the past depending on the dynamics of these two variables. The global non-proliferation approach during the first nuclear age emphasized the supply-side of the proliferation coin as the aspirant proliferators were dependent on external sources for nuclear technology. The Non-Proliferation Treaty (NPT) centred global non-proliferation regime was based on the philosophy that further horizontal proliferation of nuclear weapons could be stopped by coordinating the policies of suppliers and controlling the supply of nuclear technology and know-how. The formation of the Nuclear Suppliers’ Group (NSG) in 1975 and the Missile Technology Control Regime (MTCR) in 1987 also highlighted the supply-side approach in the prevention of the proliferation of nuclear weapons. In the first nuclear age, actual nuclear weapons proliferation, despite the higher demand for
weapons, was less because the West had a near monopoly on nuclear technology and could coordinate supply policies.

The supply-side approach of global non-proliferation efforts during the first nuclear age was largely successful as long as the Western countries retained a monopoly on nuclear technology. Nuclear proliferation still occurred in some cases, such as in Israel, Pakistan, etc., where nuclear weapons were considered absolutely critical for national security and state survival. However, this approach gradually became redundant as nuclear technology and know-how were diffused due to increasing globalization and the rise of new state and non-state proliferation actors. IAEA Director-general, Mohamed ElBaradei has observed: “Our recent experience has also taught us a clear lesson regarding the accessibility of nuclear technology. The technical barriers to mastering the essential steps of uranium enrichment and to designing weapons have eroded over time, which inevitably lead to the conclusion that control of technology, by itself, is not an adequate barrier against further proliferation.

Indeed, the growth of technological capability by a second category of states and their mutual collaboration have emerged as novel challenges to the control of the proliferation of nuclear weapons in the second nuclear age. The collaboration between Pakistan and North Korea is a clear example of this trend. In a similar fashion, collaboration between North Korea and Iran, and Pakistan and Iran also highlight the growing complexity of proliferation control challenges in the new nuclear era. Also, the rise of non-state proliferation actors and the network-centric proliferation trend have emerged as novel phenomena in contemporary global nuclear politics, and pose formidable challenges to the control of the spread of nuclear weapons. The Khan nuclear black market network represents these new phenomena in the global nuclear proliferation process. The implications of this network for nuclear proliferation and global security will be far-reaching, long-term, and serious.

**Threatening Collapse of the NPT**

The recent developments in nuclear policy and the failure of nuclear weapon states to demonstrate dedication to disarmament endanger the Non-Proliferation Treaty. The NPT stands at the centre of any effort to abolish nuclear weapons. If it is made to work, the path to disarmament at least remains visible. If it fails disarmament would seem more impossible than ever.
Nuclear Missile Constraints

South Asian rivalry is unparalleled in the distinct challenge and the complex enigma that it poses to both regional and international security. Determining the thresholds for nuclear restraint is very difficult, as ambiguity is seen as an essential aspect of effective deterrence. A smokescreen is kept over actual capabilities, deployment status, and the numbers of delivery means as well as the weapons, in a deliberate strategy to keep the enemy guessing by mixing ambiguity and transparency. It is difficult to determine a baseline for the current state of weaponization and deployment. For obvious security reasons, there can be little transparency in the state of operational preparedness. Letting specific nuclear thresholds be known invites intense rivalry and competition.

India and Pakistan need to coexist as sovereign neighbours. Because both are nuclear-capable states, they are required to exercise restraint and limit their actions. It is incumbent not only upon them but also upon the regional and international community to seek early resolutions to their conflicts. It would be foolhardy to expect that arms control and restraint measures will work unless meaningful and substantive moves forward on core issues are pursued concurrently. Nevertheless, to prevent nuclear accidents and formal nuclear and/or conventional force deployments, there is an urgent need to establish a restraint regime in this region, perhaps more critical than in any other place in the world. South Asia stands at the crossroads of on one hand the precipice of nuclear war, and on the other a redefinition of nuclear history by developing a restraint regime model based not on mutually assured destruction, but on mutually assured accommodation and survival.

Findings of the Study

The study identifies a wide variety of causes and factors working singly or collectively in the sustaining missile race between the two countries in addition to the motivations behind their missile programmes.

In the process of analyzing the hypotheses it has been found that

a) The enduring missile race and rivalry between India and Pakistan is a product of the security dilemma. The security dilemma asserts that both strength and weakness in national security can be provocative to other nations. If a nation is
too strong, this can be provocative, as the means of self-protection simultaneously threatens others. The race would therefore have a spiralling effect.

b) The divergence in both Indian and Pakistani missile development and testing is a result of change in national security orientation towards each other and the perceived credibility gaps in deterrence.

c) The impending race in missiles is fraught with increasing uncertainties and asymmetries.

d) The post 1998 period reflects intense missile race, and such a shift in the regional security dynamics is due to the culmination of crucial changes in their respective nuclear postures and policies that have their own strategic implications.

e) It is further found that nuclearization, nuclear weapons, missile proliferation and their manifestations remain a significant feature in South Asia which can be neither ignored nor overlooked. And therefore there is an urgent need to create a more effective international regime against the proliferation of missiles. In the absence of an effective mechanism the race is bound to continue.

f) Both India’s and Pakistan’s inherent strategic potential and nuclear capabilities remain a crucial factor in regional security dynamics.

g) Trends evident today suggest that by 2020 many countries in the world will have access to several important technologies including nuclear technology.

h) India and Pakistan graphically demonstrated the ability of midlevel technology states to construct or obtain nuclear weapons.

i) It is apparent that countries like India, Pakistan, North Korea and Iran among others, have or will soon have the capability to project force at intercontinental distances. The developing international market place in these technologies may make long-range missiles available to almost any country that has the resources and the basic technological infrastructure to acquire and use them.

j) Commercial services already provide high-resolution images from space. The technical capability to provide these images in real time to customers around the world is likely to develop.
k) The spread of communications and computer technology will serve as a force multiplier for a growing number of countries. The ability to effectively employ a small number of electronic weapons against a technologically and/or numerically superior enemy is a cost-effective force-levelling tactic.

l) It is already possible for cruise missiles to deliver payloads to targets hundreds of miles from their launch point with a few meter accuracy. High precision for intercontinental missiles either land or sea-launched is also possible. Given that ballistic missile re-entry vehicles arrive on target with velocities of thousands of meters per second, it is not necessary to have explosive payloads to destroy some classes of targets.

m) Nuclear missiles and related technology pack incredible destructive force into a small, deliverable package. In addition to their psychological deterrent value, they are the only current means of holding at risk several classes of targets like mobile targets such as road mobile and rail mobile missiles, missile silos, airfields or naval bases, hard targets such as deeply buried command structures, and super hard targets such as facilities located beneath mountains.

n) Some important classes of targets, such as mobile missiles might be effectively dealt with by long range precision conventional weapons. One can envision submarine-launched ballistic missiles (SLBM’s) and intercontinental ballistic missiles (ICBM’s) loaded with such precision weapons, which could be directed by real-time intelligence to targets anywhere on the planet within 30 minutes. Manoeuvring re-entry vehicles could enable these weapons to follow and destroy moving targets.

o) Nuclear missiles continue to play a vital role in deterring other countries from launching significant military strikes against India by Pakistan and China. The real threat of not just military defeat but national annihilation is a potent deterrent now and should be expected to remain so for at least the next few decades. Given the unique destructive power of nuclear missiles, an asymmetry of this kind should be unacceptable to military planners.

p) The ability of an adversary to deliver a nuclear weapon by aircraft, cruise missile, naval vessel, or by clandestine insertion into the country are additional concerns beyond the long-range ballistic missile threat. Lacking the ability to deter such threats and to respond in kind would open up the country to blackmail.
q) Arms control initiatives will play an important role in the planning of future strategic forces, but at the same time maintaining an effective deterrent requires a minimum number of nuclear weapons.

r) There are no regional political or diplomatic initiatives in place to slow down the regional missile race. Besides, there is scant public knowledge or debate in the regional media about how to manage the dense missile environment in the subcontinent. At the same time, there are fears that Pakistan’s nuclear weapons could fall into the hands of Jihadi elements undermining regional security, which have been vehemently denied by Islamabad. There is reason to believe that the regional missile race can be addressed through diplomacy and confidence-building measures (CBM) aimed at transparency. India, China and Pakistan would have to collectively address the regional missile developments sooner, rather than later, and institute mechanisms to prevent accidental missile launches and alleviate anxiety and fear.

s) Thus the missile tests of India and Pakistan again demonstrate that countries will act in their own perceived national interests, sometimes in direct opposition to the wishes of the countries or to previous treaty commitments or arrangements. And therefore continuous tensions in South Asia, including India-Pakistan bear close monitoring, and lastly

 t) A review of the history of Chinese, Indian, and Pakistani nuclear weapons programmes reveals that each started with multiple drivers. These drivers have changed over time. Today, we find that the primary driver for China is the fear of a conventional or nuclear attack on its nuclear forces by the United States. For India, the primary pressure seems to be from its nuclear and defence scientists, who want to prove against most evidence to date that they are world class. For Pakistan, the primary driver appears to be a fear of India’s superior conventional force. For each of these three countries, one could see a future with two dramatically different nuclear futures. One would feature a nuclear arms race that takes place for several decades, leading to several hundred nuclear weapons. The other would be relatively stable nuclear forces maintained close to current levels. The key will be elite decision makers within each country. A close examination of the drivers of proliferation in each country suggests that Indian scientists have a major influence on government decision making.
Concluding Observations

The proliferation of numerous missiles and related technologies in South Asia is a growing concern for world community. These missiles have brought more insecurity and tension to the region instead of the positive claims by proliferation optimists. India and Pakistan, the two countries of the region, are seriously engaged in revising and refining these delivery systems. Even public support in these countries has been increasing in favour of accelerating the development of ballistic and cruise missiles. But these systems pose a serious risk for safety and security of the region. Lack of advanced early warning systems and geographical proximity of these two rivals are the main sources of security threats in the region. Problem of political and technical controls of missiles during the launch, the physical security of nuclear weapons, maintenance of communication during launch of missiles and missile test flights during the period of strained relations are the other challenges which need to be addressed.

Similarly the introduction of ballistic missile defence systems in the region by India could further aggravate the situation in a negative sense. Moreover, the social and economic development of the region would also be affected by this costly arms race. Finally, as responsible nuclear neighbours, India and Pakistan need to carefully evaluate the impact of their growing ballistic missile capabilities and their missile management practices. In addition, both countries would be wise to consider establishing a ballistic missile restraint regime in the region. Restraint measures could improve national and regional security, while retaining the deterrent value of nuclear arsenals.

Ever since the crossing of nuclear Rubicon in May 1998 both India and Pakistan have been embarking on a journey that can only bring greater insecurity, tension, and arms race. Both countries have been continuously engaging themselves in revising their plans and developing their nuclear systems and delivery means, and little real progress has been made to reduce the danger. Threat making, provocative military manoeuvres, display of offensive force capabilities and large military exercises on borders have been common in the region. In fact their series of missile flight tests have further raised the concerns of nuclear security and stability more seriously. Though fragmentary information about India and Pakistan’s nuclear forces, operational capacity and elements of command and control have emerged, the numbers, readiness status and employment plans for these nuclear delivery
capabilities remain dark or gloomy in many respects since they are clouded in secrecy. The study comes to the conclusion that there still exist major differences in perception, mindset and approaches on nuclear issues between India and Pakistan and therefore the management of missile race/competition would be a key challenge in the years to come. Indeed how both India and Pakistan rises to this challenge will be crucial to the security of South Asia in the years to come.

Limitations of the Study

The generalizations deduced from the study are limited to textual content analysis and perceptual measures collected from library research and web sources. Since the classified documents could not be surveyed because of their non-availability, the study therefore had to exclusively rely on published primary and secondary sources for analysis to infer the strategic implications. Further the power profile, intensity and nature of missile threat and its implications are bound to vary with the passage of time. We need more interdisciplinary research on the technical bottlenecks and legal restrictions on the spread of nuclear facilities. These complex research agendas should be linked together to produce more robust findings about the nuclear past, and promote better predictions about the global nuclear future.

Scope of the Study

The study provides ample scope for future researchers in the area of missile proliferation, missile race and rivalry in the context of regional security dynamics since the causative factors, determinants, nature and intensity of missile proliferation are bound to vary. The study also facilitates scholars to explore and investigate other emerging challenges in the area of missile proliferation, rivalry and missile race particularly in view of the several non-proliferation regimes in operation such as the Nuclear Non-proliferation Treaty (NPT), the Comprehensive Test Ban Treaty (CTBT), the Missile Control Regime (MTCR), the Nuclear Supplier Group (NSG), the Proliferation Security Initiative (PSI) and the resultant impact arising out of the Revolution in Military Affairs (RMA). The study on the whole, reflects the contemporary view on India-Pakistan missile race and its resultant strategic implications. To move forward beyond that, we will also need more multidisciplinary research, with political scientists developing better understandings of the technology of nuclear power and nuclear weapons and also the effectiveness of international law and export control regimes.