NUCLEAR WEAPONS PROLIFERATION IN ASIA: THE TWENTY-FIRST CENTURY PATTERN

YEON JUNG JI

Perceptively, prediction on nuclear proliferation seems to have consistently been wrong.[1] In the current global politico-security scenario that has radically changed with the onset of the nuclear age, disagreement persists among international theorists on how to analyse the world order in vogue. And the concept of security seems still to be in a predicament regarding the presence of nuclear weapons as states wonder how to defend themselves. Tracing the causes of states going nuclear, the nuclear proliferation discourse has been in the public domain for the last half century.[2] It is presumed that many states are likely to acquire nuclear capability to enhance their security against a potential war or as part of an arms race in a given region. The traditional approach analyses the motives of nuclear proliferation taking into account the factors at various levels — international, regional and national — with a perceived form of proliferation — vertical or horizontal. However, normally, a new state starts a clandestine nuclear programme not only by

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1. Jacques E. C. Hyman, "Theories of Nuclear Proliferation: The State of the Field", in Peter R. Lavoy, ed., *Nuclear Weapons Proliferation in the Next Decades* (Oxon, Routledge, 2007), p. 29.
2. Tanya Oglivie-White, "Is There a Theory of Nuclear Proliferation? An Analysis of Contemporary Debate", *The Nonproliferation Review,* Fall, 1996, pp. 43-60.

How can probable proliferators be predicted and what kind of strategy can be put in place for a new proliferator?

following the traditional two-way relationship method of proliferation, but also by creating a new pattern of the proliferation strategy.[3] International efforts are on to determine future proliferators and stop the current and probable proliferators from joining the *de facto* nuclear club. Similar to the changing international security structure and strategy, there is a need to understand the links of states that are attempting to develop nuclear capabilities and motives.

This paper examines four questions: first, what are the motivations and patterns of the proliferators? Second, as the indicators on the motives seem to point to various ways that each level focusses on, how is the trend of proliferation changing with the changing number of participants? Evidence suggests that their postures under the non-proliferation regime are correlated and each participant is stabilised according to its capabilities. Third, particularly relating to Asia, what role do the proliferators play and how does it impinge on the security order? Lastly, how can probable proliferators be predicted and what kind of strategy can be put in place for a new proliferator? Though subsidiary weaponry is developed in many ways, the symbolism and destructive power of nuclear weaponry is not decreasing, even in the small states. As a result, maintaining a critical inquiry on the danger of nuclear weaponry is of utmost importance.

MOTIVES AND PATTERNS OF NUCLEAR PROLIFERATION: A CONCEPTUAL ANALYSIS

Opinions and Theories

The motives of going nuclear are the result of a comprehensive theory-based understanding. Since the beginning of the nuclear age, there have been two approaches for studying nuclear weapon proliferation:

3. Sarah J. Diehl and James Clay Moltz, *Nuclear Weapons and Nonproliferation* (California: ABC-CLIO, Inc, 2008).

the realist and the idealist. There have also been numerous attempts to suggest a new approach. First, there have been attempts to elaborate on the contribution of the realists' analyses regarding 'power' and traditional deterrence theory. Most prominent and frequently used is the view that analyses international politics in terms of *anarchy*[4] and *self-help*.[5] The concept of threat expands the rational deterrence theory that once a state has acquired second-strike nuclear capability, war between nuclear armed states is unlikely to occur due to the fear of a mutual attack leading to catastrophe.[6] Later, the neo-realist theory, which is especially prominent with game theorists, provided a pertinent scenario that developed the motive of proliferation following the stabilised 'equilibrium'. Noticing the nature of international politics, the number of states arguing for sovereignty has increased. In other words, the complexity of the calculation depends on how many state players will attempt proliferation, withdraw, or not bomb; it is also significantly dependent on the equilibrium aspiration. This phenomenon is often expressed as the "Nth-Player Game".[7]

As the motivation to proliferate is rooted in certain circumstances, the global equilibrium and stability, including at the regional level, has become more difficult to maintain. In the context of power politics, the concept of power has different meanings for different countries. In other words, getting the nuclear bomb could imply survival, a desire to maintain the

4. Joseph M. Grieco, "Anarchy and the Limits of Cooperation: A Realist Critique of the Newest Liberal Institutionalism", *International Organization* 42(3), 1988, pp. 485-507.
5. Charles L. Glaser, "Realists as Optimists: Cooperation as Self-Help", *International Security* 19(3), 1995, pp. 50-90.
6. Kenneth N. Waltz, "The Spread of Nuclear Weapons: More May Be Better, "*Adelphi Paper*, No. 171 (London: International Institute for Strategic Studies, 1981). See also, Kenneth N. Waltz, "Nuclear Myths and Political Realities", *American Political Science Review* 84(3), 1990, pp. 731-745.
7. In other words, it is called Nth-person Game in Game Theory. A decision-making approach based on the assumption that players compete rationally under the situation. Each actor tries to maximise gains or minimise losses under the uncertainty, and incomplete information. N-person games include more than two actors or sides. It entails higher possibility of uncertainty to calculate the development of models, especially deterrence and arms race spirals. This concept shows how collaboration among competitive states in an anarchic world can be achieved. Paul Bracken, "The Structure of the Second Nuclear Age", paper on MIT Security Studies Program, November 5, 2003.; P. Viotti and M. Kauppi, eds., *International Relations Theory* (New York: Macmillan, 1987).

In addition to emphasising the significance of a theoretical background, some analysts emphasise the need to pursue the correlation between the national elites' decision-making and its cognition effect on security strategy.

regime or to complete the state-building process. In this case, the nuclear weapon is perceived as an instrument that is used to protect the regime;[8] this is the case with several states like Iran, North Korea and Pakistan. For these countries, the leader's or the administration's desire is to pursue nuclear capabilities following a cost-risk calculation. Balancing asymmetric conventional power depends on the different types of mass destruction capabilities, which strengthen conventional military capabilities, or forge alliances with a superpower.

While realists consider the state's power with a basic hypothesis – "black box" domestic politics — idealists attempt systemic analysis applied to the nuclear weapons problem. Meaning, thereby that if a state pursues nuclear capabilities, it is distinguished by three sub-opinions. Generally, idealists argue that nuclear proliferation needs to be initiated from the 'demand side' rather than the 'supply side', which is insisted upon by the realists.[9] This argument is sub-divided into three categories: international-level idealists who emphasise the international norm on the nuclear issue, the domestic-level idealists who focus on social constituencies, and the individual-level idealists who look at the motivations of the individual decision-maker or leader.[10]

In addition to emphasising the significance of a theoretical background, some analysts emphasise the need to pursue the correlation between the national elites' decision-making and its cognition effect on security strategy. According to Peter Lavoy (2007), understanding the process in the political apparatus depends on these questions: (1) How do national elites provide conviction about their national insecurity (to strategic thinkers and policy-makers)? (2) How do they portray the scenario which is thought to be

8. The regime, referred to here indicates a form of government.
9. n. 1, p. 26.
10. Ibid., pp. 23-34.

the best choice? (3) How do they articulate the political, economic and technological accountability to go nuclear? (4) How are 'these beliefs' (made by the national elites) successfully argued and integrated within current political and cultural acceptability? (5) How do they persuade influential senior decision-makers to take action on this issue?[11] In fact, it is relevant to focus on how high-level policy-makers intend to attain their objectives. The internal process of a bureaucracy or a regime needs to be analysed as a factor of proliferation.

Structure and Indicators

The type of proliferation is based on the theoretical assumptions elaborated above. In the first nuclear age, there were several types of nuclear proliferation, such as *vertical proliferation and horizontal proliferation*. Generally, the nuclear proliferation inspection deals with the two-dimensional type, horizontal and vertical proliferation. Vertical proliferation is the increase in the number of warheads available to the nuclear weapon states. Horizontal proliferation, on the other hand, indicates the increase in the number of states possessing nuclear weapons. No matter how the security environment develops for a state after it acquires an arsenal, proliferation remains the most worrisome issue, for both the regional and global security environments.

The concept of conventional proliferation, the safeguard measures initiated by the five nuclear weapon states and the command and control system, highlight the intricacy of the nuclear arsenal problem.[12] Proliferation issues are concerned about qualitative and quantitative proliferation that might destroy the entire human civilisation. Irrespective of the risk of the nuclear arsenal and unstoppable escalation, actual proliferation cannot be stopped, whatever efforts may be advanced by the major nuclear powers with their non-proliferation policy. The spread of nuclear weapons is monitored by the nuclear infrastructure, research centres and organisations, military movements

11. Peter R. Lavoy, "Nuclear Proliferation Over the Next Decade: Causes, Warning Signs, and Policy Responses", in Lavoy, ed., n. 1, pp. 2-3.
12. K. Subrahmanyam, "The Real Proliferation" in K. Subrahmanyam, ed., *Nuclear Proliferation and International Security* (New Delhi: Lancer International Press, 1985), pp. 54-64.

The monitoring of proliferation activity has continuously involved improvement of the deterrence tactics and tools in order to check the states attempting proliferation.

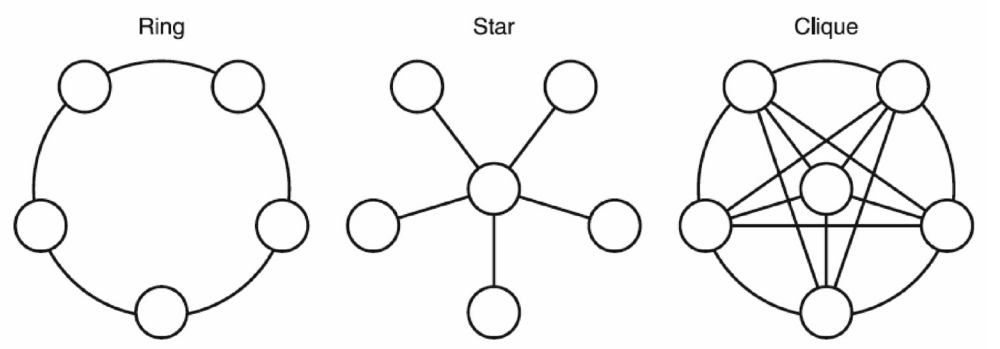
and extra facilities under the developing nuclear programme. In reality, the process of the nuclear programme — the technology transfer and the export of fissile materials — is not clearly classified as vertical or horizontal proliferation, but is a three-dimensional one. For example, one aspect of nuclear proliferation is based on the nuclear infrastructure. It is only one measurement of how nuclear forces operate in a given environment for a specific purpose.[13] Nuclear infrastructure is an important measurement of scientific-technological advances; it ensures the complete preparation of usable nuclear materials through the trade network. Based on the established nuclear facilities, proliferation may possibly impact the quick exchange of advanced technological information without considering an appropriate revision of international safeguards. At that point, other states deliberately follow the pattern of nuclear proliferation. That is why the danger of horizontal proliferation is emphasised with the limitation of nuclear safeguards.[14]

The nuclear proliferation issue has been in circulation in the international arena for quite some time. There have been significant efforts to deter the unrevealed attacks through various sanctions such as the freezing of financial assistance, export control, diplomatic pressure, arms control and disarmament agreements. So far, the monitoring of proliferation activity has continuously involved improvement of the deterrence tactics and tools in order to check the states attempting proliferation. The academia and policy-makers have analysed the nuclear proliferation chain as *proliferation rings* to show which state is in what position or which is more proactive with regard to proliferation.[15] Proliferation has been examined by Braun and Chyba to show that the

13. C. Raja Mohan, "Global Nuclearisation" in Subrahmanyam, ed., Ibid., p. 135.
14. Michael Rebehn, "Another Casualty of War: Proliferation Controls and Verification Protocols," 2003. http://www.opendemocracy.net/theme_9-wmd/article_1128.jsp
15. Chaim Braun and Christopher Chyba, "Proliferation Rings: New Challenges to the Nuclear Non-proliferation Regime," *International Security,* 29(2), 2004, pp. 5-49.

optimal tactics applicable to the second-tier proliferation take place among the developing countries. The structural analysis seeks to get rid of the proliferation linkage aimed at key connections. There are three basic proliferation network structures.

Fig. 1: Types of Nuclear Proliferation Ring



Source: Alexander H. Montgomery, "Ringing in Proliferation: How to Dismantle an Atomic Bomb Network," *International Security*, 30(2), 2005, p. 170.

The first ring type is a circle where one hub is connected to another. The second is a star type with a central hub located with all the nodes. The third structure depicts that all the linkages are directly connected with each other. The strategic assumption is to search for the optimal way to make disconnections or eliminate the proliferation network. Compared with the others, the star structure has the highest possibility of being cut off easily. Once the number of nodes is followed to the centre, it is easier to eliminate the hub and prevent new connections among the nodes making the hubs. However, the elimination of a single connection is not likely to be effective for the ring or clique type of proliferation; for these two networks, finding the crucial point is required. In reality, distinguishing which state is in which position and its diversity is somewhat vague.

NUCLEAR WEAPON PROLIFERATION AND NWS

It is a truism that the arms race and proliferation always increase when there is rivalry. Globally, nuclear weapons have been considered significant

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ever since the time of the superpower rivalry during the Cold War. During this period, much of the increase in the transfer and deployment of strategic nuclear weapons was due to the two blocs, both of which had little to do with the Third Word. Generally, the competitive situation caused by the Cold War rivalry is not condemned, but is accepted as inevitable. However, it is pertinent to follow-up this view with the view that enduring force contains competitive and dynamic features that have encouraged and are still currently, encouraging, the proliferation race and system.[16] In this case, actual nuclear weapon transferring needs to be distinguished from military and high technology weapon production and sales that occurred concurrently within this historical period. These needs show a highly hierarchical structure that is different from the planar picture of nuclear proliferation which is assumed within same-tier proliferation states. Hence, nuclear weapon proliferation is inevitable insofar as it is the result of an identified set of circumstances from both the supply and demand sides.

The most dangerous case related to nuclear proliferation is the "anticipation of such proliferation rather than its actuality."[17] After the mid-1950s, the pragmatic situation of the N^{th}-player game became an issue when Russia transferred its unfinished nuclear technology and samples of materials to China under the Sino-Soviet agreement of 1957. According to the available information, Russia was reluctant to attribute the spread of nuclear weapons to China which essentially mattered to it in the long-term period.[18] However, China is known to be the only country to receive directly applicable nuclear technology and material from the Soviet Union, its Communist ally.

16. David Kinsella, "Rivalry, Reaction, and Weapons Proliferation: A Time-Series of Analysis of Global Arms Transfers," *International Studies Quarterly*, 46(2), 2002, p. 210.
17. Bruce Bueno de Mesquita and William H. Riker, "An Assessment of the Merits of Selective Nuclear Proliferation," *The Journal of Conflict Resolution* 26(2), 1982, p. 304.
18. Oran R. Young, "Chinese Views on the Spread of Nuclear Weapons", *The China Quarterly*, 26, 1966, p.137.

Following this trend, the initial nuclear posture of China was limited to protection of its sovereignty and was not concerned with building up a strong nuclear weapon-based defence posture. China's argument on nuclear possession started after the mid-1960s. Initially, according to the Oran R. Young (1966), China's proliferation arguments favoured Communist states rather than its neighbours. Stressing the rivalry between the two blocs, China established a positive channel with other Communist countries in order to encourage national nuclear capabilities against imperialist countries such as the US and its Western allies.[19] Apart from the logic of deterrence in regard to superpower rivalry, China's argument uses a different logic of defence which is pertinent to the periphery states. First, following the argument, the Communist countries have to obtain the retaliatory capability against a possible first strike from the US or one of its allies. They also need to overcome the periphery position. Secondly, by observing the situation which increases a probable nuclear attack between two powers, it would be difficult to wait-and-watch, depending on Soviet nuclear capability, without knowing in which direction a nuclear missile will be aimed.[20] Regarding China's supportive posture on proliferation to the Communist countries, Chinese analysis seems to encourage the overall strength of Communism.

The dilemma China raised is a long-standing discussion for Western scholars as well. Bueno and Riker's paper states:

> Those facing such threats, and requiring a nuclear capability to secure themselves, probably will have to rely in the short run on the direct transfer of nuclear security by a friendly nuclear power. This means that one short-run vehicle for attaining security through nuclear symmetry may be carefully selected nuclear defence agreements. Such a strategy, however, must be short-term insofar as it is unreasonable to expect any nation to rely for long on the loyalty of another nation for its security.[21]

19. Ibid., pp.136-170.
20. Ibid., pp.141-142.
21. de Mesquita and Riker, n. 17, p. 305.

Like the US-UK relationship, the French-Israeli nuclear cooperation also reveals the logic of assistance in a nuclear programme against a grand enemy.

An argument that is similar to this one is that the nuclear weapon states' approach, such as the US' approach, toward proliferation, tends to be based on whether to strike or assist. It has been reluctantly, or unwillingly, accepted that assisting in proliferation is one of the options towards a friendly country in a convergence of strategic calculation. Laying out this trend, the US-UK special relationship, often referred to as Anglo-American nuclear weapon, includes involvement of a nuclear weapon state and technology transfer. The Mutual Defence Agreement (MDA) signed in 1958 and revised and extended several times, is a clear example of nuclear blueprint sharing.[22] It shows an intimate and comprehensive relationship between two friendly countries, providing and exchanging special nuclear materials and components for their nuclear weapon policy. It covers an entire framework of a developing trade system and nuclear reactors. According to Richard Wagner, a former US Assistant Secretary of Defence, the US-UK collaboration has been enlarged since the 1980s.[23] The friendly country, a major ally in this case, has reiterated the importance of upgraded political cooperation in regard to expansion of the policy scope, exchange of technology and scientists. Unlike the rise and fall of other partners, both sides desired an enhanced discussion after 1992, a moratorium on nuclear tests, swapping of experimental nuclear data and sampling on specific topics. The secret meetings between the two countries have not emerged in the public domain in the nuclear Non-Proliferation Treaty (NPT) regime.

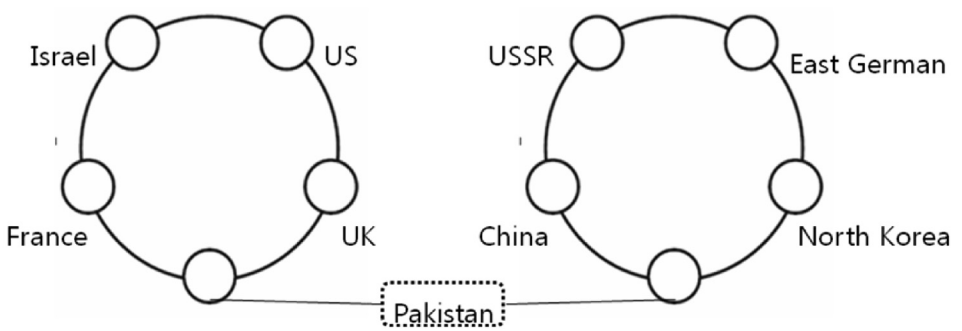
Like the US-UK relationship, the French-Israeli nuclear cooperation also reveals the logic of assistance in a nuclear programme against a grand enemy. The Israeli government maintains a strategic ambiguity, neither announcing the existence of a nuclear weapon, nor denying its possession.[24] However, this cooperation, which began in 1949, comprised

22. http://www.reachingcriticalwill.org/resources/books/BAC/chapter3.pdf
23. Ibid.
24. http://www.fas.org/sgp/crs/nuke/R40439.pdf

two-way assistance, due to the counterweight of Egypt and other Middle East countries.[25] Both governments invited each other's nuclear scientists to their countries. Israeli scientists helped in the construction of France's initial plutonium production reactor, heavy water production and low-grade uranium enrichment.[26] France and Israel signed the first nuclear agreement in 1954. The relationship was extended in 1956 with the sale of a large research reactor. Experts argue that French assistance in providing nuclear engineers and specialists has helped Israel attempt a nuclear test. Moreover, the intimate relationship between France and Israel resulted in the French government inviting an Israeli scientist in February 1960 to share information on detonation data and receive separated plutonium.[27]

Hence, the initial spread of nuclear weapon technology and materials is based on the bilateral linkage, whether the ring type or the star type, as well as on the security calculus from nuclear weapon states. The logic of sharing nuclear technology and materials implies that my strategic calculus, with garnered national interest, can be compromised when my friend attempts to transfer this to another friend of mine. The pattern of proliferation activity during the Cold War is shown below (Fig. 2).

Fig. 2: Linkage of Nuclear Proliferation in Grand Rivalry



25. http://www.nuwinfo.se/files/20090511MycleSchneiderNuclearFranceAbroadCIGI-V5.pdf
26. Ibid.
27. Ibid.

THE ASIAN NUCLEAR ORDER

Asia is at the centre of the developing nuclear proliferation linkage with its own characteristics. After the initial phase of spreading nuclear weapon-grade technology, non-nuclear weapon states have become a hub of proliferation linkages. Viewing the nuclear proliferation activity within a regional boundary, this period can be called the second phase of proliferation. The proliferation followers, helped by the superpowers, have become a centre of proliferation linkages. In this regard, Asia has placed much value upon the nuclear weapons problem that is related not only to state-centred issues but also to the regional security chain. In spite of the concept of security that dealt with either the state or global level, one needs to understand the regional security perception, called regionalism, in the security domain.

Both neo-realist and neo-liberalist scholars have paid attention to regionalism because they know that a region is vivisected by natural boundaries and cultural differences. In other words, a region has not been a dominant actor of the sub-system since the modern state concept was conceived and the world began to be dominated by major players.[28] First, the majority of states worry about their neighbours at the regional level; although the security dilemma is already applicable, these theories are mainly based on the hegemonic players. Second, there is a tendency that regional actors are likely to cooperate with, or deter, the neighbour's power when global power comes to the region. Third, regionalism generally reflects anti-imperialism and de-colonialism sentiments. The effort of regional integration is not only the end of regional confrontation but also encourages strong normative construction.[29] Some global issues, like nuclear proliferation, have embraced the homogeneous wave. Therefore, regionalism has expanded beyond a simple layer into the multi-

28. After end of the Cold War, the concept of region, whether it comes from a natural boundary or of artificial recognition, was intensified by the new regionalists. The regionalists advanced several arguments pointing out that international theory is not wrong but not complete to look into the regional activities and impacts. Robert E. Kelly, "Security Theory in the New Regionalism," *International Studies Review*, 9, 2007, pp. 197-229.
29. Miller Lynn, "Prospects for Order through Regional Security" in Richard A. Falk and Saul H. Mendlovitz, eds., *Regional Politics and World Order* (San Francisco, 1973).

characteristic or the so-called 'multi-dimensionality' one.[30]

The linkage between the Pakistani and North Korean nuclear programmes is well-established.

Some scholars point out that states have either chosen to be a part of nuclear states or not for various reasons such as regime survival, stability of regional security, and so on. A state's behaviour is determined not only by international politics and its national interests, but also by its desire to not be isolated from the political elites.[31] For example, North Korea is well-known for its proactive nuclear debating and negotiating between pro-nuclear states and countering states. The linkage between the Pakistani and North Korean nuclear programmes is well-established. The nuclear network, the so-called 'Khan' network, has been evaluated for many years for inclusion in the NPT and export control regimes.[32] Since 1970, Khan and his associate networking system have been effective in establishing an illicit procurement network through import-export operations. Interestingly, North Korea initially became one of the customers in Khan's network and this network helped North Korea to become one of the key proliferators. The implications of understanding the North Korea-Pakistan connection reflected a differentiated characterisation of proliferation activity. Initially, while the former Soviet Union-related illicit network was not on the main table, the small proliferators' linkage was paid great attention. The Khan network, especially with North Korea, suggests that it has been most successful in bringing a *fait accompli* nuclear status for both countries. Second, as seen in the various types of nuclear proliferation in the previous section, this proliferation connectivity has lent weight to the argument, in terms of establishing an additional proliferation linkage. In other words, North Korea and Pakistan are assumed to remain as individual hubs that operate

30. Ibid., pp. 50-74. "Multi-dimensionality" indicates that regions are also based on dimensions such as economic linkages, regional identity (regionness), trans-national interactions. Robert E. Kelly, "Security Theory in the New Regionalism," *International Studies Review*, 9, 2007, pp. 197-229.
31. Richard K. Betts, "Paranoids, Pygmies, Pariahs and Non-proliferation Revisited," *Security Studies*, 2 (3/4), 1993, p. 100-124.
32. http://www.twq.com/05spring/docs/05spring_albright.pdf, p. 112.

In contrast to Sino-Pakistan cooperation, North Korea's case is rather ambivalent in regard to regime survival, as well as financial source.

their network sharing among key consumers.[33]

The strategic posture of *de facto* nuclear states has widened and deepened since China's involvement with small proliferators has been strengthened in this region. The volatile climate in this region tends to depend on China's commitment to providing, or assisting with, security assurance to neighbouring countries, especially Pakistan and North Korea. Particularly, the China-Pakistan nuclear linkage is analysed to create "great unease" in the non-proliferation regimes in recent years.[34] While the India-US nuclear deal has been criticised for deviating from the non-proliferation regime mandate, its spillover effect has resulted in a similar nuclear deal between China and Pakistan. Certainly, the US decision to make an exception in India's case is strengthened by Pakistan's argument.

However, the China-Pakistan nuclear deal contains differences in tracing Pakistan's proliferation activity. The worrisome issue popped up when China and Pakistan concluded a deal in secrecy and hindered the transparency. In addition, according to Ashley J. Tellis (2010), the position of the Nuclear Suppliers Group (NSG) is likely to be weakened since the Chinese government is not willing to stick to its obligations. Moreover, China and Pakistan are able to approach a "short-cut with" the NSG, following an unprecedented nuclear deal — the US-India one.[35] Monitoring of Khan's network is obviously to exclude Pakistan from being granted a waiver. China's help to Pakistan makes the Western side believe that China's nuclear assertiveness is growing.[36]

In contrast to Sino-Pakistan cooperation, North Korea's case is rather ambivalent in regard to regime survival, as well as financial source. Initially, North Korea's nuclear research reactor which was provided by the Soviet

33. Sheena Chestnut, "Illicit Activity and Proliferation," *International Security*, 32(1), 2007, pp. 81-82.
34. Ashley J. Tellis, "The China-Pakistan Nuclear Deal," *Policy Outlook*, Carnegie Endowment for International Peace, 2010. http://www.carnegieendowment.org/files/china_pak_nuke1.pdf
35. Ibid.
36. Ibid., p. 5.

Union in the 1960s, was not directly meant for a nuclear weapon programme. However, the Soviet Union assisted in the training of North Korean scientists when the Cold War rivalry ended and continued to do so throughout the 1990s under the Russian government. Since 1999, China's involvement in supplying missile-related materials and components has been reported.[37] North Korea has become one of the leading countries in terms of proliferation after its first nuclear test. A clear connection between North Korea-Iran, and North Korea-Syria has been observed. In 2006, an Iranian scientist reportedly visited North Korea to share the data of the test under the new agreement.

In Southeast Asia, while the prospect of nuclear proliferation has not attracted as much attention as other neighbouring regions in Asia, this region contains its own importance.

In 2009, another Iranian delegation from the Iranian Revolutionary Guards and the Iranian Atomic Energy Organisation was invited to a high-level meeting for the second nuclear test.[38] Syria is another country friendly with North Korea that has been promoting nuclear collaboration since the late 1990s. According to the US intelligence agency, the Syrian nuclear reactor is evidence of North Korea's involvement in the design because the reactor is similar to North Korea's. The North Korea-Iranian cooperation with Syria is continuously monitored by the international community. In recent years, North Korea has provided nuclear technology for a planned reprocessing plant in Iran.

In Southeast Asia, while the prospect of nuclear proliferation has not attracted as much attention as other neighbouring regions in Asia, this region contains its own importance. It is a periphery station of the proliferation link that can help potential nuclear aspirants in other regions. It is known that Southeast Asian countries generally cannot afford to go nuclear. The reason for this is a lack of technological feasibility of military purposed nuclear research. Moreover, all member countries

37. Larry A. Niksch, "North Korea's Nuclear Weapons Development and Diplomacy," CRS Report for Congress, 2010. http://www.fas.org/sgp/crs/nuke/RL33590.pdf.
38. Ibid., pp. 20-25.

of the Association of Southeast Asian Nations (ASEAN), except East Timor, signed a treaty to establish South Asia as a nuclear weapon-free zone in 1995. The harmonious cooperation among the member countries does not seem to hamper the regional security, driven by the nuclear ambition. Hence, the traditional theory-building on nuclear ambition does not fully apply to Southeast Asia.

In recent years, however, there have been reports of a Malaysian company manufacturing centrifuges for the A.Q. Khan network, and the North Korea-Burma nuclear tie is viewed as developing continuously. Since the mid-1990s, the Burmese military regime has overtly and repeatedly sought nuclear technology for both peaceful and military purposes. The only difference in Burma is that the diplomatic channel discussing and transferring nuclear technicians is assumed to include formal channels such as the International Atomic Energy Agency (IAEA) in 1999.[39] On the other hand, Burma has intended to acquire nuclear weapons in reflection of the changing internal and external political environments. The desire of the Burmese military junta to acquire a nuclear weapon appears to have increased enormously, especially after the US invasion in Iraq in 2003. International experts argued that regime change in Iraq by the US would certainly have an impact on Burma. It could lead to a defence strategy similar to that of other status quo nuclear states, akin to North Korea, in order to protect its military regime.[40]

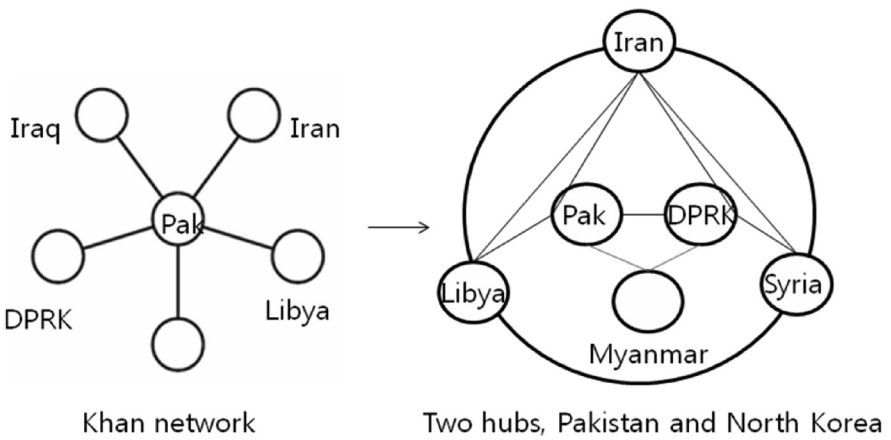
Indonesia too received a call from the Iranian government for nuclear-generated electricity.[41] These countries do not wish to possess the nuclear bomb, but they provide the linkage between other third-party proliferators. Among these, most significantly, Burma — though it is not yet fully into proliferation activity — seems to be the most likely country in this region. Some experts have argued that the North Korea-Myanmar defence cooperation comprises only conventional arms technology, rather than

39. Michael S. Malley, "Prospects for Nuclear Proliferation in Southeast Asia, 2006-2016," in Lavoy, n. 11, pp. 173-184.
40. Ibid., p. 175.
41. Ibid., pp. 173, 176.

high-technology weaponry.[42] However, Burma needs to pay attention to its changing strategic posture.

Nuclear proliferation in Asia is not only dependent on the classic bilateral network, but also forms a nuclear linkage under a new centre. A small proliferator is not able to set up shop without political back-up. Overall, a couple of small proliferators have succeeded in becoming part of more sophisticated linkages, which the non-proliferation regimes and sanctions have failed to address.

Fig. 3: Fission of Proliferation Centre



NUCLEAR NON-PROLIFERATION INITIATIVES: SOLUTIONS

The global restrictions on nuclear non-proliferation are based on the nuclear technology, materials and scientists.[43] According to Trevor Mcmorris Tate (1990), in the first phase, from 1953 to 1974, it was observed that the nuclear policy had shifted from a secret one to an openly debated one due to the strong desire among the states which want to adopt nuclearisation for various reasons, mainly security and defence issues. The second phase was from 1975 to 1980 and emphasised that the

42. Bertil Linter, *Asia Times*, July 19, 2006, http://www.burmanet.org/news/2006/07/19/asia-times-myanmar-and-north-korea-share-a-tunnel-vision-bertil-lintner/
43. Trevor Mcmorris Tate, "Regime-Building in the Non-Proliferation System," *Journal of Peace Research* 27(4), 1990, pp. 399-411.

If nuclear proliferation is inevitable, like many say, then it needs to be part of well-planned security cooperation.

proliferation of nuclear technology would cause significant danger to the world. The states, led by the P-5, have tried to prevent the spread of nuclear technology. This has continued in the third phase, from 1981 to the present. The world is concerned about both nuclear technology proliferation and those who can develop new nuclear technology quickly. The current period is focussed on the efficient restraint of non-proliferation of the technological basis of the nuclear fuel cycle, especially the enrichment phase or separation of plutonium, and accumulation of plutonium. This is an exceedingly sensitive issue related to the acceptance of international safeguards and controls of nuclear exports. Since the 1990s, the global concern with regard to managing proliferation activity has focussed on the non-proliferation regime and counter-proliferation policy, rather than on the traditional deterrence theory.[44] So far, 188 countries, including the P-5 countries, have joined the discussion on this issue through the NPT Review Conference.

However, academics, strategic thinkers and policy-makers have differing perceptions of the danger of the situation. Barry R. Schneider argues that theorists and policy-makers have different kinds of opinion on the nuclear proliferation danger regarding two questions: whether nuclear proliferation is inevitable and whether nuclear proliferation will lead to a good or bad outcome?[45]

Accordingly, as shown in Table 1 below, the groups are divided broadly into two, based on their viewpoints on the question of whether nuclear proliferation is inevitable. Those who agree that nuclear proliferation is inevitable are sub-categorised in what will come after it happens. Pro-proliferationists believe that the international security environment can be stabilised if the entire world possesses equal nuclear capability. The

44. Barry R. Schneider, "Nuclear Proliferation and Counter-Proliferation: Policy Issues and Debate," *Mershon International Studies Review,* 38, 1994, pp. 209-234.
45. Peter D. Feaver and Emerson M. S. Niou, "Managing Nuclear Proliferation: Condemn, Strike, or Assist?", *International Studies Quarterly* 40(2), 1996, pp. 209-233.

proliferation optimists say that the worst case would be an all-out war. But that can be managed by the states' rational choice, even though nuclear proliferation is unavoidable. However, proliferation pessimists have a different opinion on this issue. They argue that the spread of nuclear weapons is fatal and would ultimately lead the world towards apocalypse or a nuclear winter. However, they also feel that nuclear proliferation is unstoppable, unmanageable and unavoidable.

Table 1: Different Viewpoints on Nuclear Proliferation

		Is Proliferation Inevitable?	
		Yes	No
Probable Outcome	Good	Pro-proliferationists (will lead to deterrence)	Non-proliferation optimists (can win over proliferation)
	Mixed	Proliferation optimists (worst outcomes can be managed)	Selectivists (prevent/punish rogue states, but permit stabilising spread)
	Bad	Proliferation pessimists (will lead to use of nuclear weapons with disastrous results)	Universalists (must prevent all further nuclear proliferation)

Resource: Barry R. Schneider, "Nuclear Proliferation and Counter-Proliferation: Policy Issues and Debate", *Mershon International Studies Review*, 38, 1994, p. 209-234.

On the other hand, those who disagree about the inevitability of proliferation are also sub-categorised into three groups. The non-proliferation optimists predict that nuclear proliferation can be stopped and rolled back based on the appropriate negotiations among governments. They give the example of those states which are developing nuclear weapons and have agreed to halt their nuclear programme for the maintenance of the international order. The selectivists offer different solutions to different states. They argue that the proliferation sanctions will apply only to those states already pointed out as being proliferators, and against international peace. Finally, the "universalists" oppose all kinds of nuclear proliferation

acts and feel nuclear proliferation should be totally stopped, since the world will be in danger.

If nuclear proliferation is inevitable, like many say, then it needs to be part of well-planned security cooperation. In other words, there is a couple of troublesome issues because of the approach of, and regulations under, the non-proliferation regime. It actually needs to monitor potential proliferators and focus on who can and will develop dangerous arsenals which can cause another link of proliferation. If other conditions remain the same, then clearly no proliferator will go in for identified proliferation activity. Yet it is better to keep predictable proliferation under surveillance, rather than ignore it.[46] The non-proliferation regimes hinder international consensus-based norms, treaties and trans-national policies.

In fact, the nuclear non-proliferation regime aims to arrest the main drive that instigates a nation to attempt developing nuclear weapons. Based on several aspects on nuclear proliferation, it is suggested that distinct diplomatic pressure should be applied to different states. According to the proliferation determinists, only extreme measures on this issue can work against actual proliferation activities. With the end of the bipolar world order and the emergence of multipolarity, the possibility of traditional deterrence has been uncertain mainly owing to the increase in the number of state and non-state actors. Both regionally and bilaterally, the way to cooperate has changed in the changing environment. However, it is clear that 9/11 was a watershed in international security. One interesting argument is that "current proliferators are neither as 'dead set' on proliferating nor as advanced in their nuclear capabilities as the determinists claim"[47]. In other words, the US' grand bargain is positive to boost civil nuclear cooperation between the US and those that are either accepted by the US or condoned by the international community. Yet, it is criticised as an indication to others who are defiant of the US, that they would not be listened to, or offered such a status as long as they remain adamant. Irrespective of all this bargaining, a few states follow an ambiguous standard in which the atomic weapons

46. Ibid., p. 210.
47. Alexander H. Montgomery, "Ringing in Proliferation : How to Dismantle an Atomic Bomb Network," *International Security*, 30(2), 2005, pp. 153-154.

programme is camouflaged under the name of peaceful nuclear technology.[48]

In fact, the major reason why the non-nuclear states have followed the international restrictions by giving up the nuclear option is that they expect to profit from the cost-benefit and security considerations in a threatening and pressurising international environment. Some states which do not have nuclear weapons but have the capability to acquire them within a short time also have refrained from doing so due to the political cost-benefit calculus which makes it reasonable to do so.[49] In other words, we cannot say that these countries have compromised on their national security — rather they have opted for a different type of security guarantee: collaboration through diplomatic channels, alliances or under the nuclear umbrella. However, this regime is only intended to freeze global nuclear development, accumulation and proliferation for military purposes (though there are several distinguishable cases), which is opposed by the *de facto* nuclear states as well as the nuclear club. For example, one of the arguments on the NPT is that this treaty has been ambiguous when its provisions have been applied to the development of a nuclear facility for states unilaterally termed as "pariah" or "rogue".[50]

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The two cases — proliferation in a grand ally and proliferation in the small states — reveal the differences of approach in the non-proliferation regime. Moreover, while several major powers are determined to deny states like North Korea and Iran (termed the 'axis of evil' or 'rogue states'), almost all are enthusiastic to offer NPT members their support in their

48. William Walker, "Nuclear Order and Disorder," *International Affairs,* 76(4), 2000, pp. 703-724. See also, Jack I. Garvey, "A New Architecture for the Non-Proliferation of Nuclear Weapons," *Journal of Conflict & Security Law,* 12(3), 2008, pp. 339-357.
49. Michael Ruhle, "Enlightenment in the Second Nuclear Age," *International Affairs,* 83(3), 2007, pp. 511-522.
50. S. Robert Litwat and Robert Litwak, *Rougue States and U.S. Foreign Policy: Containment After the Cold War* (Baltimore: The Johns Hopkins University Press, 2000), p. 198.

endeavour to develop civil nuclear programmes, despite their criticism of the biased standard of the NPT. To many scholars, the differential attitude of the major powers towards different states is simply based on hegemonic interests.[51] In another example, UN Security Council Resolution 1540 calls for all states to criminalise proliferation to non-state actors and to manage and modify the export control regime effectively. It was proposed in 2003 by the US government, to alarm the UN member states to fill the loopholes in the NPT regime.[52]

However, it cannot be said that the nuclear non-proliferation regime has not achieved anything. The nuclear non-proliferation regime has had partial success. Initially, the targets of the nuclear proliferation regime were China, West Germany and Japan.[53] After the non-proliferation regime evolved, a number of issues were raised, such as how to assuage the fears regarding security, to stop proliferation activity. A survey of the literature on the monitoring of nuclear proliferation shows how the counter-proliferation policy can be evaluated in order to determine whether it has been successful, has failed or is pending.[54] Success implies a decrease and a rollback of proliferation, or successful global efforts in deterring proliferation. For example, the establishment of NATO, implementation of the NPT, discouragement of South Korea's and Taiwan's nuclear initiatives, establishment of the MTCR (Missile Technology Control Regime), rollback of Argentina's and Brazil's nuclear programme, reduction of the US-Soviet nuclear arsenal under Article VI of the NPT, etc. Therefore, in this view, there has been no nuclear war since 1945. These initiatives are regarded as successful ones to check global nuclear proliferation. In spite of these successful efforts, some cases have proved unsuccessful. According to Dunn, nuclear starters such as France, UK, China, Israel, India and Pakistan fall in

51. William Walker, "The Breakdown of WMD Order," *Strategic Studies,* 44(370), 2004, pp. 47-59.
52. http://www.twq.com/05spring/docs/05spring_albright.pdf
53. Oran R. Young, "Chinese Views on the Spread of Nuclear Weapons," *The China Quarterly*, 26, 1966, p. 138.
54. Lewis A. Dunn, "Countering Proliferation: Insight from Past Wins, Losses, and Draws" in Lavoy ed., n. 11, pp. 47-58.

the unsuccessful category. Also, at a later stage, two countries known as violators – North Korea and Iran – are still striving for a nuclear arsenal. Lastly, some other cases are pending in the "draw" category. For example, the United Nations Security Council (UNSC) engagement on Iran and the Cooperative Threat Reduction agreement with Russia. Some countries are argued to have brought some kind of expectation for the non-proliferation regime. Owing to the stringent IAEA safeguards and international reaction over the nuclear weapons programme, it is hoped that the proliferation process would slow down.

As is pointed out, a security dilemma is an inevitable problem that every state faces. It is difficult to maintain constant stability between rivals. There are more variables since a region is the unit between the state system and the international system where a constant intersection of security interests of different nations takes place. Regardless of the concept of stability-instability where a region is viewed as a subordinate piece of international politics, it is clear that rivalry in a region is considered a prominent factor in nuclear proliferation. It is of prime importance to understand how environmental concerns affect nuclear decision-making. The regional angle of the nuclear issue comprises one package of the global nuclear proliferation debate. For this reason, it is relevant to further analyse and compare nuclear proliferation issues within the context of Asia in the future.

CONCLUSION: FUTURE OF NUCLEAR PROLIFERATION

The issue of nuclear proliferation is not a stand-alone phenomenon; rather, it has given rise to other related issues, such as counter-proliferation, restraint regimes, and so on.[55] Owing to increasing nuclear stockpiles with the new nuclear weapon states, over nuclear proliferation concern seems to be as widespread as it was earlier and the danger of further spread has not faded. Especially, the pattern of proliferation, where the proliferation centre is moving, needs a fresh look. No doubt, both the USA and Russia have mutually reduced their stockpiles but the proliferation pattern may become more complex owing to the expansion of the weapons programmes among

55. Montgomery, n. 47, p. 181.

As seen, transfer of nuclear technology and material has been initiated from the nuclear-capable countries. During the initial period, nuclear information was shared by the superpowers secretly through bilateral linkages on ideological lines.

new proliferators. Therefore, in future, the hub made by small proliferators would be intensive and would expand.

As seen, transfer of nuclear technology and material has been initiated from the nuclear-capable countries. During the initial period, nuclear information was shared by the superpowers secretly through bilateral linkages on ideological lines. It was effective to maintain a circle of allies against a focussed enemy. This strategy saw the emergence of the small proliferators but now they have been put out of the orbit in the post-Cold War period, with the disintegration of the USSR. However, the nuclear non-proliferation regime has evolved and partially succeeded in containing the spread of nuclear weapons technology, even though a few states have managed to cross the threshold. Partly, both the superpowers are responsible for either helping, or turning a blind eye towards, the new nuclear weapons activities of their client states. Many countries that were not part of the blocs followed an independent path by resisting pressure from the regime as well as the major powers.

The second phase of proliferation demonstrates how small proliferators have become organised into a group, and developing a linked assembly line. The Pakistan and North Korea connection is an example in this case, in that one customer of the Khan network has become a new hub. Now, the new periphery around the North Korean nuclear hub consists of Myanmar, Syria and Iran. It is a matter of speculation whether these countries would really defy the non-proliferation norms and come out successful in reaching the nuclear threshold. Regarding the pattern of proliferation of this new hub, it is not clear how the next proliferators will grow, who they will be and where they will go.

Danger of Imitated Strategy

Historically, it is observed that nuclear aspirants may adopt a strategy similar to that of the other nuclear weapon states, by posturing nuclear ambiguity and secrecy. They have been successful in achieving a level of nuclear weapons capability. Israel's status is still shrouded in mystery as it has never tested a device nor has it openly declared its nuclear weapon status. India, on the other hand, has maintained an ambiguous strategy for long even though it tested its first device in 1974. It has always maintained that it is not interested in acquisition of nuclear weapons. But in 1998, it overtly declared itself a nuclear weapon state by testing more devices. Pakistan, as was expected, followed India's actions by testing five devices. Two other countries with potential to cross the threshold are South Korea and Japan that have substantial nuclear capabilities and the regional situation is complicated enough for them to consider a nuclear deterrent. But what method or model they will follow is unknown. Whether they will follow the security compulsion justification and go nuclear overtly or maintain an Israeli-type of strategy is a matter of speculation.

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Innovative Strategy

However, it is certain that the future proliferators would not follow the same methods that have so far been followed by others. Each country devises its own strategy and method to initiate, and move on for, the acquisition of nuclear weapons. When Pakistan intended to acquire them, it followed the route which the non-proliferation regime was not aware of. Particularly those countries that are considered irresponsible and have built up an image as future proliferators in the comity of nations would follow innovative ways to acquire nuclear weapons to avoid the prevailing restrictions. The question is whether the non-proliferation regime is equipped to visualise and address those loopholes which the future proliferators would exploit.

This study assumes that if small countries or a third party helping nuclear aspirants decide at some point to go for nuclear weapons, they would not follow the path followed so far by others. But to sustain their efforts and successfully acquire nuclear weapon, two conditions must be present: (1) the new hub they are linked to must be strong enough to sustain the supply; (2) they must have the wherewithal to sustain the pressure exerted by the international regime and the system. Whether this scenario is likely and how quickly it will take place is a subject of academic analysis only.

As a matter of fact, though the issue of nuclear proliferation is subject to speculation and value judgement, the intention to acquire nuclear weapons is linked to psychology as well as security. Of course, the "advent of new nuclear weapon states will remain a rare occurrence"[56] but it may take place in two sets of countries, as identified above. The first group comprises the relatively responsible actors of the international community, and if they decide to go for nuclear weapons, they would face a relatively mild international reaction, whereas the other group would face a punitive reaction. However, the assertion that they "will be identified in time and thus, potentially, contained"[57] will remain a subject of an idealistic world view. Non-proliferation is unsustainable till such time all nuclear weapon states accept universal disarmament.

56. Jacques E. C. Hymans, "Theories of Nuclear Proliferation: The State of the Field," in Lavoy ed., 2007, No. 11, p. 30.
57 Ibid.