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Preface

The United Nations Institute for Disarmament Research (UNIDIR), which has been in existence since 1 October 1980, was established by the General Assembly as an autonomous institution within the framework of the United Nations to carry out independent research on disarmament and related international security issues.

The Institute's work, which is based on the provisions of the Final Document of the Tenth Session of the General Assembly, aims at:

1. Providing the international community with more diversified and complete data on problems relating to international security, the armaments race and disarmament in all fields, particularly in the nuclear field, so as to facilitate progress, through negotiations, towards greater security for all States, and towards the economic and social development of all peoples;

2. Promoting informed participation by all States in disarmament efforts;

3. Assisting on-going negotiations on disarmament and continuing efforts being made to ensure greater international security at a progressively lower level of armaments, particularly nuclear armaments, by means of objective and factual studies and analyses;

4. Carrying out more in-depth, forward looking and long-term research on disarmament so as to provide a general insight to the problems involved, and stimulating new initiatives for new negotiations.

In publishing this series of research papers, UNIDIR wishes to make available to the international diplomatic as well as scientific community analyses prepared by the staff of the Institute or persons working within its framework who express their personal points of view on current questions. The papers will deal with a very broad range of subjects and will vary in scope, depending on the evolution of security, disarmament and arms limitation problems, as well as on the specialization of the authors, although it will invariably be related to the Institute's programme of work.

UNIDIR takes no position on the views and conclusions expressed in these papers which are those of their authors. Nevertheless, UNIDIR considers that such papers merit publication and recommends them to the attention of its readers.

Sverre Lodgaard
Director, UNIDIR

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Chapter 1
Introduction

Despite the end of the Cold War, countries in Northeast Asia are still on a Cold War footing. Though security environments improved, China, South and North Korea, and Japan are still living in uneasy situations. After the Japanese colonial rule ended, there were two local wars that were waged with the participation of Super Powers; one is the Korean War and the other is the Viet Nam War. Although the latter occurred in Southeast Asia, Northeast Asian countries were involved in it whether directly or indirectly, thus their security policy was affected to a great extent.

China has long been striving for the status of a nuclear weapon State to reinforce its defence and security to cope with the threats from the United States and the former Soviet Union. North Korea had successfully maintained its security in a close relationship with the former Soviet Union and China until those relations were undermined by a change of circumstances. However, North Korea, an initiator of the Korean War, has now been trying to develop nuclear weapons as if they were in the middle of the Cold War without paying attention to implications for the region or the world.

South Korea and Japan have maintained a bilateral security alliance relationship with the United States, sheltered in the US provision of security for the past four decades or so. Though US military presence is undergoing gradual changes, the basic security alliance and defence strategy remains the same. Neither South Korea nor Japan wants to see abrupt changes in its bilateral security alliance relationship with the United States.

Against this background, four countries in Northeast Asia are still engaged in an arms race, both in the conventional arena and in the nuclear arena. China and North Korea continue to arm rather than make efforts to enhance security and peace through bilateral or multilateral talks by employing arms control methods. Those countries have not yet entered the first step of arms control; the creation of a mutual confidence-building process. Although mistrust and animosity among them linger on as a result of the colonial period and subsequent wars, it is hard to deny that a long-term trend in Northeast Asia is making slow but steady progress toward building trust and confidence in the region. This is partly because the new world order requests that these countries accept the concepts and policies of arms

control and partly because they themselves prefer to live in a more peaceful and stable world in order to focus on continuing economic development and well–being.

One great potential shock, however, may be that North Korea, which is used to shocking the external world, has undertaken the development of nuclear weapons. The effect of this shock will make other countries such as South Korea and Japan nervous and restless. This is very harmful to the trend that has seen the two nuclear Super Powers start to cut their nuclear arsenals and the international community move toward strengthening the non–proliferation regime. The North Korean attempt to go nuclear will cause maximum adverse effects on the road to arms control and disarmament in the region, let alone on the road to the extension of the Non–Proliferation Treaty (NPT) in 1995. China's inaction by following the suit of the Super Powers is no less worrisome.

Against this background, this study attempts to discover the stumbling blocks that lie in Northeast Asia which may hamper the extension of the NPT. To create a more peaceful and mutually trusting atmosphere with less arms than now in Northeast Asia, bilateral and multilateral efforts are necessary to draw the countries in Northeast Asia to the arms control process. This process has already been successful in the European case and in the global dimension, the recent case of which can be identified in the successful conclusion of the Chemical Weapons Convention (CWC) in 1993.

Therefore, this paper will attempt to find ways to facilitate bilateral and regional co-operation regarding nuclear issues in Northeast Asia. This is necessary in order to reduce uncertainties regarding nuclear policy and capabilities of these countries, thus enhancing transparency and confidence in the region. This task will enable us to design bilateral, regional and international measures to be taken in order to bring regional actors into multi–fora efforts to strengthen the non–proliferation regime and to introduce China into the nuclear disarmament process.

Before bringing these countries into the nuclear disarmament and non–proliferation process in an effective way, we need to revisit the issues that have had to do with the arms race. The review will prepare us well for undoing what has been done by the countries in the region. Therefore, it is necessary to analyze briefly each country's past nuclear policy. This analysis will provide insights in predicting the future policy paths that nations in Northeast Asia will take and in understanding the bearing that future paths will have on the arms control and disarmament process in a regional, as well as a global, sense.

Chapter 2
Background

This Chapter will explain the attitudes of the countries in Northeast Asia toward the general concepts of arms control and nuclear issues. Related to the nuclear issues, a brief cross–country analysis will be made to show the large variation in the nuclear issues. This will, in turn, indicate how many different approaches should be used for the nuclear problems in the region.

2.1. Attitudes Toward Arms Control

As the Cold War ends, forces that have aligned countries in Northeast Asia with the bipolar security blocs are weakening. Certainly, northern triangular relations among the former Soviet Union, China and North Korea have been dismantled. The forces that have bound the United States and Japan, and the United States and South Korea, respectively, have become less compelling than before, though the United States still stations forces in Japan and Korea.

Despite changes of security environments, there are no noticeable efforts to accommodate the worldwide quest for arms control and disarmament in Northeast Asia. Countries are still complacent in pursuing arms control measures for various reasons. China is a beneficiary of the changing world order – the disintegration of the Soviet Union, the revised military deployments of the United States and the continued passivity of Japan have given China unprecedented latitude. Beijing, however, is continuing its military modernization. Although China had initiated a 25 per cent reduction of its armed military personnel for domestic purposes, it has increased defence expenditures by 50 per cent during the past three years. This stepped-up modernization includes imports of Russian aircraft carriers and aircraft, which have significant security implications over the region. Thus, it seems that China is generally not active in arms control.

The Korean peninsula became a short–time exception by producing a Non–aggression Pact in 1992, which may turn into a major step for confidence-building measures in the near future. However, it requires a rather long and painstaking process to reach the ultimate goal of easing tensions and building confidence and trust between the two Koreas. In spite of its economic austerity, North Korea shows no sign of decreasing defence expenditures nor does it show a

reliable intention to disarm forces that had been equipped with heavy arms, thus posing a formidable threat to South Korea along the border. South Korea is reluctant to consider conventional arms control unless militarily-superior North Korea comes to the negotiation table with genuine intentions rather than rhetorical proposals to undermine South Korea's defence efforts.

Japan finds no reason to undertake arms control before the Northern territorial issue is resolved successfully because it is concerned about the likelihood that the issue may be intertwined with other arms control agenda for negotiation. Japan has also indulged in a conventional defence build–up. Thus, its main concern lies in ensuring the security of the Japanese islands and sea lanes of communication, thus causing the arms control issue to take a lower priority.

In sum, the countries in Northeast Asia are engaging in a relentless conventional arms race in spite of a reversal trend in Europe and elsewhere. Henceforth, there is no overarching regional security forum to address security issues from the perspective of each country, nor are there recognizable efforts to do so. No bilateral or regional attempt has been made to enhance regional security among countries in Northeast Asia. As a result, there exists no equivalent to the CSCE (Conference on Security and Co-operation in Europe) in Asia.

2.2. Attitudes Toward Nuclear Arms Control

On the nuclear dimension, the nuclear deterrence provided for Japan and South Korea by the United States is changing now that the United States has withdrawn all tactical nuclear weapons from the Korean Peninsula. Accordingly, key premises in the security alliance between the United States and Japan and between the United States and South Korea are undergoing adjustments.

However, what is not changing is China's nuclear arsenals and its nuclear policy. China recently acceded to the Non–Proliferation Treaty of 1970, just three years before its test for the review on its extension. However, it is hard to find evidence that China significantly changed its nuclear policy and strategy. Apparently, China intends to fill the power vacuum that was created as a result of loosening bipolarity or evolving multipolarity in the post–Cold War period with its nuclear capabilities.

On the other hand, Japan, ascending to the economic Super Power status, adds uncertainty about its future nuclear policy by stockpiling, on a massive scale, plutonium in the midst of rising international concerns. North Korea is not alone

in taking advantage of uncertainty by taking deviant action to develop nuclear weapons to ensure its own security or to pose formidable threats to South Korea.

If North Korea turns into a proliferator, it will compound security problems *vis–à–vis* South Korea and Japan, not to speak of the adverse effects on the Non–Proliferation regime. Recognizing enormous security problems that a North Korean nuclear weapon programme would raise, South Korea has taken a bold approach to denuclearize the Korean Peninsula. South Korea's strategy can be interpreted as an arms control approach whose precedent can be found in European arms control. By unilaterally forgoing nuclear options that can even be used for peaceful purposes – namely, development of uranium enrichment and reprocessing plants, South Korea called for reciprocal measures from North Korea. As a result, the South Korean approach paid off at least by obtaining denuclearization agreements between the two Koreas on December 31, 1991.

South Korea's non–nuclear policy was made possible because the United States and former Soviet Union announced they would withdraw all tactical nuclear weapons from abroad. This event opened a window of opportunity for South Korea to attempt to deprive North Korea of its intentions to go for nuclear proliferation. Nonetheless, it is not yet clear whether North Korea will completely live up to the denuclearization accords.

As such, Northeast Asia is the region where four layers of countries exist regarding the state of nuclear capabilities – a Nuclear Weapon State (China), a potential proliferator (North Korea), a recessed threshold country (Japan), and a voluntarily restrained country (South Korea). As uncertainties grow concerning nuclear intentions and capabilities, no individual country has taken steps to reduce those uncertainties so as to enhance stability in the region, except for South Korea's preliminary approach to denuclearize the peninsula. This means that countries in Northeast Asia, except South Korea, have not yet paid appropriate attention to nuclear disarmament and non–proliferation to keep up with the world trend for disarmament and non–proliferation.

Previous, international efforts to prevent the North Korean nuclear weapon programme were pursued either through the International Atomic Energy Agency (IAEA) or through international collective efforts. Finally, agreement between the United States and North Korea was reached to resolve the North Korean nuclear issue within a broad framework on 21 October 1994. North Korea's case provides insights into how nuclear disarmament and non–proliferation issues as well as the arms control issue in general, can be approached to enlighten Northeast Asia which has been dormant concerning arms control. Approaching the issue from the international level can be effective, but there are, of course, limitations. In this

connection, this study combines those international measures with region- specific measures.

Given that countries in Northeast Asia are engaging in a conventional arms race and refuse to follow nuclear disarmament trends, they might be drawn into an endless arms race, thus destabilizing the region unless they make positive changes in nuclear and conventional policy. If China remains immune to an on–going nuclear disarmament process between the United States and the former Soviet Union, it will function as a destabilizing factor in the region. If Japan remains silent about its plutonium stockpile plan, it would not help improve the security of Northeast Asia. Without effective bilateral inspections over all the suspect nuclear facilities of North Korea, it will not enhance the non–proliferation regime.

Before going further into individual country analysis in Northeast Asia, it is useful to examine nuclear capabilities of countries across the board. This simple comparison tells us that nuclear problems in Northeast Asia are not so easily tackled by one method.

Table 1 presents the comparison of nuclear reactors of four nations in Northeast Asia. The data in Table 1 are collected by the IAEA sending out questionnaires to confirm its data sources. The countries then return the filled–out questionnaires to the IAEA. According to these data, Japan is the top country in the three categories: research reactor, power reactor in operation and under construction. Japan possesses 18 research reactors, 42 operating power reactors, and is building 10 power reactors. As far as Japan is concerned, it has no reactor undeclared to the IAEA. Interestingly enough, China owns eight research reactors, has only one power reactor in operation and is building two power reactors. China may have more than eight research reactors but they are largely unknown to the international community because it as a nuclear weapon State is not obliged to report its holdings of reactors.

Table 1: Research Reactors and Power Reactors in Northeast Asia

	China	Japan	South Korea	North Korea
Research Reactors	8	18	3	1

Power Reactors in operation	1	42	9	1
Power Reactors under construction	2	10	3	2

Source: The IAEA PRIS Database, 1993.

The fact that China has only one power reactor shows the extent to which it has solely dedicated its nuclear policy to developing nuclear weapons. China is expected to add two more power reactors in the near future. South Korea has three research reactors, is currently operating nine power reactors and is constructing three more. There are no errors in these data because all these reactors are under the IAEA safeguards. North Korea has one research reactor, one operating reactor which is closer to a research reactor rather than a power reactor, and is building two more to be completed within this decade. Doubts remain concerning these data because it is only in 1992 that North Korea safeguarded the reactors. This simple comparison tells us that it is very hard to discover a common subject to draw them to negotiation table.

If we compare the number of nuclear weapons of the countries in Northeast Asia, the difference is even more striking, as seen in Table 2.

China has some 250 to 450 nuclear warheads, depending on the estimate, whereas Japan and South Korea have none. North Korea is suspected of developing nuclear weapons with already extracted plutonium. This striking asymmetry of the nuclear arsenals makes it difficult to start the nuclear disarmament process in the region itself.

As shown in Table 3, comparison of the dates when countries acceded to the NPT and when they have signed and ratified the IAEA safeguards agreement shows a sharp difference in their response to the international obligation of the NPT.

Table 2: Number of Nuclear Weapons in Northeast Asia

	China	Japan	South Korea	North Korea

Number of nuclear weapons (estimated)	250-450	0	0	Uncertain

Source: IISS, *Military Balance 1993-94* and *SIPRI Yearbook*, 1993.

Table 3: Dates of Accession to the NPT and Ratification of IAEA Safeguards Agreement

	China	Japan	South Korea	North Korea
NPT Accession	92.3.9	76.6.8	75.4.23	85.12.12
IAEA Safeguards Agreement Ratification	88.9.20 (only non-military)	77.12.2	75.11.14	91.4.9

On 9 March 1992, China acceded to the NPT, almost on the eve of the NPT extension review, although it safeguarded its one power reactor on September 20, 1988. The fact that the date of the IAEA safeguards agreement comes before its accession to the NPT shows that China is an exception compared with other countries. South Korea was the first to have acceded to the NPT and ratified the IAEA safeguards agreement. Among the four countries, Japan is the second in its accession to the NPT and IAEA safeguards agreement. North Korea comes last. Furthermore, North Korea ratified the IAEA safeguards agreement long after its accession to the NPT, and only then as a result of international pressure and South–North nuclear negotiations. This time interval between its accession to the NPT and the ratification of the Safeguards agreement is enough to raise external suspicion on its nuclear programme. This comparison conveys a sense as to the difficulty of resolving the nuclear issues of Northeast Asia on the regional and global level. There can be no easy, one–dimensional solution to these questions. The nuclear problem does not have one dimension. If the United States and Russia are added to the equation, the problem becomes compounded. Thus, we will need a multi–method approach to resolve the nuclear issues in Northeast Asia.

To bring these countries into the nuclear disarmament process and to make non–proliferation more enduring by increasing transparency in each country's nuclear programme, we need to look into each case more carefully. To identify the

main policy trends of each nation is necessary to design policy options to draw them into the world–wide trend for nuclear arms control and disarmament. The next three chapters will analyze the nuclear policies and capabilities of each country, China, South and North Korea, and Japan. I combine South and North Korea in one Chapter as they are already engaged in negotiation to resolve the nuclear issue in light of arms control. In this regard, South and North Korea are attempting to keep up with the world trend although intentions of the North Korean side are problematic.

From the analysis of nuclear capabilities and policy, we will discover the rationale and trends on which each country has based its build up of nuclear capabilities, mainly related to a nuclear weapons programme. Without knowing the build–up rationale, it is difficult to reverse the trend. Thus, arms control policy will be bound by the arms build–up rationale and the interest groups of each nation.

This paper will identify and compare each country's declared arms control policy with its real policy. The more contradiction there is between the policies, the more difficult it will be to bring these countries into the arms control process. Also, it will be predicted on which course the countries will follow in regard to future arms control. This venture is needed to provide insights into the stage of developing policy options to make alternative policy options more relevant.

Chapter 3
China

This Chapter will analyze the nuclear capabilities and policy of China. It will provide insights into the estimation of the future nuclear policy paths and orientations toward nuclear disarmament. In this process, factors hindering China's involvement in the disarmament issue will be identified to call for appropriate policy measures to reverse the long–standing policy of nuclear arms build–up.

3.1. Nuclear Capabilities

China detonated its first atom bomb in October 1964. Thereafter, it succeeded in developing medium range ballistic missiles and tested its first hydrogen bomb in 1967. Right after the Sino–Soviet border clash, it deployed intermediate–range ballistic missiles and finally in 1975, it succeeded in developing inter-continental ballistic missiles. It took only 11 years to reach the level of inter-continental ballistic missile capabilities. In 1982, China succeeded in the flight of a submarine-launched ballistic missile (SLBM), with solid propellant rocketry missiles immediately followed by the first submarine cruise missile test, thus strengthening confidence in its technology by replacing long–held liquid propellant missiles.

As such, China's nuclear arsenal contains all the pillars of the nuclear triad: land–based missiles, whose targets are basically in the former Soviet Union; inter–continental ballistic missiles (DF–5) with sufficient range to reach the US and Europe. Table 4 shows the currently deployed nuclear warheads of various kinds. The estimated number of land–based missiles including the ICBMs is between 80 and 130. Air–launched missiles number between 140 and 150 on a fleet of abut 120 to 140 aging bombers. The sea–launched missiles number from 26 to 38. Though the number is unknown to us, China also has tactical nuclear weapons. According to the data released by Stockholm International Peace Research Institute (SIPRI), the total number of nuclear warheads deployed as of 1992 is estimated to be between 276 and 424, marking the third largest nuclear weapons State in terms of warheads deployed.

Table 4: China's Nuclear Arsenals as of 1993

Weapon system					Total estimated number
Type	Year deployed	No deployed	Range (km)	warhead x yield	
Aircraft					
H-5(Il-28 Beagle)	1974	20	1850	bomb	20
H-6(Tu-16 Badger)	1965	120	5900	1-3 x bombs	130
Land-based missiles					
DF-2(CSS-1)	1966	20-30	1450	1x20KT	20-30
DF-3(CSS-2)	1970	60-80	2600	1x1-3MT	60-80
DF-4(CSS-3)	1971	10	4800-7000	1x1-3MT	10
DF-5(CSS-4)	1979	10	13000	1x4-5MT	10
M-9/SST600	1989		600	1xlowKT	
Submarine-based missiles					
JL-1(CSS-N-3)	1986	24	3300	1x200KT-1MT	26-38
Tactical nuclear weapons	1986	N.A.			

Source: *SIPRI Yearbook*, 1992, p. 22.

Different sources suggest that the number of China's nuclear warheads range between 250 and 450,[1] and the United Kingdom and France have more than China.[2] At any rate, China's nuclear capabilities differ strikingly from those of France and the United Kingdom in that China has remarkable intercontinental and submarine launching capabilities. Another point worth noting is that China has already succeeded in developing tactical nuclear weapons. China added tactical nuclear weapons to its strategic weapons in 1984. In a nutshell, China holds all kinds of nuclear weapons and delivery capabilities to be employed in any actual conflict situation from a local war to a global war.

China has conducted 38 known nuclear weapons tests since the first atomic bomb of 1964. The 37th test conducted on 21 May 1992 raised concerns because of its size of one megaton above the limit agreed by the United States and Russia which is 150 Kt.[3] Also, the latest test has raised concerns because it happened in the midst of a *de facto* nuclear test moratorium among nuclear weapon States. The total number of tests is relatively small but China achieved the status of the third nuclear weapons power in an efficient way.

In contrast with its formidable military capabilities in the nuclear realm, China's nuclear capabilities in the peaceful area is at an embryonic stage. China started its first nuclear power plant in December 1991 at the Qinshan power station. The capacity of the Qinshan power plant amounts to 300 MWe. It is the first of at least seven reactors China plans to build this decade to relieve its electricity shortage. The austerity of the plant illustrates how most spending on nuclear technology has gone toward achieving military might rather than electric power.[4] China decided to safeguard this facility under the IAEA in 1988. In 1994, China officially started up another 900 MWe nuclear power plant at Daya Bay, 20

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[1] According to Shen Dingli, Co-chairman of the Arms Control and Regional Security Program at Fudan University in Shanghai, China has between 250 and 325 nuclear warheads of at least five different yields, or explosive power, and designs, *Defense News*, 22–28 June 1992.

[2] Michael E. Brown, "Recent and Future Developments in Nuclear Arsenals", the UNIDIR Conference Paper, December 1992. pp.38. He relies on the data provided by the IISS. According to those data, the United Kingdom holds 350–500 nuclear warheads while France holds 500–650. Since estimates on China's nuclear arsenals are between 250–400, China is trailing the United Kingdom closely.

[3] The Threshold Test Ban Treaty between the United States and the former Soviet Union which came into effect in December 1990 set limits on underground test to 150 kilotons. France has conducted about 200 tests while the US did about 1,000.

[4] *The Christian Science Monitor*, 25 March 1992.

miles from Hong Kong. In addition, China will construct two 600 MWe power plants of its own design at Qinshan to be completed in 1998. In this decade, it also plans to build two 1000 MWe Russian reactors in the Liaoning Province.

According to Chinese officials, China had problems developing power plants because the technology required for them is more complicated and quite different than that which they had for military purposes.[5]

3.2. Nuclear Policy

China's stated nuclear policy is that it owns nuclear weapons solely for self–defence purposes.[6] It is partly true that China, having lived through the US nuclear threat during the Korean War and the Taiwan Straits crisis in the 1950s, as well as the Soviet nuclear threat since the Sino–Soviet border conflict, always kept mindful of nuclear threats coming from the Super Powers. Thus, defence of its mainland from the nuclear threats of the United States and the former Soviet Union could have been the most important political goal of the Chinese leaders. Its policy was perhaps not to attack any enemy but to warn the enemy so that it dares not attack China. This was the primary goal of China's nuclear development.

Other than defence as a predominant policy goal, China developed nuclear weapons to advance its national interests and status in the international order and to maximize the utility of its nuclear weapons as a means to exert influence in the international community. Paradoxically, China justified its reason for developing nuclear weapons by stating that it wanted to ban completely and to destroy thoroughly nuclear weapons by breaking the nuclear monopoly of the prior nuclear powers. This emphasizes China's different stance in the bipolar world to gain the leadership of the Third World.

To Beijing, it is clear that the status of a nuclear weapon State has provided a strategic relationship with the United States which pursued a good relationship with China to contain the former Soviet Union. Thus, keeping its nuclear status will provide many political and diplomatic assets that China can mobilize in order to advance its national interests.

What is striking in China's development of nuclear weapons is that it focused on improving its capabilities in terms of quality instead of quantity. This will make

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[5] *Ibid.*

[6] Qian Qichen, Speech at the Conference on Disarmament in Geneva, 27 February 1990, p.5.

China more capable than many other nuclear weapon States. More than anything else, if equipped with various capabilities, it will be easy and quick for China to produce more in the event of crisis. To match nuclear Super Powers in quality would lessen the sense of threat to China and pose a counter threat to nuclear Super Powers. Strategic reasoning behind the emphasis on the qualitative improvement is fully supported by a policy that combines "catching up with the leader (Super Powers) and "advancing on several fronts simultaneously".[7]

3.3. Nuclear Strategy

China accomplished its policy goal of possessing nuclear weapons to gain access to the nuclear club. It diversified its arsenals in strategic and tactical nuclear weapons, which is quite a different approach than that taken by the United Kingdom and France, as noted above.

To accomplish deterrence and defence, China adopted three kinds of nuclear strategy that are very ill–defined since published materials from China contain no concrete guidelines for physical deployment of nuclear weapons. Stated policy contains no more than three principles that have to do with emphasizing the disutility of nuclear weapons and consequent disarmament. Thus, stated policy will not help in understanding China's nuclear strategy.

The first one is called the strategy of ambiguity. To Chinese strategic planners, it was seen that since Chinese arsenals are small relative to the Super Powers, raising uncertainty about its holdings and deployment could bring more security to China. To add to uncertainties, China employed the tactics of concealment, dispersal and increasing mobility of nuclear weapons to compensate for its numerical disadvantage relative to the Super Powers. Such increased uncertainty aimed to make other enemies unprepared for Chinese attack or counterattack. Thus, Chinese possession of nuclear weapons could increase utility in war by enabling Chinese to use them as a surprise. This strategy was always used to increase war-fighting capabilities in China regardless of whether or not it was in a position of weakness.[8]

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[7] Treverton, *China's Nuclear Forces*, p.41.

[8] Chong–Pin Lin, *China's Nuclear Weapon Strategy: Tradition within Evolution*, Lexington Books, Lexington, MA, 1988. According to the author, China's nuclear strategy is under the great influence of China's traditional military strategy. Applying the strategy of ambiguity as a part of military strategy can also be found in the case of the Korean War and the Viet Nam War.

The second strategy is called deterrence and war–fighting. It states that strategic nuclear weapons will be employed to inflict damages deep in an attacking country on its strategic targets. However, China's weapons could not be an effective means to assure mutual destruction of the Super Powers through retaliation. Rather, they could be used to deter those Super Powers from attack by raising the losses that they might receive in case of launching the first strike. This definitely had a deterrent function. However, for China, combining a conventional war with a nuclear war is a more or less unique strategy of war fighting. If one of the Super Powers, for example, the former Soviet Union, invaded China with nuclear weapons, China would wage a war of conventional and strategic war. China would use its vast land to trade space for time. If the attacker advanced into the Chinese territory, then China would draw it deep into its territory and lose a portion of population. But in the end, China would use its remaining population to wage a protracted war against the attacker. In such a combined warfare, nuclear weapons would not be that powerful; instead, the people's war would dominate according to Chinese military thinkers. China has also put an emphasis on survivability of its nuclear forces so as to withstand a nuclear first strike. China's tactical nuclear weapons serve as a war-fighting strategy. Although the stated policy is different, the military doctrine and training programme of tactical nuclear weapons indicate that China might use tactical nuclear weapons in a first use.[9]

Third and last, China's nuclear strategy is to negate the utility of nuclear weapons. This seems rather contradictory since it does not explain fully why and for what use China has nuclear weapons. This strategy seemingly pursues the policy goal of negating the status of Super Powers and gaining higher moral ground in the international society, thus advancing its own national interests. In the situations where China is vulnerable to the threats of Super Power strategic weapons, China ought to have adopted a strategy to reduce the utility of strategic weapons.

In this regard, the policy of no–first use was well conceived and promoted, at least for declaratory purposes. If China was not to use nuclear weapons, Super Powers should maintain the policy of no–first use. This unconditional no–first use implies that China has confidence in conventional warfare. The meaning of this

[9] *Ibid.*, p.75–104.

policy was properly deciphered by the US Secretary of State, Mr Rusk, as a smoke-screen to cover China's true intentions.[10]

If the United States was to accept this proposal, it would then lose the credibility of its security assurances to its allies. Most States belonging to the North Atlantic Treaty Organization (NATO) and US allies in the Pacific are opposed to the proposals for the no–first use obligation; such a commitment would be incompatible with NATO's nuclear strategy which provides for first–use under certain circumstances. Nuclear weapons have been an essential element of NATO security as they have compensated for conventional inferiority compared with the then Warsaw Pact nations. Also the fact that China continuously downplayed its nuclear weapon capabilities served to lessen the importance of Chinese nuclear threats to the external world and to avoid Super Powers' overconcern.

Understanding China's nuclear strategy can be a useful guide to unveiling the authenticity of China's stated nuclear policy. Although China has, in fact, nuclear strategies to achieve its policy goals, it sounds paradoxical to hear that China only developed nuclear weapons to completely ban nuclear weapons. In addition, it shows how difficult it is to undo what has been sought for by means of nuclear powers.

3.4. China's Policy of Nuclear Arms Control

China has argued that the ultimate goal of nuclear disarmament must be the complete prohibition and destruction of nuclear weapons. Since the United States and the former Soviet Union were responsible for the escalating nuclear arms race, they should take the lead in halting the testing, production and deployment of all types of nuclear weapons and drastically reduce all types of nuclear arms deployed by them. Along this line, China proposed that all nuclear weapon States and broadly representative countries convene an international conference on nuclear disarmament to eliminate all remaining nuclear weapons because Beijing disliked a disarmament conference with limited membership which would consolidate Super Power ascendancy. China also stated that nuclear disarmament must go hand in hand with other disarmament measures, including conventional disarmament and the prevention of an arms race in outer space.

China conditioned, however, its full–fledged participation in nuclear disarmament on the condition that the United States and the former Soviet

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[10] Leo Yueh–Yun Liu, *China as a Nuclear Power in World Politics*, MacMillan, 1972, p.29.

Union first drastically cut all types of nuclear weapons and that tangible progress be made in these fields.[11] Chinese Foreign Minister, Qian Qichen suggested that tangible progress meant that the United States and the former Soviet Union should cut at least 50 % of their nuclear arsenals, including sea- and air-launched cruise missiles as well as tactical nuclear weapons.[12] This demonstrates that China has no interest in nuclear disarmament in the foreseeable future.

China's most recent response is more problematic in that it stated it would only discuss reducing its nuclear arsenal once the United States and Russia had stopped testing, producing, and deploying nuclear weapons and reduced their nuclear arsenals to Chinese levels. This comment was made in response to Russia's call on China, France and the United Kingdom to respond to its newest disarmament proposals.[13]

China's attitude toward nuclear non–proliferation underwent changes from actively supporting proliferation to opposing it. China, under Mao Zedong, was highly critical of Super Power "hegemonism". Accordingly, it supported nuclear proliferation to socialist States in order to win the struggle with imperialist States.

To reverse this traditional position, on 16 February 1984, China stated at the Conference on Disarmament: "We do not advocate nor encourage nuclear proliferation, nor do we help other States to develop nuclear weapons".[14] China's decision to join the IAEA in 1984 may also reflect this evolution.

Although China conforms to most non–proliferation norms today, several issues remain to test its reliability. Recent acts which put China's authenticity into question are its sales of nuclear technology to would–be nuclear weapon States and

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[11] Qian Qichen, Speech at the Conference on Disarmament in Geneva, 27 February 1990. (8/90) 6 March 1990, *News Bulletin* of Permanent Mission of the People's Republic of China, p.4.

[12] Qian Qichen's address in the UNCD.

[13] *Newsbrief*, Programme for Promoting Nuclear Non–Proliferation, No.17, Spring 1992, p.4. Regarding the responses of France and the United Kingdom, see *The Times* (London), 6 January 1992; *The New York Times*, 23, 29, 30, 31 January; *International Herald Tribune*, 26, 30 January; *Defense News*, 27 January and 3 February; *Jane's Defense Weekly*, 8 February. France responded that it would discuss its nuclear capability with its European Community partners as part of the development of a common defense policy, interpreted as an important departure from her traditional independent deterrent posture. The UK has announced that it intends to maintain its own minimum nuclear deterrent and will proceed with the planned deployment of Vanguard ballistic missile submarines armed with US–made Trident II missiles, carrying a total of 512 warheads.

[14] CD/PV.242.

also its opposition to export restraints. As long as unreasonable restrictions are imposed on peaceful nuclear co-operation under the pretext of preventing nuclear proliferation, China will not be interested in complying with them. This is contrary to the Western insistence that all nuclear suppliers should require full–scope safeguards in the nations with which they trade. Now, China seems to fully support the idea of limiting the possession of nuclear weapons to the nuclear club. In 1988, the Chinese Government signed a Voluntary Offer Agreement with the IAEA to place a part of its nuclear energy facilities under the Agency's safeguards and subsequently acceded to the NPT in March 1992. China supports the non–nuclear Korean Peninsula proposal and expressed concern about North Korea's attempt to develop nuclear weapons.

China made clear that it was committed to the no–first use principle and to negative security assurances. After its first nuclear detonation on 16 October 1964, China stated that it "will never at any time and under any circumstances be the first to use nuclear weapons".[15] China's original position was reiterated by saying that since the very first day of nuclear possession, it unilaterally undertook that at no time and under no circumstances will China be the first to use nuclear weapons. China emphasized that the non–first use in itself will be a highly effective measure to prevent the nuclear war and a powerful impetus to the nuclear disarmament process.

With regard to negative security assurances, China declared them to non–nuclear weapons States in 1964 at the time of the first detonation of its nuclear device. At the first Special Session of the UN General Assembly devoted to its disarmament, held in 1978, the five declared nuclear weapon States provided, or in the case of China, re–iterated,[16] negative security assurances in the form of unilateral declarations. For the present, all the nuclear countries, particularly the Super Powers, which possess nuclear weapons in large quantities, should immediately undertake not to resort to the threat or use of nuclear weapons against the non–nuclear countries and nuclear free zones.

When signing the Protocol of the Rarotonga Treaty in February 1987, China declared that it respected the status of the South Pacific as a nuclear weapon free zone and would not test nuclear weapons in the area. But it reserved the right to reconsider its obligations under the Protocol if other nuclear weapon States or

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[15] Chong–Pin Lin, *China's Nuclear Weapon Strategy: Tradition within Evolution*, Lexington Books, 1988, p.42.

[16] A/S–10/AC.1/17, annex, paragraph 7.

Parties to the Treaty took any actions in gross violation of the Treaty and its protocols, thus changing the status of the zone and endangering the security interests of China.[17]

Nonetheless, China rejected the proposal for a comprehensive nuclear test ban treaty on the basis that it could only hinder countries with few or no nuclear weapons from developing their nuclear capability for self–defence.[18] As noted above, China conducted a test of a one–megaton nuclear bomb in Xinjiang in May 1992. This test and the test of 5 October 1993 were seen as most disruptive by the international community. The fact that those tests were held in the midst of negotiations for major cuts of strategic weapons between the United States and the former Soviet Union and the nuclear testing moratorium portends that China is reluctant to adhere to the comprehensive test ban.

Although China has declared its intention of adhering to the Missile Technology Control Regime (MTCR) in January 1992, its reliability should be tested against the following cases. China sold Silkworm anti-ship missiles to both sides in the Iraq–Iran War. During 1989 there were continuing reports that Syria was trying to acquire Chinese M–type SRBMs known in the West as the M–9. In 1988, after the sale of Chinese DF–3A ballistic missiles to Saudi Arabia was revealed, several US officials expressed concern to Chinese leaders about Chinese missile sales. The M–9 has a range of 600 km, it is 9.1 meters long,1 meter wide, is carried and launched by a truck and has a lift–off weight of 6.2 tons.[19] It is the first Chinese land–based ballistic missile to use solid fuel. Thus it is well–suited to carry a nuclear or chemical warhead.

In sum, China now seems to be situated in the middle road between faithful compliance with the NPT and the MTCR and secret dealings with commercial and strategic interests in selling arms and strategic materials to the countries with which it wants to preserve or pursue national interests.[20]

3.5. Conclusion

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[17] *SIPRI Yearbook 1990*, p.666, recited from Thomas Bernauer, *Nuclear Issues on the Agenda of the Conference on Disarmament*, UNIDIR, United Nations, Geneva, 1991, p.7.

[18] Chiao Kuan–hua's statement of 13 November 1972, *Peking Review*, 17 November 1971. Recited from Hary Gelber, *Nuclear Weapons and Chinese Policy*, Adelphi Papers No 99, IISS, 1973, p.29.

[19] *SIPRI Yearbook 1990*, p.47.

[20] Richard Fieldhouse, "China's Mixed Signals on Nuclear Weapons", *The Bulletin of the Atomic Scientists*, May 1991, Vol. 47, No 4, p.42.

It is true that China's nuclear weapons capabilities are so formidable that they would pose threats to the outside world regardless of whether China intended to or not. China's nuclear policy and strategy imply that it is very difficult to reverse its build–up unless there is major international pressure. It is all the more serious that China does not have a willingness for nuclear disarmament. Despite significantly diminishing threats from the former enemy and even improving relations with Russia, China still sees the future full of uncertainty.

In an evolving multipolar world, China strives to be a major pole that can influence the world order and neighbouring Asian countries to its benefit. In this process, nuclear weapons would work in favour of China's national interests. In this light, nuclear weapons may be seen as a means of coercive diplomacy. They may also work as a means of nuclear blackmail to the neighbouring countries.

China acknowledges the fact that nuclear weapons have been a contributing factor to the enhancement of its influence in international affairs ever since their development. It is, therefore, expected that China will maintain its nuclear arsenals with a slow but steady growth. China may continue the improvement of ICBMs, hoping that it will add strategic importance in dealing with the United States. This is attested by the fact that China showed a keen interest in developing outer space technology.

Thus, China's efforts to maintain and improve nuclear forces will give it a valuable edge in the post Cold War era. Therefore, it wants to keep its nuclear forces despite its rhetorical commitment to nuclear disarmament.[21]

If China remains inactive in the face of external demand for downsizing its nuclear forces, it will clearly pose threats to Japan and South Korea in an era of diminishing threats from Russia. It may, in the long term, provoke Japan to keep a nuclear option secret, as a unified Korea might also do.

There are more fundamental problems in drawing China into the disarmament process. Its strategy of ambiguity is located at the opposite end to arms control and disarmament. Ambiguity and uncertainty are exact opposites to transparency and predictability, which are two main concepts of arms control and disarmament. It would take a long time to collect information regarding the whereabouts of China's nuclear weapons because of concealment, dispersal and easy dislocation.

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[21] Zhihai Zhai, "The Future of Nuclear Weapons: A Chinese Perspective", in *Nuclear Weapons in the Changing World: Perspectives from Europe, Asia, and North America*, edited by Patrick J. Garrity and Steven A. Maaranen, Centre For National Security Studies, Los Alamos National Laboratory, Los Alamos, New Mexico, USA, Plenum Press (New York and London), 1992, p.170.

The extent of this difficulty has been proved in the North Korean case that also emphasized concealing, dispersing and going underground with its nuclear programme as will be noted in the next chapter.

China, being a more or less highly closed society for a long time, presents many problems to increasing transparency in its nuclear programme. The fact that China already is a nuclear weapon State exacerbates the problem associated with transparency. To bring China into the international nuclear disarmament process will require more efforts. For late comers to the NPT such as China, there should be a specific programme to enhance transparency of their nuclear programme whether it be a military or energy programme.

China has long been advocating the deligitimacy of discrimination among nations, in particular in relation to the Super Powers. The same reasoning which states that the international system has long been unfairly dominated by two Super Powers, thus discriminating against other countries in regard to their access to nuclear technologies and weapons, should be applied to China itself. More of China's nuclear programme should be known to the outside world. Even if we assume that it is legally impossible to question China's already existing nuclear arsenals, the IAEA inspections should be expanded to include China's reprocessing and enrichment facilities to prevent further proliferation.

In this context, it is worth recalling the obligations of nuclear weapon States like China to commit to Article II of the NPT: nuclear weapon States should restrain themselves so as not to export nuclear weapons related materials, not in any way to assist, encourage or induce any non–nuclear weapon State to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices. In the light of this calling, China's policy and behaviour related to export of nuclear and military technology of mass destruction is questionable.

As is stipulated in Article VI of the NPT, nuclear weapon States pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control. In light of this provision, China does not do its best to fulfil those demands. China should show its genuineness with its deeds rather than with words that have been repeated for too long without tangible forthcoming efforts to pursue nuclear arms control.

As the member States of the IAEA are required to submit voluntarily nuclear facilities to be safeguarded, thus China needs to do more even to enhance transparency in its military nuclear programme so as not to increase its nuclear arsenals. China's nuclear weapons policy and capabilities should be tailored to

reduce threats to neighbouring countries; China should initiate rather than follow the international nuclear arms control from the position of the "haves". China should be more forthcoming in sharing information regarding its nuclear arsenals and policy to build mutual confidence in the region and fully comply with the NPT before the extension review of the NPT starts.

Chapter 4
The Korean Peninsula

In this chapter, I combine South Korea and North Korea as one subject for analysis. This is because the two Koreas have been engaged in talks for a negotiated settlement to bring their nuclear programmes to more openness and transparency and to eventually create a non–nuclear Korean Peninsula in spite of recent impasse in the South-North talks. Here, comparison will be made regarding nuclear capability and policy of the two Koreas in order to shed light on their past orientation and to predict their future course of actions. Then, I will see how the bilateral negotiation progressed and what problems remain to be resolved. In addition, the IAEA inspection activities will be reviewed to enhance North Korea's compliance with safeguards agreements, thus increasing transparency and confidence in the North Korean nuclear programme.

4.1. South Korea

4.1.1. Nuclear Capabilities

As of now, South Korea has three research reactors and nine power plants for energy supply. Since South Korea's nuclear programme is solely dedicated to electricity generation, it possess no nuclear weapons nor weapons production capabilities. Some 49 per cent of electricity is generated in the nuclear power plants. South Korea relies entirely on imports of natural and low enrichment uranium for fuels in nuclear reactors. South Korea does not have uranium enrichment or spent fuel reprocessing plants.

Although the South Korean government contracted to import a reprocessing plant from France in 1975, it cancelled the plan because of US pressure. Recently, South Korea announced its non–nuclear policy to not develop uranium enrichment and spent fuel reprocessing plants, thus forgoing the nuclear option even in the peaceful use area.

Capabilities of delivery vehicles are limited because of US–South Korean bilateral agreements which limit the range of missiles more strictly than those of the MTCR guidelines. South Korea has 130 Lance missiles, and Nike–Hercules whose ranges are some 100 kilometres, and approximately 100 F–16s whose range

covers 930 kilometres. Though these can be used for dual–purposes, all missions are limited to conventional delivery because South Korea does not own nuclear weapons.

4.1.2. Nuclear Policy

South Korea's nuclear policy was limited to the peaceful use of nuclear energy though there has been no declaratory policy such as Japan's three non–nuclear principles. This is because South Korea started its nuclear energy programme after the US Non–Proliferation Act of 1978. More strict restrictions have been applied to South Korean nuclear facilities by bilateral arrangements between the United States and South Korea since the beginning of the nuclear programme.

However, there was disagreement between the United States and South Korea in the 1970s about South Korea's intention to go nuclear. When the United States announced its plan to withdraw forces from South Korea in July 1970, it raised concerns about security in South Korea given the changing security environments in the midst of the Viet Nam War. The sense of a national security crisis peaked when Viet Nam fell into the hands of the Communists. An official statement that Seoul would be forced to develop its own nuclear weapons if the US withdrew its nuclear shield from South Korea was made for the first time by the then President Park Chong Hee.[1]

This impasse ended on 29 January 1977 with a statement made by the Korean President that South Korea would not go nuclear and would currently suspend development of fighter planes.[2] Together with its pledge not to go nuclear, South Korea cancelled its plan to import nuclear reprocessing plants because it raised a US concern that there might be a chance for South Korea to go nuclear.

Above all, South Korea has relied on the United States for nuclear deterrence. US stationing of tactical nuclear weapons on Korean soil provided nuclear deterrence to deter North Korea's attack. Until North Korea's nuclear weapons development programme was discovered and the US statement on the withdrawal of tactical nuclear weapons from abroad (including South Korea) was made, there was no debate on the issue of nuclear weapons because of the US neither–confirm–nor–deny (NCND) policy.

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[1] *Washington Post*, 12 June 1975. Recite from Young–Sun Ha, Nuclear Proliferation, World Order, and Korea, Seoul National University Press, 1983, p.127.

[2] Young–Sun Ha, *ibid.*, p.128.

It is in October 1991 that South Korea officially stated its non–nuclear policy: not to test, manufacture, possess, store or use nuclear weapons and not to possess nuclear reprocessing and uranium enrichment facilities. This was made, in part, to call for reciprocal measures to be taken by North Korea and to set a more long–term nuclear policy for South Korea.

4.2. North Korea

4.2.1. Nuclear Capabilities

North Korea has developed its nuclear programme on a self-reliant basis since the 1950s. Its nuclear facilities are summarized in Table 5. North Korea has undertaken to build covertly a large reprocessing plant and succeeded in extracting weapon–grade plutonium from the spent fuel in 1990 according to their report to the IAEA inspection teams. However, it is not clear what they actually have done with the reprocessing capabilities since then and what they have done with the plutonium.

North Korea has reportedly conducted more than 80 high explosive tests at Yongbyon. It was released by the Russian broadcast that North Korea succeeded in developing explosive devices in the past.

As for delivery capabilities, North Korea has FROG 5 and 7 missiles whose range covers 50 to 60 kilometres while it has SCUD B and C missiles with a range of 300 to 500 kilometres. More critical are its indigenously developed Rhodong 1 missiles. North Korea reportedly finished tests for the Rhodong 1 (1000 Km) intermediate range ballistic missiles which can be used for the delivery of dual–purpose warheads.[3] Its possible use for delivering nuclear warheads concerns South Korea and Japan most. All of North Korea's missiles far exceed the limits of the MTCR. As for air delivery capabilities, North Korea holds several tens of MiG 21, 23, and 29 aircraft.

Table 5: North Korea's Nuclear Facilities

[3] Leonard S. Spector, "Repentant Nuclear Proliferants", *Foreign Policy*, Fall 1992, No 88, p.29.

	Capacity	Year of start-up, location
Research Reactor	8 Mwt	June 1965, Yongbyon
Experimental Reactor	5 Mwe (30Mwt)	Feb 1987, Yongbyon
Power Reactor	50 Mwe	1995, Yongbyon
Power Reactor	200 Mwe	1996, Taechon
Radiochemical Laboratory*		1996, Yongbyon
Fuel Fabrication Plant		1986, Yongbyon
Uranium Refinement Plant (enrichment?)**		1984-86, Pyongsan
Uranium Refinement Plant		1982, Pakchon
Isotope Processing Facility		1975, Yongbyon
Critical Facility		1965, Yongbyon

* This is a Reprocessing Plant although North Korea claimed it as the Radiochemical Laboratory;
** Although North Korea claims it to be a uranium refinery, South Korean sources suspect that it may be an enrichment facility.

Source: Joseph S. Bermudez, Jr., *Democratic People's Republic of Korea: Nuclear Infrastructure*, 3 January 1994.

4.2.2. Nuclear Policy

The North Korean Government has maintained that its nuclear programme is solely for peaceful purposes. It went a step further by alleging that the peaceful nature of its nuclear programme has been proved since the first IAEA ad–hoc inspection.

According to North Korea's explanation to the IAEA, it developed a spent–fuel reprocessing plant for the later use with the fast breeder reactor or mixed oxide fuels, however, North Korea's technological capability does not match such advanced technology. This can, therefore, be interpreted as a groundless excuse. However, the experimental 5 MWe reactor at Yongbyon is a graphite–moderated, natural uranium–fuelled and gas-cooled reactor which is more appropriate for generating spent fuels as quickly as possible to produce weapon–grade plutonium rather than for generating electricity.

North Korea is reluctant to sign the Chemical Weapons Convention because its clauses pertaining to challenge inspections may spill over to the nuclear issue.

If it accepts the CWC, there will be no ground for North Korea to avoid other kinds of special inspections.

The decision to develop nuclear weapons seems to have been made in the early 1960s. The programme continued with strong support from Kim Il–sung. However, the push for the programme became more compelling in the late 1980s because of the following reasons: North Korean concerns about rising costs of trying to match more advanced South Korean conventional weapons capabilities, cutbacks in Soviet arms supplies, Soviet distancing from North Korea to be closer to South Korea, the failure of the Chinese to offer any real substitutes. It was most recently reinforced by technologically superior US–led forces defeating the Soviet–armed Iraqis in the Gulf War.[4]

North Korea started to develop nuclear weapons in order to equalize with the South gaining ground in the area of conventional weapons. Though a few nuclear weapons are not perfectly useful to invade South Korea, they would at least pose a nuclear threat to the South to deter its invasion to the North.[5]

North Korea's political motivation has been consolidated under the Kim Il–sung and the Kim Jong–il regime. Nuclear weapons would enhance North Korea's prestige and would draw international attention to the regime to use nuclear weapons as a policy instrument to advance its national interests.

More serious is the possibility that North Korea might wage a war with nuclear weapons in an era of austerity for the North Korean regime when it is about to collapse. Their strategic calculation would be the following: after initiating a surprise attack on the South and occupying some territory, the North will negotiate for the termination of the war either by threatening to use nuclear weapons from the position of strength or by denying US reinforcements firmly with the threat to use nuclear weapons. If it is not the case, Pyongyang may use nuclear weapons from the beginning of the war to inflict mutual destruction which might come from the mind-set of more adventuristic North Korean defence planners.

North Korea's nuclear policy exactly followed the Chinese case in that they stressed concealment and dispersal of nuclear facilities by locating them underground. Judging from Kim Il–sung's direction to do so, it is not difficult to imagine that North Korea hid, dispersed and built underground nuclear–related

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[4] IISS, *Strategic Survey 1991–1992*, p.138.

[5] Kongdan OH, "Nuclear Proliferation in North Korea", in the book edited by W. Thomas Wander and Eric H. Arnett, *The Proliferation of Advanced Weaponry: Technology, Motivations, and Responses*, American Association for the Advancement of Science, 1992. pp.172.

facilities as much as possible. North Korea located its nuclear research complex at Yongbyon, some 90 Kilometers northeast of Pyongyang, surrounded by mountains and rivers to lessen the odds of its detection. North Korea was reportedly covering up some facilities and blocking IAEA access to some buildings including nuclear waste storage sites.

As we know from North Korea's behaviour toward IAEA inspections, its nuclear policy includes withholding information, hindering nuclear inspections and covering up and fabricating nuclear stories. North Korea must have withheld some aspects of its nuclear weapons programme by not declaring all relevant information. It is told by North Korea that they have extracted a tiny amount (gram units) of plutonium in 1990. However, they withheld the information as to how much plutonium they actually have and what they have done with the reprocessing capabilities since then; an analysis of the samples taken from the small amount of plutonium indicates large discrepancies with the timing and the number of batches processed.[6]

The discrepancies largely have to do with the actual amount of plutonium extracted and how many times they have extracted the plutonium in the past. Estimates about the amount of the plutonium range between eight and 24 kilograms.[7] Pyongyang showed to the IAEA inspection teams two undeclared sites such as facilities related to isotope production and uranium dioxide production when the IAEA's Director General, Blix paid an official visit to North Korea in May 1992. This they interpreted as trying to show that they were more than co-operative with the IAEA, while concealing a more important part of their nuclear weapons programme. Another example of withholding information is North Korea's insistence that they have not yet taken out any fuel rods since the day of their entry into the reactor. On the other hand, North Korea has been immune to the report that they have conducted more than 80 high explosive tests at Yongbyon.

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[6] *International Herald Tribune*, 2 February 1993.

[7] Tae Woo Kim, "South Korea's Nuclear Dilemmas", *Korea and World Affairs*, Summer 1992, Vol. XVI, No 2, pp.257. North Korea is suspected of holding more than 8 kilograms of plutonium, which can be used to manufacture a single bomb. See *International Herald Tribune*, 14 January 1993. On 24 February 1993, the US CIA director, James Woolsey said that North Korea has manufactured enough material to have produced at least one nuclear weapon. See *International Herald Tribune*, 25 February 1993. In October 1992, the South Korean Spokesman for the South–North high–level talks stated that North Korea was suspected of holding some 13 kilograms of plutonium reprocessed from the spent fuels from the 5 electric megawatts (MWe) reactor.

North Korea was hindering the IAEA's inspection activities and covering up some important information on the nuclear weapons programme. The IAEA's request for sample–taking from the reactor fuel rods was not responded to for a long time with an excuse that the gauges used to take out fuel rods were out of order. Finally, North Korea has taken out all the fuel rods disrupting the IAEA's examination of the history of the fuel rods completely. The IAEA's other request for taking samples of two nuclear waste storage sites is also being denied. On the other hand, North Korea was reportedly covering up those two storage sites, converting them into military sites with a thought that military sites are not the object of inspection by the IAEA. This added suspicion about the North Korea's intention.

Furthermore, North Korea was fabricating stories so as to justify the peaceful nature of its nuclear programme. It said that plutonium came from reprocessing a few broken fuel rods in the 5 MWe reactor. However, there is much evidence that the plutonium was obtained by regularly reprocessing taken-out spent fuels. Pyongyang tried to distract outside concerns by claiming that the reprocessing plant was a radio–chemical laboratory rather than a reprocessing plant.

Yet North Korea's official response to outside allegations about its nuclear weapons programme is always the same: "We have neither intentions, nor capabilities to manufacture nuclear weapons".[8] If North Korea continues to develop nuclear weapons, the consequences will be significant, and not only limited to the Korean peninsula. The fear that North Korea may use nuclear weapons in war provides Seoul with a strong incentive to develop nuclear weapons. Japan will not likely tolerate such situations either. Having already advanced nuclear capabilities and concerned about North Korea's long-range missiles, there may be no reason for Japan to sit still.

[8] This statement is found on many occasions: Kim Il–sung has stated such to a delegation of the two major Japanese parties, *Washington Times*, 27 September 1990.

4.3. The Non–Nuclear Korean Peninsula

4.3.1. South-North Negotiations

Before negotiations between the two Koreas took place, their positions were the following regarding nuclear issues on the Korean peninsula. North Korea's long–standing position was to accomplish US withdrawal of conventional and nuclear forces from Korea. Whenever the nuclear issue was raised, North Korea used this position as preconditions for talks. After the US President Bush announced the withdrawal of all US ground– and sea–based tactical nuclear weapons from abroad, followed by Gorbachev's announcement that the Soviet Union would also scrap airborne air–to–surface missiles in addition to US pledges, South Korean President Roh Tae Woo unilaterally announced on 8 November 1991 the policy of a non–nuclear Korean Peninsula. It stated that South Korea would not manufacture, possess, store, deploy or use nuclear weapons, not possess uranium enrichment and spent–fuel reprocessing facilities. Based on these policies, the requested that North Korea accept the same principles of non–nuclear peninsula and IAEA inspections on North Korean nuclear facilities.

These carefully planned moves on the US and South Korean sides opened a window of opportunity for the first ever inter-Korean nuclear negotiations because the main portion of North Korea's preconditions for nuclear talks was already satisfied. The US suggested a concept of trial inspections if full–scope inspections were to be delayed because of the time needed for negotiations on inspection agreements. On the other front, North Korea's Foreign Ministry announced that once the start of US withdrawal of nuclear weapons was confirmed, Pyongyang would sign the safeguards agreements with the IAEA.[9]

However, Pyongyang's statement stressed the importance of asymmetric inspections to South Korea and the United States by proposing that IAEA inspections on the North Korean nuclear facilities should be conducted at the same time with North Korea's inspection on US nuclear bases in South Korea to resolve the nuclear suspicions existing in North Korea. This would become a revolving theme of North Korea's coming agenda for South–North bilateral talks.

4.3.2. Development of Negotiations

[9] North Korea's Ministry of Foreign Affairs Statement, 25 November 1991.

To bring into force the South–North Agreement on Reconciliation, Non–Aggression, and Exchanges and Co-operation that was initialled on the fifth Prime Ministerial talks on 13 December 1991 on an agreed–to date, the two Koreas had to settle the nuclear issue before the end of 1991. After South Korean President Roh Tae Woo announced on 18 December 1991 that "there do not exist any nuclear weapons on the South Korean soil at this juncture" to confirm the end of US withdrawal of nuclear weapons from South Korea, the important barrier to the inter–Korean nuclear talks had been removed. The two Koreas had entered negotiations to resolve the nuclear issue in which differences in each side's original position are shown in Table 6.

The two Koreas have signed the Joint Declaration for a Non–Nuclear Korean Peninsula on 31 December 1991. They pledged not to test, produce, manufacture, receive, possess, store, deploy or use nuclear weapons and not to possess facilities for nuclear reprocessing or uranium enrichment, and to use nuclear energy solely for peaceful purposes. Bilateral inspections were supposed to be conducted on objects selected by the other side and agreed upon by the both sides according to the procedures and methods prescribed by a South–North Joint Nuclear Control Commission (JNCC) to be organized within one month after the Declaration entered into force.[10] In the course of the negotiation, North Korea addressed its security concerns that the United States and South Korea suspend their annual Team Spirit joint military exercises in addition to its long–held position for the Nuclear–Free Zone of the Korean Peninsula as summarized in Table 6. South Korea addressed its security concerns about North Korea's nuclear weapon development programme. It requested that North Korea bring all nuclear facilities under the Safeguards of the IAEA and promptly sign the IAEA Safeguards Agreements and receive IAEA inspections. South Korea also requested it implement the Denuclearization Agreements that prescribed a ban on nuclear reprocessing and uranium enrichment facilities and bilateral inspections of suspect nuclear sites in both Koreas.

Table 6: Differences of Positions between the two Koreas regarding the Nuclear Issues in Korea

[10] For a full text of the Joint Declaration of the Denuclearization of the Korean Peninsula, see Appendix 1.

South Korea	North Korea
- North Korea should stop nuclear weapons development - North Korea should ratify IAEA safeguards agreements and accept IAEA inspections unconditionally - North Korea should accept trial inspections between the two Koreas promptly and later bilateral inspections on a reciprocal basis	- nuclear free zone of the Korean Peninsula - ban on deployment of nuclear weapons in Korea - no transit, no landing or visits of ships and aircraft with nuclear weapons - prohibition of treaties providing nuclear umbrella (i.e., US-Korean Security Treaties) - US nuclear weapons should be withdrawn from South Korea - prohibition of any US-South Korean joint military exercises mobilizing nuclear weapons and equipment - joint efforts for withdrawal of US forces from Korea

The two Koreas agreed to adopt the Denuclearization Agreements. South Korea agreed to cancel the 1992 Team Spirit exercises on condition that the North accept prompt signing and ratification of the IAEA Safeguards Agreement and following inspections by the IAEA as well as bilateral inspections to be prescribed by the JNCC. This compromise can be identified in the North Korean Foreign Ministry statement and South Korean Defence Ministry statement on 7 January 1992. However, North Korea deliberately left out commitments to the bilateral inspections by saying that it would sign the IAEA Safeguards Agreements within the nearest possible time and ratify it in the quickest time as possible and receive the IAEA inspections on an agreed–to date with the IAEA. However, it took one month for North Korea to sign it and another two months to ratify it, which was enough to put North Korea's credibility into question.

To accelerate the implementation process of the Denuclearization Agreements, the two Koreas have continued the talks to organize the JNCC. In the Agreements on Organization and Operation of the JNCC ratified on 19 March 1992, the two sides agreed that the bilateral inspections of each other's nuclear sites would start by mid–June 1992. However, it turned out that the two sides failed to agree to the protocols of inspections up to now. The main issues remain unresolved in the negotiation are summarized as follows.

North Korea used two delaying tactics: one is IAEA inspections and the other is bilateral inspections. Apparently, North Korea was more co-operative and forthcoming with the IAEA with a thought that IAEA inspections would eliminate all suspicions about its nuclear programmes, thus putting off more problematic bilateral inspections for as long as possible. Right after the first visit of the IAEA's Director General, Hans Blix, North Korea claimed that all suspicions about its nuclear programme were resolved and that the peaceful nature of the nuclear programme was proved. It went on to delegitimize the utility of bilateral inspections by contending that since all doubts about North Korean nuclear facilities had been eliminated, it was now South Korea's turn to prove that all US nuclear weapons had already been withdrawn. Thus, the only remaining action was North Korea's inspection of all US military bases in South Korea. While trying to undervalue the need for bilateral inspections, North Korea began to propose South Korea's inspection of Yongbyon sites as opposed to North Korea's inspection of all US military bases simultaneously. As the international concern and pressure did not show any sign of reduction, North Korea proposed to conduct simultaneous inspections of North Korean Yongbyon facilities by the South on the one hand and all US military bases in the South by the North on the other.

Given that there are inherent limitations in the IAEA inspections where special inspections are yet to be institutionalized, South Korea had no alternative but to claim the legitimacy of special inspections on both civilian nuclear sites and military sites. There was no need for repeating IAEA inspections in kind that might provide North Korea sanctuaries in which to hide their nuclear programme. South Korea's position on special inspections in kind concerning the objects to be inspected were well grounded because the Denuclearization Agreements provide for inspections of military bases by prescribing that the Agreements are to prohibit test, manufacture, deployment and storage of nuclear weapons, which is possible only in military bases. However, there were limitations on South Korea's request for special inspections because Article IV of the Denuclearization Agreements stipulates that inspections will be conducted on objects that one party selects and

the two parties agree on. This is the very clause that North Korea quotes to dispute the special inspections.

Factors affecting the success of the negotiation can be summarized as follows: international pressure was so high that North Korea had to accept the request for denuclearization, albeit reluctantly. The end of the Cold War and co-operation among the four powers surrounding the Korean Peninsula served as a catalyst to continue bilateral nuclear negotiations. It is clear that the strong measures taken by the United Nations Security Council (Resolution 687) may have led North Korea to accept some external demands. Above all, South Korean and US active engagement with arms control initiative worked out. But to North Korea, there was room for them to manipulate between the IAEA and South–North inspections.

Factors that still influence North Korea not to abandon their programme include the rigidity of North Korea's bureaucracy and a great amount of investment already made. This hinders full disclosure at the earliest time without compensatory measures from the external world. Also, North Korea's intent on linking conventional arms control issues to the nuclear issue serves as a barrier to progress in the nuclear issue. This is because North Korea wants to break the US–South Korean alliance once and for all by suspending Team Spirit military exercises as well as by accelerating US withdrawal of forces from South Korea.[11] South Korea's strong adherence to the need of special inspections was also not conducive to the progress of negotiations.

On the other front, the IAEA's inspections also reached an impasse. After discovering major discrepancies between Pyongyang's declared nuclear activities and IAEA findings, the IAEA requested special inspections on two nuclear waste storage sites of North Korea. North Korea refused the IAEA's requests and announced that it would pull out from the NPT on 12 March 1993 and would suspend even IAEA routine inspections.

4.3.3. The US-North Korean Talks

Aware of the fact that there were no effective ways to avoid the request for special inspections by the IAEA, North Korea decided to withdraw from the NPT.

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[11] On 27 January 1993, the North Korean Ministry of Foreign Affairs announced it would suspend all South–North dialogue including the bilateral nuclear negotiations because South Korea announced to resume Team Spirit military exercises one day before.

By Pyongyang's calculation, such an extreme reaction would draw the United States into a negotiation with North Korea directly. North Korean diplomats in New York stressed an emphasis on the need of direct US-North Korean talks to resolve the nuclear issue including the issue of Pyongyang's return to the NPT. Pyongyang then deliberately changed the nuclear game between the IAEA and North Korea into a game between the United States and North Korea. At the same time, North Korea started to broaden the scope of the nuclear issue by insisting that it be resolved within the framework of building trust and confidence with the United States, for example, through normalization of relations.

Out of the urgency to make North Korea return to the NPT, the United States decided to hold high-level talks with North Korea in New York in June 1993, subsequently followed by the talks in Geneva in July 1993 and in August 1994. In the first round of talks, the United States and North Korea agreed as follows:[12]

> The two sides have agreed to principles of assurances against the threat and use of force, including nuclear weapons; peace and security in a nuclear-free Korean peninsula, including impartial application of full-scope safeguards, mutual respect for each other's internal affairs; and support for the peaceful unification of Korea.
>
> The two sides expressed support for the South-North Joint Declaration on the Denuclearization of the Korean peninsula while North Korea has decided unilaterally to suspend, as long as it deems necessary, the effectuation of its withdrawal from the NPT.

Among the agreed points, the principle of impartial application of full-scope safeguards agreements was the most controversial concession on the US side. This is because Pyongyang justified its withdrawal from the NPT by claiming that the IAEA lost its impartiality as a result of US manipulation. This point could block any progress in establishing special inspection regime or several special inspections.

In the second round of talks, the United States and North Korea agreed as follows:[13]

> The two sides reaffirmed the past commitments made in the first round of talks.
>
> North Korea suggested the idea of replacing its graphite moderated reactors and associated nuclear facilities with light-water moderated reactors in consideration of the fact that light-water reactors are less-prone to generating weapon-grades plutonium and the United States accepted the idea.

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[12] *The Korea Times*, 14 June 1993.
[13] *The Korea Times*, 21 July 1993.

> The two sides also agreed that North Korea will begin the inter-Korean talks on bilateral issues. including the nuclear issue.
>
> The United States and North Korea have agreed to lay the basis for improving overall relations between North Korea and the United States.

There were several points of progress worth noting in addition to the agreements made in the first round of talks. The last point described above indicated that the United States had accepted North Korea's proposal that the nuclear issue be resolved in a broad formula of improving relations with North Korea in return for North Korea's concession on the nuclear issue not be limited to the nuclear issue itself.

However, North Korea did not fulfil its commitment to hold the South-North Korean talks which Seoul set as a precondition for the third-round US and North Korean talks. Nor did North Korea keep its promise with the IAEA. Pyongyang's renunciation of the US-North Korean agreements made the international community pursue a harsher approach to impose sanctions on North Korea. The lack of unanimity among the five permanent members of the UN Security Council hindered the passage of the sanctions resolution. Against mounting international pressures, North Korea threatened to disrupt peace and stability of the peninsula with a threat of war. As tension peaked, North Korea announced to withdraw from the IAEA and started to take out fuel rods from the 5 MWe reactor in order to make the IAEA unable to examine the balance of the nuclear materials and the history of its reactor operation.

After this impasse, Kim Il-sung suggested North Korea's intention to freeze its nuclear programme at his meeting with the former US president Jimmy Carter at Pyongyang. Furthermore, Kim Il-sung proposed the first-ever summit with the South Korean president. These two main events provided the momentum for the third-round of the US-North Korean talks in Geneva on 4 August 1994. On 14 August the two sides agreed as follows:[14]

> The DPRK is prepared to replace its graphite moderated reactors and related facilities with light-water reactor and the United States will prepare to make arrangements for interim energy alternatives to the graphite reactors. After the US assures the arrangements, North Korea will freeze construction of the 50 MWe reactor and 200 MWe reactor, forgo reprocessing and seal the radio-chemical laboratory to be monitored by the IAEA.

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[14] *The Korea Herald*, 14 August 1994.

The two sides agreed to the point that they will establish diplomatic representation in each other's capitals and to reduce barriers to trade and investment, as a move toward full normalization of political and economic relations.

The US provide assurances against the threat or use of nuclear weapons by the US and the DPRK will implement the Denuclearization agreements with South Korea.

North Korea will remain a party to the NPT and allow implementation of its safeguards agreement under the NPT.

Several observations on the negotiations between the United States and North Korea can be made:

North Korea suggested a comprehensive deal (so called "package deal") as a formula to resolve the nuclear issue and it was largely accepted by the United States.

In return for making commitments to improve relations with Pyongyang, the United States succeeded to persuade North Korea to freeze its nuclear programme, thus preventing North Korea from continuing its nuclear programme yet it has not succeeded in persuading North Korea to make past history of its nuclear programme (nuclear weapons development programme) transparent.

The United States has failed to make Pyongyang accept special inspections on the two suspect sites on which the IAEA requested special inspections on February 1993. On this point, the South Korean government expressed serious concern because the South Korean president, Kim Young Sam told that his government would not tolerate even half of a nuclear weapon in the hands of North Korea. To the South Korean president, special inspections are a requirement in order to make the past nuclear activities (suspected nuclear weapons development) transparent.

North Korea used every segment of its nuclear facilities as a negotiation card either to delay its implementation of the already-made commitments with the IAEA and the United States or to demand bigger concessions from the US side.

As shown in Appendix 2, the Agreed Framework between the United States and North Korea on the Nuclear Issue of 21 October 1994 demonstrates North Korea's willingness to replace problematic graphite-moderated reactors, in existence as well as under construction, in return for American willingness to move toward full normalization of relations between the two countries. This includes the US provision of substitute energy for nuclear energy lost from the closing down of nuclear reactors. Basically, the Geneva Accord includes more concrete plans and commitments by the two sides to materialize the Agreement of 4 August 1994.

Although breakthrough has been made in the negotiation between the United States and North Korea regarding the North Korean nuclear issue, it remains to be seen whether North Korea will abide by its commitments and implement them faithfully. By postponing special inspections until three or four years later, North

Korea is still suspected of making efforts to buy time until it succeeds in having nuclear weapons and in concealing past nuclear activities of weapons development.

Now, the face of the nuclear issue is undergoing changes from preventing proliferation once and for all to freezing the current programme first and then searching for ways to make past history transparent. It is not sure whether Pyongyang will go a long way with transparency measures to the extent that the international community will be satisfied with or stop the negotiation in the middle. However, the continued and concerted efforts by the international community to resolve the North Korean nuclear issue are crucial to curb the proliferation on the Korean peninsula as well as to smooth the road to the extension review of the NPT in 1995.

4.4. Conclusion

Though the IAEA has conducted six ad–hoc inspections on North Koran nuclear sites, it could not reveal the totality of North Korean nuclear programme. As is known, the IAEA inspection regime has inherent limitations. The IAEA inspections are limited to the sites declared by a Member State. When the State itself refrains from declaring and identifying its secret activities, there is no effective way to inspect the undeclared sites as of now. There is no case for special inspections yet. The Iraqi case is an exception of the IAEA inspections because challenge inspections in Iraq at any time and at any place were made possible as a result of the United Nations Security Council Resolution No. 687, which was made possible due to Iraq's defeat in the Gulf War.

Though the IAEA Board of Governors already has reaffirmed the IAEA's right to request inspections to identify undeclared nuclear material where there are reasons to believe that such material exists and explanations have not clarified the matter, North Korea is becoming the first test case for the special inspections. Before such special inspections become institutionalized, there exists no effective way to prevent clandestine efforts under the present IAEA inspection regime to develop nuclear weapons despite IAEA safeguards inspections. Keeping these limitations in mind and attempting to resolve major discrepancies between North Korea's declaration and the IAEA's findings, the IAEA Board of Governors Meeting issued a resolution that called upon North Korea to fully co-operate with the IAEA to enable it to conduct special inspections on the two suspect sites within

one month of the adoption of the resolution.[15] North Korea responded in the extreme with its announcement to pull-out from the NPT. Despite many negotiations between the United States and North Korea, prospects for special inspections are not bright.

In addition, a State has a right to develop and own uranium enrichment and spent fuel reprocessing plants even under the IAEA inspection regime. The IAEA can regulate the nuclear fuel cycle and account for the flow of reprocessed fissionable materials, but it is up to a State whether it keeps reprocessing and enrichment capabilities which can be diverted easily for military uses. In this sense, preventing reprocessing and enrichment facilities in the South–North Denuclearization Agreements is a more effective means to curb North Korea's clandestine efforts to develop them only for military purposes. Joint efforts by South Korea and the United States to put North Korean reprocessing on hold resulted in a success but North Korea should show its intention to fulfil the commitments through deeds.

Another inherent shortcoming of the IAEA inspection regime is that it has problems in inspecting military sites unless the State declares these sites. The IAEA can claim the right to inspect military sites if it has evidence that they contain nuclear materials. The burden of proof is laid upon the IAEA, though. This exclusion seriously undermines the effectiveness of any nuclear inspections in the case of highly secret society as North Korea. Even worse is the evidence that North Korea has kept the nuclear weapon programme under military control from the beginning. North Korea already refused the IAEA's access to the two sites because it claimed that they were military sites. This is the area where inter-Korean arms control talks can contribute to making military sites transparent as far as nuclear weapons are concerned.

If the North Korean nuclear weapons programme is not effectively stopped, then vocal sentiments inside South Korea may call to reconsider the policy of not developing nuclear reprocessing and uranium enrichment capabilities, which will be regarded as doing unilateral harm to the South Korean nuclear fuel cycle without preventing North Korea's weapon programme. Even more serious is the possibility of South Korea going nuclear.

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[15] Gov/2636, 25 February 1993. International Atomic Energy Agency, Board of Governors, Report on the Implementation of the Agreement between the Agency and the Democratic People's Republic of Korea for the Application of Safeguards in Connection with the Treaty on the Non–Proliferation of Nuclear Weapons.

Regardless of the success in preventing the North Korean nuclear weapons programme, South Korea's nuclear energy programme will incur losses by relying for the supply of all nuclear fuels and reprocessing of spent fuels on foreign countries. Thus, nuclear supplier nations - including the US, a major supplier – have a special obligation to assure that South Korea has an adequate supply of fuel for its nuclear power plants following South Korea's decision not to acquire spent fuel reprocessing and uranium enrichment facilities. This should be done in accordance with US President Ford's pledge to assure nations that would forgo reprocessing and uranium enrichment capabilities and accept effective proliferation controls.

However, such an international mechanism has not been institutionalized though the supply guarantee was regarded as adequate to induce more countries to forgo such proliferation–prone technology.[16] Without a proper mechanism in place, countries that want to keep the nuclear option for their security reasons will be hard to convince to forgo the nuclear option because additional economic losses will be incurred.

[16] There were serious debates between the United States and industrialized nuclear nations regarding the US policy of deferring and subsequently forgoing the reprocessing of spent fuel for the use of plutonium in the late 1970s. On 28 October, 1976, President Ford announced that the US would defer reprocessing spent fuel to produce plutonium as a necessary and inevitable step in the nuclear fuel cycle so as to strengthen the non–proliferation regime. In this connection, the US stated that the supply guarantee is an essential element to encourage other countries to commit to giving–up reprocessing.

Chapter 5
Japan

Chapter 5 will analyze Japan's nuclear capabilities and policy in order to properly understand Japan's policy directions and to shed light on its nuclear intentions. In this process, potential problems regarding the nuclear issue will be identified to call upon policy measures to tackle those problems in the direction of strengthening the non–proliferation regime and enhancing confidence in the region.

5.1. Nuclear Capabilities

Japan's peaceful nuclear capabilities are some of the most advanced in the world. It has developed nuclear energy as a major source of energy to solve the shortage of natural resources. Japan tried to develop all kinds of nuclear technology to accomplish a complete nuclear fuel cycle for the sake of energy security which had been threatened by the oil shocks in the 1970s.

At present, Japan has 42 nuclear power reactors whose total net capacity amounts to 32,044 electric megawatts. Ten more are under construction with the total net capacity of 2,550 MWe.[1] The nuclear electricity generation contributes 23.8 per cent of total electricity of Japan.

As a result of nuclear technology diversification, Japan has all kinds of power reactors; two fast breeder reactors (FBR) – one being an experimental FBR (Joyo) the other being Monju; two advanced thermal reactors – one being a 165 MWe advanced thermal reactor (Fugen) and the other being a 600 MWe Ohma reactor under construction; 16 research reactors, and enrichment facilities and spent fuel reprocessing facilities, etc. In the number of nuclear power plants and the total net capacity of nuclear power reactors, Japan is the fourth largest country next to the United States, France and the former USSR. Japan will have the world's third largest commercial reprocessing capacity by 2010, next to the United Kingdom

[1] *IAEA Yearbook 1992*, International Atomic Energy Agency, Vienna, C2.

(2700 tons) and France (1605 tons).[2] Japan will be fourth in the capacity to enrich uranium by the year 2000, which will surpass the enrichment capacity of China around 1995.[3] Japan has gas centrifugation and atomic vapor laser isotope separation enrichment techniques that amount to the most advanced state of technology in this field. These advanced reprocessing and enrichment capabilities will enable Japan to have materials that are convertible for military uses. The FBR and advanced thermal reactors provide Japan with nuclear fission and fusion capacities that will be convertible for technology for atomic and hydrogen bombs.

This is why Japan is called a recessed nuclear threshold country in that its nuclear technological base is more than adequate to achieve the status of the nuclear weapon State at a short notice although Japan is presently a non–nuclear weapon State.[4]

Japanese present defence capabilities are the following: Japan basically holds the US fighters (F-4 and F-16) that can be used for dual–purpose delivery. Japan is one of the two countries in the region which have nuclear–powered submarines. What is more serious in the event of crisis is that Japan has the–state–of–the–art technology in the areas of micro–electronics, defence industry, aerospace related industries, thus enabling Japan to combine them all together to develop nuclear weapons in a short time.

Therefore, Japan has sufficient capabilities to develop hundreds of nuclear weapons without difficulties once the political leadership changes mind and policy. Will this be as easy as critics often claim? To have a sound judgement about the odds of Japan becoming a nuclear weapon State, one must review Japan's nuclear policy.

5.2. Nuclear Policy

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[2] IAEA, *Nuclear Power, Nuclear Fuel Cycle and Waste Management: Status and Trends*, 1992, C58. If estimated India's capacity is brought to the comparison, Japan will be the fourth while India is the third – 1150 tons per year.

[3] IAEA, *ibid.*, c51. In the area of the enrichment capacity, the United States is the first, Former Soviet Union is the second and the third being France.

[4] The term recessed is used here to imply that a country has already acquired technological capabilities to produce nuclear weapons but it may never cross the threshold to weaponization nor is there the need for it. Jasjit Singh, "Prospects of Nuclear Weapons Proliferation", The UNIDIR Conference Paper on *Nuclear Deterrence: Problems and Perspectives for the 1990s*, Paris, 10-11 December 1992.

Since 1967, Japan has adopted a policy of three non–nuclear principles in its Constitution: not to possess, manufacture, or introduce nuclear weapons. In general, these three principles have been well maintained. The last part – not allowing nuclear arms to be introduced into Japan by other countries - often met critical challenge because the United States' long–standing policy of "Neither Confirm Nor Deny (NCND)" was, in fact, in conflict with the non–introduction principle. Despite public concerns about the violation of the non–introduction principle, there was no effective way for Japan to know whether or not American naval vessels actually introduced nuclear weapons into Japan. The US–Japan security relationship has successfully been maintained in spite of the problems.

Thus, Japan's nuclear policy on the security domain was to rely on the US nuclear deterrent for the threat mainly coming from the former Soviet Union and a potential threat from China. This will be expected to last for the foreseeable future. The US nuclear umbrella served to prevent Japan's possible attempt for nuclear proliferation. This nuclear umbrella is not expected to change in the near future unless the United States changes its defence strategy, which is not expected.

The strategy of extended deterrence has not been changed even in the post–Cold War era. Though US withdrawal of tactical nuclear weapons from the Korean peninsula has affected traditional deterrence strategy between the United States and Japan in regard to deterring effectively North Korea's attempt to wage a local war, on the whole, US provision of nuclear deterrence by sea power remains.

While relying on the United States for its nuclear deterrence and security, Japan focused solely on the peaceful use of nuclear energy. The non–nuclear principles are strictly applied to the research and development arena. The basic rules regulating the research and development process in the area of nuclear technology are openness, independence, and democracy.

In parallel to Japan's self–regulating policy, strict control had been imposed on the nuclear activities of Japan by the United States. Japan has been under the US control regarding the use of nuclear fuels imported from the United States on a batch to batch case. Moreover, Japan's first reprocessing plant was to be shut down for a short period of time by the Carter Administration. As a result of bilateral negotiation, the operation of the Tokai nuclear site was limited with a principle in place: "the separation of plutonium shall not exceed actual plutonium needs for such purposes".[5]

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[5] *United States–Japan Tokai Mura Agreement Joint Communique*, 12 September 1977.

The US regulation loosened as a result of Reagan's lenient policy toward Japan. Reagan lifted the ban on the construction of new facilities in 1981, the Japanese government started to build Rokkasho Mura, a facility capable of reprocessing 800 tons of spent fuel per year, which is scheduled to be in operation by 1997.[6]

Japan has achieved a more flexible nuclear policy as a result of closer consultative relationship with the United States. This was made possible because of Japan's consistently high priority put upon the self–reliant nuclear policy. The history of bilateral negotiation to get a freer hand from the United States shows that Japan was striving for a self–reliance with steady and perseverant attitudes toward that policy. As a result, the United States and Japanese governments reached a new bilateral agreement for co-operation concerning the peaceful uses of Nuclear Energy replacing an earlier agreement of 1968 in July 1988. According to these new agreements, Japan does not need to gain US Congressional approval batch by batch for the right to reprocess US - origin uranium fuel, and to use the resulting plutonium. Japan must simply get consent on a 30 year plan although the transfers from abroad (France and the United Kingdom) are subject to the conditions laid down in the new agreements. This last clause caused Japan to transport the plutonium by ship and not by air in Fall 1992.

A few noteworthy observations on the Japanese nuclear policy can be made: first, Japan's research and development of nuclear capabilities have been driven consistently and strongly by the Japanese government to achieve energy security which is not dependent upon foreign resources. To mitigate US concerns and regulations, Japan adopted non–nuclear principles and basic rules governing the research and development process of the nuclear energy.

Second, Japan succeeded in turning vulnerability into opportunities to advance its nuclear programme and to expand nuclear capabilities. The debate emanating from the stricter non–proliferation policy to prohibit the use of plutonium for commercial use under the Carter Administration could have prohibited the development of reprocessing capabilities altogether. However, Japan turned the debate into an international conference on the International Nuclear Fuel Cycle Evaluation (INFCE) in co-operation with Western European countries (France, then West Germany and the United Kingdom) to justify developing the complete nuclear fuel cycle, thus gaining ground for the reprocessing plants of Japan. Japan succeeded in establishing a long–lasting working principle that non–proliferation

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[6] Frans Berkhout, Tatsujiro Suzuki, and William Walker, "The Approaching Plutonium Surplus: A Japanese/European Predicament", *International Affairs*, Vol. 66, No 3, 1990, p.527.

be compatible with peaceful use of nuclear energy including reprocessing and enrichment technology, at least for technologically-advanced countries including Japan.

Third, Japan justified its need to reprocess by insisting on its need for energy security after experiencing two oil crises and its consequent need to develop a complete nuclear fuel cycle. This, it claimed, was be absolutely different from those countries which may go nuclear with proliferation–prone technology. This success unleashed Japan's drive for developing various kinds of reactors, reprocessing and enrichment techniques.

The fourth and most important point is that Japan has achieved more freedom to reprocess spent fuels, stockpile plutonium and enrich uranium as the US regulation becomes loosened. This last point will be addressed in relation to the issue of plutonium surplus in the next section.

5.3. The Plutonium Surplus Issue

Japan's state–owned Power Reactor and Nuclear Fuel Development Corp. (PNC) has released data to show that there is an urgent need for additional plutonium for use in the 280–MWe Monju Breeder Reactor. Critics within and outside Japan say that the country's plutonium stocks are adequate to meet present needs.

Table 7 shows a comparison of estimated amounts of plutonium surplus among various sources to highlight the international concerns about Japan's plutonium question. According to the Japanese Government, Japan will need 20–30 tons of plutonium for the fast breeder reactors, 10 tons for advanced thermal reactors, and 50 tons for light water reactors until the year 2010. For these uses, the following supply will be made: 5 tons from Tokai Reprocessing Plant, 50 tons from Rokkasho Reprocessing Plant and the remaining 30 tons are to be transported from abroad.[7]

Table 7: Estimates on Plutonium Surplus
(unit: tons)

[7] Japan's Ministry of Foreign Affairs, *Plutonium: A Renewable Source of Energy*, November 1992. Before this publication, the Advisory Committee on Nuclear Fuel Recycling of the Japanese Atomic Energy Commission announced its projected supply and demand of plutonium in August 1991.

	Japanese Government*	Takagi & Nishio**	Berkout et. al.***	TaeWoo Kim****
Demand	80-90	8.66	32	49.76
Supply	85	62.57	80	62.57
Surplus	-5 to 5	53.91	48	12.81

* This estimation is made from 1992 to 2010. *Source*: Ministry of Foreign Affairs, Japan, November 1992;
** Takagi and Nishio's estimation is made between 1993 and 2004. *Source*: *The Bulletin of the Atomic Scientists*, Vol. 46, No 8, October 1990, pp.38;
*** Berkout and et al., this estimation is between 1990 and 2009. *Source*: Berkout and et. al., "The Approaching Plutonium Surplus: A Japanese/European Predicament", *International Affairs*, Vol. 66, No 3, 1990, pp.531;
**** Tae Woo Kim's estimation is between 1993 and 2004. *Source*: Tae Woo Kim, "South Korea's Nuclear Dilemma", *Korea and World Affairs*, Summer 1992, Vol. XVI. No 2, pp.283.

Table 7 indicates large variations in estimating the amount of plutonium surplus among different sources. The Japanese government estimates that projected cumulative supply, including the shipment from abroad (30 tons), will be adequate to meet the demand. It reaffirms that Japan will maintain the policy of not keeping on hand more than the amount of plutonium required for running stocks. However, experts do not agree with the statement of the Japanese government. And experts' concerns turned out to be true in the recent episode of Japan's missing 70 kg of plutonium in its reprocessing plant. In short, there are much more variations in estimates of demand than in those of supply.

Where does the striking difference come about? Experts agree on the point that completion of the fast breeder reactor will, first of all, be delayed for a commercial use. This leads the Japanese government to make errors in estimating the demand because it says that 20 to 30 tons will be required for the use of fast breeder reactor; second, the advanced thermal reactor is also questionable though Japan maintains that 10 tons will be dedicated to it. The fact that France and other European countries have stopped the development of fast breeder reactors adds more questions about Japan's enterprise. Japan is also suffering from the delay of completion of its fast breeder reactors. The advanced thermal reactors are not an exception in that there are technical problems to commercialize them within a scheduled time period. There are also technical problems associated with the generation of mixed–oxide fuel with accumulated plutonium. Therefore the Japanese government is overestimating the demand which resulted in the excess

supply plan. Because of the time lag between the scheduled introduction of commercial use of FBR and ATR, the estimation error in projected demand comes about. The evidence that Berkout and others provide is that Japan as of now has excess plutonium of 2.17 tons.

What message do these estimates on plutonium surplus convey to us? The plutonium that remains in stock for a long time raises concerns about its possible conversion into military uses, let alone the possibilities of terrorist targets and environmental hazards.[8] The plutonium can be used for making nuclear weapons if Japan has technology to manufacture the weapons, which is estimated to be sufficient by experts. This case raises more concern to many countries whenever Japan transports plutonium from France and the United Kingdom.

Certainly, the security alliance between the US and Japan, a political tradition of respecting non–nuclear principles and constitutional constraints, and cultural and social values in Japan will prevent those concerns from turning into reality overnight. The fact that Japanese nuclear facilities are under strict safeguards by the IAEA will not allow Japan an easy chance to dislocate the plutonium for military purposes. However, a small portion of the enormous amount can make a significant difference in the security equation of Northeast Asia and the world of non–proliferation.

Japan's rise to the great power status will cause other countries to be more sensitive to the manner in which Japan responds to the legitimate concerns of other countries. While Japan is evidently still planning for energy independence through the creation of a self–sustaining nuclear fuel cycle, it is reportedly reassessing its mid–term plans by considering to burn plutonium in reactors and in co-operation with the Russian Federation, converting plutonium from dismantled warheads into reactor fuel.[9] As the self–reliant energy programme evolves, the state of technology will reach a critical level where there will be a need for a clear distinction between peaceful use and the potential for diversion for military use. Although there was a serious debate between the United States and Japan to weigh the risks of proliferation with the economic benefits of having reprocessing and enrichment capabilities, now is the time for a more careful approach to establish a regime to prevent a quick conversion of plutonium into military purposes.

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[8] Plutonium (Pu) 241 in stockpile for a long time can be transformed into Amaritium 140 whose radioactive level is so high that it causes serious problems to health as well as environment.

[9] *Newsbrief*, PPNN, No 19, Autumn 1992, p.2.

Japan seems to be satisfied with the already–achieved international credibility of the peaceful nature of its nuclear programme. Japan also seems to be locked into the new technology that it has long been pursuing. The investment that has already been made is so large that it would be impossible to abandon the projects in the middle. Moreover, the market conditions for nuclear energy 20 years ago are not the same as those of today. The prices of uranium hit the record bottom, thus making the option of continuing with all sorts of advanced forms of reactors less convincing. Japan may have to revisit the issue of using plutonium for fuels.

5.4. Conclusion

As discussed above, there is much potential for Japan to divert nuclear materials and capabilities for military purposes within a relatively short time period. As more materials like excess plutonium and more advanced military technologies become readily available, the critical question arises as to the possibility of changing intentions within a short time. If capabilities are increasing, the only way to deal with the problem is to make sure that intentions remain peaceful and transparent. If it is not possible to control nuclear capabilities as long as they are dedicated to peaceful uses, keeping intentions under control becomes more important. Since intentions can be subject to quick change, it is critical to design measures to control them, i.e., to make sure that Japan's intentions remain peaceful. This is exactly what confidence-building measures are all about. To build the confidence and reassurances of Japan's nuclear programme should be undertaken to keep Japan's intentions on nuclear policy and capabilities peaceful.

In line with keeping Japan's nuclear intentions under control, reducing the amount of plutonium surplus to the maximum extent should be designed in the area of peaceful uses either in a form of international plutonium storage or in a form of stationing permanent IAEA inspections to monitor the flow and stock of the plutonium in Japanese nuclear facilities.

To lessen the probability that Japan will decide to go nuclear, appropriate care should be paid the issue of China's nuclear arsenals and proliferation efforts made by North Korea on the security dimension. If China's nuclear weapons policy and strategies remain uncontrolled, Japan may be tempted to keep the linkage between peaceful nuclear technology and the possibility of converting it for military purposes uncertain. If North Korea does not clarify its nuclear weapons programme, Japan will not do so regarding its potential for going nuclear.

Once again, the United States, along with Russia, China, and the two Koreas, need to take a closer look at the Japanese nuclear programme so as not to allow the possibilities of conversion. They must not take a lenient policy as if the proliferation issue has been resolved as far as Japan is concerned. Japan should also voluntarily lessen the usage of plutonium even for peaceful purposes. To induce Japan to reduce the use of plutonium, international co-operation for the reduction of plutonium use should take the floor in the Conference on Disarmament or in the IAEA.

Chapter 6
Policy Options

This Chapter will be devoted to designing policy options to tackle the problems identified in the previous four chapters. Resolving the nuclear problems of the countries in Northeast Asia is not an easy task, nor is there a panacea of options to solve them. Instead, we will need multiple approaches to solve the problems from bilateral, regional, or international levels. Thus, herein will we list some of policy options that seem to be more relevant and specific to the questions that have been brought to light in the previous chapters.

- **Encourage unilateral restraints on the part of those countries in the Northeast Asian region**

South Korea's adoption of a non–nuclear policy to prohibit the development of nuclear reprocessing and uranium enrichment facilities is a good case in point. Its initiative reduced uncertainties that might influence other countries to keep the nuclear option. The initiative received a reciprocal concession from North Korea to also ban nuclear reprocessing and uranium enrichment facilities, which is stipulated in the Denuclearization Agreements of the Korean Peninsula of 1991. Although several countries, such as Israel, want to keep the nuclear option uncertain to advance security interests, taking unilateral restraints in the nuclear arena helps to make progress in arms control to increase transparency and confidence in the region. This will, in turn, increase security for all the countries in the region. Thus, this kind of unilateral policy is a case for other countries to emulate in the era of arms control.

Other nuclear issues in Northeast Asia call for similar approaches to the Korean case. Japan needs to alleviate international concerns about its plutonium surplus if it strives for playing a more important role in the international community. It needs to explain its plutonium–use programme with detailed information and to open up the plutonium–use programme for closer international monitoring by the IAEA and by countries in the region. China also needs to take unilateral actions to comply with international norms and NPT requirements by being actively involved in the nuclear disarmament process. To do so, it will need to restrain sales of weapons of mass destruction and to comply with the MTCR and NPT

when it executes arms sales. Above all, China should be encouraged to take a bold step toward joining a comprehensive nuclear test ban treaty to inhibit further development of nuclear weapons. Moreover, China should take unilateral measures to enhance security and stability in Northeast Asia by sharing information concerning its nuclear arsenals and its willingness to halt the production of nuclear weapons.

- **Achieve a strategic success whose impact will be greatly transferable to the other cases and countries and expand the success to the region**

The Korean Peninsula is a strategic point where the legacy of the Cold War is still overshadowing, where interests of four powers (the US, Japan, China, and Russia) converge, and where international non–proliferation efforts are concentrated to resolve the problem of North Korea's nuclear weapons programme. North Korea's attempt to proliferate becomes a serious threat to the effective operation of the IAEA and international peace and security.

Gaining a success in preventing North Korea's proliferation is significant, otherwise the consequences will be seriously damaging to the whole landscape of non–proliferation and the odds of extending the NPT beyond 1995, not to speak of the chances of controlling the motivation toward proliferation by Japan and South Korea. If such efforts are successful, the Korean Peninsula will enter the era of arms control and disarmament since the intrusive method of verification usually comes at the final stage of the successful arms control process. Then, the two Koreas will be able to expand the scope of arms control to include the conventional arena and will build upon the success to increase transparency and predictability between them. This will lead to the reconciliation process, departing from the long–held confrontation and arms race.

Likewise, such a success in arms control can be applied more broadly to the Northeast Asian region. If the experience of preventing proliferation of North Korea is limited to Korea, it is less meaningful. It can go beyond the Korean Peninsula. The transparency and confidence-building measures should be expanded to include Japan and China so that the non–nuclear Korean Peninsula will remain non–nuclear for a long time. Without matching efforts by Japan and China, security and stability in the region will not be greatly improved.

However, China's long–maintained strategy of ambiguity becomes a stumbling block to the efforts to build confidence in the region since the nutshell of the ambiguity is meant to inflate uncertainties regarding its nuclear holdings and strategies. It is exactly opposed to two principal propositions that arms control is

based on: transparency and predictability to enhance confidence among countries. Unless China's nuclear programme is brought into the regional arms control process, it will pose threats to the countries in the region. This point leads to the next proposal.

- **Facilitate bilateral and multilateral dialogue and negotiations together with international efforts by the CD and UN**

To promote arms control and disarmament in Northeast Asia, it is not enough to rely on the activities of the CD as South and North Korea are not members of this body. Moreover, the CD has limitations on addressing the security and disarmament issues regarding bilateral and multilateral relations which are specific to the region or sub–region. This problem can be resolved in part by expanding membership to South and North Korea but it would be infeasible to do so within the foreseeable future because the CD would then have to extend membership to all countries.

Although the activities of the CD contribute to the resolution of universal issues, such as the CWC, its role is by and large limited to the resolution of global issues, thus binding its role to abstract solutions rather than region–specific solutions.

Over-globalization of the issue will lead to a bigger common denominator, therefore losing applicability to the specific needs of the region. This point is well demonstrated by the fact that although China and Japan play an important role in the CD, there has not yet been any bilateral arms control and confidence-building efforts between them. This indicates the limitations of the CD and the UN in bringing regional actors into the arms control process.

To utilize the CD and the UN to the full extent, it may be necessary to design a regional and a subregional subcommittee as a pilot programme to improve security and peace by arms control and disarmament through the CD's mediating roles. The CD or the UN may attempt to organize regional subcommittees to concentrate on regional issues by bringing regional experts and countries into the policy deliberation and resolution process.

Aside from international efforts by the CD and the UN, China, the two Koreas, and Japan should be encouraged to participate in the regional arms control process. This should be targeted to reverse the conventional arms race as well as to control efforts to proliferate. As discussed before and will be discussed later, regional support for the full realization of the non–nuclear Korean Peninsula is a good case in point.

Regional co-operation to enhance nuclear safety, either mediated by the IAEA or independently pursued in the region, is a good point to start in the nuclear dimension. This is because the safety of nuclear power plants and reactors of China and North Korea is so problematic that their accidents would have dire consequences to the region.

To facilitate bilateral and multilateral dialogue and negotiations toward arms control, it will be useful to form a security forum where China, the two Koreas and Japan, as well as the United States and Russia, could participate as the former US Secretary of State, James Baker advocated. Through this forum, we need to address security issues and related nuclear issues to bring the countries in the region to enhance mutual security and confidence. In a nuclear as well as conventional dimension, it is necessary for the United States and Russia to participate because security problems in the region are so intertwined with those countries that security problems are intractable without their involvement. This point brings up the next point.

- **Let the US and Russia play the role of "honest broker" for arms control in the region**

The United States and Russia have the expertise and experience to bring hostile countries to the negotiation table for arms control to the same extent that they have played a significant role of maintaining peace and stability in the region. In particular, the United States still holds two bilateral security alliances with South Korea and Japan. In transforming its military posture and strategy, the United States needs to take the arms control issues up-front to build confidence and security to match the changing security environment. In this connection, the US role in bringing North Korea to the negotiation table to work out solutions to the North Korea's nuclear issue is worth highlighting. Over the long-term, the US role is expected to increase in resolving non-proliferation issues worldwide.

In addition, close co-operation between the United States and the Russian Federation to press North Korea to give up its nuclear programme was timely and is still on-going. This will definitely be instrumental in leading North Korea to accept the international request for disclosing all aspects of its nuclear programme. Considering that the Soviet and US decision to withdraw and dismantle all tactical nuclear weapons provided a window of opportunity to the two Koreas to start bilateral negotiation regarding the nuclear issue, the United States and the Russian Federation are expected to play an important role in fostering change in the security environment and arms control arena. Their role goes beyond the issue

of the Korean Peninsula. China could be drawn into nuclear disarmament to live up to its declaratory policy. Japan could also be drawn into the arms control process departing from its dependence on the United States for its security toward creating actively the security environments through its own efforts on regional confidence-building and disarmament. The bilateral co-operation between the United States and Russia can be transformed to include China, the two Koreas and Japan as described above.

- **Strengthen the IAEA Safeguards system**

This should be done in various ways in relation with the Northeast Asian region.

First, to prevent North Korea's attempt to proliferate, the IAEA should embody special inspections as a major component of the safeguards system. To do so, the IAEA should be empowered to expand the objects of inspection to both undeclared and declared sites. The present limitation of the IAEA inspection regime is that the IAEA must have consent from the recipient countries for special inspections of undeclared sites. In principle, the IAEA can request inspections on the undeclared sites regardless of whether the requested sites are civilian or military as long as they are suspected to have nuclear materials. However, it is very hard to implement such rights to inspect if the inspected countries do not allow access to the sites, especially when they claim that the sites are only military.

The first test case for the implementation of special inspections during peace is North Korea. If North Korea allows access of the IAEA's inspection teams to the two sites on which special inspections were requested, it sets a good precedent for the special inspection system. If North Korea does not comply with the request for special inspections, the IAEA will resort to the higher UN Security Council.

For such countries as North Korea which later acceded to the NPT and delayed IAEA safeguards for a long time, it is particularly hard to unveil the totality of the nuclear programme. This is because they may have dispersed important facilities elsewhere, in particular, to military bases. One instance of North Korea's use of tactics to avoid access of IAEA inspectors was insisting on its being a military facility. Thus, one policy option to strengthen the IAEA safeguards system is to institutionalize the special inspection system in a way that the consent from the inspected States should not be required. If the inspected States do not agree to the requested special inspections, denial for special inspections should be regarded as a clear–cut violation of the safeguards agreements and the spirit of the NPT. However, the IAEA should be prudent not to misuse or overuse the rights for

special inspections by weighing costs and benefits in increasing their use. Benefits would include increasing transparency and reassurances that the inspected countries comply with safeguards agreement and the NPT. Costs would include economic costs of executing inspections and political costs of intervening politically in the domestic affairs of the member State.

Second, the IAEA should promote confidence among regional States by helping to strengthen collective security, playing a key role in preventing the proliferation of nuclear weapons. This can be done by disseminating information regarding the state of proliferation and nuclear weapons capabilities and policies of concerned countries. However, releasing the information obtained by the IAEA in the process of inspections has been prohibited because such information is confidential. Since the IAEA has no independent body for collecting intelligence on nuclear activities, it has to rely on member States to provide this information. The IAEA should strengthen the function of gathering information with regard to the nuclear activities of member States, covert and overt alike. The IAEA should transmit information on non–proliferation to the countries that are most concerned about the nuclear activities of neighbouring countries because of security reasons. This information sharing must enhance security and confidence in the region by allowing States to collectively co-operate to prevent proliferation attempts.

Third, the IAEA should design policy measures to tackle the plutonium surplus issue properly before it becomes intractable. For this, establishing an International Plutonium Storage House would be a good option. Certainly, there is a revival of interest in this idea, as discussed in the late 1970s and early 1980s to give effect to Article XII.A.5 of the IAEA Statute.[1] This would bring all separated plutonium, civilian or military, under international custody. This is absolutely relevant to resolving the Japan's plutonium surplus issue.

The task of building the international plutonium storage house will entail two major issues regarding who operates it and at whose costs. There are two ways to resolve the issues. One is that countries which produce and use plutonium should bear the costs of construction, operation and management with the custodians being staff members of the IAEA. The other is that the IAEA run the storage house and bear all the costs, but the costs will be levied as a form of tax on the

[1] David Fischer, "The Future of the Multilateral Non–Proliferation Regime", a paper presented in the UNIDIR Conference on *Nuclear Deterrence: Problems and Perspectives for the 1990s*, Paris, 10–11 December 1992.

countries which produce and use plutonium in proportion to the amount of production and use. This scheme is meant to discourage the use of plutonium because it is prone to proliferation and hazardous to health and environment. More serious is the potential for proliferation. This scheme can be expanded to the issue of highly enriched uranium. If a user country cannot prove the proper use of the plutonium, it will not be allowed to take out plutonium from the storage.

One difficult issue here is related to the plutonium of nuclear weapon States. Unless plutonium of nuclear weapon States is brought under international custody, the issue of fairness and equity complicates the problem. The problem of the blurred boundary between military use and peaceful use is also difficult. The disintegration of the former Soviet Union has caused serious problems in controlling plutonium. This calls for proper policy measures. In this light, the plutonium of nuclear weapon States should be held in an international storage house.

International conferences on plutonium surplus sponsored by the IAEA to set a constructive policy option to deal with the problem are also useful. The IAEA did this in the past regarding the International Fuel Cycle Evaluation in the late 1970s. This kind of activity can resolve new suspicions over countries with the most advanced nuclear technology.

Fourth, the IAEA should properly use sanctions against member States that do not comply with the safeguards agreement as in the Article XII of the IAEA Statute. If a member State seriously violates the safeguards agreement, the IAEA Board of Governors may take one or both of the following measures; direct curtailment or suspension of assistance being provided by the IAEA or a by a member State of the IAEA and demand that the return of materials and equipment made available to the recipient member or group of members; the Agency may also, in accordance with article XIX, suspend any non–complying member from the exercise of the privileges and rights of membership.[2] These sanctions can be applied to North Korea unless it complies with the request for special inspections. However, the sanctions to be taken by the IAEA will be less effective because North Korea's nuclear programme is developed independently. This last point necessitates the interplay between the IAEA and the UN Security Council.

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[2] Statute of the International Atomic Energy Agency, as amended up to 28 December 1989, Article XII.

Fifth, the IAEA should be assisted by the international arms control movement in preventing the proliferation of nuclear explosive devices by maintaining a close relationship with the MTCR, CWC, or any other regional arms control regime other than the NPT. Since the high explosive tests for nuclear weapons are conducted in the realm of conventional weapons, monitoring these tests becomes critical. In light of the findings in this paper, Japan and North Korea should be kept from the possibilities of developing explosive devices that can be used to manufacture nuclear weapons once they are compelled to do so. Taking account of the fact that the IAEA has no right to inspect high–explosive tests, the IAEA or countries in a collective way should try to cover the holes with prudent policy measures.

- **Bring the serious proliferation issue to the Security Council**

After the Iraqi case, North Korea is the first test case for an interplay between the IAEA and the UN Security Council. Though there is a legal argument concerning whether the IAEA can directly bring the issue to the Security Council without exhausting all the procedures to take sanctions inside the IAEA authority,[3] the Joint Declaration of the Security Council Summit Meeting on 31 January 1992 paved the way for such an action. They jointly adopted a statement that "the proliferation of all weapons of mass destruction constitutes a threat to international peace and security." As all of the five nuclear weapon States acceded to the NPT, it became easier to bring international proliferation issues to the Security Council for them to authorize the rights of special and challenge inspections. The members of the Security Council commit themselves to working to prevent the spread of technology related to the research for or production of such weapons. If the IAEA notifies any case of NPT and safeguard agreement violations, then the members of the Security Council will take appropriate measures to tackle those problems.

However, differences of national interests among the five permanent member States of the UN Security Council prevent the UN from being effective in taking strong measures against proliferation attempts. As shown in China's opposition to adopt sanctions against North Korea, it is very difficult to take any collective action against cases of violations of the NPT and safeguards agreement although the IAEA report those cases to the Security Council. Since non-proliferation is

[3] Security Council, SC/5361, 31 January 1992.

not the only issue in international relations, it may be hard for five permanent member States of the Security Council to obtain a unanimous vote regarding the proliferating nations. Nevertheless, the United States, the United Kingdom, France, Russia, and China should set the precedent of reaching unanimity in preventing nuclear proliferation if they are to make their Joint Declaration of 31 January 1992 valid and effective.

- **Design international economic measures to encourage countries to forgo developing enrichment and reprocessing capabilities**

As seen in the South Korean case, forgoing the option of developing uranium enrichment and spent fuel reprocessing capabilities brought about changes in North Korea's nuclear policy, at least in a declared form. This initiative contributed significantly to the peace and stability in the region and the world. Other non–nuclear weapon States should follow this case to create a more stable and peaceful world with fewer nuclear threats. To do so, it is necessary to establish an incentive scheme by taking into account the economic aspects of the actions of forging enrichment and reprocessing capabilities. A country like South Korea has problems in utilizing spent fuels as it has already reached the full capacity of spent fuel storage.

The Nuclear Suppliers' Group should make collective efforts to reduce the demand for reprocessing and enrichment capabilities in addition to its efforts to control export. Unless policy measures reduce demand, the supply–oriented policy will be less effective in curbing the motivations that countries have to develop their own self–reliant complete fuel cycle system to ensure energy security as well as to improve the national pride through this advanced technology.

Thus, the IAEA and the Nuclear Suppliers' Group should adopt a policy to ensure an adequate supply of fuel for the countries which forgo developing enrichment and reprocessing capabilities like South Korea. They should also design an international system to guarantee the reprocessing and enrichment services to induce more countries to forgo such proliferation–prone technology.

Chapter 7
Conclusion

This paper attempted to find out ways to facilitate bilateral and regional arms control regarding nuclear issues in Northeast Asia. This is done in order to reduce uncertainties regarding nuclear policy and capabilities of those countries, and thus to enhance transparency and confidence in the region. In order to bring them into the nuclear disarmament and non–proliferation process in an effective way, we revisited the issues that contributed to the acceleration of the arms race. The review provided insights into the future course of China, the two Koreas and Japan regarding their nuclear policy and capabilities.

The findings of this study indicate a general likelihood of resistance to outside request for arms control and disarmament in the countries in Northeast Asia. Besides their continuation with the conventional arms race, countries in Northeast Asia are reluctant to go ahead with the programmes to enhance transparency, build confidence in the region, and to forgo intentions to go nuclear. China is slowly but steadily increasing its nuclear arsenals. Its nuclear arms control policy is not well integrated with nuclear policy and strategy, and it is subject to the overarching goal of nuclear policy and strategy to advance China's status and national security interests in the international community. Thus, it will be very difficult for other countries to bring China to the arms control process for the time being. North Korea has intended to develop nuclear weapons in order to hedge against uncertainties. This poses a threat to the NPT regime and the peace and security of Northeast Asia. Clearly, North Korea has shown its reluctance to disclose the entirety of its nuclear programme under the IAEA inspections. Although South Korea has taken a bold initiative to forgo uranium enrichment and reprocessing capabilities, it has still not fully paid off. Japan adds the problem of plutonium surplus to the uncertain security environments surrounding Northeast Asia.

To cope with the nuclear problems in Northeast Asia, policy options were pursued through the brainstorming method and interviews with many relevant experts. There is no single and easy solution to the nuclear problems of the countries in Northeast Asia. Instead, we need multiple approaches to solve the problems from bilateral, regional, or international levels.

Six sets of policy options were brought to attention. Again, these options are not mutually exclusive. Nor is one option more important than the others.

Nonetheless, the most important option is to achieve a strategic success whose impact will be greatly diffusible to the other cases and counties and will expand the success to the region because it required more immediate action to resolve the issue. To fully utilize the momentum created as a result of North Korea's threat to go nuclear, regional and global co-operation must be maintained.

The significance of the North Korean nuclear issue is interrelated to the proper functioning of the IAEA. In this regard, policy options to strengthen the IAEA safeguards system were laid out in five ways: to institutionalize the special inspection system, to establish an information sharing mechanism, to build an international plutonium storage house especially to resolve Japan's plutonium issue, to augment the sanctions system of the IAEA, and to facilitate co-operation between the IAEA and the international arms control community to prevent development of nuclear explosive devices.

Another policy measure to induce many countries to forgo the nuclear option was interesting as it is targeted at the demand side of nuclear technology rather than the supply side. This case was made possible because South Korea took the initiative in this field and got North Korea's consent on the initiative. Thus, to disseminate this case to the world, it is useful to create incentives for other countries to follow.

Other arms control measures highlighted from the regional perspective include: to encourage unilateral restraints of those countries in the Northeast Asian region; to facilitate bilateral and multilateral dialogue and negotiations together with international efforts by the CD and the UN; and, to let the US and Russia play a role of an honest broker for arms control in the region.

A prudent combination of these policy options can improve the odds of nuclear disarmament and non–proliferation in Northeast Asia as well as in the rest of the world. If we can make progress in this field, then there will be less problem in disseminating the success to the rest of the world. Bringing the regional nuclear issues to light and preparing prudent policy measures specifically targeted at the regional problems can contribute to the effectiveness of the NPT regime and IAEA inspection regime so as to enhance mutual peace and security. Therefore, more studies on regional nuclear issues should be conducted before the thorough review process of the NPT begins for its extension.

Appendix 1

Joint Declaration of the Denuclearization of the Korean Peninsula

(Initialled on December 31, 1991; entered into effect on February 19, 1992)

Preamble

The South and the North, desiring to eliminate the danger of nuclear war through denuclearization of the Korean Peninsula, and thus to create an environment and conditions favourable for peaceful unification of our country and contribute to peace and security on Asia and the world, declare as follows;

1. The South and the North shall not test, manufacture, produce, receive, possess, store, deploy or use nuclear weapons.

2. The South and the North shall use nuclear energy solely for peaceful purposes.

3. The South and the North shall not possess nuclear reprocessing or uranium enrichment facilities

4. In order to verify the denuclearization of the Korean Peninsula, the South and the North shall conduct inspections of the objects selected by the other side and agreed upon by the two sides in accordance with procedures and methods to be determined by the South–North Joint Nuclear Control Commission (JNCC).

5. In order to implement this Joint Declaration, the South and the North shall establish and operate a South–North Joint Nuclear Control Commission within one month of the effectuation of this Joint Declaration.

6. This Joint Declaration shall enter into force on the day the South and the North exchange notification of completion of the formalities for the entry into force of the present Declaration.

Appendix 2

AGREED FRAMEWORK BETWEEN THE UNITED STATES OF AMERICA AND THE DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA

Geneva, 21 October 1994

Delegations of the Governments of the United States of America (US) and the Democratic People's Republic of Korea (DPRK) held talks in Geneva from September 23 to October 17, 1994, to negotiate an overall resolution of the nuclear issue on the Korean Peninsula.

Both sides reaffirmed the importance of attaining the objectives contained in the August 12, 1994 Agreed Statement between the US and the DPRK and upholding the principles of the June 11, 1993 Joint Statement of the US and the DPRK to achieve peace and security on a nuclear-free Korean peninsula. The US and the DPRK decided to take the following actions for the resolution of the nuclear issue:

I. Both sides will cooperate to replace the DPRK's graphite-moderated reactors and related facilities with light-water reactor (LWR) power plants.

1) In accordance with the October 20, 1994 letter of assurance from the US President, the US will undertake to make arrangements for the provision to the DPRK of a LWR project with a total generating capacity of approximately 2,000 MW(e) by a target date of 2003. The US will organize under its leadership an international consortium to finance and supply the LWR project to be provided to the DPRK. The US, representing the international consortium, will serve as the principal point of contact with the DPRK for the LWR project.

– The US, representing the consortium, will make best efforts to secure the conclusion of a supply contract with the DPRK within six months of the date of this Document for the provision of the LWR project. Contract talks will begin as soon as possible after the date of this Document.

– As necessary, the US and the DPRK will conclude a bilateral agreement for cooperation in the field of peaceful uses of nuclear energy.

2) In accordance with the October 20, 1994 letter of assurance from the US President, the US, representing the consortium, will make arrangements to offset the energy foregone due to the freeze of the DPRK's graphite-moderated reactors and related facilities, pending completion of the first LWR unit.

– Alternative energy will be provided in the form of heavy oil for heating and electricity production.
– Deliveries of heavy oil will begin within three months of the date of this Document and will reach a rate of 500,000 tons annually, in accordance with an agreed schedule of deliveries.

3) Upon receipt of US assurances for the provision of LWR's and for arrangements for interim energy alternatives, the DPRK will freeze its graphite-moderated reactors and related facilities and will eventually dismantle these reactors and related facilities.

– The freeze on the DPRK's graphite-moderated reactors and related facilities will be fully implemented within one month of the date of this Document. During this one-month period, and throughout the freeze, the International Atomic Energy Agency (IAEA) will be allowed to monitor this freeze, and the DPRK will provide full cooperation to the IAEA for this purpose.
– Dismantlement of the DPRK's graphite-moderated reactors and related facilities will be completed when the LWR project is completed.
– The US and the DPRK will cooperate in finding a method to store safely the spent fuel from the 5 MW(e) experimental reactor during the construction of the LWR project, and to dispose of the fuel in a safe manner that does not involve reprocessing in the DPRK.

4) As soon as possible after the date of this document. US and DPRK experts will hold two sets of expert talks.

– At one set of talks, experts will discuss issues related to alternative energy and the replacement of the graphite-moderated reactor program with the LWR project.

– At the other set of talks, experts will discuss specific arrangements for spent fuel storage and ultimate disposition.

II. The two sides will move toward full normalization of political and economic relations.

1) Within three months of the date of this Document, both sides will reduce barriers to trade and investment, including restrictions on telecommunications services and financial transactions.

2) Each side will open a liaison office in the other's capital following resolution of consular and other technical issues through expert level discussions.

3) As progress is made on issues of concern to each side, the US and DPRK will upgrade bilateral relations to the Ambassadorial level.

III. Both sides will work together for peace and security on a nuclear-free Korean peninsula.

1) The US will provide formal assurances to the DPRK, against the threat or use of nuclear weapons by the US.

2) The DPRK will consistently take steps to implement the North-South Joint Declaration on the Denuclearization of the Korean peninsula.

3) The DPRK will engage in North-South dialogue, as this Agreed Framework will help create an atmosphere that promotes such dialogue.

IV. Both sides will work together to strengthen the international nuclear non-proliferation regime.

1) The DPRK will remain a party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and will allow implementation of its safeguards agreement under the Treaty.

2) Upon conclusion of the supply contract for the provision of the LWR project, ad hoc and routine inspections will resume under the DPRK's safeguards agreement with the IAEA with respect to the facilities not

subject to the freeze. Pending conclusion of the supply contract, inspections required by the IAEA for the continuity of safeguards will continue at the facilities not subject to the freeze.

3) When a significant portion of the LWR project is completed, but before delivery of key nuclear components, the DPRK will come into full compliance with its safeguards agreement with the IAEA (INFCIRC/403), including taking all steps that may be deemed necessary by the IAEA, following consultations with the Agency with regard to verifying the accuracy and completeness of the DPRK's initial report on all nuclear material in the DPRK.

Kang Sok Ju - Head of the Delegation for the
Democratic People's Republic of Korea,
First Vice-Minister of Foreign Affairs of the
Democratic People's Republic of Korea
Robert L. Gallucci - Head of the Delegation
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