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Author(s)	Korosawa, Mitsuru
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Nuclear Non-Proliferation and Export Control

*Mitsuru KUROSAWA**

Effort to prevent the spread of nuclear weapons has been made since the 1960s through technical non-proliferation means as well as through political non-proliferation undertakings. The importance of the technical means comes from the fact that not all states have acceded to the Nuclear Non-Proliferation Treaty (NPT), and even if a state is a party to the NPT, the state may suspiciously be in the process of the development of nuclear weapons. In this article, I will mainly examine the effort to prevent the spread of nuclear weapons and nuclear-related technologies through technical means.

First, I will consider the current efforts to prevent the spread of nuclear weapons and nuclear-related technologies by categorizing them into three measures, that is, political, technical and military measures. This is the analysis of the current situation.

Second, I will examine the measures that have been taken to prevent nuclear-related technology by dividing them into two, that is, the measures taken with a prior political agreement and measures taken without a prior political agreement. I will make the contents and characteristics of both measures clear.

Third, I will take up the Nuclear Suppliers Group (NSG) and the Zangger Committee that were established to prevent the spread of nuclear-related technologies. I will critically analyze these systems from the viewpoint of their effectiveness and legitimacy by examining the measures taken by the two export control systems and the arguments on them.

Finally, I will argue for the necessity of a demand-side approach as well as a supply-side approach. I also argue for the necessity to link the non-proliferation issue to nuclear disarmament issue, because the spread of technology is inevitable and we can not take effective countermeasures through technical measures only or through the measures by the NSG only.

* Professor of International Law and Relations, Osaka School of International Public Policy and Graduate School of Law, Osaka University, Japan

I. Typology of Non-Proliferation Measures

Nuclear non-proliferation regime, consisting of several measures including the NPT at its center, is playing a very important role in the current international society. The nuclear non-proliferation regime plays an indispensable role in maintaining international peace and stability, although it has some discriminatory nature in it. Several measures have been taken to prevent and counter proliferation and these measures can be categorized into political, technical and military measures.¹⁾

1. Political Measures

The central measure among political measures is making a treaty, but there are other political measures.

a) Treaty

The Nuclear Non-Proliferation Treaty (NPT) was signed in 1968 and entered into force in 1970. The number of the parties to the NPT is now 187, among which 182 states are non-nuclear-weapon states. Through the Treaty non-nuclear-weapon states undertake the legal obligation not to produce or possess nuclear weapons. The NPT is the measure for preventing the spread of nuclear weapons through the political will of each party to the Treaty, even though nuclear-related technology has been widely spreading.

The treaty as a political measure must be examined from the viewpoint of universality and effectiveness. The problem of universality is that there exist some states that want to stay outside of a treaty. India, Israel and Pakistan are not parties to the NPT. The problem of effectiveness is that a party to the treaty may develop or produce nuclear weapons although it is under legal obligation not to do so. Iraq and North Korea fall under this category. In order to secure its compliance, the NPT provides for the acceptance by non-nuclear-weapon states of IAEA full-scope safeguards.

1) Roberts analyzes export control, arms control and counterproliferation as the components of nonproliferation regime, and concludes that "a major lesson that has emerged over the last decade is that these tools of policy not only complement one another but that their integrated pursuit is essential to their combined success" (Brad Roberts, "Proliferation and Nonproliferation in the 1990s: Looking for the Right Lessons," *The Nonproliferation Review*, Vol.6, No.4, Fall 1999, p.74). Mitchell argues that not only carrots and sticks, but also six strategies—deterrent, remunerative, preventive, generative and normative—are necessary as strategies for nuclear nonproliferation. (Ronald B. Mitchell, "International Control of Nuclear Proliferation: Beyond Carrots and Sticks," *The Nonproliferation Review*, Vol.5, No.1, Fall 1997, pp.40-52.)

Treaties establishing a nuclear-weapon-free zone, which prohibit not only producing or possessing nuclear weapons but also permitting the deployment of nuclear weapons, play a role supplementary to the NPT. A nuclear-weapon-free zone has been established in Latin America, the South Pacific, Southeast Asia and Africa, on the initiative of each region.

Comprehensive Nuclear-Test-Ban Treaty (CTBT) has a purpose to stop nuclear testing by the five nuclear-weapon states. However, in essence, its main purpose is to prevent India, Israel and Pakistan from conducting nuclear test, complementing the lack of the universality of the NPT.²⁾

b) Other Measures

As political measures other than making a treaty, we can witness cooperative measures after the end of the Cold War. Cooperative measures mean that when there is a danger of nuclear proliferation, states undertake to politically cooperate in order to prevent nuclear proliferation.

One is the Cooperative Threat Reduction (CTR) program. The United States initiated it in 1992 in order to strengthen the control and accounting of nuclear weapons and nuclear materials in the former Soviet Union after the collapse of the Soviet Union. It also helps Russia in dismantling strategic nuclear weapons according to the START I Treaty.³⁾

The other is the establishment and activities of Korean Peninsula Energy Development Organization (KEDO). It was agreed in the Agreed Framework of October 1994 between the United States and North Korea. Its main job is to build two light water reactors in North Korea.

2. Technical Measures

In order to prevent the spread of nuclear weapons, measures such as prohibiting the transfer of nuclear-related items or technology, or subjecting their transfer to the

2) This idea is implied in the provision of its entry into force. For the CTBT to enter into force, all 44 states designated including India, Pakistan and Israel as well as five nuclear-weapon states have to ratify the Treaty.

3) On the Cooperative Threat Reduction program, see Graham T. Allison, Owen R. Cote, Jr., Richard A. Falkenrath, *Avoiding Nuclear Anarchy*, The MIT Press, 1996; Jason Ellis, "Nunn-Lugar's Mid-Life Crisis," *Survival*, Vol.39, No.1, Spring 1997, pp.84-110; Jessica E. Stern, "U.S. Assistance Programs for Improving MPC&A in the Former Soviet Union," *The Nonproliferation Review*, Vol.3, No.2, Winter 1996, pp.17-45; Kenneth Luongo, "The Uncertain Future of U.S.-Russia Cooperative Nuclear Security," *Arms Control Today*, Vol.31, No.1, January/February 2000, pp.3-10; Joseph R. Biden, Jr., "Maintaining the Proliferation Fight in the Former Soviet Union," *Arms Control Today*, Vol.29, No.2, March 1999, pp.20-25.

condition of applying IAEA safeguards on the items have been undertaken. These efforts are to combat nuclear proliferation from a technical aspect. The NPT demands the application of the IAEA full-scope safeguards to all non-nuclear-weapon state parties.

When a party to the NPT wants to export nuclear-related items to a non-party non-nuclear-weapon state, the IAEA safeguards have to be applied under the Treaty, but it is not full-scope safeguards but safeguards applied only to exported items. In order to implement this provision, the Zangger Committee consisting of exporting countries of nuclear-related items was established.

A central measure from a technical aspect is an export control conducted by the Nuclear Suppliers Group (NSG). Several supplier states have made up a group, the group has agreed common guidelines, and each member state implements them individually through national legislation or practices. The Guidelines for Nuclear Transfer consists of fundamental principles for safeguards and export controls as well as trigger lists, clarification of items and level of physical protection in Annexes.

3. Military Measures

There are some measures to use or threat to use military powers in order to prevent proliferation or reverse the situation of proliferation.

One is a policy of counterproliferation that has been emphasized by the United States since 1993. This measure aims to reverse the situation where proliferation has already occurred, and has been taken place in strong connection with U.S. weapon procurement. The offensive aspect of the counterproliferation includes the development and production of bunker busters in order to penetrate into deep earth to destroy targets in deep underground. The defensive aspect of the counterproliferation includes theater missile defense (TMD) at the beginning and national missile defense (NMD) later.

The other military measure has been taken in accordance with United Nations Security Council resolution 687 (1991) after the end of so-called Gulf War. As it was not clear that Iraq had developed nuclear weapons at that time, the resolution demanded Iraq to declare nuclear-weapon usable materials and asked the United Nations Special Commission (UNSCOM) to control and destroy them. Later it became clear through on-site inspections by the UNSCOM and the IAEA that Iraq had developed nuclear weapons. As a result, they were given the authority to destroy all nuclear-related facilities and materials in Iraq. All nuclear-related facilities and materials were reportedly destroyed by military measures.⁴⁾

II. Efforts to Prevent the Spread of Nuclear Weapon Development Technology

1. Measures based on a political agreement

a) IAEA Safeguards (Article III.1 of the NPT)

According to the Article III, paragraph 1 of the NPT, each non-nuclear-weapon state party to the Treaty undertakes to accept IAEA safeguards to prevent diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices. The safeguards shall be applied to all source and special fissionable material in all peaceful nuclear activities of the state.

In order to implement the safeguards, each state has to conclude a safeguards agreement with the IAEA. A model safeguards agreement was elaborated in 1971.⁵⁾ Here safeguards apply to all nuclear material in a non-nuclear-weapon state party to the Treaty. Full-scope safeguards shall apply here.

Clandestine nuclear weapon program by Iraq was revealed by on-site inspections by the UNSCOM and the IAEA based on the UN Security Council resolution 687 (1991). Iraq has been a party to the NPT since 1971, the IAEA safeguards have been applied since, and the IAEA has reported every year that there is no discrepancy. The IAEA inspection is conducted based on the declaration of a state. Iraq conducted its program outside of the sites declared to the IAEA. At the time of the treaty making, drafters did not think that possibility of clandestine development would high and they thought that it would be found out because of the big size of nuclear-related facility.

Although some criticized the lack of IAEA capability to find out Iraqi clandestine program, the main problem is not that the IAEA did not work seriously but that the IAEA had no authority to find out clandestine activities. It comes from the IAEA safeguards system itself that the IAEA could not find out Iraqi clandestine program.

With the reveal of Iraqi clandestine development program, the limit of the IAEA safeguards system was widely recognized. Then in order for the IAEA to be able to find out clandestine nuclear development program, the IAEA started "the 93+2

4) On the activities of the UNSCOM, see Edward J. Lacey, "The UNSCOM Experience: Implications for U.S. Arms Control Policy," *Arms Control Today*, Vol.26, No.6, August 1996, pp.9-14; Rolf Ekeus, "Leaving Behind the UNSCOM Legacy in Iraq," *Arms Control Today*, Vol.27, No.4, June/July 1997, pp.3-6; Richard Butler, "Keeping Iraq's Disarmament in Track," *Arms Control Today*, Vol.26, No.6, August/September 1998, pp.3-7; Richard Butler, "The Lessons and Legacy of UNSCOM," *Arms Control Today*, Vol.29, No.4, June 1999, pp.3-9.

5) IAEA Doc. INFCIRC/153.

program” in 1993. They have examined the ways to strengthen its safeguards by dividing the problem into two categories. Part 1 deals with the clarification of the activities that can be conducted under then current legal authority, which was adopted in 1995. Part 2 deals with the measures that need new authority for the IAEA to take, which was adopted in 1997. As the part 2 measures need new authority, the IAEA Council adopted a model protocol additional to safeguards agreement.⁶⁾

Main purpose of the model protocol is to rectify the system based on self-declaration and secure the correctness and completeness of safeguards. It requires state members to provide more information and authorizes IAEA inspectors to have a wider access. Completeness means that there is no undeclared material or facility and all are under the IAEA safeguards. Correctness means that there is no discrepancy between the declaration by states and the conclusion by IAEA based on inspection.

The characteristic of traditional safeguards is that it focuses on nuclear material and depends on qualitative analysis. Under a new safeguards system, the IAEA would analyze various information as a whole and qualitatively analyze each country's activities as a whole. Sites where inspectors can have an access are widely expanded and the new method of environmental monitoring can be used in order to detect clandestine nuclear activities.

b) Export Control by the Zangger Committee⁷⁾ (Article III.2 of the NPT)

According to Article III, paragraph 2, each state party undertakes not to provide: (a) source or special fissionable material, or (b) equipment or material especially designed or prepared for the processing, use or production of special fissionable material, to any non-nuclear-weapon state for peaceful purposes, unless the source or special fissionable material shall be subject to the safeguards required by this

6) IAEA Doc. INFCIRC/540. On the strengthening of the IAEA safeguards, see David A. V. Fischer, “New Directions and Tools for Strengthening IAEA Safeguards,” *The Nonproliferation Review*, Vol.3, No.2, Winter 1996, pp.69-76; Mark H. Killinger, “Improving IAEA Safeguards through Enhanced Information Analysis,” *The Nonproliferation Review*, Vol.3, No.1, Fall 1995, pp.43-48; Erwin Häckel and Gotthard Stein (eds.), *Tightening the Reins: Toward A Strengthened International Safeguards System*, Springer, Berlin, 2000.

7) On the origin and activities of the Zangger Committee, see Fritz W. Schmidt, “The Zangger Committee: Its History and Future Roles,” *The Nonproliferation Review*, Vol.2, No.1, 1994, pp.38-44; Fritz Schmidt, “NPT Export Control and the Zangger Committee,” *The Nonproliferation Review*, Vol.7, No.3, Fall-Winter 2000, pp.136-145; *Multilateral Nuclear Supply Principles of the Zangger Committee*, Working Paper submitted by Members of the Zangger Committee, NPT/CONF.2000/17, 18 April 2000.

article.

This paragraph deals with the application of safeguards to the transfer from a state party to any non-nuclear-weapon state. All non-nuclear-weapon states seem to be affected by this paragraph. However, as non-nuclear-weapon state parties to the Treaty are under legal obligation to apply safeguards to all peaceful nuclear activities under Article III, paragraph 1, Article III, paragraph 2 shall apply only to non-nuclear-weapon states that are not party to the Treaty.

The paragraph stipulates a general principle only, lacking concrete standards or measures. In order to avoid discretionary judgement by each state in the application of this paragraph, main exporter states started informal consultations in 1971. Main purpose was to have a common understanding what (a) source or special fissionable material and (b) equipment or material especially designed or prepared for the processing, use or processing mean, that is, to establish a common understanding on the interpretation and application of the Article III, paragraph 2. This consultation forum was called a Zangger Committee, named after its chairman.

The Committee reached an agreement in September 1972, but it was published formally in August 1974 because it took time to secure Soviet participation. It was agreed that definition of (a) would follow the one included in the Article XX of the IAEA Statute, and the items which should be included under (b) are listed in detail, such as nuclear reactors and equipment therefor, and non-nuclear materials for reactors. The list is called "Trigger List", because the transfer of these items should press the trigger of safeguards on them. The content of the trigger list has been revised eight times so far in order to adapt to scientific and technological development and to provide more concrete and precise description.

Current list contains plants, equipment and, as appropriate, material in the following categories: nuclear reactors, non-nuclear materials for reactors, reprocessing, fuel fabrication, uranium enrichment, heavy-water production, and conversion.

In addition, the Committee agreed as the condition for supply, (1) to specify to the recipient states that the source or special fissionable material shall not be diverted to nuclear weapons or other nuclear explosive devices, (2) to satisfy that safeguards to that end will be applied to the source or special fissionable material in question, and (3) to require satisfactory assurances that the material will not be re-exported unless arrangements are made for the acceptance of safeguards by the state receiving such re-export.⁸⁾

8) IAEA Doc. INFCIRC/209, 3 September 1974.

The Committee's agreements are all informal and they are not legally binding. The agreements are implemented by each member state through national legislation or practices. The Committee does not have any authority to criticize or stop an transfer or to inflict sanctions on any member state. Each member state informs other members on its actual export or the issue of export licenses annually.

It was agreed that the safeguards applied in the case of export were not full-scope but item-specific safeguards which meant that safeguards would applied only to nuclear material related to the item exported. While a non-nuclear-weapon state party to the Treaty has to accept full-scope safeguards, a non-nuclear-weapon state that is not a party to the NPT has to accept partial safeguards only in connection with imported nuclear-related facility or material even if its import comes from a party to the Treaty. Commercial interest was a main reason for the partial safeguards, and as a result, non-parties are in more advantageous position than parties in terms of burden.

Original members are Australia, Denmark, Canada, Finland, Norway, Soviet Union, the United Kingdom and the United States in 1974, and a little later West Germany and Dutch joined. In 1990s, Austria, Belgium, Czechoslovakia, Greek, Hungary, Ireland, Italy, Japan, Luxembourg, Poland, Switzerland, Sweden joined, increasing the number of the member states to 22. China joined in 1998 and the number of current members is 35.

2. Measures Without A Prior Political Agreement

a) Export Control by the Nuclear Suppliers Group (NSG)⁹⁾

India conducted its first nuclear test underground in 1974 using plutonium that was reprocessed from irradiated fuel in the research reactor provided by Canada. This event aroused concern among main nuclear suppliers about nuclear proliferation and they began consultation on the conditions of supply. Since April 1975, in order to prevent the danger of nuclear proliferation, the United States, the United Kingdom, France, Soviet Union, West Germany, Canada and Japan tried to accommodate their national policy on conditions for export of nuclear-related facility and material. Later, Belgium, Italy, the Netherlands, Sweden, Switzerland, Czechoslovakia, East Germany and Poland joined. In 1977, they agreed on the guidelines for export of nuclear material, equipment and technology (London

9) On the NSG, see *The Nuclear Suppliers Group: Its Origin, Role and Activities*, IAEA Doc. INFCIRC/539/Rev.1(Corrected), 29 November 2000; Tadeusz Strulak, "The Nuclear Suppliers Group," *The Nonproliferation Review*, Vol.1, No.1, Fall 1993, pp.2-10; Roland Timervae, *The Nuclear Suppliers Group: Why and How It Was Created (1974-1978)*, PIR Center, Moscow, October 2000.

Guidelines), which include following conditions as well as a trigger list.

(1) Formal governmental assurances should be obtained from recipients excluding uses which would result in any nuclear explosive device.

(2) All nuclear materials and facilities in the trigger list should be placed under effective physical protection.

(3) Suppliers should transfer trigger items only when the safeguards apply.

(4) The above-mentioned three requirements should also apply to facilities for reprocessing, enrichment, or heavy-water production, utilizing technology directly transferred by the supplier or derived from transferred facilities, or major critical components thereof.

(5) Suppliers should exercise restraint in transfer of sensitive facilities, technology and weapon-usable materials.

(6) The recipient nation should agree that the transferred facility will not produce greater than 20% enriched uranium.

(7) Suppliers recognize the importance of including in agreements on supply of nuclear materials or of facilities which produce weapon-usable material, provisions calling for mutual agreement between the supplier and the recipient on arrangements for reprocessing, storage, alteration, use, transfer or retransfer of any weapon-usable material involved.

(8) Suppliers should transfer trigger list items only upon the recipient's assurance that in the case of retransfer the recipient of the retransfer will provide the same assurance.

The agreement is the guidelines that each member should apply as a minimum standard in its national nuclear export policy. The guidelines do not legally bind the members and they are implemented through national legislation or practices. The content of the trigger list is substantially the same as the Zangger Committee, and the level of application of safeguards is also the same.

However, there is a big difference between the two systems. While the guidelines by the Zangger Committee apply to the export to a non-nuclear-weapon state that is not a party to the Treaty, the guidelines by the NSG, which were agreed outside of the NPT framework, apply to the export to all non-nuclear-weapon states, whether it is a party to the NPT or not.

Accordingly, the condition of the application of safeguards by the NSG makes no difference to non-nuclear-weapon state parties to the Treaty because they have already accepted full-scope safeguards. However, the guidelines concerning restraint in transfer of sensitive facilities, technology and weapons-usable materials, and mutual agreement on arrangement for reprocessing, storage, alteration, use,

transfer or retransfer of any weapon-usable material apply to non-nuclear-weapon states even if they are parties to the NPT.

After the Gulf War in 1991, the UNSCOM and the IAEA conducted on-site inspections in Iraqi territory and found out that Iraq had been developing nuclear weapon program. Then it was generally recognized that the export control system was not enough to prevent a country from developing nuclear weapon program. As a result, the NSG members met in 1991 and 1992 and agreed as a new condition for export that when members export nuclear-related facility or material, they have to apply IAEA safeguards on all recipient nuclear activities, that is, full-scope safeguards.

In addition, as Iraqi nuclear weapon development had heavily depended on import of dual-use items from developed countries, it was recognized that not only directly nuclear-related material, equipment and technology, but also nuclear-related dual-use equipment, material and related technology must be regulated. Members agreed on guidelines of nuclear-related dual-use items.¹⁰⁾

Items identified in the Annex are industrial equipment, material, uranium isotope separation equipment and components, heavy water production plant related equipment, implosion system development equipment, explosives and related equipment, nuclear testing equipment and components and others. Suppliers should establish export-licensing procedures for the transfer of equipment, material, and related technology identified in the Annex. In considering whether to authorize such transfers, suppliers should exercise prudence and take relevant factors into account. As conditions for transfer, supplier should obtain (a) a statement from the end-user specifying the uses and end-use locations of the proposed transfer; and (b) an assurance explicitly stating that the proposed transfer of any replica thereof will not be used in any nuclear explosive activities or unsafeguarded nuclear fuel-cycle activity.

When a state denies a transfer, the state should inform the denial to all other members. They also agreed on 'no-undercut' policy, that is, when a state denies a transfer, other members can't authorize the transfer of the same items without consultation with the state.

In 1994, so-called non-proliferation principle was agreed. A member state can authorize the transfer only when it is satisfied that the transfer would not contribute to proliferation of nuclear weapons, even if condition under the guideline is fulfilled. A transfer may be denied when the transfer may include the danger of

10) IAEA Doc. INFCIRC/154/Part.2, May 1992.

proliferation, even if a recipient is a party to the NPT or a treaty establishing a nuclear-weapon-free zone.

III. Challenges of Nuclear-related Export Control

The issue of nuclear-related export control has been challenged from various aspects, and we can divide these into two big challenges. One of the challenges is from its effectiveness. Export control is necessary and desirable from the viewpoint of non-proliferation, but it is not sufficient because it lacks effectiveness. Measures to strengthen its effectiveness have to be taken. The other is the challenge from its legitimacy. Export control is not desirable because its policy has been taken unilaterally by some developed nations and the measures prevent underdeveloped nations from developing their peaceful uses of nuclear energy. These two challenges come from opposite directions. The fact that these diametrically different arguments have been raised means the issue of export control is very complicated and serious.¹¹⁾

1. Challenge from Effectiveness

The current systems of export control are based on the informal agreement among thirty to forty states. The first challenge comes from its informality. Guidelines have been adopted by consensus, but the agreement is informal, having no legally binding force, and not a rule of international law. The guidelines have been implemented through national legislation or practices. The group of exporting countries as a whole never tries to judge each transfer. There is no authoritative or uniform mechanism to judge the implementation of the guidelines. From these aspects, effectiveness of the export control has been criticized. For example, in spite of Russian statement that its transfer of low enriched uranium to India would not violate the NSG guidelines, many members have interpreted Russia's transfer

11) Bech, after analyzing not only nuclear-related but also whole multilateral export control regime and indicating it is facing various challenges, concludes by arguing (1) the United States must develop greater domestic consensus on realistic objectives for export policies by engaging industry, government, and academic leaders in a dialogue, (2) efforts in the short term should concentrate on "deepening" the regimes by formalizing and strengthening regime provisions before moving to expand regime membership to accommodate new membership, (3) governments must invest more in using technology to monitor technology transfers and use by recipients, and (4) member states should begin thinking about the possibility of moving away from denial-based regimes to verification regime for some dual-use technologies. (Michael Beck, "Reforming the Multilateral Export Control Regimes," *The Nonproliferation Review*, Vol.7, No.2, Summer 2000, pp.91-103.)

as contrary to the guidelines.¹²⁾

Under these systems, judgement of violation by individual member state is possible, and each state may claim to other members that its transfer is contrary to the guidelines. However, there is no institution to judge each transfer publicly and authoritatively. Accordingly, it is claimed that these systems lack effectiveness because there is no way of taking countermeasures against violation.

Secondly, the effectiveness of the guidelines has been doubted because the contents of the guidelines are not clear enough. While the concrete trigger items are clear, a general principle such as non-proliferation principle has a tendency to be subordinated to subjective interpretation of each member.

Thirdly, it is claimed that the effectiveness of the export control has been decreased as the number of the members has increased with various kinds of states joining. As there is a big difference of perception on the threat of proliferation among member states, it is natural that there is a big difference on the application of the guidelines among members. For example, the threat perception on Iran is quite different between the United State and Russia.

Fourthly, although the export control systems aim at avoiding commercial competition by giving higher priority to non-proliferation, in the real application of guidelines, commercial interest may have a priority. As a result, states that apply the guidelines more loosely would get more commercial benefit.

These challenges from the effectiveness of the systems mean that it is difficult to secure uniform implementation of the systems among thirty to forty members. From this fact, it is pointed that a more strict export control system only among the states with same threat perception like the COCOM system during the Cold War is better. For example, final report of Study Group on Enhancing Multilateral Export Controls For US National Security¹³⁾, which was established under the direction of the 106th Congress, recommends to establish a new supplemental framework based on harmonized export control policies and enhanced defense cooperation with close allies and friends, as well as to merge the existing multilateral regimes into a single, maximally effective body.

On the contrary, the current export control systems with thirty to forty members do not include China, India, North Korea and others that are active in exporting nuclear-related equipment, material or technology. It is necessary to include these countries into the regime for the regime to be effective.

12) "Russia Ships Nuclear Fuel to India," *Arms Control Today*, Vol.31, No.2, March 2001, p.32.

13) Study Group on Enhancing Multilateral Export Control For US National Security, *Final Report*, April 24, 2001. <http://www.stimson.org/tech/sgemec/index.html>

When a state is denied the transfer of regulated items, there is a tendency that the state tries to work hard to produce them indigenously. The possession of the item would be delayed by the application of export control, but it does not necessarily prevent the state from acquiring the items in the end. The effectiveness of the system will not be maintained.

In order to secure the effectiveness of the export control systems, two completely different arguments have been submitted. On the one hand, some argue for the strict regulation and implementation of the regime even if the number of members decreases. On the other hand, others argue for wider participation in the regime rather than the stricter regulation. Some argue for deepening the regime while others argue for widening the regime. It is impossible to accomplish both deepening and widening simultaneously, and the point is which should have a priority.

2. Challenge from Legitimacy

The current export control systems were agreed only among exporting countries including highly industrialized states, and have been applied unilaterally by these states. From the point of view of underdeveloped states, the systems have been lacking legitimacy because they are decided and applied unilaterally without any consultation with the underdeveloped states.

The working paper presented by the members of the Movement of Non-Aligned Countries at the 2000 NPT Review Conference includes following statements.¹⁴⁾

–The states parties reaffirm that beyond safeguards required under the Treaty unilaterally enforced restrictive measures that prevent peaceful nuclear development should be removed.

–The states parties note with concern that undue restrictions on export to developing countries of material, equipment and technology, for peaceful purposes persist. They emphasize that proliferation concerns are best addressed through multilaterally negotiated, universal, comprehensive and non-discriminatory agreements. Non-proliferation control arrangements should be transparent and open to participation by all states, and should ensure that they do not impose restrictions on access to material, equipment and technology for peaceful purposes required by developing countries for their continued development.

These arguments from the viewpoint of legitimacy are based on the right of the peaceful uses of nuclear energy and the right to participate in the fullest possible

14) NPT/CONF.2000/18, 24 April 2000.

exchange of equipment, materials and scientific and technological information stipulated in Article IV of the NPT. It further provides that parties shall cooperate in contributing to the further development of the applications of nuclear energy for peaceful purposes, especially in the territories of non-nuclear-weapon states, with due consideration for the needs of the developing areas of the world.

Assistance in developing peaceful uses of nuclear energy was one of the measures to mitigate the discriminatory nature of the NPT. This was thought to be one of the means to motivate non-nuclear-weapon states to participate in the NPT. Article IV was included for this purpose.

However, the assistance in nuclear activities or exchange of nuclear items has been mainly practiced not based on whether recipients are parties to the NPT or not, but based on commercial interests. The export control system by the NSG was made up and practiced without taking any account whether recipients are parties to the NPT or not. On the contrary, the guidelines of the Zangger Committee concern with the interpretation and application of Article III, paragraph 2, and apply to the transfer to non-nuclear-weapon states that are not parties to the NPT.

The NSG was established and its guidelines have been applied outside of the NPT framework. At the beginning the NSG was established outside of the NPT in order to include states that have no intention to accede the NPT such as France, but now all members of the NSG are parties to the NPT.

The first and the most important challenge from legitimacy is that a state that is a member of the NPT and accepts the legal obligation of non-proliferation is treated just the same as a non-party, and sometimes the party is given less favorable treatment than a non-party. The parties accept full-scope safeguards under Article III, paragraph 1, and the measures beyond it are thought to be contrary to the principle of legitimacy.

“The Principles and Objectives for Nuclear Non-proliferation and Disarmament” that was adopted at the 1995 NPT Review and Extension Conference includes in paragraph 16 the statement that in all activities designed to promote the peaceful uses of nuclear energy, preferential treatment should be given to the non-nuclear-weapon states party to the Treaty, taking the need of developing countries particularly into account.

The second challenge is that the export control has been applied by industrial states unilaterally. From the point of view of developing non-nuclear-weapon states, the export control measures conducted by industrial states are unilaterally applied restrictive measures and as a result an unfair barrier to their peaceful uses of nuclear energy. Generally speaking, it is the issue of participation in decision-

makings. They are criticizing the regime by stating that with no-participation in the elaboration of the guidelines export of nuclear-related items to them is rejected through the application of the guidelines.

The third challenge is that the multilateral export control regime lacks transparency. Consultations within the NSG are all confidential and the factual status of export control is not open to public although the guidelines were published as IAEA documents. "The Principles and Objectives for Nuclear Non-Proliferation and Disarmament" of 1995 provides in paragraph 17 that transparency in nuclear-related export controls should be promoted within the framework of dialogue and cooperation among all interested states party to the Treaty.¹⁵⁾

In order to increase transparency of the regime, the members of the NSG are making efforts to explain the purposes and contents of the export control regime to non-members individually or through holding seminars collectively.

The fourth challenge comes from the fact that after the end of the Cold War the NSG guidelines include dual-use nuclear-related items in addition to exclusively nuclear-related items. Dual-use nuclear-related items can be used for non-nuclear peaceful purposes. Restriction on export of dual-use items increases the area of non-transfer to developing countries even if it would be used for non-nuclear purposes.

3. Harmonization of Effectiveness and Legitimacy

Harmonization of effectiveness and legitimacy is very difficult because as stated above the direction of the two is completely opposite. However, in order to make the export control system work smoothly, it is indispensable to find the ways to harmonize the challenges from effectiveness and legitimacy.

In the 1970s when the Zangger Committee and the NSG were established, many states remained outside of the NPT. For example, France was not a party to the NPT until 1991. Both in providers and recipients of nuclear-related items, there were many non-parties to the Treaty. However, today only four states, that is, India, Israel, Pakistan and Cuba still remain outside of the NPT, and universality of the Treaty is secured widely. This is a very important development and the export control regime should take this reality into account.

The Zangger Committee that was established to deal with the common

15) At the 2000 NPT Review Conference, export control was one of the sharply contentious issues. As a result in the final document, the paragraph that the NSG is playing a role in this field was deleted and the paragraph dealing with the Zangger Committee was also deleted. It means how serious the dissatisfaction of developing countries is.

interpretation and application of Article III, paragraph 2, has an informal status since its beginning and agreed guidelines are also informal in nature. From the viewpoint of commercial competition, the guidelines of the Committee do not require to apply full-scope safeguards as a condition of transfer. In spite of the fact that the Committee has the purpose of common interpretation and application of the Article of the Treaty, the guidelines are agreement among thirty to forty states only, not among all states party to the Treaty.

A state that is a party to the Treaty but is not a member of the Zangger Committee is not bound by the Committee's guidelines and can behave freely.

It is highly recommended that a review conference of the NPT should begin discussion on the Zangger Committee with the participation of all parties and agree to apply a strict export control system that would be applied only to transfer to non-parties to the NPT. Within this framework, a new regime that is responsible to the challenges from effectiveness and legitimacy will be possible. The scope of current guidelines of the Committee covers only exclusively nuclear-related items. It could keep its current scope or may expand to include dual-use nuclear-related items. What is absolutely needed is the introduction of the application of full-scope safeguards.

The NSG that was established independently from the NPT should strengthen its connection with the NPT, now that all members of the NSG are parties to the Treaty. Indeed, states such as Iraq and North Korea have exploited their membership in the NPT to develop nuclear weapons clandestinely. But this fact should not be used to generalize their cases and being a party to the Treaty should not be ignored when transfer is considered. The practice that restricts or denies the transfer of nuclear-related items even if the recipient is a party to the Treaty is an overreaction.

In particular, when an exporter state has to decide whether to authorize or deny its transfer, the fundamental criteria should be whether a recipient is a party to the NPT or not. The issue of treaty violation such as Iraqi or North Korean case is the issue of the compliance with treaty obligations and should be responded or rectified by strengthening its verification mechanism. For example, the IAEA adopted a model additional protocol to safeguards agreement that introduced more robust verification mechanism. It is reasonable to apply stricter export control or export denial to non-parties to the NPT because they have not accepted the obligation of non-proliferation.

To parties to the Treaty, it is reasonable not to apply export restriction or denial but to generally authorize transfer while establishing a regime to keep monitoring

transferred items or technology. A regime should be elaborated that in general permits the transfer and strengthens the procedure to secure the transferred items never be used in developing nuclear weapons. Recipient states should accept wider verification measures including frequent and wider on-site inspections in order to make their intention clearer.

Finally, the relationship between the NSG and the NPT should be strengthened. Transparency of the NSG should be promoted and universality of the NSG should be secured. With these measures, we should proceed to mitigate the discriminatory aspect of the NSG.

IV. Nuclear Non-Proliferation and Nuclear Disarmament

Every issue concerning nuclear non-proliferation including proliferation of nuclear-related materials and technologies relates to the issue of nuclear non-proliferation and nuclear disarmament. The fundamental point is whether to take non-proliferation as a goal itself and take various measures for non-proliferation or to take non-proliferation as a means for nuclear disarmament, not as a goal itself.

Analyzing from the viewpoint of maintaining international peace and security, and from a long-term viewpoint, nuclear elimination is a final goal. This position does not contradict with the proposition that it is impossible to accomplish nuclear elimination in short time. Nor this position contradicts with the proposition that nuclear elimination is not feasible in current structure of international society.

Eliminating nuclear weapons would take long and may need the restructuring of international society. However, these do not mean that non-proliferation is a final goal and international society as a whole make effort only for nuclear non-proliferation. Nuclear non-proliferation is absolutely necessary as a precondition of nuclear elimination because nuclear proliferation would make the goal of nuclear elimination more difficult.

The NPT was signed in 1968 and privileged status was given to the five nuclear-weapon states. It was thought necessary to give such a status in order to prevent the situation from going much worse, and perpetuation of the privileged status was not thought to be a final goal. According to a preambular paragraph, the Treaty was agreed by considering the devastation that would be visited upon all mankind by a nuclear war and the consequent need to make every efforts to avert the danger of such a war and to take measures to safeguard the security of peoples. It also declares their intention to achieve at the earliest possible date the cessation of the nuclear arms race and to undertake effective measures in the direction of nuclear

disarmament. Under Article VI of the Treaty, parties undertake to pursue negotiations on such measures.

Taking nuclear non-proliferation regime as a goal itself promotes its discriminatory nature. Export control system is sometimes seen as a concrete measure of its discrimination. This is the fundamental problem of export control system.

Export control system that is one measure of the nuclear non-proliferation regime is indispensable to accomplish a goal of non-proliferation, but proliferation of nuclear-related technology is very difficult to prevent in the era of global economy, and export control has been criticized from the viewpoint of legitimacy. As technical measures for nuclear non-proliferation have their limit in application, political measures to prevent the spread of nuclear weapons should be taken. Demand-side approach rather than supply-side approach should be emphasized.

It is necessary to improve national security and regional security, and decrease the political and military role or value of nuclear weapons.