

Working Paper on a Treaty to Ban the Production of Fissile Material for Nuclear Weapons and Other Nuclear Explosive Devices

Submitted by Japan

Introduction

The Treaty to ban the production of fissile material for nuclear weapons and other nuclear explosive devices (the FMCT) has been the priority for the past decade in multilateral nuclear disarmament and non-proliferation and in multilateral arms control fora as a whole. It still remains the priority despite a sea change in the international security and political landscape and will be more so due to the growing threats of proliferation of weapons of mass destruction to States and non-state actors such as terrorists.

The FMCT will represent a significant step forward in the promotion of nuclear disarmament. A conclusion of the FMCT will be an essential building block towards the total elimination of nuclear arsenals. The FMCT will also contribute to the prevention of nuclear proliferation by banning globally the production of fissile materials for nuclear weapons and enhancing transparency and accountability in the management of such material through its verification system.

The international community has, for the past decade, expressed its ardent desire for negotiations on many occasions and in many forums. Examples include:

The UN General Assembly Resolution A/RES/48/75/L adopted in December 1993 which recommended "the negotiation in the most appropriate international forum of a non-discriminatory, multilateral and internationally and effectively verifiable treaty banning the production of fissile material for nuclear weapons and other nuclear explosive devices."

The "Principles and Objectives for Nuclear Disarmament and Non-Proliferation" adopted at the 1995 Nuclear Non-Proliferation Treaty (NPT) Review and Extension Conference, which called for the immediate commencement and early conclusion of negotiations on the FMCT; this was widely regarded as part of a political bargaining process between nuclear-weapon States and non-nuclear-weapon States, when the latter abandoned the nuclear option forever as a means for national security;

The Final Document adopted at the 2000 NPT Review Conference which contained the "immediate commencement of negotiations" on the FMCT "with a view to their conclusion within five years" as one of the thirteen practical steps for systematic and progressive efforts to implement Article VI of the NPT and paragraph 3 and 4(c) of the 1995 Decision on "Principles and Objectives for Nuclear Non-Proliferation and Disarmament";

Annual consensus resolutions of the United Nations General Assembly since 2000 urging the Conference on Disarmament (CD) to agree on a program of work that includes FMCT negotiations; and

The Shannon Report (CD/1299), which included a mandate to negotiate a non-discriminatory, multilateral and internationally and effectively verifiable treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices, and was adopted by the CD in March 1995. The CD actually commenced negotiations in 1998. Negotiations, however, were too short-lived to reach any tangible outcome.

The CD is still unable to start FMCT negotiations despite the political commitment continuously shown by the international community over the past decade, including those above-mentioned. This fact puts into question the relevance and usefulness of the CD as the only global forum to negotiate multilateral disarmament treaties. It is also a negative factor for the regime of the NPT.

The purpose of this paper is primarily to structure discussion on the FMCT by categorizing various issues according to the following items: (1) scope, (2) technical issues including verification and (3) organizational and legal issues. Individual issues can be identified through surveying the debate that has been held informally (and officially to a very limited extent) on the FMCT. Structuring and categorization of the issues will facilitate understanding on them, provide a useful format for future multilateral debate and thereby contribute to enhancing the level of discussion.

1. Scope

(1) Existing Stocks

Future negotiators will have to define the scope of the FMCT. The best way to handle the question of existing stocks effectively is to start negotiations based on the Shannon report (CD/1299), which contains a mandate, but avoids precluding any delegation from raising the issue for consideration in the negotiations.

The issue of past production is arising from political will to make the FMCT more effective by enhancing transparency, or promoting reduction, of existing stocks of fissile material for nuclear weapons. Thus, this question is a very controversial part of the entire debate and requires thorough examination.

Various suggestions have been made in the past on the modality to deal with the issue of stocks. Theoretically, there are several options, ranging from the total exclusion of existing stocks from the FMCT to the inclusion of legally binding provisions to eliminate them. As a middle way, Canada,

for example, proposed in its working paper (CD/1578) "a separate but parallel process" to deal with this matter. Also, South Africa proposed in its working paper (CD/1671) "to ensure irreversibility" of material declared as excess by placing such material under a special verification arrangement until it becomes of a less sensitive form. Voluntary confidence-building measures with respect to the stocks may be considered to enhance transparency. Another interesting option would be to make such provisions in the FMCT, whether in the preamble or in the body, so as to keep open the way for a more substantive exercise to be conducted in the future.

Most importantly, deliberations on *future production* should be conducted without being linked to the issue of existing stocks, because such a linkage would only complicate the debate. Any tactics to link the two issues will unnecessarily prolong negotiations and therefore will not be useful, but rather harmful, to the entire negotiation process.

Japan is, at this stage, open on this matter to any suggestions that are conducive to further nuclear disarmament and non-proliferation and also to the facilitation of the FMCT negotiation process.

(2) Fissile Material for Peaceful Purposes

In relation to the scope, one view is that fissile material for the peaceful use of nuclear energy should be included in the scope of the prohibition under the FMCT. Japan neither does, nor will, accept such an argument because the negotiating mandate is crystal clear in defining the objective of the FMCT as the banning of the production of fissile material for nuclear weapons or other nuclear explosive purposes. Japan opposes reopening this question, already settled in the negotiating mandate, because such a move would only complicate negotiations. Safeguarded peaceful uses of nuclear energy do no harm to the purpose of nuclear non-proliferation and disarmament.

(3) Examination of Fissile Material and Other Nuclear Materials

Defining "fissile material" and other nuclear materials is of essential importance in determining the scope of the FMCT. The term "fissile material" is not used in the IAEA safeguards system, and therefore it is the right and the task of negotiators of the FMCT to decide on how to define this term.

Nonetheless, deliberations must, to a large extent, benefit from the experiences of the IAEA in its safeguards system. Nuclear materials that are subject to International Atomic Energy Agency (IAEA) safeguards comprise two mutually exclusive categories: special fissionable materials and source materials. According to the IAEA Statute, "special fissionable material" is mainly comprised of plutonium-239, uranium-233, and uranium enriched in the isotopes 235 or 233.

Two transuranic elements, neptunium and americium, have fissionable capabilities. The Board of Governors of the IAEA indicated that some controlling measures might have to be applied to these two materials. In this regard, past discussions in the IAEA fora should be carefully followed.

Tritium is used as a booster for thermonuclear weapons and is therefore essential to increase the yield of warheads. However, tritium is neither a fissile material nor a nuclear material, and does not explode alone. The FMCT should focus on fissile material that is indispensable for the manufacture of nuclear weapons and other nuclear explosive devices.

Thorium is a fertile material that can be converted to uranium-233. However, thorium itself is not directly usable for the manufacture of nuclear weapons.

2. Verification System

As for the verification system of the FMCT, two approaches, comprehensive and focused, have been proposed and discussed extensively. Although there is no precise understanding on these ideas and there are some variations on each, the comprehensive approach is generally understood to be a verification system covering all nuclear fuel cycle facilities and not only fissile material, but also other nuclear materials. On the other hand, the focused approach concentrates on enrichment and reprocessing facilities and fissile material in downstream facilities. This latter approach may cover R&D laboratories, including hot cells with a capability for the separation of fissile material.

With regard to the verification system, whether a comprehensive approach should be taken or a focused approach will be an optimum solution is an important but difficult question. In order to find an answer to this question, it will be necessary to consider factors such as security benefits, confidentiality, effectiveness of verification and cost-efficiency.

The negotiators will also benefit greatly from the experiences of the IAEA in the consideration of possible key components of a FMCT verification system. The scope of declarations and routine inspections will be discussed in the light of fissile material consideration. The issue of non-routine inspections is important because such inspections are one means to detect undeclared activities.

The IAEA Additional Protocol (INFCIRC 540) has already introduced verification arrangements (expanded declaration and complementary access) for the detection of undeclared activities, and such a set of measures should be considered as one of the pillars of verification.

It is generally considered that IAEA safeguards measures provided by both the Comprehensive Safeguards Agreement and the Additional Protocol may provide a good basis for the consideration of a future verification system for "banning the production of fissile material for nuclear weapons

or other nuclear explosive devices." Therefore, additional obligations should not, in principle, be unnecessarily imposed on non-nuclear-weapon states which adopt both the Comprehensive Safeguards Agreement and the Additional Protocol.

FMCT verification will also deal with military facilities that have been producing fissile material for the manufacture of nuclear weapons, whether exclusively for such purposes or for dual purposes with non-proscribed purposes. IAEA Safeguards are not applied to such facilities. The concept of managed access will be relevant in order to ensure that the issue of confidentiality be duly addressed, particularly with respect to such military or dual-use facilities.

Reactor fuel for naval vessels, including military ones, is for non-explosive purposes, and therefore the production of such fuel should not be prohibited. However, difficulties lie in the verification of non-diversion of such material to explosive purposes because confidentiality of the production process of fuel for military vessels is so high that the normal verification approach may not be applicable.

(2) Other Verification Issues

Another question is whether or not the FMCT verification should also be tasked to ensure irreversibility with respect to closed-down reprocessing or enrichment facilities for weapon purposes and to fissile material declared as excess.

3. Organization and Legal Issues

(1) Future Organization

The FMCT requires a body to implement verification. There is an advantage to using existing expertise and knowledge of the IAEA, and its robust infrastructure, including administration and equipment. Best utilization of the already existing expertise and infrastructure will save administrative costs and reduce financial burdens on States parties. In any circumstances, the relationship between the implementing organization for the FMCT and the IAEA should be clearly defined.

(2) The Entry-Into-Force Clause

The entry-into-force clause is a sensitive issue. Lessons can be learned from the history of the CTBT that has a very high requirement for entry-into-force. At the same time, ratifications by the recognized five nuclear weapon States and those States non-party to the NPT are essential for the operation of the FMCT.

(3) Other Provisions

The FMCT should also have provisions, such as (a) amendment, (b) withdrawal, (c) review process, (d) depositary, (e) accession and (f) languages, as do other multilateral arms control conventions and treaties. Depending upon the prospective for an early entry into force of the FMCT, provisions regarding arrangements before the Treaty enters into force, such as hosting facilitating entry-into-force conferences may also be included in the Treaty provisions. Financial arrangements should also be discussed.

4. Conclusion

- (1) Given the diversity and complexity of the issues of the FMCT, negotiations require extensive technical expertise as well as difficult political judgements. It is an urgent priority to resolve the stalemate in the CD and to commence FMCT negotiations with a view to their conclusion within five years.
- (2) The structuring of the debate on the FMCT can be categorized into three items, namely scope, technical deliberations including verification issues and organizational and legal issues. And, for the sake of future negotiation, these can be factorized and further recomposed to: (a) group for legal and political issues; and (b) group for technical issues.
- (3) The Shannon mandate is clear in seeking a treaty to prohibit the production of fissile material for nuclear weapons and other nuclear explosive devices and in precluding fissile material for peaceful purposes from the scope of the prohibition. This question should not be reopened.
- (4) Negotiations should involve substantial technical deliberations focused on *future production*. Through such deliberations, a verification system will be elaborated. Any tactics to link the banning of future production with the issue of existing stocks will unnecessarily prolong negotiations and is harmful to nuclear non-proliferation and disarmament. An argument that technical issues cannot be dealt with until the scope of the Treaty is determined is not viable.
- (5) With regard to the verification system, whether a comprehensive approach should be taken or a focused approach will be an optimum solution is an important but difficult question. In order to find an answer to this question, it will be necessary to consider factors such as security benefits, confidentiality, effectiveness of verification and cost-efficiency.
- (6) It is generally considered that IAEA safeguards measures provided by both the Comprehensive Safeguards Agreement and the Additional Protocol may provide a good basis for the consideration of a future verification system for "banning the production of fissile material for nuclear weapons

or other nuclear explosive devices." Therefore, additional obligations should not, in principle, be unnecessarily imposed on non-nuclear-weapon states which adopt both the Comprehensive Safeguards Agreement and the Additional Protocol.

(7) Given the complexity of the technical deliberations, the idea to establish a group of experts, similar to the one established for technical work on the verification of the CTBT, may merit serious consideration in order to prepare a common knowledge ground for future negotiations.

(8) In order to facilitate negotiations on the FMCT verification system, it would be beneficial to make full use of past experience, expertise, and infrastructure of the IAEA to an extent comparable with the scope and aim of the FMCT. Organizational matters should also be discussed in terms of the potentiality for the FMCT verification system to become the future organization to verify nuclear disarmament and ultimately underpin the nuclear-weapon-free world.