

M – Export Controls

The Zangger Committee

The Zangger Committee: A History 1971-1990

[Reproduced from Annex attached to INFCIRC/209/Rev.1, November 1990]

The Origins.

1. The origins of the Zangger Committee, also known as the Nuclear Exporters' Committee, sprang from Article III.2 of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) which entered into force on 5 March 1970. Under the terms of Article III.2: Each State Party to the Treaty 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 Article.

2. Between 1971 and 1974 a group of fifteen states, some already Party, the others prospective Parties to the NPT, held a series of informal meetings in Vienna chaired by Professor Claude Zangger of Switzerland. As suppliers or potential suppliers of nuclear material and equipment their objective was to reach a common understanding on:

- the definition of what constituted 'equipment or material especially designed or prepared for the processing, use or production of special fissionable material';
 - the conditions and procedures that would govern exports of such equipment or material in order to meet the obligations of Article I II2 on a basis of fair commercial competition.
3. The group, which came to be known as the 'Zangger Committee', decided that its status was informal, and that its decisions would not be legally binding upon its members.

The Rules of the Game - INFCIRC/209 Series.

4. By 1974 the Committee had arrived at a consensus on the basic 'rules of the game' which were set out in two separate memoranda dated 14 August 1974. The first defined and dealt with exports of *source and special fissionable material* (Article I II2(a) of the NPT). The second defined and dealt with exports of *equipment and non-nuclear material* (Article III2(b) of the NPT). The Committee agreed to exchange information about actual exports, or issue of licenses for exports, to any non-nuclear weapon States not Party to the NPT through a system of Annual Returns which are circulated on a confidential basis amongst the membership each year in April.

5. The consensus, which formed the basis of the Committee's 'Understandings' as they are known, was formally accepted by individual Member States of the Committee by an exchange of Notes amongst themselves. These amounted to unilateral declarations that the Understandings would be given effect through respective domestic export control legislation.

6. More or less in parallel with this procedure each Member State (except three) wrote identical letters to the Director General of the IAEA, enclosing edited versions of the two memoranda, informing him of its decision to act in conformity with the conditions set out in them and asking him to communicate this decision to all Member States of the Agency. The letters and memoranda were accordingly published as IAEA document INFCIRC/209 dated 3 September 1974.

7. The three exceptions (Belgium, Italy and Switzerland) subsequently wrote to the Director General informing him of their decision to comply with the undertakings of the Nuclear Suppliers' Group set out in INFCIRC/254 dated February 1978.

The 'Trigger List'.

8. The memorandum dealing with equipment and non-nuclear material (INFCIRC/209, Memorandum B) became known as the 'Trigger List': the export of items listed on it 'trigger' IAEA safeguards, ie they will be exported only if the source or special fissionable material produced, processed or used in the equipment or material in question is subject to safeguards under an Agreement with the IAEA.

Trigger List 'Clarification'.

9. Attached to the original Trigger List was an Annex 'clarifying' or defining the items described on it in some detail. The passage of time and successive developments in technology have meant that the Committee is constantly engaged in monitoring the need for revision or further 'clarification' of Trigger List items and the original Annex has thus grown considerably. To date, four clarification exercises (conducted on the basis of consensus, through the same procedure of internal notification and, where appropriate, by identical letters to the Director General of the IAEA) have taken place.

Details of the four clarification exercises are set out below:

- In November 1977 the clarifications contained in the Trigger List Annex were updated to bring them into conformity with those of INFCIRC/254. However, three member States (Belgium, Italy and Switzerland) expressed the reserve that, in their opinion, the new item 'Plants for the production of heavy water, deuterium and deuterium compounds and equipment especially designed or prepared therefor' (2.6.1) did not fall within the legal scope of Article I II.2.(b) of the NPT and would entail an implicit modification of it. Accordingly, they made it clear that they would act on this item on the basis of their commitments under the Nuclear Suppliers' Guidelines.
- The amendments were published in the IAEA document INFCIRC/209/Mod.1. issued on 1 December 1978.
- In order to take account of the technological development which had taken place during the preceding decade in the field of isotope separation by the gas centrifuge process, the clarifications in the Trigger List Annex concerning Isotope Separation Plant Equipment were updated to include additional detail.

The text of the next clarification was published in the IAEA document INFCIRC/209/Mod.2 of February 1984.

- For similar reasons the clarifications contained in the Trigger List Annex concerning Fuel Reprocessing Plants were updated to include further items of equipment.
- The text of the new clarification was published in the IAEA document INFCIRC/209/Mod.3 of August 1985.
- The clarifications contained in the Trigger List Annex concerning Isotope Separation Plant Equipment were further elaborated by the identification of items of equipment used for isotope separation by the gaseous diffusion method.

The text of the new clarification was published in the IAEA document INFCIRC/209/Mod.4 of February 1990.

Status of the Committee.

10. The Committee's Understandings and the INFCIRC/209 series documents that arise from them have no status in international law but are arrangements unilaterally entered into by Member States. They make an important contribution to the non-proliferation regime, and are continuously adapted in response to evolving circumstances.

[Eds...]

Communications Received from Member States Regarding the Export of Nuclear Material and of Certain Categories of Equipment and Other Material

[Reproduced from INFCIRC/209/Rev.2, 9 March 2000]

1. The Director General of the International Atomic Energy Agency has received letters of 15 November 1999 from the Resident Representatives of Argentina, Australia, Austria, Belgium, Bulgaria, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Republic of Korea, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, the Slovak Republic, South Africa, Spain, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom, and the United States of America, concerning the export of nuclear material and of

certain categories of equipment and other material.

2. In light of the wish expressed at the end of each letter, the text of the letter is attached hereto.

[*Editorial note:* China and the Russian Federation subsequently sent similar letters]

Attachment Letter

Sir,

I have the honour to refer to relevant previous communications from the Resident Representative of [Member State] to the International Atomic Energy Agency. In the years since the procedures described in INFCIRC/209 were formulated for the export of certain categories of equipment and material especially designed or prepared for the processing, use or production of special fissionable material, developments in nuclear technology have brought about the need to clarify parts of the Trigger List originally incorporated in Memorandum B of INFCIRC/209. Such clarifications have been covered in INFCIRC/209/Mods. 1, 2, 3, and 4 (consolidated in INFCIRC/209/Rev. 1) and in INFCIRC/209/Rev. 1/Mods. 1, 2, 3 and 4/Corr.1.

My Government now thinks it desirable to amend the Trigger List to include a new entry entitled "plants for the conversion of uranium and plutonium and equipment especially designed or prepared therefor". I therefore wish to inform you that a new section 2.7 should be added to Memorandum B and a new section 7 to its Annex, as set out in the attachment to the letter to you from the Secretary of the Committee, dated 5 November 1999. In connection with these changes, section 3 of the Annex should be amended to delete sections 3.5 and 3.6 which have been incorporated into the new section 7.

As hitherto, my Government reserves to itself the right to exercise discretion with regard to the interpretation and implementation of the procedures set out in the above mentioned documents and the right to control, if it wishes, the export of relevant items other than those specified in the aforementioned attachment.

[The Government of (Member State) so far as trade within the European Union is concerned, will implement these procedures in the light of its commitments as a Member State of that Union.]¹

My Government considers it opportune for the Agency to re-issue the whole Memoranda A and B, as amended, as INFCIRC/209/Rev. 2 in order to have available a comprehensive document for States Parties to the Nuclear Non-Proliferation Treaty (NPT) at the NPT Review Conference in 2000. I should be grateful if you would circulate the text of this letter and the amended Memoranda A and B referred to above to all Member States for their information.

¹This paragraph is included only in the letters from EU Members.

Consolidated Trigger List Memorandum A

1 Introduction

The Government has had under consideration procedures in relation to exports of nuclear materials in the light of its commitment not to provide source or special fissionable material to any non-nuclear-weapon State for peaceful purposes unless the source or special fissionable material is subject to safeguards under an agreement with the International Atomic Energy Agency.

2. Definition of Source and Special Fissionable Material

The definition of source and special fissionable material adopted by the Government shall be that contained in Article XX of the Agency's Statute:

(a) "Source Material"

The term "source material" means uranium containing the mixture of isotopes occurring in nature; uranium depleted in the isotope 235; thorium; any of the foregoing in the form of metal, alloy chemical compound, or concentrate; any other material containing one or more of the foregoing in such concentration as the Board of Governors shall from time to time determine; and such other material as the Board of Governors shall from time to time determine.

(b) "Special Fissionable Material"

i) The term "special fissionable material" means plutonium-239; uranium-233; uranium enriched in the isotopes 235 or 233;

any material containing one or more of the foregoing; and such other fissionable material as the Board of Governors shall from time to time determine; but the term "special fissionable material" does not include source material.

ii) The term "uranium enriched in the isotopes 235 or 233" means uranium containing the isotopes 235 or 233 or both in an amount such that the abundance ratio of the sum of these isotopes to the isotope 238 is greater than the ratio of the isotope 235 to the isotope 238 occurring in nature.

3. The Application of Safeguards

The Government is solely concerned with ensuring, where relevant, the application of safeguards non-nuclear-weapon States not party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT)* with a view to preventing diversion of the safeguarded nuclear material from peaceful purposes to nuclear weapons or other nuclear explosive devices. If the Government wishes to supply source or special fissionable material for peaceful purposes to such a State, it will:

(a) Specify to the recipient State, as a condition of supply that the source or special fissionable material or special fissionable material produced in or by the use thereof shall not be diverted to nuclear weapons or other nuclear explosive devices; and

(b) Satisfy itself that safeguards to that end, under an agreement with the Agency and in accordance with its safeguards system, will be applied to the source or special fissionable material in question.

4. Direct Exports

In the case of direct exports of source or special fissionable material to non-nuclear-weapon States not party to the NPT, the Government will satisfy itself, before authorizing the export of the material in question, that such material will be subject to a safeguards agreement with the Agency as soon as the recipient State takes over responsibility for the material, but no later than the time the material reaches its destination.

5 Retransfers

The Government, when exporting source or special fissionable material to a nuclear-weapon State not party to the NPT, will require satisfactory assurances that the material will not be re-exported to a non-nuclear-weapon State not party to the NPT unless arrangements corresponding to those referred to above are made for the acceptance of safeguards by the State receiving such re-export.

6. Miscellaneous

Exports of the items specified in sub-paragraph (i) below, and exports of source or special fissionable to a given country, within a period of 12 months, below the limes specified in sub-paragraph (b) below, shall be disregarded for the purpose of the procedures described above:

(a) Plutonium with an isotopic concentration of plutonium-238 exceeding 80%; Special fissionable material when used in gram quantities or less as a sensing component in instruments; and Source material which the Government is satisfied is to be used only in non-nuclear activities, such as the production alloys or ceramics:

(b) Special fissionable material 50 effective grams; Natural uranium 500 kilograms; Depleted uranium 1000 kilograms; and Thorium 1000 kilograms.

Memorandum B

1. Introduction

The Government has had under consideration procedures in relation to exports of certain categories of equipment and material, in the light of its commitment not to provide 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 produced, processed or used in the equipment or material in question is subject to safeguards under an agreement with the International Atomic Energy Agency.

2. The Designation of Equipment or Material Especially Designed or Prepared for the Processing, Use or Production of Special Fissionable Material

The designation of items of equipment or material especially designed or prepared for the processing, use or production of special fissionable material (hereinafter referred to as the "Trigger List") adopted by Government is as follows (quantities below the levels indicated in the Annex being regarded as insignificant for practical purposes):

- 2.1. Reactors and equipment therefor (see Annex, section 1.);
- 2.2. Non-nuclear materials for reactors (see Annex, section 2.);
- 2.3. Plants for the reprocessing of irradiated fuel elements, and equipment especially designed or prepared therefor (see Annex, section 3.);
- 2.4. Plants for the fabrication of fuel elements (see Annex, section 4.);
- 2.5. Plants for the separation of isotopes of uranium and equipment, other than analytical instruments, designed or prepared therefor (See Annex, section 5);
- 2.6. Plants for the production of heavy water, deuterium and deuterium compounds and equipment designed or prepared therefor (see Annex, section 6.);
- 2.7. Plants for the conversion of uranium and plutonium for use in the fabrication of fuel elements and the separation of uranium isotopes as defined in Annex sections 4 and 5 respectively, and equipment especially designed or prepared therefor (see Annex, section 7.)

3. The Application Of Safeguards

The Government is solely concerned with ensuring, where relevant, the application of safeguards in non-nuclear-weapon States not party to the Treaty on the Non Proliferation of Nuclear Weapons (NPT) with a view to preventing diversion of the safeguarded nuclear material from peaceful purposes to nuclear weapons or other nuclear explosive devices. If the Government wishes to supply Trigger List items for peaceful purposes such a State, it will:

(a) Specify to the recipient State, as a condition of supply, that the source or special fissionable material produced, processed or used in the facility for which the items is supplied shall not be diverted to weapons or other nuclear explosive devices; and

(b) Satisfy itself that safeguards to that end, under an agreement with the Agency and in accordance its safeguards system, will be applied to the source or special fissionable material in question.

4. Direct Exports

In the case of direct exports to non-nuclear weapon States not party to the NPT, the Government will satisfy itself, before authorizing the export of the equipment or material in question, that such equipment or material will fall under a safeguards agreement with the Agency.

5. Retransfers

The Government, when exporting Trigger List items, will require satisfactory assurances that the items will not be re-exported to a non-nuclear weapon State not party to the NPT unless arrangements corresponding to those referred to above are made for the acceptance of safeguards by the State receiving such re-export.

6. Miscellaneous

The Government reserves to itself discretion as to interpretation and implementation of its commitment to in paragraph 1 above and the right to require, if it wishes, safeguards as above in relation to items it exports in addition to those items specified in paragraph 2 above.

Annex

Clarification of Items on the Trigger List

(as designated in Section 2 of Memorandum B)

[Editorial Note: The items contained in this annex are now identical to those in Sections 1–6 of the NSG Guidelines, published in INFCIRC/254 — see below.]

Working Paper on Multilateral Nuclear Supply Principles of the Zangger Committee

[Reproduced from NPT/CONF.2005/WP.15, 27 April 2005]

Working paper submitted by Argentina, Australia, Austria, Belgium, Bulgaria, Canada, China, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Luxembourg, the Netherlands, Norway, Poland, Portugal, the Republic of Korea, Romania, the Russian Federation, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom of Great Britain and Northern Ireland and the United States of America as members of the Zangger Committee

Introduction

1. Previous review conferences of the parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), when reviewing the implementation of the Treaty in the area of export controls, have repeatedly noted the role of the Zangger Committee. The Committee, also known as the "NPT Exporters Committee", essentially contributes to the interpretation of article III, paragraph 2, of the Treaty and thereby offers guidance to all parties to the Treaty. The Committee and its work were mentioned in final documents or in Committee reports of review conferences from 1975, 1985, 1990, 1995 and 2000.

2. The purpose of this paper is to describe the work of the Zangger Committee in order to provide better insight into the Committee's objectives. Furthermore, it is consistent with one of the calls of the 1995 Review and Extension Conference of the Parties to the Treaty, which in paragraph 17 of its decision on "Principles and objectives for nuclear non-proliferation and disarmament" stated that "transparency in nuclear export controls should be promoted within the framework of dialogue and cooperation among all interested States party to the Treaty".

3. Attached to this paper are the statements of previous NPT review conferences referring to the Zangger Committee.

Article III, paragraph 2

4. Article III, paragraph 2 of the NPT performs a vital function in helping to ensure the peaceful use of nuclear material and equipment. Specifically, it provides:

"Each State Party to the Treaty 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 article."

5. The main significance of this paragraph is that parties to the Treaty should not export, directly or indirectly, nuclear material and equipment or material especially designed or prepared for the processing, use, or production of special fissionable material to non-nuclear-weapon States not parties to the NPT unless the export is subject to International Atomic Energy Agency (IAEA) safeguards as required by article III. This is an important provision because recipient countries not parties to the Treaty may not have accepted any other nuclear non-proliferation obligations. By interpreting and implementing article III, paragraph 2, the Zangger Committee helps to prevent the diversion of exported nuclear material and equipment or material from peaceful purposes to nuclear weapons or other nuclear explosive devices, which furthers the objectives of the Treaty and enhances the security of all States.

6. The Zangger Committee understandings, in line with article III, paragraph 2, also relate to exports to non-nuclear-weapon States parties to the Treaty insofar as the recipient should recognize the items on the trigger list as a basis for its export control decisions in the case of re-exports.

Zangger Committee understandings

7. Between 1971 and 1974 a group of 15 States — some already parties to the Treaty, others prospective parties — held a series of informal meetings in Vienna chaired by Professor Claude Zangger of Switzerland. As suppliers or potential suppliers of nuclear material and equipment, their objective was to reach a

common understanding on:

(a) The definition of what constituted “equipment or material especially designed or prepared for the processing, use or production of special fissionable material” (as it was not defined anywhere in the Treaty);

(b) The conditions and procedures that would govern exports of such equipment or material in order to meet the obligations of article III, paragraph 2 on a basis of fair commercial competition.

8. The group, which came to be known as the Zangger Committee, decided that its status was informal and that its decisions would not be legally binding upon its members.

9. In 1972, the Committee reached consensus on basic “understandings” contained in two separate memorandums. Together, these memorandums form the guidelines of the Zangger Committee today. Each memorandum defines and provides for procedures for the export of materials and equipment described in article III, paragraph 2. The first memorandum concerns source and special fissionable material (article III, paragraph 2 (a)), the second, equipment and material especially designed or prepared for the processing, use or production of special fissionable material (article III, paragraph 2 (b)).

10. The consensus which formed the basis of the Committee’s understandings was formally accepted by individual States members of the Committee by an exchange of notes among themselves. These amounted to unilateral declarations that the understandings would be given effect through respective domestic export control legislation. In parallel with this procedure, most member States wrote identical letters to the Director General of IAEA informing him of their decision to act in conformity with the conditions set out in the understandings. These letters also asked the Director General to communicate their decision to all States members of the Agency, which he did through an information circular dated 3 September 1974 (IAEA document INFCIRC/209).

11. Memorandum A defines the following categories of nuclear material:

(a) Source material: natural or depleted uranium and thorium;

(b) Special fissionable material: plutonium-239, uranium-233, uranium enriched in the isotopes 235 or 233.

12. Memorandum B, as clarified since 1974 (see paras. 16 and 17 below), 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.

13. To fulfil the requirements of article III, paragraph 2, the Zangger Committee understandings contain three basic conditions of supply for these items:

(a) For exports to a non-nuclear-weapon State not party to the Treaty, source or special fissionable material either directly transferred, or produced, processed, or used in the facility for which the transferred item is intended, shall not be diverted to nuclear weapons or other nuclear explosive devices;

(b) For exports to a non-nuclear-weapon State not party to the Treaty, such source or special fissionable material, as well as transferred equipment and non-nuclear material, shall be subject to safeguards under an agreement with the IAEA;

(c) Source or special fissionable material, and equipment and non-nuclear material shall not be re-exported to a non-nuclear-weapon State not party to the Treaty unless the recipient State accepts safeguards on the re-exported item.

Development of the conditions of supply

14. The Committee is holding discussions on possible amendments to its understandings during which it is considering a number of potential elements as conditions of supply, among which are: (a) full-scope safeguards; (b) the Additional Protocol; (c) physical protection as a condition of supply; and (d) “Supporting Activities”, containing commitments to, inter alia, (i) assist other States parties in establishing and implementing national rules and regulations on nuclear transfers, and (ii) support IAEA in its safeguards task in accordance with repeated calls by review conferences. The Committee would welcome the Conference’s continued support for its efforts.

“Trigger list” and its clarification

15. The two memorandums (see paras. 9-12 above) became

known as the “trigger list”, since the export of listed items “triggers” IAEA safeguards. In other words, as described above, they will be exported only if (a) the transferred equipment or source or special fissionable material or (b) the material produced, processed or used in the facility for which the item is supplied, is subject to safeguards under an agreement with IAEA based on the IAEA safeguards system for NPT purposes.

16. Attached to the trigger list is an annex “clarifying”, or defining, the equipment and material of memorandum B in some detail. The passage of time and successive developments in technology have meant that the Committee is periodically engaged in considering possible revisions to the trigger list, and the original annex has thus become increasingly detailed. To date, eight clarification exercises have taken place. Clarifications are conducted on the basis of consensus, using the same procedure followed in the adoption of the original understandings.

17. A summary of these clarifications reflects both some detail on the contents of the trigger list and an idea of the work of the Zangger Committee (dates are for publication of modifications and revisions of INFCIRC/209):

(a) In **December 1978**, the annex was updated to add heavy water production plants and equipment, and a few specific items of isotope separation equipment for uranium enrichment;

(b) In **February 1984**, further detail was added to the annex to take account of technological developments during the preceding decade in the area of uranium enrichment by the gas centrifuge process;

(c) In **August 1985**, a similar clarification was made to the annex section on irradiated fuel reprocessing;

(d) In **February 1990**, the uranium enrichment section was further elaborated by the identification of items of equipment used for isotope separation by the gaseous diffusion method;

(e) In **May 1992**, specific items of equipment were added to the section on heavy water production;

(f) In **April 1994**, the enrichment section of the annex was subject to its most significant expansion yet. Existing portions of the section were updated, and detailed lists of equipment were added for the enrichment processes of aerodynamic, chemical and ion exchange, laser-based plasma, and electromagnetic separation. A significant modification was also made to the entry for primary coolant pumps;

(g) In **May 1996**, the sections on reactors and reactor equipment, on non-nuclear materials, on the fabrication of fuel elements as well as on heavy water production were reviewed. Parts of these sections were updated and new, detailed equipment was added;

(h) In **March 2000**, a new section on uranium conversion was added. This section also contains elements transferred from section 3 (reprocessing).

All these changes to the list were included in the version of the Zangger Committee understandings published as IAEA document INFCIRC/209/Rev.2.

Membership

18. All Zangger Committee members are parties to the Treaty that are capable of supplying trigger list items. Currently there are 35 members (Argentina, Australia, Austria, Belgium, Bulgaria, Canada, China, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Luxembourg, Netherlands, Norway, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, United States). The Commission of the European Union attends the meetings as permanent observer. Any party that is an actual or potential nuclear supplier and is prepared to implement the Committee’s understandings is eligible for membership. Decisions to invite new members of the Committee are taken by consensus of existing members. In the interest of strengthening the Treaty and the nuclear non-proliferation regime in general, Zangger Committee members have urged parties to the Treaty that are nuclear suppliers to consider seeking membership. NPT parties interested in doing so should visit the Committee’s website (www.zanggercommittee.org) and may contact the Secretariat (the United Kingdom Mission in Vienna) or any State member of the Committee.

Outreach

19. Late in 2001, the Zangger Committee decided to launch an outreach programme between the Zangger Committee and third countries. The outreach programme has three objectives:

(a) To build a strong and sustainable relationship between the Zangger Committee and third countries;

(b) To increase the transparency of the activities of the Committee by explaining its role, purpose and functions, in particular its role as technical interpreter of article III, paragraph 2 of the Treaty;

(c) To provide opportunities for open dialogue on issues of common interest and concern on non-proliferation and nuclear export controls. In conducting this exercise, the Zangger Committee wishes to underline that (a) the outreach programme reflects the fact that the Committee is a technical body with a remit to interpret article III, paragraph 2 of the Treaty and as such outreach will not be a political dialogue; (b) the programme is restricted to States parties to the Treaty; and (c) the programme is informal.

Subjects for discussion include:

- The role and purpose of the Zangger Committee
- The trigger list and its clarification
- Conditions of supply
- Membership of the Committee
- The Committee and NPT conferences.

Zangger Committee and NPT conferences

20. At the first NPT Review Conference in 1975, a brief paragraph in the Final Document referenced the work of the Zangger Committee without naming it. Paraphrasing, this paragraph stated that, with regard to implementation of article III, paragraph 2, the Conference noted that a number of nuclear suppliers had adopted certain minimum requirements for IAEA safeguards in connection with their nuclear exports to non-NPT non-nuclear-weapon States. The Conference went on to attach particular importance to the fact that those suppliers had established as a supply condition an undertaking of non-diversion to nuclear weapons.

21. In 1980, the Review Conference produced no consensus final document. However, in 1985, the Final Document contained a short reference to the Committee's activities, again without naming it. This time the Conference in effect endorsed the main activity of the Zangger Committee by indicating that further improvement of the trigger list should take account of advances in technology.

22. In 1990 the Zangger Committee was mentioned by name and the Conference provided a brief description of its aims and practices. While the Conference did not adopt a final declaration, Main Committee II agreed on language pertaining to a number of ideas and proposals concerning the implementation of the Treaty in the areas of the non-proliferation of nuclear weapons and safeguards. Main Committee II observed that Zangger Committee members had met regularly to coordinate the implementation of article III, paragraph 2 and had adopted nuclear supply requirements and a trigger list. It recommended that this list be reviewed periodically to take into account advances in technology and changes in procurement practices, a recommendation that the Zangger Committee has continued to pursue. Main Committee II also urged all States to adopt the Zangger Committee's requirements for any nuclear cooperation with a non-nuclear-weapon State not party to the Treaty.

23. At the 1995 NPT Review and Extension Conference, the work of the Zangger Committee was also referenced in Main Committee II and, more specifically, in the working group established by Main Committee II to consider export control issues. While the Conference did not adopt a final declaration similar to those of previous conferences, a consensus text on the Zangger Committee was attained. (The unofficial text emerging from this exercise was subsequently published in IAEA document INFCIRC/482 for information purposes.) The working group noted that a number of States suppliers had formed an informal group known as the Zangger Committee and had adopted certain understandings. It invited States to consider applying those understandings and recommended that the list of items and the procedures for implementation be reviewed from time to time. The working further noted that the application by all States of the understandings of the Zangger Committee would contribute to the strengthening of the non-proliferation regime. At the same time it

called for international consultations among all interested States.

24. The Conference approved, inter alia, decision 2, which contains a set of principles and objectives, and decision 3, which provides the basis for the adopted "Enhanced Review Mechanism" of the implementation of the Treaty.

25. Decision 2 contains several principles of particular relevance to the work of the Zangger Committee, in the fields of safeguards and export controls (see annex II to this paper, principles 9 to 13). In particular, principle 17 calls upon all States to promote transparency in nuclear-related export controls through cooperation and dialogue. Members of the Committee have worked to promote transparency through international seminars and other forms of dialogue.

26. At the 2000 Review Conference, export control issues were discussed by an informal, open-ended working group established by Main Committee II. The working group did not reach final agreement on a text mentioning the Zangger Committee. In the end, only two paragraphs of the Final Document referenced indirectly the work of the Zangger Committee without naming it: the Conference recommended that the list of items triggering IAEA safeguards and the procedures for implementation be reviewed from time to time, and it requested that any supplier arrangement should be transparent

27. The statements of review conferences on the Zangger Committee are attached as annex I to this working paper.

Annex I

References to Zangger Committee activities in NPT Review

Conference documents

First NPT Review Conference (1975)

A paragraph in the Final Document referenced the work of the Zangger Committee without naming it:

"With regard to the implementation of article III (2) of the Treaty, the Conference notes that a number of states suppliers of material or equipment have adopted certain minimum, standard requirements for IAEA safeguards in connection with their exports of certain such items to non-nuclear-weapon states not party to the Treaty (IAEA document INFCIRC/209 and addenda). The Conference attaches particular importance to the condition, established by those states, of an undertaking of non-diversion to nuclear weapons or other nuclear explosive devices, as included in the said requirements" (NPT/CONF.35/I, annex I, p. 3).

Third NPT Review Conference (1985)

The 1980 NPT Review Conference produced no final document, but the 1985 Final Document contained a reference to the Committee without naming it:

"The Conference believes that further improvement of the list of materials and equipment which, in accordance with article III (2) of the Treaty, calls for the application of IAEA safeguards should take account of advances in technology" (NPT/CONF.III/64/I, annex I, p. 5, para. 13).

Fourth NPT Review Conference (1990)

While the Conference did not adopt a final document, Main Committee II did agree on a number of ideas and proposals, including the following language on the Zangger Committee:

"The Conference notes that a number of States parties engaged in the supply of nuclear material and equipment have met regularly as an informal group which has become known as the Zangger Committee in order to coordinate their implementation of article III, paragraph 2. To this end, these states have adopted certain requirements, including a list of items triggering IAEA safeguards, for their export to non-nuclear-weapon States not party to the treaty, as set forth in the IAEA document INFCIRC/209 as revised. The Conference urges all States to adopt these requirements in connection with any nuclear cooperation with non-nuclear-weapon states not party to the Treaty. The Conference recommends that the list of items triggering IAEA safeguards and the procedures for implementation be reviewed from time to time to take into account advances in technology and changes in procurement practices. The Conference recommends the States parties to consider further

ways to improve the measures to prevent diversion of nuclear technology for nuclear weapons, other nuclear explosive purposes or nuclear weapon capabilities. While recognizing the efforts of the Zangger Committee in the non-proliferation regime, the Conference also notes that items included in the 'trigger list' are essential in the development of nuclear energy programmes for peaceful uses. In this regard, the Conference requests that the Zangger Committee should continue to take appropriate measures to ensure that the export requirements laid down by it do not hamper the acquisition of such items by states parties for the development of nuclear energy for peaceful uses' (NPT/CONF.IV/DC/1/Add.3 (a), p. 5, para. 27).

NPT Review and Extension Conference (1995)

While the Conference did not adopt a final declaration similar to those of previous conferences, Main Committee II and its subsequent working group did agree on a number of ideas and proposals, including the following language on the Zangger Committee, which reached informal consensus in the working group of Main Committee II and was separately published in IAEA document INFCIRC/482:

"The Conference notes that a number of States Parties engaged in the supply of nuclear material and equipment have met regularly as an informal group known as the Zangger Committee. These States have adopted certain understandings, including a list of items triggering IAEA safeguards, for their export to non-nuclear-weapon States not parties to the Treaty, as set forth in IAEA document INFCIRC/209, as amended. The Conference invites all States to consider applying these understandings of the Zangger Committee in connection with any nuclear cooperation with non-nuclear-weapon States not parties to the Treaty. The Conference recommends that the list of items triggering IAEA safeguards and the procedures for implementation be reviewed from time to time to take into account advances in technology and changes in procurement practices."

"The Conference notes that the application by all States of the understandings of the Zangger Committee would contribute to the strengthening of the non-proliferation regime. The Conference calls for wider participation in international consultations among all interested States parties concerning the formulation and review of such guidelines, which relate to the implementation of States parties obligations under article III, paragraph 2" (INFCIRC/482, attachment, paras. 5 and 7).

The Conference adopted in decision 2 a number of principles and objectives related to safeguards and export controls, which are reproduced in annex II below.

Sixth NPT Review Conference (2000)

Main Committee II and its working group discussed a number of ideas and proposals, including the following language on the Zangger Committee, without reaching final agreement:

"The Conference notes that a number of States parties engaged in the supply of nuclear material and equipment have met regularly as an informal group known as the Zangger Committee, in order to coordinate their implementation of article III, paragraph 2 of the Treaty. To this end, these States have adopted certain understandings, including a list of items triggering IAEA safeguards, for their export to non-nuclear-weapon States not parties to the Treaty, as set forth in IAEA document INFCIRC/209 as amended. The Conference invites all States to adopt the understandings of the Zangger Committee in connection with any nuclear cooperation with non-nuclear-weapon States not parties to the Treaty."

In the Final Document, two paragraphs referenced indirectly the work of the Zangger Committee without naming it:

"52. The Conference recommends that the list of items triggering IAEA safeguards and the procedures for implementation, in accordance with article III (2), be reviewed from time to time to take into account advances in technology, the proliferation sensitivity, and changes in procurement practices.

"53. The Conference requests that any supplier arrangement should be transparent and should continue to take appropriate measures to ensure that the export guidelines formulated by them do not hamper the development of nuclear energy for peaceful

uses by States parties, in conformity with articles I, II, III, and IV of the Treaty."

Annex II

Principles and objectives related to safeguards and export controls, as contained in decision 2 of the 1995 NPT Review and Extension Conference

Safeguards

9. The International Atomic Energy Agency is the competent authority responsible to verify and assure, in accordance with the statute of the Agency and the Agency's safeguards system, compliance with its safeguards agreements with States parties undertaken in fulfilment of their obligations under article III, paragraph 1, of the Treaty, with a view to preventing diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices. Nothing should be done to undermine the authority of the International Atomic Energy Agency in this regard. States parties that have concerns regarding non-compliance with the safeguards agreements of the Treaty by the States parties should direct such concerns, along with supporting evidence and information, to the Agency to consider, investigate, draw conclusions and decide on necessary actions in accordance with its mandate.

10. All States parties required by article III of the Treaty to sign and bring into force comprehensive safeguards agreements and which have not yet done so should do so without delay.

11. International Atomic Energy Agency safeguards should be regularly assessed and evaluated. Decisions adopted by its Board of Governors aimed at further strengthening the effectiveness of Agency safeguards should be supported and implemented and the Agency's capability to detect undeclared nuclear activities should be increased. Also, States not party to the Treaty on the Non-Proliferation of Nuclear Weapons should be urged to enter into comprehensive safeguards agreements with the Agency.

12. New supply arrangements for the transfer of source or special fissionable material or equipment or material especially designed or prepared for the processing, use or production of special fissionable material to non-nuclear-weapon States should require, as a necessary precondition, acceptance of the Agency's full-scope safeguards and internationally legally binding commitments not to acquire nuclear weapons or other nuclear explosive devices.

13. Nuclear fissile material transferred from military use to peaceful nuclear activities should, as soon as practicable, be placed under Agency safeguards in the framework of the voluntary safeguards agreements in place with the nuclear-weapon States. Safeguards should be universally applied once the complete elimination of nuclear weapons has been achieved.

Procedures in Relation to Exports of Nuclear Materials and Certain Categories of Equipment and Material in Relation to Article III (2) of the NPT

[NPT/CONF.2010/PC.II/WP.37, 8 May 2008]

Working paper submitted by Argentina, Australia, Austria, Belgium, Bulgaria, Canada, China, Croatia, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Luxembourg, the Netherlands, Norway, Poland, Portugal, the Republic of Korea, Romania, the Russian Federation, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom of Great Britain and Northern Ireland and the United States of America as members of the Zangger Committee and Costa Rica, Cyprus, Estonia, Kyrgyzstan, Latvia, Lithuania, Malta and New Zealand as additional co-sponsors

1. Co-sponsors propose to include the following language in the final document of the 2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons:

(a) The Preparatory Committee notes that a number of States Party meet regularly in an informal group known as the Zangger Committee, in order to co-ordinate their implementation of Article III, Paragraph 2 of the Treaty related to the supply of nuclear material and equipment. To this end, these States Party have adopted two Memoranda A and B,

including a list of items triggering IAEA safeguards, for their exports to non-nuclear-weapon States not party to the Treaty, as set forth in IAEA document INFCIRC/209 as amended. The Zangger Committee's Memoranda also relate to exports to non-nuclear-weapon States Party to the Treaty insofar as the recipient State should recognize the items on the Trigger List as well as the procedures and criteria from Article III, Paragraph 2 of the Treaty as a basis for its own export control decisions, including re-exports.

(b) The Preparatory Committee endorses the importance of the Zangger Committee as guidance for States Party in meeting their obligation under Article III, Paragraph 2 of the Treaty and invites all States to adopt the Memoranda of the Zangger Committee as minimal standards in connection with any nuclear co-operation.

(c) The Preparatory Committee recommends that the list of items triggering IAEA safeguards and the procedures for implementation, in accordance with Article III, Paragraph 2 of the Treaty, be reviewed from time to time to take into account advances in technology, the proliferation sensitivity, and changes in procurement practices.

(d) The Preparatory Committee urges the Zangger Committee to share its experience on export controls, so that states draw on the arrangements of its Memoranda.

The Nuclear Suppliers Group

Communication of 1 October 2009 received from the Resident Representative of Hungary to the Agency on behalf of the Participating Governments of the Nuclear Suppliers Group

[INFCIRC/539/Rev.4: 5 November 2009]

[Editorial note: Footnotes not included]

1. The Director General has received a letter dated 1 October 2009 from the Resident Representative of Hungary to the Agency on behalf of the Participating Governments of the Nuclear Suppliers Group. Attached to this letter is an updated version of a paper entitled "The Nuclear Suppliers Group: Its Origins, Role and Activities." The original version of this paper was issued as INFCIRC/539 on 15 September 1997; revisions were issued on 17 April 2000, 16 September 2003 and 30 May 2005.

2. As requested in the letter, the revised version of the paper, attached hereto, is being circulated to Member States of the IAEA.

[Eds...]

The Nuclear Suppliers Group: Its Origins, Role and Activities

Overview

1. The Nuclear Suppliers Group (NSG) is a group of nuclear supplier countries that seeks to contribute to the non-proliferation of nuclear weapons through the implementation of two sets of Guidelines for nuclear exports and nuclear-related exports. NSG Participating Governments (hereinafter referred to as "NSG participants or PGs") are listed in the Annex. NSG participants pursue the aims of the NSG through adherence to the NSG Guidelines, which are adopted by consensus, and through an exchange of information, notably on developments of nuclear proliferation concern.

2. The first set of NSG Guidelines governs the export of items that are especially designed or prepared for nuclear use. These include: (i) nuclear material; (ii) nuclear reactors and equipment therefor; (iii) non-nuclear material for reactors; (iv) plants and equipment for the reprocessing, enrichment and conversion of nuclear material and for fuel fabrication and heavy water production; and (v) technology associated with each of the above items.

3. The second set of NSG Guidelines governs the export of nuclear-related dual-use items and technologies, that is, items that can make a major contribution to an unsafeguarded nuclear fuel cycle or nuclear explosive activity, but that have non-nuclear uses as well, for example in industry.

4. The NSG Guidelines are consistent with, and complement, the various international, legally binding instruments in the field of

nuclear non-proliferation. These include the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), the Treaty for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco), the South Pacific Nuclear-Free-Zone Treaty (Treaty of Rarotonga), the African Nuclear-Weapon-Free Zone Treaty (Treaty of Pelindaba), the Treaty on the Southeast Asia Nuclear-Weapon-Free Zone (Treaty of Bangkok), and the Central Asian Nuclear-Weapon-Free Zone Treaty (Treaty of Semipalatinsk).

5. The aim of the NSG Guidelines is to ensure that nuclear trade for peaceful purposes does not contribute to the proliferation of nuclear weapons or other nuclear explosive devices, and that international trade and cooperation in the nuclear field is not hindered unjustly in the process. The NSG Guidelines facilitate the development of trade in this area by providing the means whereby obligations to facilitate peaceful nuclear cooperation can be implemented in a manner consistent with international nuclear non-proliferation norms. The NSG urges all States to adhere to the Guidelines.

6. The commitment of NSG participants to rigorous conditions of supply, in the context of the further development of the applications of nuclear energy for peaceful purposes, makes the NSG one of the elements of the international nuclear non-proliferation regime.

Background to Present Paper

7. The purpose of this paper is to contribute to a broader understanding of the NSG and its activities as part of an overall effort to promote dialogue and cooperation between NSG participants and non-NSG participants. This document provides information on actions taken by NSG participants to give effect to their commitment to improve transparency in nuclear-related export controls and to cooperate more closely with non-NSG participants to achieve this objective. In so doing, it aims to encourage wider adherence to the NSG Guidelines.

8. The paper's purpose is therefore consistent with Decision 2 on "Principles and Objectives for Nuclear Non-Proliferation and Disarmament," agreed at the 1995 Review and Extension Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPTREC) where Paragraph 17 of that document states 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." In this connection, NSG participants also take into account Paragraph 16 of that document, which calls for preferential treatment to be accorded to non-nuclear weapon States party to the Treaty in the promotion of peaceful uses of nuclear energy, taking the needs of developing countries particularly into account. This paper is likewise consistent with Paragraph 9 of United Nations Security Council Resolution 1540 on the Non-proliferation of Weapons of Mass Destruction, which "calls upon all States to promote dialogue and cooperation on nonproliferation" so as to address the threats posed by proliferation of nuclear weapons.

Section I traces the origins and development of the NSG.

Section II describes the structure and current activities of the NSG.

Section III describes the developments of the NSG to date.

Section IV reports on the NSG action to promote openness and transparency.

I. Origins and Development of the NSG Export Controls

9. From the beginning of international cooperation in the peaceful uses of nuclear energy, supplier countries have recognised the responsibility to ensure that such cooperation does not contribute to the proliferation of nuclear weapons. Shortly after entry into force of the NPT in 1970, multilateral consultations on nuclear export controls led to the establishment of two separate mechanisms for dealing with nuclear exports: the Zangger Committee in 1971 and what has become known as the Nuclear Suppliers Group in 1975. Between 1978 and 1991, the NSG was not active, even though its Guidelines were in place. The Zangger Committee continued to meet on a regular basis during this period to review and amend the list of items subject to export controls, the so-called "Trigger List."

The Zangger Committee

10. The Zangger Committee had its origins in 1971 when major nuclear suppliers regularly involved in nuclear trade came together to reach common understandings on how to implement Article III.2

of the NPT with a view to facilitating consistent interpretation of the obligations arising from that Article. In 1974 the Zangger Committee published a "Trigger List," that is, items which would "trigger" a requirement for safeguards and the Zangger guidelines ("common understandings") governing the export, direct or indirect, of those items to non-nuclear-weapon States (NNWS) that are not party to the NPT. The Zangger Understandings establish three conditions for the supply: a non-explosive-use assurance, an IAEA safeguards requirement, and a re-transfer provision that requires the receiving State to apply the same conditions when reexporting these items. The Zangger Trigger List and the Understandings are published as IAEA document INFCIRC/209, as amended.

The NSG

11. The NSG was created following the explosion in 1974 of a nuclear device by a nonnuclear-weapon State, an event which demonstrated that nuclear technology transferred for peaceful purposes could be misused. It was thus felt that conditions of nuclear supply might need to be adapted so as to better ensure that nuclear cooperation could be pursued without contributing to the risk of nuclear proliferation. This event brought together the major suppliers of nuclear material, non-nuclear material for reactors, equipment and technology who were members of the Zangger Committee, as well as States who were not parties to the NPT.

12. The NSG, taking into account the work already done by the Zangger Committee, agreed on a set of guidelines incorporating a Trigger List. The NSG Guidelines were published in 1978 as IAEA Document INFCIRC/254 (subsequently amended), to apply to nuclear transfers for peaceful purposes to help ensure that such transfers would not be diverted to unsafeguarded nuclear fuel cycle or nuclear explosive activities. There is a requirement for formal government assurances from recipients to this effect. The NSG Guidelines also strengthened re-transfer provisions and adopted a requirement for physical protection measures and an agreement to exercise particular caution in the transfer of sensitive facilities, technology and material usable for nuclear weapons or other nuclear explosive devices. In doing so, the NSG Guidelines recognised the fact that there is a class of technologies and materials that are particularly sensitive—namely, enrichment and reprocessing technologies—because they can lead directly to the creation of material usable for nuclear weapons or other nuclear explosive devices. The implementation of effective physical protection measures is also critical. This can help prevent the theft and illicit transfer of nuclear material.

13. At the 1990 NPT Review Conference (NPTRC), a number of recommendations made by the committee reviewing the implementation of Article III had a significant impact on the NSG's activities in the 1990s. These included the following:

- That NPT parties consider further improvements in measures to prevent the diversion of nuclear technology for nuclear weapons;
- That States engage in consultations to ensure appropriate coordination of their controls on the exports of items, such as tritium, not identified in Article III.2 but still relevant to nuclear weapons proliferation and therefore to the NPT as a whole;
- That nuclear supplier States require, as a necessary condition for the transfer of relevant nuclear supplies to non-nuclear weapon States, the acceptance of IAEA safeguards on all their current and future nuclear activities (i.e. full-scope safeguards or comprehensive safeguards).

14. Shortly thereafter, it became apparent that export control provisions then in force had not prevented Iraq, a party to the NPT, from pursuing a clandestine nuclear weapons programme, which later prompted UN Security Council action. A large part of Iraq's effort had been to acquire dual-use items not covered by the NSG Guidelines and then to build its own Trigger List items. This gave major impetus to the NSG's development of its Dual-Use Guidelines. In doing so, the NSG demonstrated its commitment to nuclear non-proliferation by ensuring that items like those used by Iraq would from now on be controlled to ensure their non-explosive use. These items would, however, continue to be available for peaceful nuclear activities subject to IAEA safeguards, as well as for other industrial activities where they would not contribute to nuclear proliferation.

15. Following these developments, the NSG decided in 1992:

- To establish guidelines for transfers of nuclear-related dual-use equipment, material and technology (items which have both nuclear and non-nuclear applications) that could make a significant contribution to an unsafeguarded nuclear fuel cycle or nuclear explosive activity. These Dual-Use Guidelines were published as Part 2 of INFCIRC/254, and the original Guidelines published in 1978 became Part 1 of INFCIRC/254;
- To establish a framework for consultation on the Dual-Use Guidelines, for the exchange of information on their implementation and on procurement activities of potential proliferation concern;
- To establish procedures for exchanging notifications that have been issued as a result of national decisions not to authorise transfers of dual-use equipment or technology and to ensure that NSG participants do not approve transfers of such items without first consulting with the State that issued the notification;
- To make a full-scope safeguards agreement with the IAEA a condition for the future supply of Trigger List items to any non-nuclear-weapon State. This decision ensured that only NPT parties and other States with full-scope safeguards agreements could benefit from nuclear transfers.

16. The endorsement at the 1995 NPTREC of the full-scope safeguards policy already adopted by the NSG in 1992 clearly reflects the conviction of the international community that this nuclear supply policy is a vital element to promote shared nuclear non-proliferation commitments and obligations. Specifically, Paragraph 12 of Decision 2 on "Principles and Objectives for Nuclear Non-Proliferation and Disarmament" states that full-scope safeguards and international legally binding commitments not to acquire nuclear weapons or other nuclear explosive devices should be a condition for granting licences for Trigger List items under new supply arrangements with non-nuclear-weapon States.

17. The 2000 NPTRC reconfirmed also that any transfer of nuclear-related dual-use items should be in full conformity with the NPT.

The NSG, the Zangger Committee and the NPT

18. The NSG and the Zangger Committee differ slightly in the scope of their Trigger Lists of *especially designed or prepared* (EDP) items and in the export conditions for items on those lists. Concerning the scope of those lists, the Zangger list is restricted to items falling under Article III.2 of the NPT. The NSG Guidelines, in addition to covering equipment and material, also cover the technology for the development, production and use of the items on the list. On export conditions for the items on the Trigger Lists, the NSG has a formal full-scope safeguards requirement as a condition of supply. The NSG Guidelines apply to transfers for peaceful purposes to any NNWS and, in the case of controls on retransfer, to transfers to any State.

19. The NSG Guidelines also contain the so-called "Non-Proliferation Principle," adopted in 1994, whereby a supplier, notwithstanding other provisions in the NSG Guidelines, authorises a transfer only when satisfied that the transfer would not contribute to the proliferation of nuclear weapons. The Non-Proliferation Principle seeks to cover the rare but important cases where adherence to the NPT or to a Nuclear Weapon Free Zone Treaty may not by itself be a guarantee that a State will consistently share the objectives of the Treaty or that it will remain in compliance with its Treaty obligations.

20. The NSG arrangement covering exports of dual-use items is a major difference between the NSG and the Zangger Committee. As dual-use items cannot be defined as EDP equipment, they fall outside the Zangger Committee's mandate. As noted above, the control of dual-use items has been recognised as making an important contribution to nuclear non-proliferation.

21. Despite these differences between the two regimes, it is important to keep in mind that they serve the same objective and are equally valid instruments of nuclear non-proliferation efforts. There is close cooperation between the NSG and the Zangger Committee on the review and amendment of the Trigger Lists.

II. Structure and Current Activities of the NSG Participation

22. From the initial publication of INFCIRC/254 in 1978 to now, participation has increased steadily. (See full list of NSG

participants in the Annex.)

23. Factors taken into account for participation include the following:

- The ability to supply items (including items in transit) covered by the Annexes to Parts 1 and 2 of the NSG Guidelines;
- Adherence to the Guidelines and action in accordance with them;
- Enforcement of a legally based domestic export control system that gives effect to the commitment to act in accordance with the Guidelines;
- Adherence to one or more treaties, such as the NPT, the Treaties of Tlatelolco, Rarotonga, Pelindaba, Bangkok or an equivalent international nuclear non-proliferation agreement, and full compliance with the obligations of such agreement(s);
- Support of international efforts towards non-proliferation of weapons of mass destruction and of their delivery vehicles.

Organisation of Work

24. The NSG works on the basis of consensus. Overall responsibility for activities lies with the NSG participants who meet once a year in a Plenary meeting.

25. A rotating Chair has overall responsibility for coordination of work and outreach activities. (See full list of NSG Chairs in the Annex.)

26. The NSG Plenary can decide to set up technical working groups on matters such as the review of the NSG Guidelines, the Annexes, the procedural arrangements, information sharing and transparency activities. The NSG Plenary can also mandate the Chair to conduct outreach activities with specific countries. The aim of the outreach activities is to promote adherence to the NSG Guidelines.

27. Typically, the agenda of the Plenary meeting focuses on reports from working groups that may be operating or may have concluded their work since previous Plenaries as well as on reports from the previous NSG Chair on outreach activities. Time is also allotted to review items of interests such as trends in nuclear proliferation and developments since the previous Plenary meeting.

28. In addition to the Plenary meeting, the NSG has two other standing bodies that report to the Plenary. These are the Consultative Group (CG) and the Information Exchange Meeting (IEM) with Chairs that also rotate annually. The CG meets at least twice a year and is tasked to hold consultations on issues associated with the Guidelines on nuclear supply and the technical annexes. The IEM precedes the NSG Plenary and provides another opportunity for NSG participants to share information and developments of relevance to the objectives and content of the NSG Guidelines. Under the mandate of information exchange, the Licensing and Enforcement Experts Meeting, or LEEM, discusses issues relating to effective licensing and enforcement practices.

29. NSG participants review the Guidelines in INFCIRC/254 from time to time to ensure that they are up to date to meet evolving nuclear proliferation challenges. The IAEA is notified of agreed amendments to Parts 1 and 2 of the NSG Guidelines and their associated lists and reissues INFCIRC/254 accordingly. Such amendments can be additions, deletions or corrections.

30. The Permanent Mission of Japan in Vienna, acting as a Point of Contact, carries out a practical support function. It receives and distributes NSG documents, notifies meeting schedules and provides practical assistance to the NSG Plenary, the CG and IEM Chairs and Chairs of the various working groups established by the Plenary.

How the Guidelines Work

31. The NSG Guidelines introduce a degree of order and predictability among the suppliers and harmonise standards and interpretations of suppliers' undertakings with the aim of ensuring that the normal process of commercial competition does not lead to outcomes that further the proliferation of nuclear weapons. Consultations among NSG participants are also designed to ensure that any possible impediments to international nuclear trade and cooperation are kept to a minimum.

32. The NSG Guidelines are implemented by each NSG

participant in accordance with its national laws and practices. Decisions on export applications are taken at the national level in accordance with national export licensing requirements. This is the prerogative and right of all States for all export decisions in any field of commercial activity and is also in line with the text of Article III.2 of the NPT, which refers to "each State Party," and thus emphasises the sovereign obligation of any party to the Treaty to exercise proper export controls. NSG participants meet regularly to exchange information on issues of nuclear proliferation concern and how these impact on national export control policy and practice. However, it is important to remember that the NSG does not have a mechanism for limiting supply or the coordination of marketing arrangements and does not take decisions on licence applications as a group.

33. The requirement that no transfer of Trigger List items to NNWS takes place unless the recipient State has full-scope safeguards on all its nuclear activities is particularly pertinent because it establishes a uniform standard of supply that is based on the IAEA's international verification system. The strengthened safeguards system of the IAEA, as adopted in 1997, should improve considerably the Agency's ability to exercise its verification role.

34. Contacts and briefings take place with non-participating countries: in addition to the outreach activities conducted with potential NSG participants, the NSG conducts briefings of non-NSG participants with a view to increasing the understanding of and adherence to the NSG Guidelines. States can choose to adhere to the Guidelines without being obliged to participate in the NSG.

III. Developments of the NSG to Date

35. The NSG Guidelines have significantly strengthened international solidarity in the field of transfers of nuclear material. NSG undertakings reflect the non-proliferation and peaceful nuclear cooperation objectives that NSG participants share with all NPT parties and parties to other international legally binding non-proliferation commitments. Controls on the transfer of listed items and technologies provide essential support for the implementation of these treaties and for the continuation and development of peaceful nuclear cooperation, thus also facilitating the utilisation of nuclear energy in developing countries.

36. Contrary to fears that the NSG Guidelines act as an impediment to the transfer of nuclear materials and equipment, they have in fact facilitated the development of such trade. For some time now, supply arrangements have incorporated NSG commitments. Such arrangements are designed to expedite transfers and trade. The NSG commitments, when woven into the supply arrangements with a basis in respective national laws, provide governments with legitimate and defensible arguments that such arrangements diminish proliferation risk. In this manner, nonproliferation and trade purposes are mutually reinforcing.

37. The NSG Guidelines are applied both to NSG participants and non-NSG participants. Most NSG participants do not possess a self-sufficient fuel cycle and are major importers of nuclear items. Accordingly, they are required to provide the same assurances for nuclear transfers as non-NSG participants in accordance with the Guidelines.

38. As practised by NSG participants, export controls operate on the basis that cooperation is the principle and restrictions are the exception. Few NPT parties have been refused controlled items: this has occurred when a supplier had good reason to believe that the item in question could contribute to nuclear proliferation. Almost all rejections by NSG participants of applications for export licences have concerned States with unsafeguarded nuclear programmes.

39. There is close interdependence between the controls in Part 1 of the Guidelines and the effective implementation of comprehensive IAEA safeguards. The NSG supports fully international efforts to strengthen safeguards to detect undeclared activities as well as to monitor declared nuclear activities to ensure that they continue to meet vital nuclear non-proliferation requirements and to provide the assurances needed for the continuation of international nuclear trade.

40. The NSG held an Intersessional Meeting in Vienna in October 1998, following the concern expressed by NSG participants at the

nuclear tests conducted by India and Pakistan in May 1998. NSG participants discussed their impact and they reaffirmed their commitment to the NSG Guidelines.

41. The NSG held an Extraordinary Plenary Meeting in Vienna in December 2002 and agreed to several comprehensive amendments to strengthen its Guidelines, intended to prevent and counter the threat of diversion of nuclear exports to nuclear terrorism. The Plenary emphasised that effective export controls are an important tool to combat the threat of nuclear terrorism. While discussing the DPRK nuclear programme, the Participating Governments of the NSG called on all States to exercise extreme vigilance that their exports and any goods or nuclear technologies that transit their territorial jurisdiction do not contribute to any aspect of a North Korean nuclear weapons effort.

42. At the 2004 NSG Plenary in Göteborg, Sweden, the NSG welcomed Libya's voluntary decision to eliminate materials, equipment and programmes leading to the production of nuclear weapons, while noting with deep concern the discovery of elements of a covert international proliferation trafficking network through which sensitive nuclear-related equipment had found its way to Libya. The Göteborg Plenary also noted the importance of Iran's full compliance with its obligations under the Nuclear Non-Proliferation Treaty (NPT) and called on Iran to implement proactively all of the provisions of the resolutions of the International Atomic Energy Agency (IAEA) Board of Governors and to restore broad international confidence.

43. NSG Participants continue discussions on illicit procurement and trafficking, while calling on all States to exercise extreme vigilance to make best efforts that none of their exports of goods and technologies contribute to nuclear weapons programmes. In this regard, NSG participants welcome UNSCR 1540's affirmation that the prevention of nuclear weapons should not hamper international cooperation in materials, equipment and technology used for peaceful purposes while goals of peaceful utilisation should not be used as a cover for proliferation.

44. NSG participants also welcome UNSCR 1540's recognition of the importance of export controls to non-proliferation efforts, as well as its decision that all States shall take and enforce effective measures to establish domestic controls to prevent the proliferation of nuclear weapons, including establishing end-user controls.

45. To further strengthen Participating Government's national export controls, the 2004 Göteborg Plenary decided to adopt a "catch-all" mechanism in the NSG Guidelines, to provide a national legal basis to control the export of nuclear related items that are not on the control lists, when such items are or may be intended for use in connection with a nuclear weapons programme. Participating Governments also agreed on the importance of effective and consistent Guideline implementation, including requiring the existence of national export licensing regulations, enforcement measures, and penalties for violations.

46. In recognition of the threats posed by the proliferation of nuclear weapons and the unrestricted spread of sensitive nuclear technologies, NSG participants continue to discuss ways to further strengthen the NSG Guidelines in order to address these challenges.

47. At the 2005 NSG Plenary in Oslo, PGs adopted additional strengthening measures: to establish a procedure towards suspending, through national decisions, nuclear transfers to countries that are non-compliant with their safeguards agreements; that supplier and recipient states should elaborate appropriate measures to invoke fall-back safeguards if the IAEA can no longer undertake its Safeguards mandate in a recipient state, and to introduce the existence of effective export controls in the recipient state as a criteria of supply for nuclear material, equipment and technology and a factor for consideration for dual use items and technologies.

48. At the 2006 NSG Plenary in Brasilia, the NSG adopted revised guidelines for information sharing, adopted an approach to continue to examine ways of strengthening conditions of supply, amended the Guidelines to include especially designed or prepared valves for use in enrichment plants, and a means to incorporate the outcomes of an NSG Workshop on sensitive technologies into outreach activities.

49. Beginning in 2005, the NSG examined issues raised by the US-India Joint Statement of July 2005, and possible NSG-India civilian nuclear cooperation. In September 2008, taking note of steps India voluntarily undertook to separate its civilian nuclear facilities, the conclusion and approval by the IAEA Board of Governors of a safeguards agreement for India's civilian nuclear facilities and India's commitment to sign and adhere to an Additional Protocol to that agreement, and to support international efforts to limit the spread of enrichment and reprocessing technologies, and India's other steps to strengthen its domestic export control system, adhere to the NSG Guidelines and continue a moratorium on nuclear testing and work toward an FMCT, NSG PGs adopted a policy statement on civil nuclear cooperation with the IAEA-safeguarded Indian civil nuclear program. Based on these commitments and actions of India, the policy permits transfers of trigger list and dual use items and/or related technology to India for peaceful purposes and for use in IAEA safeguarded civil nuclear facilities, provided that the transfer satisfies all other provisions of the NSG guidelines, as revised. The policy is elaborated in IAEA document INFCIRC/734. The statement notes that PGs will report approved transfers to India of INFCIRC/254 Part 1, Annex A and B items, requests the Chair to confer and consult with India and report to the Plenary, and states that PGs will consult regularly on matters connected to the implementation of all aspects of the policy statement. The statement also includes a provision for PGs to meet, if deemed necessary, in accordance with paragraph 16 of the Guidelines.

50. The NSG continues to exchange information and analyze current proliferation challenges as they arise, and also to call on all states to exercise extreme vigilance and make best efforts to ensure none of their exports of goods and technologies contribute to nuclear weapons programs.

IV. NSG Action to Promote Openness and Transparency

51. The NSG is aware that non-NSG participants have in the past expressed concern about the lack of transparency in the NSG's proceedings. Non-NSG participants have not been part of the decision-making process in the establishment of the Guidelines. Concerns have therefore been expressed that the NSG has sought to deprive States of the benefits of nuclear technology or impose requirements on non-NSG participants, which have been made without their participation.

52. NSG participants understand the reasons for these concerns but state emphatically that the objectives of the NSG have consistently been to fulfil their obligations as suppliers to support nuclear non-proliferation and, in doing so, to facilitate peaceful nuclear cooperation. The growing and diverse participation of the NSG demonstrates that it is not a closed shop.

53. The NSG has consistently promoted openness and greater understanding of its aims, as well as adherence to its Guidelines and is prepared to support efforts by States to adhere to and implement the Guidelines. In response to the interest shown by individual States and groups of States, a series of contacts have taken place to inform them about the NSG's activities and to encourage them to adhere to the Guidelines. These contacts have been organised through special missions to these countries by successive NSG Plenary Chairs and representatives of NSG participants as well as during NSG seminars specially convened for this purpose (in 1994 and 1995).

54. The NSG welcomes the call in Paragraph 17 of the "Principles and Objectives for Nuclear Non-proliferation and Disarmament" adopted at the 1995 NPTREC for more openness and transparency, and responded substantively to the call at its Buenos Aires Plenary meeting on 25-26 April 1996 by establishing a working group to consider how to promote openness and transparency through further dialogue and cooperation with non-NSG participants

55. As a first step, NSG participants have strengthened their dialogue with non-NSG participants through contacts that took place in the margins of the 1996 IAEA General Conference. This dialogue continues in capitals and on other occasions such as regular nuclear and security policy dialogues, as well as during multilateral meetings that deal with these issues. This paper is a further practical contribution to this process.

56. On 7-8 October 1997, immediately following the forty-first

session of the IAEA General Conference, the NSG held the "International Seminar on the Role of Export Controls in Nuclear Non-Proliferation" in Vienna. Given the importance of including all actual and potential supplier countries and the wish for a genuine, open and all-inclusive dialogue, it was decided to invite all States to the Seminar, both parties and non-parties to the NPT.

57. On the basis of the dialogue started in Vienna, a second international seminar on the same subject was held in New York on 8-9 April 1999, ahead of the 1999 NPT Preparatory Committee Meeting. As in 1997, speakers were drawn from both NSG participants and non-NSG participants and from a variety of backgrounds so that the debate could cover a broad spectrum of views. Both seminars were attended by representatives from Governments, international organisations, and leading experts from the media, the academic world and industry.

58. The two international seminars were designed to be a further but not final step in promoting the goals of transparency within a framework of dialogue and cooperation on the role of export controls in nuclear non-proliferation and in the promotion of nuclear trade for peaceful purposes. These events proved to be very beneficial in terms of furthering transparency about nuclear export controls.

59. At the 2001 Aspen Plenary the NSG agreed upon the creation of a web site in order to better inform the public of the role and activities of the NSG. The web site, with the following URLs, was opened to the public at the 2002 Prague Plenary.
<http://www.nuclearsuppliersgroup.org> <http://www.nsg-online.org>

60. Recognising the increased need for transparency, openness and dialogue in order to address export control challenges posed by illicit procurement of nuclear and nuclear-related materials and the globalisation of the nuclear industry, NSG participants agreed at the 2004 Göteborg Plenary to strengthen contacts with non-partners through seminars and other joint activities with States outside of the NSG.

61. NSG participants are also exploring other means of cooperating more closely with non-NSG participants, to promote understanding of the Guidelines as well as adherence and implementation. The Troika composed of the past, present and incoming NSG Chairs continues contacts with non-participating governments and international organizations in the framework of existing NSG outreach programme and regular contacts with specific countries to inform them about NSG practices and to promote adherence to the Guidelines.

62. In order to give a practical dimension to, and a reliable framework for ongoing transparency efforts, at the Budapest Plenary NSG participants adopted best-practice guides to be used internally and for outreach activities to address the challenges posed by intangible transfer of technology (ITT) and end-use control.

Conclusions

63. In its future activities, the NSG will continue to be guided by the objectives of supporting nuclear non-proliferation and facilitating the peaceful applications of nuclear energy.

64. With regard to the future development of the Guidelines, NSG participants will continue to harmonise their national export control policies in a transparent manner. In this way they will continue to contribute to nuclear non-proliferation and at the same time support the development of nuclear trade and cooperation and help sustain genuine commercial competition between suppliers.

65. Universal transparency of the NSG Guidelines and the Annexes will continue through their publication as IAEA Information Circulars.

66. The NSG remains open to admitting further supplier countries in order to strengthen international non-proliferation efforts, as already illustrated by its broadening participation in all regions of the world.

67. The NSG is committed to the further promotion of openness and transparency in its practices and policy.

ANNEX

NSG Participating Governments and those who have held the Chair

ARGENTINA (1996 / 97 – BUENOS AIRES)
 AUSTRALIA
 AUSTRIA
 BELARUS
 BELGIUM
 BRAZIL (2006 / 07 – BRASILIA)
 BULGARIA
 CANADA (1997 / 98 – OTTAWA)
 CHINA
 CROATIA
 CYPRUS
 CZECH REPUBLIC (2002 / 03 – PRAGUE)
 DENMARK
 ESTONIA
 FINLAND (1995 / 96 – HELSINKI)
 FRANCE (2000 / 01 – PARIS)
 GERMANY (2008 / 09 – BERLIN)
 GREECE
 HUNGARY (2009 / 10 – BUDAPEST)
 ICELAND
 IRELAND
 ITALY (1999 / 00 – FLORENCE)
 JAPAN
 KAZAKHSTAN
 REPUBLIC OF KOREA (2003 / 04 – BUSAN)
 LATVIA
 LITHUANIA
 LUXEMBOURG
 MALTA
 NETHERLANDS (1991 / 92 – THE HAGUE)
 NEW ZEALAND
 NORWAY (2005 / 06 – OSLO)
 POLAND (1992 / 93 – WARSAW)
 PORTUGAL
 ROMANIA
 RUSSIAN FEDERATION
 SLOVAKIA
 SLOVENIA
 SOUTH AFRICA (2007 / 08 – CAPE TOWN)
 SPAIN (1994 / 95 – MADRID)
 SWEDEN (2004 / 05 – GÖTEBORG)
 SWITZERLAND (1993 / 94 – LUCERNE)
 TURKEY
 UKRAINE
 UNITED KINGDOM (1998 / 99 – EDINBURGH)
 UNITED STATES (2001 / 02 – ASPEN)
 Permanent Observer: EUROPEAN COMMISSION

Guidelines for Transfers of Nuclear-Related Dual-Use Equipment, Materials, Software, and Related Technology

[Nuclear Suppliers Group, Reproduced from INFCIRC/254/Rev.7/Part 2, February 2006]

[INFCIRC/254/Part.1, as amended, contains Guidelines for the export of nuclear material, equipment and technology.]

1. The Director General of the International Atomic Energy Agency has received Notes Verbales, dated 1 December 2005, from the Resident Representatives to the Agency of Argentina, Australia, Austria, Belarus, Belgium, Brazil, Bulgaria, Canada, Croatia, Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Republic of Korea, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, New Zealand, Poland, Portugal, Slovenia, South Africa, Spain, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom of Great Britain and Northern Ireland and the United States of America, relating to transfers of nuclear-related dual-use equipment, materials, software and related technology.

2. The purpose of the Notes Verbales is to provide further information on those Governments' guidelines for transfers of nuclear-related dual-use equipment, materials, software and related technology.

3. In the light of the wish expressed at the end of each Note Verbale, the text of the Notes Verbales is attached. The attachment to the Notes Verbales is also reproduced in full.

NOTE VERBALE

The Permanent Mission of [Country Name] presents its compliments to the Director General of the International Atomic Energy Agency (IAEA) and has the honour to refer to its [relevant previous communication(s)] concerning the decision of the Government of [Country Name] to act in accordance with the Guidelines for Transfers of Nuclear-Related Dual-Use Equipment, Material and Related Technology currently published as document INFCIRC/254/Rev. 6/Part 2, including its Annex.

The Government of [Country Name] has decided to amend the Guidelines to reflect the need for effective export controls as a relevant factor for Part 2 transfers. Accordingly, Paragraph 4 (i) has been introduced.

The Government of [Country Name] has also decided to amend the Annex entries on machine tools (1.B.2.b and 1.B.2.c) to reflect the changes in current technology and to control new technology. Accordingly, a new Paragraph 3 has been added to both 1.B.2.b and 1.B.2.c to reflect new technological characteristics, the Technical note 2 of the Annex entry 1.B.2 has been amended and new Technical notes 4, 5 and 6 have been added to clarify the scope of controls.

The Government of [Country Name] has also clarified the scope of control for laser lights. Item 1.B.3.c. was amended to reflect that the scope of control does not control laser-based autocollimators. This is in accordance with recent changes made in Wassenaar.

In the interest of clarity, the complete text of the modified Guidelines and its Annex is reproduced in the attachment, as well as a "Comparison Table of Changes to the Guidelines for Transfers of Nuclear-Related Dual-Use Equipment, Material and Related Technology (INFCIRC/254/Rev. 6/Part 2)".

The Government of [Country Name] has decided to act in accordance with the Guidelines so revised.

In reaching this decision, the Government of [Country Name] is fully aware of the need to contribute to economic development while avoiding contributing in any way to a proliferation of nuclear weapons or other nuclear explosive devices or the diversion to acts of nuclear terrorism, and of the need to separate the issue of non-proliferation or non-diversion assurances from that of commercial competition.

[The Government of (Country Name), so far as trade within the European Union is concerned, will implement this decision in the light of its commitments as a Member States of the Union.] [This paragraph is included only in notes verbales from members of the European Union.]

The Government of [Country Name] would be grateful if the Director General of the IAEA would bring this Note and its attachment to the attention of all Member States.

The Permanent Mission of [Country Name] avails itself of this opportunity to renew to the Director General of the International Atomic Energy Agency the assurances of its highest consideration.

GUIDELINES FOR TRANSFERS OF NUCLEAR-RELATED DUAL-USE EQUIPMENT, MATERIALS, SOFTWARE, AND RELATED TECHNOLOGY

OBJECTIVE

1. With the objective of averting the proliferation of nuclear weapons and preventing acts of nuclear terrorism, suppliers have had under consideration procedures in relation to the transfer of certain equipment, materials, software, and related technology that could make a major contribution to a "nuclear explosive activity," an "un-safeguarded nuclear fuel-cycle activity" or acts of nuclear terrorism. In this connection, suppliers have agreed on the following principles, common definitions, and an export control list of equipment, materials, software, and related technology. The Guidelines are not designed to impede international co-operation as long as such co-operation will not contribute to a nuclear explosive activity, an un-safeguarded nuclear fuel cycle activity or acts of nuclear terrorism. Suppliers intend to implement the

Guidelines in accordance with national legislation and relevant international commitments.

BASIC PRINCIPLE

2. Suppliers should not authorize transfers of equipment, materials, software, or related technology identified in the Annex:

- for use in a non-nuclear-weapon state in a nuclear explosive activity or an un-safeguarded nuclear fuel-cycle activity, or
- in general, when there is an unacceptable risk of diversion to such an activity, or when the transfers are contrary to the objective of averting the proliferation of nuclear weapons, or
- when there is an unacceptable risk of diversion to acts of nuclear terrorism.

EXPLANATION OF TERMS

3. (a) "Nuclear explosive activity" includes research on or development, design, manufacture, construction, testing or maintenance of any nuclear explosive device or components or subsystems of such a device.

(b) "Un-safeguarded nuclear fuel-cycle activity" includes research on or development, design, manufacture, construction, operation or maintenance of any reactor, critical facility, conversion plant, fabrication plant, reprocessing plant, plant for the separation of isotopes of source or special fissionable material, or separate storage installation, where there is no obligation to accept International Atomic Energy Agency (IAEA) safeguards at the relevant facility or installation, existing or future, when it contains any source or special fissionable material; or of any heavy water production plant where there is no obligation to accept IAEA safeguards on any nuclear material produced by or used in connection with any heavy water produced there-from; or where any such obligation is not met.

ESTABLISHMENT OF EXPORT LICENSING PROCEDURES

4. Suppliers should have in place legal measures to ensure the effective implementation of the Guidelines, including export licensing regulations, enforcement measures, and penalties for violations. In considering whether to authorize transfers, suppliers should exercise prudence in order to carry out the Basic Principle and should take relevant factors into account, including:

(a) Whether the recipient state is a party to the Nuclear Non-Proliferation Treaty (NPT) or to the Treaty for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco), or to a similar international legally-binding nuclear non-proliferation agreement, and has an IAEA safeguards agreement in force applicable to all its peaceful nuclear activities;

(b) Whether any recipient state that is not party to the NPT, Treaty of Tlatelolco, or a similar international legally-binding nuclear non-proliferation agreement has any facilities or installations listed in paragraph 3(b) above that are operational or being designed or constructed that are not, or will not be, subject to IAEA safeguards;

(c) Whether the equipment, materials, software, or related technology to be transferred is appropriate for the stated end-use and whether that stated end-use is appropriate for the end user;

(d) Whether the equipment, materials, software, or related technology to be transferred is to be used in research on or development, design, manufacture, construction, operation, or maintenance of any reprocessing or enrichment facility;

(e) Whether governmental actions, statements, and policies of the recipient state are supportive of nuclear non-proliferation and whether the recipient state is in compliance with its international obligations in the field of non-proliferation;

(f) Whether the recipients have been engaged in clandestine or illegal procurement activities; and

(g) Whether a transfer has not been authorized to the end-user or whether the end-user has diverted for purposes inconsistent with the Guidelines any transfer previously authorized.

(h) Whether there is reason to believe that there is a risk of diversion to acts of nuclear terrorism.

(i) Whether there is a risk of retransfers of equipment, material, software, or related technology identified in the Annex or

of transfers of any replica thereof contrary to the Basic Principle, as a result of a failure by the recipient State to develop and maintain appropriate, effective national export and transshipment controls, as identified by UNSC Resolution 1540.

5. Suppliers should ensure that their national legislation requires an authorisation for the transfer of items not listed in the Annex if the items in question are or may be intended, in their entirety or in part, for use in connection with a "nuclear explosive activity."

Suppliers will implement such an authorisation requirement in accordance with their domestic licensing practices.

Suppliers are encouraged to share information on "catch all" denials.

CONDITIONS FOR TRANSFERS

6. In the process of determining that the transfer will not pose any unacceptable risk of diversion, in accordance with the Basic Principle and to meet the objectives of the Guidelines, the supplier should obtain, before authorizing the transfer and in a manner consistent with its national law and practices, the following:

(a) a statement from the end-user specifying the uses and end-use locations of the proposed transfers; and

(b) an assurance explicitly stating that the proposed transfer or any replica thereof will not be used in any nuclear explosive activity or unsafeguarded nuclear fuel-cycle activity.

CONSENT RIGHTS OVER RETRANSFERS

7. Before authorizing the transfer of equipment, materials, software, or related technology identified in the Annex to a country not adhering to the Guidelines, suppliers should obtain assurances that their consent will be secured, in a manner consistent with their national law and practices, prior to any retransfer to a third country of the equipment, materials, software, or related technology, or any replica thereof.

CONCLUDING PROVISIONS

8. The supplier reserves to itself discretion as to the application of the Guidelines to other items of significance in addition to those identified in the Annex, and as to the application of other conditions for transfer that it may consider necessary in addition to those provided for in paragraph 5 of the Guidelines.

9. In furtherance of the effective implementation of the Guidelines, suppliers should, as necessary and appropriate, exchange relevant information and consult with other states adhering to the Guidelines.

10. In the interest of international peace and security, the adherence of all states to the Guidelines would be welcome.

ANNEX

LIST OF NUCLEAR-RELATED DUAL-USE EQUIPMENT, MATERIALS, SOFTWARE, AND RELATED TECHNOLOGY

[Eds – see 2009 Edition of the Briefing Book

Guidelines for Nuclear Transfers

[Nuclear Suppliers Group, Reproduced from INFCIRC/254/Rev.9/Part1, November 2007]

[...](eds.)

Communications Received from the Permanent Mission of Brazil Regarding Certain Member States' Guidelines for the Export of Nuclear Material, Equipment and Technology

GUIDELINES FOR NUCLEAR TRANSFERS

1. The following fundamental principles for safeguards and export controls should apply to nuclear transfers for peaceful purposes to any non-nuclear-weapon State and, in the case of controls on retransfer, to transfers to any State. In this connection, suppliers have defined an export trigger list.

Prohibition on nuclear explosives

2. Suppliers should authorize transfer of items or related technology identified in the trigger list only upon formal governmental assurances from recipients explicitly excluding uses

which would result in any nuclear explosive device.

Physical protection

3. (a) All nuclear materials and facilities identified by the agreed trigger list should be placed under effective physical protection to prevent unauthorized use and handling. The levels of physical protection to be ensured in relation to the type of materials, equipment and facilities, have been agreed by the suppliers, taking account of international recommendations.

(b) The implementation of measures of physical protection in the recipient country is the responsibility of the Government of that country. However, in order to implement the terms agreed upon amongst suppliers, the levels of physical protection on which these measures have to be based should be the subject of an agreement between supplier and recipient.

(c) In each case special arrangements should be made for a clear definition of responsibilities for the transport of trigger list items.

Safeguards

4. (a) Suppliers should transfer trigger list items or related technology to a non-nuclear weapon State only when the receiving State has brought into force an agreement with the IAEA requiring the application of safeguards on all source and special fissionable material in its current and future peaceful activities. Suppliers should authorize such transfers only upon formal governmental assurances from the recipient that:

–if the above-mentioned agreement should be terminated the recipient will bring into force an agreement with the IAEA based on existing IAEA model safeguards agreements requiring the application of safeguards on all trigger list items or related technology transferred by the supplier or processed, or produced or used in connection with such transfers; and

–if the IAEA decides that the application of IAEA safeguards is no longer possible, the supplier and recipient should elaborate appropriate verification measures. If the recipient does not accept these measures, it should allow at the request of the supplier the restitution of transferred and derived trigger list items.

(b) Transfers covered by paragraph 4 (a) to a non-nuclear-weapon State without such a safeguards agreement should be authorized only in exceptional cases when they are deemed essential for the safe operation of existing facilities and if safeguards are applied to those facilities. Suppliers should inform and, if appropriate, consult in the event that they intend to authorize or to deny such transfers.

(c) The policy referred to in paragraph 4 (a) and 4 (b) does not apply to agreements or contracts drawn up on or prior to April 3, 1992. In case of countries that have adhered or will adhere to INFCIRC/254/Rev. 1/Part 1 later than April 3, 1992, the policy only applies to agreements (to be) drawn up after their date of adherence.

(d) Under agreements to which the policy referred to in paragraph 4 (a) does not apply (see paragraphs 4 (b) and (c)) suppliers should transfer trigger list items or related technology only when covered by IAEA safeguards with duration and coverage provisions in conformity with IAEA doc. GOV/1621. However, suppliers undertake to strive for the earliest possible implementation of the policy referred to in paragraph 4 (a) under such agreements.

(e) Suppliers reserve the right to apply additional conditions of supply as a matter of national policy.

5. Suppliers will jointly reconsider their common safeguards requirements, whenever appropriate.

Special controls on sensitive exports

6. Suppliers should exercise restraint in the transfer of sensitive facilities, technology and material usable for nuclear weapons or other nuclear explosive devices. If enrichment or reprocessing facilities, equipment or technology are to be transferred, suppliers should encourage recipients to accept, as an alternative to national plants, supplier involvement and/or other appropriate multinational participation in resulting facilities. Suppliers should also promote international (including IAEA) activities concerned with multinational regional fuel cycle centres.

Special controls on export of enrichment facilities, equipment and technology

7. For a transfer of an enrichment facility, or technology therefor, the recipient nation should agree that neither the transferred facility, nor any facility based on such technology, will be designed or operated for the production of greater than 20% enriched uranium without the consent of the supplier nation, of which the IAEA should be advised.

Controls on supplied or derived material usable for nuclear weapons or other nuclear explosive devices

8. Suppliers should, in order to advance the objectives of these guidelines and to provide opportunities further to reduce the risks of proliferation, include, whenever appropriate and practicable, in agreements on supply of nuclear materials or of facilities which produce material usable for nuclear weapons or other nuclear explosive devices, provisions calling for mutual agreement between the supplier and the recipient on arrangements for reprocessing, storage, alteration, use, transfer or retransfer of any material usable for nuclear weapons or other nuclear explosive devices involved.

Controls on retransfer

9. (a) Suppliers should transfer trigger list items or related technology only upon the recipient's assurance that in the case of:

(1) retransfer of such items or related technology,

or

(2) transfer of trigger list items derived from facilities originally transferred by the supplier, or with the help of equipment or technology originally transferred by the supplier; the recipient of the retransfer or transfer will have provided the same assurances as those required by the supplier for the original transfer.

(b) In addition the supplier's consent should be required for:

(1) any retransfer of trigger list items or related technology and any transfer referred to under paragraph 9(a) (2) from any State which does not require full scope safeguards, in accordance with paragraph 4(a) of these Guidelines, as a condition of supply;

(2) any retransfer of enrichment, reprocessing or heavy water production facilities, equipment or related technology, and for any transfer of facilities or equipment of the same type derived from items originally transferred by the supplier;

(3) any retransfer of heavy water or material usable for nuclear weapons or other nuclear explosive devices.

(c) To ensure the consent right as defined under paragraph 9(b), government to government assurances will be required for any relevant original transfer.

(d) Suppliers should consider restraint in the transfer of items and related technology identified in the trigger list if there is a risk of retransfers contrary to the assurances given under paragraph 9(a) and (c) as a result of a failure by the recipient to develop and maintain appropriate, effective national export and transshipment controls, as identified by UNSC Resolution 1540.

Non-proliferation Principle

10. Notwithstanding other provisions of these Guidelines, suppliers should authorize transfer of items or related technology identified in the trigger list only when they are satisfied that the transfers would not contribute to the proliferation of nuclear weapons or other nuclear explosive devices or be diverted to acts of nuclear terrorism.

Implementation

11. Suppliers should have in place legal measures to ensure the effective implementation of the Guidelines, including export licensing regulations, enforcement measures, and penalties for violations.

SUPPORTING ACTIVITIES

Physical security

12. Suppliers should promote international co-operation in the areas of physical security through the exchange of physical security information, protection of nuclear materials in transit, and recovery of stolen nuclear materials and equipment. Suppliers should promote broadest adherence to the respective international instruments, inter alia, to the Convention on the Physical Protection of Nuclear Material, as well as implementation of INFCIRC/225, as amended from time to time. Suppliers recognize the importance of these activities and other relevant IAEA activities in preventing the proliferation of nuclear weapons and countering the threat of nuclear terrorism.

Support for effective IAEA safeguards

13. Suppliers should make special efforts in support of effective implementation of IAEA safeguards. Suppliers should also support the Agency's efforts to assist Member States in the improvement of their national systems of accounting and control of nuclear material and to increase the technical effectiveness of safeguards. Similarly, they should make every effort to support the IAEA in increasing further the adequacy of safeguards in the light of technical developments and the rapidly growing number of nuclear facilities, and to support appropriate initiatives aimed at improving the effectiveness of IAEA safeguards.

Trigger list plant design features

14. Suppliers should encourage the designers and makers of trigger list facilities to construct them in such a way as to facilitate the application of safeguards and to enhance physical protection, taking also into consideration the risk of terrorist attacks. Suppliers should promote protection of information on the design of trigger list installations, and stress to recipients the necessity of doing so. Suppliers also recognize the importance of including safety and non-proliferation features in designing and construction of trigger list facilities.

Export Controls

15. Suppliers should, where appropriate, stress to recipients the need to subject transferred trigger list items and related technology and trigger list items derived from facilities originally transferred by the supplier or with the help of equipment or technology originally transferred by the supplier to export controls as outlined in UNSC Resolution 1540. Suppliers are encouraged to offer assistance to recipients to fulfil their respective obligations under UNSC Resolution 1540 where appropriate and feasible.

Consultations

16. (a) Suppliers should maintain contact and consult through regular channels on matters connected with the implementation of these Guidelines.

(b) Suppliers should consult, as each deems appropriate, with other governments concerned on specific sensitive cases, to ensure that any transfer does not contribute to risks of conflict or instability.

(c) Without prejudice to sub-paragraphs (d) to (f) below:

–In the event that one or more suppliers believe that there has been a violation of supplier/recipient understanding resulting from these Guidelines, particularly in the case of an explosion of a nuclear device, or illegal termination or violation of IAEA safeguards by a recipient, suppliers should consult promptly through diplomatic channels in order to determine and assess the reality and extent of the alleged violation. Suppliers are also encouraged to consult where nuclear material or nuclear fuel cycles activity undeclared to the IAEA or a nuclear explosive activity is revealed.

–Pending the early outcome of such consultations, suppliers will not act in a manner that could prejudice any measure that may be adopted by other suppliers concerning their current contacts with that recipient. Each supplier should also consider suspending transfers of Trigger List items while consultations under 16(c) are ongoing, pending supplier agreement on an appropriate response.

–Upon the findings of such consultations, the suppliers, bearing in mind Article XII of the IAEA Statute, should agree on an

appropriate response and possible action, which could include the termination of nuclear transfers to that recipient.

(d) If a recipient is reported by the IAEA to be in breach of its obligation to comply with its safeguards agreement, suppliers should consider the suspension of the transfer of Trigger List items to that State whilst it is under investigation by the IAEA. For the purposes of this paragraph, "breach" refers only to serious breaches of proliferation concern;

(e) Suppliers support the suspension of transfers of Trigger List items to States that violate their nuclear non-proliferation and safeguards obligations, recognising that the responsibility and authority for such decisions rests with national governments or the United Nations Security Council. In particular, this is applicable in situations where the IAEA Board of Governors takes any of the following actions:

-finds, under Article XII.C of the Statute, that there has been non-compliance in the recipient, or requires a recipient to take specific actions to bring itself into compliance with its safeguards obligations;

-Decides that the Agency is not able to verify that there has been no diversion of nuclear material required to be safeguarded, including situations where actions taken by a recipient have made the IAEA unable to carry out its safeguards mission in that State.

An extraordinary Plenary meeting will take place within one month of the Board of Governors' action, at which suppliers will review the situation, compare national policies and decide on an appropriate response.

(f) The provisions of subparagraph (e) above do not apply to transfers under paragraph 4 (b) of the Guidelines.

17. Unanimous consent is required for any changes in these Guidelines, including any which might result from the reconsideration mentioned in paragraph 5.

ANNEX A

TRIGGER LIST REFERRED TO IN GUIDELINES

GENERAL NOTES

1. The object of these controls should not be defeated by the transfer of component parts. Each government will take such actions as it can to achieve this aim and will continue to seek a workable definition for component parts, which could be used by all suppliers.

2. With reference to Paragraph 9(b)(2) of the Guidelines, *same type* should be understood as when the design, construction or operating processes are based on the same or similar physical or chemical processes as those identified in the Trigger List.

3. Suppliers recognize the close relationship for certain isotope separation processes between plants, equipment and technology for uranium enrichment and that for the separation of stable isotopes for research, medical and other non-nuclear industrial purposes. In that regard, suppliers should carefully review their legal measures, including export licensing regulations and information/technology classification and security practices, for stable isotope separation activities to ensure the implementation of appropriate protection measures as warranted. Suppliers recognize that, in particular cases, appropriate protection measures for stable isotope separation activities will be essentially the same as those for uranium enrichment. (See Introductory Note in Section 5 of the Trigger List.) In accordance with Paragraph 16(a) of the Guidelines, suppliers shall consult with other suppliers as appropriate, in order to promote uniform policies and procedures in the transfer and protection of stable isotope separation plants, equipment and technology.

TECHNOLOGY CONTROLS

The transfer of "technology" directly associated with any item in the List will be subject to as great a degree of scrutiny and control as will the item itself, to the extent permitted by national legislation.

Controls on "technology" transfer do not apply to information "in the public domain" or to "basic scientific research".

In addition to controls on "technology" transfer for nuclear non-proliferation reasons, suppliers should promote protection of this

technology for the design, construction, and operation of trigger list facilities in consideration of the risk of terrorist attacks, and should stress to recipients the necessity of doing so.

DEFINITIONS

"Technology" means specific information required for the "development", production", or "use" of any item contained in the List. This information may take the form of "technical data", or "technical assistance".

"Basic scientific research" - Experimental or theoretical work undertaken principally to acquire new knowledge of the fundamental principles of phenomena and observable facts, not primarily directed towards a specific practical aim or objective.

"development" - is related to all phases before "production" such as:

- design
- design research
- design analysis
- design concepts
- assembly and testing of prototypes
- pilot production schemes
- design data
- process of transforming design data into a product
- configuration design
- integration design
- layouts

"in the public domain" - "In the public domain," as it applies herein, means technology that has been made available without restrictions upon its further dissemination. (Copyright restrictions do not remove technology from being in the public domain.)

"production" - means all production phases such as:

- construction
- production engineering
- manufacture
- integration
- assembly (mounting)
- inspection
- testing
- quality assurance

"technical assistance" - "Technical assistance" may take forms such as: instruction, skills, training, working knowledge, consulting services.

Note: "Technical assistance" may involve transfer of "technical data".

"technical data" - "Technical data" may take forms such as blueprints, plans, diagrams, models, formulae, engineering designs and specifications, manuals and instructions written or recorded on other media or devices such as disk, tape, read-only memories.

"use" - Operation, installation (including on-site installation), maintenance (checking), repair, overhaul and refurbishing.

MATERIAL AND EQUIPMENT

1. Source and special fissionable material

As defined in Article XX of the Statute of the International Atomic Energy Agency:

1.1. "Source material"

The term "source material" means uranium containing the mixture of isotopes occurring in nature; uranium depleted in the isotope 235; thorium; any of the foregoing in the form of metal, alloy, chemical compound, or concentrate; any other material containing one or more of the foregoing in such concentration as the Board of Governors shall from time to time determine; and such other material as the Board of Governors shall from time to time determine.

1.2. "Special fissionable material"

i) The term "special fissionable material" means plutonium-239; uranium-233; uranium enriched in the isotopes 235 or 233; any material containing one or more of the foregoing; and such other fissionable material as the Board of Governors shall from time to time determine; but the term "special fissionable material" does not include source material.

ii) The term "uranium enriched in the isotopes 235 or 233" means uranium containing the isotopes 235 or 233 or both in an amount such that the abundance ratio of the sum of these isotopes to the isotope 238 is greater than the ratio of the isotope 235 to the isotope 238 occurring in nature.

However, for the purposes of the Guidelines, items specified in subparagraph (a) below, and exports of source or special fissionable material to a given recipient country, within a period of 12 months, below the limits specified in subparagraph (b) below, shall not be included:

(a) Plutonium with an isotopic concentration of plutonium-238 exceeding 80%. Special fissionable material when used in gram quantities or less as a sensing component in instruments; and Source material which the Government is satisfied is to be used only in nonnuclear activities, such as the production of alloys or ceramics;

(b) Special fissionable material 50 effective grams; Natural uranium 500 kilograms;

Depleted uranium 1000 kilograms; and Thorium 1000 kilograms.

2. Equipment and Non-nuclear Materials

The designation of items of equipment and non-nuclear materials adopted by the Government is as follows (quantities below the levels indicated in the Annex B being regarded as insignificant for practical purposes):

2.1. Nuclear reactors and especially designed or prepared equipment and components therefor (see Annex B, section 1.);

2.2. Non-nuclear materials for reactors (see Annex B, section 2.);

2.3. Plants for the reprocessing of irradiated fuel elements, and equipment especially designed or prepared therefor (see Annex B, section 3.);

2.4. Plants for the fabrication of nuclear reactor fuel elements, and equipment especially designed or prepared therefor (see Annex B, section 4.);

2.5. Plants for the separation of isotopes of natural uranium, depleted uranium or special fissionable material and equipment, other than analytical instruments, especially designed or prepared therefor (see Annex B, section 5.);

2.6. Plants for the production or concentration of heavy water, deuterium and deuterium compounds and equipment especially designed or prepared therefor (see Annex B, section 6.);

2.7. Plants for the conversion of uranium and plutonium for use in the fabrication of fuel elements and the separation of uranium isotopes as defined in sections 4 and 5 respectively, and equipment especially designed or prepared therefor (See Annex B, section 7.).

ANNEX B

**CLARIFICATION OF ITEMS ON THE TRIGGER LIST
(as designated in Section 2 of MATERIAL AND EQUIPMENT
of Annex A)**

[Eds – see 2009 Edition of the Briefing Book]