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CONFERENCE OF NON-NUCLEAR-WEAPON STATES

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Item 3 (a) of the provisional agenda

THE QUESTION OF NUCLEAR EXPLOSIONS FOR PEACEFUL PURPOSES BY
NON-NUCLEAR-WEAPON STATES AND THE POSSIBILITY OF MISUSE
OF SUCH TECHNOLOGY FOR THE PRODUCTION OF NUCLEAR WEAPONS

by

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CORRIGENDUM

1. On page 6, paragraph 3, entitled "Health physics requirements", the first sentence of the last paragraph should read as follows:

"For such control and monitoring of possible nuclear health hazards a special organization within the project will be necessary, separate from the body which is responsible for setting safe but reasonable radiation standards. Questions of"

2. On page 7, paragraph 8, entitled "Isolation from disturbing international issues", second line, the word "also" should be inserted after the word "influential".

3. On page 8, paragraph 9, entitled "Prevention of non-rational fears or accusations", the following corrections should be made:

- (a) in the fourth line, insert a comma after the word "menace";
- (b) in the fifth line, insert the word "of" after "spread or";
- (c) in the sixth line, the word "these" should be replaced by "such problems";
- (d) in the ninth line, the word "Thus" should be replaced by "A thus".

4. On page 9, the following corrections should be made:

- (a) in the sixth line, the word "Objection" should be replaced by "This objection";
- (b) in the last line, the word "here" should be inserted after "possibilities".

5. On page 13, the first sentence of the second paragraph should read as follows:

"After the explosion, remote measurements were used to decide whether radiation conditions and the cessation of underground cavity formation permitted hazards control personnel to make a direct radiation hazard check at the shot site. Thereupon personnel concerned ..."

6. On page 17, second paragraph, "stock-wave" should be replaced by "shock-wave".

7. On page 18, sub-paragraph (g), the comma after "(f)" should be deleted.

8. On page 19, paragraph 2, entitled "The treaty for the prohibition of nuclear weapons in Latin America", in the penultimate line of the second paragraph, the word "against" should be replaced by "for".

I. INTRODUCTION

1. The great advances of nuclear technology, in the peaceful as well as in the military field, have put forward more than ever in history the problem of international disarmament, in particular nuclear disarmament under strict international control, as the most crucial problem, the solution of which will define the historical destiny of all mankind.
2. Given the magnitude and the consequences of international disarmament, various measures and steps have to be taken to pave the way for this great objective. Among these there is the non-proliferation of nuclear weapons. In fact, non-proliferation, in addition to its integral merits, will be a great step forward towards general nuclear disarmament and the complete banning of all nuclear weapons the world over. Any non-proliferation system has to be based on, and consolidated by, strict control through a system of international safeguards, to ensure compliance with the obligation that nuclear energy in non-nuclear-weapon States is used solely for peaceful purposes.
3. Submission of periodic reports forms an important part of any safeguards system. In this respect and for the object of the present paper, it would be necessary to point out two main aspects of difference between an international safeguards system aiming at non-proliferation, on the one hand, and the present practice in international safeguards, best represented by the International Atomic Energy Agency (IAEA) system, on the other hand.

These are:

- (a) The IAEA safeguards system is applied to safeguarded items made available by the Agency or at its request or under its supervision or control, and to bilateral and multilateral agreements at the request of the parties, as well as to any of a State's activities in the field of atomic energy, at the request of that State (1)*. For the purpose of non-proliferation, the safeguards system has to cover all items subject to safeguards in all nuclear activities within the territory of the non-nuclear-weapon State, under its jurisdiction, or carried out under its control anywhere, irrespective of the way that made such items available to that State;

* The number between brackets is the serial number of the reference in question as given in the list of references by the end of the paper.

- (b) Apart from the rare cases of advanced States submitting voluntarily some of their nuclear activities to the IAEA safeguards system, this system is applied generally to recipient States, i.e. States that receive safeguarded items. All non-nuclear-weapon States party to the system, whether advanced or developing, donor or recipient, have to accept safeguards, if non-proliferation is to be realized.
4. Consequently, different aspects of the non-proliferation safeguards system, including reports, will be wider than in the present international practice. Reports should be submitted, not only by recipient States on safeguarded items, but also by donor countries on the nature and the extent of nuclear technical assistance and fissionable material supplied by them to non-nuclear-weapon States for peaceful purposes. The object of this paper is to deal with these donor countries reports.
5. For the purpose of clarity, it is deemed useful to start with a brief review of nuclear technical assistance and fissionable material, followed by discussing donor countries and international agency, as viewed from the angle of donor countries reports. This will then be followed by a short review of the present international practice using reports for safeguards purposes. The donor countries reports will then be discussed from the technical, political and legal points of view, as well as in their relation to international safeguards. Finally the position of the draft Non-Proliferation Treaty will be referred to, particularly in relation to the subject matter of the present paper, followed by the conclusion.

II. NUCLEAR TECHNICAL ASSISTANCE

6. According to the present international practice, the term "technical assistance" covers a variety of different kinds of assistance including generally expert services, equipment and supplies, visiting professors, fellowships, scientific visits and research fellowships, study tours as well as various other kinds of assistance to regional projects such as assistance in the organization of training courses or in the establishment of research centres. In general, all such types of technical assistance are financed, at least partially, by the donor States or international organizations (2 and 3).
7. In the light of this practice, the present definition of nuclear technical assistance would be any such assistance as referred to in paragraph 6 above in the nuclear energy field. However, in the context of non-proliferation

and for the purpose of the present paper, a wider scope has to be covered so as to include the following:

- (a) Different kinds of nuclear technical assistance as outlined in paragraph 6 above, irrespective of the source of financing, whether it would be completely or partially the donor or the recipient State or an international organization. This is important because what counts mainly from the point of view of non-proliferation is the technical rather than the financial content of the assistance;
- (b) All assistance, on pure commercial basis or otherwise, for establishing, operating or improving a principal nuclear facility or a nuclear research and development centre. In this connexion it is suggested to adopt the definition given in the IAEA safeguards document (4) for principal nuclear facility. By principal nuclear facility is meant a reactor, a plant for processing nuclear material irradiated in a reactor, a plant for separating the isotopes of a nuclear material, a plant for manufacturing nuclear material (excepting a mine or pre-processing plant) or facilities or plants of such other type as may be designated by the "governing body" of whatever international agency is to administer the non-proliferation of safeguards system, and including associated storage facilities. In fact, assistance in this field, irrespective of the financial aspect, is of a paramount technical importance. The establishment of an integrated fuel cycle complex of principal nuclear facilities in a country enables that country to produce fissionable material locally. On the other hand, nuclear research and development centres are the scientific back-bones of principal nuclear facilities where methods, procedures, designs etc., are investigated, elaborated and improved to render possible the best exploitation of these facilities. Furthermore, various problems of military exploitation of atomic energy may be investigated and solved in such centres;
- (c) Nuclear explosive service for peaceful purposes. Such service is expected in the long run to become an important aspect of nuclear technical assistance, irrespective of its commercial aspects.

Access to the benefits of such explosive services for peaceful purposes will be necessary and legitimate for all countries.

However, the technology of these explosive devices is fundamentally the same as that of nuclear weapons (5 and 6).

8. In the nuclear energy field, the complexity and wide variety of requirements for the realization of atomic energy programmes for peaceful purposes, their dependence on an advanced knowledge in nuclear science and technology and on the availability of a large spectrum of reactor grade materials and nuclear equipment as well as on the support of a highly advanced industrial background, all these facts render nuclear technical assistance, specially in the broad sense outlined in paragraph 7 above, a major backbone in the peaceful nuclear development of the majority of the countries of the world, and in particular for the developing countries.
9. On the other hand, by the intrinsic nature of nuclear technology, major peaceful applications of atomic energy carry with them the possibility of misuse for military purpose. For example, many reactors used for research and development or for generation of electricity or desalination of sea water can be used to produce weapon grade plutonium.
10. It is therefore suggested that the reports of the donor countries cover the above-mentioned aspects of nuclear technical assistance. Should there be any divergence of opinion, on formal basis, as to the adequacy of including all such items under the heading of nuclear technical assistance, there should, however, be no doubt of the necessity to include them in the reports of the donor countries, even as independent categories, if necessary.

III. FISSIONABLE MATERIAL

11. Fissionable material represents the main item concerning safeguards in a non-proliferation system. Although a variety of materials are known to undergo the fission reaction, only three are suitable materials to sustain the well known fission chain reaction which is the basis for energy production and for nuclear weapons. These are uranium 235, plutonium 239 and uranium 233. That is why they are commonly termed special fissionable materials.

12. Uranium 235 exists in nature and constitutes seven parts for every thousand parts of natural uranium, the rest being mainly uranium 238. However, uranium can be enriched to different degrees with the isotope 235 in an enrichment (isotope separation) plant. Uranium 235 may be used as reactor fuel in the natural uranium form or in enriched fuel with different degrees of enrichment, or as explosive in nuclear weapons.
13. Plutonium 239 is produced on irradiation of uranium fuel in a reactor. Simultaneously, other higher isotopes of plutonium such as the isotopes 240 and 241 are also produced in small amounts and their ratio increases progressively with irradiation time. Plutonium can be used as reactor fuel with relatively high ratio of its higher isotopes. It is expected to play a great role in the foreseen future as fuel for fast breeder commercial reactors. For military applications using either uranium 235, or plutonium 239, a high enrichment of the order of 90-95 per cent is usually required. Of this grade about twenty-five or eight kilograms (7) respectively are needed for a nuclear war-head having a yield of about twenty kilotons of conventional explosive.
14. Uranium 233 is produced on irradiation of thorium in a reactor. It may be used as nuclear fuel or as nuclear explosive. Much hope is concentrated on it as a main nuclear fuel in the future. However, uranium 233 is still rare and no data are available indicating that it has been used so far in a nuclear explosive.
15. The domestication of thermonuclear energy is another great hope for the future; but this use of it is still under research and development, although hydrogen bombs have been produced on a large scale. The only detonator for the hydrogen bomb is the fission bomb, with preference to the uranium 235 type.
16. From the above mentioned considerations, the following points would be concluded:
 - (a) The fissionable materials of interest for the purpose of non-proliferation are uranium 235, plutonium 239 and uranium 233. To these would be added any other such fissionable material as will be determined from time to time by the "governing body" of the international agency that will administer the non-proliferation safeguards system;

- (b) In addition to fissionable material, source material has also to be included in the system. This suggestion is important and it is in conformity with the present international practice. For source material, it is suggested to apply the definition of the IAEA statute (1), according to which such material means uranium containing the mixture of isotopes occurring in nature, uranium depleted in the isotope uranium 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 concentrations as would be determined by the "governing body" of the international agency responsible for the non-proliferation safeguards;
- (c) Donor countries reports have to deal with all items mentioned in (a) and (b) above.

IV. DONOR COUNTRIES AND INTERNATIONAL AGENCY

17. By countries, in the sense of the title of this paper, are meant donor countries, i.e., suppliers of nuclear technical assistance or fissionable (or source) materials. It is, however, necessary to amplify the understanding of the term "donor countries" so as to leave no loop-holes that would help proliferation. For this purpose, it is suggested that donor countries reports would be submitted by:

- (a) Donor States, whether nuclear or non-nuclear-weapon States. In this connexion, the State should represent not only itself and State organizations but also all other non-governmental organizations of that country working in the nuclear energy field such as private firms, foundations, research institutions, etc. The activities of such non-governmental organizations related to non-proliferation should be included in the reports of the donor states.
- (b) Groups of donor States which provide nuclear technical assistance or materials to non-nuclear-weapon States whether inside or outside those groups. Here again activities related to non-proliferation that are carried out by multi national non-governmental bodies as nuclear private firms with joint capital should be included in the donor reports of such groups of States, when these activities are complementary to the joint activities of these groups. Otherwise, they should be included in the reports of the donor States;

- (c) International bodies active in the nuclear energy field. Should a new international agency be created for non-proliferation, reports have to be submitted to it by the IAEA as a donor international organization. On the other hand should the IAEA be chosen for non-proliferation and another international body be created for nuclear excavations for example, this latter body has to submit donor reports to the IAEA.
13. In all cases it is understood that non-nuclear-weapon States include all such States party or non-party to the non-proliferation system. The definition of non-nuclear-weapon State derived from the joint American and Soviet draft Treaty on the Non-Proliferation of Nuclear Weapons (3) is most acceptable.
19. The international agency to which the donor countries reports will be submitted, will be the same agency that will administer international safeguards for the non-proliferation system. This agency could be either the IAEA or a new international organization.
20. The IAEA is undoubtedly to be preferred for many reasons, among which the following would be pointed out:
- (a) The IAEA is an international organization which since its establishment in 1957 and according to its statutes, is seeking to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity, throughout the world and ensuring so far as it is able that assistance provided by it or at its request or under its supervision and control is not used in such a way as to further any military purpose;
 - (b) The IAEA safeguards system has been developed elaborated and expanded through a long and tedious international dialogue which began with strong differences and was concluded with full international support for the system;
 - (c) The IAEA has gained knowledge and experience in administering safeguards. Thus as of October 1967, its Board of Governors has approved thirty-eight different types of safeguards agreements. The application of IAEA safeguards extends to twenty-five countries and involves sixty-five reactors and another thirty or more locations containing and using nuclear materials. The facilities under IAEA safeguards produce over 300 k lograms of plutonium per year (9);

- (d) The IAEA has become a world-wide organization with membership of about 100 States meeting annually at the General Conference. By taking charge of the non-proliferation safeguards, the IAEA will become the best forum for the continuation of the technical and political dialogue between States, whether they are parties or not to the non-proliferation system, thus accelerating the process of its universal acceptance;
- (e) The large funds that will be needed to create a new international organization would best be utilized by using them for consolidating the IAEA system and solving the various technical and manpower problems raised by the abrupt expansion of the safeguards needs in order to meet non-proliferation requirements.

V. PRESENT INTERNATIONAL PRACTICE USING REPORTS FOR SAFEGUARDS PURPOSES

- 21. Various international safeguards arrangements have been applied so far, as in the case of many bilateral agreements (10) or some multilateral activities (11). In this paper, we shall consider the practice of the IAEA safeguards system, as the example of world-wide system, to which in fact most of the bilateral safeguards agreements have been submitted, as well as some multilateral arrangements such as the safeguards provision in the Treaty for the Denuclearization of Latin America (12).
- 22. The first IAEA system of safeguards was adopted by its Board of Governors in 1961 for research reactors and was extended in 1964 to power reactors. The 1961 document was reviewed and the Agency's safeguards system (4) was adopted in 1965 with full approval of the General Conference. The 1965 document includes general procedures for applying safeguards to nuclear facilities and special procedures for reactors. In 1966, a set of special procedures for applying safeguards to reprocessing plants (4) were adopted. A recent development is the elaboration of provisions for applying IAEA safeguards to conversion plants and fuel-fabrication plants (18). Further, the Board of Governors will, in June 1968, be considering ways and means for applying the system to uranium enrichment plants (9).

23. From the administrative point of view, the IAEA Secretariat is organized in five departments, one of which is the Department of Safeguards and Inspection.
24. The IAEA undertakes the obligation in its safeguards system: (a) to apply safeguards in a manner that is consistent with prudent management practices and avoids hampering a State's economic or technological development and (b) to take every precaution to protect commercial and industrial secrets (4).
25. The main item for the IAEA safeguards system, as for any other such system, is nuclear material, whether fissionable or source material. An exact and up-to-date record of all the nuclear materials, source and fissionable, is required. Thus, the IAEA system (4) is followed with respect to safeguarded nuclear materials, whether they are being produced, processed or used in any principal nuclear facility or are outside such facility. In general, it stipulates that the IAEA should review the design of such facilities only to ensure that effective application of safeguards are permitted. The system further requires that the State, by agreement with the IAEA, must keep up-to-date accounting records of all safeguarded nuclear material and operating records of principal nuclear facilities. It also stipulates that the State should submit periodic reports to the IAEA, in a mutually agreed form, on the production, processing and use of safeguarded nuclear material and the operational history of the nuclear principal facilities. Furthermore, inspection constitutes another major aspect of the IAEA system. The basic purpose of inspection is to verify the compliance of the State with the safeguards agreement. The principal factors determining the relevance of particular safeguards provisions to various types of materials and facilities are the form, scope and amount of assistance supplied, the character of each individual project, and the degree to which such assistance could further any military purpose. Accordingly, the IAEA system allows for the exemption from safeguards in each State of small amounts of nuclear materials not exceeding in total one kgm of fissionable material, ten metric tons of natural uranium and twenty metric tons of thorium.

26. As clear from paragraph 23 above, submission of reports by the recipient State is one of the main aspects of the IAEA safeguards system. In general these reports are of the following types (4):
- (a) Routine reports based on the records referred to in paragraph 25 above and consisting of accounting reports on all safeguarded nuclear material and operating reports on the use of each principal nuclear facility since the last report and the programme of its future work till the next report;
 - (b) Reports on progress of construction of a principal nuclear facility, if stipulated in the agreement;
 - (c) Special reports, if any unusual incident occurs involving actual or potential loss or damage to any safeguarded nuclear material or principal nuclear facility; or if there is a good reason to believe that safeguarded nuclear material is lost or unaccounted for in quantities that exceed the normal losses accepted by the IAEA as characteristic of the facility;
 - (d) Reports on any transfer not requiring advanced notification that will result in a significant change in the quantity of a safeguarded nuclear material in a facility or in a complex of facilities mutually considered as a unit.
27. The frequency of submission of routine reports is agreed upon between the IAEA and the State, taking into account the nature of the facility and the frequency of routine inspections. (4 and 13). Thus:
- (a) For reactors, a minimum of two and a maximum of twelve reports annually;
 - (b) For reprocessing plants, one report for each calendar month;
 - (c) For conversion plants and manufacturing plants, one report each calendar month;
 - (d) For research and development facilities, only accounting reports need be submitted in respect of nuclear material, with minimum one and maximum twelve reports annually;

- (e) For source material in sealed storage, two routine accounting reports per year;
- (f) For safeguarded nuclear material in other location, at least one and maximum twelve routine accounting reports per year.

28. A necessary prerequisite for the application of safeguards is the conclusion of a safeguards agreement (4) between the IAEA and the State, in which the State undertakes not to use safeguarded nuclear facilities or nuclear materials for military purposes and grants the IAEA the legal right to apply safeguards. By signing such agreement, IAEA safeguards become legally binding. Submission of reports by the recipient State thus becomes one of its legal obligations.

VI. DONOR COUNTRIES REPORTS: TECHNICAL ASPECTS

29. In a study, like the present paper, it is neither possible nor useful to go into technical details of reports. The fundamental object is to highlight the main aspects necessary to facilitate a recommendation or decision in principle. Once such a recommendation or decision is adopted, the details and final procedures can be elaborated by a working group to be formed, as appropriate, either by the United Nations Secretariat or by the governing body of the international agency which will administer non-proliferation safeguards. In principle the types, forms and frequency of these donor reports will have to be agreed upon between the international agency and the donor countries, and will depend on the nature and the extent of nuclear technical assistance and fissionable and source material supplied by them to non-nuclear-weapon States for peaceful purposes, and on the extent to which such assistance or materials could be used to further any military purpose. These reports will generally cover all items supplied by donor countries such as those finally determined in the non-proliferation safeguards system as items subject to safeguards in non-nuclear-weapon States. The precision of the donor countries reports is a very important factor and represents a moral and political responsibility of these countries. The precision of the reports of the donor non-nuclear-weapon countries will be verified through the application to these countries of other safeguards procedures such as check of accounting records and inspection. The precision of the reports of nuclear-weapon countries, however, remains a matter of trust and good will, a fact which renders their moral and political responsibility in this respect a major one.

30. The following general types of donor countries reports could be suggested as basis for further discussion and elaboration:

- (a) General initial reports. These would be comprehensive reports including all items pertinent to the non-proliferation safeguards system that have been supplied by each donor country to non-nuclear-weapon States in the past till the date of entry into force of the non-proliferation system or treaty. In case the donor country joins the system at a later date, its initial reports will cover the past up to that date;
- (b) Routine reports. These would be reports on nuclear technical assistance and reports on fissionable or source material supplied by the donor country to non-nuclear-weapon States, after the date at which that country became party to the non-proliferation system or treaty;
- (c) Special reports. These would have to be submitted immediately to the international agency in case fissionable or source material is lost in significant amounts in a State Party to the non-proliferation system, including nuclear-weapon States, or, in case fissionable or source material or equipment for a principal nuclear facility or for a nuclear explosive device for peaceful purposes are lost in the way between their locality of origin in the donor country and that of their final destination in the non-nuclear-weapon State;
- (d) Progress reports. These would be submitted on the progress of assistance or supplies by a donor country for the establishment or improvement of a principal nuclear facility or of a nuclear research and development centre or for the execution of nuclear excavation in a non-nuclear-weapon State, if this is mutually agreed upon with the international agency and requested by the agency;
- (e) Evaluation or amplification reports. The international agency, in its general review and evaluation of the compliance of different States with their obligations towards non-proliferation, may need evaluation reports from donor countries on their different forms of assistance and supplies to non-nuclear-weapon States or may require amplification or clarification of previous donor countries reports.

31. As regards periodic reports on nuclear technical assistance, the following suggestions are proposed as a possible basis for further refinement and development:

- (a) For different kinds of present-day practice in nuclear technical assistance, as mentioned in paragraph 7(a) above, including expert services, relatively small equipment and supplies, visiting professors, fellowships and research fellowships, scientific visits, study tours and assistance in organization of regional training courses or in regional research centres, it is suggested that the donor countries reports should include all such assistance which is given in the fields of fissionable or source materials, principal nuclear facilities or nuclear explosive services for peaceful purposes, or in the fields of research and development related to them. Such reports would be submitted once every year for all such types of assistance and would include, as appropriate, the type of assistance, object, number, duration, location, connexion with other projects, results etc. Any assistance outside the aforementioned fields, such as in the fields of radio-biology, radio-isotope applications in agriculture, medicine and industry, nuclear geology, and other similar fields would be exempted from the donor countries reports;
- (b) For assistance in establishing, operating or improving a principal nuclear facility or a nuclear research and development centre undertaking studies or research on fissionable or source material or on design or development of a principal nuclear facility, donor countries reports would cover, as appropriate, type of assistance, object, location, duration, experts, schedule, changes, results etc. The donor country would notify the international agency whenever it receives any request for such assistance. A report would be submitted immediately after agreement between the parties concerned on the project; a final report immediately after its realization and progress reports if mutually agreed upon and requested by the international agency. Similar assistance to other research and development centres working in other fields such as radio-biology, radio-isotope applications, nuclear geology etc., have to be exempted from donor countries reports;

- (c) With regard to nuclear explosive service for peaceful purposes, periodic reports are necessary; namely, an initial notification to the international agency on the request once received, then one report soon after agreement between the parties followed by a report soon after each nuclear excavation. Progress reports would be submitted if agreed upon with the international agency and requested by it. The notification and the first report would give enough information on the project and the report after excavation would deal with the results. However, the final procedures concerning these reports will be determined in the light of the final international arrangement concerning the rendering of nuclear explosive service to non-nuclear-weapon States for peaceful purposes.
32. As far as fissionable and source materials are concerned, the following approach is suggested, subject to further clarification and amplification:
- (a) Notification by the donor country to the international agency, including a copy of the request of the non-nuclear-weapon State for the supply of fissionable or source material, on receipt of that request;
 - (b) One report to be submitted, immediately after agreement between the parties concerned for the supply of such materials, including all pertinent information such as amount of material, object, facility in which it will be used, location, and all relevant technical specifications, physical and metallurgical forms, chemical purity, isotopic composition, treatment after irradiation etc. A copy of the agreement would preferably be attached to the report;
 - (c) One report to be submitted on delivery of each shipment to a non-nuclear-weapon State, immediately after the receipt of this shipment by that State and including similar information as in paragraph 32 (b) above;
 - (d) One report to be submitted on the receipt by the donor country from a non-nuclear-weapon State of irradiated source or fissionable material, this report should include all necessary information on the material, purpose, irradiation data, amount of fissionable material contained, its isotopic composition etc. Should fissionable material be separated in the donor country from the irradiated material and be delivered back to the non-nuclear-weapon State, a report should be submitted on this delivery as mentioned in paragraph 32 (c) above.

- (e) All fissionable and source materials will be included in the donor countries reports, except for very small amounts needed for fundamental research such as milligram or maximum gram levels of fissionable material, and kilogram levels of source material, which may be exempted per year.

VII. ON THE POLITICAL AND LEGAL ASPECTS OF
DONOR COUNTRIES REPORTS

- 33. The system of donor countries reports involves some political aspects which may be pointed out as follows:
 - (a) While being one of the means to check diversion, this system should by no means lead to any limitation on co-operation between States in the peaceful applications of atomic energy. The peaceful nuclear development of non-nuclear-weapon States had to be enhanced and accelerated under non-proliferation conditions;
 - (b) The appropriate application of this donor report system, through objectivity and precision, should strengthen international confidence in the non-proliferation system, especially that these reports will be mainly the responsibility of advanced States, including in the first place nuclear-weapons States;
 - (c) In applying this report system, due regard should be given to deepening the confidence between donor and recipient States. This necessitates that the content of these reports be limited to data related to non-proliferation;
 - (d) Should there be a divergence between some donor countries reports and the corresponding records in the non-nuclear-weapons States, these States would have the right to comment and explain to the international agency, and the agency would have the right to verify the reasons for the divergence and to know the exact situation.
- 34. On the other hand, the donor countries reports raise some legal aspects, the most important of which is the question of the binding legal obligation for submitting these reports. The different safeguards systems applied so far become legally binding through the signature by the concerned parties of a safeguards agreement in which the recipient State undertakes certain obligations including submission of reports. Reference has been made for example in

paragraph 28 above to the IAEA safeguards agreements and the legal obligation of recipient States included in them to submit reports. In a non-proliferation system, the control provision will be effective through international safeguards applied to non-nuclear-weapon States. However, nothing exists so far in the present international practice that would legally bind donor countries to submit the required reports. A legal solution has to be found for this important question, whatever international agency will be selected to administer the the non-proliferation safeguards.

VIII. DONOR COUNTRIES REPORTS AS RELATED TO INTERNATIONAL SAFEGUARDS

35. Donor countries reports represent an important complementary system, which together with the present practice in international safeguards, constitute a reasonable answer to the requirements of the control provision of a non-proliferation system or treaty. They should be considered in a dynamic way and have to be reviewed from time to time, according to the experience gained and the development of technology, with the purpose of encouraging peaceful applications of atomic energy and consolidating the control system. In general, the donor countries reports would widen the scope of the data available to the international agency on the safeguarded items; such information being obtained from the donor as well as from the recipient and from the nuclear as well as from the non-nuclear-weapon States.
36. Consequently, the donor reports would be a good method to verify that the policies of nuclear-weapon States and donor countries in general in rendering nuclear technical assistance and supplying fissionable material comply with the requirements of non-proliferation.
37. Furthermore, these reports would be an additional method to confirm or check the accounting records of fissionable and source material and, in certain cases, the operational records of nuclear principal facilities in non-nuclear-weapon States, and the corresponding accounting and operational reports submitted by these States. The donor reports, together with the reports submitted by non-nuclear-weapon States on safeguarded items, would constitute more thorough and sound information to the safeguards inspectors in carrying out inspections on items subject to safeguards in these States.

38. The over-all effect of the donor countries reports would be the strengthening of the international non-proliferation safeguards system in all aspects. They would be one of the tools to discover non-compliance with the non-proliferation obligations by any State party to the non-proliferation system and to uncover clandestine military diversion of a non-nuclear-weapon State.

IX. DONOR COUNTRIES REPORTS AND THE DRAFT
NON-PROLIFERATION TREATY

39. A draft Treaty on the Non-Proliferation of Nuclear Weapons (S) was jointly submitted by the United States and the Soviet Union on 18 January 1968, to the Conference of the Eighteen-Nation Committee on Disarmament. In this draft Treaty, the International Atomic Energy Agency is chosen as the responsible Agency to administer non-proliferation safeguards, and the IAEA system of safeguards and of safeguards agreements is also chosen for the purposes of non-proliferation.
40. The obligations of the non-nuclear-weapon States towards non-proliferation are given in article II of the draft Treaty which stipulates that "each non-nuclear-weapon State Party to the Treaty undertakes not to receive the transfer from any transferor whatsoever of nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices directly, or indirectly; not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices; and not to seek or receive any assistance in the manufacture of nuclear weapons or other nuclear explosive devices". Consequently, in article III of the draft Treaty which deals with the control provision, it is stated in paragraph 1 that "each non-nuclear-weapon State Party to the Treaty undertakes to accept safeguards, as set forth in an agreement to be negotiated and concluded with the International Atomic Energy Agency in accordance with the Statute of the International Atomic Energy Agency and the Agency's safeguards system ...". In article III, paragraph 4, it is stated again that "non-nuclear-weapon States Party to the Treaty shall conclude agreements with the International Atomic Energy Agency to meet the requirements of this article either individually or together with other States in accordance with the Statute of the International Atomic Energy Agency ...".

Thus, the control provision is translated into a concrete well-defined arrangement and the non-nuclear-weapon States are legally bound to undertake their obligations, including submission of reports on safeguarded items, once the safeguards agreements come into force.

41. On the other hand, the obligations of nuclear-weapon States towards non-proliferation are given in article I of the draft Treaty which states that "each nuclear-weapon State Party to the Treaty undertakes not to transfer to any recipient whatsoever nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices directly, or indirectly; and not in any way to assist, encourage, or induce any non-nuclear-weapon State to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices, or control over such weapons or explosive devices". In article III, paragraph 2, as a control provision, it is stated that "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". Although this provision does not show the concrete arrangement to verify compliance with these obligations, it could however be the legal background for elaborating such a concrete arrangement, including donor countries reports.
42. It is therefore suggested that, in case the draft Treaty be ratified by the number of States required in article IX, a binding legal arrangement be adopted for the submission of donor countries reports. One of the possible solutions would be the development of the present IAEA safeguards system so as to include donor countries reports. A safeguards document concerning these reports would be elaborated and legally adopted. The report system contained in this document would form part of the safeguards agreements to be signed between the IAEA and the non-nuclear-weapon States. On the other hand, it would constitute the essence of agreements to be concluded between the IAEA and the nuclear-weapon States Party to the Treaty.

X. CONCLUSION

43. Submission of periodic reports by countries to the international agency which will administer non-proliferation safeguards, on nuclear technical assistance and fissionable or source material supplied by them to non-nuclear-weapon States for peaceful purposes, would constitute a new and important tool in consolidating the non-proliferation control system. The undertaking to submit such reports should be legally binding on all donor countries, including nuclear-weapon States. Should the draft Non-Proliferation Treaty be adopted and should the concept of donor countries reports be agreed upon in principle, a solution must be found and adopted to render the submission of these reports a legal undertaking for all donor countries which are parties to the Treaty. This can possibly be done through the development of the IAEA safeguards system so as to include these reports.

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