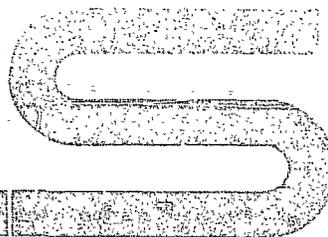


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Safeguards Agreements -
Their Legal and Conceptual Basis

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First Non-Proliferation Concept

The first proposal to control the spread of nuclear weapons was made in the so-called Acheson/Lilienthal Report, of 1945, which was based on the assumption that proliferation of nuclear weapons could be effectively controlled through international supervision of nuclear activities combined with physical control over nuclear material. This thesis was incorporated in the Baruch Plan of the same year, which proposed the establishment of an international atomic development authority, to have managerial responsibility of all potentially dangerous atomic energy activities. The Baruch Plan was primarily a non-proliferation measure rather than an attempt to promote peaceful uses of atomic energy under international safeguards. In order to obtain an assurance against nuclear armament by those States which did not yet have the capability of manufacturing atomic weapons, the international authority should have full control over all nuclear material and not only verify compliance with Treaty obligations, as is the basic concept underlying Agency safeguards. For lack of international consensus, this first scheme to control nuclear proliferation met an early death. ^{1/}

Three Periods

In an attempt to trace the development of international relations, from the point of view of non-proliferation and safeguards, since the Baruch Plan, three main periods may be distinguished:

- (a) The period before the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), from the mid 50's until the NPT concept took hold;
- (b) The NPT period, from the preparatory stages of NPT and including the early 70's; and
- (c) The period from the early 70's up to the present.

These "periods" are used here to identify policy trends, which have gradually evolved and which all run in parallel, to form together what one might take to be the present safeguards and non-proliferation regime. The present safeguards regime - in the sense of the circumstances leading to the application of safeguards, their scope, objective, coverage, duration - is not yet characterized by a homogenous approach but rather the co-existence of safeguards concepts, and consequently agreements, which differ substantially.

The Pre-NPT Period

The "Pre-NPT Period" started when, after the collapse of the Baruch Plan, President Eisenhower formulated his "Atoms for Peace Plan" in

^{1/} One of its aspects, i.e. international control of the reprocessing of irradiated nuclear material, is reflected in Article XII A.5 of the Agency's Statute.

December 1953. International cooperation became possible through the new US Atomic Energy Act and transactions started between the United States on the one hand and a number of States on the other, which pledged themselves to use the American supplies for exclusively peaceful purposes and to accept IAEA safeguards on them. A major event was the Geneva Conference on the Peaceful Uses of Atomic Energy, in 1955. Hitherto, the peaceful applications of nuclear energy had mainly been a "spin-off" of the military. The first Geneva Conference gave an enormous impetus to the exchange of information on civil uses. At the same time concern was felt about the possible use of atomic energy for non-peaceful purposes. Peaceful uses might form the technological basis and provide the nuclear material required for the development of nuclear weapons - a converse spin-off. The primary goal was international exchange of information and supply of material under safeguards and there was as yet no coherent strategy to check the proliferation of nuclear weapons.

The "Atoms for Peace Plan" proposed the creation of an international atomic energy agency for international co-operation in nuclear matters with the aim of promoting the peaceful uses of nuclear energy under international safeguards.

The Statute of the International Atomic Energy Agency which was opened for signature in October 1956 and entered into force on 29 July 1957 reflects that balance between promotional and control aspects. The safeguards provisions of the Statute were the result of compromises reached after long and complicated deliberation. Article II requires the Agency to "ensure, so far as it is able, that assistance provided by it or at its request or under its supervision or control is not used in such a way as to further any military purpose". Membership in the Agency by itself does not entail an obligation to accept safeguards. To that effect a safeguards agreement is required.

Already some States, notably the USA, had started supplying other States with nuclear material, equipment and know-how under co-operation agreements in providing for safeguards to be administered by the supplier State. Subsequently such bilateral agreements began to foresee a role for the Agency in applying safeguards, i.e. bilateral safeguards were transferred to Agency safeguards. ^{2/} In some cases, supplier States right away required the recipient State to request the Agency to apply safeguards under agreements concluded between the latter State and the Agency only. ^{3/} In a few cases also facilities, equipment or material were provided through the Agency with safeguards being attached to the transaction. ^{4/} Thus, in line with the Statute, three categories of safeguards agreements were created:

- (a) Agency project agreements;
- (b) Trilateral "Safeguards Transfer Agreements", under which the Agency assumed the responsibility to apply safeguards in respect of an agreement for co-operation. Later most of the nuclear co-operation agreements provided for immediate submission to Agency safeguards rather than going through the stage of bilateral safeguards;

^{2/} Hence the term "Safeguards Transfer Agreements".

^{3/} In particular, when there was no formal cooperation agreement.

^{4/} These are then "Agency projects" in the meaning of Article XI of the Statute.

- (c) Unilateral submission agreements, by which a State submits part or all of its nuclear activities to safeguards.

Categories (a) and (b) cover the application of safeguards in respect of external supplies and items resulting from or connected with such supplies, such as produced special fissionable material, or facilities making use of supplied items. Category (c) may be concluded independently of external supplies and it is this type of agreement which was then later concluded in connection with NPT and the Treaty on the Prohibition of Nuclear Weapons in Latin America. As all Agency safeguards agreements at that time were triggered by international supplies the scope, coverage, duration of such agreements were essentially determined by the conditions of supply and the understandings reached between the supplier and recipient State.

Before the Agency can apply its safeguards it must conclude with the State or States concerned an agreement for this purpose. The Statute only sets the framework for the safeguards. Safeguards cannot be applied in the territory of a State without its express consent nor can the Agency be obliged to carry out safeguards except on the basis of an agreement to which it is a party.^{5/} Such agreements have to provide for the rights and obligations of the parties and specify also the items to be covered and the safeguards procedures to be applied. In the first safeguards agreement concluded by the Agency, which related to a reactor project in Japan, an attempt was made to spell out the scope of the safeguards to be applied and the procedures to be followed.^{6/} This resulted in an extremely long and complicated document and the Agency's Board of Governors therefore decided for future cases to lay down the principles for the application of safeguards and the procedures to be followed in a general document which could be incorporated by reference into the relevant agreements.

The first such document^{7/} was adopted by the Board on 31 January 1961. It was limited in scope and it became soon clear that a revision was required.

The review of that document took place during 1963 and 1964 and resulted in 1965 in a completely new Safeguards Document, known as The Agency's Safeguards System (1965, as Provisionally Extended in 1966 and 1968).^{8/} This document forms the basis of all the safeguards agreements now in force, other than concluded pursuant to Article III(1) and (4) of NPT. However, this document does not address all aspects of safeguards agreements which had to be developed separately. The document is largely "supply oriented" rather than "territorially oriented" as are the NPT safeguards agreements, which is to say that it deals primarily with safeguards situations arising from the supply of particular items from one State to the other. Under the document nuclear materials are the primary object of safeguards, although a "principal nuclear facility" can also be submitted to Agency safeguards as such. The items to be subject to Agency safeguards are specified in each safeguards agreement; the Safeguards Document only serves as general guidance in this respect.

^{5/} See Paul C. Szasz, The Law and Practices of the International Atomic Energy Agency, IAEA Legal Series No. 7, Vienna 1970, 21.5.1.

^{6/} INFCIRC/3. See also Szasz op-cit., 21.4

^{7/} INFCIRC/26.

^{8/} INFCIRC/66/Rev.2.

In fact, other items have been covered by INFCIRC/66 safeguards agreements, such as equipment, facilities and heavy water, in addition to nuclear material and principal facilities. The mechanism for identifying items subject to safeguards is provided by an "inventory" of items to be subject to the agreement, and the agreement contains procedures for maintaining the "inventory" up to-date, e.g. transfer notifications, reports.

This system of a main document laying down circumstances under which safeguards would be applied together with the principal safeguards procedures themselves, amplified and elaborated by a series of agreements in various categories, has formed the basis for well over sixty safeguards agreements concluded since the mid 60's. Safeguards agreements include also by reference provisions of the Inspectors Document (GC(V)/INF/39, Annex) and of the Agreement on the Privileges and Immunities of the Agency (INFCIRC/9/Rev.2). These agreements present a somewhat confusing picture, especially from the non-proliferation view-point, in light of the continuous evolution, not only in the safeguards procedures but in the concepts and scope of safeguards, that has taken place and continues to take place. Hardly two of them are entirely alike and there is no basic text that can be used as a standard for safeguards transfer agreements⁹ or unilateral submissions.

The Non-Proliferation Treaty

In 1968 the Treaty on the Non-Proliferation of Nuclear Weapons was opened for signature. It entered into force on 5 March 1970, with the ratification by the three depository powers and forty signatory States. Under Article III (1) of NPT each non-nuclear-weapon State party to the Treaty accepts the obligation to conclude an agreement with the IAEA to cover all its peaceful nuclear activities. Another international Treaty, the Treaty for the Prohibition of Nuclear Weapons in Latin America (the "Tlatelolco Treaty") of 14 February 1967 provides also for the application of Agency safeguards to all nuclear activities of the parties. Accordingly, within a relatively short time span, two international Treaties emerged which contained a mandatory verification system. The NPT became the most important external source to determine the scope, objective and procedures of IAEA safeguards. It was from the beginning obvious that the INFCIRC/66 system would not be appropriate as a basis for the safeguards to be applied pursuant to NPT and in 1970 and 1971 a Committee of the Board of Governors therefore drew up a set of recommendations for the content of the relevant safeguards agreement. This was in fact a draft agreement. The text has formed the basis for¹⁰ every safeguards agreement so far concluded pursuant to the NPT.

Exports from NPT Parties

Another crucial part of the NPT is Article III(2) which requires that

⁹ A certain standardization exists, however, for safeguards transfer agreements covering cooperation agreements to which the United States are a party.
¹⁰ INFCIRC/153 (the "Blue Book").

parties do not provide nuclear material to non-nuclear-weapon States not party, without safeguards; furthermore, other material or specialized equipment particularly suitable for nuclear purposes should be provided to non-parties only on condition that the nuclear activities for which such material or equipment is intended must in turn be covered by safeguards. NPT does not contain specific guidance on the implementation of this provision nor on the type of Agency safeguards to be applied in this connection and an understanding among supplier States was obviously required, given the commercial and industrial as well as political considerations involved. Therefore, after work had been completed on the "Blue Book" these States met to lay down a common understanding on the items referred to in Article III(2) and they drew up a list of such items. This "trigger list" was meant as a minimum, with States concerned reserving the right to add items to it. Provisions were also adopted in respect of re-transfer of items to third States. Through such consultations another important external source determining scope and objective of IAEA safeguards in States not party to NPT was established which had a ^{11/}substantial influence on safeguards agreements concluded since that date.

Duration of Safeguards Agreements

INFCIRC/66/Rev.2 does not contain any provisions on the duration of safeguards agreements. In order to ensure the application of safeguards for the life of supplied items, the Board of Governors, in February 1974, decided that the duration of such agreements should be related to the usability of such items. The provisions for termination of agreements should be formulated in such a way that the rights and obligations of the parties would continue with respect to supplied items and special fissionable material produced, processed or used in or in connection with such items, until such time as the Agency had terminated the application of safeguards thereon. This concept - usually referred to by the number of the Board document in which it was set out, as "GOV/1621" - has been incorporated in all safeguards agreements entered into subsequent to the Board's decision. It constituted thus a further important step towards improving the INFCIRC/66 system from the non-proliferation view-point.

Basic Undertaking

A further logical development in the context of Article III(2) of NPT was to specify the exact aim of the safeguards to be applied and, in this connection, the undertaking to be given in the agreement by the State or States concerned. The purpose of Agency safeguards in Article II of the Statute is stated as being to "ensure ... that assistance provided by the Agency or at its request or under its supervision or control is not used in such a way as to further any military purpose". Article III.5 authorizes

^{11/} See INFCIRC/209 and additions.

the Agency to establish and administer safeguards in respect of Agency projects, bilateral or multilateral arrangements or nuclear activities of a State. However, what is important from the non-proliferation view-point is to prevent the spread of nuclear explosive capability, i.e. of nuclear weapons and other nuclear explosive devices. INFCIRC/66/Rev.2 says that a "safeguards agreement" is an agreement " ... which contains an undertaking ... by [the State concerned] not to use certain items in such a way as to further any military purpose and which gives the Agency the right to observe compliance with such undertaking". ^{12/}

Under agreements concluded in connection with Article III(1) and (4) of NPT, safeguards are designed to verify that nuclear material is not diverted to nuclear weapons or other nuclear explosive devices. The question arose whether such an injunction was also subsumed in the standard undertaking given in INFCIRC/66 agreements. This question was of course particularly relevant in respect of the agreements required under Article III(2) of NPT, but also to ensure that all INFCIRC/66 agreements would serve the true non-proliferation purpose. The Board has accordingly adopted the general interpretation that the "no military purposes" concept of the Statute, as embodied in INFCIRC/66, would preclude the use of nuclear material and other items subject to safeguards for any nuclear explosive device, whether as a weapon or for supposedly peaceful explosive ends. All safeguards agreements concluded in the last two years contain an express provision to this effect to make that point clear.

Items under Safeguards

The original agreements concluded under INFCIRC/66 provide that any facility temporarily containing safeguarded nuclear material would be put on the inventory of safeguarded items for the time that such materials were in it. During that time, the nuclear material in that facility would be under safeguards. In recent years, the approach has become prevalent that nuclear material not originally under safeguards but which is produced, processed or used in such a temporarily safeguarded facility, would remain under safeguards also when it has left the facility and any further generations of nuclear material arising therefrom would also be subject to safeguards. It might also be considered whether any facility, that has once contained safeguarded nuclear material should not remain under safeguards so that any further nuclear material produced, used or processed in such a facility would come under safeguards as well. Beside the notion of "pursuit in time", described above under the duration/termination provisions, and the "territorial pursuit" included with exports or re-exports, a third "pursuit" concept is arising, which might be called "pursuit through contact".

^{12/} INFCIRC/66/Rev.2, para. 82.

Full Scope Safeguards

In many States where the Agency applies safeguards under INFCIRC/66 all nuclear activities are de facto under Agency safeguards, although de jure such States are free to undertake their own unsafeguarded nuclear activities by using nuclear material, equipment and facilities from their own resources or obtained from non-NPT Parties. However, a number of non-nuclear-weapon States have developed nuclear programmes which are not covered by Agency safeguards. Concern about such partial application of safeguards was expressed at the 1975 Review Conference of the Parties to the NPT. ^{13/} Although the view has been expressed on many occasions that the application of safeguards to all peaceful nuclear activities in importing States should be a precondition for any nuclear exports to those States this has not yet been put into practice. In 1976 the Agency's Board of Governors requested the Director General to prepare for use by interested States a document setting out the possible content of a safeguards agreement covering all nuclear activities ("Fuel Cycle Safeguards"). The Agency's Secretariat has prepared such a draft, but so far there has been no move to conclude an agreement along these lines. There is not yet a consensus among supplier States that nuclear exports should be made only to States that have submitted all their nuclear activities to safeguards, pursuant to NPT or otherwise.

Technology Transfer and Safeguards

A number of recent safeguards agreements contain the provision that the transfer of specific technological information in a number of so-called "sensitive" areas should trigger safeguards on the fruit of such information. ^{14/} In the approach adopted there, safeguards are to be applied in respect of nuclear facilities and equipment, designed, constructed or operated on the basis of transferred information, and in respect of nuclear material produced, processed or used on the basis of such information. These agreements also provide that any facility or equipment which is based on the same technical principles as contained in transferred technological information will automatically be deemed to have been designed or constructed or be operated on the basis or by the use of such technological information within a specific period (usually 20 years) from the first use of such information.

Whether, or to what extent, technological information provided under the Agency's technical assistance programme through fellowships, scientific visits or experts' services should trigger safeguards, as well as the manner in which this would have to be brought about, is at present under discussion.

Safeguards and Additional Measures

The growing concern about the proliferation of nuclear weapons has recently led a number of supplier States to consider measures which would

^{13/} A proposal was also made that imports should only be made from States party to NPT or which have otherwise accepted "Fuel Cycle Safeguards".

^{14/} See e.g. the Safeguards Agreements between the Agency, France and Pakistan (INFCIRC/239) and the Agency, Brazil and the Federal Republic of Germany (INFCIRC/237).

provide additional assurances against the diversion of nuclear material. Increased awareness that an effective non-proliferation regime requires such additional steps characterizes the present situation. Agency safeguards, by definition, are not designed to prevent the accumulation of strategically important nuclear materials, nor to prevent the acquisition of sensitive technology. The stated objective of safeguards is the timely detection of diversion of significant quantities of nuclear material from peaceful nuclear activities ... and deterrence of such diversion by the risk of early detection. ^{15/} While INFCIRC/66/Rev.2 does not explicitly state the technical objective of safeguards, it is clear that in this context, too, safeguards are designed to detect rather than prevent. Additional means - complementary to the present safeguards system - are therefore sought to prevent non-nuclear-weapon States from stock-piling material suitable for the manufacture of nuclear weapons or of other nuclear explosive devices, as well as to acquire the technical means of producing such material. It has lately become obvious, that several of the most important suppliers are now opposed to the export of hardware and information in some "sensitive" areas of the fuel cycle, such as reprocessing, enrichment, heavy water production, whether or not safeguards would be applied in connection with such supplies. In addition, cooperation agreements provide for substantial rights by the supplier concerning the use and disposition of nuclear material. One such requirement is that any special fissionable material produced from nuclear fuel supplied or produced in supplied facilities should be reprocessed outside the receiving State or only in installations selected by mutual consent. There are also restrictions on re-exports to third States. The Agency's safeguards system is not designed to keep track of the origin of nuclear material or to verify compliance with such additional requirements. Under some INFCIRC/66 Agreements the Agency may assist States in such matters by the submission of periodic inventories, although the situation becomes very complicated as nuclear material may be subject to several safeguards agreements at the same time. Where there are several such agreements, and where subsequent generations of produced special fissionable material is involved, such inventories may be less meaningful and some kind of system of allocating material to one agreement or another would then seem to be called for. Where the recipient State is a Party to the NPT and the only safeguards agreement applied by the Agency is the one connected with that Treaty with the standard provision for a "unified inventory" ^{16/}, covering all nuclear material in the State subject to safeguards, arrangements would have to be made between the States concerned for reporting on use and disposition of supplied items and material derived from them.

Physical Protection

Although not at present part of the international safeguards regime the physical protection of nuclear material and facilities against theft and sabotage can also be regarded as one of the complementary

^{15/} INFCIRC/153, para. 28.

^{16/} INFCIRC/153, para. 41.

measures to reduce the risk of proliferation. Some safeguards measures, such as containment and surveillance may overlap with physical protection measures. The Agency has been involved, so far, only through the preparation of recommendations for use by States. While some recent safeguards agreements refer to the matter, no mandatory international standards have as yet evolved nor is the application of any measures - as may have been agreed between supplier and recipient States - subject to verification by the Agency.

Regional Fuel Cycle Centres

Nuclear material in bulk form, particularly highly enriched uranium and plutonium, is of primary concern in connection with proliferation. Since the manufacture of such nuclear material requires enrichment plants or reprocessing and plutonium fabrication facilities, the studies on the feasibility of "Regional Fuel Cycle Centres", now underway in the Agency, are of special interest as a measure to check the spread of such installations. The establishment of such centres might obviate the need for the construction of smaller - and possibly less economical - facilities in a number of non-nuclear-weapon States and might simplify the application of safeguards. If such plants were run on an international basis, the credibility of safeguards might be enhanced.

International Plutonium Deposit Scheme

The remaining element of the Baruch Plan of 1946 is reflected in the Agency's Statute, Article XII A.5, which gives the Agency the right "to approve the means to be used for the chemical processing of irradiated materials solely to ensure that this ... will not lend itself to diversion of materials for military purposes ... and to require deposit to the Agency of any excess of any special fissionable materials recovered ... over what is needed (for peaceful use under continuous Agency safeguards)". This provision has never been applied and neither INFCIRC/66/Rev.2 nor any of the safeguards agreements so far concluded by the Agency refers to it. The new tendency to require some form of physical constraint on the way recipients can use nuclear material supplied directly or indirectly, has led to studies of an international scheme for the deposit of plutonium which could be an effective measure to prevent the accumulation of large national plutonium stocks, i.e. an effective measure to prevent proliferation. This would mean that the Agency would have to assume the actual physical control of plutonium, in the form of irradiated fuel or, following reprocessing, as the pure element. Criteria would then have to be devised for the release of such special fissionable material from stocks kept by the Agency or under its control, for identified peaceful uses.

Future Developments

The evolution of the concept of safeguards since the Statute Conference was determined by the general attitude of States towards international cooperation in the nuclear energy field. The present stage is characterized

by a growing synthesis between safeguards and complementary measures, in an attempt to prevent effectively proliferation of nuclear weapons. Within the safeguards system one major step towards that end is still possible, full-scope-safeguards in all non-nuclear-weapon States. While technical safeguards procedures may be further refined and made more effective, it is apparent that increased emphasis will have to be put on additional measures outside the present safeguards system of INFCIRC/66/Rev.2 and INFCIRC/153. A comprehensive, definitive non-proliferation regime still has to be set up. An integrated framework is needed of safeguards and complementary measures. Such a framework should provide non-nuclear-weapon States with the assurance of continued supply of material for their peaceful nuclear programme while providing maximum guarantees against the spread of nuclear weapons. To reconcile both aims is necessary as it is difficult.

Note: This paper reflects the personal views of the authors only and not necessarily those of the Agency.

