

IAEA Regional Seminar on the Protocol Additional to Nuclear Safeguards Agreements

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SESSION 7: THE MODEL ADDITIONAL PROTOCOL: A CONTRIBUTION TO GLOBAL NON-PROLIFERATION OBJECTIVES

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INTRODUCTION

Since the end of the cold war a series of events has changed the circumstances and requirements of the safeguards system. The discovery of a clandestine nuclear weapons programme in Iraq, the continuing difficulty in verifying the initial report of the Democratic People's Republic of Korea (DPRK) upon entry into force of their safeguards agreement, and the decision of the South African Government to give up its nuclear weapons programme and join the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) have all played a role in an ambitious effort by International Atomic Energy Agency (IAEA) Member States and the Secretariat to strengthen the safeguards system. A major milestone in this effort was reached in May 1997 when the IAEA Board of Governors approved a Model Protocol Additional to Safeguards Agreements. The Model Additional Protocol was negotiated over a period of less than a year by an open-ended committee of the Board involving some 70 Member States and two regional inspectorates.

The IAEA is now in the process of negotiating additional protocols, State by State, and implementing them. These additional protocols will provide the IAEA with rights of access to information about all activities related to the use of nuclear material in States with comprehensive safeguards agreements (CSAs) and greatly expanded physical access for IAEA inspectors to confirm or verify this information. In conjunction with this, the IAEA is working on the integration of these measures with those provided for in CSAs, with a view to maximising the effectiveness and efficiency within available resources the implementation of safeguards.

An additional protocol, in combination with a State's comprehensive safeguards agreement, will provide as complete a picture as practicable of that State's production and holdings of nuclear source material, the activities for further processing of nuclear material (for both nuclear and non-nuclear application), and of specified elements of the infrastructure that directly support the State's current or planned nuclear fuel cycle. Increased access for inspectors is provided to help assure that undeclared nuclear activities are not concealed within declared nuclear sites or at other locations where nuclear material is present. Inspection mechanisms are also provided for in instances where there appear to be inconsistencies between all information available to the Agency and the declaration made by States regarding the whole of their nuclear programme.

PROVISIONS OF THE MODEL ADDITIONAL PROTOCOL

The text of the Model Additional Protocol consists of a preamble, eighteen articles, and two annexes. The language of the Preamble reflects the backbone of the negotiations: the need for a balance to be struck between, on the one hand, the desire to strengthen the effectiveness and improve the efficiency of the Agency's safeguards system and, on the other hand, the obligation to keep the frequency and intensity of activities to a minimum consistent with this objective.

The relationship between the Model Additional Protocol and the Safeguards Agreement is specified in **Article 1**. The safeguards agreement and the additional protocol are to be read as a single document with, in cases of conflict, the provisions of the additional protocol prevailing.

Articles 2 and 3 of the Model Additional Protocol relate to the "Provision of Information". Article 2 is divided into three parts:

- a. Information required to be provided to the Agency by the State. These elements include information about the following:
 - (i) nuclear fuel cycle-related research development activities not involving nuclear material carried out anywhere that are funded, specifically authorised or controlled by, or carried out on behalf of, the State. The significance of this language is that it requires the State to declare such activities regardless of whether they are carried out within the State or on the territory of another State;
 - (ii) operational activities of safeguards relevance at facilities and locations outside facilities where nuclear material is customarily used (LOFs);
 - (iii) all buildings on the site of each facility and LOF in the State;
 - (iv) key activities listed in Annex I of the Model Additional Protocol. These include activities which, while not necessarily involving the use of nuclear material, are key to nuclear-fuel cycle programmes;
 - (v) uranium mines and concentration plants and thorium concentration plants;
 - (vi) inventories, exports and imports of nuclear material which is not currently required to be declared to the IAEA under INFCIRC/153 (pre-34(c) material);
 - (vii) nuclear material which has been exempted from safeguards (for example, nuclear material exempted for use in a non-nuclear activity);
 - (viii) intermediate or high-level waste containing plutonium, high enriched uranium or ²³³U on which safeguards have been terminated;
 - (ix) specified equipment and non-nuclear material listed in Annex II of the Model Additional Protocol;
 - (x) general plans for the succeeding ten-year period relevant to the development of the nuclear fuel cycle;
- b. Information which the State is required to "make every reasonable effort to provide to the Agency":

- (i) nuclear fuel cycle-related research and development activities not involving nuclear material which are specifically related to enrichment, reprocessing of nuclear fuel or the processing of intermediate or high-level waste containing plutonium, high enriched uranium or ²³³U that are carried out anywhere in the State, but which are not funded, specifically authorised or controlled by, or carried out on behalf of, the State;
 - (ii) activities and the identity of the person or entity carrying out such activities, at locations identified by the Agency outside a site which the Agency considers might be functionally related to the activities of the site; and
- c. Amplifications or clarifications of information provided under Article 2 of the Model Additional Protocol, which States are required to provide upon request by the Agency.

Article 3 sets out the time limits for the provision of the information required under Article 2, including a requirement for an initial declaration of the information called for under Articles 2.a.(i), (iii)-(v), (vi)(a) and (x) and Article 2.b.(I), and annual updates of such information; annual declarations on exports and imports of pre-safeguards nuclear material; quarterly reports on exports of the specified equipment and non-nuclear material identified in Annex II of the Model Additional Protocol; declarations of changes in locations of highly active waste and advance reporting of plans to further process such waste.

Articles 4 through 10 contain the provisions concerning “Complementary Access”, the other cornerstone of the strengthening safeguards measures. Article 4 describes the why and when of complementary access: access may be requested to assure the absence of undeclared nuclear material and activities and to resolve questions relating to the correctness and completeness of the information provided pursuant to Article 2 or to resolve an inconsistency relating to that information. Complementary access may also be requested to the extent necessary for the IAEA to confirm the decommissioned status of a facility or LOF. Advance notice of at least 24 hours is required for complementary access, except for access to any place on a site that is sought in connection with design information verification visits or ad hoc or routine inspections on that site, which may be two hours or, in exceptional circumstances, less than two hours. Article 4 also provides for the State to have an opportunity to clarify and facilitate the resolution of a question or inconsistency before a request for access is granted, unless the Agency considers that delay in access would prejudice the purpose for which the access is sought.

Article 5 obliges a State to provide access to the Agency to any place on a site of a nuclear facility or a LOF, to any location where the State has declared nuclear material to be present (Article 2.a.(v)(iii)), and to any decommissioned facility or LOF. With regard to other locations identified by the State under Article 2.a or 2.b, if the State is unable to provide access to the Agency, the State is required to “make every reasonable effort to satisfy Agency requirements, without delay, through other means”. Article 5 also authorises the Agency to carry out location-specific environmental sampling at any other location in the State specified by the Agency, provided that if the State is unable to provide such access, the State must make “every reasonable effort to satisfy Agency requirements, without delay, at adjacent locations or through other means.”

Article 6 identifies the activities which the Agency is authorised to carry out at the various categories of locations as set forth in Article 5. They include visual observation; collection of environmental samples; utilisation of radiation detection and measurement devices; examination of records, including production and shipping records; the use of seals and other identifying and tamper indicating devices; and, in consultation with the State, other objective measures which are demonstrated to be technically feasible and the use of which has been agreed by the Board of Governors.

Article 7 provides for managed access under the Model Additional Protocol in order to prevent the

dissemination of proliferation sensitive information, to meet safety or physical protection requirements, or to protect proprietary or commercially sensitive information, a concept borrowed from the Convention on the Prohibition of Chemical Weapons. However, as also provided for in Article 7, such arrangements are not to preclude the Agency from conducting activities necessary for the exercise of its rights and obligations.

Article 8 contemplates the possibility of a State offering the Agency access to other locations in the State. It also provides that if a State requests the Agency to conduct verification activities at any other location in the State, the Agency shall, without delay, make every reasonable effort to act upon that request.

Article 9 provides for the use by the Agency of wide-area environmental sampling within the State at such time as the Board of Governors has approved the use of such sampling and the procedural arrangements for its use. As with other new technologies, the implementation of wide-area environmental sampling would require consultations between the Agency and the State.

Article 10 of the Model Additional Protocol requires the Agency to provide the State with statements on the results and conclusions of complementary access, and sets out the time frames within which the Agency is required to do so.

Articles 11 and 12 establish simplified procedures for the designation of inspectors to the State, and require the State, within one month of the receipt of a request therefor, to provide a designated inspector with appropriate multiple entry/exit and/or transit visas, where required. If the State requires a visa, the visa must be valid for at least one year and must be renewed, as required, to cover the duration of the inspector's designation to the State.

Article 13 provides for the conclusion of Subsidiary Arrangements, but does not suspend the implementation of the Protocol pending their conclusion.

Article 14 reflects the need to modernise communications and data transmission systems, acknowledging the Agency's right to protected free communication, including attended and unattended transmission of information. It establishes the right of the Agency to make use of internationally established systems of direct communications, including satellite systems and other forms of telecommunications which are not available for use in the State.

The obligation of the IAEA to protect confidential information is underscored in **Article 15**, which requires Board approval and periodic review of a regime to ensure the effective protection of disclosure of commercial, technological and industrial secrets and other confidential information coming to the Agency's knowledge in the implementation of the Protocol.

Article 16 sets out the procedures for amendment of the technical annexes to the Model Additional Protocol. Any such amendment will take effect four months after adoption by the Board of Governors acting upon the advice of an open-ended working group of experts. Such amendments would thus require no formal revision of the Protocol to become effective.

Article 17 permits the State to elect entry into force of its additional protocol upon signature or upon written notification that its statutory and/or constitutional requirements for entry into force have been met. In accordance with the Vienna Convention on the Law of Treaties, the Model Protocol also contemplates the provisional application of an additional protocol by a State after its signature pending its entry into force.

Article 18 contains the definitions of terms used in the Model Protocol. Annex 1 contains the list of activities referred to in Article 2.a(iv) of the Protocol and Annex 2 includes the list of specified equipment

and non-nuclear material for the reporting of exports and imports according to Article 2.a(ix).

IMPLEMENTATION ISSUES

As of 30 November 2001, 57 States and EURATOM have signed additional protocols, 22 of which have entered into force (Australia, Azerbaijan, Bangladesh, Bulgaria, Canada, Croatia, Ecuador, Holy See, Hungary, Indonesia, Japan, Jordan, Lithuania, Monaco, Mongolia, New Zealand, Norway, Poland, Romania, Slovenia, Turkey and Uzbekistan) and 1 of which (Ghana) provides for provisional application pending ratification. Two other additional protocols have been approved by the Board of Governors, but have not yet been signed (Latvia and Nigeria).¹

Programme 93+2, as the programme for strengthening safeguards was originally called, was developed for States with comprehensive safeguards agreements with the IAEA. However, it was acknowledged early in its development that the implementation of certain of the measures identified thereunder in other States (i.e., the nuclear-weapon States and the INFCIRC/66 States) could improve the effectiveness and efficiency of the safeguards implemented in such States while enhancing the effectiveness of safeguards implementation in comprehensive safeguards agreement States. This so-called “universality” issue was a central feature in the negotiation of the Model Additional Protocol. During the 15 May 1997 meeting of the Board, each of the nuclear-weapon States indicated which of the measures contained in the Model Additional Protocol they were prepared to accept. Both the Board and the open-ended committee of the Board that negotiated the Model Additional Protocol expressed their expectation that adoption of the Model Additional Protocol in comprehensive safeguards agreement States (in its entirety) and in non-comprehensive safeguards States (selected measures) would maintain a certain “parallelism”. Several CSA States indicated that evidence of action toward adoption of the Model Additional Protocol in other States would be necessary to obtain approval of an additional protocol in their own countries.

To date, additional protocols with all of the nuclear-weapon States have been signed and are pending ratification. Cuba has also signed an additional protocol, the first of the INFCIRC/66 States to do so, although the Additional Protocol has not yet entered into force.

Another significant implementation issue relates to the application of the Model Additional Protocol in the large number of States with comprehensive safeguards agreements which include small quantities protocols (these protocols suspend the implementation of most of the operative provisions of Part II of INFCIRC/153-type agreements). While the Model Additional Protocol would also apply to these States, a large educational effort will be required as a basis for their action in this regard.

Since 1997, the IAEA Secretariat implementation of additional protocols has required the development of a whole new infrastructure, including, as further described below:

- the development of guidelines and formats for use by States in the preparation and submission of declarations pursuant to Articles 2 and 3 of the Model Additional Protocol;
- the development of model language for inclusion in Subsidiary Arrangements and model language for required communications to and from States;

¹ See Annex 1 for a Status List as of 30 November 2001

- the development of detailed internal guidelines for complementary access; and
- the development of integrated safeguards.

It was recognised early in the field trial phase of Programme 93+2, and acknowledged at several junctures during Committee 24 negotiations, that it would be necessary to develop specific guidelines defining the additional, largely qualitative information to be provided by States to the Agency under Article 2 of the Model Additional Protocol. Such guidelines are needed by States to help them formulate internal procedures and regulations to ensure that the necessary information, with the appropriate level of detail and timeliness, is available to be conveyed to the Secretariat. For the Secretariat's part, the guidelines are needed to ensure consistency in the declarations from States, both in terms of level of detail and reporting formats. An initial version of the guidelines for the Article 2 declarations was finalized by the Secretariat in August 1997 and distributed to States. This document provides specific guidance for each sub-article including a description of the purpose and use of the information and a definition of reporting format through example. As most of the information sought under Article 2 of the Additional Protocol is new to IAEA safeguards, the "Guidelines" document will be subject to revision on the basis of the experiences of the Agency and of the States. A simplified version of the guidelines for States with Small Quantities Protocols has also been developed, and was issued in April 1999.

The Model Additional Protocol contains provisions regarding Subsidiary Arrangements which differ from those contained in INFCIRC/153. Under the Model Additional Protocol, the conclusion of Subsidiary Arrangements is optional, rather than required, and is based on the needs of the State or of the Agency. The Secretariat has drafted model language for incorporation in Subsidiary Arrangements to cover all the relevant Model Additional Protocol articles in anticipation of the Agency's, a State's, or other parties' needs in this respect.

Guidelines for complementary access have been developed for the internal use of the Secretariat to ensure that complementary access is carried out in an efficient, technically effective, and non-discriminatory manner. As an ongoing matter, requests for complementary access will be selective, depending upon the nature of the facility, the related infrastructure, and the activities involving nuclear material. In addition to the detailed internal guidelines, a summary document will be prepared for distribution to States. The complementary access guidelines are being implemented on a provisional basis and will, as experience in their use is gained, be revised or further developed.

The Department of Safeguards has for many years developed and maintained a set of detailed procedures for the planning, conduct, reporting, and evaluation of inspection activities. This document is updated as new equipment and technical measures are introduced or as other improvements to safeguards implementation are made. Similar procedures will be needed for the technical measures laid down in the Model Additional Protocol. A detailed assessment of the relevant measures has been carried out. Initial emphasis is being given to uniform procedures for dealing with States' Article 2 declarations within the overall framework of information evaluation.

The implementation of strengthened safeguards requires an integrated approach dealing with both efficiency and effectiveness. Evolution of the safeguards implementation criteria which will provide for a full integration of the new measures with elements of the traditional system will take time and experience, however, the ingredients are now in hand for a greatly strengthened and more efficient safeguards system. In this connection, the IAEA Secretariat, with the advice and assistance of the Standing Advisory Group on Safeguards Implementation (SAGSI), a small group of experts from outside the Agency, and Member State Safeguards Support Programmes, are currently engaged in the process of "integrating safeguards". "Integrated safeguards" is defined as the optimum combination of all safeguards measures available to the Agency

under CSAs combined with additional protocols which achieves the maximum effectiveness and efficiency within available resources in implementing safeguards.

The objective of integrated safeguards is to provide credible assurance of the non-diversion of nuclear material from declared activities and of the absence of undeclared nuclear material and activities in each State with a CSA and an additional protocol. This assurance will be based on the Agency's conclusion, derived from the activities it performs, of the non-diversion of declared nuclear material and of the absence of undeclared nuclear material and activities in a State.

Assurance as to the absence of undeclared nuclear material and activities, particularly those related to enrichment and reprocessing, in a State as a whole would permit corresponding reductions in the current level of traditional safeguards verification effort on declared nuclear material, particularly on less sensitive nuclear material. For example, the diversion of declared irradiated fuel and the existence of an undeclared reprocessing plant are both part of the same potential path for the acquisition of weapons-usable nuclear material. Measures to detect either activity contribute to the overall ability of detecting this particular acquisition path. Therefore, the implementation of measures to detect undeclared reprocessing in a State should permit a reduction in the effort expended to detect the diversion of spent fuel.

It is expected that the framework for the implementation of integrated safeguards in all types of nuclear fuel cycles will be largely completed by the end of 2001.

30 November 2001

Annex 1

**Status of the Conclusion of Additional Protocols as of
30 November 2001**

	State	BOG Approval	Signed	In Force
1	Andorra	7-Dec-00	9-Jan-01	
2	Armenia	23-Sep-97	29-Sep-97	
3	Australia	23-Sep-97	23-Sep-97	12-Dec-97
4	Austria ¹	11-Jun-98	22-Sep-98	*
5	Azerbaijan	7-Jun-00	5-Jul-00	29-Nov-00
6	Bangladesh	25-Sep-00	30-Mar-01	30-Mar-01
7	Belgium ¹	11-Jun-98	22-Sep-98	
8	Bulgaria	14-Sep-98	24-Sep-98	10-Oct-00
9	Canada	11-Jun-98	24-Sep-98	8-Sep-00
10	China	25-Nov-98	31-Dec-98	
11	Croatia	14-Sep-98	22-Sep-98	6-Jul-00
12	Costa Rica	29-Nov-01		
13	Cuba	20-Sep-99	15-Oct-99	
14	Cyprus	25-Nov-98	29-Jul-99	
15	Czech Republic	20-Sep-99	28-Sep-99	
16	Denmark ¹	11-Jun-98	22-Sep-98	
17	Ecuador	20-Sep-99	1-Oct-99	24-Oct-01
18	Estonia	21-Mar-00	13-Apr-00	
19	Finland ¹	11-Jun-98	22-Sep-98	*
20	France ¹	11-Jun-98	22-Sep-98	
21	Georgia	23-Sep-97	29-Sep-97	
22	Germany ¹	11-Jun-98	22-Sep-98	*
23	Ghana	11-Jun-98	12-Jun-98	<i>provisional</i>
24	Greece ¹	11-Jun-98	22-Sep-98	*
25	Guatemala	29-Nov-01		
26	Holy See	14-Sep-98	24-Sep-98	24-Sep-98
27	Hungary	25-Nov-98	26-Nov-98	4-Apr-00
28	Indonesia	20-Sep-99	29-Sep-99	29-Sep-99
29	Ireland ¹	11-Jun-98	22-Sep-98	
30	Italy ¹	11-Jun-98	22-Sep-98	
31	Japan	25-Nov-98	4-Dec-98	16-Dec-99
32	Jordan	18-Mar-98	28-Jul-98	28-Jul-98
33	Latvia	7-Dec-00	12-Jul-01	
34	Lithuania	8-Dec-97	11-Mar-98	5-Jul-00
35	Luxembourg ¹	11-Jun-98	22-Sep-98	
36	Monaco	25-Nov-98	30-Sep-99	30-Sep-99
37	Mongolia	11-Sep-01		
38	Namibia	21-Mar-00	22-Mar-00	

39	Netherlands ¹	11-Jun-98	22-Sep-98	*
40	New Zealand	14-Sep-98	24-Sep-98	24-Sep-98
41	Norway	24-Mar-99	29-Sep-99	16-May-00
42	Nigeria	7-Jun-00	20-Sep-01	
43	Panama	29-Nov-01		
44	Peru	10-Dec-99	22-Mar-00	23-Jul-01
45	Philippines	23-Sep-97	30-Sep-97	
46	Poland	23-Sep-97	30-Sep-97	5-May-00
47	Portugal ¹	11-Jun-98	22-Sep-98	*
48	ROK	24-Mar-99	21-Jun-99	
49	Romania	9-Jun-99	11-Jun-99	7-Jul-00
50	Russia	21-Mar-00	22-Mar-00	
51	Slovakia	14-Sep-98	27-Sep-99	
52	Slovenia	25-Nov-98	26-Nov-98	22-Aug-00
53	Spain ¹	11-Jun-98	22-Sep-98	*
54	Sweden ¹	11-Jun-98	22-Sep-98	*
55	Switzerland	7-Jun-00	16-Jun-00	
56	Turkey	7-Jun-00	6-Jul-00	17-Jul-01
57	Ukraine	7-Jun-00	15-Aug-00	
58	UK ¹	11-Jun-98	22-Sep-98	*
59	US	11-Jun-98	12-Jun-98	
60	Uruguay	23-Sep-97	29-Sep-97	
61	Uzbekistan	14-Sep-98	22-Sep-98	21-Dec-98
	Total	61	57	22
	Other Parties	BOG Approval	Signed	In Force
1	Euratom	11-Jun-98	22-Sep-98	
	Total	1	1	0

¹ All 15 EU States have concluded Additional Protocols with EURATOM and the IAEA.

² The Agency has received notification from these States that they have fulfilled their own internal requirements for entry into force. However, as prescribed in the Additional Protocol with the NNWSs of the EU and EURATOM, “the Additional Protocol will enter into force on the date when the Agency receives written notification from the States and EURATOM that their respective requirements for entry into force have been met.