

The IAEA's Role in Promoting Physical Protection of Nuclear Material and Facilities

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I. Introduction

In accordance with various General Conference resolutions the IAEA has, during the last three years, developed a comprehensive programme to promote physical protection of nuclear material, facilities and transports.

The programme comprises, at present, the following projects, some of which have a long-term and continuous character.

1. Formulation of guidelines on adequate levels and measures of physical protection of nuclear material.
2. Assistance to Member States in developing legal instruments for international co-operation, in particular in the negotiation of an international convention on physical protection of nuclear material.
3. Technical assistance on physical protection in the form of experts and fellowships supplied to Member States on their request.
4. Organization of training courses for physical protection personnel.
5. Publication of practical guidebooks on comprehensive physical protection systems for various types of nuclear facilities.
6. Establishment of a bank of information on physical protection of nuclear material and facilities at the Agency's library.

II. National responsibilities and international concerns

The responsibility for the physical protection of nuclear material and facilities, remaining under a State's jurisdiction or control, rests entirely with that State. Normally this responsibility is undertaken as a part of the State's fundamental function of maintenance of public order and security.

It is also true, however, that States may have a legitimate interest in the extent to which such national responsibility is being fulfilled by other States. Deficient physical protection in one State may create dangers for other States since the various acts of nuclear terrorism may have serious international implications. Thus there is a common concern among States that adequate physical protection be assured for nuclear material and facilities wherever they may be exposed to a threat of theft or sabotage.

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As a result of the recognition of a need for international co-operation in this area, the IAEA is being increasingly drawn, by its Member States, into various forms of such co-operation. For example, the General Conference encouraged the Agency's role in this area when in September 1975 [1] it endorsed, inter alia, the Agency's intention to assist Member States in the development of their national systems for physical protection and called upon the Member States and the Director General to consider ways and means of further co-operation in dealing with problems of physical protection [2].

After a series of consultations with the representatives of the Member States, the Director General convened in March 1977 an advisory group on physical protection to which governmental experts from all regions of the world were invited. The advisory group elaborated a set of recommendations on what the contribution of the Agency in the field of physical protection should be. The Agency's Secretariat has been guided by those recommendations in its further activities.

Again, in September 1977, the General Conference commended the Director General for the part the Agency had so far played and urged him to continue efforts, in consultation with Member States, to promote international co-operation in ensuring the adequate physical protection of nuclear facilities and materials and, in particular, to facilitate the development of an international convention as a legal instrument of such co-operation [3].

III. Guidelines for States' policies

The IAEA Secretariat, with the assistance of governmental consultants, began to work out guidelines on physical protection in 1971. As a result of a series of meetings of governmental experts, a set of recommendations was formulated and incorporated in an IAEA document, INFCIRC/225, published in September 1975 under the title "Physical Protection of Nuclear Material" [4].

The recommendations contained in INFCIRC/225 were conceived as flexible guidelines subject to review and updating from time to time. The advisory group which met in March 1977 reviewed this document for the first time and introduced some more precision into the definition of three categories of nuclear material for which different levels and corresponding measures of physical protection were recommended [5]. Further modifications of the text may prove to be desirable in the future in order to take into account changes in the situation and progress in the state of the art of physical protection.

The recommendations formulated in INFCIRC/225 were favourably received and widely recognized by interested Member States as helpful for designing or improving their national systems of physical protection. Some States used them as guidance in the preparation of their national regulations on physical protection.

In the communications [6] addressed to the Director General early in 1978, a group of 16 States agreed inter alia on certain criteria for adequate levels of physical protection as one of the conditions for exporting nuclear material and equipment. In these communications the definition of minimum levels of physical protection and, in particular, the categorization of nuclear material corresponded in terms with the recommendations contained in INFCIRC/225/Rev 1.

IV. Developing international legal instruments

Some obligations regarding the physical protection first began to appear in certain bilateral inter-governmental agreements on co-operation in the peaceful uses of nuclear energy and on provision of specific nuclear equipment and material.

Consequently, special clauses regarding physical protection have been incorporated into some bilateral and trilateral agreements concluded by the States (in particular those being parties to the above mentioned agreements) with the IAEA in order to submit respective nuclear materials and equipment to the Agency's safeguards system. The first in a series of such agreements was the safeguards agreement of 26 February 1976 between the Agency, Brazil and the Federal Republic of Germany which, in Article 19, states: *"Each contracting Government shall keep the Agency informed of the measures it will take to assure the physical protection of nuclear material, nuclear facilities and specified equipment"* [7].

Later, certain safeguards agreements made specific reference to the IAEA recommendations on physical protection. For instance, the agreement of 2 March 1977 between the Agency and Pakistan for the application of safeguards in connection with the supply of uranium concentrate from Niger, Section 16, provides that: *"Pakistan shall take all the measures necessary for physical protection of nuclear material, equipment and facilities subject to this Agreement and shall be guided by the recommendations of the Agency with regard to such measures"* [8].

Other safeguards agreements provide also for consultations with the Agency regarding physical protection. For instance, the agreement of 22 July 1977 between Argentina and the Agency for the application of safeguards in connection with a co-operation agreement between Argentina and Canada, provides in Section 24: *"The Government of the Argentine Republic shall take all the measures necessary for the physical protection of nuclear material, material, equipment and facilities required to be listed in the Inventory and shall be guided by the recommendations of the Agency with regard to such measures. The Government of the Argentine Republic and the Agency shall consult from time to time regarding physical protection. The Government of Canada shall be invited to participate in these consultations"* [9].

The agreement of 10 February 1977 between Canada, Spain and the Agency on the application of safeguards is noteworthy in that it is more specific about the requirements of physical protection. Section 27 of this agreement provides that: *"Each Government shall take all the measures necessary for the physical protection of nuclear material, material, equipment and facilities required to be listed in its Inventory, shall be guided by the recommendations of the Agency with regard to such measures and shall at a minimum meet the levels of physical protection which are set out in Appendix C to this Agreement. The Parties shall consult from time to time regarding physical protection."* The appendix contains the definitions of three categories of nuclear material and a characterization of minimum levels of physical protection closely corresponding to the recommendations formulated in the Agency's document INFCIRC/225 [10].

As can be seen from the above examples, there seems to be emerging a practice [11], and on the part of the Agency, a trend toward inserting into its safeguards agreements special provisions on physical protection directly or indirectly related to the recommendations on this subject established under the Agency's auspices. These provisions are at this moment

rather general and, for the Agency, imply little more than the right to receive information and to be consulted. But, for some time, there has been a growing recognition of the need for the negotiation of a multilateral international agreement on physical protection.

In June 1977 the Director General circulated to all Member States of the Agency the text of a "draft convention on physical protection of nuclear facilities, material and transports", which had been prepared by the United States.

After a series of informal consultations with the representatives of Member States the Director General invited all Member States to a meeting to consider the drafting of a convention and made available the services of the Secretariat for such meeting at the IAEA headquarters in Vienna.

In September 1977, by Resolution GC(XXI)/RES/350, the General Conference endorsed this initiative and called upon all Member States to support the Director General's efforts to facilitate the development of a convention on the physical protection of nuclear material, facilities and transports, suitable for adoption by as many States as possible

The first meeting of governmental representatives to consider drafting of a convention on the physical protection of nuclear material was held from 31 October to 10 November 1977. It was attended by 36 Member States from all parts of the world. Some other States and interested international organizations sent observers.

Soon after the opening of the conference two working groups were set up: one on technical and the other on legal issues. The reports of the working groups, which were adopted by the meeting, showed progress in the resolution of some of the substantive and drafting issues emerging from the original draft convention. The major issue, on which no agreement has so far been reached, was the scope of the convention: namely, whether it should apply only to nuclear material *in international transport or, in addition, whether it should apply to nuclear material while it is in use or stored in national facilities.*

The participants decided to continue the process of negotiating the convention at another session from 10 to 20 April 1978. At this second session further progress was made within the working groups on technical and legal issues as evidenced by agreement reached on the draft texts of several articles and technical annexes. The number of reservations or alternatives to other draft articles was also reduced. However, again there was no agreement on the scope of the convention. At the present stage further progress in negotiating the convention depends on the resolution of this issue and, for this purpose the participants decided to hold a special meeting from 4 to 8 September 1978. The participants also decided to hold another session from 5 to 16 February 1979, at which they hope to agree on a widely acceptable text of the convention.

V. Assistance through experts and fellowships

In a circular letter sent on 7 July 1977 to Member States which were known to possess some practical experience in dealing with physical protection matters, the Director General invited them to support the Agency's technical assistance programme in this field in the following ways:

- (a) to make available experts on various aspects of physical protection who would be sent to assist Member States at their request in the elaboration or improvement of their national physical protection systems or in solving particular problems of physical protection;
- (b) to explore the possibility of offering fellowships for periods of three to six months for purposes of training personnel from Member States in specific physical protection topics;
- (c) to consider receiving scientific visits of personnel from interested Member States for purposes of familiarization with techniques, procedures, equipment and performance of advanced physical protection systems.

A considerable number of governments reacted positively to this enquiry, expressing their readiness to assist in satisfying some or all of the requirements in this area when specific requests were made through the customary channels and within the established framework of the Agency's technical assistance programmes.

A number of requests for assistance on physical protection have already been received by the Agency. It is hoped that the offers of assistance already made and to be expected in the future will make it possible for the Agency to respond to such requests in a satisfactory way.

VI. Training courses

A meeting of consultants was held at the IAEA headquarters in October 1977 in order to develop an outline of the first training course on physical protection which would be designed for personnel from countries being at an early stage in the development of their nuclear power programmes.

The meeting produced a report in which the objectives of the training course were identified. It was recommended that the first course should be mainly orientated toward the staff members of the national authorities responsible for preparing regulations and designing and/or assessing physical protection systems.

It was also recommended that the course should focus on physical protection of nuclear facilities and materials of the type currently used to satisfy practical needs of developing countries, i.e. mainly nuclear power plants fuelled with low enriched or natural uranium. A detailed draft syllabus of the course was included in the report.

Early in 1978 the U.S. Department of Energy proposed that a training course corresponding to the above recommendations should be organized in co-operation with the Agency. The proposal was accepted by the Director General and the necessary details have been set out in an arrangement between the USA and IAEA covering organizational and financial issues.

Thus, the first Interregional Training Course on Physical Protection will be held from 1 to 15 November 1978 at Sandia Laboratories, Albuquerque, New Mexico, USA. Its programme is based on the syllabus worked out by the meeting of IAEA consultants. The course director has been designated by the USA and the scientific adviser by the IAEA. There will be lecturers from the USA and other Member States.

While the course will, in the first place, be open to participants from developing countries which are eligible to receive technical assistance under the UNDP rules, a limited number of candidates may be also accepted from other countries provided that the cost of their participation is born by the nominating Government.

It is hoped that similar training courses on physical protection will be organized in the future on a regular basis by Member States in co-operation with the Agency.

VII. Publication of practical guidebooks

A meeting of consultants was held at the IAEA headquarters in October 1977 to consider the preparation of an IAEA publication which would deal with a comprehensive physical protection system for nuclear power plants, taking into account the threat of various kinds of sabotage. It was indicated by the advisory group earlier that a publication, which would complement the recommendations contained in INFCIRC/225 that focus mainly on protection of special nuclear material against theft, could be of considerable practical use for many countries that are developing their basic nuclear programmes by the construction of a nuclear power plant.

The consultants produced a report in which they recommended that a handbook under the title "Principles of Physical Protection of Nuclear Power Plants" be prepared and published within the IAEA Technical Reports Series. Taking into account that the planned training course will be orientated towards similar objective of assisting the countries developing nuclear energy programmes in training their personnel on physical protection and that both projects should focus on nuclear power plants, the consultants also recommended that the texts of lectures and other relevant materials produced at the course should be included in the handbook and that persons responsible for the direction of the course assume the role of editors. The draft text of the handbook would be then reviewed by a technical committee of experts before its publication. It is expected that the handbook could be published by the IAEA in 1979.

Similar IAEA publications dealing with physical protection of other nuclear facilities or of nuclear transports may be considered in the future.

VIII. Serving as a bank of information

The Agency's Secretariat is establishing an information bank on physical protection of nuclear material and facilities. Its role will be to collect, process and make available to interested Member States unclassified information in the form of books, articles, conference papers and other publications as well as of national regulations on physical protection which Member States are prepared to make available for this purpose. On the invitation of the Director General several Member States have offered their assistance in supplying relevant information.

The Agency's library will be responsible for the functioning of the information bank. It is intended to publish a bulletin of physical protection bibliography including bibliographic data and abstracts of publications addressing problems of physical protection. The library co-operates directly with respective national centres and also uses the resources and facilities of the International Nuclear Information System (INIS).

References

- [1] For previous IAEA activities in this area see articles in the IAEA Bulletin, Vol 17, No 2, April 1975, and Vol.18, No 1, February 1976
- [2] GC(XIX)/RES/328.
- [3] GC(XI)/RES/350
- [4] The General Conference noted with satisfaction this publication in its resolution GC(XIX)/RES/328
- [5] The modified version was published as an INFCIRC/225/Rev 1 in June 1977.

- [6] INFCIRC/254 and 254/Add 1 Communications received from certain Member States regarding guidelines for the export of nuclear material, equipment and technology
- [7] INFCIRC/237, May 1976
- [8] INFCIRC/248, July 1977 See also similar wording of Section 18 of the safeguards agreement between Argentina and the Agency of 22 July 1977, in connection with a contract for co-operation between the Argentine Commission of Atomic Energy and a West German firm in the field of fabrication of fuel elements INFCIRC/250, November 1977
- [9] INFCIRC/251, November 1977
- [10] INFCIRC/247, May 1977
- [11] This practice was, however, not completely uniform safeguards agreements concluded by the Agency with some States during the same period of time did not contain any provisions on physical protection.