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**MEASURES TO STRENGTHEN INTERNATIONAL CO-OPERATION
IN NUCLEAR, RADIATION AND WASTE SAFETY**

**THE ACTION PLAN FOR THE SAFETY OF RADIATION
SOURCES AND THE SECURITY OF RADIOACTIVE MATERIALS**

BACKGROUND

The Dijon Conference

1. The International Conference on the Safety of Radiation Sources and the Security of Radioactive Materials held in Dijon, France, from 14 to 18 September 1998 (the Dijon Conference) was an important international attempt to address the growing concern about the *safety* of radiation sources and the *security* of radioactive materials.¹

General Conference resolution GC(42)/RES/12

2. On 25 September 1998, in resolution GC(42)/RES/12, the General Conference - inter alia - welcomed a Secretariat report on the Dijon Conference, noted with interest the major findings of the Conference and encouraged all governments “*to take steps to ensure the existence within their territories of effective national systems of control for ensuring the safety of radiation sources and the security of radioactive materials*”.

3. In that resolution, the General Conference requested the Secretariat “*to prepare for the consideration of the Board of Governors a report on:*

¹ For the purposes of this document, *safety* means measures intended to minimize the likelihood of accidents with radiation sources and, should such an accident occur, to mitigate its consequences; *security* means measures to prevent unauthorized access to, and loss, theft and unauthorized transfer of, radioactive sources.

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- (i) *how national systems for ensuring the safety of radiation sources and the security of radioactive materials can be operated at a high level of effectiveness and*
- (ii) *whether international undertakings concerned with the effective operation of such systems and attracting broad adherence could be formulated”*.

In addition, it requested the Director General to report to it at its next (1999) regular session on the implementation of that resolution.

Secretariat action pursuant to resolution GC(42)/RES/12

4. Resolution GC(42)/RES/12 was brought to the attention of the Ministries of Foreign Affairs of Member States in a note verbale (J1.01.Circ) dated 1 December 1998, in which the Secretariat recalled that the Agency had established *International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources* (the Basic Safety Standards)² and that it was ready to provide for the application of the Basic Safety Standards at the request of a State to any activity in that State involving radiation sources.

5. On 25 February 1999, the Secretariat submitted to the Board of Governors a report prepared in response to the request made of it by the General Conference.³ In submitting the report to the Board of Governors, the Secretariat stated that it would, taking into account the conclusions and recommendations in and the Board's discussion of the report, draw up an *Action Plan* for responding fully to resolution GC(42)/RES/12.

Action taken by the Board of Governors in March 1999

6. At its March 1999 session, the Board:

- (a) noted the conclusions and recommendations in the report;
- (b) requested the Director General to bring the report to the attention of national authorities by distributing it to all States, encouraging them, in particular, to

² The Basic Safety Standards - jointly sponsored by the Agency, the Food and Agriculture Organization of the United Nations (FAO), the International Labour Organization (ILO), the Nuclear Energy Agency of the Organisation for Economic Co-operation and Development (OECD/NEA), the Pan American Health Organization (PAHO) and the World Health Organization (WHO) - were approved by the Board in September 1994.

³ The report was based on advice from a group of senior experts who had met at the headquarters of the Argentine National Atomic Energy Commission, Buenos Aires, from 7 to 10 December 1998 and at the headquarters of the United States Nuclear Regulatory Commission, Washington D.C., from 27 to 29 January 1999.

- establish or strengthen national systems of control for ensuring the safety and security of radiation sources, particularly legislation and regulations and regulatory authorities empowered to authorize and inspect regulated activities and to enforce the legislation and regulations,
 - provide their regulatory authorities with sufficient resources, including trained personnel, for the enforcement of compliance with relevant requirements,
 - consider installing radiation monitoring systems at airports and seaports, at border crossings and at other locations where radiation sources might appear (such as metal scrap yards and recycling plants), develop adequate search and response strategies, arrange for the training of staff and the provision of equipment to be used in the event that radiation sources were detected, and take similar urgent actions,
- (c) requested the Secretariat to prepare an *Action Plan* that took into account the conclusions and recommendations in and the Board's discussion of the report;
- (d) requested the Director General to initiate exploratory discussions relating to an international undertaking in the area of the safety and security of radiation sources, it being understood that the international undertaking should provide for a clear commitment by and attract the broad adherence of States; and
- (e) authorized the Director General to include the report in the document to be submitted to the General Conference for consideration at its next (1999) regular session.
7. The Board took that action in the light of the following remarks by its Chairman:

"... there had been general support for the conclusions and recommendations in the ... report prepared on the basis of advice from a group of experts. Comments had been made on the individual recommendations - in particular on recommendation (d), concerning the establishment of categorization criteria, recommendation (i), that radiation sources be provided only to States having an adequate infrastructure, and recommendation (k), that monitoring systems be installed at airports and seaports and at border crossings. A suggestion had been made regarding the establishment by the Agency of an international database for use in monitoring transfers of radiation sources. The Secretariat had been urged to be cautious in implementing recommendations (i) and (k), on the grounds that there would be enforcement difficulties.

“As regards the recommendation that exploratory discussions be initiated by the Agency with a view to achieving an effective international undertaking by States in the area of the safety and security of radiation sources, while there had been no opposition to the Director General’s initiating exploratory discussions relating to an international undertaking, some members had thought that to aim for an international convention would be too ambitious at the present time. They had felt that it might be more feasible to aim for other types of instrument - for example, codes of practice/conduct.

“Several members had commented on the proposed action plan. Some members had wanted more information about it (particularly information about its financial implications) and had called for prioritization of the envisaged activities. It had been noted that the action plan would come before the Board before being transmitted to the General Conference.”⁴

Follow-up to the Board’s March 1999 session

8. The Director General distributed the report to the Ministers for Foreign Affairs of all States under cover of a letter (J1-I.03 Circ.) dated 11 May 1999 in which he - inter alia - requested them to transmit it to the relevant national authorities in their countries and invited them to submit their countries’ views regarding the nature and scope of an international undertaking in the area of the safety and security of radiation sources.

9. A proposed *Action Plan* was submitted by the Secretariat to the Board and the General Conference in Attachment 2 to document GOV/1999/46-GC(43)/10 (with a Corrigendum in document GOV/1999/46/Corr.1-GC(43)/10/Corr.1).⁵

Action taken by the Board in September 1999

10. On 20 September 1999, the Board approved the *Action Plan* and requested the Secretariat to implement it.

Action taken by the General Conference in October 1999

11. On 1 October 1999, in resolution GC(43)/RES/10, the General Conference endorsed the Board’s decision and urged the Secretariat to implement the *Action Plan*. The General Conference

⁴ See paras 96-100 of GOV/OR.967.

⁵ The proposed *Action Plan* was based on a draft which the Secretariat prepared with the help of a group of consultants who met in Prague from 25 to 28 May 1999 and was endorsed by a Technical Committee (chaired by Ms. Mary Clark of the United States Environmental Protection Agency and consisting of senior experts from Australia, Canada, China, the Czech Republic, Egypt, Finland, France, Germany, Iceland, India, Israel, Spain, Turkey, Ukraine, the United Kingdom and the United States of America and an observer from the European Commission) which met in Vienna from 12 to 14 July 1999.

requested the Director General to report to it at its forty-fourth (2000) regular session on the implementation of resolution GC(43)/RES/10.

IMPLEMENTATION OF THE *ACTION PLAN*

12. The *Action Plan* covers the following seven areas:

- Regulatory Infrastructures;
- Management of Disused Sources;
- Categorization of Sources;
- Response to Abnormal Events;
- Information Exchange;
- Education and Training; and
- International Undertakings.

It foresees one or more actions in each area. The actions and their status are described in Attachments 1-7 hereto.

13. As indicated in paragraph 9 of document GOV/1999/46-GC(43)/10, the *Action Plan* envisaged certain activities for which no funds had been provided in the Regular Budget for 1999 and the Regular Budget estimates for 2000. The *Action Plan* is being implemented on schedule, however, thanks to the provision - by the United States of America - of extrabudgetary funds for the carrying out of certain tasks in 2000 and of the services of a cost-free expert and to savings achieved during the implementation of Programmes I (“Radiation Safety”), J (“Radioactive Waste Management”) and K (“Co-ordination of Safety Activities”) of Major Programme 3 (“Nuclear, Radiation and Waste Safety”). The Secretariat hopes that further extrabudgetary funds will be provided by Member States in order that the *Action Plan* may be implemented fully and speedily.

SUGGESTED BOARD ACTION

14. It is suggested that the Board:

- (a) encourage Member States to avail themselves of the Secretariat’s services relating to the development and review of regulatory infrastructures, and in particular to make use of the Radiation Safety Regulatory Infrastructure (RSRI) service recently established by the Secretariat (see Attachment 1);
- (b) note the progress made in carrying out the actions related to the “Management of Disused Sources” (see Attachment 2);
- (c) take note of the *Categorization of Radiation Sources* contained in the Annex to Attachment 3,

authorize the Director General to issue the *Categorization of Radiation Sources*,

authorize the Secretariat to use the *Categorization of Radiation Sources* in discharging the Agency's statutory responsibilities with regard to the safety of the radiation sources under its control or supervision (particularly those used in Agency projects), and

invite Member States to draw on the *Categorization of Radiation Sources* as appropriate;

- (d) note the progress made in carrying out the actions related to "Response to Abnormal Events" (see Attachment 4),

invite Member States to make use as appropriate of the technical documents, manuals, training materials and other mechanisms being prepared by the Secretariat in the development of further national response capabilities for dealing with radiological emergencies,

invite Member States to make advance domestic arrangements as appropriate for smooth implementation of the operational arrangements described in the new edition of the Secretariat's Emergency Notification and Assistance Technical Operation Manual (ENATOM) and to ensure that the competent authorities designated by them pursuant to the Convention on Early Notification of a Nuclear Accident and to the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency attend the meeting being convened by the Secretariat in June 2001 for the purpose of considering how to strengthen the Agency's emergency response system and improve those operational arrangements;

- (e) note the progress made in carrying out the actions related to "Information Exchange" (see Attachment 5), and

encourage Member States to arrange to be represented by high-level officials and experts from national authorities concerned with the regulatory control of radiation sources and radioactive materials at the *International Conference of National Regulatory Authorities with competence in the Safety of Radiation Sources and the Security of Radioactive Materials*, due to take place in Buenos Aires from 11 to 15 December 2000, and at the regional workshops being organized by the Secretariat, and to make use as appropriate of the international database on unusual radiation events (RADEV) as soon as it becomes available;

- (f) note the progress made in carrying out the actions related to "Education and Training" (see Attachment 6), and

authorize the Secretariat to continue developing, in a systematic way, syllabuses and training material - and also educational material - for specific target groups and specific uses of radiation sources and radioactive materials and to continue with the activities which it has started in connection with the standardization of the organizational and administrative procedures for educational and training courses held with Agency assistance at national and regional training centres; and

- (g) take note of the report (contained in Attachment 7) of the Chairman of the Open-ended Meeting of Technical and Legal Experts convened by the Secretariat to undertake exploratory discussions on a possible Code of Conduct on the Safety of Radiation Sources and the Security of Radioactive Materials,

take note of the *Code of Conduct on the Safety and Security of Radioactive Sources* which is contained in the Annex to Attachment 7 and request the Director General to circulate it to all States and all relevant international organizations, and

request the Director General to organize consultations on decisions which the Agency's policy-making organs may wish to take, in the light of the report of the Chairman of the Open-ended Meeting, regarding - inter alia - the application and implementation of the *Code of Conduct on the Safety and Security of Radioactive Sources* and to make recommendations thereon to the Board;

- (h) commend this document to the General Conference, inviting it to concur with the actions taken by the Board in respect of the document at its meetings immediately before the Conference's forthcoming session and to encourage Member States to support implementation of the *Action Plan* by providing further extrabudgetary funds in order that the *Action Plan* may be implemented fully and speedily, and

request the Director General to report to it on the further progress in implementing the *Action Plan*.

REGULATORY INFRASTRUCTURES

Action: to establish a service for advising States on the establishment of appropriate regulatory programmes.

Status

In order to assist States - whether or not Member States of the Agency¹ - in ensuring compliance with the relevant requirements concerning regulatory infrastructures in the Basic Safety Standards, the Secretariat has established a Radiation Safety Regulatory Infrastructure (RSRI) service for

- carrying out, at the request of States, assessments of the effectiveness of radiation safety regulatory infrastructures, identifying weaknesses and making recommendations for improvement;
- assisting, at the request of States, with the organization of radiation safety regulatory infrastructures and the associated regulatory programmes and advising on how to operate the programmes and on matters such as the functions of regulatory authorities, the application of international standards, and the drafting of regulations consistent with international standards.

In addition to the Basic Safety Standards, in operating the RSRI service the Secretariat will draw on: the Safety Requirements on “Legal and Governmental Infrastructure for Nuclear, Radiation, Radioactive Waste and Transport Safety”, which is being issued as Safety Standard Series No. GS-R-1; IAEA-TECDOC-1067 entitled “Organization and implementation of a national regulatory infrastructure governing protection against ionizing radiation and the safety of radiation sources”; and IAEA-TECDOC-1113 entitled “Safety assessment plans for authorization and inspection of radiation sources”. A Safety Guide on the organization and operation of a national regulatory infrastructure for radiation safety, a Safety Report on the “peer review” assessment of the effectiveness of regulatory programmes for radiation safety and a Safety Report on

¹ See, in this connection, paras 32-36 of GOV/OR.968 regarding the application of international radiation protection standards in States that are not Member States of the Agency.

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Attachment 1

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strategies and approaches for establishing a regulatory infrastructure for radiation safety are in preparation and will ultimately be used in connection with the RSRI service.

MANAGEMENT OF DISUSED SOURCES

Action: to prepare documents on particular aspects of the handling and disposal of disused radioactive sources.

Status

The Secretariat is preparing three technical documents (IAEA-TECDOCs), one on the management of high-activity disused sources, one on procedures for conditioning and storing long-lived disused sources (e.g. sources containing radium-226 or americium-241 and various neutron-emitting sources) and one on disused sealed source management involving storage/disposal in boreholes.

A draft of the first technical document will be worked on at a meeting of consultants due to take place in October 2000. The technical document will describe the proper handling, conditioning and disposal of sources which are no longer suitable for their initial purpose but still have high activities (e.g. teletherapy and industrial radiography sources); such sources have been the main cause of serious accidents with disused sealed sources.

A draft of the second technical document has been prepared. It describes procedures for managing (conditioning and storing) long-lived disused sources and equipment containing such sources, which require proper management for as long as they are not disposed of - perhaps several decades.

The third technical document will be issued later this year. It summarizes current practices involving the use of boreholes for the storage/disposal of disused sealed sources - a storage/disposal method which, because it is inexpensive, may be an option for many developing Member States.

Owing to the lack of a disposal option in many Member States, now and in the foreseeable future, the conditioning procedures for disused sources with high activities or with long half-lives need to meet stringent requirements for a long time (e.g. 40-50 years). These technical documents will provide management approaches, describe suitable technical procedures and give examples of appropriate current practices.

Action: to organize consultations and workshops on technical, commercial, legal and regulatory aspects of the return of disused sources to manufacturers and on the management of disused sources with long-lived radionuclides and of equipment containing such sources.

Status

The Secretariat has initiated informal consultations with major source manufacturers about various aspects of the return of disused sources to manufacturers. All the manufacturers contacted so far have expressed a willingness to attend meetings organized by the Secretariat with a view to elaborating various return options and subsequently developing a strategy.

The Secretariat intends to convene a Technical Committee meeting to consider possible strategies for the return of disused sources in order that the radioactive materials in them may be recycled (i.e. used in the manufacture of new sources). It hopes that the meeting will be attended by representatives of all major source manufacturers, of a substantial number of Member States and of international organizations such as the Commission of the European Communities, the Nuclear Energy Agency of the Organisation for Economic Co-operation and Development and the Pan American Health Organization.

The Secretariat intends, following the meeting, to produce a first draft of a strategy to be sent to all meeting participants for comment. Subsequently, the Secretariat will, if necessary, convene a second meeting to finalize the strategy, whose successful implementation would help to reduce radioactive waste generation in Member States.

The Secretariat is planning workshops for the purpose of developing a strategy for the conditioning and storage of long-lived disused sources and equipment containing such sources, to be held on the basis of - inter alia - the final version of the above-mentioned draft technical document on that topic.

CATEGORIZATION OF SOURCES

Action: to prepare a document on the categorization of sources on the basis of the associated potential exposures and radioactive contamination.

Status

A Technical Committee has endorsed the *Categorization of Radiation Sources* contained in the Annex to this Attachment, which is based on a draft prepared by a group of senior experts.¹

The categorization is based on the following five attribute groupings:

- Radiological Properties
- Form of Material
- Practice or Activity
- Exposure Scenarios
- End of Life Considerations

Sources are ranked according to the harm they could cause, so that the controls to be applied will be commensurate with the radiological risks which the sources (and the materials contained in them) present. The resulting categories are:

- Category 1 (higher risk): industrial radiography sources, teletherapy sources, irradiators;
- Category 2 (medium risk): brachytherapy sources (with both high and low dose rates), fixed industrial gauges with high-activity sources, well logging sources;
- Category 3 (lower risk): fixed industrial gauges with lower-activity sources.

¹ The Technical Committee consisted of representatives of Bulgaria, China, the Czech Republic, Finland, France, Germany, India, Israel, Slovakia, Sweden, Turkey, Ukraine, the United Arab Emirates, the United Kingdom and the United States of America; the senior experts were from Argentina, France, the United Kingdom, the United States of America and the International Organization for Standardization.

This general categorization provides an indication of the priority which a regulatory authority should assign when establishing a regulatory infrastructure and trying to bring sources under regulatory control. Also, it would be relevant to decisions regarding: notification and authorization of use (by registration or licensing); security requirements during manufacture, transport, storage, use, transfer, repair, decommissioning or disposal; and emergency preparedness. It is designed to serve as guidance for all regulatory authorities, and will be used by the Secretariat in discharging the Agency's functions and responsibilities with regard to the safety of the radiation sources and the security of the radioactive materials which are under its control or supervision.

RESPONSE TO ABNORMAL EVENTS

Action: to prepare guidance on national strategies and programmes for the detection and location of orphan sources and their subsequent management.

Status

The Secretariat, with the help of consultants, has carried out a systematic review of the overall nature of the orphan source problem and identified areas in a model national strategy for the detection and location of orphan sources that need special attention and further development.

From the review it was concluded that sources get out of control mainly through:

- (a) loss during use or (in the case of mobile sources) in transit,
- (b) being abandoned or their control being relinquished,
- (c) theft for scrap or illicit trafficking (particularly when sources are inadequately stored).

It was recognized that there may also be a “historical legacy” - no control systems in place when the sources were used. Locations with a possible “historical legacy” include hospitals and industrial and military sites.

Whether control has been lost or did not exist in the first place, the consequences are that sources may cross borders, be mixed with scrap metal, or be sent to a landfill site or incinerator for disposal. National strategies therefore need to include the following elements:

- (a) actions to bring sources that are in a vulnerable state (for example, in inadequate storage) under firm control,
- (b) programmes for investigating sites where the presence of abandoned sources is suspected,
- (c) detection systems at border crossings, scrap yards, and landfill sites or incinerators,

- (d) intelligence gathering (for cases of illicit trafficking),
- (e) arrangements for responding to abnormal events which do not necessarily constitute emergencies (for example, the finding of a source).

Some of these elements will have substantial resource implications, and priorities will therefore have to be assigned.

These elements are to be considered in a technical document (IAEA-TECDOC) which will define a model national strategy and is expected to be finalized towards the end of 2001.

In the light of a number of very serious radiation accidents resulting from the inadequate storage of sources, the Secretariat is also preparing a leaflet containing guidance on the action which should be taken when sources are inadequately stored. The leaflet will be ready for distribution to States before the end of this year.

Various draft documents which touch on the question of national strategies for dealing with orphan sources - documents on regulatory infrastructure, emergency preparedness and response, and combating illicit trafficking in radioactive materials - will be reviewed in order to ensure that the issues covered by them are dealt with in a harmonized manner.

Action: to formulate criteria for the development, selection and use of detection and monitoring equipment at border crossings, ports of entry, ports of exit, and scrap yards and other facilities.

Status

The Secretariat, with the help of consultants, has begun formulating criteria for the development, selection and use of radiation detection and monitoring equipment intended for use at border crossings, ports of entry, ports of exit, scrap yards and other facilities. Priority is being given to the detection of sources belonging to Category 1 as defined in the *Categorization of Radiation Sources* contained in the Annex to Attachment 3 to this document. A group of consultants will meet before the end of this year in order to continue the work on the formulation of the criteria.

Action: to develop further national response capabilities for dealing with radiological emergencies.

Status

Technical documents and manuals

In November 1999, a Technical Committee convened by the Secretariat reviewed IAEA-TECDOC-953, "Methods for the development of emergency response preparedness for nuclear or radiological accidents", in the light of experience gained since its publication in 1997.¹ The Secretariat is preparing - for publication later this year - a revised edition which will cover also the detection and location of orphan sources and their subsequent management.

The Secretariat is finalizing a technical document on "Generic procedures for assessment and response during a radiological emergency". The technical document, which is in the form of a manual for emergency managers, first responders, on-scene controllers and radiological assessors, should be helpful to States in developing radiological emergency response systems and training personnel to respond effectively to radiological emergencies.

Since radiological emergencies are sometimes recognized as such only after the appearance of medical symptoms, and delays in responding can lead to unnecessary exposure and even death, it is essential that medical professionals presented with symptoms of radiation exposure be able to identify them as symptoms of radiation-related pathological conditions and recognize that they may result from a radiological emergency which requires an appropriate response. Consequently, the Secretariat has designed a leaflet on "How to Recognize and Initially Respond to an Accidental Radiation Injury" for general practitioners and for medical school students and their instructors. The leaflet (in Arabic, Chinese, English, French, Russian and Spanish) will be made available via the public web-sites of the Agency and the World Health Organization.

The Secretariat intends - after consultations with the World Health Organization - to start work later this year on the development of a practical emergency response manual designed to help medical doctors and paramedics deal with radiation injuries.

¹ IAEA-TECDOC-953 was published in English, Russian and Spanish. Other documents published in recent years for the purpose of helping States to strengthen their nuclear or radiological emergency response capabilities include: IAEA-TECDOC-1092, "Generic procedures for monitoring in a nuclear or radiological emergency" (1999, currently being translated into Russian); Safety Reports Series No. 2, "Diagnosis and treatment of radiation injuries" (1998); and Safety Reports Series No. 4, "Planning the medical response to radiological accidents" (1998).

Training materials (see also Attachment 6)

In support of its “train the trainers” approach to assisting with the development of national response capabilities, the Secretariat is continuing to develop standardized training materials matching the various technical documents on emergency planning, preparedness and response which have been or are to be published. The materials are to be produced in a number of languages in order to facilitate their wide use in Agency technical co-operation projects. The Secretariat’s ultimate goal is to publish all the training materials in hard-copy form; meanwhile, the already existing training materials are being made available to identified “trainers” in Member States on CD-ROM. The Secretariat has prepared a CD-ROM containing material for an “Awareness Training Course for Customs and Police Investigators on Combating Nuclear Smuggling”.

Development of national and regional response capabilities

In order to increase awareness of the need to strengthen capabilities for responding to radiological emergencies in Member States, the Secretariat has held regional workshops - in connection with ongoing and planned technical co-operation projects - in Europe, Latin America and the East Asia and Pacific region.

Towards the end of 1999, shortly before the Panama Canal was placed under the jurisdiction of Panama, the Secretariat held a national workshop, in Panama City, on how to respond to radiological emergencies, including such emergencies in the Panama Canal Zone. The workshop provided an opportunity to assess the value of various documents and training materials being developed within the Secretariat.

The Secretariat is designing a model of a two-week workshop on radiological emergency management, including assessment, response and preparedness. This workshop will be tested in Europe later this year and in other regions in 2001. Also, the Secretariat plans to conduct workshops on the medical response to radiological emergencies in Europe and Latin America in 2001.

Action: to strengthen the Agency’s existing capabilities for the provision of assistance in emergency situations.

Status

The Secretariat has updated its Emergency Notification and Assistance Technical Operation Manual (ENATOM), which provides guidelines to Member States, parties to the Convention on Early Notification of a Nuclear Accident (the Early Notification Convention) and the Convention on Assistance in the Case of a Nuclear Accident or

Radiological Emergency (the Assistance Convention), relevant international organizations, and other States in order that they may adopt or develop suitable mechanisms for interfacing with the Agency within the framework of those conventions.

ENATOM was first issued in January 1989, and Member States, parties to the Early Notification Convention and the Assistance Convention, relevant international organizations, and other States have regularly received notices regarding amendments. However, factors such as technological developments, new operational concepts (for example, the concept of reporting emergency-related information even when there is no obligation under the Early Notification Convention to do so) and changes in States' expectations ultimately necessitated a complete revision, which resulted in the new edition.

The Secretariat intends to monitor the use made of the new edition of ENATOM, which is due to become "operational" in December of this year, with a view to issuing a further updated version in July 2002. Interim changes to the new edition will, if necessary, be made through the transmission of amendment notices to ENATOM holders. For the purpose of considering how to strengthen the Agency's emergency response system and improve the operational arrangements described in the new edition of ENATOM, the Secretariat is convening in June 2001 a meeting of competent authorities designated by Member States pursuant to the Early Notification Convention and the Assistance Convention.

The new edition of ENATOM will be made available to Member States, parties to the Early Notification Convention and the Assistance Convention, relevant international organizations, and other States in the near future.

The Secretariat has participated - through the Inter-Agency Committee on the Response to Nuclear Accidents, which it convenes - in the development of a "Joint Radiation Emergency Management Plan of the International Organizations" describing and clarifying - inter alia - arrangements for the provision of medical assistance, through the World Health Organization, and humanitarian assistance, through the United Nations Office for the Co-ordination of Humanitarian Affairs (OCHA). Copies of the Plan are to be made available to all Member States of the Agency in due course.

In order to facilitate the provision of prompt assistance by parties to the Assistance Convention, the Secretariat is establishing an Emergency Response Network (ERNET) consisting of suitably qualified emergency response teams based in various Member States and drawing on regional emergency response capabilities. These teams will be available to assist the Agency in providing rapid and effective response following a request for assistance during a radiological emergency.

The Secretariat is reviewing and, where necessary, updating its in-house procedures for the procurement of drugs and the provision of biodosimetry and radiometric services necessary in radiological emergencies, for the technical assessment of emergency situations and for the rapid deployment of emergency response teams.

The Agency's Emergency Response Centre recently received, from the United States of America, a donation of mobile radiospectrometry equipment which, when installed in land vehicles or helicopters, can be used in carrying out wide-area surveys for the purpose of locating radiation anomalies due to - for example - the presence of unshielded orphan sources. A number of staff members have already been trained to use the equipment, and there are plans to establish a standardized in-house training programme. The equipment will increase the ability of the Secretariat to assist Member States.

In addition, the Agency's Emergency Response Centre has been assisted by France's Commissariat à l'Energie Atomique, which has provided technology and expertise for the location of orphan sources through aerial surveys.

INFORMATION EXCHANGE

Action: to organize an *International Conference on the Control by National Authorities of Radiation Sources and Radioactive Materials* and regional workshops on specific topical issues.

Status

International Conference

The Secretariat is organizing an *International Conference of National Regulatory Authorities with competence in the Safety of Radiation Sources and the Security of Radioactive Materials*, which will be hosted by the Government of Argentina and take place in Buenos Aires from 11 to 15 December 2000.

The main aim of the Conference is to provide a forum for an exchange of information and experience regarding the development of regulatory systems for ensuring the safety of radiation sources and the security of radioactive materials.

The Conference is directed at a broad spectrum of high-level officials and experts from national authorities concerned with the regulatory control of radiation sources and radioactive materials. It may also be of interest to senior policy- and decision-makers of other national bodies and to representatives of private sector institutions which use radiation sources and radioactive materials. The intention is to provide participants with an opportunity to present information on the situation in their respective countries regarding the regulatory control of radiation sources and radioactive materials and to discuss how, if necessary, the situation might be improved.

The Announcement of the Conference, with a detailed description of its objectives and format, was sent to Member States early in May 2000. Copies of the Announcement will be made available to Member States' delegations on request.

Regional workshops

The Secretariat is organizing six regional workshops on the safety and security of radiation sources and radioactive materials. These workshops will be for users and manufacturers of radiation sources and for regulators. They will be open to participants from Member States of the Agency and from non-Member States. They are being financed partly from an extrabudgetary contribution made by the United States of America.

The participants will be encouraged to exchange information about problems encountered by them and about successes in dealing with such problems. A major topic will be the use to be made of the *Categorization of Radiation Sources* contained in the Annex to Attachment 3 to this document.

The workshops are to be held between November 2000 and June 2001.

Action: to develop an international database on missing and found orphan sources or to modify an existing database so as to include such sources.

Status

A Technical Committee convened by the Secretariat has concluded that the most efficient mechanism whereby the Secretariat might receive information on missing and found orphan sources and make it available to Member States is the 24-hour reporting system established pursuant to the Convention on the Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency and described in ENATOM. The Technical Committee has worked out a configuration for an international database, procedures for the reporting of data and rules regarding access to and the security of data and has designed a reporting form.

The Technical Committee considers that only sources belonging to the two most hazardous categories of the three-category *Categorization of Radiation Sources* need to be covered by the database.

A reporting exercise, with a small number of participants, is to be carried out before the end of this year.

Action: to fully develop and maintain the international database on unusual radiation events (RADEV) and make it available to Member States.

Status

The Secretariat is at present carrying out in-house tests of RADEV. Later this year, the Secretariat will carry out an international trial in co-operation with a number of other organizations. If the results are satisfactory, RADEV will be made available for use by Member States in 2001.

Note

The Secretariat collects information about radiological accidents and disseminates it to Member States using several mechanisms, of which RADEV is just one.

Some of the unusual radiation events covered by RADEV may well have been radiological emergencies calling for rapid information exchange or rapid assistance, pursuant to the Convention on the Early Notification of a Nuclear Accident or the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, through the arrangements described in ENATOM.

RADEV will include summaries of reports giving the results of detailed reviews of the causes and consequences of serious radiological accidents and the lessons learned. Such reports are prepared by the Secretariat with the agreement of the States where the accidents occurred. The first such report covered the serious radiological accident that occurred in 1987 in Goiânia, Brazil. So far, the Agency has published eight such reports; five more are to be published in the near future. In addition, three reports on lessons learned from accidents which have occurred with industrial radiography sources, with industrial irradiators and in radiotherapy have been published.

The publication of such reports can take a long time (up to several years), owing to the lengthy procedures involved in collecting and analysing data and obtaining the permission of States to publish and, above all, to the need to wait and see how the medical condition of the accident victims develops. The Secretariat is therefore introducing a system for making available within a relatively short time the lessons learned from serious radiological accidents resulting, in particular, from the loss or the absence of control over radiation sources. The long-term follow-up of accident victims will be handled separately in collaboration with WHO.

Action: to develop a repository of information on the characteristics of sources and of devices containing sources, including transport containers, and to disseminate the information, with consideration of the advisability of dissemination through the Internet.

Status

The Secretariat, using extrabudgetary funds, started work already in January 1999 on developing an information base to be used in support of the management of disused sealed sources. In February 2000, it presented the results of its preliminary work to a

group of consultants, who suggested how the structure of the information base might be improved and how data might best be collected from Member States. In May 2000, the Secretariat sent to all Member States a questionnaire inviting them to provide relevant information.

The Secretariat's aim is to produce a catalogue which contains information on radiation sources and on devices containing such sources, including guides to facilitate the identification of sources and devices on the basis of radioactive characteristics and to facilitate visual identification on the basis of outward appearance (e.g. shape, size and labels).

Completion of the software design phase and of the inputting of available data is tentatively scheduled for the end of March 2001.

EDUCATION AND TRAINING

Action: to intensify post-graduate educational course activities in accordance with General Conference resolution GC(XXXVI)/RES/584 on “*Education and training in radiation protection and nuclear safety*”¹ and to develop, in a systematic way, syllabuses and training material for specific target groups and specific uses of radiation sources and radioactive materials.

Status

The Secretariat has, in the light of the Basic Safety Standards and of a number of other safety standards developed within the Agency framework, updated the “Standard Syllabus of Post-Graduate Educational Courses in Radiation Protection” (published by the Agency in 1995 in Arabic, Chinese, English, French, Russian and Spanish under the symbol IAEA-SYL-01). The updated standard syllabus, with the title “Standard Syllabus of Post-Graduate Educational Courses in Radiation Protection and the Safety of Radiation Sources”, will be published (in the six aforementioned languages) early in 2001.

The Secretariat - which has organized post-graduate educational courses in Arabic (in the Syrian Arab Republic), English (in Germany, India and South Africa), French (in France and Morocco), Russian (in the Russian Federation) and Spanish (in Argentina) - is planning to increase the frequency of the courses held in those languages and to organize courses also in Chinese.

The Secretariat is drawing upon the standard syllabus to design shorter training events (national and regional courses and workshops) on specialized topics such as the establishment of regulatory frameworks, occupational exposure control, medical

¹ In 1992, in resolution GC(XXXVI)/RES/584, the General Conference stressed the special importance of the educational courses referred to in document GC(XXXVI)/1016 and urged the Secretariat “to arrange for such courses to be conducted in appropriate official languages of the Agency”. In document GC(XXVI)/1016, which contained a proposal for education and training in radiation protection and nuclear safety, the Secretariat had stated that one of the targets for post-graduate educational courses would be young professionals needing to acquire a sound basis in radiation protection and nuclear safety in order to become trainers in their home countries and that the target audience for training courses would generally include people with broad expertise in radiation protection and nuclear safety who require specialized training in particular areas and professionals and technicians who need to master specific techniques or to upgrade specific skills. The Secretariat is of the view, reflected in document GC(XXXVI)/1016, that training should be specialized and, ideally, be provided only to persons who have attended a post-graduate educational course.

exposure control, public exposure control, radioactive waste management, radioactive materials transport, and radiation emergency preparedness and response. Last year, over 40 such training events were organized, mainly within the framework of the Model Projects on upgrading radiation protection infrastructure.

To assist Member States in running national and regional training courses, the Secretariat is developing a set of practice/task-specific modules (with - inter alia - syllabuses, lecture notes, guidance for lecturers, visual presentations, suggestions for practical exercises, and sample test questions). The modules are intended primarily for use on a “train-the-trainer” basis. The Secretariat intends to make the modules available to Member States for use by instructors who have attended an Agency post-graduate educational course. The training modules relating to “Basic Concepts of Radiation Protection and the Safety of Sources”, “Industrial Radiography” and “Diagnostic X-rays” are nearing completion.

As a complement to educational courses and training events, the Secretariat is developing distance-learning material and a mechanism for computer-item-based training through the Internet.

The Secretariat is preparing standardized training material for all training in radiation protection and will make it available to relevant organizations in Member States, to lecturers and to participants in training events. Also, it is standardizing the procedures for the organization of training events.

The Secretariat has drafted a manual on “*Training in Radiation Protection and the Safe Use of Radiation Sources*” which provides guidance on how to organize training events and how to comply with the training requirements of the Basic Safety Standards. It has also drafted a Safety Guide entitled “*Building Competence in Radiation Protection and the Safe Use of Radiation Sources*” which deals with - inter alia - education and training requirements.

Action: to strengthen, within existing resources, the role of regional training centres and to facilitate co-operation between such centres, on one hand, and national and regional authorities and professional bodies, on the other, with a view to encouraging the harmonization of training for protection against ionizing radiation, the safety of radiation sources and the application of the Basic Safety Standards.²

² The first **Action** under **Education and Training** was in the Action Plan as approved by the Board. This second **Action** has been added pursuant to paragraph 9 of General Conference resolution GC(43)/RES/13, in which the Conference requested the Secretariat “to strengthen, within existing resources, the role of regional training centres and to facilitate co-operation between such centres, on one hand, and national and regional authorities and professional bodies, on the other, with a view to encouraging the

Status

The Secretariat is standardizing the organizational and administrative procedures for educational and training courses held with Agency assistance at regional and national training centres. Following a meeting early this year of representatives of regional training centres, the Secretariat has started

- to prepare standardized training material (to be made available in Arabic, Chinese, English, French, Russian and Spanish);
- to prepare a long-term programme for training at regional training centres;
- to identify further institutions which might serve as regional training centres;
- to identify institutions in Member States with very extensive experience of providing education and training in radiation protection which might collaborate with regional training centres; and
- to establish a network of regional training centres and collaborating institutions which would assist the Secretariat in the preparation of standardized training material and/or the organization of post-graduate educational courses and specialized training events.

INTERNATIONAL UNDERTAKINGS

Action: to initiate a meeting of technical and legal experts for exploratory discussions relating to an international undertaking in the area of the safety of radiation sources and the security of radioactive materials.

Status

The Secretariat convened an Open-ended Meeting of Technical and Legal Experts to undertake exploratory discussions on a possible Code of Conduct on the Safety of Radiation Sources and the Security of Radioactive Materials which took place on 6 to 10 March 2000. A first draft Code of Conduct was produced at the meeting, which was chaired by Mr. S. McIntosh of Australia and attended by representatives of 16 Member States (Argentina, Australia, Austria, Canada, Cuba, Egypt, Finland, France, Germany, Greece, India, the Republic of Korea, the Russian Federation, Slovakia, Sweden and the United States of America) and observers from the Commission of the European Communities (CEC), the Nuclear Energy Agency of the Organisation for Economic Co-operation and Development (NEA/OECD) and the Pan American Health Organization.

A second Open-ended Meeting of Technical and Legal Experts, chaired once more by Mr. S. McIntosh of Australia, took place from 10 to 14 July 2000. The report of the Chairman of the meeting is reproduced below:

- 1. The second Open-ended Meeting of Technical and Legal Experts to undertake exploratory discussions on a possible Code of Conduct on the Safety of Radiation Sources and the Security of Radioactive Materials took place from 10 to 14 July 2000 at the IAEA Headquarters in Vienna under the chairmanship of Mr. S. McIntosh (Australia). The meeting was attended by representatives from 15 Member States (Argentina, Australia, Canada, China, Finland, France, Germany, India, Japan, the Russian Federation, Saudi Arabia, Slovakia, Sweden, the United Kingdom and the United States of America) and observers from the CEC and NEA/OECD. The meeting was opened by Mr Z. Domaratzki, DDG-NS, followed by introductory remarks by Mr A. González, DIR-NSRW.*
- 2. During the course of the discussions, a number of proposals were tabled and incorporated in the new draft text. These related in particular to*

considerations of safety and security at the end of use of a radioactive source, what should be considered in regulations, how regulatory requirements should be implemented by the regulatory body and how to best disseminate the requirements of the Code. The Group noted that, according to the definition of “regulatory body”, such a body need not necessarily possess the legal authority to grant authorizations.

3. *As to the scope, the Group agreed that the Code should apply to radioactive sources defined as “radioactive material that is permanently sealed in a capsule or closely bonded and in a solid form, excluding material within the nuclear fuel cycles of research and power reactors”, including “radioactive material released if the source is leaking or broken”. While recognising that radiation generators have caused a certain number of accidents, the Group also recognised that most of the accidents with serious consequences were caused by radioactive sources. It therefore felt that the Code should focus on radioactive sources.*
4. *The Group also discussed whether the Code should be addressed to States only or also to manufacturers, suppliers and users of radioactive sources. The Group felt that, while certain provisions in the Code did in fact apply to manufacturers, suppliers and users, regulatory activities fell within the domain of States, and that therefore the addressees of the Code should be States.*
5. *A proposal was made that States should create comprehensive national registries for radioactive sources under their jurisdiction. However, for various reasons the Group agreed that such a proposal was not practicable at this time. Consequently, a further proposal that the Agency provide the platform for an international registry, at least initially for radioactive sources in Category 1 of the “Categorization of Radiation Sources” reproduced in the Annex to Attachment 3 to IAEA document GOV/2000/36-GC(44)/12, was also felt to be premature. The Group noted that there were other fora, including the Agency’s policy-making organs, in which this issue could be further pursued.*
6. *As to the question of import and export of radioactive sources, the Group felt that the main responsibility for the safe management of radioactive sources rested with the importing State, which should consent to such an import only if it had the technical and administrative capability needed to manage the source in a safe manner. No agreement was reached regarding any obligations of exporting States in this regard.*

7. *The final draft text of the Code of Conduct is enclosed with this report.*
8. *On procedure, the meeting noted that as part of the Agency's Action Plan, the "Categorization of Radiation Sources" will be submitted to the Board of Governors at the same time as the draft Code of Conduct. Any cross-reference in the Code had therefore been introduced in the draft ad referendum.*
9. *Regarding the question as to whether unilateral declarations whereby States would undertake to take the necessary steps to implement the provisions of the Code should be submitted to the Director General, the meeting felt that the Code as such should be an incentive document which may or may not be complemented by binding legal undertakings. The Group felt that its mandate was to "undertake exploratory discussions relating to an international undertaking in the area of the safety and security of radiation sources" independent of its legal form. It was therefore not in the mandate of the Group to recommend policy or political actions to States. Rather, these decisions should be taken by the Agency's policy-making organs.*
10. *Finally, the Group, having fulfilled its mandate, recommended that the Chairman's report be transmitted together with the draft text of the Code of Conduct on the Safety and Security of Radioactive Sources to the Director General, with the request that the draft Code be submitted to the Board of Governors for consideration.*

The Code of Conduct on the Safety and Security of Radioactive Sources is contained in the Annex to this Attachment.

Code of Conduct on the Safety and Security of Radioactive Sources

The IAEA's Member States

Noting that radiation sources are used throughout the world for a wide variety of beneficial purposes, e.g. in industry, medicine, research, agriculture and education,

Aware that their use involves risks due to radiation exposure,

Aware that these risks must be restricted and protected against through the application of appropriate radiation safety standards,

Aware that there have been a number of accidents with serious, even fatal, consequences during the use of radiation sources,

Recognizing that such accidents may have an adverse impact on individuals and on the environment,

Recognizing the importance of fostering a safety culture in all organizations and among all individuals engaged in the regulatory control or in the management of radiation sources,

Recognizing the need for effective and continuous regulatory control, both within States and in situations involving the transfer of radiation sources between States,

Noting that serious accidents have occurred during the use of radiation sources, in particular radioactive sources, as a result of ineffective, or lapses in the continuity of, regulatory control, or as a result of lapses in management control during extended periods of storage,

Recognizing that most of these accidents have been caused by the use of radioactive sources, including accidents involving orphan sources,

Recognizing that a number of States may lack appropriate infrastructure for the safe management of radioactive sources, and that consequently exporting States should take due care in authorizing exports,

Recognizing the need for technical facilities, including appropriate equipment and qualified staff, to ensure the safe and secure management of radioactive sources,

Noting that the International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources contain recommendations for protection against exposure to ionizing radiation and for the safety and security of radioactive sources,

Recalling the IAEA's Safety Requirements document on Legal and Governmental Infrastructure for Nuclear, Radiation, Radioactive Waste and Transport Safety,

Taking account of the provisions of the Convention on Early Notification of a Nuclear Accident (1986) and of the provisions of the Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency (1986),

Taking account of the provisions of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (1997), in particular those provisions which relate to the transboundary movement of radioactive waste and to the possession, remanufacturing or disposal of disused sealed sources,

Recognizing the global role of the IAEA in the areas of nuclear and radiation safety and the safety of radioactive waste management and disposal, and

Taking account of the “Categorization of Radiation Sources” in the Annex to Attachment 3 to IAEA document GOV/2000/34/GC(44)/7,

DECIDE that the following Code of Conduct should serve as guidance to States for - *inter alia* - the development and harmonization of policies, laws and regulations on the safety and security of radioactive sources.

I. SCOPE AND OBJECTIVE

1. This Code applies to all radioactive sources that may pose a significant risk to health and the environment. In implementing this Code, States should give highest priority to those radioactive sources which pose the most significant risks, i.e. the radioactive sources belonging to Category 1 of the IAEA’s “Categorization of Radiation Sources”. However, in doing so, States should also devote appropriate attention to the regulation of radioactive sources other than those belonging to Category 1.
2. This Code does not apply to the control of nuclear materials as defined in the Convention on the Physical Protection of Nuclear Materials.
3. This Code also does not apply to radioactive sources within military or defence programmes. However, such sources should be managed in accordance with the principles of this Code.
4. The objective of this Code is to achieve and maintain a high level of safety and security of radioactive sources through the development, harmonization and enforcement of national policies, laws and regulations, and through the fostering of international co-operation. In particular, this Code addresses the establishment of an adequate system of regulatory control from the production of radioactive sources to their final disposal, and a system for the restoration of such control if it has been lost.

5. This Code relies on existing international standards relating to legal and governmental infrastructure for nuclear, radiation, waste and transport safety and to the control of radioactive sources. It is intended to complement existing international standards in these areas.
6. In implementing this Code, States should emphasize and reinforce to manufacturers, suppliers, users and those managing disused sources their responsibilities for the safety and security of radioactive sources.

II. DEFINITIONS

7. For the purposes of this Code:

“authorization” means a permission granted in a document by a regulatory body to a legal person who has submitted an application to manufacture, supply, receive, store, use, transfer, import, export, transport, maintain or dispose of radioactive sources. The authorization can take the form of a registration or a licence.

“disused source” means a radioactive source no longer intended to be used for its original purpose.

“management” means all activities, administrative and operational, that are involved in the manufacture, supply, receipt, storage, use, transfer, import, export, transport, maintenance or disposal of radioactive sources.

“orphan source” means a source which poses sufficient radiological hazard to warrant regulatory control but is not under regulatory control, either because it has never been under regulatory control, or because it has been abandoned, lost, misplaced, stolen or transferred without proper authorization.

“radiation source” means a radiation generator, or a radioactive source or other radioactive material outside the nuclear fuel cycles of research and power reactors.

“radioactive source” means radioactive material that is permanently sealed in a capsule or closely bonded and in a solid form, excluding material within the nuclear fuel cycles of research and power reactors. It also includes any radioactive material released if the source is leaking or broken.

“regulatory body” means any body or bodies on which a State has conferred legal authority to regulate any aspect of the safety and security of radioactive sources, including legal authority to grant authorizations.

“regulatory control” means any form of control applied to facilities or activities by a regulatory body for reasons related to radiation protection or to the safety and security of radioactive sources.

“safety” means measures intended to minimize the likelihood of accidents with radiation sources and, should such an accident occur, to mitigate its consequences.

“security” means measures to prevent unauthorized access to, and loss, theft and unauthorized transfer of, radioactive sources.

III BASIC PRINCIPLES

GENERAL

8. Every State should, in order to protect human health and the environment, take the appropriate steps necessary to ensure that the radioactive sources within its territory, or under its jurisdiction or control, are:
 - (a) fit for purpose;
 - (b) safely managed during their useful lives and at the end of their useful lives; and
 - (c) not stored for extended periods of time in facilities not designed for the purpose of such storage.

9. Every State should establish an effective national legislative and regulatory system of control over the management of radioactive sources and over any other activity involving radioactive sources which entails a significant risk to individuals or the environment. Such a system should:
 - (a) place the prime responsibility for the safe management of radioactive sources on the persons being granted the relevant authorizations;
 - (b) minimize the likelihood of a loss of control;
 - (c) provide for rapid response for the purpose of regaining control over sources that are no longer under control;
 - (d) foster ongoing communication between the regulatory body and users; and
 - (e) provide for its continual improvement.

10. Every State should ensure that appropriate facilities and services for radiation protection and safety are available to, and used by, the persons who are authorized to manage radioactive sources or undertake any other activity with radioactive sources within its territory. Such facilities and services should include those needed for:
 - (a) searching for missing sources and securing found sources;
 - (b) intervention in the event of an accident involving a radioactive source;
 - (c) personal dosimetry and environmental monitoring; and
 - (d) the calibration and intercomparison of radiation monitoring equipment.

11. Every State should ensure that adequate arrangements are in place for the appropriate training of the staff of its regulatory body, its customs officers, its police and the staff of other law enforcement agencies.
12. Every State should encourage bodies or persons likely to encounter orphan sources during the course of their operations to implement appropriate monitoring programmes to detect such sources.

LEGISLATION AND REGULATIONS

13. Every State should establish legislation and regulations that:
 - (a) prescribe and assign governmental responsibilities for the safety and security of radioactive sources;
 - (b) provide for the effective control of radioactive sources;
 - (c) specify the requirements for protection against exposure to ionizing radiation; and
 - (d) specify the requirements for the safety and security of radioactive sources.
14. Such legislation and regulations should include, in particular:
 - (a) the establishment of a regulatory body whose regulatory functions are effectively independent of other functions if that body is involved in both the management of radioactive sources and in their regulation. This body should have the powers listed in paragraphs 15 to 17;
 - (b) measures, commensurate with the risks, to protect individuals and the environment from the deleterious effects of radiation;
 - (c) administrative requirements relating to:
 - (i) the authorization of the management of radioactive sources; and
 - (ii) the notification to the regulatory body, as appropriate, by an authorized person of actions involved in the management of such sources and of any other activity in relation to such sources which may engender a significant risk to individuals or the environment;
 - (d) provisions for exemption, as appropriate, from these administrative requirements;
 - (e) managerial requirements, in particular relating to the establishment of adequate policies, procedures and measures for the control of radioactive sources;
 - (f) security measures to prevent, protect against, and ensure the timely detection of, the theft, loss or unauthorized use or removal of radioactive sources during all stages of management;
 - (g) requirements relating to the verification of safety, through: safety assessments; monitoring and verification of compliance; and the maintenance of appropriate records; and
 - (h) the imposition of appropriate penalties;

REGULATORY BODY

15. Every State should ensure that the regulatory body established by its legislation has the authority to:
- (a) establish regulations and issue guidance relating to the safety and security of radioactive sources;
 - (b) require those who intend to use radioactive sources to seek an authorization , and to submit a safety assessment when one is deemed necessary in the light of the risks posed;
 - (c) obtain any relevant information from an applicant for an authorization;
 - (d) issue, amend, suspend or revoke, as necessary, authorizations for:
 - (i) the management of radioactive sources; and
 - (ii) any other activity involving such sources which may engender a risk to individuals or the environment;
 - (e) attach clear and unambiguous conditions to the authorizations issued by it, including conditions relating to:
 - (i) responsibilities;
 - (ii) minimum operator competencies;
 - (iii) minimum equipment performance criteria (including radioactive source requirements);
 - (iv) requirements for emergency procedures and communication links;
 - (v) work procedures to be followed;
 - (vi) maintenance of equipment and sources; and
 - (vii) the adequate management of disused sources, including, where applicable, agreements regarding the possible return of decayed/disused sources to a supplier;
 - (f) obtain any relevant and necessary information from the holder of an authorization;
 - (g) enter premises of authorized users to undertake inspections, according to established procedures, to verify compliance with regulatory requirements;
 - (h) enforce regulatory requirements;
 - (i) monitor, or request other authorized bodies to monitor, at appropriate checkpoints for the purpose of detecting orphan sources;
 - (j) ensure that corrective actions are taken when a radioactive source is in an unsafe condition;
 - (k) provide, on a case-by-case basis, to the holder of an authorization and the public any information that is deemed necessary in order to protect individuals and the environment;
 - (l) liaise and co-ordinate with other governmental bodies and relevant non-governmental bodies within the State, and also with international bodies and regulatory bodies in other States, in order to seek guidance, information and assistance relevant to the safe and secure management of radioactive sources; and
 - (m) establish criteria for intervention in emergency situations.
16. Every State should ensure that its regulatory body:
- (a) is staffed by qualified personnel; and

- (b) has the financial resources and the facilities and equipment necessary to undertake its functions in an effective manner.
17. Every State should ensure that its regulatory body:
- (a) establishes procedures for dealing with applications for authorization;
 - (b) ensures that, before the receipt of a radioactive source is authorized:
 - (i) arrangements have been made for its safe management once it has become a disused source; and
 - (ii) financial provision has been made for its safe management once it has become a disused source.
 - (c) maintains appropriate records of holders of authorizations in respect of radioactive sources, with a clear indication of the type(s) of the radioactive sources that they are authorized to use, and appropriate records of the transfer and disposal of the radioactive sources on termination of the authorization;
 - (d) establishes systems for ensuring that, where practicable, both radioactive sources belonging to Categories 1 and 2 of the IAEA's "Categorization of Radiation Sources", and their containment, are marked with an appropriate sign to warn members of the public of the radiation hazard, but where this is not practicable, at least the containment is so marked.
 - (e) establishes systems for ensuring that, where practicable, radioactive sources belonging to Categories 1 and 2 of the IAEA's "Categorization of Radiation Sources" are identifiable and traceable;
 - (f) ensures that inventory controls are conducted on a regular basis by the holders of authorizations;
 - (g) carries out both announced and unannounced inspections at a frequency determined by past performance and the risks presented by the radioactive source;
 - (h) takes enforcement actions, as appropriate, to ensure compliance with regulatory requirements;
 - (i) ensures that the regulatory principles and criteria remain adequate and valid and take into account, as applicable, operating experience and internationally endorsed standards and recommendations;
 - (j) requires the prompt reporting by authorized persons of loss of control over, and of incidents in connection with, radioactive sources;
 - (k) prescribes appropriate levels of training for manufacturers, suppliers and users of radioactive sources;
 - (l) requires authorized persons to prepare appropriate emergency plans;
 - (m) is prepared, or has established provisions, to recover orphan sources and to deal with radiological emergencies and has established appropriate response plans and measures;
 - (n) is prepared, in respect of any radioactive source whose export it has authorized, to provide, upon request, information relating to its safe management.

IMPORT AND EXPORT OF RADIOACTIVE SOURCES

18. Every State intending to import a radioactive source belonging to Categories 1 and 2 of the IAEA's "Categorization of Radiation Sources" should consent to its import only if the State has the technical and administrative capability needed to manage the source in a manner consistent with the provisions of this Code.
19. A State should allow for re-entry into its territory of disused radioactive sources if, in the framework of its national law, it has accepted that they be returned to a manufacturer qualified to receive and possess the disused radioactive sources.
20. Any State which authorizes the export of a radioactive source should take appropriate steps to ensure that such export is undertaken in a manner consistent with existing international standards relating to the safe transport of radioactive materials.

ROLE OF THE IAEA

21. The IAEA should:
 - (a) continue to collect and disseminate information on laws, regulations and technical standards relating to the safe and secure management of radioactive sources, develop and establish relevant technical standards and provide for the application of these standards at the request of any State, inter alia by advising and assisting on all aspects of the safe and secure management of radioactive sources; and
 - (b) in particular, implement the measures approved by its governing bodies, including pursuant to its Action Plan on the Safety of Radiation Sources and the Security of Radioactive Materials.

DISSEMINATION OF THE CODE

22. Every State should inform public and private organizations and persons involved in the management of radioactive sources, as appropriate, of the measures it has taken to implement this Code and should take steps to disseminate that information widely.