

# INTERNATIONAL CONFERENCE ON SECURITY OF RADIOACTIVE SOURCES

## FINDINGS OF THE PRESIDENT OF THE CONFERENCE

### INTRODUCTION

The terrorist attacks of 11 September 2001 triggered international concern about the potential malevolent uses of radioactive sources that are employed for beneficial purposes throughout the world in a variety of industrial, medical, agricultural, and civilian research applications.

International concern about the safety and security of radioactive sources, however, was not new. Accidents involving radioactive sources and reports of illicit trafficking in radioactive materials had already highlighted the potential vulnerability of radioactive sources, and had led to greater awareness of the safety and security risks created by sources that are outside effective regulatory control – or “orphaned”.

Accordingly, in the early 1990s the International Atomic Energy Agency (the IAEA) initiated a number of actions regarding the safety and security of high-risk radioactive sources (see Annex). In co-operation with other international organizations, it established a document, the *International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources* (the BSS) and, to support its implementation, launched a “Model Project” for upgrading radiation protection infrastructure. More than 50 IAEA Member States have participated in this Model Project. In addition, the IAEA held a conference in Dijon, France, in 1998, that resulted in the establishment of an international *Action Plan for the Safety and Security of Radiation Sources*, and a conference in Buenos Aires, Argentina, in 2000, that resulted in the revision of the Action Plan. Implementation of the revised Action Plan has led to – *inter alia* - a categorization of radioactive sources and a *Code of Conduct on the Safety and Security of Radioactive Sources*, which are currently being revised. In addition, the IAEA established a programme to detect, intercept and respond to illicit uses of nuclear material and radioactive sources. The programme’s achievements were the focus of an IAEA conference held in Stockholm, Sweden, in 2001.

In the aftermath of 11 September 2001, new concerns emerged regarding the potential use of high-risk radioactive sources for malevolent purposes. In light of those concerns, at the September 2002 session of the IAEA's General Conference, U.S. Department of Energy Secretary Spencer Abraham proposed the convening of an international conference to promote information exchange on, and raise governmental and public awareness of, key issues relating to the security of high-risk radioactive sources, as well as, in particular, to foster a better understanding of the measures necessary to improve the security of such sources and enhance preparedness for radiological emergencies. Many Member States and several international organizations responded positively to the proposal.

Thus, the *International Conference on Security of Radioactive Sources* (the Conference) took place from 10 to 13 March 2003 at the Hofburg Palace in Vienna, Austria. Secretary of Energy Abraham presided over the Conference, which was co-sponsored by the Government of the Russian Federation and the Government of the United States of America and hosted by the Government of Austria. It was organized by the IAEA in co-operation with the European Commission, the World Customs Organization, the International Criminal Police Organization (ICPO-Interpol) and the European Police Office (Europol).

The Conference resulted in a number of findings to promote greater international co-operation in addressing the security concerns raised by insufficiently controlled radioactive sources, to the need to identify those sources which pose the greatest risks, and to the need for strong national action by all States to minimize those risks over the whole life-cycle of the sources.

The Conference emphasized that, while it is important that co-operation in making available the beneficial uses of radioactive sources continue, all users of such sources share a responsibility for managing them in a safe and secure manner. Source manufacturers and regulators have important roles to play in that connection. The Conference also emphasized that the need for effective security arrangements should be balanced with the need to ensure continued beneficial uses of radioactive sources for the well-being of humankind.

Governments worldwide and relevant international organizations are encouraged to review the following findings and to implement them.

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The Conference produced two major findings, as follows:

*(1) High-risk radioactive sources that are not under secure and regulated control, including so-called “orphan” sources, raise serious security and safety concerns. Therefore, an international initiative to facilitate the location, recovery and securing of such radioactive sources throughout the world should be launched under the IAEA's aegis.*

(The recent initiative of the Governments of the Russian Federation and the United States of America and the IAEA to secure radioactive sources in countries of the former USSR could serve as a model.)

*(2) Effective national infrastructures for the safe and secure management of vulnerable and dangerous radioactive sources are essential for ensuring the long-term security and control of such sources. In order to promote the establishment and maintenance of such infrastructures, States should make a concerted effort to follow the principles contained in the Code of Conduct on the Safety and Security of Radioactive Sources that is currently being revised (a draft revised version of which was presented to the Conference) as well as the security requirements in the BSS. In this context, the identification of roles and responsibilities of governments, licensees and international organizations is vital. Therefore, an international initiative to encourage and assist governments in their efforts to establish effective national infrastructures and to fulfil their responsibilities should be launched under the IAEA's aegis, and the IAEA should promote broad adherence to the Code of Conduct once its revised version has been approved.*

(The IAEA Model Project for upgrading radiation protection infrastructure could serve as a model.)

Additional findings of the Conference were as follows:

**Identifying, searching for, recovering and securing high-risk radioactive sources**

The Conference encourages:

- the development and implementation by all States of national action plans, based on their own specific conditions, for locating, searching for, recovering and securing high-risk radioactive sources, which should be part of the States' strategies for the security of radioactive sources;
- following further consultations with Member States, the accelerated establishment of a coherent and transparent scheme for the categorization of radioactive sources, in order to provide for the safety and security of radioactive sources, and finalization of the "Security of Radioactive Sources" document currently in preparation; and
- countries with the necessary experience and capabilities to provide, as appropriate, assistance to other countries in identifying, searching for, recovering and securing high-risk radioactive sources.

### **Strengthening long-term control over radioactive sources**

*The Conference recognizes the Model Project on upgrading radiation safety infrastructure, now covering 88 Member States, as a powerful mechanism for assisting Member States in developing their infrastructures for the regulation and control of radioactive sources. The Model Project should be continued, and the IAEA should explore how the Model Project approach might be applied to non-Member States.*

The Conference encourages:

- the formulation and implementation of national plans for the management of radioactive sources throughout their life-cycle;
- the development, to the extent practical, of standards for the design of sealed sources and associated devices that are less suitable for malevolent uses (i.e. alternative technologies, less dispersible forms of radioactive sources, etc.);
- the establishment of arrangements for the safe and secure disposal of disused high-risk radioactive sources, including the development of disposal facilities;
- once comments made by Member States are resolved (through the IAEA's relevant advisory mechanisms), the formal endorsement by the Board of Governors of the

*Code of Conduct on the Safety and Security of Radioactive Sources* that is currently being revised;

- support for the revised *Action Plan for the Safety and Security of Radiation Sources*, which has been an effective tool for helping IAEA Member States to strengthen the control of their sources; and
- the IAEA to continue its work on clarifying the additional security measures that are required to address the issue of the malevolent use of high-risk radioactive sources, in accordance with the risks that such sources present if used for malevolent purposes.

### **Interdicting illicit trafficking**

*The Conference acknowledges the need for greater international efforts to detect and interdict illicit trafficking in high-risk radioactive sources and to take appropriate enforcement action.*

The Conference encourages:

- the further development and strengthening of measures to detect, interdict and respond to illicit trafficking in high-risk radioactive sources, and interaction between States and relevant international organizations to promote these objectives;
- the deployment and wider use of technologies for detecting high-risk radioactive sources, with emphasis on ensuring the sustainability of monitoring and detection equipment;
- further research on and development of detection technologies for use at borders and elsewhere, taking note of user-friendliness, cost-effectiveness and harmonization needs;
- enhanced co-operation among governmental agencies responsible for preventing, detecting and responding to illicit trafficking incidents, especially in the fields of information sharing, communications and training;
- the pooling of resources by States - e.g., through the sharing of monitoring and detection equipment on common borders; and
- continued support for and development of the IAEA illicit trafficking database, which can provide valuable input for the evaluation of trends.

## **Roles and responsibilities**

*The Conference notes that, while the international partners for developing an effective security system for high-risk radioactive sources are governments, licensees and international organizations, in many countries there are national authorities responsible, on one hand, for the safety of radioactive sources and, on the other, for security-related aspects of the prevention of malevolent activities involving such sources. States should therefore, as appropriate, establish effective legal and regulatory systems that clearly define roles and responsibilities relating to safety and security during all stages of the life-cycle of radioactive sources. The Conference also notes that many countries still face difficulties with the storage or final disposal of disused radioactive sources, including those that are high-risk.*

The Conference encourages:

- the IAEA to continue supporting the Model Project for upgrading radiation protection infrastructure in order that developing Member States may be assisted in establishing sustainable radiation protection infrastructures, contributing to strengthening the security of high-risk radioactive sources;
- the IAEA to promote close collaboration among governments, licensees and international organizations aimed at enhancing the security of high-risk radioactive sources;
- close collaboration among government, licensees and international organizations in the area of the security of high-risk radioactive sources; and
- collaboration in helping developing countries to properly manage their disused high-risk radioactive sources.

## **Planning the response to radiological emergencies arising from the malevolent use of radioactive sources**

*Given the new scenarios presented by the possibility of the malevolent use of high-risk radioactive sources, the Conference recommends that States develop comprehensive plans for preparing for and responding to radiological emergencies involving such sources.*

The Conference encourages:

- concerted efforts by all States and the IAEA to enhance current national and international response arrangements, taking account of the need to respond both proactively and reactively to the new scenarios presented by the possibility of the malevolent use of high-risk radioactive sources;
- States to strengthen their mechanisms for the provision of international assistance, within the framework of the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (the Assistance Convention);
- States to consider establishing mechanisms to facilitate effective co-ordination in the event of a radiological emergency;
- the strengthening of communications between States and the IAEA's Emergency Response Centre; and
- IAEA Member States, States parties to the Assistance Convention and the IAEA's Secretariat to clarify the roles that they would have to play in the event of a radiological emergency.

### **Role of the media/public education, communication, outreach**

*The Conference recognizes that the public's understanding of the nature and consequences of radiological emergencies will largely determine how the public reacts to such emergencies.*

The Conference encourages:

- States to conduct proactive public outreach and awareness programmes to foster – among legislators, radioactive source users, the media and the public – a better understanding of radiological threats, and the appropriate response in the event of a radiological emergency in order to minimize social and economic disruption;
- appropriate efforts by States to educate the public regarding the nature of radioactivity, the consequences of malevolent uses of high-risk radioactive sources, and the procedures for mitigating those consequences in order to reduce the psychological impact of radiological terrorism;
- governments to strengthen their education and training programmes as a means to promote confidence-building within the public;

- the assumption by States of greater responsibility for gaining the trust of the mass media and informing media representatives about the potential threat of radiological terrorism; and
- the assumption by the mass media of greater responsibility for communicating accurate information, provided by authorities, in a non-sensational manner so as to avoid fuelling public fear and panic.

## **OUTLOOK**

The Conference recommends that the IAEA, taking account of these findings, revisit the revised *Action Plan for the Safety and Security of Radiation Sources* and adjust it as appropriate.

The Conference concludes that the IAEA should organize a further conference in two years' time to assess progress regarding the worldwide security of high-risk radioactive sources; this includes progress in the implementation of the *Code of Conduct on the Safety and Security of Radioactive Sources* currently being revised, in the further development of measures to protect high-risk radioactive sources, and in the development and implementation of national strategies for regaining control over "orphan" sources. The conference should also assess further development needs in key areas.

Finally, the President of the Conference wishes to express its deep appreciation for the sponsorship of the Governments of the Russian Federation and the United States of America, for the co-operation of the European Commission, the World Customs Organization, ICPO-Interpol and Europol, for the organizational efforts of the IAEA and for the hospitality of the Government of Austria. He thanks all speakers and other participants and their governments and organizations.



## ANNEX

### HISTORICAL BACKGROUND REGARDING RADIOACTIVE SOURCE SAFETY AND SECURITY ACTIVITIES

#### **International requirements relating to radioactive source security**

1. In 1994, the IAEA's Board of Governors approved the International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources (the BSS), which established international requirements relating to the security of radioactive sources. The BSS require governments to establish national infrastructures for the proper control of radioactive sources, including systems of notification, registration, licensing and inspection. They also require that radioactive sources be kept secure, through measures ensuring, *inter alia*, that control over them neither be relinquished nor transferred improperly.

#### **The technical co-operation Model Project**

2. Also in 1994, the IAEA launched an unprecedented international co-operative effort to improve radiation safety infrastructures in more than 50 of its Member States within the framework of its technical co-operation programme. The objective of this so-called *Model Project* was to establish national infrastructures compatible with the BSS requirements in Member States receiving IAEA technical assistance. After a decade, about three quarters of the countries participating in the Model Project have the necessary laws promulgated and regulatory authorities established, about half have the necessary regulations adopted and systems for the notification, authorization and control of radioactive sources in place and operational, and a large majority have radioactive source and radiation installation inventory systems in place and operational. The Model Project is currently being expanded to cover more than 80 Member States of the IAEA.

#### **The Dijon Conference**

3. In 1998, the IAEA held an International Conference on the Safety of Radiation Sources and the Security of Radioactive Materials in Dijon, France, in September 1998. The Dijon

Conference was co-sponsored by the European Commission, the World Customs Organization and ICPO-Interpol. Some of the Dijon Conference's findings were of particular relevance to the current concerns about the security of radioactive sources.<sup>1</sup>

4. In September 1998, the IAEA's General Conference noted with interest the major findings of the Dijon 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*". Also, it requested the IAEA's Secretariat to report on (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 March 1999, the IAEA's Board of Governors requested the IAEA's Director General to bring the report prepared in response to the General Conference's request to the attention of national authorities by distributing it to all States, encouraging them, *inter alia*, to (i) 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, (ii) provide their regulatory authorities with sufficient resources, including trained personnel, for the enforcement of compliance with relevant requirements, (iii) 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), (iv) develop adequate search and response strategies, and (v) arrange for the training of staff and the provision of equipment to be used in the event that radiation sources were detected.

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<sup>1</sup> The findings of the Dijon Conference of particular relevance for the security of radioactive sources are the following: regulatory infrastructures for the control of radiation sources must be supported by governments and be able to act independently, and the regulatory authority in each country must maintain oversight of all radiation sources in that country - including those which have been imported; radioactive sources should not be allowed to drop out of the regulatory control system, which means that the regulatory authority must keep up-to-date records of the person responsible for each source, monitor transfers of sources and track the fate of each source at the end of its useful life; efforts should be made to find radiation sources that are not in the regulatory authority's inventory, because they were in the country before the inventory was established, or were never specifically licensed or were lost, abandoned or stolen; as there are many such "orphan" sources throughout the world, efforts to improve the detection of radioactive materials crossing national borders and moving within countries by carrying out radiation measurements and through intelligence-gathering should be intensified; the key common element which would have the greatest part to play both in the avoidance of "orphan" sources - with their potential for misuse - and in the achievement and maintenance of secure conditions is effective national regulatory authorities operating within suitable national infrastructures; governments should create regulatory authorities for radiation sources if they do not exist; whether the regulatory authority is newly created or has been in existence for some time, the government must provide it with sufficient backing and with sufficient human and financial resources to enable it to function effectively, for only in this way can the problem of source security be tackled at its roots and eventually brought under control; and efforts should be made to investigate whether international undertakings concerned with the effective operation of national regulatory control systems and attracting broad adherence could be formulated.

### **The first international Action Plan dealing with the security of radioactive sources**

5. As a further follow-up to the Dijon Conference, the Board of Governors requested the IAEA Secretariat to prepare an international Action Plan. It approved the international Action Plan for the Safety and Security of Radioactive Sources in September 1999. At the same time it 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.

### **Categorization of Radiation Sources and Code of Conduct**

6. In September 2000, the Board of Governors invited IAEA Member States to draw on a recently developed Categorization of Radiation Sources which was subsequently issued as IAEA-TECDOC-1191. Also, the Board requested that a recently developed Code of Conduct on the Safety and Security of Radioactive Sources be circulated to all States and all relevant international organizations, and called for consultations on decisions which the IAEA's policy-making organs might wish to take regarding the application and implementation of the Code of Conduct.

### **The Buenos Aires Conference**

7. In December 2000, the IAEA held an International Conference of National Regulatory Authorities with Competence in the Safety of Radiation Sources and the Security of Radioactive Materials in Buenos Aires. Most of the findings of the Buenos Aires Conference were relevant to the security of radioactive sources.<sup>2</sup> In March 2001, the Board of Governors

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<sup>2</sup> The Buenos Aires Conference concluded that knowledge is the initial essential component in achieving the required safety and security of radiation sources, and education and training are the most important pathways leading to their achievement. It therefore requested States to establish strategies for the education and training of regulatory staff, including the on-the-job training of inspectors in the most relevant radiation practices and of radiation users in the management of radiation sources, and, in the case of those States which have fully developed radiation protection infrastructures, to participate more actively in the education and training of people from developing countries.

The Buenos Aires Conference recognized that a considerable number of States were still having difficulties in establishing fully effective systems for the regulatory control of radiation sources and called upon regulatory authorities to establish a single national source registry. Moreover, it recommended that the operational lifetime of radiation sources and of the devices into which they are incorporated be stated in the accompanying documentation, and that regulatory authorities should take measures to ensure the continuity of control over radiation sources during that period, further indicating that national regulatory authorities should impose on users, suppliers, manufacturers, etc, the responsibility for maintaining continuity of

noted the major findings of the Buenos Aires Conference and requested the Secretariat to assess their implications for the Action Plan. A revised Action Plan was - ironically - adopted by the Board on 10 September 2001, one day before the terrorist attacks on New York and Washington D.C.

### **The Stockholm Conference**

8. The IAEA held an International Conference on Measures to Detect, Intercept and Respond to the Illicit Uses of Nuclear Material and Radioactive Sources in Stockholm in May 2001. The Stockholm Conference was organized by the IAEA in co-operation with the World Customs Organization, ICPO-Interpol and the Europol. It focused on measures to reduce the possibility of illegal activities such as theft, sabotage and trafficking involving nuclear materials and other radioactive materials, and on the associated proliferation threat and radiation risks. Some of the observations and conclusions are relevant for the security of radioactive sources.<sup>3</sup>

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control over each source during the period specified in the authorization for its use. It requested States to establish inventories of disused sources and to ensure that disused sources be kept in an appropriate storage facility if returning them to the supplier or sending them to a disposal facility is not feasible, underlying that temporary storage by the user should be minimized, and that financial provision should be made - with governmental support if necessary - for taking care of sources after the declared use has been completed.

Several findings of the Buenos Aires Conference related to the issue of “orphan” sources, requiring governments to ensure that arrangements are made between regulatory authorities and facility operators for the detection and future handling of orphan sources. States were requested to develop national strategies for searching for and localizing orphan sources, including actions to bring sources that are in a vulnerable state (e.g. in inadequate storage) under proper control, programmes for investigating (e.g. monitoring) sites where the presence of abandoned sources is suspected, detection systems (at border crossings, scrap yards, foundries, steel mills, landfill sites and incineration plants), intelligence gathering (for cases of illicit trafficking), arrangements for responding to abnormal events which do not necessarily constitute emergencies (e.g. the finding of a radiation source) and arrangements for dealing with users who have gone bankrupt.

Most significantly, the Buenos Aires Conference addressed the issue of criminal activities involving radioactive materials, well before the 11 September 2001 events made this a significant issue at the policy-making level. It recommended that measures to prevent the criminal misuse of radiation sources be seen as complementary to measures to increase their safety and security and that events where individuals are exposed to radiation because of breaches in radioactive source safety or security without malice aforethought should be clearly distinguished from events where there is a criminal intent of exposing people to harmful effects of radiation. The prevention of criminal activities involving radioactive sources requires, according to the Buenos Aires Conference, broader competence and a thorough understanding of the related issues, and closer co-operation at the national and the international level between nuclear regulatory authorities and law enforcement authorities (police, customs and intelligence) is therefore essential.

<sup>3</sup> The Stockholm Conference concluded that: a comprehensive approach to security of material is warranted, taking into account both the risks for nuclear proliferation through the potential use of nuclear material in nuclear devices and the threat to radiation health and safety; States have the responsibility to ensure that their regulatory systems cover the measures required for prevention, detection and response to threats coming from theft, sabotage or other illegal activities involving nuclear and other radioactive materials; improved methodology, improved information and improved cooperation with competent national and international organizations would contribute to improving threat assessments and developing security measures; and continued efforts are required at the national and international levels and that increased support is needed for States establishing the necessary technical, administrative and regulatory measures. The Stockholm Conference recognized

### **Post-11 September 2001 actions**

9. The 11 September 2001 terrorist attacks on the United States of America led to implementation of the revised Action Plan taking place in conjunction with efforts to strengthen the IAEA's work relevant to preventing acts of terrorism involving nuclear materials and other radioactive materials. In March 2002, the Board had before it proposals made by the Director General for activities in the area of nuclear security which included a full set of activities relating to the security of radioactive sources. The Board supported the establishment of an extrabudgetary fund to be financed through voluntary contributions. Also, it noted that the IAEA's technical co-operation programme could be an important mechanism for implementing some activities.

10. In September 2002, the General Conference considered a report by the Director General entitled "Nuclear Security - Progress on Measures to Protect against Nuclear Terrorism". It noted the arrangements implemented to provide funding for a Nuclear Security Fund through voluntary arrangements and called upon all Member States to continue to provide political, financial and technical support, including in-kind contributions, to improve nuclear security and prevent nuclear terrorism, and to provide to the Nuclear Security Fund the political and financial support it needed. Also, it welcomed, *inter alia*, the activities for the prevention and detection of and response to illicit activities involving radioactive materials undertaken by the IAEA to improve nuclear security and prevent nuclear terrorism, and the IAEA's programmes and renewed efforts to assist States in establishing and strengthening systems of radiation protection appropriate to their circumstances, possibly including national registries of radioactive sources. In particular, it commended the Secretariat and Member States for the progress that had been made in upgrading radiation protection infrastructures through the Model Project and commended the Secretariat for the action it had taken in a number of countries, in co-operation with Member States, to locate, secure and remove orphan sources. The General Conference urged IAEA Member States to strengthen their national efforts to secure all radioactive sources within their borders, and invited them to take note of the Code of Conduct on the Safety and Security of Radioactive Sources and to consider means of

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that the IAEA has a key role in supporting State efforts to improve the security of material and combat illicit trafficking by providing guidance and normative documents, promoting technical development and, upon request, assisting States in their implementation.

ensuring its wide application. In addition, it welcomed the activities undertaken to provide for an exchange of information with Member States, including continued maintenance of the IAEA's Illicit Trafficking Database programme, and to improve information exchange by making the best use of the modernized database, and invited all States to participate in the Illicit Trafficking Database programme on a voluntary basis.