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# Nuclear Security - Measures to Protect Against Nuclear Terrorism

*Report by the Director General*

## **Summary**

At its meeting in March 2002, the Board of Governors considered the report entitled *Protection Against Nuclear Terrorism: Specific Proposals* (GOV/2002/10), and approved in principle the proposals for Agency activities in the area of nuclear security. The Board requested that the Director General should report periodically on progress made in implementation of the proposals and the funding thereof. This report responds to the Board's request for periodic updates on progress in implementing the plan of activities outlined in GOV/2002/10. The 47<sup>th</sup> General Conference requested (GC(47)/RES/8) the Director General to submit a report to the General Conference at its 48<sup>th</sup> session on Agency activities regarding the implementation, in consultation and co-ordination with Member States, of activities relevant to nuclear and radiological security and protection against nuclear and radiological terrorism. This report fulfils these requirements.

## **Recommended Action**

- It is recommended that the Board of Governors take note of the Director General's report on Measures to Protect Against Nuclear Terrorism and request the Director General to transmit the report to the General Conference with a recommendation that the General Conference welcome the progress reported by the Director General, and call upon Member States to continue to provide the necessary contributions to the Nuclear Security Fund for the continuation of the Agency's activities related to measures to protect against nuclear terrorism.

# Nuclear Security - Measures to Protect Against Nuclear Terrorism

*Report by the Director General*

## **A. Introduction**

1. In March 2002, the Board of Governors approved a three-year Plan of Activities to combat nuclear terrorism<sup>1</sup>. A detailed report<sup>2</sup> on its implementation up to end-July 2003 was submitted to the 47<sup>th</sup> General Conference. An updated summary was presented to the Board of Governors in March 2004<sup>3</sup>. This report provides information on the Agency's nuclear security activities since July 2003.
2. Supplementary, more detailed information regarding Progress in Implementing Activity Areas I to VIII, as defined in Gov/2002/10 and the Nuclear Security Fund: Receipts and Expenditures will be posted separately on [www.iaea.org](http://www.iaea.org) and GovAtom.

## **B. Strategy for nuclear security**

### **B.1. Threats, risks and consequences**

3. Nuclear terrorism poses four types of risks: nuclear weapons acquired by theft; nuclear explosive devices created from stolen nuclear material; radioactive dispersal devices (RDDs); and radioactive hazards caused by an attack on, or sabotage of, a facility or transport containing nuclear and radioactive materials. A strategy to counter nuclear terrorism is founded on measures to prevent thefts of nuclear and other radioactive material and to provide a defence against malicious acts on facilities, supplemented with a range of detection and response measures in the event that prevention is unsuccessful. Because nuclear security measures are designed to address a malicious act; for example an act of nuclear terrorism, a probabilistic approach to assessing the risk is not relevant. Risk is assessed in terms of level of threats and the consequences of a successful attack.
4. Preventive measures are formulated and implemented in the knowledge that they will face attempts to defeat or circumvent them. They take a graded approach dependent upon the level of threat

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<sup>1</sup> GOV/2002/10

<sup>2</sup> GC(47)/17

<sup>3</sup> GOV/INF/2004/1

and the severity of the consequences of a successful attack. The consequences of the detonation of any nuclear explosive device would be catastrophic. The consequences of an RDD or of a violent attack on a facility or transport containing radioactive material would, in most cases, be comparatively less destructive but with unpredictable social, economic, and political ramifications.

5. Aside from the nuclear industry itself, radioactive materials are widely used in other industries. The strategy must, therefore, encompass all facilities or locations at which such materials may be present including, power and research reactors, other fuel cycle facilities, radioactive waste storage locations, research, academic, industrial and medical locations, and transports both domestic and international.

## **B.2. Comprehensive and integrated approach to implementation**

6. The Plan of Activities approved by the Board of Governors<sup>4</sup> combined existing and new measures to prevent, detect and respond to, malicious acts involving nuclear and other radioactive materials and their associated facilities and transports. The specific measures include effective management and control of materials through regulation and accountancy, physical protection of materials, facilities and transports to prevent theft and against attacks, and measures for detection and response. For its effective implementation, the Plan requires an integrated and multi-track approach. For example, where Agency activities contribute to both nuclear security and other Agency objectives (e.g. verification or safety), synergies have been sought and exploited, with due recognition of established competences and with the goal of minimizing unnecessary duplication of efforts. The 47<sup>th</sup> General Conference recognised<sup>5</sup> that the strengthening of the safety of radioactive sources also enhances the security of such sources. The General Conference<sup>6</sup> has also noted the contribution of Agency safeguards agreements and additional protocols, and of States' Systems of Accounting for and Control of Nuclear Materials (SSACs), to preventing illicit trafficking and deterring and detecting diversion of nuclear materials.

## **B.3. Goals**

7. The responsibility for the security of nuclear and other radioactive materials, and for their protection from violent attack or sabotage, rests entirely with the State. The role of the Agency in assisting Member States in enhancing nuclear security, and the scope of its activities, are therefore primarily determined by the Member States and are reflected in the decisions of the Board of Governors and General Conference.

8. The overall goal of the programme is to assist Member States to improve their nuclear security, thereby reducing the level of threat and consequences of a successful act of nuclear terrorism. The methods by which the Agency seeks to achieve this goal are divided into the following broad areas: encouraging and facilitating the development and implementation of binding and non-binding legal instruments; developing international guidelines and recommendations acceptable to the international community and providing related advisory services, training, equipment and technical assistance; and providing or facilitating the development of information exchange and services.

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<sup>4</sup> GOV/2002/10

<sup>5</sup> GC(47)/RES/8, preambular paragraph (l)

<sup>6</sup> GC(47)/RES/8, preambular paragraph (p)

## **C. International Instruments**

### **C.1. Convention on the Physical Protection of Nuclear Material (CPPNM)**

9. The Final Report of the ‘Open-Ended Group of Legal and Technical Experts to Prepare a Draft Amendment of the Convention on the Physical Protection of Nuclear Material’ convened by the Director General was circulated to all States Parties to the CPPNM for their consideration in June 2003. The Report contains, in brackets, a number of clauses on which the Group did not reach consensus. At the 47<sup>th</sup> regular session of the General Conference, the Director General urged State Parties to the CPPNM to work rapidly towards consensus on the remaining outstanding issues so that a diplomatic conference could be convened to adopt the proposed amendments at an early date.

10. Further consultations were held among a number of States Parties to the CPPNM on the outstanding issues and as a result of such consultations the Director General of the IAEA received on 1 June 2004, a letter from the Austrian Federal Minister of Foreign Affairs, proposing on behalf of the Government of Austria and of the Governments of Australia, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Finland, France, Greece, Hungary, Ireland, Italy, Japan, Lithuania, Luxemburg, Norway, Poland, Portugal, Sweden, Switzerland, Turkey, Ukraine, United Kingdom of Great Britain and Northern Ireland and the United States of America, amendments to the CPPNM. In accordance with Article 20, paragraph 1 of the CPPNM, the Director General, as depositary for the Convention, circulated on 5 July 2004, the proposed amendments to all States Parties to the CPPNM. Should a majority of States Parties to the CPPNM so request, the Director General will invite all States Parties to the CPPNM to a conference to consider the proposed amendments.

### **C.2. Code of Conduct on the Safety and Security of Radioactive Sources**

11. The Code of Conduct of the Safety and Security of Radioactive Sources has been revised to reflect, *inter alia*, enhanced requirements on the security of radioactive sources. The revised Code of Conduct was submitted to, and approved by, the Board of Governors in September 2003. The 47<sup>th</sup> IAEA General Conference welcomed the Board’s approval and endorsed the objectives and principles set out in the Code and urged all Member States to write to the Director General to fully support and endorse the Agency’s efforts to enhance the safety and security of radioactive sources. The revised Code was published in January 2004. To date<sup>7</sup>, 57 States (including two non-Member States) have written to the Director General in response to that request.

### **C.3. Other international instruments related to enhancing nuclear security**

12. The 47<sup>th</sup> General Conference recognized the contribution of Agency safeguards agreements and additional protocols, and also of States’ Systems of Accounting for and Control of Nuclear Materials, to preventing illicit trafficking, deterring and detecting the diversion of nuclear materials<sup>8</sup>. The General Conference further noted that other international agreements, negotiated under the auspices of the Agency, are relevant to nuclear security and the physical protection of nuclear material and other radioactive materials against the threat of nuclear and radiological terrorism<sup>9</sup>. Therefore, progress in

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<sup>7</sup> 16 July 2004

<sup>8</sup> GC(47)/RES/8, preambular paragraph (p)

<sup>9</sup> The Convention on Early Notification of a Nuclear Accident, the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, the Convention on Nuclear Safety and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

increasing the number of States adhering to and implementing international instruments makes a direct contribution to enhancing nuclear security in Member States.

## **D. Progress in IAEA Efforts to Improve Nuclear Security**

13. The plan of activities to protect against nuclear terrorism approved, in principle, by the Board of Governors sets a comprehensive agenda for the Agency. It greatly accelerated existing activities and an extensive range of new measures was to be developed and implemented. In summary, much has been achieved; national infrastructures to help prevent malicious acts are addressed in many countries, initial nuclear security needs assessment have generated several Integrated Nuclear Security Support Plans that will address the needs for nuclear security improvements over a defined period of time; follow-up IPPAS missions have indicated that the physical protection of nuclear material in use, storage and transport is improving in several Member States and the capabilities to combat illicit nuclear trafficking are being strengthened. Likewise, there is increased attention on radiological emergency response planning for situations when a release of radioactivity is the result of a malicious act, and on effective incident response for situations involving discovery of uncontrolled radioactive materials or seizures of such materials in trafficking. The security of radioactive materials is being addressed in a broad range of activities, including the Tripartite initiative between the USA, the Russian Federation and IAEA. The initiative has resulted in much improved security for high-activity orphan and other uncontrolled radioactive sources in the Newly Independent States. Continued efforts are addressing these problems also in other regions. The Agency has devoted considerable efforts to provide guidelines and recommendations that can serve as a baseline for measures and activities to improve nuclear security, by the Member States and through Agency programmes.

14. An overview of the progress since the Secretariat last reported to the General Conference<sup>10</sup> follows. Details of the achievements since the last report to the General Conference are given in the document “Nuclear Security – Measures to Protect Against Nuclear Terrorism, Supplementary Information to GOV/2004/50- GC(48)/6 available on [www.iaea.org](http://www.iaea.org) and GovAtom.

### **D.1. Guidelines and recommendation**

15. Guidelines and recommendations related to protecting against nuclear terrorism provide the essential reference framework for the assessment services, education and training activities and technical assistance. The work on the document outlining guidelines for the export and import of radioactive sources to supplement the relevant provisions of the revised Code of Conduct on the Safety and Security of Radioactive Sources, has been completed. This guidance document has been submitted to the Board of Governors in September 2004 for approval<sup>11</sup>. It also includes the development and maintenance of a Design Basis Threat; the functional specifications for detection instruments; the identification of ‘vital areas’ in nuclear facilities; the development of a security culture; and the combating of cyber attacks on nuclear installations. Most documents have been, or will be, submitted to the Advisory Group on Nuclear Security (AdSec) in draft for review of their technical content.

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<sup>10</sup> GC(47)/17

<sup>11</sup> GOV/2004/62–GC(48)/13

## **D.2. Needs assessments**

16. Agency nuclear security assistance to Member States, as requested, is built on the foundation of an assessment of needs. For this purpose, the Agency offers services, *inter alia*, to evaluate nuclear security related to nuclear and other radioactive materials in nuclear, as well as non-nuclear, use, storage or transport. Over 50 nuclear security assessment missions to Member States have been completed since 11 September 2001. Many more have been requested or are in the planning stage.

17. The Agency has initiated an advisory service, available to Member States upon request, to get assistance to identify nuclear security needs on a State-wide basis. Using expert teams, the International Nuclear Security Advisory Service (INSServ), visits States to assess overall needs for additional or improved nuclear security-related measures. The recommendations generated by the INSServ team provide the platform for subsequent, more specific, nuclear security assistance, through IAEA programmes or through bilateral assistance.

18. Other services are offered to evaluate security-related arrangements, notably the International Physical Protection Advisory Service (IPPAS), which reviews physical protection systems related to nuclear materials. In addition, an IPPAS-type service to assess the physical protection of other radioactive materials is currently under development.

19. Another new initiative, designed to provide assistance to national competent authorities with recommendations for improvements on their State System of Accounting for and Control of nuclear material (SSAC), is the International SSAC Advisory Service (ISSAS). These missions may result in identification of good practices or recommendations for upgrades that provide the basis for subsequent assistance, as required, for improvements.

### **D.2.1. Integrated Nuclear Security Support Plans**

20. To provide form and focus to the needs identified, *inter alia*, through its advisory services, the Agency, in cooperation with individual States, is developing Integrated Nuclear Security Support Plans. These Plans include, as action items, all measures that have been identified by the Agency to strengthen nuclear security in the country covering nuclear and other radioactive materials, in nuclear as well as non-nuclear use, storage and transport. They will provide a structured, predictable set of activities with clear objectives and a framework for identifying and implementing activities necessary to ensure sustainability. The Plans are also to be used in conjunction with bilateral support programmes and provide, therefore, a tool for improved co-ordination with bilateral programmes. To date, the Agency has prepared seven Integrated Nuclear Security Support Plans, which are in the process of being discussed with the Member States concerned.

## **D.3. Advice and support for technical upgrades**

21. The Agency has provided, to a limited extent, equipment for detection of smuggling of radioactive substances at border crossings. In one case, equipment was provided to the Agency from one Member State for subsequent transfer to the requesting Member State.

22. The Agency has established a small Nuclear Security Equipment Laboratory (NSEL) at its Vienna Headquarters. Technical staff experienced in radiation detection equipment operates the laboratory. When detection instruments are provided to Member States by the Agency, the instruments are tested in the NSEL before delivery. As a result of the testing, instruments that were found not to meet all specifications were either corrected or replaced. The NSEL also maintains a set of equipment for training on detection and response.

23. As a result of the Agency's co-operation with bilateral support programmes, the implementation of recommendations for upgrades, resulting from Agency nuclear security advisory services, in several cases have been provided through bilateral programmes. The Agency is dedicated to further facilitating such co-operation, *inter alia*, through the use of Integrated Nuclear Security Support Plans.

#### **D.4. Methodology and technology development**

24. Work continues on the implementation of the Co-ordinated Research Project (CRP) "Improvement of Technical Measures to Detect and Respond to Illicit Trafficking of Nuclear and other Radioactive Materials". Twenty-seven research contracts and agreements have been concluded with eighteen Member States and provisional functional specifications to be used for detection instruments have been established. The results of the CRP are expected to strengthen the capability of Member States to prevent, detect and respond to events of illicit trafficking by supporting them with the selection, provision and installation of equipment and related support. Further progress has been made in the nuclear forensics area and a technical report will be published soon.

#### **D.5. Education and training**

25. Strengthened nuclear security measures require well-trained and motivated staff. Training programmes are, therefore, fundamental to the Agency's nuclear security programme. The Agency has begun implementing a training strategy based upon a three tiered approach: international, regional and national, depending upon the topic and target audience. At the international level, training is focused on more general, thematic, subjects. At the regional level, it is optimized to meet specific regional requirements and promote regional co-operation. At the national level, various subjects or applications are covered, according to specific national programmes and facility specific needs.

26. The nuclear security training programme for 2004 includes approximately 34 courses covering nuclear security awareness, combating illicit trafficking, detection equipment training, physical protection, and nuclear forensics. Other relevant courses cover SSACs and inventory management systems for radioactive sources. Efforts are ongoing to assist Ukraine establish an under-graduate education module in nuclear security; material protection and accountability. In all, since 11 September 2001, the Agency has conducted more than 60 nuclear security training events.

#### **D.6. Security at the 2004 Summer Olympics in Greece**

27. In co-operation with the Greek Atomic Energy Commission and the Olympic Games security organizations, the Agency has helped the Greek authorities to develop a high level of nuclear security for the 2004 Summer Olympic Games. A comprehensive evaluation mission assessed the capabilities and needs and the results led to an extensive work-plan. Its implementation was facilitated by substantial contributions from the USA, and valuable support from France in the area of emergency response planning and training. The Agency has coordinated the bilateral contributions to the effort.

28. Under the project, security systems at the existing nuclear research site and at all sites with significant radioactive sources were upgraded. To detect any illicit nuclear trafficking through Greece's land border crossings, seaports and airports, radiation monitoring equipment was supplied and installed. Instrumentation for assisting Greece in preventing and detecting malicious acts at the Olympic venues, as well as for responding to a nuclear or radiological emergency during the Games, was also supplied in a co-ordinated effort by the Agency and the USA. The Agency developed and provided training on monitoring equipment, and nuclear security awareness briefings were given to decision-makers and senior security officials. Information support mechanisms were established, with information from the Agency's Illicit Trafficking Data Base, and analyses and evaluations specifically to meet the needs of the Greek authorities. The experience by the Agency under this project has

provided a model for addressing any future requests to assist with the development of nuclear security measures at other major international events.

## **D.7. Programme co-ordination and information support**

29. The Agency's nuclear security Plan of Activities involves several Agency departments. Close co-ordination is required for effective, consistent and coherent programme implementation. The coordinating responsibility is assigned to the Office of Nuclear Security and incorporates three broad functions: planning, monitoring, and evaluation and reporting. These responsibilities extend to the extra-budgetary funds received by the Nuclear Security Fund (NSF) from Member States. To help discharge these responsibilities, an information management system – the *Nuclear Security Knowledge Management System* – has been implemented. This system allows all projects involving NSF funding to be identified, monitored, evaluated and reported. The information generated by the system provides the basis for reporting to NSF donor States on the precise usage of their funds. Several donor States have already accepted the system outputs as a satisfactory basis for financial reporting.

30. Prioritization of tasks remains important for programme implementation. However, the need for programmatic prioritization is, to a certain degree, overtaken by the specific conditions assigned by the States providing financial contributions to the NSF. Only a small proportion of funds (for 2004, less than 1%) received by the NSF are entirely free of conditions on their mode of expenditure.

31. The Agency has increased its efforts, with some success, to co-ordinate Agency nuclear security activities with those of national bilateral support programmes, especially for implementation of Agency recommendations to upgrade existing systems with new, or more effective, equipment. To further strengthen co-ordination, the Agency convened an NSF Donor States Co-ordination Meeting in December 2003. This meeting resulted in recommendations including, *inter alia*, that; consideration should be given to the long-term strategy and vision for support to States in their efforts to combat nuclear terrorism and to the sustainability of donor States' efforts; the Agency faced a challenge in managing a comprehensive security programme with unpredictable resources; to be fully effective, 'soft' support to Member States such as advice and training should be complemented by 'hard' support, such as equipment upgrades; and that information exchange between donor States needed to be improved. The participating States recognized that strengthening nuclear security requires the effective use of resources to avoid duplication of efforts and to enhance impact of individual contributions towards the same goal.

32. The Agency continues to seek liaisons, collaboration and co-ordination with other regional, and international organizations including, but not limited to: the UN Security Council's Counter Terrorism Committee (CTC), Interpol, the World Customs Organization (WCO), Europol, the UN Conference on Disarmament, the United Nations Interregional Crime and Justice Research Institute (UNICRI), the Organization for Security and Co-operation in Europe (OSCE), the European Union (EU), and the Universal Postal Union (UPU).

33. The Agency and the European Union have been negotiating on a framework for receiving financial contributions from the European Union for activities implemented by the IAEA. As part of the European Union Strategy Against the Proliferation of Weapons of Mass Destruction, the Agency has been offered a contribution of Euro 3.3 million for the implementation of a joint action, entitled *EU Support for the IAEA Activities under its Nuclear Security Programme and in the Framework of the Implementation of the EU Strategy against the Proliferation of Weapons of Mass Destruction*, which will be implemented in selected States in the Balkan, and Central Asia regions in order to strengthen the physical protection of nuclear and other radioactive materials in nuclear and non-nuclear use, storage and transport, and to strengthen the States' capabilities for detection and response to illicit nuclear trafficking.

## **E. Global Nuclear Security Initiatives involving the Agency**

34. A growing number of international or global initiatives have emerged which address the issue of terrorism. These recognize the current Agency activities in nuclear security and envisage, to varying degrees, the Agency's possible involvement and participation.

### **E.1. United Nations**

35. Security Council Resolution 1373 adopted on 28 September 2001 obliges all UN Member States under Chapter VII of the UN Charter to take specific actions to combat terrorism. The Counter-Terrorism Committee (CTC) was established to monitor the performance of the Member States in building a global capacity against terrorism. Twelve international conventions, including the CPPNM, are recognized as constituting the global infrastructure against terrorism. These provide the basis for the work of the CTC. The IAEA participates in the CTC and provides detailed reporting on the implementation of its nuclear security programme.

36. In April 2004 the Security Council adopted Resolution 1540 dealing with weapons of mass destruction and non-State Actors. It expressed 'grave concern' over the risk that, *inter alia*, non-State actors may acquire, develop, traffic in or use nuclear weapons, and over the threat of illicit trafficking in nuclear weapons and related materials. The operative paragraphs of the Resolution cover legal measures, accountancy and control measures, physical protection measures, border controls, measures to detect, deter, prevent and combat illicit trafficking, and export and import measures. They closely mirror the structure and activities of the Agency's existing nuclear security Plan of Activities. If requested, the Agency will be able to offer technical advice to the Committee that has been established on how to implement the Resolution.

### **E.2. European Union**

37. In December 2003, the European Union adopted a '*Strategy Against the Proliferation of Weapons of Mass Destruction*'. The Strategy incorporates a range of measures, including export controls; the criminalization of activities that contribute to the proliferation of WMD and related materials; physical protection of nuclear materials and facilities; and better control on the use, storage and disposal of radioactive sources. The Strategy implies closer collaboration between the EU and multilateral institutions, *inter alia*, the IAEA. As part of the Strategy, the EU has offered a contribution of 3.3 million Euro to the Agency to support its nuclear security programme.

38. The European Union/United States Declaration on the *Non-Proliferation of Weapons of Mass Destruction*, issued after the summit in Ireland in 2004, noted that the risk that terrorists might acquire weapons of mass destruction requires a long-term strategy and a multi-faceted solution involving the participation of international institutions, including those of the United Nations system. The Declaration supported amending the CPPNM to cover domestic storage, transport and use of nuclear material for peaceful purposes and undertook to examine ways to strengthen existing controls and guidelines on weapons-usable nuclear materials and nuclear facilities used for peaceful purposes. It also encouraged support for implementation of the Code of Conduct on the Safety and Security of Radioactive Sources and noted that the Parties will work towards putting in place adequate export controls by the end of 2005. The Declaration expressed support for the Agency's efforts to assist countries in developing effective and sustainable legal and regulatory controls on sources.

### **E.3. The G8 and nuclear security**

39. The G8 Global Partnership pledged to make \$20 billion available to the Russian Federation and the Newly Independent States over ten years to help manage their nuclear and other radioactive

materials. As part of their contributions to the G8 Global Partnership, Canada, Germany and the UK have made contributions to the NSF. At its Evian Summit in 2003, the G8 noted its contributions to the Agency's NSF and its cooperation with the Agency within the framework of the programme for protection against nuclear and radiological terrorism. The G8 reaffirmed its support for the actions undertaken by the Agency in favour of, *inter alia*, the security of radioactive sources, and declared its readiness to co-operate with the Agency. The G8 stated that it would direct a working group to identify those elements of the Agency Code of Conduct that are of greatest relevance to prevent terrorists from gaining access to radioactive sources in close consultation with the Agency. The group would consider possible measures to safeguard and restrict access to sources; conditioning and/or recycling of sources; and systems to detect the passage of radioactive sources at strategic points such as border crossings. The G8 Summit at Sea Island in June 2004 noted the threat posed by trafficking of sensitive nuclear materials, equipment and technology and announced new actions to reduce the risk that terrorists may acquire nuclear materials and technology. The G8 reaffirmed their commitment to eliminate the use of high enriched uranium (HEU) fuel in research reactors, to secure and remove fresh and spent HEU fuel, to control and secure radiation sources, and to strengthen export controls and border security.

#### **E.4. Radiological Security Partnership**

40. At the conference on the Security of Sources held in Vienna in March 2003, the United States Secretary for Energy announced a new initiative, the Radiological Security Partnership (RSP) to address "the potential threats from under secured high-risk radioactive sources". The RSP, in partnership with the Agency, jointly engages with other countries throughout the World to mitigate the risk posed by radiological materials that could be used as a radiological dispersal device (RDD). It covers risk-reduction activities including locating, recovering and securing high-risk radiological materials and working with countries to establish an effective regulatory infrastructure to ensure security of these materials. The RSP was given substance by the pledge of funds to the NSF by the USA in June 2003. These were allocated to initiatives focused on the security of vulnerable, high-risk radioactive sources.

41. The US DOE and the Agency are in the process of establishing a Regional Radiological Security Partnership (RRSP) programme intended to complement the RSP, as well as on-going bilateral and Agency radiological risk reduction activities. The RRSP will allow the Agency and the US DOE to work jointly with a regional partner to promote and support key issues and activities for radiological security in that region. Specific activities will be attuned to the particular needs and competences available amongst participating States. The RRSP will also offer the opportunity for other donors with particular regional interests or competences to join the Partnership.

#### **E.5. Global Threat Reduction Initiative**

42. On 26 May 2004, the United States Secretary for Energy announced a new initiative, entitled the Global Threat Reduction Initiative (GTRI), to 'secure, remove, or dispose of' nuclear and radiological materials around the world which are vulnerable to theft. Through the GTRI, measures will be taken to minimize the use of HEU fuel in research reactors and will include; removing fuel to secure storages in the country of origin; work to convert the cores of civilian research reactors from HEU to low enrichment uranium (LEU), and work to identify and secure other nuclear and radiological materials and related equipment that are not yet covered by existing threat reduction efforts. The USA and the Russian Federation, with the support of the Agency, will convene, on 18-19 September 2004 in Vienna, a Global Threat Reduction Initiative Partners Conference to address the collection and security of proliferation-attractive materials. The Agency already plays an important role in the Russian Research Reactor Fuel Return (RRFR) programme, which has repatriated Russian-origin fresh HEU fuel from a number of research reactors, and the Reduced Enrichment for

Research, and Test Reactors (RERTR) programme. The Agency's existing nuclear security programme addresses the physical protection of nuclear materials and facilities, and the security of other radioactive materials. Collectively, therefore, this work provides a solid basis for IAEA collaboration in the new global threat reduction initiative.

## **F. Integrated IAEA plan for enhancing research reactor security**

43. The security of research reactors and their associated facilities is of increasing international concern. Research reactors have features that raise specific nuclear security challenges. Some of these challenges, especially those concerned with sabotage, are addressed by measures that serve both safety and security objectives. In the context of the Agency's comprehensive approach to addressing nuclear security issues, the Agency has developed an integrated plan for enhancing the security of research reactors and their associated facilities. The plan brings together the existing risk reduction work related to fuel and decommissioning, with measures to enhance physical security, engineering and safety measures to reduce vulnerabilities, material control, training to improve security awareness and culture, legislative and regulatory measures, and enhancement of emergency preparedness measures.

## **G. Advisory Group on Nuclear Security (AdSec)**

44. AdSec continues its work at bi-annual meetings. It gives advice on priorities for the implementation of ongoing activities and has proposed a definition of "nuclear security", in order to provide a common reference point for conceptual approaches and activities. AdSec has also underlined the need for long-term planning and preparedness. In response to AdSec's advice, a preliminary plan for the development of a nuclear security framework has been outlined and reviewed. A process has been established by which AdSec can review the technical content of documents on nuclear security. The procedure takes into account that nuclear security guidelines and recommendations are not "standards" as defined in article III.A.6 of IAEA Statute. In addition, AdSec has reviewed present and planned advisory services and the planned training programme, and maintains an interest in the implementation of the Agency's Information Security Policy for nuclear security related information.

## **H. Resources**

45. The implementation of the Agency's nuclear security plan of activities depends on the receipt of voluntary contributions to the NSF. Twenty-five Member States and one organisation have made financial contributions to the NSF and 17 Member States have provided gifts of services, equipment and use of facilities.

46. The financial rules of the Agency require, for extrabudgetary contributions, that pledged funds are received in the Agency's bank account before expenditures can be approved. The table below provides an overview of funds received by the NSF and expenditures, including pre-commitments of expenditure, incurred up to 15 July 2004. At the end of 2002, a total of \$8,079,793 had been received

by the NSF and during 2003, a total of \$9,916,751 was received. Thus, for the first year<sup>12</sup> of programme implementation, the planning basis (the target for implementation) was \$8.1 million, and for the second year, 2004, the planning basis is about \$9.9 million. With the receipt of additional resources, programme plans are adjusted accordingly. The implementation rate continues to be very high; during the first year of implementation, a total of about \$8.3 million was spent or pre-committed, thereby exceeding the target for programme implementation for 2003. For 2004, as of 15 July, about 70% of the target for the entire year was expended or committed.

Area	Activity Area Description	Target for Expenditure 2003*	Total Expenditure 2003	Target for Expenditure 2004**	Expenditures 2004		Funds Available
					Expenditure as of 15 July 2004	Staff Salary Obligations***	
I V	Physical Protection of Nuclear Materials and Facilities Assessment of Safety/Security Related Vulnerability of Nuclear Facilities		2,865,974		1,177,800	549,494	
II	Detection of Malicious Activities Involving Nuclear & Other Radioactive Materials		2,351,221		1,716,953	709,023	
III	State Systems for Nuclear Material Accounting and Control		288,511		469,070	69,836	
IV	Security of Radioactive Material Other than Nuclear Material		2,100,395		1,120,464	218,988	
VI	Response to Malicious Acts, or Threats Thereof		344,850		102,199	267,143	
VII	Adherence to and Implementation of International Agreements, Guidelines and Recommendations		3,000		119,458	90,000	
VIII	Nuclear Security Coordination & Information Management		324,481		219,021	234,843	
	<b>TOTAL OF ALL ACTIVITIES</b>	<b>8,079,793</b>	<b>8,278,432</b>	<b>9,916,751</b>	<b>4,924,965</b>	<b>2,139,327</b>	<b>2,852,459</b>
					<b>7,064,292</b>		
	* Funds received in 2002						
	** Funds received in 2003						
	*** Staff salary obligations with expenditure in 2004						

## I. Enhancing nuclear security: looking to the future

47. The Plan of Activities envisioned in GOV/2002/10 extended over a three-year period. The end of that period is now in sight. It is clear that the imperatives that first led the General Conference to request the Director General to develop enhanced measures to combat nuclear terrorism have not diminished. It is also clear, from the results of the large number of evaluation activities undertaken by the Agency under that plan, that Member States need substantial assistance to enhance their nuclear security measures. A new plan for the Agency's nuclear security activities is now being developed and will be presented to the Board of Governors for approval in 2005.

48. The first priority of the new plan is the world-wide application of the Agency's nuclear security services and assistance to comprehensive improvement of existing nuclear security systems. Thereby, the principal objectives of the new plan will be; assistance in the implementation of measures to enhance nuclear security in Member States including 'hard' support such as equipment upgrades; completion of the international framework of security guidelines and recommendations; advice and assistance on the establishment of national nuclear security infrastructure; increased efforts to develop effective techniques and methodologies to combat illicit trafficking; improved radiological emergency and incident response capabilities; a new emphasis on sustainability; expanded use of information

<sup>12</sup> GC(47)/3, The Agency's Programme and Budget for 2004-2005, paragraph 34 of the overview, explained that as the Board of Governors approved the plan of activities only in March 2002, and since the financial contributions to the NSF came only later in 2002. 2003 – which includes the last part of 2002 – stands as the first year of the three-year programme of GOV/2002/10. The second and third years, therefore, are 2004 and 2005, respectively.

systems and networking; further improvements to bilateral, regional and international co-operation; and further emphasis on seeking synergies with other Agency activities related to verification and safety.

49. The intended introduction of a modular structure to the Agency's nuclear security assessment services will provide greater flexibility in tailoring services to States' needs and will provide synergistic benefits. The continued and global provision of such assessment services, reflecting the high level of demand from Member States, will be a major aspect of the proposed new plan. However, the focus of Agency nuclear security activities will move increasingly towards the implementation of enhanced nuclear security measures. In addition, increased emphasis will be placed on encouraging and supporting the sustainability of measures that have been implemented. The Integrated Nuclear Security Support Plans will be an increasingly important tool in the Agency's efforts to assist Member State to strengthen their nuclear security.

50. Another priority of the new plan will be to update the existing international framework of guidelines and recommendations anchored by the CPPNM and the security-related aspects of the Code of Conduct. This framework will eventually embrace all aspects of the security of nuclear and other radioactive materials and their associated facilities, storages and transports and will address all aspects of malicious use or activities described in the risks outlined above. The existing guides and recommendations related to the physical protection of nuclear material and related facilities and transports might need substantial changes if amendments to the CPPNM are adopted.

51. It is clear that a programme of Agency activities devoted to, and focused upon, helping Member States to enhance their ability to combat the threat of nuclear and radiological terrorism is needed and is likely to remain so for the foreseeable future. The planning, programming and funding of future Agency activities should be established on this basis.