IAEA
International Atomic Energy Agency

General Conference

GC(47)/17
Date: 20 August 2003

General Distribution
Original: English

Forty-seventh regular session

Item 15 of the provisional agenda
(GC(47)/1)

Nuclear Security – Measures to Protect Against Nuclear Terrorism

Report by the Director General

Summary

- The 46th General Conference[1] requested the Director General to submit a report to the General Conference at its 47th session on activities regarding measures to improve nuclear security and protection against nuclear terrorism undertaken by the Agency. Further, the 45th General Conference[2] requested the Director General to submit a report to the General Conference at its 47th session on activities undertaken by the Agency against illicit trafficking in nuclear material and other radioactive materials.

- This report responds to the requests made in GC(45)/RES/14 and to GC(46)/RES/13 that the Director General submit a report to the General Conference at its forty seventh session on activities undertaken by the Agency to improve the security of nuclear and other radioactive materials. The report was presented in June 2003 to the Board of Governors which took note of it and approved its submission to the General Conference. The Board also encouraged Member States to continue making contributions to the Nuclear Security Fund. Attachment 2 and the related figures in the main text have been updated since the report was considered by the Board of Governors.

Recommended Action

- It is recommended that the Conference welcome the report by the Director General and encourage States to contribute to the Nuclear Security Fund.

---

1 GC(46)/RES/13

2 GC(45)/RES/14

Nuclear Security – Measures to Protect Against Nuclear Terrorism

Report by the Director General

A. Planning and Implementation

1. The Agency has adopted an integrated and multi-track approach to planning and implementing the nuclear security plan of activities described in GOV/2002/10. Potential synergies between measures to strengthen security and measures to strengthen safety are sought and exploited, and established competences, e.g. in physical protection, are extended from applications for nuclear material to new applications for other radioactive materials.

2. The Agency has assigned the highest priority to effective implementation of its plan of activities for nuclear security. Particular emphasis has been given to those activities which may have direct impact in Member States; e.g. advisory and evaluation services to help identify and remedy security needs, technical advice, legislative assistance and training. Advisory and evaluation services cover nuclear material and other radioactive materials, including sources, and nuclear installations. Such services also have been introduced to cover capabilities at borders to detect and respond to illicit trafficking in these materials. Since September 2001, a total of 35 advisory and evaluation missions have been conducted in Member States, and a total of 54 training courses, workshops and seminars have been convened. Approximately 28% of contributions to the Nuclear Security Fund (NSF) received have been used[3] and another 60% are committed to the implementation of activities forecast for the first year[4] in Annex 3 of GOV/2002/10[5]. **Attachment 1** provides a detailed summary of the Agency's activities since the previous report[6] was submitted in September 2002.

3. Two international conferences were organized. In October 2002, an International Conference on *Advances in Destructive and Non-Destructive Analysis for Environmental Monitoring and Nuclear Forensics* was held in Karlsruhe, Germany. The Conference, which reached out to both a scientific and a policy-making audience, was attended by 118 participants from 37 countries and 4 international organizations. The Conference statement underlines the importance of all States making use of advanced analytical methods for nuclear material seized in illicit trafficking, and of closer co-operation between the nuclear scientific community and the law enforcement community to effectively respond to seizures of nuclear and other radioactive materials. Follow-up actions in response to the

---

[3] As of 30 April 2003.

[4] As NSF funds were made available in the latter half of 2002, the "first year" includes 2003.

[5] Annex 3 "Detailed Description of Proposed Activities"

[6] GOV/INF/2002/11-GC(46)/14

Conference statement are pursued, *inter alia*, within the Co-ordinated Research Project "Improvement of Technical Measures to Detect and Respond to Illicit Trafficking of Nuclear Material and other Radioactive Materials".

4. In March 2003, the Agency held in Vienna an international conference on *Security of Radioactive Sources*. It was co-sponsored by the governments of the Russian Federation and the United States of America and hosted by the Government of Austria and attended by 751 participants from 123 Member States and twelve international organizations. The findings, as reported by the President of the Conference, were made available on GovAtom[7] immediately following the Conference. The findings recognized the need to strengthen the safety and security of radioactive sources and included proposals for identifying, searching for, recovering and securing high-risk radioactive sources; strengthening long-term control over radioactive sources; interdicting illicit trafficking; and improving the planning of the response to radiological emergencies arising from the malicious use of radioactive sources. The findings will be reflected in a revised Action Plan on the Safety and Security of Radiation Sources.

5. As outlined in the nuclear security plan of activities, and as recommended by AdSec, work has started on the nuclear security framework. While INFCIRC/225/Rev. 4 will continue to provide the foundation for physical protection of nuclear material and nuclear installations, additional guidelines and recommendations are needed for a comprehensive nuclear security approach as outlined in GOV/2002/10. Guidelines and technical documents related to design basis threat, vital area identification, categorization of radioactive sources, security of radioactive sources and functional specifications for instruments to be used in detection of illicit trafficking are in the final stage of development.

6. The implementation of Annex 3 of GOV/2002/10 and the nuclear security related projects included in the Technical Co-operation (TC) programme have been integrated. The TC projects provide a national or regional envelope to some of the activities outlined in Annex 3 of GOV/2002/10. This integration provides for effective and efficient use of resources, utilizing the best competencies and mechanisms available in the Secretariat; in the technical departments as well as in the TC department. In broad terms, the TC mechanism, in projects for which NSF funding is anticipated, is used to cover national and regional training, and the supply of equipment for which funds may be committed, with the related technical support and training.

7. Ensuring a coherent and consistent approach in the planning and implementation of the programme on nuclear security has presented a substantial challenge. It involves bringing together the existing activities, developing enhanced and new activities, and apportioning extrabudgetary funding with due regard to donor States and programmatic requirements. The consolidation of a majority of the nuclear security activities into the new programme on nuclear security in the Programme and Budget for 2004-2005 will facilitate implementation and co-ordination.

8. To facilitate and underpin an effective and integrated approach to nuclear security, the Department of Nuclear Safety and Security was established. The new department combines the Office of Nuclear Security, previously the Office of Physical Protection and Material Security located in the Department of Safeguards, and the previous Department of Nuclear Safety. The reorganization provides a better platform for the implementation of the nuclear security programme, including cross-cutting co-ordination, and improved opportunities to take advantage of the synergies between the Agency's safety and security activities.

---

[7] As reported in GOV/INF/2003/4.

B. Resources

9. The resources required to implement the plan of action to protect against nuclear terrorism, as described in GOV/2002/10, were estimated to be approximately $12 million per year, over a period of three years. The Board agreed that voluntary contributions made by Member States would be the funding source. The extrabudgetary Nuclear Security (Multi-Donor) Fund (NSF) was created for the receipt of such contributions. As at 31 July 2003, $22.9 million has been pledged by 21 Member States and one organization and $13.3 million has been received. **Attachment 2** shows the amounts pledged and the States that have made available cost free experts, made offers of gifts of services, equipment and use of facilities. Both the financial and the in-kind contributions are of essential value for effective and efficient implementation of the nuclear security programme.

10. To ensure that assistance delivered through the TC mechanism is not implemented at the expense of other existing high priorities in the TC programme in areas such as food and agriculture, health, water and environment, expenditure on nuclear security related activities from the Technical Co-operation Fund (TCF), responding to requests from recipient countries, is limited to $1.5 million per year. The additional funds required to achieve the objectives of the nuclear security related TC projects are proposed for funding by the NSF.

11. The ability of the Agency to implement the plan of action will require sustained funding from donor States. It is recognized that many donors to the NSF are constrained by national budgetary considerations from pledging support beyond a one-year horizon; however, more predictable funding would enhance the Agency's ability to plan farther ahead in anticipation of Member States requirements for assistance in nuclear security.

12. Many donor States specify, in some way, how their contribution to the NSF is to be spent. This targeting of contributions means that some activity areas have received funding well in excess of the levels proposed in the plan approved by the Board in GOV/2002/10, while others have remained relatively under-funded. This has a negative influence on the implementation rate and endangers a comprehensive approach. The Secretariat's ability to rectify such funding distortions is limited by the relatively limited level of NSF funds which are free of conditions. The Secretariat will, however, continue to approach donors to discuss, in specific cases, a flexible use of their contributions.

13. GOV/2002/10 anticipated a future review of the funding mechanism. Such a review will be made in the context of planning the Programme and Budget for 2006-2007. Adequate experience of the implementation of the three-year programme projected in GOV/2002/10 will then have been gained.

C. Advisory Group on Nuclear Security

14. The Advisory Group on Nuclear Security (AdSec) was established by the Director General in January 2002 to advise him "on the Agency's activities related to preventing, detecting and responding to terrorist or other malicious acts involving nuclear and other radioactive materials and nuclear facilities". Its work has been facilitated by an AdSec Working Group, which has met before the regular meetings of AdSec in 2003 and prepared its working materials. In addition to giving advice on priorities on implementation of ongoing activities, AdSec carried out a thorough review of the projects, tasks and priorities included in the Agency's proposed Programme and Budget for 2004-

2005. Its advice is reflected in the current draft of that document. AdSec underlined the need to establish a framework for nuclear security which would provide guidance to Member States on establishing, maintaining and improving nuclear security. Such a framework would also provide the basis for evaluating the Agency's activities to assist States. AdSec has provided helpful comments on the implementation of the Agency's Information Security Policy and noted that the measures will apply to nuclear security information made available to the Agency by Member States and to information derived or generated from such information.

D. External Co-Ordination

15. The IAEA's nuclear security plan of activities reflects the role that can be played by an international organization to help enhance the effectiveness of national measures. The implementation of the nuclear security programme thus depends on close interaction and co-ordination with Member States and international organizations. While the activities are funded through voluntary contributions, additional mechanisms and arrangements are needed to exchange information as well as to co-ordinate activities performed through the Agency's programmes and through bilateral assistance, respectively. Periodic meetings with all States giving financial as well as in-kind contributions to the implementation of the programme provide an opportunity to co-ordinate general matters. To satisfy requirements of individual Member States, arrangements for nuclear security support and co-ordination and memoranda of understanding have been established with Canada, Japan, the Netherlands and the Republic of Korea, and are being discussed with others. Closer regional interaction and co-operation would also be promoted and facilitated through such arrangements.

16. Co-ordination of Agency nuclear security activities with those conducted through bilateral support programmes is highly desirable especially where the supply of equipment and upgrades can be associated with Agency-provided assistance and services. This has already been achieved on several occasions. To strengthen this co-ordination the Agency plans to convene a meeting dedicated to this issue in late 2003 involving States and organizations which have bilateral support programmes.

17. The Agency continues to interact with other international organizations. To enhance co-ordination with other UN organizations several measures are being taken. The Agency participates in the Security Council Counter-Terrorism-Committee (CTC) established by the United Nations Secretary General in October 2001. It has also given numerous briefings to groups of State representatives in Geneva, New York and elsewhere. The Inter-Agency Co-ordination Committee for the Cross-Border Movement of Nuclear and Other Radioactive Materials, in which a variety of international organisations participate, will meet 28-29 May 2003. The Secretariat, within the framework of the Memorandum of Understanding, has worked closely with the World Customs Organization's 'Task Force on Security and International Trade Support Chain' and a Memorandum of Understanding which emphasises the exchange of information relevant to the security of goods being transported through the mail system, has been completed with Universal Postal Union.

E. International Instruments

E.1 Convention on The Physical Protection Of Nuclear Material (CPPNM)

18. In September 2001, the Director General convened an open-ended group of legal and technical experts to prepare a draft amendment of the CPPNM (the Group). The Group met six times in Vienna; its first meeting being held in December 2001 and its final meeting in March 2003. On 14 March 2003, the Group adopted by consensus its Final Report and agreed to submit it to the Director General. With the submission of that Final Report, the Group completed the task for which it was established.

19. The Final Report of the Group sets out possible amendments to be made to the CPPNM. The text prepared by the Group identifies possible amendments that, inter alia, reflect the extension of the scope of the CPPNM to cover the physical protection of nuclear material in domestic use, storage and transport and, the protection of nuclear material and nuclear facilities against sabotage; reflect the importance of national responsibility for the establishment, implementation and maintenance of a physical protection regime; cover the Physical Protection Objectives and Fundamental Principles; establish the basis for co-operation in case of a credible threat of sabotage of nuclear material and nuclear facilities or in case of sabotage thereof; and establish new offences relating to sabotage, nuclear smuggling, and contributing to and organizing or directing the commission of an offence. However, the text prepared by the Group regrettably still contains a small number of bracketed clauses on which agreement has not yet been reached: for example, how the Fundamental Principles of physical protection are to be incorporated into an amended CPPNM, whether offences should include damage to the environment, and whether activities of military forces should be addressed by an amended CPPNM.

20. The Director General will distribute the Final Report of the Group, through a Note Verbale, to all States Parties to the CPPNM for their consideration as to whether to initiate the procedure for the convening of an Amendment Conference in accordance with Article 20 of the CPPNM. After the Note Verbale is distributed, it will be for a State or States Parties to activate the amendment procedure in Article 20.

E.2. Code of Conduct on the Safety and Security of Radioactive Sources

21. The Code of Conduct of the Safety and Security of Radioactive Sources is being revised to reflect, *inter alia*, enhanced requirements on the security of radioactive sources. The latest revision is now being distributed to Member States for comments. A meeting to review comments received will take place in July 2003 with a view to finalizing the revision in time for the meetings of the Board of Governors in September 2003.

F. Public Information

22. To improve public understanding of the issues in protecting nuclear and other radioactive materials against the threat of the use of these materials in malicious acts, with the intention to cause harm to people, environment or property (acts often referred to as “nuclear terrorism”), and to ensure accurate and objective reporting by the media, the Agency has adopted a proactive approach to public

communication. The Agency's WorldAtom website has devoted special and continuing coverage to both nuclear terrorism and nuclear security issues. Readership of the website has risen dramatically over the past 18 months to more than 7 million hits per month ensuring broad outreach for the IAEA's key messages.

23. Building on the successful media campaign launched in June 2002, IAEA public information activities sought to add momentum by focusing media attention on the March 2003 international conference on "Security of Radioactive Sources" (see paragraph 5). As a result, the Conference was extensively covered by the world's news organizations with feature articles appearing in important international news media and many other news outlets.

24. A broad coverage of nuclear security issues is justified, with due regard to the absolute requirement to maintain confidentiality of sensitive information. The Agency has a role to play in providing the general public with information on matters relating to nuclear security.

G. Information Security

25. The Director General has approved an Information Security Policy for Agency wide implementation. An internal Information Security Policy Steering Group has been established to examine the procedures for both paper-based and electronic information (creation, transmission and storage). The Group has addressed confidentiality of information, how to maintain integrity of all information, and how to ensure the availability of information to staff, States and others, as appropriate.

26. Emphasis has been placed on multi-faceted training designed to help the staff understand the needs and requirements of information security. Generic awareness training has been given to foster a security culture which complements the traditional Agency culture that promotes transparency of information, reflecting the Agency's statutory mandate to disseminate information. Specific procedural training has been given to those responsible for controlling documents. Procedures and technical measures are being put into place to ensure security of information in hard-copy, including the necessary physical security measures. Work dealing with electronic-based information is more complicated and subject to the availability of funds. The focus has been on securing the storage and the transmission of data.

27. Specific measures have been, and are in the process of being, implemented for nuclear security information. To ensure information security, the Office of Nuclear Security remains within the externally isolated local area network that is established to maintain confidentiality of safeguards information, in which a separate sub-network is being established for nuclear security information. Measures have also been taken to enhance the physical security of the offices, including access control to the offices.

Nuclear Security

Progress on Implementing the Plan of Activities

1. The progress in implementing Annex 3 of GOV/2002/10 is reported below. The text includes activities that occurred after the report to the General Conference in 2002 was finalized. The implementation of activity areas I and V has been fully integrated within the Secretariat. Accordingly, the progress made in these activity areas is reported integrated below.

2. In addition to reporting on the output and achievements, indications are made of work ahead, as planned and prepared to date.

Activity Areas

I. Physical protection of nuclear material and nuclear facilities, and V. Assessment of safety/security related vulnerability of nuclear facilities

Objectives and goals[8]:

3. To further enhance the capacity of Member States to protect nuclear facilities, and nuclear material in use, storage or transport, against nuclear terrorism. The objective is also to strengthen the capability of Member States to assess the vulnerability of their nuclear facilities to possible malicious acts. This will be achieved by providing, on request, assessment services, together with associated advice and follow up actions to improve security arrangements at specific locations, by the development of the appropriate methodologies, by the provision of training and through other supporting activities such as the development of guidelines and recommendations.

Progress in achieving the objectives and goals:

4. The Agency's International Physical Protection Advisory Service (IPPAS) missions continue to provide advice to States to help them to strengthen the effectiveness of their physical protection systems. An IPPAS mission was carried out in the Ukraine in March 2003 and three IPPAS follow-up missions were conducted in Bulgaria, Lithuania and Poland. The Agency is currently preparing seven IPPAS mission requests and consultations are being held on additional missions.

5. Work on revising the IPPAS Guidelines has started. The revised guidelines will incorporate a modular approach, with modules for nuclear power plants, research and fuel cycle facilities and for other radioactive materials, including for vulnerable sources in use, storage and transport. For the latter, the relevant safety aspects will also be considered. The expertise available for nuclear materials, facilities and transports is being utilized in considering protection and security arrangements for vulnerable sources and other radioactive materials.

---

[8] Objectives and goals are based on GOV/2002/10, Annex 3.

6. In developing measures to reduce the vulnerability of nuclear facilities to terrorist attack, there is a strong synergy between safety and security. The Agency's approach recognizes that physical protection, as identified in INFIRC/225/Rev. 4, includes, as essential elements, safety-engineering measures for physical protection. The "*Guidelines for the self-assessment of safety and security vulnerabilities of nuclear installations*", due to be completed by June 2003, will integrate safety and security issues related to sabotage of a nuclear installation. Different types of installations, both operating and new designs, have tested the guidelines and feed back of these efforts will improve the document. Workshops on the application of self-assessment methodology related to these guidelines were held at nuclear installations in Hungary, India and Turkey.

7. Closely associated with the work on protecting vulnerabilities of nuclear installations in relation to sabotage is the work on methodology for identifying "vital areas" of nuclear installations. A draft technical document on the methodology and the related training material has been developed, reviewed and accepted by Member States' security and safety experts.

8. Member States have requested guidance on how to initiate and establish security arrangements at nuclear installations. Work has started on producing guidance for the development of requests for, and evaluation of, bids for the construction of physical protection systems. Work is also underway on the development of guidance that can be used for the analysis and protection against the 'insider threat'.

9. A Design Basis Threat (DBT), developed by the State provides an essential foundation for the State system of physical protection[9]. A team of Member States' experts has completed a review of the DBT methodology, the curriculum used at the DBT workshops and the DBT Life Cycle. The methodology has been documented in the draft "*Guidance for the Development and Maintenance of a Design Basis Threat*", which will be ready for distribution to Member States, upon request, in June 2003. DBT workshops involve sensitive information so the material used in these events is treated as "confidential". A DBT workshop was held in Indonesia in December 2002 and another three workshops are in the preparatory stage.

10. Physical protection expertise, derived from long experience in protecting nuclear material, is relevant to threat-based evaluation of the measures required to protect other radioactive materials and facilities from terrorist theft and attack. The DBT methodology is applicable to other radioactive materials, including sources. Additional considerations and revisions will be necessary to adapt the established methodology so that it can be applied to other radioactive materials whether in use, storage or transport. The work has already started and, in due course, new associated training packages will need to be developed.

11. The Agency is implementing an extensive programme of physical protection related training, workshops and seminars directed at international, regional and national audiences. During the past year, physical protection training courses were held in China, for States in Asia, and in the Czech Republic for States in Eastern Europe and Central Asia. This regional training is recurring on a biannual basis. Further regional training courses are being planned, e.g. in Latin America and Africa. The Agency is helping to establish a post-graduate education programme at the Sevastopol Science National Institute of Nuclear Energy and Industry in the Ukraine. The educational material is being provided by the Moscow Engineering Physics Institute and the Agency is helping to provide a modest upgrade of the educational facilities in Sevastopol. Educational grants, fellowships, will be made available for students.

---

[9] INFCIRC/225/Rev.4 (Corrected) para 4.1.4

12. A field-type training course "Practical Application of Physical Protection" was conducted at a training center in the Russian Federation where established in-field training facilities have been made available for the training of operators of nuclear installations of Russian origin and design. Efforts are underway to further upgrade this center, to enable training on how to test the design of physical protection systems, including alarm, detection and delay. Thereafter, the training will be offered to a larger group of States.

13. A meeting with the directors of the nuclear power plants in the Russian Federation was convened to discuss security culture at Russian nuclear power plants. The implementation of a security culture will be discussed at a meeting in 2003 at which experiences gained in the Russian Federation and in other States will be shared with a view of identifying a common basis for a generally applied security culture.

14. A pilot regional course on “Security of Nuclear Installations” is to be held in India in May 2003. This course will specifically deal with security aspects of “mixed facilities” in which research reactors and laboratories are operated and radioactive sources are produced. It will also include how a nuclear security culture may be implemented.

15. Applied research activities are being supported for several installations in the Russian Federation. Joint research work on vital area identification will be performed, *inter alia*, with the Republic of Korea as part of implementing the recently agreed Arrangement concerning nuclear security between the IAEA and Republic of Korea.

II. Detection of malicious activities involving nuclear and other radioactive materials

Objectives and goals[8]:

16. To ensure that effective measures are in place to detect and interdict incidents of theft, illicit possession and illicit nuclear trafficking. This will be achieved, for example, by providing, on request, assessment services, training and technical support, and by coo-coordinating the development by Member States of up-to-date detection instrumentation.

Progress made in achieving the objectives and goals:

17. Evaluation Missions to assess present capabilities at borders to detect and respond to illicit nuclear trafficking were conducted in Bosnia & Herzegovina, Croatia, the Former Yugoslav Republic of Macedonia, Georgia, Poland and Ukraine. Expert teams worked with the host country counterparts to identify the needs for improved detection capability at borders and to identify the assistance needed to establish and sustain an improved capability.

18. In response to requests for assistance, the Agency performed incident response missions to Bolivia, Nigeria and the United Republic of Tanzania to assist with characterization of radioactive materials seized in illicit trafficking. The missions are also described in point 43 below.

19. There is an expanding awareness of the need to combat illicit trafficking. The Agency held a workshop on nuclear security related topics for personnel involved in law enforcement, regulatory activities, customs and commercial operators in the Philippines in November 2002. At the same time, the Agency’s nuclear security plan of activities was presented to a meeting of representatives of ASEAN States in the Philippines and the opportunities for providing Agency assistance in combating illicit trafficking were explored.

20. States in Africa have also noted that illicit nuclear trafficking is an increasing problem for them and expressed a wish to enhance their capacity to deal with the problem. A tentative work plan

includes a regional awareness seminar to combat illicit trafficking and nuclear security evaluation missions to five States which have requested such assistance. The latter will provide the foundations for determining subsequent nuclear security assistance.

21. In February 2003, a pilot regional course '*Response to Nuclear Terrorism and Incidents Involving the Illicit Trafficking of Radioactive Materials'* was held in Romania. The course focused on responding to terrorist acts, including related aspects of illicit trafficking in nuclear and radioactive materials, and included a demonstration of the host country's arrangements for emergency response to such acts.

22. There is a great need for training of staff of national authorities, law enforcement authorities and the relevant scientific community in awareness of and combating of illicit nuclear trafficking. A training strategy has been developed in which three specific training categories have been identified; a) regional awareness seminars to combat illicit trafficking, b) regional focused training on methodologies and practices to detect radioactive materials in illicit trafficking, and c) specific training in using detection equipment provided as support. A first set of standardized curricula for the training within these different categories has been developed. The material is designed so that it can be adapted to fit specific circumstances in different regions. Current initiatives include the development and delivery of a one-week course concentrating on the theory and practical use of hand held instruments. A regional seminar will be held in December 2003 in South America on border monitoring and licit and illicit movements of radioactive materials.

23. An "*Inter-regional Seminar on Emerging Issues for Nuclear Security*" was held in the USA in October 2002. Work is underway to broaden this seminar to an "*International Seminar on* Nuclear *Security"* for participants from all interested States. This International Seminar will be held in the United States in October 2003.

24. An "International Conference on the Advances in Destructive and Non-Destructive Analysis for Environmental Monitoring and Nuclear Forensics" was held in Karlsruhe in October 2002. The Conference provided recommendations for future activities in this area.

25. The Co-ordinated Research Project on "Improvement of Technical Measures to Detect and Respond to Illicit Trafficking of Nuclear Material and Other Radioactive Materials" continues to make progress. To prepare technical specifications of border monitoring equipment, a meeting was held in March 2003. A document containing the minimum technical specifications is expected to be finalized and published by the end of 2003. In February 2002, a meeting was held on the "Provision of Nuclear Forensics Support for the Characterization of Seized Nuclear Material". The recommendations of this meeting will be used to make available to Member States support in nuclear forensics in an effective and timely manner.

26. Laboratory facilities have been established in the Agency to provide some technical support related to detection and response to illicit trafficking. This support will include testing the functionality of monitoring instruments purchased by the Agency for supply to Member States, maintaining instruments used in field missions, in regional and national training courses, and testing of instruments in support of the Co-ordinated Research Project.

27. Efforts continue to provide guidelines and recommendations to the law enforcement community. A "*Handbook on Illicit Trafficking*" and a TECDOC on radioactive materials typically involved in illicit trafficking are nearing completion.

III. State systems for nuclear material accountancy and control (SSAC)

Objectives and goals[8]:

28. To ensure that all nuclear material in Member States is properly accounted for at all times. This will be achieved, for example, by providing assessment services, by co-ordinating technical support programmes provided by Member States for example with respect to equipment upgrades and by providing guidance on technical capabilities necessary for performing measurements and analysis, the technical and administrative systems to ensure recording and record-keeping and by providing training to SSAC and facility personnel.

Progress made in achieving the objectives and goals:

29. Effective systems for nuclear material control and accountancy are essential for maintaining the security of nuclear material and combating illicit trafficking. While an effective SSAC is an essential element for the implementation of a State's safeguards agreement, nuclear material control and accountancy also underpins physical protection and export control. During the past year, safeguards related training courses, workshops and seminars available to Member States were upgraded and expanded.

30. Using a methodology distributed to States in Eastern Europe and Central Asia, the majority of the recipients have performed self-assessments of their SSACs. The Agency has assisted by completing an evaluation of their responses. The results of these evaluations provide the basis for Agency assistance to enhance the SSACs of Estonia, Georgia, Kazakhstan, Latvia, Lithuania, Ukraine, and Uzbekistan. This process will continue for other States during 2003. Work has started on guidelines for an SSAC evaluation service. The development of new guidelines for the establishment, improvement and maintenance of an effective SSAC has also started.

31. Nine SSAC-related training events were conducted for Member States in 2002. These included three international courses on State Systems of Accounting for and Control of Nuclear Material (SSACs) in Algeria, the Russian Federation and Japan; a regional training course on IAEA safeguards in Japan; three workshops on familiarization with Agency safeguards in the Republic of Korea, the Russian Federation and the Islamic Republic of Iran; and two workshops on nuclear material accountancy and reporting in Ukraine and Switzerland.

32. To enhance the operation of an SSAC, computer hardware and software have been delivered to Armenia, Belarus and Lithuania. These systems have improved the nuclear material accounting reports required to be submitted pursuant to safeguards agreements. It has also given recipient States the ability to encrypt electronic safeguards reports submitted to the Agency. Similar assistance is planned for several other Member States.

IV. Security of radioactive material other than nuclear material

Objectives and goals[8]:

33. To improve national security measures with respect to radioactive material other than nuclear material and to ensure that significant[10], uncontrolled radioactive sources are brought under regulatory control and properly secured. This will be achieved by providing advisory services, by providing assistance to Member States in their efforts to identify, locate and secure or dispose of orphan sources, and through the preparation of guidelines and recommendations.

---

[10] In recent documents "significant radioactive sources" are referred to as "vulnerable radioactive sources".

Progress made in achieving the objectives and goals:

34. Work under Activity Area IV can be broadly grouped into two areas: *retrospective* – remediation of the existing situation with regard to orphan or vulnerable radioactive sources; and prospective – efforts to prevent further sources becoming orphaned or vulnerable.

Retrospective

35. The focus of retrospective efforts is on the development of "National Strategies for Regaining Control over Radioactive Sources". Four pilot assessment missions for this purpose have been completed to Algeria, Armenia, the Philippines, and the United Republic of Tanzania.

36. The draft TECDOC on development of national strategies takes into account the lessons learned from these missions. Four regional workshops and ten national missions are planned using teams comprised of experts from Member States and Agency staff.

37. The United States, Russian Federation and the Agency have formally launched the "Tripartite Initiative on Securing and Managing Radioactive Sources". The Tripartite Initiative is focused on securing vulnerable, high-activity radioactive sources within the former Soviet Union. To determine the actions needed in a specific State, assessment missions are performed. Such missions, performed in the Republic of Moldova and Tajikistan, have resulted in improved security for some sources in those countries. Further missions are scheduled for Azerbaijan, Belarus, Estonia, Kazakhstan, Kyrgyzstan, Latvia and Ukraine.

Prospective

38. One major focus of preventive efforts is on the development of a possible international undertaking based on the "Code of Conduct for the Safety and Security of Radioactive Sources". A draft of the revised Code of Conduct was discussed with Member States at a meeting in March 2003. The draft has now been distributed to Member States for comments by 1 June 2003. A meeting to review and incorporate comments on the Code of Conduct will be held in July 2003 with a view to finalizing the revisions in time for the Board of Governors meeting in September 2003.

39. Measures to improve both safety and security will be based on a "Categorization of Radioactive Sources". A revision of "Categorization of Radioactive Sources, TECDOC-1344" has been made with the help of Member States experts and a final draft has been distributed to all Member States for comments. The categorization will be the basis of much future guidance with regard to safety and security of radioactive sources. Additional criteria may be applied, however, to identify the small fraction of radioactive sources that may be particularly vulnerable for potential terrorist acts that would aim at dispersing radioactivity to the general public, to cause damage to the environment or property. Such sources may require additional physical security to protect them from such use.

40. A second major focus of the preventive work is the development of guidance on the "*Security of Radioactive Sources*". An interim document has been completed and will be published shortly. A meeting of representatives from the major manufacturing and distributing countries was held in Vienna in late April 2003 to address issues related to design of sources, validation of legal purchases and return of sources as well as consideration of export controls.

41. A major international conference on the "Security of Radioactive Sources" was held in Vienna in March 2003. The findings of this conference were based on a recognition of the need to strengthen safety and security of radioactive sources and included proposals to identify, search for, recover and securing high-risk radioactive sources; strengthening long-term control over radioactive sources; interdicting illicit trafficking and improving the planning the response to radiological emergencies arising from the malevolent use of radioactive sources. The findings from this conference will be incorporated into a revised Action Plan for the Safety and Security of Radiation Sources.

V. Assessment of safety/security related vulnerability of nuclear facilities

42. See Activity Area I, above.

VI. Response to malicious acts, or threats thereof

Objectives and goals[8]:

43. To ensure that States and the Agency are able to respond effectively to the radiological aspects of acts of nuclear terrorism involving nuclear and other radioactive materials. This will be achieved, for example, by strengthening the radiological emergency response of States through training and technical support, the development of guidelines and recommendations, and the enhancement of the Agency's own arrangements to respond to radiological emergencies.

Progress made in achieving the objectives and goals:

44. The document "Preparedness and Response for a Nuclear or Radiological Emergency", contains requirements for preparing for and responding to nuclear or radiological emergencies involving malicious acts, was published in November 2002. The Secretariat has published, as EPR-METHOD(2003), an updated version of TECDOC-953 on the methodology for developing emergency preparedness and response arrangements for nuclear or radiological emergencies that in part addresses arrangements for responding to emergencies resulting from malicious acts.

45. The Agency has intensified its efforts to strengthen emergency response measures in States. As part of the ongoing training programme in emergency response measures, ten regional train-the-trainer courses and two national workshops were conducted on various aspects of emergency preparedness and response, including response to radiological emergencies, medical preparedness and response, emergency monitoring and technical assessment of emergencies at reactor facilities. Some of these courses were augmented with interim training material specifically addressing preparedness for emergencies resulting from malicious acts.

46. A draft technical document has been developed on *Preparedness and Response for Malevolent Acts involving Radioactive Material.* The purpose of the TECDOC is to present a background, planning methodology and, where appropriate, tools to assist the community of national authorities involved in making arrangements for response to such emergencies. The document provides a background to the subject with clear references to existing Agency documents for more detailed information, introduces material that describes differences in planning and response for nuclear and radiological emergencies resulting from malicious attacks, or imminent threats thereof, from planning and response for accidents. The document will be used as a basis for revising existing emergency response preparedness and response manuals, their associated training material and appraisal methodologies to better address the specific issue of the response to nuclear or radiological emergencies arising from malicious activities. Interim training material based on the draft TECDOC will be piloted in workshops later in 2003.

47. The Agency has commenced the strengthening of its own emergency response arrangements to address concerns expressed in GC(46)/RES/9 Part D. However, these have been delayed owing to additional activities placed on the emergency response system resulting from discovery of dangerous orphan sources in Georgia. A tabletop study was performed with the aim of identifying gaps in the Agency's current response system that need strengthening in order to respond adequately to new scenarios that might require an Agency response. The issues have been reflected in the latest edition of the Joint Radiation Emergency Plan of the International Organizations, the Emergency Notification and Assistance Technical Operations Manual (ENATOM) and the Nuclear and Radiological Emergency Assistance Plan (NAREAP). The Secretariat has established rudimentary interim

arrangements for in-house response to malicious events causing radiological emergencies. However, further arrangements are required with other international organizations with a mandate in connection with a radiological emergency.

48. Since September 2001, States have requested assistance from the Agency on measures to take in case of theft or seizure of a radioactive source. The Agency has responded to these requests by providing experts for assessment of safety hazard, to help identify the properties of the material seized and to advise on other measures, e.g. improved control at borders. Such assistance was requested by the Bolivia, Nigeria and the United Republic of Tanzania to address events in which sources were involved in illicit trafficking, and by Qatar to assess the safety hazard and handing of an orphan source detected in an urban area.

49. Some preparatory activities were started regarding response to terrorist acts and related emergencies at nuclear installations. The first steps of this activity, which will involve Member States, will be a modification of the emergency plans to take account of potential terrorist acts on nuclear facilities. An applied research activity on this topic has been established jointly with the Republic of Korea.

VII. Adherence to and implementation of international agreements, guidelines and recommendations

Objectives and goals[8]:

50. To bring about the adherence to, or implementation of international instruments relevant to the enhancement of protection against nuclear terrorism by a significantly increased number of States. This can best be achieved through outreach programmes to Member States through which the States' adherence to and implementation of such instruments could be encouraged, and solutions to the barriers thereto (e.g. inadequate legislation and/or regulatory structures) could be explored.

Progress made in achieving the objectives and goals:

51. The Agency continues to provide advice to Member States on developing national legislation governing the safe and peaceful uses of nuclear energy. Member State requests for legislative assistance in drafting national legislation in the field of nuclear security have increased. The Agency also continued to give advice on the elements for the legal framework including basic requirements and procedures required for the control of radioactive sources, physical protection of nuclear material, safeguards and import and exports controls. A workshop on the development of a legal framework governing all aspects of the safe and peaceful uses of atomic energy, held in Buenos Aires, Argentina on November 2002 focused, inter alia, on the development of national legislation required to govern the physical protection of nuclear material based on the provisions of the Convention on the Physical Protection of Nuclear Material and INFCIRC/225/Rev.4 "The Physical Protection of Nuclear Material and Facilities". A similar workshop will be organized in 2004 for Member States in the Africa region.

52. The terms of reference and the background material for the International Teams of Experts (ITE) that will visit States with a view to holding meetings with senior policy-makers to promote adherence to and implementation of international instruments relevant to the enhancement of protection against nuclear terrorism have been completed. Two missions will be organized in 2003. To the extent practicable and bearing in mind the requests received the first two ITEs will visit up to five States in Africa and up to five States in Latin America.

VIII. Nuclear security co-ordination and information management

Objectives and goals[8]:

53. To support and assist in the co-ordination of Agency and Member State activities to strengthen nuclear security. This will be achieved by establishing a well co-ordinated programme, by providing consolidated information, and through fostering information exchange with other international organizations.

Progress made in achieving the objectives and goals:

54. Effective planning and implementation of the Agency's nuclear security plan of activities must rest on a foundation of good information on Member States needs. In GOV/2002/10, the Secretariat indicated that, where necessary, general nuclear security missions will be arranged, upon request, to determine the State's overall nuclear security needs and concerns and to develop a plan for providing and coordinating support and assistance. These missions will take a comprehensive approach covering the range of nuclear activities in the State. The Secretariat is at the late stages of organizing such missions to two Member States and is at an advanced stage of planning missions to six other States. The results of these missions will provide the basis for planning and implementing comprehensive and integrated Agency assistance.

55. In the regional context, a similar, structured approach has been adopted to planning activities in Africa. In January 2003, a regional nuclear security meeting of Member States in Africa was organized by TC in Ghana. It combined briefings on the nuclear security programme by Agency staff with an overview of security needs in the participating States. The results of the meeting form the basis for an integrated approach, which will involve Agency missions to assess national security needs. On the basis of the results of these missions, future national and regional Agency activities will be determined; e.g. national and regional training, IPPAS missions and design basis threat workshops.

56. The existing illicit trafficking database (ITDB) continues to grow. In 2002, information on 56 new trafficking incidents was added to the database, of which the States points of contact have confirmed 46 incidents. Summary listings of reported incidents were issued to Member States on a quarterly basis. An expanded Illicit Trafficking Annual Report for 2002 is currently in preparation and about to be issued. Efforts continue to encourage more Member States to become ITDB participants. The number of Member States participating in the ITDB has increased to 73. Coverage in the ITDB of incidents involving radioactive sources is improving but remains less comprehensive than that for nuclear material. It is well known that undeclared radioactive sources are detected upon entry into scrap yards, yet these events are mostly not reported to the database. A review meeting with the ITDB Points of Contact is planned for October 2003, with a preparatory meeting in June 2003. The review meeting will discuss further development of the ITDB and its exploitation, usefulness of the software and improved sharing of information.

57. The Secretariat continues to service a high volume of *ad hoc* demands for information from Member States, NGOs and academic institutions and to support public information objectives. The Secretariat has also provided several lectures on illicit trafficking trends and patterns as part of border monitoring and detection courses and to various workshops and seminars.

58. The Secretariat has maintained its co-operation with other international organizations albeit against a backdrop where resources on all sides continue to be under considerable strain. The Agency concluded a Memorandum of Understanding with the Universal Postal Union in 2002 covering, inter alia, the exchange of information relevant to the transport of radioactive material. An updated version of the ITDB database containing unrestricted information will be produced and issued on CD-ROM to

Interpol, EUROPOL, and the WCO. In November 2002, the UN General Assembly adopted the resolution on 'Measures To Prevent Terrorists From Acquiring Weapons of Mass Destruction'[11]. The Agency participates in this effort. This encouraged cooperation among and between, inter alia, regional and international organizations for strengthening national capacities. Over the last six months, the Secretariat has provided consistent support to the World Customs Organization's *Task Force on Security and Facilitation on the International Trade Supply Chain* the output of which will include proposals on capacity building related to advancing the development and implementation of supply chain security regimes. The Agency intends to continue to develop and expand its relationships with other international organizations, possibly by establishing formal arrangements on the cooperation, as and where appropriate.

59. Many Member States, and some other international organizations, provide assistance to other States to help enhance their nuclear security. The Secretariat is aware of some of these activities; individual donor States and organizations may be aware of others. However, it is likely that some efforts may be duplicated in some areas. Measures to improve transparency on bi-lateral assistance activities would make a contribution to the overall efficiency of both national and international efforts to raise the effectiveness of nuclear security measures. The Secretariat reports periodically to donor States on progress in implementing the nuclear security plan of action. To improve co-ordination with bilateral programmes, a dedicated meeting is to be convened at IAEA headquarters in November 2003. The Agency has concluded arrangements or memoranda of understanding with Canada, Japan, the Netherlands and the Republic of Korea to cover the scope and conditions for nuclear security co-operation and how the financial contributions from these States are to be used. Discussions are ongoing with other States on arrangements for nuclear security support and co-operation, to provide a platform for joint work and for establishing networks for co-operation and as a tool to enhance co-ordination with bilateral co-operation programmes.

---

[11] See A/RES/57/83, the 57th plenary meeting, UN General Assembly, 22 November 2002.

Contributions to the Agency's Nuclear Security Activities

STATUS OF NUCLEAR SECURITY FUND **(as at 31 July 2003)**	
Member States/Organizations	Voluntary Contributions Pledged (Rounded, U.S. Dollar Equivalent, current United Nations rate of exchange)
Australia	120,194
Austria	53,821
Bulgaria	15,000
Canada	3,065,954
Czech Republic	41,636
France	459,768
Greece	29,732
Hungary	11,403
Iran	30,000
Ireland	43,777
Israel	30,000
Japan	500,000
Republic of Korea	150,000
Netherlands	510,718
New Zealand	23,763
Norway	60,000
Romania	27,550
Slovenia	13,145
Sweden	11,238
United Kingdom	1,181,860
United States of America	15,401,209
Nuclear Threat Initiative	1,150,000
TOTAL PLEDGED	**22,930,771**
TOTAL RECEIVED	**13,326,333**

Gifts of Services, Equipment and Use of Facilities

MEMBER STATES
Canada
China
Czech Republic
Finland
France
Germany
Greece
Hungary
India
Japan
Norway
Pakistan
Romania
Turkey
United States of America