

# Nuclear Security – Measures to Protect Against Nuclear Terrorism

Supplementary Information to GOV/2004/50-GC(48)/6

## Part A.

### Progress in Implementing Activity Areas I to VIII, as defined in GOV/2002/10

#### **I & V: Physical protection of nuclear material and nuclear facilities and assessment of safety/security related, vulnerability of nuclear facilities**

1. There are clear potential synergies between work to enhance the physical protection of nuclear material and nuclear facilities against nuclear terrorism and work to strengthen the capability of Member States to assess the vulnerability of their nuclear facilities to possible malicious acts. In consequence of this, work under these Activity Areas of the Nuclear Security Plan of Activities has, therefore, been combined and reported accordingly.
2. The objectives set under this activity area are achieved by providing, on request, advisory 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. INFCIRC/225/Rev.4 (entitled “The Physical Protection of Nuclear Material and Nuclear Facilities”) recommends, inter alia, ‘close cooperation’ between safety and physical protection specialists on measures to protect nuclear materials and nuclear facilities against sabotage. Safety experts have participated in the appropriate International Physical Protection Advisory Service (IPPAS) missions.

#### **Guidelines and recommendations**

3. Work on revising the IPPAS Guidelines is nearing completion. The revised guidelines have modules for nuclear power plants, research and fuel cycle facilities and for other radioactive materials, including security of sources in use, storage and transport. The revised guidelines take into consideration the relevant safety aspects.
4. The Design Basis Threat (DBT) is internationally accepted as the common basis for the operator to design, and for the competent authorities to evaluate, physical protection systems. A guidance document on the development and maintenance of the DBT, relevant for the physical protection of nuclear material and related facilities, is available as interim guidance for comment. AdSec has welcomed this document and has recommended that it be adapted for use in the design and evaluation of security measures for other radioactive material. Preparation of the modified document is underway.

5. The effectiveness of measures to protect against nuclear terrorism relies upon the related organizations giving due priority to the establishment and maintenance of a nuclear security culture. Facilitated by the Agency, consultants from various Member States have been developing technical guidance on assessing, enhancing and implementing security culture in nuclear and other facilities with radioactive materials.

6. The vulnerability of nuclear facilities to terrorist attacks depends on the physical protection system, the robustness of processes, systems, structures and components, and the capability of the operator to regain the control by crisis management. The potential radiological consequences depend primarily on the inventory of nuclear material and finally, in the case of a release, on the emergency response capabilities to mitigate the consequences. These are the layers of a defence in depth to be considered in a comprehensive physical protection system against sabotage. Based on the results of advice received at a technical meeting of international physical protection and safety experts, a document entitled “*Guidance on the Physical Protection Against Sabotage*” has been drafted. This complements the guidance on sabotage already available in INFCIRC/225/Rev.4 and is ready for publication.

7. Closely associated with the work on protecting vulnerabilities and improving the robustness of nuclear installations in relation malicious acts is the identification of ‘vital areas’. A guidance document “*Guidelines for Identification of Vital Areas for Protecting Nuclear Facilities Against Sabotage*” has been drafted using the results of a consultants meeting of physical protection and international nuclear safety experts. This document provides guidance on how to identify vital systems, structures and components as targets for security consideration and on methodologies to assign the identified subjects to areas, which then can be protected against malicious acts. The “*Guidelines for the Self-Assessment of the Engineering Safety Aspects of the Physical Protection of Nuclear Facilities against Sabotage*” integrate safety and security issues related to sabotage of a nuclear installation. These guidelines have been used and discussed during several of workshops on physical protection against sabotage.

8. Physical protection against malicious acts by personnel with authorized access is the subject of a bilateral project between United States and France, and coordinated by the Agency. A document including a methodology for addressing ‘insider threats’, specifically with respect to both physical protection against unauthorized removal and sabotage, is being prepared. This document will provide the foundation for ‘Insider Threat Workshops’ that are being developed in parallel.

9. A multilateral project, coordinated by the Agency, to develop a workshop on the physical protection of nuclear material during transport is underway. The workshop will be based on INFCIRC/225/Rev.4 and consider the development of the guidance documents on the physical protection of nuclear material and nuclear facilities against sabotage and on the security of radioactive material during transport.

10. There is growing concern over the potential threat from cyber terrorism. Software operated control systems in a nuclear facility could be vulnerable to cyber attack; e.g. directly using electronic links from outside or by using imported software and ‘insider’ access. A document entitled “*Guidelines on the Security of Information Technology Related Equipment and Software Based Controls Against Malevolent Acts*” is in the late stages of preparation.

11. A technical document is being developed, with the help of experts from Ukraine, on improving the capabilities of a nuclear power plant to respond to the conditions created by a terrorist attack. The objective is to plan for actions that would prevent a potential release of radioactivity. To do so, on-site crisis management and emergency procedures need to be developed and practised. The document, entitled “*Guidelines on the Co-ordination of Security and Safety Responses to Malicious Acts during On-site Emergency Situations*” includes preparing, performing and evaluating joint exercises for on-site security and safety personnel.

## **IPPAS Missions**

12. The Agency's IPPAS missions continue to provide advice to States to help them strengthen the effectiveness of their physical protection systems. Since July 2003 IPPAS missions have been carried out in Armenia, Chile, the Islamic Republic of Iran, Mexico, Norway, Peru, the Philippines, and Turkey. Three facility specific IPPAS missions have been conducted in Ukraine. Follow-up activities have included Design Basis Threat workshops, Agency facilitation and coordination of bilateral support for upgrades of physical protection systems and organizing scientific visits for national experts.

## **Education and training courses**

13. An international training course on physical protection, including general nuclear security issues, was held in the United States and regional training courses in physical protection were held in the Czech Republic, India, Mexico and the Russian Federation. A national training course on practical aspects of physical protection systems was held in the Russian Federation for participants from the Islamic Republic of Iran. A prototype workshop on physical protection against sabotage was held in China and Japan. A seminar to discuss the methodology to evaluate extreme impact of acts of malicious origin was conducted with German experts.

14. DBT workshops were held in Brazil, Bulgaria, South Africa, Mexico, Peru and the Philippines. A workshop for African Regional Co-operative Agreement for Research, Development and Training Related to Nuclear Science and Technology (AFRA) member States on nuclear security awareness was held in Algeria.

15. In Ukraine, at the Sevastopol National Institute of Nuclear Energy and Industry, efforts are ongoing to establish an under-graduate education module in nuclear security; nuclear material accountancy and physical protection. The project is implemented in cooperation with the Russian Technical University in Moscow, where such education presently is provided.

## **Research Reactor Security**

16. The security of research reactors and their associated facilities is of increasing international concern. Research reactors have technical, administrative and geographical features that raise specific challenges in the implementation of an effective security regime designed to combat malicious acts. Some of these challenges, especially those concerned with sabotage, are addressed by measures that serve both safety and security objectives.

17. In the context of the Agency's comprehensive approach to addressing nuclear security issues and recognising the need for a focused approach to the security challenges posed by research reactors, the Agency has developed an Integrated Plan for Enhancing the Security of Research Reactors and their associated facilities. This Plan subscribes to a graded approach to the security of these facilities in line with their potential radiological impact and takes into account the provisions of INFCIRC/225/Rev. 4.

18. A pilot regional training course on the physical protection of research reactors and their associated facilities was held in Australia for States in the Asia-Pacific region. This was the first iteration of a specialised training course that will address the particular challenges such facilities face in implementing an effective security regime. Substantial assistance was given by the United States in developing the syllabus. Further development of the syllabus has been assisted by advice received from Member States' experts. The results have been used to formulate a regional workshop on the physical protection of research reactors to be conducted in South Africa for AFRA Member States in July 2004. It is anticipated that the course syllabus will soon be finalised and a series of regional training courses devoted to the physical protection of research reactors and their associated facilities will follow.

19. Work on a guidance document specifically addressing the security of research reactors and their co-located facilities has started, including with a project to rank nuclear research facilities in relation to the need for protection against theft of nuclear material and other radioactive materials. This guidance will subscribe to a graded approach including for “prudent management” in relation to protection against sabotage.

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

20. The detection and identification of incidents involving the smuggling of nuclear and other radioactive materials at international borders continues to be an important element of a comprehensive nuclear security programme. The evaluation of States’ capabilities to combat illicit trafficking in nuclear and radioactive materials constitutes an integral part of INSServ Missions, which have been performed in nine Member States to date.

### **Education and training**

21. The training of Member State staff involved in combating illicit nuclear trafficking continues at a high level of intensity. National level training courses on combating illicit trafficking took place in Albania, Belarus, Georgia, Kyrgyzstan and Turkey. Regional awareness seminars were conducted in Egypt, Jordan and Paraguay, and sub-regional seminars have been, or will be, held in Malaysia and Serbia and Montenegro. The regional seminar in Paraguay was organized for the MERCOSUR states. The participating Member States have subsequently held meetings and discussions on methods to enhance sub-regional cooperation in efforts to address illicit trafficking and inadvertent movements of radioactive materials. Additionally, technical support was provided to Tanzania in their efforts to train police and customs officers. The Agency continued to support customs and other “front line” officers in their familiarization with detection and identification instruments by conducting two week-long intensive training sessions in cooperation with the Austria Research Center, Seibersdorf. In addition to providing training to the participants in both theory and through practical exercises, the participants are also then qualified to return to their organizations and provide training to other officers.

### **Co-ordinated Research Project**

22. 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. At a Research Coordination Meeting held in December 2003, draft functional specifications to be used for detection instruments (for example for use at borders) were 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.

### **Nuclear Security Equipment Laboratory (NSEL)**

23. In a limited number of cases, the Agency has been able to provide instruments to upgrade detection capabilities in Member States. The Agency has established, at Headquarters, a small IAEA Nuclear Security Equipment Laboratory (NSEL) in 2003. The NSEL is staffed by Agency technical staff experienced in radiation detection equipment. In 2004, up to 20% of hand held instruments procured for detection have not met all the specifications. Before delivery, therefore, detection instruments are tested

in the laboratory and corrected or replaced as necessary. Detection instruments were, or are in the process of being, delivered to Azerbaijan, Bosnia, Croatia, Greece, Georgia and the Former Yugoslav Republic of Macedonia. The NSEL also maintains the equipment used in training on detection and response.

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

24. Reliable accounting for and control of nuclear material is essential to States' abilities to fulfil their international nuclear non-proliferation obligations. At the same time, effective accountability and control are also essential for maintaining the security of nuclear material and for combating illicit trafficking. Technical and analytical capabilities as well as legislative, regulatory and administrative systems are necessary preconditions to perform measurements, keep records, prepare nuclear material accounting records and reports, and to apply the State and facility controls over nuclear material. To assist in strengthening their SSACs, the Agency has provided direct assistance to Member States including technical advice, training and other guidance at both the State and facility levels. The development of guidelines and recommendations combined with the provision of advisory services, training and technical support are key elements in establishing and strengthening SSACs.

#### **Guidelines and recommendations**

25. In the past year the Agency completed a review of guidelines for establishing and maintaining such SSACs, which would also include Additional Protocol requirements. This draft has been submitted to a group of external experts for review, and it is expected to be published later in 2004.

#### **Evaluation missions**

26. The IAEA Advisory Service Mission (ISSAS) is a new initiative to provide national competent authorities with recommendations and suggestions on improvements that could be made to their SSAC systems. These missions will provide key staff with an opportunity to discuss their practices with international experts who have comparable experience and to recognize good practices in the course of the mission. Recommendations from the missions will also provide a basis for subsequent assistance. Guidelines have been drafted to provide a basic structure and common reference to assist the team members in conducting an ISSAS mission and to provide guidance to a host government receiving a mission.

27. The first ISSAS mission was conducted in Indonesia in June 2004 with the dual purpose of reviewing the national SSAC system and also evaluating guidelines for this new service. The results of this mission should assist the effectiveness of the SSAC but should also serve to identify areas for further cooperation between the State authority and the Agency. The lessons learned in the course of this mission will be integrated in the guidelines for subsequent missions. It is planned to conduct three to four missions per year.

28. SSAC evaluation missions were also convened in Armenia, Azerbaijan, Kyrgyzstan and Tajikistan. These missions provided advice and recommendations on steps that could be taken to establish or strengthen these States' SSACs.

## **Education and training**

29. Eight SSAC-related training events on effective safeguards implementation have been conducted for Member States since July 2003. These included three regional training courses in Australia, Japan and South Africa a workshop on IAEA Safeguards Activities in Kazakhstan, a national training course on the Additional Protocol to Safeguards Agreements in Chile, a Workshop on Nuclear Material Accounting and Reporting at Uranium Conversion and Enrichment Facilities for Personnel from the Islamic Republic of Iran, a Workshop on Radiation Measurement Techniques for Safeguards Inspection in Japan, and a Workshop on Nuclear Material Accounting and Control in China. The content of most SSAC training courses and seminars has been upgraded and revised to include the requirements of import/export controls and physical protection.

## **Equipment upgrades**

30. The Agency coordinates and contributes to the upgrade of the nuclear material accounting and control system at the Ulba fuel fabrication facility in Kazakhstan. Further steps were taken to provide the necessary equipment and measurement procedures for nuclear material measurements at the facility. To enhance the operation of the SSAC, computer hardware and software systems have been delivered to four Member States. These systems have improved the nuclear material accounting reports and given recipient States the ability to encrypt electronic reports provided to the Agency.

## **IV. Security of radioactive material other than nuclear material**

31. The objective of this activity area is to improve national security measures with respect to radioactive material other than nuclear material and to ensure that significant, uncontrolled radioactive sources are brought under regulatory control and properly secured. This will be achieved by providing appraisals and advisory services, training and technical assistance. Specific activities cover legislative and regulatory structures related to the security of radioactive materials, the development of regulatory management tools, physical protection of materials from malicious acts, assistance to Member States in their efforts to identify, locate and secure or dispose of orphan sources, and the preparation of the appropriate guidelines and recommendations.

### **Tripartite Initiative**

32. Activities continued under the Tripartite Initiative between the IAEA, the Russian Federation and the United States of America, for the purpose of securing vulnerable, high-activity radioactive sources within the former Soviet Union, except in the Russian Federation. Under its umbrella, the IAEA and its partners conducted fact-finding missions to identify, characterize, and propose security measures for radioactive sources in Armenia, Azerbaijan, Belarus, Kazakhstan, Republic of Moldova and Tajikistan. The Tripartite Initiative is working in synergy with bilateral efforts on the part of the Russian Federation and the United States of America Department of Energy (DOE) to provide physical protection of sources in regular use in the countries participating in the initiative. A total of 32 sites in Armenia, Azerbaijan, Estonia, Georgia, Kazakhstan, Latvia, Lithuania, the Republic of Moldova and Ukraine have completed US DOE bilateral enhanced physical protection upgrades of vulnerable sources at their place of use. A further 30 sites are scheduled for completion of upgrades by the end of September 2004, including projects in Kyrgystan and Tajikistan. The IAEA has undertaken to provide support for the decommissioning and transportation of disused, or otherwise vulnerable sources outside of regulatory control to secure and safe storage facilities in Azerbaijan, Belarus, Estonia, Kazakhstan, Republic of Moldova, and Tajikistan. Through these efforts, a number of vulnerable sources are in the process of

being secured, although further work remains to be done to bring the project to a satisfactory conclusion.

### **Regaining control over orphan sources**

33. In February 2004, TECDOC-1388 “*Strengthening control over radioactive sources in authorized use and regaining control over orphan sources, national strategies*” was published. Work on this document began at a time when the primary concern was with providing guidance to Member States on their strategies for controlling radioactive sources in order to prevent accidents. However, the methodology for identifying and regaining control over orphan sources also contributes to enhancing security. Missions help Member States use TECDOC-1388 to develop national strategies and action plans and are coordinated with the Radiation Safety Infrastructure Appraisal (RaSIA) missions. So far, 13 National Strategies missions have been implemented and in the case of two countries (the Philippines and Tanzania), follow-up activities involving the securing of high-risk radioactive sources are taking place. Four regional workshops have also been organized in Eastern Europe, Latin America and Asia and one is planned in Africa.

### **Conditioning, transporting and securing high-risk sources**

34. Work on developing mobile equipment to allow on-site conditioning of sources is nearing completion and procurement of the first units is expected to begin soon. Once deployed, this equipment will allow disused and vulnerable sources to be prepared for transportation prior to being moved to places of secure storage or disposal.

35. A high-activity, vulnerable radioactive source in Côte d’Ivoire was conditioned and removed in October 2003 from Côte d’Ivoire to safe and secure disposal in France.

### **Catalogue of radioactive Sources**

36. Work on completing the first edition of a catalogue of radioactive sources is nearing completion. The catalogue will make a significant contribution to the effective implementation of measures to combat and respond to illicit trafficking in radioactive materials by enabling sources to be quickly and reliably identified and categorised.

### **Protection of sources from malicious acts**

37. An ‘IPPAS-type’ service for the security of sources, is currently in the late stages of development. In November 2003, a pilot mission using draft guidelines was performed in the Philippines. As a follow-up, a pilot Design Basis Threat workshop both for nuclear material and radioactive sources was jointly organized between the Philippines regulatory body and the Agency. Most of the national Agencies involved in the security of facilities and materials participated in the workshop.

38. Joint IAEA-USA nuclear security missions to Colombia and Indonesia were undertaken in early 2004 to assess and arrange for improved security of high-activity and vulnerable radioactive sources. As a result of this mission, the need for security upgrades particularly of high activity sources was identified and the appropriate measures are being implemented.

39. First comments on TECDOC-1355 entitled “*Security of radioactive source; interim guidance comments*” have been received, and the Agency has initiated preliminary actions to consider these comments. Work on developing, in consultation with Member States, a final version of TECDOC-1355 is expected to begin soon.

40. A curriculum for an Agency training course on the security of radioactive sources has been developed. Algeria and Namibia will host regional training courses using this curriculum in August and

December 2004 respectively, the former for Anglophone AFRA members and the latter for Francophone members.

### **Export and import controls**

41. In support of implementation of the relevant provisions of the Code of Conduct on the Safety and Security of Radioactive Sources, through open-ended meetings in February and July 2004 of technical and legal experts, guidance for export/import controls on radioactive sources have been developed. The guidance will be submitted to the Board of Governors in September 2004 for approval. In addition, a technical meeting was held in February 2004 to prepare the outline of a *Code of Good Practice* for radioactive source manufacturers and distributors. The possibility of increasing the security and safety of sources through improved source designs will be discussed at a further technical meeting to be held in July-August 2004.

### **Security of transport of radioactive sources**

42. Following the technical meeting to address guidelines for security in the transport of radioactive material, which was held in Austria (Vienna) at the end of 2003, a draft technical document has been prepared for interim guidance and comments. This document was developed in consultation with Member States experts with a view to harmonizing it, as much as possible, with existing IAEA safety recommendations, related security guidance, and the model requirements developed by the United Nations Economic and Social Council's Committee of Experts on the Transport of Dangerous Goods. The publication of this document will allow comment on the measures that might be taken to enhance security during the transport of radioactive material that may ultimately be incorporated into a more formal guidance document.

### **Legislative and regulatory infrastructure**

43. A comprehensive national framework for nuclear security builds on national legislation, regulations and guides. To assist States establishing a regulatory and legislative framework, the Agency provides appraisals and advisory services, guidelines and recommendations that may be used in the development or establishment of their own regulatory system, training of regulators and technical assistance in the form of a management tool for daily regulatory control activities.

44. Based on previous experience with regulatory and legislative appraisal and peer review missions, and drawing upon the guidance on legislation and regulations contained in the revised Code of Conduct, a new appraisal service for regulatory infrastructures Radiation Safety Infrastructure Appraisal (RaSIA) has been established and provided to Member and Non-Member States. The objective of RaSIA is to assess the effectiveness of the national regulatory infrastructure in a State against established international safety standards (e.g. B.S.S. and GS.R-1) and related safety documents. RaSIA is designed to provide a means for evaluating progress in establishing and implementing a national infrastructure for radiation safety. However, in its appraising of the regulatory regime it also addresses, inter alia, the effective management and control issues which contribute to the protection of sources against malicious acts.

45. An appraisal service specifically focusing on the legislative and regulatory requirements for the security of sources is under development. In June 2004, a workshop was organized with the US DOE to develop an outline and a protocol for assessing the adequacy of regulatory systems to protect high-risk radioactive sources from theft or diversion. It is anticipated that this service and RaSIA will be complementary.

## **Regulatory Authority Information System (RAIS)**

46. Based on the experience gained in more than 60 Member States, a revised version (Version 3) of the Regulatory Authority Information System (RAIS) has been developed. This tool offers national regulatory authorities the option of adapting RAIS to national needs and providing regulatory control of radioactive sources from cradle to grave. By end of July 2004, three regional workshops have been organized in Europe, Africa and East Asia thus allowing regulators in these regions, to start using the system. The RAIS system is being translated into all Agency official languages and will, after regional training workshops on its use, be made available to all Member and non-Member States early in 2005.

47. Standardized packages for training staff in charge of regulatory control over radiation sources are in the process of publication. These packages cover control of radiation sources in medical practices (radiotherapy, nuclear medicine and radio-diagnostic), and industrial practices (irradiators, industrial radiography and nuclear gauges and well logging). These materials will be translated into the official Agency languages and disseminated to the national regulatory authorities and regional training centres as well as to other national agencies involved in the regulatory process for the control of radiation sources. Several training events have already been organized and others are scheduled. Emphasis will be placed on 'training the trainers' in order to contribute to the establishment of effective and sustainable regulatory controls in Member and non-Member States. In addition, other specific training packages for other national agencies involved in the control of radiation sources are being developed. A specific package for training customs officers on regulatory systems is being finalized in co-operation with the World Customs Organization (WCO).

## **VI. Response to malicious acts, or threats thereof**

48. In response to requests for assistance, the Agency performed incident response missions to Ecuador, Nigeria, the Philippines and Uganda. During these missions, an evaluation of the security of high-risk radioactive sources was performed, which resulted in advice on improvements, the initiation of improved physical protection of some of the sources and an agenda for further upgrading of relevant security arrangements.

49. The drafting of a technical document on Preparedness and Response for Malicious Acts involving Radioactive Material has continued. The document includes a planning methodology and, where appropriate, tools to assist national authorities involved in making arrangements for response to such incidents and potential radiological emergencies that may be the result of malicious acts. The draft has been revised to be consistent with relevant safety standards and other publications. It has been used as the basis for revising other draft manuals on emergency response to better reflect the issue of response to malicious acts. These manuals focus on the preparation, conduct and evaluation of emergency response exercises; on the medical response to nuclear or radiological emergencies, particularly with respect to the handling of mass casualties, prepared jointly with WHO; on a proposed extended framework for emergency response intervention and countermeasure criteria; and on emergency actions by first responders. In parallel, interim training material has been piloted at regional workshops in Slovenia, subsequently revised based on feedback and will be used for future workshops on these subjects. A revision to the methodology for performing Emergency Preparedness Review (EPREV) appraisals has been initiated and will be piloted during a mission to Indonesia. This work lays a firm basis for responding to future requests from Member States in a consistent manner with regard to assisting them on strengthening their preparedness for responding to malicious acts involving radioactive material.

50. The Agency has intensified its efforts to help Member States strengthen their response measures. A pilot course on combating nuclear terrorism and incidents involving illicit trafficking in nuclear materials was held in Romania for a regional audience. The course focused on responding to terrorist acts, including related aspects of illicit trafficking in nuclear and radioactive materials. In addition, as part of the ongoing training programme in radiological emergency response measures, nine regional train-the-trainers courses and three national workshops were conducted since July 2003 on various aspects of emergency preparedness and response, including response to radiological emergencies, medical preparedness and response, emergency monitoring, technical assessment of emergencies at reactor facilities, exercise preparation and public information management. Some of these courses were augmented with the aforementioned interim training material specifically addressing preparedness for emergencies resulting from malicious acts.

51. The Agency has continued to strengthen its own emergency response arrangements. In particular, a draft of the 2004 edition of the Joint Radiation Emergency Management Plan of the International Organizations has been prepared and it is envisaged that Europol and Interpol will cosponsor it, together with eleven other international organizations. The Agency's on-call system of duty officers has been revised to include an on-call Nuclear Security Officer. This will allow specific expertise to be brought rapidly to bear to any event that has a suspected security component. A new regime of training and exercising of staff has been prepared and is being introduced. A review of reporting lines, information flows and analytical functions is being conducted with a view to streamlining the current arrangements, making them simpler and more robust.

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

52. The objective of this activity is 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 State adherence to and implementation of such instruments could be encouraged, and solutions to the barriers thereto (e.g. inadequate legislations and/or regulatory infrastructure) could be explored.

53. The Agency continues to provide advice to Member States on developing national legislation governing the safe and peaceful uses of nuclear energy. Member States requests for legislative assistance in drafting national legislation in the field of nuclear security have continued to increase. The Agency also continued to give advice on the elements for the legal framework, including basic requirements and procedures for the control of radioactive sources, physical protection of nuclear material safeguards and import and export controls. A workshop on the development of a legal framework governing all aspects of the safe and peaceful uses of atomic energy will be held in Austria (Vienna) in October 2004 for Member States in the African Region. This workshop focuses, inter alia, on the development 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").

### **Advisory missions**

54. Following the finalization of the terms of reference and background material for the International Team of Experts (ITE), the first ITE missions were carried out to seven French speaking African

countries during the month of March 2004, and to four countries in Latin America during the month of May 2004.

55. The ITE mission to Africa included visits to Benin, Cameroon, Gabon Mauritania, Niger, Senegal and Togo where the ITE team was successful in reaching out to relevant policy decision makers and in conveying the message regarding the importance of adhering to and implementing international instruments relevant to enhancing protection against nuclear terrorism. All countries visited expressed positive interest in the mission and made political commitments to accelerate the respective outstanding signature and/or ratification procedures for relevant international instruments. Following the positive dialogues held with the countries in the visited countries, the Agency has received written communication from several countries visited on the progress of ratification and signature of relevant instruments.

56. The ITE mission to Latin America included visits to Costa Rica, Dominican Republic, El Salvador and Honduras. The ITE team was also successful in reaching out to relevant senior national policy decision makers both at departmental, political and parliamentary levels. During the meetings with the national policy decision makers, the ITE team emphasised the need for the prompt ratification of relevant international instruments following signature, and provided information on the availability of IAEA legislative and technical assistance for the implementation of those instruments. All countries visited expressed positive interest in the mission, including the possibility of receiving legislative and technical assistance, in order to fully adhere to and implement the relevant international instruments. The team further noted an interest, as expressed by several countries visited, in other IAEA advisory services relevant to the activities under the IAEA nuclear security plan of activities. A third ITE mission is planned to visit up to five States in East Asia and the Pacific region."

## **VIII. Nuclear security co-ordination and information management**

57. This activity seeks 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 and co-operation with other regional, transnational and international organizations.

### **Planning co-ordinated activities**

58. Effective planning and implementation of the Agency's nuclear security plan of activities must rest on a foundation of complete and systemized information on Member States needs. As stated in GOV/2002/10 the Agency has arranged, upon request, general nuclear security missions to determine the State's overall nuclear security needs and concerns and to develop a plan for providing and coordinating support and assistance. Pursuant to this, the Agency has established the International Nuclear Security Advisory Service (INSServ) and conducted 13 missions, and one follow-up mission. The INSServ missions evaluate Member State's needs across the entire spectrum of nuclear security related activities. The conclusions and recommendations are combined with the results of other nuclear security-related missions, into an *Integrated Nuclear Security Support Plan*, which provides a platform for planning and implementation of the Agency's nuclear security assistance to this State.

59. A similar integrated and structured approach has been adopted for planning and implementing activities in the regional context. In Africa, in collaboration with the German Ministry for Environment, Nature Conservation and Reactor Safety (BMU), a regional (AFRA) training workshop on nuclear security issues was held in Algeria, on 27 September – 1 October 2003. The Agency's contribution to

the workshop facilitated the improved understanding of the role of the Agency's and its nuclear security program, and enhanced the knowledge of nuclear security fundamentals and how best to apply them for strengthening nuclear security in AFRA Member States. Essential groundwork was laid for potential assistance and support for the AFRA Member States in strengthening their national nuclear security system.

### **Illicit Trafficking Data Base (ITDB)**

60. The Agency's Illicit Trafficking Database (ITDB) programme was established in 1995 to facilitate exchange of authoritative information related to illicit trafficking in nuclear and other radioactive materials among Member States and to provide the general public, where appropriate, with authoritative information on illicit trafficking cases. As of July 2004, the ITDB membership stood at 78 Member States and the database contained 597 confirmed cases of illicit trafficking, 57 of which had been reported in the first six months of 2004.

61. As stated in GOV/2002/10, the Agency provides Member States with "analytical assessments of the information contained in the expanded database, including statistics, analysis of trends and observations". The Agency has revised and expanded its Quarterly ITDB Reports and adopted a new format of the Annual Illicit Trafficking Report. The latter now contains analyses and evaluations of patterns and trends in illicit trafficking. An updated CD-ROM containing unrestricted version of the ITDB information was also provided to the ITDB Points of Contacts.

62. A meeting with the ITDB National Points of Contact convened in October 2003, reviewed the ITDB operations and recent developments, as well as areas of concern and ways to address them. The meeting resulted in a number of recommendations to improve the database's effectiveness, including enhanced reporting and communications, information sharing, use of software, and further strengthening of the analysis and evaluation of the content of the database.

### **Other international, regional organizations**

63. The Agency continues to seek liaisons, collaboration and co-ordination with other regional, and international organizations. The Agency distributed unrestricted information on specific trafficking incidents, quarterly and annual illicit trafficking reports, and an updated ITDB CD-ROM to a number of international organizations. A meeting of the Inter-Agency Co-ordination Committee on the Illicit Cross-Border movement of Nuclear and other Radioactive Material underscored support for improved cooperation and information sharing between international governmental organizations related to international trafficking in nuclear and other radioactive materials, and joint analysis of its trends and patterns. The Agency ITDB was recognized as a basis for exchange of trafficking information and its analysis. The Agency has actively participated in the United Nations Interregional Crime and Justice Research Institute (UNICRI) and Europol Round Table addressing the strengthening of international co-operation to combat trafficking in weapons of mass destruction and the International Permanent Observatory on security measures during major events. Both have potential for future cooperative activities.

64. The Agency has been actively engaged in attracting new participants to its nuclear security cooperation programme. The exchange of a series of informal briefings by the Agency and the Organization for Security and Co-operation in Europe (OSCE) has set the foundations for further co-operation and mutual support. Some information exchange mechanisms related to illicit trafficking have already been put in place. Other measures to enhance cooperation have been identified. Discussions have been held with Interpol on expanding and deepening the scope of the existing co-operation related to the analysis and evaluation of illicit trafficking data. The Agency has also participated in the World Customs Organization's work to enhance security of the supply chain, and there is potential for coordinating work on capacity building for customs authorities. Discussions are underway with Europol

on ways to further enhance the existing cooperation between the two organizations in the field of illicit trafficking.

65. The Agency 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. Such lectures contribute to raising participants' awareness of the current threats posed by illicit trafficking in nuclear and other radioactive materials on the global, regional, and national levels; and facilitate exchange of information and building of trust.



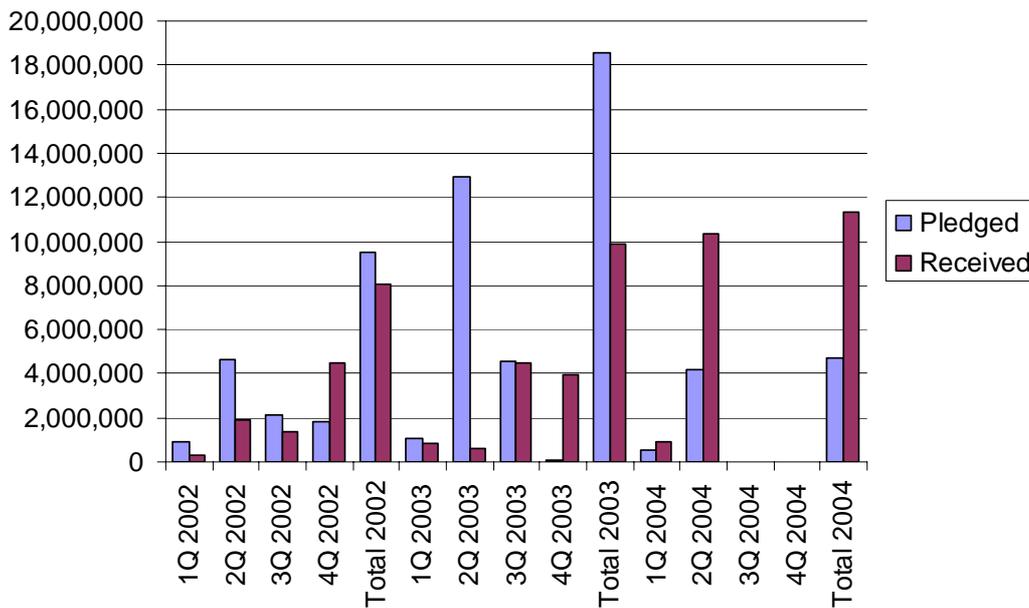
## Part B.

# NUCLEAR SECURITY FUND

## Receipts and Expenditures

66. **Table 1** provides an overview of the NSF. **Figure 1** provides an overview of the timing for pledges and receipts by the NSF. In 2002, a total of \$9,474,768 was pledged to the NSF, of which \$5,551,766 was pledged in the first half of the year. However, up to June of 2002, only \$2,210,503 was received, while during the second half of the year, July – December, \$5,869,290 was received, of which \$4,503,080 in the last quarter of the year. 2003 showed the same pattern; the pledges were made in the first part of the year, with \$13,924,751 pledged up to June 2003, while only \$1,465,595 was received during the same period. During July – December 2003, \$4,622,177 was pledged and \$8,451,156 was received. During January – June 2004, \$11,322,346 was received.

**Figure 1. NSF Pledges & Receipts of Contributions**



67. Because the Financial Regulations of the Agency do not allow expenditures based on pledges<sup>1</sup>, the funds must be received in the Agency's bank account before expenditures can be approved. At the end of 2002, a total of \$8,079,793 had been received for implementing the programme. By 31 December 2003, the NSF had received a total of \$9,916,751 during 2003. Thus, for the first year<sup>2</sup> of

<sup>1</sup> Financial Regulation 4.08 provides that "The Director General may incur obligations against and make payments from funds from extrabudgetary resources, for the purpose for which these contributions were made and to the extent that funds have actually been received or are otherwise available.

<sup>2</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

programme implementation, about \$8.1 million was available in the NSF for programme implementation. For 2004, the planning basis for the activities in 2004 is about \$9.9 million. With the receipt of additional resources, programme plans will be adjusted accordingly. **Table 2** provides an overview of the expenditures per 2003 and up to 15 July 2004, including pre-commitments of expenditure, from the NSF. The implementation rate is very high; during the first year of implementation, a total of about \$8.9 million was spent or pre-committed, thereby exceeding the target for programme implementation for 2003. For 2004, by 15 July, about 70% of the target for implementation for the entire year was expended or committed.

68. Almost all 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. There is a particular difficulty to allocate funds for the operational staff that is needed to implement the programme. This reduces the implementation of some activity areas and may hamper a comprehensive approach, which is necessary for effective nuclear security to be achieved. The Agency's ability to rectify such funding distortions is limited by the modest amounts of NSF funds that are free of conditions. Of the contributions received in 2004, less than 0.10% of the financial contributions are given without restrictions. The slight increase in the percentage of funding contributions given without restrictions in 2003 has, thus far, not been maintained in 2004. The Secretariat will continue to approach donors to discuss a more flexible use of their contributions.

**Table 2. Summary of NSF Expenditures & Pre-Commitments**

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	Physical Protection of Nuclear Materials and Facilities		2,865,974		1,177,800	549,494	
V	Assessment of Safety/Security Related Vulnerability of Nuclear Facilities						
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						

**Figure 2** also states the amount of financial resources that are free of conditions for use. In 2002, 2% (\$181,567) of the resources received to the NSF had no conditions attached, and in 2003, 5% (\$537,242) had no conditions and in 2004 0.10% (\$11,478) had no conditions.

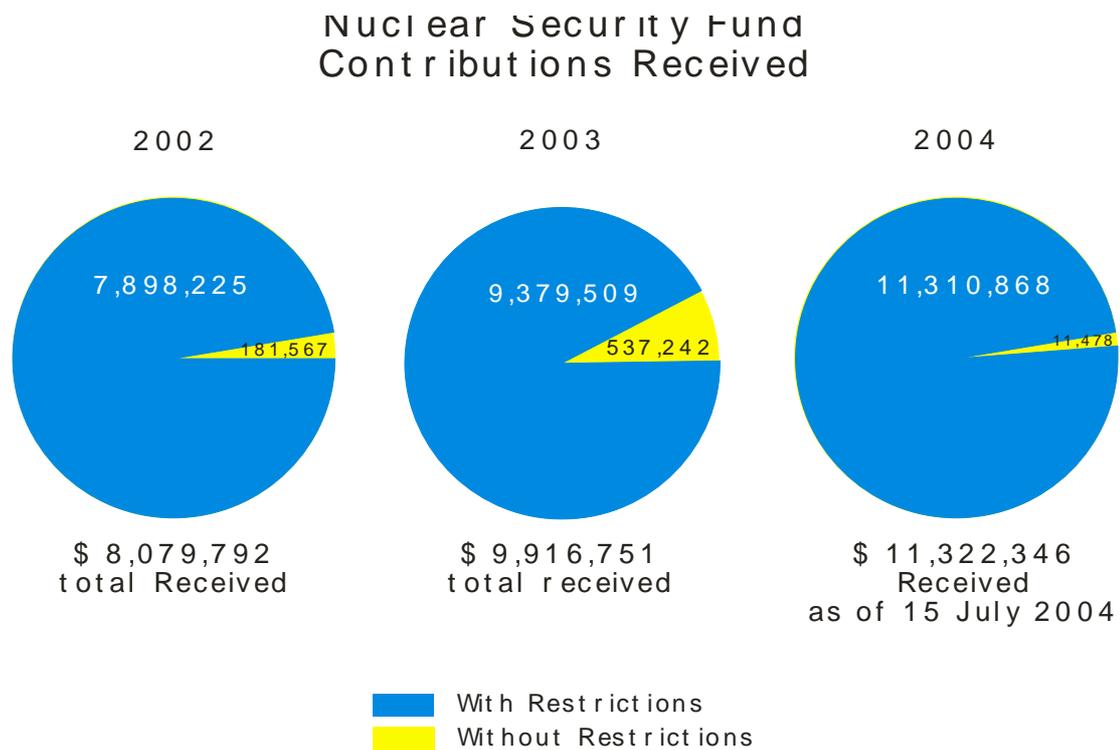
69. The Agency maintains a dialogue with the States providing voluntary contributions to the NSF. Thus, the target activity areas and the conditions for use are subject both to the outcome of prior discussions and to formal confirmation prior to the receipt of resources. These discussions provide both an opportunity to convey needs for flexible funds and allow for an understanding of the various

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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.

conditions that are applicable in each case. The conditions require the Agency to track all expenditures using a specific donation. The requirement to track expenditures according to the conditions adds to the complexity of programme execution. A computer based, administrative system has been introduced to provide the necessary tracking, overview and programmatic information.

**Figure 2. Nuclear Security Fund 2002/2003/2004**



70. The administrative procedures used to implement extrabudgetary programmes and projects are primarily set up for circumstances in which the majority of funds are obtained from the regular budget and only complemented by extrabudgetary resources. The procedures, in some cases, require adjustment to accommodate a situation in which a majority of the funds are extrabudgetary. For the nuclear security programme, about 11% of the resources are presently contributed through the regular budget and 89% through the NSF. The Agency is presently reviewing some of the administrative procedures in order to facilitate the implementation of a programme that is predominantly funded through extra-budgetary resources. The regular budget for the nuclear security programme totals \$1,351,400. These funds are used for a core of regular staff and the related expenditure for management of the programme as a whole.

71. The ability of the Agency to implement the plan of activities will require sustained funding from donor States. Currently, based on States' statements of the high priority assigned to the nuclear programme, continued voluntary funding for the programme is expected for subsequent years. However, the few funding commitments yet made for 2005 are small. 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.

# CONTRIBUTIONS TO THE AGENCY'S NUCLEAR SECURITY ACTIVITIES

## GIFTS OF SERVICES, EQUIPMENT AND USE OF FACILITIES

<b>MEMBER STATES</b>
Canada
China
Czech Republic
Finland
France
Germany
Greece
Hungary
India
Japan
Norway
Pakistan
Paraguay
Romania
The Russian Federation
Turkey
United States of America

**NUCLEAR SECURITY FUND PLEDGES AND CONTRIBUTIONS RECEIVED**  
 As at 15 July 2004 in US Dollars  
 (Pledges in US Dollars at the United Nations rate of exchange at the moment of receipt or revalued if outstanding)

DONOR	PLEDGES						CONTRIBUTIONS RECEIVED							
	2002		2003		2004		Total in US\$	2002		2003		2004		Total in US\$
	Local Curr	US\$ equiv	Local Curr	US\$ equiv	Local Curr	US\$ equiv		Local Curr	US\$ Equiv	Local Curr	US\$ Equiv	Local Curr	US\$ Equiv	
Australia	Aud 100,000	54,054.05					54,054.05			AUD 100,000	54,054.05			54,054.05
	US\$ 53,000	53,000.00					53,000.00	US\$ 53,527.01	53,527.01					53,527.01
Austria	Euro 50,000	53,821.31					53,821.31			Euro 50,000	53,821.31			53,821.31
Bulgaria	US\$ 15,000	15,000.00					15,000.00	US\$ 15,000	15,000.00					15,000.00
Canada			CN\$ 135,000	91,880.49			91,880.49			US\$ 91,880.49	91,880.49			91,880.49
			CN\$ 15,000	11,450.38			11,450.38			CN\$ 15,000	11,450.38			11,450.38
			CN\$ 4,000,000	155,000.00			155,000.00					CN\$ 4,000,000	155,000.00	155,000.00
				2,898,435.11			2,898,435.11						2,898,435.11	2,898,435.11
Czech Republic			US\$ 20,000	22,071.31			22,071.31			US\$ 22,071.31	22,071.31			22,071.31
			CZK 540,000	19,927.69			19,927.69					US\$ 19,927.69	19,927.69	19,927.69
France	US\$ 250,000	41,753.65					41,753.65			Euro 40,000	41,753.65			41,753.65
		84,246.35					84,246.35			US\$ 84,246.35	84,246.35			84,246.35
		33,333.00					33,333.00			US\$ 33,333	33,333.00			33,333.00
	Euro 100,000	125,000.00					125,000.00			US\$ 125,000	125,000.00			125,000.00
	Euro 200,000	208,768.27					208,768.27			Euro 200,000	208,768.27			208,768.27
Germany			US\$ 84,710	84,710.00			84,710.00			US\$ 84,710	84,710.00			84,710.00
			Euros 1,000,000	856,100.00			856,100.00			Euros 1,000,000	856,100.00			856,100.00
				331,548.45			331,548.45							331,548.45
Greece	Euro 30,000	29,732.41					29,732.41	Euro 30,000	29,732.41					29,732.41
Hungary			Euro 10,000	10,845.99			10,845.99			Euro 10,000	10,845.99			10,845.99
			Euro 50,000	59,382.42			59,382.42			Euro 50,000	59,382.42			59,382.42
Iran	US\$ 30,000	30,000.00					30,000.00	US\$ 30,000	30,000.00					30,000.00
Ireland	Euro 38,305	41,545.55					41,545.55			Euro 38,305	41,545.55			41,545.55
Israel	US\$ 20,000	20,000.00					20,000.00	US\$ 20,000	20,000.00					20,000.00
			US\$ 10,000	10,000.00			10,000.00			10,000.00	10,000.00			10,000.00
Italy					US\$ 116,500	116,500.00	116,500.00	-	-			US\$ 116,500	116,500.00	116,500.00
Japan	US\$ 342,000	290,000.00					290,000.00	US\$ 290,000	290,000.00					290,000.00
		52,000.00					52,000.00	US\$ 52,000	52,000.00					52,000.00
	US\$ 158,000	158,000.00					158,000.00					US\$ 158,000	158,000.00	158,000.00
Rep of Korea	US\$ 100,000	100,000.00					100,000.00	US\$ 100,000	100,000.00					100,000.00
			US\$ 50,000	50,000.00			50,000.00			50,000.00	50,000.00			50,000.00
Netherland	Euro 400,000	396,432.11					396,432.11	Euro 400,000	396,432.11					396,432.11
	Euro 100,000	124,843.95					124,843.95					Euros 100,000	124,843.95	124,843.95
			Euro 50,000	62,421.97			62,421.97					Euros 50,000	62,421.97	62,421.97
New Zealand	NZ\$ 25,000	12,450.00					12,450.00	US\$ 12,450	12,450.00					12,450.00
			NZ\$ 20,000	11,313.24			11,313.24			Euro 10,510	11,313.24			11,313.24
					Euros 9,228	11,477.61	11,477.61					Euros 9,228	11,477.61	11,477.61
Norway	US\$ 60,000	60,000.00					60,000.00			US\$ 60,000	60,000.00			60,000.00
Romania			US\$ 27,550	27,550.00			27,550.00			US\$ 27,550	27,550.00			27,550.00
Slovenia	Euro 14,000	13,145.54					13,145.54	Euro 14,000	13,145.54					13,145.54
Spain			Euros 67,000	66,000.00			66,000.00			Euros 67,000	66,000.00			66,000.00
				13,572.44			13,572.44							13,572.44
Sweden	Sek 100,000	11,238.70	Sek 200,000	25,715.40			36,954.10	US\$ 11,238.70	11,238.70	US\$ 25,715.40	25,715.40			36,954.10
Ukraine			US\$ 10,000	8,500.00			8,500.00			US\$ 10,000	8,500.00			8,500.00
				1,500.00			1,500.00				1,500.00			1,500.00
United Kingdom	GBP 250,000	355,357.69					355,357.69	GBP 250,000	355,357.69					355,357.69
	GBP 250,000	409,836.07					409,836.07			GBP 250,000	409,836.07			409,836.07
			GBP 250,000	406,842.00			406,842.00					US\$ 457,050	406,842.00	406,842.00
				50,208.00			50,208.00						50,208.00	50,208.00
			Euros 18,484.29	21,952.83			21,952.83			Euros 18,484.29	21,952.83			21,952.83
					US\$ 590.84	590.84	590.84					US\$ 590.84	590.84	590.84
					GBP 200,000	356,000.00	356,000.00					Euros 301,841.23	356,000.00	356,000.00
						12,099.06	12,099.06						12,099.06	12,099.06
United States of America	US\$ 1,000,000	1,000,000.00					1,000,000.00	US\$ 1,000,000	1,000,000.00					1,000,000.00
	US\$ 1,209.17	1,209.17					1,209.17	US\$ 1,209.17	1,209.17					1,209.17
	US\$ 1,200,000	1,200,000.00					1,200,000.00	US\$ 1,200,000	1,200,000.00					1,200,000.00
	US\$ 3,000,000	3,000,000.00					3,000,000.00	US\$ 2,650,000	2,650,000.00					2,650,000.00
							-	US\$ 350,000	350,000.00					350,000.00
			US\$ 2,000,000	2,000,000			2,000,000.00			US\$ 2,000,000	2,000,000.00			2,000,000.00
			US\$ 500,000	500,000			500,000.00			US\$ 500,000	500,000.00			500,000.00
			US\$ 2,500,000	579,500			579,500.00					US\$ 3,150,000	579,500.00	579,500.00
				1,920,500			1,920,500.00						1,920,500.00	1,920,500.00
			US\$ 650,000	650,000			650,000.00							-
	US\$ 1,000,000	755,500.00					755,500.00	US\$ 593,330	593,330.00	US\$ 300	300.00			593,630.00
		244,500.00					244,500.00	US\$ 406,370	406,370.00					406,370.00
			US\$ 3,700,000	3,700,000			3,700,000.00			US\$ 3,700,000	3,700,000.00			3,700,000.00
			US\$ 500,000	500,000			500,000.00			US\$ 500,000	500,000.00			500,000.00
			US\$ 3,000,000	3,000,000			3,000,000.00							-
					\$4,200,000	4,200,000.00	4,200,000.00						4,200,000.00	4,200,000.00
Nuclear Threat Initiative	US\$ 500,000	500,000.00					500,000.00	US\$ 500,000	500,000.00					500,000.00
			US\$ 400,000	400,000.00			400,000.00			US\$ 400,000	400,000.00			400,000.00
					US\$ 250,000	100,000.00	100,000.00					US\$ 250,000	100,000.00	100,000.00
						150,000.00	150,000.00						150,000.00	150,000.00
<b>TOTAL</b>		<b>9,474,767.82</b>		<b>18,546,927.72</b>		<b>4,946,667.51</b>	<b>32,968,363.05</b>		<b>8,079,792.63</b>		<b>9,916,751.20</b>		<b>11,322,346.23</b>	<b>29,318,890.06</b>