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Nuclear Security Report 2013

Report by the Director General

Summary

This report has been produced for the fifty-seventh regular session (2013) of the General Conference in response to resolution GC(56)/RES/10, in which the General Conference requested that the Director General submit an annual report on activities undertaken by the Agency in the area of nuclear security, highlighting significant accomplishments of the prior year and indicating programmatic goals and priorities for the year to come. This report covers the period 1 July 2012-30 June 2013.

Recommended Action

It is recommended that the Board of Governors:

- a. Take note of the Nuclear Security Report 2013;
- b. Transmit this Report to the General Conference with a recommendation that Member States continue to contribute on a voluntary basis to the Nuclear Security Fund;
- c. Note that eight years after its adoption, the 2005 Amendment to the Convention on the Physical Protection of Nuclear Material has still not entered into force;
- d. Call upon States to adhere to the Amendment and to promote its early entry into force; encourage all States to act in accordance with the object and purpose of the Amendment until such time as it enters into force; implement the legally binding and non-binding international nuclear security related instruments; invite States to make full use of the assistance available for this purpose through participation in the Agency's nuclear security programme;
- e. Encourage all States to participate in the Incident and Trafficking Database programme and in the IAEA Working Group on Radioactive Source Security;

- f. Encourage those States that have yet to do so to nominate representatives to the Nuclear Security Guidance Committee and, by so doing, to contribute to the establishment of internationally agreed nuclear security guidance.

Nuclear Security Report 2013

Report by the Director General

A. Introduction

1. This report has been produced for the fifty-seventh regular session (2013) of the General Conference in response to Resolution GC(56)/RES/10, in which the General Conference requested that the Director General submit an annual report on activities undertaken by the Agency in the area of nuclear security, highlighting significant accomplishments of the prior year and indicating programmatic goals and priorities for the year to come. This report covers the period 1 July 2012–30 June 2013.
2. Recognizing that responsibility for nuclear security rests entirely with each State, the Agency continued to provide assistance, upon request, to States in their national efforts to establish effective and sustainable nuclear security regimes. During the reporting period, the Agency continued to assist States' efforts to build and develop their nuclear security capacity by: providing nuclear security guidance; facilitating adherence to, and implementation of, the international legal instruments relevant for nuclear security, including facilitating the entry into force of the 2005 Amendment to the Convention on the Physical Protection of Nuclear Material (CPPNM); and helping States to establish effective and sustainable national nuclear security infrastructure. All activities were undertaken with due regard to the protection of confidential information.
3. Information on the Agency's goals and priorities for 2012/2013 was set out in paragraph 92 of the Nuclear Security Report 2012¹. The Agency took action in the course of the reporting period to implement all the goals and priorities set out in that report.

B. The International Legal Framework

4. During the reporting period, adherence to the international legal instruments relevant to nuclear security has increased. Three States became parties to the CPPNM² and 12 States adhered to the 2005 Amendment to the CPPNM³, bringing the number of Contracting States to the Amendment to 68. As

¹ GOV/2012/41-GC(56)/15.

² http://www.iaea.org/Publications/Documents/Conventions/cppnm_status.pdf

³ http://www.iaea.org/Publications/Documents/Conventions/cppnm_amend_status.pdf

of 30 June 2013, adherence by an additional 30 States was still required for the Amendment to enter into force⁴.

5. The International Convention for the Suppression of Acts of Nuclear Terrorism gained seven adherents during the reporting period, bringing the number of States Parties to 86 as of 30 June 2013.

6. The Agency continued to facilitate adherence to, and implementation of, international instruments, not only through its regular activities within its legislative assistance programme, but also by holding a Treaty Event during the 56th General Conference aimed at promoting universal adherence to the relevant multilateral treaties for which the Agency is depositary, including those relating to nuclear security.

7. The Agency has significantly enhanced its efforts to bring the 2005 Amendment to the CPPNM into force: in July 2012 the Director General wrote to the Ministers of Foreign Affairs of the States Parties to the CPPNM that had not ratified the Amendment yet, to encourage them to do so as soon as possible; during the reporting period the Agency initiated follow-up actions to the Director General's letters and held four Regional Workshops to Facilitate Adherence to and Implementation of the 2005 Amendment to the CPPNM, in Argentina, China, Germany and Nigeria. These workshops were aimed at increasing awareness of the Amendment, including its technical and legal requirements; providing a forum to exchange views and information for facilitating adherence to and implementation of the Amendment; and provide an understanding of the relevant IAEA legislative assistance and technical activities available to States.

8. The Code of Conduct on the Safety and Security of Radioactive Sources is a non-binding international legal instrument that provides guidance for ensuring the control of radioactive sources and for mitigating/minimizing any consequences should control measures fail. Also legally non-binding, the supplementary Guidance on the Import and Export of Radioactive Sources was developed in 2004 to support States' implementation of the Code. As of 30 June 2013, 117 States had informed the Agency's Director General of their intention to implement the Code of Conduct, and 81 States of their intention to implement the supplementary Guidance⁵.

C. Major Meetings and Coordination

Major IAEA Meetings

9. The International Conference on Nuclear Security: Enhancing Global Efforts, is scheduled for 1 to 5 July 2013. In preparation for the conference, three programme committee meetings were held during the reporting period to agree the key elements of the conference. In October 2012, the Director General wrote to Ministers of Foreign Affairs of all Member States, inviting them to participate in the conference. The Secretariat provided technical support to Member States in their negotiation of an outcome document for the ministerial session of the conference.

Cooperation and Coordination

10. General Conference Resolution GC(56)/RES/10 encouraged the Secretariat to continue, in coordination with Member States, to play a constructive and coordinated role with other nuclear

⁴The Amendment will enter into force once it has been ratified by two-thirds of the States Parties to the CPPNM.

⁵http://www.iaea.org/Publications/Documents/Treaties/codeconduct_status.pdf

security related initiatives. The Agency continued to hold working-level discussions with intergovernmental and non-governmental organizations and initiatives involved in nuclear security, through the convening of information exchange meetings. All information exchanges were undertaken by the Agency in strict conformity with its confidentiality regime.

11. The Agency held information exchange meetings in November 2012 and May 2013, each attended by more than ten organizations and initiatives. Active exchanges of information with regard to each other's planned events and projects continued to be made and it was agreed to continue exchange of views and information among participants to ensure effective use of limited resources and eliminate any duplication of efforts.

12. The Border Monitoring Working Group (BMWG), established by the Agency, has met regularly since 2006 to coordinate the activities of the Agency and other major donors working in the area of effective border controls, such as the United States of America and the European Commission. Coordination covers the areas of provision of financial support, technical assistance, human resource development and policy development relating to the detection of materials out of regulatory control. During the reporting period, the BMWG met in November 2012 in Brussels, Belgium. In addition, the BMWG training subgroup met in August 2012 in Washington, D.C., USA. The BMWG facilitated implementation of programmes in Member States through the optimization of international assistance including distribution of radiation detection equipment, development of related training programmes, development of concept of operations and standard operating procedures in Cambodia, Indonesia, Lebanon, Malaysia and Vietnam.

13. The Philippines, with the Agency, hosted a regional forum on Effective Border Control for Asia and the Pacific region, including Gulf countries, which took place from 20 to 22 February 2013. The event brought together countries and international donor programmes, with participation from the UN 1540 Committee, ASEAN Secretariat and the European Commission Joint Research Centre, to discuss challenges and prospective measures to enhance efficiency for border monitoring assistance programmes. A similar event was conducted in Colombia from 12 to 14 June 2013 for Latin American countries.

14. The Agency, with the cooperation of the Malaysian Nuclear Security Support Centre, initiated four bilateral best practice and experience sharing workshops hosted by Malaysia. Workshops were held for experts from Indonesia, Pakistan, Saudi Arabia and Vietnam, and bilateral discussions and site visits were held in the area of establishing effective border controls. The workshops promoted the use of the IAEA's strategic approach for sustainable border control derived from relevant IAEA nuclear security guidance, including the establishment of a national detection strategy; a national concept of operations in assigning roles and responsibilities of relevant stakeholders; the identification of a relevant national legal and regulatory infrastructure as well as the development of a national training programme. Such workshops also addressed the issues and challenges, and provided examples of measures that should be introduced to sustain border monitoring operations when international assistance programmes might no longer be available. The workshops enhanced cooperation and communication among countries involved.

15. The Agency initiated efforts to better coordinate its activities to promote security of radioactive sources with Member States' programmes. One such effort was the establishment of the Working Group on Radioactive Source Security (WGRSS), which held its first meeting in December 2012 and its second meeting in May 2013. The WGRSS provides a forum to share experience and feedback on the success of relevant initiatives in this area. During the meetings several activities and priorities were identified such as using regional and local partnerships to enhance national programmes related to the protection and control of radioactive sources, providing security guidance and assistance related to

portable and mobile high-activity sources and improving information sharing through new IAEA information management tools.

16. The Agency participated in the second Southeast Asia Regional Workshop in Radioactive Source Security, hosted by Malaysia in December 2012, organized by the Australian Nuclear Science and Technology Organization's Regional Security of Radioactive Sources. The focus of this second workshop was security aspects of the lifecycle management of radioactive sources used in industrial radiography and well logging activities.

17. The Agency continued to participate as an official observer in relevant Global Initiative to Combat Nuclear Terrorism (GICNT) events during the period covered by this report. The IAEA contributed to a GICNT nuclear forensics fundamentals document that was finalized in 2012 to increase awareness of policymakers and also participated in the GICNT Implementation and Assessment Group meeting in Madrid, Spain, in February 2013, to provide participants with details of relevant IAEA nuclear security programmes.

18. The IAEA participated in the @TOMIC 2012 international exercise as both a participant and one of the supporting organizations. @TOMIC 2012 was an international table top nuclear/cyber security exercise sponsored by the Dutch National Coordinator for Counterterrorism and Security (NCTV) held at the Netherlands Forensics Institute (NFI) from 27 to 29 November 2012. Participation in the event enabled the IAEA to demonstrate its resources for prevention, detection and response to nuclear security events as demonstrated in the scenario and enabled the Incident and Emergency Centre (IEC) to highlight the IAEA's emergency notification and assistance arrangements and to support participants in the area of emergency public communications.

D. Major Achievements

19. The following summarizes the major achievements, between 1 July 2012 and 30 June 2013, for each element of the Nuclear Security Plan 2010–2013.

D.1. Needs Assessment, Information Collation and Analysis

D.1.1. Incident and Trafficking Database (ITDB) Programme

20. The ITDB Points of Contact meeting took place in Vienna from 24 to 26 July 2012 and was attended by 90 participants representing 81 States. The purpose of the meeting was to discuss, review and recommend changes to the ITDB programme. As a result of the discussions, the title of the programme was modified to more accurately reflect its scope. The title is now "Incident and Trafficking Database (ITDB): Incidents of nuclear and other radioactive material out of regulatory control". The meeting participants also recommended re-establishing the annual or bi-annual analytical reports, and expanding and developing electronic based ITDB resources on the IAEA's Nuclear Security Information Portal (NUSEC), such as WebITDB and a new WebINF. The meeting participants further recommended work on streamlining the number of ITDB incident types, which currently stands at 22. Finally, meeting participants recommended giving access to ITDB resources to three additional international organizations: the American Police Community (AMERIPOL), the United Nations Interregional Crime and Justice Research Institute (UNICRI) and the Southeast European Law Enforcement Center (SELEC).

21. Ten States joined the ITDB, bringing the total number of participants to 124.

22. By the end of the reporting period, States had reported — or otherwise confirmed to the ITDB programme — a total of 2407 incidents. States reported 155 incidents to the ITDB during the reporting period, 14 of which involved illegal possession of, and attempts to sell, nuclear material or radioactive sources, with four of these involving nuclear material. There were 40 cases of theft or loss of radioactive sources reported, two of which involved the theft of Category 1 to 3 radioactive sources. In one of these two incidents, the radioactive sources have not been reported as being recovered.

23. The remaining 101 incidents involved unauthorized activities without apparent relation to criminal activities. These included the detection of nuclear material or radioactive sources disposed of in unauthorized ways, the detection of radioactively contaminated material, the recovery of radioactive material outside of regulatory control and the discovery of nuclear material or radioactive sources in unauthorized or undeclared storage. None of the reports involved high enriched uranium (HEU).

D.1.2. Illicit Trafficking Information Outreach

24. Sub-regional meetings on ITDB information exchange and coordination were held in the United Republic of Tanzania for central and southern African States, in Egypt for North African and Middle-Eastern States, in Sri Lanka for South Asian States and in Vienna for States of the Black Sea region. These meetings substantially improved the participants' understanding of ITDB processes and reporting requirements, which should result in improved reporting in the future. States which are not yet members of the ITDB received information on joining the ITDB and many expressed their intention to join in the near future.

25. A meeting of Member States not yet participating in the ITDB programme was held in Vienna from 5 to 6 December 2012. The purpose of this meeting was to demonstrate the ITDB, its features and reporting mechanisms, and to encourage the States to join the programme. Since the meeting took place, five States have joined the programme and several others have expressed an interest in joining in the future.

D.1.3. Information Tools

26. A project has been launched to review the ITDB in order to identify necessary improvements to the system, including its architecture and data, to ensure its optimum compatibility with new advanced software tools, and in support of the Nuclear Security Plan's objective of establishing a comprehensive platform for nuclear security information⁶. The review will also be used to identify how the information reporting process to the ITDB and dissemination of incident notifications to States can be improved through the secure NUSEC portal. A pilot project has also been launched in order to enable secure access to the ITDB through the Nuclear Security Information Portal (NUSEC).

27. The production of biennial reports on the analysis of threats, trends and patterns in ITDB incidents has resumed; and a report is under preparation that will cover the 6 year gap since the last biennial report was published. The Agency consulted a group of experts from Member States in order to help identify topics and issues for inclusion in the report. The next ITDB analysis report is planned to be published later in 2013.

D.1.4. Integrated Nuclear Security Support Plans

28. The Agency continues to give high priority to the development and implementation of Integrated Nuclear Security Support Plans (INSSPs), assisting Member States to apply a structured and holistic

⁶ See paragraph 23 of GOV/2011/51-GC(55)/21.

approach to nuclear security capacity building as well as enabling increased coordination among the Agency, the States concerned and potential donors.

29. Nine Member States approved their INSSPs, bringing the total number approved to 47. Ten further INSSPs are awaiting formal approval. Furthermore, the Agency has prepared another 20 INSSPs, which are at various stages of finalization with relevant Member States.

30. Several Member States asked the Agency to conduct meetings to review the progress of implementation as well as to plan future activities covered by INSSPs. During the reporting period, eight INSSPs were reviewed and brought up to date.

31. In implementing or planning activities in each of the Member States covered by INSSPs, efforts were also made to organize events sharing experience and best practice on their development and implementation. In this connection, a workshop for Member States in the Asia and Pacific Region was convened in Kuala Lumpur, Malaysia, from 11 to 13 June 2013. The workshop, attended by a range of policy makers and technical experts from 17 States, provided participants with a common understanding of the INSSP development and implementation process and the benefits that can be derived from such plans. During the workshop, the value of INSSPs was recognized and six States expressed a strong interest in developing their own INSSP; the remaining 11 States have already commenced the INSSP development process.

D.1.5. Nuclear Security Information Portal

32. The Agency has continued to develop the Nuclear Security Information Portal (NUSEC) mentioned in previous reports. A major upgrade was performed on NUSEC in September 2012 to achieve a more user-friendly interface with better performance. The NUSEC portal currently has over 900 registered users from 115 States and 16 international organizations. New user groups were established on NUSEC including Insider Threat Consultancy Group, Nuclear Security Assessment Tool, and the Working Group on Radioactive Source Security (WGRSS).

33. In response to Member States' expressed needs for nuclear security guidance in the area of computer and information security, the Agency has strengthened its efforts in developing the Computer Security User's Group Portal within NUSEC as the single point of resources for Member States on the topics of information and computer security. Access and use of the portal has become an integral part of all meeting and training activities related to computer and information security.

D.1.6. Nuclear Security Information Management System (NUSIMS)

34. Work has continued to further develop and release the NUSIMS web-based platform for States to aggregate, manage and maintain country-specific information relevant to nuclear security on a voluntary basis. The self-assessment system structure has been derived from the Nuclear Security Fundamentals and Recommendations. It comprises six areas reflecting core operational areas of nuclear security and corresponding review questionnaires. The system is designed to assist States in reviewing their nuclear security infrastructure and tracking their progress; it also facilitates systematic needs identification and prioritization and allows the IAEA to provide a more tailored approach to meeting particular States' requests. The web-based platform has been implemented and will be demonstrated at the July 2013 International Conference on Nuclear Security. An official release announcement will be made at the General Conference in September 2013.

D.2. Enhancing the Global Nuclear Security Framework

D.2.1. Nuclear Security Guidance Committee

35. The Nuclear Security Guidance Committee (NSGC) is a standing body of senior experts in the area of nuclear security, open to all Member States. The purpose of the NSGC is to make recommendations to the Deputy Director General, Head of the Department of Nuclear Safety and Security, on the development and review of IAEA Nuclear Security Series publications. The objective is to contribute to greater transparency, consensus, quality, coherence and consistency by engaging more Member States in the development of international publications for nuclear security. Fifty four Member States have nominated members for the NSGC.

36. Two meetings of NSGC were held during the reporting period, from 10 to 14 December 2012 and from 13 to 17 May 2013. As well as reviewing and approving drafts of, and proposals for, nuclear security guidance publications, and for reviewing safety standards on subjects in which there are identified safety–security interfaces, NSGC reviewed and advised the Secretariat on a plan for publications in the Nuclear Security Series.

37. The publications plan, as recommended by NSGC, gives priority to completing the tier of Implementing Guides giving guidance on how to implement the Nuclear Security Recommendations published in 2011 and on broad thematic topics in nuclear security. Further supporting guidance on more specific technical areas will then be developed as needed, taking into account NSGC's recommendations.

38. The lead publication in the Nuclear Security Series, *Objective and Essential Elements of a State's Nuclear Security Regime*, which was approved by NSGC in June 2012, was endorsed by the Board of Governors in September 2012 for publication as Nuclear Security Fundamentals. The Fundamentals were subsequently published as IAEA Nuclear Security Series No 20.

39. Two Implementing Guides were issued during the reporting period in the IAEA Nuclear Security Series, *Establishing Nuclear Security Infrastructure for a Nuclear Power Programme* (IAEA Nuclear Security Series No 19) and *Nuclear Security Systems and Measures for the Detection of Nuclear and Other Radioactive Material out of Regulatory Control* (IAEA Nuclear Security Series No 21), as well as Technical Guidance on *Identification of Vital Areas at Nuclear Facilities* (IAEA Nuclear Security Series No 16).

40. Consistent with the above publications plan, Implementing Guides on the following subjects are in preparation:

- Use of nuclear material accounting and control for nuclear security at facilities;
- Security of nuclear material during transport;
- Protection and confidentiality of sensitive information in nuclear security;
- Radiological crime scene management;
- Nuclear forensics in support of investigations (to replace Nuclear Security Series No. 2);
- Development of a national nuclear forensics library;
- Threat assessment and risk informed approach for implementation of nuclear security measures for nuclear and other radioactive material out of regulatory control;
- Implementing the legislative and regulatory framework for nuclear security;

- Developing a national framework for managing nuclear security events;
- Framework for international cooperation and assistance for nuclear security;
- Preventive measures for nuclear and other radioactive material out of regulatory control;
- Detection of and response to radioactive materials out of regulatory control at points of entry and exit;
- Sustaining a nuclear security regime;
- Physical protection of nuclear material in use and storage and of nuclear facilities;
- Security management and security plans for radioactive material and associated activities;
- Preventive and protective measures against insider threats (to replace Nuclear Security Series No. 8).

D.2.2. Research and Development to Support Effective Nuclear Security

41. As was mentioned in the 2012 Nuclear Security Report, the final report for the Coordinated Research Project (CRP) on Development of Methodologies for Risk Assessment and State Management of Nuclear Security Regime was completed and, on the recommendation of the CRP report, the Agency has initiated a new programme on the “Development of Nuclear Security Assessment Tools”. This programme aims to develop performance based methodologies that could be used by States in assessing their nuclear security in a transparent, systematic and structured manner.

D.3. Nuclear Security Services

D.3.1. Nuclear Security Evaluation Missions and Advisory Services

International Nuclear Security Advisory Service

42. Upon request, the Agency carries out peer reviews and advisory services to evaluate the effectiveness of nuclear security systems and measures related to material out of regulatory control in States through missions involving experts from Member States. The assessment criteria of the International Nuclear Security Advisory Service (INSServ) were revised into a modular format, thereby streamlining the assistance provided and allowing States to select modules depending on their needs. Currently the available modules address Institutional Infrastructure, Detection and Response Systems and Measures and Nuclear Security at Major Public Events.

43. The Agency completed seven INSServ/Detection and Response Systems and Measures missions to Albania, Bolivia, Chile, Indonesia, Libya, Tunisia and Bolivarian Republic of Venezuela and two INSServ/Institutional Infrastructure missions to Chile and Kenya and two INSServ/Nuclear Security at Major Public Event missions to Zambia and Zimbabwe. A preparatory meeting for the INSServ mission to Belarus took place. In addition, two official requests for INSServ missions were received from Romania and Lao People’s Democratic Republic.

International Physical Protection Advisory Service

44. The Agency also provides, on request, an International Physical Protection Advisory Service (IPPAS), to focus on a State’s nuclear security infrastructure associated with nuclear facilities and associated activities, as well as that for facilities and activities involving radioactive material, including transport of nuclear and other radioactive material.

45. The Agency updated the IPPAS guidelines in order to ensure that the service represents current best practice. This update included the development of new modules, including a module on cyber security. During the reporting period, this module was used in three IPPAS missions.

46. The Agency also concluded efforts to update and finalize a module dedicated to radioactive materials. The Agency is now prepared to conduct IPPAS missions specifically dedicated to facilities and activities involving radioactive material, including transport, for States not possessing nuclear material or facilities.

47. The Agency conducted IPPAS missions to Hungary, Kazakhstan, Romania and the IAEA laboratories in Seibersdorf, which was the first IPPAS mission ever conducted for an IAEA facility. The mission resulted in the identification of areas for improvement for which a plan of activities is being implemented by the IAEA Department of Safeguards. Two more missions to Australia and to the United States of America will be conducted in 2013.

48. Up to 30 June 2013, the Agency has conducted a total of 59 IPPAS missions in 37 Member States, including 15 follow-up IPPAS missions to 14 Member States. In order to meet requests for detailed IPPAS information from Member States, the Agency held IPPAS workshops in China and Australia in July and November 2012 respectively.

Integrated Nuclear Infrastructure Review (INIR) Missions

49. The Office of Nuclear Security provided key support to Integrated Nuclear Infrastructure Review (INIR) Missions led by the IAEA Department of Nuclear Energy. This included the provision of experts for INIR missions to Poland, South Africa and Vietnam. The Office of Nuclear Security also provided coordination and support for a range of other INIR activities including development of evaluation documents and methodology, work plans and delivery of awareness raising and training in nuclear security infrastructure for States, including Egypt, Jordan, Libya, Turkey, and the United Arab Emirates.

D.3.2. Nuclear Security Training

50. The Agency provided nuclear security training to more than 2175 people, an increase of 24% over the previous report. Of the 87 training courses and workshops that took place, 45 were in the area of prevention and computer security and 41 in the area of detection and response. Of these training events, 13 took place in Africa, 25 in Asia and the Pacific, 13 in the Americas and 36 in Europe.

51. The training courses delivered by the Agency covered a wide variety of topics, including threat management and assessment, vulnerability analysis, protection against sabotage, physical protection of nuclear material and facilities, nuclear material accounting and control relevant to nuclear security at facilities, training for states embarking on nuclear power programmes, security of radioactive sources, transport security, nuclear security culture, nuclear forensics, radiological crime scene management, radiation detection techniques and cyber security. A new regional and national training course was developed highlighting nuclear security infrastructure awareness for senior officials. In some instances, training courses were conducted as part of programmes of assistance for major public events such as a seminar for senior officials on threat analysis, trends and patterns of illicit trafficking and other unauthorized activities involving nuclear and radioactive material; training-the-trainers on radiation detection techniques; in-depth training course on expert support for major public events; a coordination workshop on malicious acts involving radioactive material at a major public event and field exercises on detection, interdiction and response for a criminal act involving radioactive material.

52. Training material was developed for training courses on the Implementation of Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities NSS 13,

(INFCIRC/225/Rev.5). The purpose of the course is to provide participants with a better understanding of INFCIRC/225/Rev.5 to assist their countries to strengthen physical protection measures at the relevant facilities and to enhance cooperation of various national authorities in charge of nuclear security functions. The Agency also developed a new training curriculum on security in the transport of nuclear material. A pilot regional training course in Mexico was held in August 2012. Subsequent national and regional courses were held in Australia, Brazil, Germany and South Africa. The Agency also revised its training curriculum on security in the transport of radioactive material. The pilot regional training course in Ghana was held in September 2012. Subsequent national and regional courses were held in Burkina Faso, Colombia, Germany, Mauritania and Morocco.

53. The Agency continued to deliver a comprehensive training course on radioactive source security geared toward regulators and government officials with responsibilities in that area, as well as major users of sources, and focused on IAEA guidance and the application of the fundamental principles of physical protection for radioactive sources. Five regional training courses were conducted (Lebanon, Morocco, Peru, Ukraine and Vietnam) and one national training course was supported in Pakistan.

54. Modularization of existing training materials continued with four courses better aligned with the Systematic Approach to Training principles and a more rigorous structure that includes session plans, improved training objectives, better defined syllabi and creation of indicative agendas. The training course on Security of Radioactive Sources was evaluated using a similar approach to develop clear training objectives and detailed presentation notes to ensure the quality and consistency of the lectures being given.

55. As part of this effort, the Agency published a revised catalogue of its training courses on the NUSEC portal. Member States can use the catalogue, which also contains learning objectives and intended audiences, when requesting training courses at the national, regional or international level.

D.3.3. International Network for Nuclear Security Training and Support Centres

56. A topical meeting on the *Nuclear Security Plan 2010-2013 – Implementation of the International Network for Nuclear Security Training and Support Centres (NSSCs)* was held at the International Atomic Energy Agency (IAEA) Headquarters, Vienna from 25 to 27 February 2013. There were 56 participants from 35 Member States. All NSSC Network Members were encouraged to post relevant training-related materials to the NSSC User Group. The record of this meeting is available on the NUSEC portal. In the margins of the NSSC Network meeting, separate discussions took place on the technical challenges of using the existing framework of the IAEA-hosted NSSC Network in support of an Asia regional network of NSSCs and Centres of Excellence (CoE).

57. The Agency continued to assist States that wish to establish NSSCs or centres of excellence. At the same time, the European Union is working to develop a number of regional centres of excellence for the chemical, biological, radiological and nuclear areas (EU CBRN Centres of Excellence). The Agency and the EU continue to work together to avoid any duplication of effort for activities relating to the radiological and nuclear components of the CBRN centres. Several Practical Arrangements between the IAEA and Member States are either in process or signed that include such Centres as an area of cooperation, including Brazil, China, Cuba, Greece, Kenya, Malaysia and the Philippines.

D.3.4. Nuclear Security Education

58. The Agency continued to provide support to develop global nuclear security education, primarily through the working groups of the International Nuclear Security Education Network (INSEN), which held its third annual meeting from 9 to 10 August 2012 and the Working Group I–III meeting from 11 to 13 August 2012. This enabled the Working Groups to collaborate together, update action plans and brief INSEN membership on future activities. The annual meeting was attended by 66 participants

from 27 Member States and representatives from 10 international organizations. The annual meeting resulted in each Working Group providing action plans for the next 6 months, which included specific, prioritized tasks with assigned responsibilities and deadlines. The record of this meeting is available on the NUSEC portal.

59. INSEN members have completed the NS22 IT/Cyber Security textbook. The textbook is at the final stage of review by experts.

60. In addition, teaching material comprising an indicative agenda, PowerPoint presentations and related session plans, practical and laboratory exercises as well as evaluation exercises have been developed and peer reviewed for academic courses NS1–NS11, NS17, NS21 and NS22. Teaching material is available for INSEN members on the NUSEC/INSEN portal. A consortium of universities in Austria, Germany, the Netherlands, Norway and the United Kingdom launched the first comprehensive Master's degree programme in nuclear security in March 2013, using teaching material produced by INSEN.

61. In order to help institutions better deliver the aforementioned material, the second professional development course for faculty members was held at the Brandenburg University of Applied Sciences, Germany, in IT/Cyber Security in September 2012 with 13 faculty participants from seven Member States. Due to significant interest, a follow-up course was started in May 2013. Additionally, the Introduction to Nuclear Security professional development course took place twice at King's College London, United Kingdom each with 15 faculty participants.

62. The Agency conducted the third annual two week intensive school for young professionals in nuclear security at the International Centre for Theoretical Physics in Trieste, Italy from 8 to 19 April 2013. A total of 47 participants from 39 Member States attended, working in regulatory authorities, universities, research institutions, government ministries and law enforcement agencies. The School provided the participants with a comprehensive knowledge base of nuclear security topics reinforced by practical exercises and a technical visit to observe border monitoring equipment at a working seaport.

D.4. Risk Reduction

D.4.1. Threat Characterization and Assessment

63. The characterization of nuclear security threats, design basis threat (DBT), vulnerability analysis, and the assessment of the security systems of facilities and associated activities are essential elements of a sustainable nuclear security regime. In order to assist Member States in applying these elements, the Agency continued advising States on formal threat characterization and assessment, the development, use and maintenance of DBTs, vulnerability analysis and the development of methodologies for performance assessment of physical protection systems. Three national workshops on DBT were held in Jordan, Libya and Nigeria.

D.4.2. Nuclear Security Culture in Practice

64. The Agency continued activities to support the practical implementation by States of nuclear security culture at nuclear fuel cycle facilities and associated activities throughout their lifetime as well as activities related to other radioactive material, including transport. Activities were based on the guidance set out in IAEA Nuclear Security Series No. 7 on Nuclear Security Culture. They focused on the development of a practical self-assessment methodology for evaluation and enhancement of nuclear security culture at facilities and within organizations. A Technical Meeting was held from 8 to 12 of April 2013 to further develop and agree on the IAEA's nuclear security culture self-assessment methodology, which could be then applied by States. This meeting was attended by 41 participants

from 28 Member States. This methodology was used by Indonesia for carrying out a self-evaluation of nuclear security culture at three research reactor sites. The IAEA also continued work to promote nuclear security culture by conducting regional workshops in Japan and Morocco and national workshops in Bangladesh and Slovakia.

D.4.3. Nuclear Security for Nuclear Fuel Cycle Facilities and Associated Activities

65. The Agency continued to develop activities to assist States in the establishment, enhancement and sustainability of nuclear security at specific fuel cycle facilities throughout their lifetime. To achieve the objectives, the Agency is developing additional nuclear security guidance and self-evaluation methodologies and a new training curriculum and materials, as well as conducting other related activities, such as advisory service missions and CRPs.

66. The Agency carries out activities to assist Member States with the implementation of NSS 13 (INFCIRC/225/Rev.5) for the uranium industry. The activities aim to upgrade the security practices used in the process and control of uranium ore concentrate. They include the drafting of technical documents and related training materials for security, and assistance with security upgrades. A Technical Meeting took place in June 2013 attended by representatives from Australia and Kazakhstan. An action plan has been prepared for future activity implementation.

67. The Agency also assists Member States with the implementation of NSS 13 (INFCIRC/225/Rev.5) for research reactor facilities. The work done includes the preparation of a comprehensive model security plan and related training materials for security management for research reactor operators. Assistance includes the provision of evaluation and assessment missions to Member States (research reactor IPPAS missions), assistance visits for facility self-assessment, technical meetings/missions, risk reduction assistance (HEU repatriation) and assistance with security upgrades at facilities.

68. In February 2013 the Agency convened the first consultancy meeting to discuss Nuclear Security approaches to long-term storage of spent nuclear fuel with the focus on implementation of NSS 13 (INFCIRC/225/Rev.5). The objective of the consultancy was to outline the key components or elements of national policies and approaches to the nuclear security of long-term spent fuel storage, taking into account the implementation of the Nuclear Security Fundamentals and NSS 13 (INFCIRC/225/Rev.5). As a result, the experts recommended that the scope of any nuclear security programme for long-term spent fuel should be addressed in a more holistic manner, encompassing not only long-term storage but also disposal of spent fuel and radioactive waste.

D.4.4. Nuclear Material Accounting and Control Relevant to Nuclear Security at Facilities

69. The Agency has developed training courses on the use of a facility's nuclear material accounting and control system for nuclear security purposes and teaching methods for its implementation. Joint workshops on aspects of a facility's NMAC systems took place in China, Finland, Indonesia and at IAEA headquarters. The IAEA's State System of Accountancy and Control (SSAC) Advisory Service (ISSAS) is jointly supported by nuclear security and safeguards specialists with two missions taking place in the Republic of Moldova and Tajikistan. The Office of Nuclear Security also helped support SSAC training, including regional courses held in Argentina and Malawi as well as a national course for Myanmar which was held at IAEA Headquarters. A special mission to evaluate training needs in this area was also held in Oman, in March 2013.

D.4.5. Securing Radioactive Sources

70. Recognizing the continued need for information sharing and coordination among stakeholders involved in radioactive source security, the Agency worked with relevant multilateral initiatives and non-governmental organizations such as the Global Partnership's Nuclear and Radiological sub-Working Group, the Regional Security of Radioactive Sources (RSRS) Project, and the World Institute for Nuclear Security (WINS) to improve coordination of activities. The Agency is also in the early stages of cooperation with the European Commission to support the ongoing efforts of the regional partnership for radioactive source security in South East Asia.

71. The Agency provided assistance to Cuba to upgrade physical protection systems, and continues to work with the Bolivarian Republic of Venezuela to assist in ensuring that all high activity sources are appropriately secured. Between July 2012 and June 2013, the Agency secured sixteen disused high activity radioactive sources in the Philippines using mobile hot cell technology. Several fact-finding missions (Armenia, Morocco, The Former Yugoslav Republic of Macedonia and Bolivarian Republic of Venezuela) were completed to obtain information on inventories of disused high activity radioactive sources. Work is ongoing for the removal of high activity sources in Bosnia-Herzegovina, Honduras and Sudan and also the consolidation of sources in national storage facilities in Colombia.

D.4.6. Transport Security

72. The Agency transport security programme assists States in implementing a comprehensive nuclear security regime, including any commitments they may have undertaken with respect to international instruments related to the security of transport of nuclear and other radioactive material. A training course on security in the transport of nuclear material has been developed to take account of recommendations for the transport of nuclear material set out in the Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities NSS 13, (INFCIRC/225/Rev.5). The training course was piloted in August 2012.

D.4.7. Physical Protection Upgrades and Remote Monitoring

73. The Agency has been engaged in helping to upgrade 50 sites housing high activity sources in six States, and has completed a security upgrade of a radioactive waste disposal facility in another State through the provision of substantial infrastructure improvements, bringing the site into line with Agency guidance and recommendations for the physical protection of facilities. The Agency is currently assisting Armenia in upgrading its nuclear power plant through the provision of equipment to enhance access control systems.

74. States' use of "physical protection remote monitoring" systems at facilities housing nuclear or other radioactive material enables the early detection of violations of the physical protection of such facilities and the timely dispatch of off-site response. The Agency has provided assistance in maintaining 18 previously installed systems. During the reporting period, 13 of these systems have been attended for regular maintenance or upgrades, and 12 on-site training events were provided for responsible staff at facilities. The Agency has donated three additional remote monitoring systems, bringing the total number of such systems deployed in Member States to 21.

D.4.8. HEU Repatriation

75. At the request of Member States, the Agency has continued to be involved in the repatriation of HEU research reactor fuel. Within the framework of the Russian Research Reactor Fuel Return Programme, the Agency assisted in the return to the Russian Federation of nearly 44 kg of fresh HEU fuel and nearly 203 kg of spent HEU fuel from the Czech Republic, Hungary, Poland and Uzbekistan. The annual 'lessons learned' meeting to share experience of conducting the HEU repatriation projects

and preparing possible future HEU removals took place in Sevastopol, Ukraine, in June 2013 with 77 participants from 17 countries.

D.4.9. Establishing Effective Border Controls

76. During the reporting period, the Agency donated 400 personal radiation devices, 52 radiation identification devices and 19 neutron search devices, plus other nuclear security instruments of various types to Member States. In 2012, the Agency assisted in installing one radiation portal monitor in Indonesia, three in Malaysia and eight in Vietnam. A border monitoring upgrade project in Cuba is in the early stages of implementation.

77. The Agency's Nuclear Security Team (NST) undertook performance testing of all the equipment supplied to Member States prior to its delivery. In addition to the instruments in the equipment pool, the NST undertook performance tests for high resolution spectrometry systems, mobile detection systems (backpacks), radioisotope identification devices, neutron search devices and personal radiation devices.

D.4.10. Major Public Events

78. The Agency continued to work closely with Member States holding major public events in the implementation of nuclear security systems before and during the event. Such assistance is normally provided under a joint action plan that covers: technical support missions; training courses, seminars, and exercises; drafting of procedures for detection and response to criminal and other unauthorized acts involving nuclear and other radioactive material out of regulatory control; information exchange and analysis for combating threats; selection, deployment and operation of detection equipment; and response to nuclear security events including emergency response. The Agency established Joint Action Plans and provided assistance to the following Member States:

- Brazil: support for the nuclear security of the FIFA Confederations Cup 2013, World Youth Day 2013, FIFA World Cup 2014, Olympic Games 2016 and Para-Olympic Games 2016.
- Zambia and Zimbabwe: support for the nuclear security of the 20th UN World Tourism Organization (UNWTO) General Assembly, 2013.
- Belarus: support for the nuclear security of the Ice Hockey Federation World Championship, 2014.
- Russian Federation: support for the nuclear security of the XXII Olympic Winter Games and the XI Paralympic Winter Games, 2014.
- The experience and best practice implemented by the Mexican authorities during the XVI Pan American Games, 2011 are reported in a document prepared jointly by representatives of the Mexican Government and the Agency. It is expected that this document will be published in late 2013.

79. In March 2013, the Agency organized a topical meeting on Major Public Events for representatives of Ministries of Foreign Affairs of its Member States. The objective of this meeting was to share experiences and good practices in implementing nuclear security measures at a major public event. The meeting addressed the experiences from Mexico at the XVI Pan American Games and from Poland at UEFA European Championships 2012 and the assistance provided by the IAEA to the relevant Member States in this subject.

D.4.11. Radiological Crime Scene Management

80. Law enforcement operations in States may involve instances in which radioactive material is found at, and seized from, crime scenes. Lessons learned from such events highlight the need for procedures to alert relevant national authorities and to identify clearly the roles and responsibilities associated with a response to a nuclear security event, in order both to protect the public and responders, and to preserve the integrity of potential criminal evidence. Through preparedness as well as procedures for the implementation of a concept of operations, law enforcement and nuclear science capabilities can be optimally positioned to support a complex response involving radioactive material as criminal evidence. As mentioned earlier in this report, the IAEA is preparing an Implementing Guide to assist States in improving crime scene management capacities. The draft Guide was distributed to all Member States for 120 day review in February 2013.

81. The Agency is also developing the curriculum for a training course on radiological crime scene management on the basis of the draft Implementing Guide. The training course aims to acquaint participants with the issues that are likely to arise in the course of a criminal investigation involving nuclear and other radioactive material and to enable them to handle such situations to best protect the public, responders and the criminal evidence.

D.4.12. Nuclear Forensics

82. The Agency continues to develop guidance for States on establishing or enhancing national nuclear forensics' capabilities across the nuclear fuel cycle and to include radioactive sources to ensure the security of nuclear and other radioactive material. Outreach materials and draft implementing guidance documents were prepared at several consultancy meetings held in 2012. Due to rapid developments in the field of nuclear forensics, the IAEA is revising its Nuclear Security Series No. 2 "Nuclear Forensics Support" to include the important role of traditional forensics, strengthening confidence in conclusions from a nuclear forensics examination, nuclear forensics as a preventive measure, and the development of a national nuclear forensics library. This revised document entitled "Nuclear Forensics in Support of Investigations" was drafted and revised at consultancy and technical meetings in 2012 and 2013.

83. The Agency revised its training curriculum in nuclear forensics in 2012 to include a general course on introduction to nuclear forensics as well as an applied course on nuclear forensics methodologies. Regional introductory courses were held in Chile, China, the Republic of Moldova and the Netherlands.

E. Management Issues

E.1. Funding

84. Expenditure in the period 1 July 2012 to 30 June 2013 was € 27.7 million. This expenditure comprised disbursements (€15.6 million) plus unliquidated obligations (€12.1 million)⁷. Although increases in the regular budget have facilitated programme implementation, the Agency continues to

⁷ Unliquidated obligations represented financial engagements involving claims against resources for which expenditure authority has been given and not yet paid.

have a high reliance on extrabudgetary contributions to the Nuclear Security Fund. This reliance has a clear impact on the planning and prioritization of activities as well as overall programme management.

85. In the course of the year, the IAEA accepted pledges to the Nuclear Security Fund from Belgium, Denmark, European Commission, France, Japan, the Republic of Korea, The Netherlands, the Russian Federation and United States of America, whereas a pledge from the United Kingdom is in the process of acceptance.

E.2. AdSec

86. The Advisory Group on Nuclear Security (AdSec) met twice in the course of the reporting period, and continued its core work of advising the Director General on priorities for and implementation of the Agency's nuclear security programme.

87. In light of the Director General's decision to establish NSGC, the roles and functions of AdSec were reviewed and revised Terms of Reference were approved by the Director General in August 2012. AdSec will continue to advise the Director General on priorities for, and implementation of, the Agency's nuclear security programme, but now also has an additional function to advise the Director General on current and emerging nuclear security issues.

88. At the meeting of AdSec in April 2013, AdSec members agreed to a new approach to reviewing the Agency's nuclear security programme with the aim of providing more focused advice to the Director General. AdSec will also include a regular agenda item to review current and emerging nuclear security issues to identify those on which they may wish to provide advice to the Director General.

F. Goals and Priorities for 2013/2014

89. The goals and priorities for 2013/2014 are:

- To hold the International Conference on Nuclear Security scheduled for the first week of July 2013 to bring together ministers, senior government officials, representatives from relevant intergovernmental and non-governmental organizations and other stakeholders to consider, inter alia, measures for further improving global nuclear security.
- To present to the September 2013 meeting of the Board of Governors a new Nuclear Security Plan covering the years 2014–2017. This Plan will take account of lessons learned from developments during the implementation of the Nuclear Security Plan 2010 – 2013 as well as the Ministerial Declaration and other results of the International Conference on Nuclear Security convened at the IAEA's Headquarters in Vienna on 1–5 July 2013, where appropriate, in finalizing the Plan.
- To complete activities planned under the current Nuclear Security Plan 2010–2013.

While a number of the current goals and priorities such as the promotion of the entry into force of the 2005 Amendment to the CPPNM; the development of guidance in the Nuclear Security Series; and responding to requests from States to assist in the production of INSSPs, will remain valid, the Agency also believes that the start of both a new programme and budget cycle and a new Nuclear Security Plan provide the opportunity to review activities under the current Plan as well as the new Plan, when approved by the Board of Governors, and to adjust priorities for the coming year.