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Item 13 of the Conference's provisional agenda
(GC(58)/1, Add.1 and Add.2)

Measures to Strengthen International Cooperation in Nuclear, Radiation, Transport and Waste Safety

Report by the Director General

Summary

Pursuant to resolution GC(57)/RES/9, a report covering the following subjects is submitted to the Board of Governors and the General Conference for their consideration:

- The Agency's safety standards programme
- Nuclear installation safety
- Radiation safety and environmental protection
- Transport safety
- The safety of spent fuel and radioactive waste management
- The safe decommissioning of nuclear facilities and other facilities using radioactive material
- Safety in uranium mining and processing and remediation of contaminated sites
- The safety management of radioactive sources
- Education and training and knowledge management in nuclear, radiation, transport and waste safety
- Nuclear and radiological incident and emergency preparedness and response
- Civil liability for nuclear damage

Recommended Action

- It is recommended that the Board of Governors and the General Conference consider and take note of this report.

Measures to Strengthen International Cooperation in Nuclear, Radiation, Transport and Waste Safety

Report by the Director General

A. Introduction

1. This report has been produced for the fifty-eighth session (2014) of the General Conference in response to resolution GC(57)/RES/9, in which the General Conference requested the Director General to report in detail on implementation of the resolution and on other relevant developments in the intervening period. This report covers the period 1 July 2013 to 30 June 2014.

2. In line with the above resolution adopted at the 57th session of the General Conference, the Agency continued to strengthen its efforts to maintain and improve nuclear, radiation, transport and waste safety, focusing, inter alia, on the technical areas and geographical regions where the need for such efforts is greatest. The Agency also assisted in maintaining and enhancing legal and regulatory effectiveness, encouraged the activities of regional safety forums and related networks, and provided assistance to regulatory bodies in newcomer countries, focusing on areas such as capacity building and human resource development as well as development of safety regulations and establishment of management systems. The Agency also continued strengthening radiation protection in medicine.¹

3. The Agency continued to encourage Member States to become Contracting Parties to the Convention on Nuclear Safety (CNS), the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (Joint Convention), the Convention on Early Notification of a Nuclear Accident (Early Notification Convention) and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (Assistance Convention).

4. The third Agency Treaty Event took place during the 57th session of the General Conference, and provided Member States with a further opportunity to deposit their instruments of ratification, acceptance or approval of, or accession to the treaties deposited with the Director General, notably those related to nuclear safety, nuclear security and civil liability for nuclear damage. In order to further encourage Member States to join and effectively implement these treaties, the Secretariat continued to dispatch so-called awareness missions, inter alia, to Kenya (February 2014), the Philippines (March 2014), Peru (April 2014) and Mongolia (June 2014). A regional workshop for Caribbean countries was held in Jamaica (March 2014) which aimed at raising the awareness of national policymakers about the importance of adhering to relevant international legal instruments

¹ This relates to operative paragraph 1 and 2 of resolution GC(57)/RES/9.

adopted under the Agency's auspices. Other activities related to the Conventions are reported in detail in the following sections of this report: CNS in Section C; Joint Convention in Section J; and Early Notification and Assistance Conventions in Section K.²

5. The Secretariat continued to support Member States under its legislative assistance programme by assisting 13 Member States in reviewing their draft national nuclear legislation, advising them on their international obligations arising from treaties, and by training fellows in nuclear law. The third session of the Nuclear Law Institute was organized by the Office of Legal Affairs in Baden, Austria, from 29 September to 11 October 2013 and was attended by 59 participants from 51 Member States. The two-week course enables participants to acquire a solid understanding of all aspects of nuclear law, as well as to draft, amend or review their national nuclear legislation.³

6. The Agency also continued to help Member States in the implementation of regulatory frameworks and non-legally-binding instruments for safety. Further details on these activities are presented in the relevant sections of this report according to their thematic area.⁴

7. The implementation of the IAEA Action Plan on Nuclear Safety (the Action Plan) continues to be one of the Secretariat's priority areas.⁵ Significant progress has been made in several of the 12 key areas under the Action Plan, such as assessing safety vulnerabilities of nuclear power plants (NPPs), strengthening the Agency's peer review services, improving emergency preparedness and response capabilities, and strengthening and maintaining capacity building.⁶ The progress made in these areas has contributed to strengthening the global nuclear safety framework.

8. The Director General reported to the Board of Governors in March on the progress made in the implementation of the Action Plan⁷ and will provide a further report at the 58th session of the General Conference, which will include details on the related financial resources.⁸

9. The Secretariat continues to organize international experts' meetings to analyse all relevant technical aspects and learn the lessons from the Fukushima Daiichi nuclear accident. The 6th International Experts' Meeting (IEM) on Radiation Protection after the Fukushima Daiichi Accident: Promoting Confidence and Understanding took place in February 2014 and the 7th IEM on Severe Accident Management in the Light of the Accident at the Fukushima Daiichi Nuclear Power Plant in March 2014. An IEM on the topic of research and development is scheduled for February 2015.⁹

10. The *IAEA Report on Decommissioning and Remediation after a Nuclear Accident* and the *IAEA Report on the Human and Organizational Factors in Nuclear Safety in the Light of the Accident at the Fukushima Daiichi Nuclear Power Plant* are available at the Agency website.¹⁰ Two other reports highlighting the lessons learned from the Fukushima Daiichi accident were also issued: *IAEA Report on Strengthening Nuclear Regulatory Effectiveness in the Light of the Accident at the Fukushima*

² This relates to operative paragraphs 14, 15 and 16 of resolution GC(57)/RES/9.

³ This relates to operative paragraph 2 of resolution GC(57)/RES/9.

⁴ This relates to operative paragraphs 16, 17, 18 and 19 of resolution GC(57)/RES/9.

⁵ This relates to operative paragraph 27 of resolution GC(57)/RES/9.

⁶ This relates to operative paragraph 29 of resolution GC(57)/RES/9.

⁷ *Progress in the Implementation of the IAEA Action Plan on Nuclear Safety*.

⁸ This relates to operative paragraphs 28 and 107 of resolution GC(57)/RES/9.

⁹ This relates to operative paragraph 30 of resolution GC(57)/RES/9.

¹⁰ See <http://www.iaea.org/newscenter/focus/actionplan/index.html>.

Daiichi Nuclear Power Plant and IAEA Report on Preparedness and Response for a Nuclear or Radiological Emergency in the Light of the Accident at the Fukushima Daiichi Nuclear Power Plant. The lessons learned, highlighted by Member States and relevant international organizations during the IEMs and widely shared through these reports, are being incorporated, where appropriate, into the Agency's programme of work. Activities related to lessons learned from the Fukushima Daiichi nuclear accident are included in this report in the relevant sections, according to the thematic area.¹¹

11. The Agency has made progress in the preparation of a report on the Fukushima Daiichi accident which is to be finalized by the end of 2014.¹² Forty-two Member States from all geographical regions along with a number of international bodies are involved in the preparation of the report. The Secretariat is working closely with the relevant authorities and institutions in Japan as well as relevant international organizations to ensure that the most accurate, up to date data are used in the preparation of the report.

B. The Agency's Safety Standards Programme

12. In the reporting period, five Agency safety standards were issued: *Near Surface Disposal Facilities for Radioactive Waste* (IAEA Safety Standards Series No. SSG-29), *Monitoring and Surveillance of Radioactive Waste Disposal Facilities* (IAEA Safety Standard Series No. SSG-31), *Schedules of Provisions of the IAEA Regulations for the Safe Transport of Radioactive Material (2009 Edition)* (IAEA Safety Standards Series No. TS-G-1.6 (Rev.1)), *The Safety Case and Safety Assessment for the Predisposal Management of Radioactive Waste* (IAEA Safety Standards Series No. GSG-3) and *Periodic Safety Review for Nuclear Power Plants* (IAEA Safety Standards Series No. SSG-25).¹³

13. The Commission on Safety Standards (CSS) endorsed for submission to the Board of Governors the draft Safety Requirements *Decommissioning of Facilities*. In March 2014, the Board of Governors approved the Safety Requirements that will be issued as General Safety Requirements Part 6.¹⁴

14. The draft revisions, by amendment, of *Governmental, Legal and Regulatory Framework for Safety* (IAEA Safety Standards Series No. GSR Part 1), *Site Evaluation for Nuclear Installations* (IAEA Safety Standards Series No. NS-R-3), *Safety of Nuclear Power Plants: Design* (IAEA Safety Standards Series No. SSR-2/1), *Safety of Nuclear Power Plants: Commissioning and Operation* (IAEA Safety Standards Series No. SSR-2/2) and *Safety Assessment for Facilities and Activities* (IAEA Safety Standards Series No. GSR Part 4) and the revisions of *Preparedness and Response for a Nuclear or Radiological Emergency* (IAEA Safety Standards Series No. GS-R-2) and *The Management System for Facilities and Activities* (IAEA Safety Standards Series No. GS-R-3) were submitted to all Member States for comments at the end of 2013. The draft revisions for GSR Part 1, NS-R-3, SSR-2/1, SSR-2/2, GSR Part 4 and GS-R-2 have been submitted to the Safety Standards Committees for final approval before their submission to the CSS for endorsement.¹⁵

¹¹ This relates to operative paragraphs 7 and 32 of resolution GC(57)/RES/9.

¹² This relates to operative paragraph 31 of resolution GC(57)/RES/9.

¹³ This relates to operative paragraph 34 of resolution GC(57)/RES/9.

¹⁴ This relates to operative paragraph 34 of resolution GC(57)/RES/9.

¹⁵ This relates to operative paragraph 34 of resolution GC(57)/RES/9.

15. The proposed revisions result from the review of the lessons learned gathered from several sources, including the two reports from the Government of Japan (June and September 2011), the report of the IAEA International Fact Finding Expert Mission (May 2011), the letter from the International Nuclear Safety Group (INSAG) dated 26 July 2011, the findings of the IEMs, the presentations made at the Second Extraordinary Meeting of the Contracting Parties to the Convention on Nuclear Safety (August 2012), and the results of the analysis of several national and regional reports. In accordance with the safety standards review and approval process, the draft revisions were submitted for a first review by the Safety Standards Committees at their meetings in mid-2013 and for wider consultations with Member States during the second half of 2013.¹⁶

16. The Safety Standards Committees were also reconstituted for a new term starting in January 2014 and all Member States were invited at the end of 2013 to nominate their representatives to serve on these Committees.¹⁷

17. The work of the Agency's Interface Group continued. Every new proposal to develop security guidance and safety standards was considered by this group in 2013 and those identified as having interfaces were reviewed by both the Safety and Security Committees.¹⁸

C. Nuclear Installation Safety

18. The Agency continued to assist in developing and improving national safety infrastructure and adequate governmental and regulatory frameworks both in Member States with nuclear power programmes and in those expanding or planning to embark on such a programme. At the request of some Member States, the Agency conducted an analysis of various aspects of independence of the regulatory body, based on relevant Agency safety standards. Advice was provided on options for addressing major organizational changes in the regulatory structure at a national level with the aim of ensuring effective independence for making regulatory decisions.¹⁹

19. Sixteen activities in support of the development of governmental, legal and regulatory frameworks for nuclear safety, including a school on writing safety regulations based on the Agency's safety standards, were conducted in Austria (June, July and November 2013), Bangladesh (November 2013), Bulgaria (November 2013), Egypt (June 2014), Indonesia (April 2014), the Islamic Republic of Iran (August 2013 and March 2014), Lithuania (October 2013), Mongolia (July 2013), Nigeria (December 2013), the Philippines (July 2013), the United Arab Emirates (May 2014), the United States of America (August 2013) and Viet Nam (May 2014).²⁰

20. Expert missions included, inter alia, the review of specific regulations and compliance of national legislation with international requirements, the identification of areas for improvement as well as the preparation and update of integrated work plans for the development of a nuclear power programme

¹⁶ This relates to operative paragraph 34 of resolution GC(57)/RES/9.

¹⁷ This relates to operative paragraph 37 of resolution GC(57)/RES/9.

¹⁸ This relates to operative paragraph 3 of resolution GC(57)/RES/9.

¹⁹ This relates to operative paragraphs 1, 2, 7, 21 and 22 of resolution GC(57)/RES/9.

²⁰ This relates to operative paragraphs 2 and 13 of resolution GC(57)/RES/9.

infrastructure. Expert missions took place in Bangladesh (September 2013), Belarus (January 2014), Jordan (October 2013), Poland (May 2014), Sudan (February 2014) and Viet Nam (February 2014).²¹

21. Integrated Regulatory Review Service (IRRS) missions were conducted in Belgium (December 2013), the Czech Republic (November 2013), Jordan (June 2014) and Pakistan (April 2014). IRRS follow-up missions were conducted in the Russian Federation (November 2013), the United Kingdom (September 2013) and the United States of America (February 2014). These missions included the tailored module on regulatory lessons from the Fukushima Daiichi accident, the use of the Self-Assessment of Regulatory Infrastructure for Safety (SARIS) tool, and a review of the decision making process of the regulatory body and the role of technical support organizations based on GSR Part 1.²²

22. The IRRS module developed for the review of regulatory actions in response to the Fukushima Daiichi accident has been used in all IRRS missions since the Fukushima Daiichi accident, and has proven its effectiveness in detecting major implications for the regulatory frameworks of the reviewed countries. Lessons learned from this accident are further being incorporated in the regulatory training packages.²³

23. Work continued on finalizing the IRRS mission programme for the period 2014–2016. Preparatory steps were taken to organize IRRS missions in Armenia (2015), France (2014), Hungary (2015), India (2015), Indonesia (2015), the Republic of Korea (2014), Japan (2015) and the Netherlands (2014), and for follow-up missions in Slovenia (2014) and Viet Nam (2014).²⁴

24. The SARIS tool was updated to include new question sets regarding the regulation of NPPs based on the latest Agency safety standards and enhancements to questions sets related to the research reactors and fuel cycle facilities. National workshops on the application of the Agency's self-assessment methodology and the use of SARIS were conducted in Armenia (December 2013), France (September 2013), Hungary (December 2013), Japan (May 2014), Malaysia (March 2014) and the Netherlands (November 2013).²⁵

25. The Agency also developed the self-assessment Integrated Review of Infrastructure for Safety (IRIS) methodology and software, an independent module of SARIS for countries embarking on nuclear power programmes. IRIS is based on the actions recommended in *Establishing the Safety Infrastructure for a Nuclear Power Programme* (IAEA Safety Standards Series No. SSG-16). Workshops on the application of the IRIS methodology were conducted in Jordan (February 2014), Malaysia (December 2013), Turkey (February 2014) and Viet Nam (October 2013).²⁶

26. Currently, 217 experts are available to provide expertise to IRRS review areas. In addition, the European Union has created and made available to the Agency a pool of experts for IRRS missions. Safety-relevant findings and other lessons learned from IRRS missions are included in the Basic IRRS Training (BIT) course documents. The BIT course was first organized in Vienna, Austria in October 2013 with the participation of 62 participants from 38 Member States.²⁷

²¹ This relates to operative paragraphs 2 and 13 of resolution GC(57)/RES/9.

²² This relates to operative paragraphs 1, 2, 10, 12, 22 and 23 of resolution GC(57)/RES/9.

²³ This relates to operative paragraphs 29 and 90 of resolution GC(57)/RES/9.

²⁴ This relates to operative paragraphs 1, 12 and 22 of resolution GC(57)/RES/9.

²⁵ This relates to operative paragraphs 2, 10 and 13 of resolution GC(57)/RES/9.

²⁶ This relates to operative paragraphs 2, 10 and 13 of resolution GC(57)/RES/9.

²⁷ This relates to operative paragraphs 11, 29 and 90 of resolution GC(57)/RES/9.

27. Data and results of IRRS missions are analysed through post-mission reports. Lessons learned and experience gained from IRRS missions are reflected in these evaluation reports. The information is used to draw conclusions on the effectiveness of a specific mission and can be used as input for future enhancement of the IRRS programme. A comprehensive report on the evaluation of the results of IRRS missions from 2006 to 2013 to countries with operating NPPs is under preparation and preliminary results will be presented in a workshop on lessons learned from IRRS missions to be held in Moscow, Russian Federation (October 2014).²⁸

28. The Agency has revised the standard IRRS mission report template that is used by host countries to summarize the results of their self-assessment process. A pilot application of this template is to be used in 2014.²⁹

29. *Integrated Regulatory Review Service (IRRS) Guidelines for the Preparation and Conduct of IRRS Missions* (IAEA Services Series No. 23, 2013) encourages Member States to make IRRS mission reports public. The Agency makes the IRRS mission report publicly available 90 days after the transmittal letter, unless the host country specifically asks that it remain restricted. Results of all IRRS missions conducted in 2013 were made publicly available.³⁰

30. More than 50 activities on the establishment or strengthening of safety infrastructure and regulatory frameworks were implemented under national technical cooperation (TC) projects for Armenia, Bangladesh, Belarus, Bulgaria, Egypt, Indonesia, the Islamic Republic of Iran, Jordan, Lithuania, Malaysia, Nigeria, the Philippines, Poland, Romania, Saudi Arabia, Sudan, Turkey, the United Arab Emirates, and Viet Nam. Twelve activities were implemented under interregional and regional TC projects in the Asia and the Pacific, Africa and Europe regions.³¹

31. The Agency has developed training material on strengthening the technical and managerial competences of staff of regulatory bodies. The training material places special emphasis on the importance of the establishment of an effectively independent regulatory body. Several workshops were conducted through national or regional TC projects, including workshops on human resource management held in Indonesia (September 2013) and Malaysia (November 2013); on safety regulations in the Islamic Republic of Iran (August 2013); and on leadership and management for safety, and safety culture in Indonesia (October 2013).³²

32. *Development of a Regulatory Inspection Programme for a New Nuclear Power Plant Project* (Safety Reports Series No. 81) was published in February 2014 covering regulatory inspection during the siting, design, construction and commissioning stages and the transition to operation.³³

33. The Agency is addressing the recommendations of the International Conference on Effective Nuclear Regulatory Systems: Transforming Experience into Regulatory Improvements (Canada, 2013) identified six actions items related to regulatory lessons learned and actions taken, human and organizational factors, safety and security culture, safety of spent fuel pools, emergency management and emerging programmes. The Agency is addressing the recommendations of the conference, in

²⁸ This relates to operative paragraph 12 of resolution GC(57)/RES/9.

²⁹ This relates to operative paragraph 12 of resolution GC(57)/RES/9.

³⁰ This relates to operative paragraph 7 of resolution GC(57)/RES/9.

³¹ This relates to operative paragraph 13 of resolution GC(57)/RES/9.

³² This relates to operative paragraphs 13 and 21 of resolution GC(57)/RES/9.

³³ This relates to operative paragraph 2 of resolution GC(57)/RES/9.

particular to consider safety culture in regulatory processes. The Agency also conducted a training workshop on leadership and safety culture in Slovenia (November 2013).³⁴

34. The International Conference on Topical Issues in Nuclear Installation Safety, held in Austria, (October 2013) concluded that the concept of defence in depth is fundamental to nuclear safety; however, improvements are needed in the way defence in depth is implemented and maintained throughout the lifetime of a nuclear facility.³⁵

35. A new service to review national NPP design requirements against Agency safety standards was conducted in Lithuania (June 2014). The Agency initiated activities to assist in the interpretation of these design requirements, which will be reflected in future guidance documents. In addition, the Agency continued to participate in related activities within the Multinational Design Evaluation Programme.³⁶

36. The Agency continued to enhance cooperation to ensure consistency between Agency publications relevant to nuclear safety. Enhanced cross-Departmental participation in the International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO) and Generation IV International Forum (GIF) activities continued and included close coordination in the revision of INPRO documents related to safety and security to develop safety requirements for innovative sodium cooled reactors.³⁷

37. The Agency continued facilitating the exchange of information on safety and security aspects of transportable NPPs. Following the publication of *Legal and Institutional Issues of Transportable Nuclear Power Plants: A Preliminary Study* (IAEA Nuclear Energy Series No. NG-T-3.5) in October 2013, the activities focused on addressing licensing challenges to the deployment of small and medium sized reactors (SMRs). In February 2014, the Agency convened a meeting to discuss the possibility of establishing a forum of potential SMR regulators. The forum's terms of reference and programme plan will be finalized by the end of 2014. The Agency also continued supporting the establishment of nuclear security infrastructure as outlined in the publication *Establishing the Nuclear Security Infrastructure for a Nuclear Power Programme* (IAEA Nuclear Security Series No. 19).^{38 39}

38. The Agency continued to support Member States in NPP safety assessments. The Technical Meeting on Evaluation of Nuclear Power Plant Design Safety in the Aftermath of the Fukushima Daiichi Accident was held in Austria (August 2013) to facilitate information exchange on the status of national assessments and proposed enhancements to operating NPPs.⁴⁰

39. The publication *Safety of Nuclear Fuel Cycle Facilities* (IAEA Safety Standards Series No. NS-R-5 (Rev.1)), which includes safety requirements for reprocessing and research and development fuel cycle facilities, was issued in May 2014. The publication *Criticality Safety in the Handling of Fissile Materials* (to be issued as IAEA Safety Standards Series No. SSG-27) is in the publication process.⁴¹

³⁴ This relates to operative paragraph 29 of resolution GC(57)/RES/9.

³⁵ This relates to operative paragraph 7 of resolution GC(57)/RES/9.

³⁶ This relates to operative paragraphs 1, 36 and 46 of resolution GC(57)/RES/9.

³⁷ This relates to operative paragraph 24 of resolution GC(57)/RES/9.

³⁸ Further details are provided on the 2014 Nuclear Security Report.

³⁹ This relates to operative paragraph 47 of resolution GC(57)/RES/9.

⁴⁰ This relates to operative paragraph 42 of resolution GC(57)/RES/9.

⁴¹ This relates to operative paragraph 34 of resolution GC(57)/RES/9.

40. The Agency continued to encourage Member States planning to embark on a nuclear power programme, or continuing to construct NPPs, to become Contracting Parties (CPs) to the Convention on Nuclear Safety (CNS). Oman and Paraguay became new CPs in the reporting period.⁴²

41. During the reporting period, two meetings of the Working Group on Effectiveness and Transparency (WGET) of the CNS were held in Vienna, Austria, with 47 CNS CPs represented. Fourteen areas to improve the effectiveness and transparency of the CNS were identified. Five tools to strengthen each area were identified, namely: amendments to the convention; new or amended CNS guidance documents; authoritative interpretations; and voluntary measures and recommendations for action by another body. The WGET also identified 68 actions to strengthen CNS effectiveness.⁴³

42. Based on the work of the WGET, Switzerland submitted a proposal to amend the CNS (Article 18 on design); Pakistan submitted a proposal to amend the *Guidelines regarding National Reports under the Convention on Nuclear Safety* (INFCIRC/572/Rev.4); and a group of CPs submitted a set of proposals to amend the *Guidelines regarding the Review Process under the Convention on Nuclear Safety* (INFCIRC/571/Rev.6), the *Guidelines regarding National Reports under the Convention on Nuclear Safety* (INFCIRC/572/Rev.4) and the *Rules of Procedure and Financial Rules* (INFCIRC/573/Rev.5), and to make recommendations for actions to the Secretariat, CPs and other organizations.⁴⁴

43. The 6th Review Meeting of the CNS with 808 participants from 69 CPs was held from 24 March to 4 April 2014 in Vienna, Austria. The proposed amendments to the CNS procedures and nine recommendations for actions to other bodies were agreed. The CPs decided to submit the proposal to amend the CNS to a diplomatic conference to be convened within one year. A consultation meeting open to all CPs will be organized at least 90 days prior to the first day of the diplomatic conference to exchange views and to prepare for the adoption of the rules of procedure.⁴⁵

44. During the meeting, CPs reconfirmed their commitment to the findings of the 2nd Extraordinary Meeting. In particular, the summary report of the 6th Review Meeting of the CNS highlighted that the displacement of people and the land contamination after the Fukushima Daiichi accident called for all national regulators to identify provisions to prevent and mitigate the potential for severe accidents with off-site consequences; that NPPs should be designed, constructed and operated with the objectives of preventing accidents and, should an accident occur, mitigating their effects and avoiding off-site contamination; and that regulatory authorities should ensure that those objectives were applied in order to identify and implement appropriate safety improvements at existing plants. A session on the Fukushima Daiichi accident was held before the discussions and approval of the Summary Report of the review meeting.⁴⁶

45. The triennial International Meeting on Application of the Code of Conduct on the Safety of Research Reactors was held in June 2014 in Vienna, Austria, with the participation of 56 delegates from 45 Member States. The meeting provided a forum for the exchange of information and experience on the effective application of the Code, discussed Member States' self-assessments,

⁴² This relates to operative paragraph 14 of resolution GC(57)/RES/9.

⁴³ This relates to operative paragraph 38 of resolution GC(57)/RES/9.

⁴⁴ This relates to operative paragraph 38 of resolution GC(57)/RES/9.

⁴⁵ This relates to operative paragraph 38 of resolution GC(57)/RES/9.

⁴⁶ This relates to operative paragraph 38 of resolution GC(57)/RES/9.

identified areas for the satisfactory application of the Code and areas that needed to be improved, and agreed on actions to address those issues at the national, regional and international levels.⁴⁷

46. The Agency continued to help Member States with research reactors under construction, in operation, being decommissioned or in extended shutdown to apply the guidance in the *Code of Conduct on the Safety of Research Reactors* and the supporting Agency safety standards. These efforts included the holding of a regional (Asia and the Pacific) workshop on the application of the Code (Indonesia, September 2013), focusing on core management and safety of experiments, and three workshops in Vienna, Austria, on the interface between safety and security (October 2013), safety aspects of operating programmes (April 2014), and safety analysis and safety documents (May 2014).⁴⁸

47. The Agency conducted two safety missions in Nigeria (March 2014) and the Netherlands (July 2013) on the development of national regulations for research reactors. These missions reviewed the regulatory technical safety requirements, identified gaps between those requirements and the Agency's safety standards, and made recommendations to address those gaps.⁴⁹

48. Integrated Safety Assessment of Research Reactors (INSARR) missions were conducted in Israel (July 2013), Italy (November 2013), Poland (March 2014) and South Africa (October 2013) providing recommendations and suggestions for further enhancing the safety of the facilities. Research reactor safety expert missions were conducted in the Democratic Republic of the Congo (October 2013), Ghana (August 2013), the Islamic Republic of Iran (March 2014) and Peru (April 2014). These missions helped to enhance safety in various areas, including the management and verification of safety, safety analysis of the core fuel conversion from high enriched uranium to low enriched uranium, and the review and assessment of safety documents.⁵⁰

49. The Agency conducted two workshops on the development of the technical requirements for the bidding specifications for research reactors (September 2013) and on the assessment of the national infrastructure for a new research reactor project (May 2014) with the participation of 28 Member States. Expert missions on technical and safety infrastructure elements were also conducted on new research reactor projects in Jordan (April 2014), Kuwait (May 2014), Saudi Arabia (January 2014), the United Republic of Tanzania (May 2014), and Tunisia (February 2014). These activities helped to identify shortcomings and further actions for the development of national regulatory and safety infrastructures.⁵¹

50. The biennial International Workshop on Research Reactor Ageing, Modernization and Refurbishment was held in the Republic of Korea (October 2013) with the participation of 250 delegates from 34 Member States. The Agency also conducted five safety expert missions on technical support for establishing ageing management programmes at research reactors in Bangladesh (June 2014), Indonesia (November 2013), the Islamic Republic of Iran (May 2014), Peru (March 2014), and Uzbekistan (September 2013), and a follow-up INSARR mission in Romania (September 2013).⁵²

⁴⁷ This relates to operative paragraph 20 of resolution GC(57)/RES/9.

⁴⁸ This relates to operative paragraphs 19 and 40 of resolution GC(57)/RES/9.

⁴⁹ This relates to operative paragraph 36 of resolution GC(57)/RES/9.

⁵⁰ This relates to operative paragraphs 19 and 40 of resolution GC(57)/RES/9.

⁵¹ This relates to operative paragraph 19 of resolution GC(57)/RES/9.

⁵² This relates to operative paragraph 40 of resolution GC(57)/RES/9.

51. The Agency continued to assist Member States with safety reassessments of their research reactors and fuel cycle facilities in the light of the feedback from the Fukushima Daiichi nuclear accident. The publication *Safety Reassessment for Research Reactors in the Light of the Accident at the Fukushima Daiichi Nuclear Power Plant* (IAEA Safety Reports Series No. 80) was issued in 2014. A regional workshop on complementary safety assessment, following the lessons learned from the Fukushima Daiichi nuclear accident, was held in the USA (December 2013) with participants from 12 Member States from Asia and the Pacific. The matter was also discussed at the regional advisory safety committees for research reactors held in Egypt (June 2014), and Viet Nam (November 2013). In addition, a Technical Meeting on the Implications of the Fukushima Daiichi Accident on the Safety of Fuel Cycle Facilities, held in July 2013 in Vienna, Austria, with the participation of 22 Member States, provided input for a technical report on the safety reassessment of fuel cycle facilities.⁵³

52. The publication *Guidelines for the Review of Research Reactor Safety: Revised Edition* (IAEA Service Series No. 25) incorporating feedback from the INSARR missions was issued in December 2013. Guidelines for the Safety Evaluation of Fuel Cycle Facilities During Operation (SEDO) review service are in the publication process.⁵⁴

53. The Agency continued to support Member States in improving NPP safety. The Agency conducted the first Corporate Operational Safety Review Team (OSART) mission in the Czech Republic (October 2013), an OSART mission in France (July 2013) and OSART follow-up missions in Brazil (February 2014), Bulgaria (June 2014), China (August 2013), the Czech Republic (May 2014), France (May 2014), India (February 2014), and Switzerland (June 2014). A Technical Meeting held in the Republic of Korea in October 2013 reviewed the 30 years of experience gained from the implementation of the OSART programme and recommended that further efforts should be made to enhance the severe accident management and operational safety culture review modules.⁵⁵

54. The role of OSART missions to support Member States' efforts to improve nuclear safety was outlined during the 6th Review Meeting of the CNS held in April 2014, during which the Agency again encouraged those Member States who had not requested an OSART mission in the past three years to do so in accordance with the Action Plan.⁵⁶

55. Member States provided extensive support for the implementation of the OSART and Safety Aspects of Long Term Operation of Water Moderated Reactors Peer Review Service (SALTO) missions performed in Brazil, the Czech Republic, France and Sweden during the reporting period in the reporting period, ensuring the participation of more than 50 highly qualified experts in such missions.⁵⁷

56. A severe accident management (SAM) module was developed and included in the standard scope of the OSART missions. Special training and exchange of information based on the experience with the initial application of OSART SAM modules was conducted during the reporting period in workshops in Austria (March 2014), the Czech Republic (December 2014), the Islamic Republic of Iran (December 2013) and the Russian Federation (September 2013).⁵⁸

⁵³ This relates to operative paragraph 43 of resolution GC(57)/RES/9.

⁵⁴ This relates to operative paragraph 12 of resolution GC(57)/RES/9.

⁵⁵ This relates to operative paragraphs 10 and 12 of resolution GC(57)/RES/9.

⁵⁶ This relates to operative paragraph 12 of resolution GC(57)/RES/9.

⁵⁷ This relates to operative paragraph 11 of resolution GC(57)/RES/9.

⁵⁸ This relates to operative paragraph 44 of resolution GC(57)/RES/9.

57. The Agency initiated the revision of the OSART Guidelines (2005 edition) to take into consideration lessons learned from NPP operating experience, the latest revisions of the Agency safety standards related to operational safety, and relevant lessons learned from the Fukushima Daiichi nuclear accident.⁵⁹

58. The Agency published *SALTO Peer Review Guidelines: Guidelines for Peer Review of Safety Aspects of Long Term Operation of Nuclear Power Plants* (IAEA Services Series No. 26), which includes a new review area: human resources for long term operation, competency and knowledge management. The Agency conducted SALTO peer review missions in Brazil (November 2013) and Sweden (March 2014) and SALTO follow-up peer review missions in the Netherlands (February 2014) and the Republic of Korea (April 2014). In addition, SALTO workshops were conducted in Canada (July 2013), the Czech Republic (April 2014), Japan (December 2013) and Sweden (September and December 2013). Other SALTO related expert missions were performed in Armenia (October 2013), Brazil (May 2014), Mexico (May 2014) and Ukraine (October 2013).⁶⁰

59. The International Generic Ageing Lessons Learned (IGALL) programme phase 1 was completed in September 2013. Participants from 25 Member States represented at the IGALL Technical Meeting held in September 2013 agreed on tasks for IGALL programme phase 2, which commenced in January 2014. *Approaches to Ageing Management for Nuclear Power Plants: International Generic Ageing Lessons Learned (IGALL) Final Report* (IAEA Technical Document No. IAEA TECDOC-1736) was published in April 2014 and the Safety Report *Ageing Management for Nuclear Power Plants: International Generic Ageing Lessons Learned* is under publication. The IGALL web-based database⁶¹ was made publicly available. It includes 76 ageing management programmes, 27 time-limited ageing analyses and more than 2000 issues related to ageing management review. The Agency is also preparing a new coordinated research project to evaluate the ageing of materials from decommissioned reactors.⁶²

60. The International Reporting System for Operating Experience (IRS), jointly operated by the IAEA and the Nuclear Energy Agency of the Organisation for Economic Cooperation and Development (OECD/NEA), provides a forum for sharing event-related information between regulators; technical, scientific and support organizations; and operators. Approximately 80 reports were submitted in the reporting period. The annual Technical Meeting of IRS national coordinators (France, September 2013) shared recent event information and discussed system improvements. The Agency also conducted an IRS training course in India (November 2013). The use of IRS to support safety improvements in Member States was outlined during the 6th CNS review meeting (April 2014), where Member States were further encouraged to increase the reporting frequency.⁶³

61. The Agency initiated the development of a Technical Document on operating experience feedback on research reactor and fuel incidents, based on events published in the Incident Reporting System for Research Reactors (IRSRR) and the Fuel Incident Notification and Analysis System (FINAS). The Agency has also undertaken the revision of the Safety Guide *A System for the Feedback*

⁵⁹ This relates to operative paragraph 44 of resolution GC(57)/RES/9.

⁶⁰ This relates to operative paragraphs 10, 11 and 40 of resolution GC(57)/RES/9.

⁶¹ See <http://gnssn.iaea.org/NSNI/PoS/IGALL/SitePages/Home.aspx>.

⁶² This relates to operative paragraph 40 of resolution GC(57)/RES/9.

⁶³ This relates to operative paragraphs 7 and 39 of resolution GC(57)/RES/9.

of Experience from Events in Nuclear Installations (IAEA Safety Standards Series No. NS-G-2.11) to include the latest developments in the area of operating experience.⁶⁴

62. Recognizing the similarity between the guidelines for incident reporting for NPPs, fuel cycle facilities and research reactors, and the way these are applied in practice, the Agency initiated the development of a common platform to support the three web-based incident reporting systems: IRS, IRSRR and FINAS.⁶⁵

63. The Agency conducted a Peer Review of Operating Safety Performance Experience (PROSPER) mission to the Russian Federation (November 2013) and supported Member States' capacity building efforts in the area of operating experience through training workshops on root cause analysis in China (April 2014), India (November 2013), and Slovenia (December 2013).⁶⁶

64. The Agency is promoting periodic safety reviews for all NPPs, which allow the operators to reassess plant safety on a regular basis. The importance of periodic safety reviews was emphasized at the International Conference on Topical Issues in Nuclear Installation Safety and at the 6th Review Meeting of the CNS.⁶⁷

65. A new service, the Safety Assessment Advisory Programme (SAAP), which helps identify training needs in the area of safety assessment, was successfully implemented in three countries considering a nuclear power programme: Jordan (November 2013), Malaysia (September and December 2013) and Viet Nam (September/October 2013).⁶⁸

66. Agency efforts continued to strengthen review services by incorporating lessons learned and recent revisions to Agency safety standards. Examples include the update of guidelines for the following modules of the Design and Safety Assessment Review Service: Generic Reactor Safety Review, International Probabilistic Safety Assessment Review Team, Review of Accident Management Programme and Emergency Operating Procedures, and Periodic Safety Review.⁶⁹

67. Over 20 activities were completed in the area of NPP safety assessment. These activities included advisory and expert missions and training workshops in various areas related to NPP safety assessment in 9 national projects in Bulgaria, China, Islamic Republic of Iran, Lithuania, Mexico, Pakistan, Turkey, Viet Nam and the United Arab Emirates, and two European activities.⁷⁰

68. The publication *Site Survey and Site Selection for Nuclear Installations* (to be issued as IAEA Safety Standards Series No. SSG-35), which is in the publication process, provides recommendations and guidance on siting and site evaluation process for nuclear installations.⁷¹

69. Within the scope of the Agency's extrabudgetary programme of the International Seismic Safety Centre (ISSC), over 20 documents to support the implementation of the safety standards related to

⁶⁴ This relates to operative paragraph 39 of resolution GC(57)/RES/9.

⁶⁵ This relates to operative paragraphs 9 and 39 of resolution GC(57)/RES/9.

⁶⁶ This relates to operative paragraph 39 of resolution GC(57)/RES/9.

⁶⁷ This relates to operative paragraphs 10 and 41 of resolution GC(57)/RES/9.

⁶⁸ This relates to operative paragraphs 1, 2 and 41 of resolution GC(57)/RES/9.

⁶⁹ This relates to operative paragraphs 11 and 12 of resolution GC(57)/RES/9.

⁷⁰ This relates to operative paragraph 13 of resolution GC(57)/RES/9.

⁷¹ This relates to operative paragraph 34 of resolution GC(57)/RES/9.

siting and design and capacity building in countries embarking on nuclear power programmes are under development, using video conference facilities and face-to-face meetings.⁷²

70. To support the implementation of *Seismic Hazards in Site Evaluation for Nuclear Installations* (IAEA Safety Standards Series No SSG-9), two Technical Documents on palaeoseismology and ground motion prediction equations and two Safety Reports on ground motion simulation based on fault modelling and diffuse seismicity are under development. The Agency also conducted meetings on palaeoseismology and diffuse seismicity and on cross-cutting issues of seismic hazards in Austria (September 2013), Germany (October 2013), Japan (July 2013) and the United States of America (September 2013).⁷³

71. A meeting was held in Monaco (October 2013) on safety issues of multi-unit sites subjected to correlated external hazards. The results provide a technical basis for a future integrated external event safety assessment of multi-unit sites. Three documents are being finalized on the implementation of guidelines for seismic probabilistic safety assessment (PSA), on seismic isolation systems for nuclear installations, and on methodologies for seismic safety assessment of existing nuclear installations. The Agency also conducted meetings on volcano hazards in site evaluations for nuclear power plants in Japan (July 2013) and the United States of America (December 2013), and public communications during site evaluations in Italy (November 2013), to develop Technical Documents in these areas.⁷⁴

72. Safety Reports on margin assessments of the ability of NPPs to withstand human induced external events and the protection of NPPs against human induced external events are being finalized. Further Technical Documents on integrated tsunami design and PSA, and on the integration of seismic and tsunami PSA procedures for nuclear safety are under development.⁷⁵

73. In order to disseminate the activities conducted under the ISSC to countries embarking on nuclear power programmes, the Agency conducted a regional workshop on siting and site evaluation for nuclear installations in South Africa (September 2013); introduced the importance of prehistorical information for nuclear installation safety at the 4th International Union for Quaternary Research (INQUA) Meeting on Paleoseismology, Active Tectonics and Archeoseismology in Germany (October 2013); and provided lectures on seismic hazard and a walkdown of the Onagawa NPP in Japan during a seminar at the Japan Atomic Industrial Forum International Cooperation Center.⁷⁶

74. Site and External Events Design (SEED) review service missions were conducted in the Czech Republic (November 2013), Jordan (July 2013) and Romania (October 2013). Furthermore, SEED review services presentations were held at several external forums including an international seminar in Lithuania (November 2013).⁷⁷

75. The Agency added a research reactor database to the External Events Notification System, and deployed the new version of the Nuclear ShakeCast system for real time alerts of seismic events near NPP sites (December 2013).⁷⁸

⁷² This relates to operative paragraph 7 of resolution GC(57)/RES/9.

⁷³ This relates to operative paragraphs 2 and 7 of resolution GC(57)/RES/9.

⁷⁴ This relates to operative paragraphs 7 and 42 of resolution GC(57)/RES/9.

⁷⁵ This relates to operative paragraphs 7, 34 and 42 of resolution GC(57)/RES/9.

⁷⁶ This relates to operative paragraphs 2 and 7 of resolution GC(57)/RES/9.

⁷⁷ This relates to operative paragraphs 2 and 7 of resolution GC(57)/RES/9.

⁷⁸ This relates to operative paragraph 45 of resolution GC(57)/RES/9.

76. More than 70 activities were conducted involving over 1000 participants from more than 90 Member States in safety networks under the Global Nuclear Safety and Security Network (GNSSN). These safety networks include global networks such as the International Regulatory Network (RegNet), the Technical and Scientific Support Organization Forum and the Global Safety Assessment Network (GSAN); regional networks such as the Asian Nuclear Safety Network (ANSN), the Arab Network of Nuclear Regulators (ANNuR), the Forum of Nuclear Regulatory Bodies in Africa (FNRBA) and the Ibero-American Forum of Radiological and Nuclear Regulatory Agencies (FORO); and thematic networks such as the Regulatory Cooperation Forum (RCF), the Forum for Senior Regulators of CANDU Reactors, the WWER Regulators' Forum and the Control of Sources Network.⁷⁹

77. The GNSSN Governance Plan and the GNSSN Strategy Plan were developed to serve as initial policy documents to facilitate the seamless operation of various networks, forums and portals integrated into the GNSSN platform. Further, a GNSSN Communication Strategy is being developed to ensure a timely and clear dissemination of information to GNSSN key audiences and stakeholders.⁸⁰

78. The Agency promoted RegNet's activities during workshops and expert missions in accordance with the conclusions of the last RegNet Technical Meeting held in 2013. The RegNet portal includes links to other regulatory related international forums, such as the European Nuclear Safety Regulators Group, Western European Nuclear Regulators Association and Heads of the European Radiological Protection Competent Authorities. During the reporting period, Indonesia, Malaysia and Nigeria became registered members of RegNet. RegNet has also been used to promote coordination among different stakeholders in the preparation for IRRS missions and during such missions. The Agency's sample workshop training material to strengthen technical and managerial competences of regulatory body staff is being further developed and will be made available under the portal for embarking countries on the RegNet website.⁸¹

79. The RCF continued to assist in the development of effectively independent and robust nuclear safety regulatory bodies. Membership increased to 27 members, with Kenya and Sudan joining during the reporting period. About 80 participants from 40 Member States attended the RCF annual meeting held in September 2013. The RCF continued its support for Jordan and Viet Nam and developed RCF support action plans for Belarus and Poland. These action plans were developed in a joint meeting of the RCF and the European Commission's Instrument for Nuclear Safety Cooperation in Belgium (April 2014).⁸²

80. The annual meeting of the senior regulators from countries operating CANDU-type reactors was held in Austria (November 2013) to disseminate CANDU-specific regulatory experience and lessons learned. In addition, continuous support was provided to the CANDU PSA Working Group (CPWG) and a Technical Document summarizing the CPWG's outputs is under development. Cooperation between the CPWG and the WWER Regulators' Forum has been initiated. A web platform for CANDU-related activities was made available under RegNet.⁸³

81. Work continued to enhance the GSAN in several areas such as updating the Safety Assessment Education and Training (SAET) Programme syllabus and periodically adding new training material to

⁷⁹ This relates to operative paragraph 5 of resolution GC(57)/RES/9.

⁸⁰ This relates to operative paragraphs 5 and 12 of resolution GC(57)/RES/9.

⁸¹ This relates to operative paragraph 5 of resolution GC(57)/RES/9.

⁸² This relates to operative paragraph 5 of resolution GC(57)/RES/9.

⁸³ This relates to operative paragraph 5 of resolution GC(57)/RES/9.

the multimedia module of GSAN. During the reporting period, a total of 18 training workshops based on the SAET syllabus for embarking countries were conducted in Jordan, Malaysia, and Viet Nam.⁸⁴

82. Regional workshops on knowledge safety networks were held in Germany (October 2013), Kenya (October 2013) and Tunisia (August 2013) to assist in the development of the National Nuclear Regulatory Portals (NNRPs) under the GNSSN. NNRPs are interfaces among national stakeholders and the international nuclear safety and security community at large, and act as harmonization mechanisms for national, regional and global nuclear safety and security knowledge management.⁸⁵

83. In order to support the capacity building efforts of the ANNuR and FNRBA Member States, 13 regional workshops with over 40 participating countries were organized. In addition, a joint interregional ANNuR/FNRBA workshop on self-assessment for regulatory authorities, an introduction to the SSG-16 self-assessment methodology and the IRIS software was conducted in Jordan (November 2013).⁸⁶

84. Practical Arrangements were signed between the Agency and ANNuR and between the Agency and FNRBA to set the framework of cooperation with both networks, aiming at strengthening radiation protection, nuclear safety and security, and the regulatory infrastructure in the member countries of these networks, as well as promoting capacity building and knowledge management, as a key to stimulate human resource development and knowledge transfer. The 5th annual meeting of ANNuR was held in Tunisia (March 2014) with the participation of 15 Member States. National experiences and lessons learned in the implementation of national activities were shared and two new thematic areas on safety management of research reactors and transport of radioactive materials were established.⁸⁷

85. The Agency continued its cooperation with FORO in areas of mutual interest aimed at achieving a high level of radiation and nuclear safety in a sustainable manner. A Technical Document on a national programme for radiation protection in medical exposures (IAEA-TECDOC-1710/S) was issued in Spanish and a Technical Document, in English, on regulatory practices on ageing management and long term operation of NPPs in the Ibero-American region is in the publication process. Further, the Agency organized two meetings of the FORO steering committee and 12 meetings were conducted on regulatory aspects of harmonizing criteria on emergency preparedness and response; safety culture in regulatory practices for radioactive sources; the radiotherapy risk evaluation tool SEVRRA; training programmes on licensing and inspection of safety of nuclear reactors for regulatory staff; licensing and inspection programmes for cyclotrons; and integrated information management in the Ibero-American region.⁸⁸

86. The second annual meeting of the ANSN Topical Group on Communication and Consultation with Interested Parties (CTG) was held in Indonesia (October 2013). The 2014–2016 CTG work plan includes legal and regulatory requirements concerning communication in general, and communication during emergencies. Two workshops on information and practical guidance on public communication in the preparedness and response to a nuclear or radiological emergency (Indonesia, October 2013),

⁸⁴ This relates to operative paragraph 5 of resolution GC(57)/RES/9.

⁸⁵ This relates to operative paragraphs 5 and 12 of resolution GC(57)/RES/9.

⁸⁶ This relates to operative paragraph 5 and 12 of resolution GC(57)/RES/9.

⁸⁷ This relates to operative paragraph 5 of resolution GC(57)/RES/9.

⁸⁸ This relates to operative paragraphs 5 and 6 of resolution GC(57)/RES/9.

and on communication plans, strategies and tools (the Philippines, May 2013) were held in the reporting period.⁸⁹

87. The second annual meeting of the ANSN's Topical Group on Leadership and Management for Safety of the Regulatory Bodies was held in Indonesia (October 2013) to discuss and prepare its 2014–2015 work plan. The Agency also conducted workshops on the development of processes for the regulatory activities of the regulatory body (Indonesia, October 2013) and on leadership and management for safety; and safety culture (Thailand, May 2014). The 5th annual meeting of the ANSN's Topical Group on Governmental and Regulatory Infrastructure (GRITG) took place in Indonesia (November 2013) to address the development of national policies and strategies for safety. A regional workshop on the regulatory approach needed for developing the first nuclear power programme was implemented in Malaysia (May 2014) under the auspices of the GRITG.⁹⁰

88. The Agency continued to support the implementation of ANSN activities related to site safety for nuclear installations, including workshops on essential knowledge of site evaluation for NPPs in Malaysia (August 2013) and on tsunami hazard assessment and hydrology related to NPP siting activities and requirements in Thailand (November 2013).⁹¹

89. The Agency also supported the implementation of eight TC projects for Armenia, the Islamic Republic of Iran, Pakistan, Turkey, the United Arab Emirates, the Europe and Latin America regions, and the ANSN, aimed at improving the NPP operational safety in Member States.⁹²

D. Radiation Safety and Environmental Protection

90. The draft Safety Guide entitled *Occupational Radiation Protection (DS453)* has been submitted to Member States for comment. A Safety Guide on medical uses of ionizing radiation and three Safety Guides on protection of the public and the environment are still being developed. The Safety Guide entitled *Justification of Practices, Including Non-Medical Human Imaging* (IAEA Safety Standards Series No. GSG-5) has been approved for publication and the Safety Guide on *Radiation Safety of X-ray Generators and Radiation Sources Used for Inspection Purposes and for Non-Medical Human Imaging* is currently under development.⁹³

91. The Agency continues to organize regional workshops to assist Member States with the implementation of *Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards — Interim Edition* (IAEA Safety Standards Series No GSR Part 3 (Interim)). The first regional workshop for the Africa region was held in Centurion, South Africa, in October 2013. The second regional workshop for Asia and the Pacific was held in the Philippines, in October 2013. The second regional workshop for the Europe region was held in the Russian Federation, in May 2014. All three workshops focused on the use of radiation in medicine, exposure due to radon in homes,

⁸⁹ This relates to operative paragraph 5 of resolution GC(57)/RES/9.

⁹⁰ This relates to operative paragraph 5 of resolution GC(57)/RES/9.

⁹¹ This relates to operative paragraph 5 and 13 of resolution GC(57)/RES/9.

⁹² This relates to operative paragraphs 5 and 13 of resolution GC(57)/RES/9.

⁹³ This relates to operative paragraphs 48, 54 and 56 of resolution GC(57)/RES/9.

implementation of the new occupational dose limit for the lens of the eye, and international trade in consumer products.⁹⁴

92. The Agency and the OECD/NEA jointly operate the Information System on Occupational Exposure (ISOE). The ISOE Technical Centre invited one utility from China to become a member of the ISOE and supported three of its members (Brazil, China and Pakistan) to participate in the 2013 ISOE International ALARA Symposium in Japan in August 2013.⁹⁵

93. Preparations are being made for the International Conference on Occupational Radiation Protection: Enhancing the Protection of Workers — Gaps, Challenges and Developments, to be held 1–5 December 2014 in Vienna, Austria. The conference is co-sponsored by the International Labour Organization and is being organized in cooperation with 14 other international organizations.⁹⁶

94. The Technical Document *Implications for Occupational Radiation Protection of the New Dose Limit for the Lens of the Eye* (IAEA-TECDOC-1731) was published in December 2013. The publication provides interim guidance and is also intended for use by Member States to develop consensus on guidelines for protection of the lens of the eye that will be given in two Safety Guides currently being developed on occupational radiation protection and radiation safety in the medical uses of ionizing radiation.⁹⁷

95. The publication *Radiation Protection and Management of NORM Residues in the Phosphate Industry* (IAEA Safety Reports Series No. 78) was issued in 2013. The Agency initiated the development of an Information System on Uranium Mining Exposure to provide a platform for information exchange by utilities and regulatory authorities on optimization of radiation protection.⁹⁸

96. The Agency is preparing a Safety Guide entitled *Management of Radioactive Residues from Mining, Mineral Processing, and other NORM related Activities (DS459)*, which will supersede the Safety Guide *Management of Radioactive Waste from the Mining and Milling of Ores* (IAEA Safety Standards Series No. WS-G-1.2) issued in 2002. While WS-G-1.2 was restricted to residues from uranium and thorium production, DS459 includes all NORM residues. Under the Network on Environmental Management and Remediation (ENVIRONET), an international workshop on reuse and disposal of NORM materials was organized in Petten, the Netherlands, in October 2013. The workshop provided participants with practical examples for the management of NORM residues arising from the oil, gas and phosphate industries.⁹⁹

97. The Bonn Call for Action, a joint position statement of the Agency and the World Health Organization (WHO), co-sponsors of the International Conference on Radiation Protection in Medicine held in Bonn, Germany, in December 2012, was sent to Member States in 2013 and posted on the Agency website¹⁰⁰ dedicated to radiation protection of patients. The Bonn Call for Action is also taken into account in the International Action Plan for the Radiation Protection of Patients.¹⁰¹

⁹⁴ This relates to operative paragraph 48 of resolution GC(57)/RES/9.

⁹⁵ This relates to operative paragraph 49 of resolution GC(57)/RES/9.

⁹⁶ This relates to operative paragraph 50 of resolution GC(57)/RES/9.

⁹⁷ This relates to operative paragraphs 48 and 51 of resolution GC(57)/RES/9.

⁹⁸ This relates to operative paragraph 52 of resolution GC(57)/RES/9.

⁹⁹ This relates to operative paragraph 52 of resolution GC(57)/RES/9.

¹⁰⁰ See <http://rpop.iaea.org>.

¹⁰¹ This relates to operative paragraph 53 of resolution GC(57)/RES/9.

98. A Technical Meeting held in collaboration with the WHO on justification of medical exposure and the use of appropriateness criteria took place in Vienna, Austria, in March 2014. The meeting concluded, inter alia, that the international organizations should advise and facilitate the process of countries adopting and adapting clinical imaging guidelines to strengthen justification in medical diagnostic imaging. The Technical Meeting on Patient Radiation Exposure Tracking: Progress Assessment and Development of Further Actions was held in Vienna, Austria, in September 2013. A regional training course on the implementation of national clinical imaging guidelines was held for about 20 health professionals from 10 Member States in the Asia and the Pacific region in Seoul, Republic of Korea, in October 2013. The Technical Document *The Information System on Occupational Exposure in Medicine, Industry and Research (ISEMIR): Interventional Cardiology* (IAEA-TECDOC-1735) was published in 2014.¹⁰²

99. The educational reporting systems for Safety in Radiation Oncology and for Safety in Radiological Procedures have both been made available for use by Member States through the Agency's website. Health professionals in Member States have shared safety related events in interventional procedures and radiotherapy on these systems, for review, learning and implementation of safety measures for prevention of similar events by other health professionals. Further developments of these systems continued during 2013 and 2014.¹⁰³

100. The Safety Guide *Protection of the Public against Exposure Indoors due to Radon and Other Natural Sources of Radiation* (IAEA Safety Standards Series No. SSG-32), cosponsored by the WHO, is in the publication process. In addition, a programme of work has been agreed with the WHO to jointly develop training materials on the control of public exposure due to radon.¹⁰⁴

101. A Working Group on International Standards Related to Food and Water Contaminated with Radionuclides as a Result of a Nuclear or Radiological Emergency consisting of representatives of the IAEA, the European Commission, the Food and Agriculture Organization of the United Nations, the OECD/NEA and the WHO, with the International Commission on Radiological Protection (ICRP) as an observer, has been created. The working group developed a discussion paper that identifies possible misinterpretations and/or shortcomings in the existing international standards and proposes steps that need to be taken by the international organizations and Member States to facilitate the recognition, understanding and implementation of the international standards. Furthermore, the Agency has initiated the development of a Technical Document on the control of foodstuffs and drinking water in existing (post-emergency) exposure situations. Regarding radioactivity in commodities, the Agency will carry out a review of existing guidance dealing with non-food commodities in order to identify the extent to which such guidance may need to be revised and, in addition, any additional topics on which new guidance is required, as discussed at the Safety Standards Committees in June 2014.¹⁰⁵

102. The Second Technical Meeting of the Modelling and Data for Radiological Impact Assessments (MODARIA) programme was held in Vienna, Austria, in November 2013. The programme has helped to enhance environmental modelling and radiological assessments of radiation exposures to people and the environment in planned, existing and emergency exposure situations. The MODARIA programme will be concluded in 2015.¹⁰⁶

¹⁰² This relates to operative paragraph 54 of resolution GC(57)/RES/9.

¹⁰³ This relates to operative paragraph 55 of resolution GC(57)/RES/9.

¹⁰⁴ This relates to operative paragraph 57 of resolution GC(57)/RES/9.

¹⁰⁵ This relates to operative paragraphs 58 and 59 of resolution GC(57)/RES/9.

¹⁰⁶ This relates to operative paragraph 60 of resolution GC(57)/RES/9.

103. The Agency continued its advisory work with the Convention for the Protection of the Marine Environment of the North-East Atlantic and with the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention). The work for the London Convention focused on the development of a radiological assessment procedure to evaluate the suitability of materials for disposal at sea in accordance with Agency safety standards, which was approved by the governing body of the Convention in October 2013 to be incorporated into the Convention guidelines.¹⁰⁷

104. The Agency's Database on Discharges of Radionuclides to the Atmosphere and Aquatic Environment provides information to the public on discharges of radionuclides from nuclear facilities. The Agency continued its cooperation with the United Nations Scientific Committee on the Effects of Atomic Radiation in the development of safety standards and technical guidance related to the control of exposures of the public and the environment from radionuclides discharged to, or existing in the environment and on the assessments of exposures to the public and radiological impacts to the environment as a consequence of the Fukushima Daiichi nuclear accident. The Agency also continues to follow the activities of the ICRP through staff nominated to represent the Agency in the individual ICRP committees with observer status.¹⁰⁸

E. Transport Safety

105. The third Technical Meeting to follow up on the findings and recommendations of the 2011 International Conference on the Safe and Secure Transport of Radioactive Material: The Next Fifty Years of Transport — Creating a Safe, Secure and Sustainable Framework was held in Vienna, Austria, in April 2014. The meeting addressed the Conference's findings on the three issues of harmonization, communication and denials of shipment.¹⁰⁹

106. The 2012 edition of the Agency's *Regulations for the Safe Transport of Radioactive Material* (IAEA Safety Standards Series No. SSR-6) (Transport Regulations) was translated into all Agency official languages. The Transport Safety Standards Committee (TRANSSC) at its 27th meeting held in November 2013 decided that a new revision of the Transport Regulations, under the review cycle for the 2012 edition of the Transport Regulations and the corresponding *Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material*, was not warranted. The revised Specific Safety Guide *Schedules of Provisions of the IAEA Regulations for the Safe Transport of Radioactive Material (2009 Edition)* (IAEA Safety Standards Series No. TS-G-1.6 (Rev. 1)) was published in 2014.¹¹⁰

107. Agency staff continued discussions on issues related to radioactive material transport and further efforts to harmonize transport regulations at the meetings of the International Civil Aviation Organization (ICAO), International Maritime Organization, and the United Nations Economic Commission for Europe's Sub-Committee of Experts on the Transport of Dangerous Goods.¹¹¹

¹⁰⁷ This relates to operative paragraph 62 of resolution GC(57)/RES/9.

¹⁰⁸ This relates to operative paragraphs 31, 35 and 61 of resolution GC(57)/RES/9.

¹⁰⁹ This relates to operative paragraph 63 of resolution GC(57)/RES/9.

¹¹⁰ This relates to operative paragraphs 36 and 64 of resolution GC(57)/RES/9.

¹¹¹ This relates to operative paragraphs 36 and 64 of resolution GC(57)/RES/9.

108. With the support of the Agency, the Working Group on Best Practice Guidelines for Voluntary and Confidential Government-to-Government Communications on the Transport of MOX Fuel, High Level Radioactive Waste and, as appropriate, Irradiated Nuclear Fuel by Sea, chaired by Norway and made up of members from both coastal and shipping States, presented a report at the informal meeting of coastal and shipping States held during the 57th session of the General Conference in 2013.^{112, 113}

109. A Transport Facilitation Working Group (TFWG) was formed in late 2013, as recommended by the International Steering Committee on Denials of Shipment of Radioactive Material at its last meeting in June 2013, to maintain efforts on reducing denials of radioactive material shipments. The TFWG met in January and March 2014 to discuss organizational matters and develop its plans for action. The latter include the provision of input for Agency training courses and workshops on denials of shipment to ensure a consistent message on denials for all participants in Agency training activities. The TFWG will report to an Ad-Hoc Inter-Agency Working Group on Transport of Radioactive Material formed by UN organizations involved in regulations for the transport of radioactive material.¹¹⁴

110. The Agency held a Technical Meeting on the environments to which packages may be subject during transport and related issues concerning the regulations for the safe transport of radioactive material in Vienna, Austria, in July 2013. A Working Group on Package Stowage and Retention System during Transport was formed to evaluate routine conditions of transport. The Group met in March 2014 and prepared a report that will be one of the bases for the Technical Meeting on Accidents during Transport of Radioactive Material to be held in October 2014.¹¹⁵

111. The Agency's outreach efforts on transport safety in the reporting period included updates to an information video on transport, and the publication of a brochure on the problem of denials of shipment. Translation of these information resources has begun. Development of a transport web portal to allow easy access to relevant information for the global transport community has begun. The video has been translated into all official languages of the Agency.¹¹⁶

112. Agency regional TC projects featuring transport safety have included training courses in the Asia and the Pacific region (China and Pakistan in November 2013, and Malaysia in May 2014) and 17 peer review meetings in Africa (July 2013 to March 2014).¹¹⁷

113. Transport safety training courses for the Mediterranean region (December 2013 and March 2014), Pacific islands (April 2014) and Caribbean islands (June 2014) were held. The Agency has intensified its efforts to assist Member States in human capacity building in transport security. A total of nine regional and national training courses on security in the transport of nuclear and radioactive material were held in the reporting period.¹¹⁸

114. The Ad-hoc Working Group on Air and Maritime Transportation of the Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE), led by the ICAO, held four teleconferences during the reporting period which led to the establishment of: a contact list of public information

¹¹² See document INFCIRC/863, <http://www.iaea.org/Publications/Documents/Infcircs/2014/infcirc863.pdf>.

¹¹³ This relates to operative paragraphs 66, 67 and 68 of resolution GC(57)/RES/9.

¹¹⁴ This relates to operative paragraph 72 of resolution GC(57)/RES/9.

¹¹⁵ This relates to operative paragraphs 63 and 64 of resolution GC(57)/RES/9.

¹¹⁶ This relates to operative paragraphs 63, 66, 67 and 74 of resolution GC(57)/RES/9.

¹¹⁷ This relates to operative paragraphs 63, 71, 73 and 74 of resolution GC(57)/RES/9.

¹¹⁸ This relates to operative paragraphs 63, 71, 73 and 74 of resolution GC(57)/RES/9.

officers for communication between the media and the communication departments of the members of the Working Group; media release templates for application, as necessary, during a radiation emergency; and a standard operating procedure for approval of media releases by the members of the Working Group.¹¹⁹

115. The Safety Guide *Planning and Preparing for Emergency Response to Transport Accidents Involving Radioactive Material* (IAEA Safety Standards Series No. TS-G-1.2 (ST-3) is under revision to incorporate maritime and air transport events.¹²⁰

F. The Safety of Spent Fuel and Radioactive Waste Management

116. Progress has been made on the preparation of the following Safety Guides: *Predisposal Management of Radioactive Waste from Nuclear Fuel Cycle Facilities* (DS447), which will supersede the *Predisposal Management of High Level Radioactive Waste* (IAEA Safety Standards Series No. WS-G-2.6), *Predisposal Management of Radioactive Waste from Nuclear Reactors* (DS448), which will supersede *Predisposal Management of Low and Intermediate Level Radioactive Waste* (IAEA Safety Standards Series No. WS-G-2.5), and *Predisposal Management of Waste from the Use of Radioactive Materials in Medicine, Industry, Research, Agriculture and Education* (DS454), which will supersede the *Management of Waste from the Use of Radioactive Material in Medicine, Industry, Agriculture, Research and Education* (IAEA Safety Standards Series No. WS-G-2.7).

117. A follow-up project to the International Project on Demonstrating the Safety of Geological Disposal (GEOSAF) has been launched to address the interface between the period of operation of a disposal facility and the period after its closure. The Joint Working Group on Guidance for an Integrated Transport and Storage Safety Case for Dual Purpose Casks for Spent Nuclear Fuel will be terminated in 2014 and an international workshop will be organized to present its results and define a follow-up project. The Application of the Practical Illustration and Use of the Safety Case Concept in the Management of Near-Surface Disposal Project (PRISMA) has been launched and the working groups on human intrusion on intermediate level waste and on predisposal management are still going on.¹²¹

118. In February 2014, the first part of the Connecting the Network of Networks for Enhanced Communication and Training (CONNECT) project was completed and e-learning material was developed for several parts of the radioactive waste management curriculum. Both the platform and the e-learning material are in the trial phase with the official launch planned for autumn 2014.¹²²

119. The first Technical Meeting of the project on the siting aspects of geological disposal facilities was held in April 2014 with 13 participants from 10 Member States. The Agency initiated a project to exchange information on the experiences of Member States with major programmes for geological disposal regarding processes associated with site selection. The first technical meeting on Siting for Geologic Disposal Facilities, with discussions on the safety, technical and social aspects of site

¹¹⁹ This relates to operative paragraph 69 of resolution GC(57)/RES/9.

¹²⁰ This relates to operative paragraphs 69 and 70 of resolution GC(57)/RES/9.

¹²¹ This relates to operative paragraph 75 of resolution GC(57)/RES/9.

¹²² This relates to operative paragraph 75 of resolution GC(57)/RES/9.

selection processes for geologic disposal facilities was held in April 2014 with 13 participants from 10 Member States.¹²³

120. Several activities have been organized in relation to social aspects and stakeholder involvement in radioactive waste management within the scope of the Underground Research Facilities (URF) Network, the International Network of Laboratories for Nuclear Waste Characterization (LABONET), the International Low Level Waste Disposal Network (DISPONET), and ENVIRONET, including an international training meeting on social inputs to strategic planning for radioactive waste management (Manila, Philippines, November 2013), four URF Network training activities (July–November 2013) and a plenary meeting of the URF Network (November 2013).¹²⁴

121. Four meetings have been organized for the ongoing project on the development of a guidance document on the management of large amounts of radioactive waste after emergency situations. One of them was organized in Japan (October 2013) to facilitate discussions with experts directly involved in the management of post-accident situations. The technical report of the project is being prepared. A Technical Meeting on the management of large amounts of waste was held in Austria in November 2013.¹²⁵ Work is continuing on preparing the Safety Guide *Remediation Process for Areas with Residual Radioactive Material* (DS468).¹²⁶

122. The First Inter-Sessional Meeting of the Contracting Parties to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (Joint Convention) took place in Vienna, Austria, in 2013. The purpose of the Inter-Sessional Meeting, attended by 33 Contracting Parties, was to facilitate further consideration of proposals to improve the implementation of the Joint Convention and its review mechanisms, as requested by the Contracting Parties at the 4th Review Meeting (May 2012).

123. The Topical Meeting on Comprehensive Approaches to the Back End of the Nuclear Fuel Cycle was held in Vienna, Austria, in October 2013, following the recommendations of the open-ended working group at the 4th Review Meeting of the Joint Convention. The meeting was attended by 55 participants from 21 Contracting Parties, as well as representatives from the OECD/NEA.

124. The Organizational Meeting of the Contracting Parties of the Joint Convention took place in Vienna, Austria, in May 2014. Prior to the Organizational Meeting, an Extraordinary Meeting was convened to consider revisions to the *Rules of Procedure and Financial Rules*, the *Guidelines regarding the Review Process* and the *Guidelines regarding the Form and Structure of National Reports* (contained, respectively, in documents INFCIRC/602/Rev.4, INFCIRC/603/Rev.5 and INFCIRC/604/Rev.2), based on the proposals discussed and revised at the previous Inter-Sessional Meeting of the Joint Convention.¹²⁷

G. The Safe Decommissioning of Nuclear Facilities and Other Facilities Using Radioactive Material

¹²³ This relates to operative paragraph 78 of resolution GC(57)/RES/9.

¹²⁴ This relates to operative paragraph 79 of resolution GC(57)/RES/9.

¹²⁵ This relates to operative paragraphs 77 and 89 of resolution GC(57)/RES/9.

¹²⁶ This relates to operative paragraphs 76 and 89 of resolution GC(57)/RES/9.

¹²⁷ This relates to operative paragraph 80 of resolution GC(57)/RES/9.

125. During the reporting period, the Agency supported Member States in the timely establishment of regulatory, technical and financial resources for decommissioning by revising the related safety standards and by implementing a number of training events organized by the International Decommissioning Network (IDN) or under the Agency's technical cooperation programme. One example is the IDN project on Data Analysis and Collection for Costing of Research Reactor Decommissioning, which provides assistance in drawing up cost estimates for decommissioning. Another example is the Research Reactor Decommissioning Demonstration Project, which provides practical demonstrations of all the steps for planning and implementation of decommissioning.¹²⁸

126. The Agency continued with the implementation of the International Project on Decommissioning Risk Management (DRiMa), which examines the factors that influence the risks of decommissioning projects. DRiMa provides recommendations on risk management for the decommissioning of facilities using radioactive material, as well as practical examples of the practices and procedures used for risk management in the planning and execution of decommissioning. In the reporting period, a DRiMa meeting was organized in Vienna, Austria, in October 2013. The meeting explored Members States' experience with decommissioning risk management, and discussed risk management related methodologies and strategies used in decommissioning and addressing aspects of strategic and operational risk management.¹²⁹

127. The *IAEA Report on Decommissioning and Remediation after a Nuclear Accident* published in September 2013 drew attention to the challenges for the decommissioning of nuclear facilities damaged by a severe accident and suggested that the Agency assists Member States with the development of decommissioning end states and decommissioning strategies for such facilities. In May 2014, the Agency conducted a meeting to develop terms of reference for a new international project aimed at analysing and sharing experience relevant to the decommissioning of accident-damaged nuclear facilities.¹³⁰

128. A new Agency publication *Experiences and Lessons Learned Worldwide in Cleanup and Decommissioning of Nuclear Facilities in the Aftermath of Accidents* (IAEA Nuclear Energy Series No. NW-T-2.7) is in the publication process. A complementary report on approaches, techniques, tools and equipment to deal with cleanup, decontamination and decommissioning after a nuclear accident is in preparation and should be completed in 2015.¹³¹

129. The Agency has prepared a draft publication on the challenges associated with planning, licensing and implementing the entombment option for decommissioning. The document describes the applicability of the Agency's safety standards for decommissioning, remediation, and radioactive waste management to entombment; relevant technical and safety considerations; the limited entombment experience worldwide; and lessons learned with entombment. This document will form the basis for discussion to obtain Member States feedback on key safety issues and justification for entombment options for decommissioning during a meeting scheduled for March 2015.¹³²

130. The Agency conducted the International Workshop on Lessons Learned from Planning and Implementation of the Deferred Dismantling Strategy for Decommissioning in London, United Kingdom, in June 2014. The workshop provided the opportunity for government and industry

¹²⁸ This relates to operative paragraph 81 of resolution GC(57)/RES/9.

¹²⁹ This relates to operative paragraph 82 of resolution GC(57)/RES/9.

¹³⁰ This relates to operative paragraph 83 of resolution GC(57)/RES/9.

¹³¹ This relates to operative paragraph 83 of resolution GC(57)/RES/9.

¹³² This relates to operative paragraph 84 of resolution GC(57)/RES/9.

stakeholders to review the state-of-the-art for policy, planning and implementation aspects of deferred dismantling; to distill lessons learned from experience to date; and to identify challenges that lie ahead.¹³³

H. Safety in Uranium Mining and Processing and Remediation of Contaminated Sites

131. The Agency continues to provide guidance for implementing optimal measures for remediating contaminated land. In the framework of the IAEA Action Plan on Nuclear Safety, situation-specific remediation strategies are developed for contaminated urban and rural areas for a wide range of environmental conditions, integrating past experiences gained from the Chernobyl and Fukushima Daiichi accidents.¹³⁴

132. The Agency is developing training material to improve the knowledge and ability of regulators in countries entering or re-entering the uranium mining industry. The training material, which is planned to be completed in 2015, focuses on the review of regulatory submissions related to safety in the exploration and development of uranium mines and of submissions relevant to the siting and design of uranium tailings facilities. The Agency convened a seminar on governance of uranium production activities in Copenhagen, Denmark, in May 2014. The seminar discussed regulatory and policy aspects of uranium production.¹³⁵

133. The Coordination Group for Uranium Legacy Sites (CGULS) provides international coordination for activities and expert advice to countries in the Central Asia region that plan to remediate former uranium production sites. The second CGULS coordination meeting was held in Moscow, Russian Federation, in November 2013 and focused on uranium legacy sites in Kyrgyzstan and Tajikistan.¹³⁶

134. During the reporting period, under the CGULS programme activity, a comprehensive survey was carried out to provide a detailed analysis of the capabilities of the national laboratories in the Central Asia region to support site specific programmes for the characterization and monitoring of uranium legacy sites. Work was also carried out to analyse the existing regulatory frameworks for remediation of countries in the region. An interregional working group drawing upon experience from other Member States will be established in 2014 to share best practice in respect of regulatory frameworks for remediation. A scientific visit and technical exchange with remediation experts from the US Department of Energy uranium legacy site at Moab, Utah, USA, was carried out in April 2014.¹³⁷

135. At the request of the Government of Kyrgyzstan, expert missions to uranium legacy sites in Kyrgyzstan were organized to assess the current state of the sites and to provide recommendations on possible future remediation options. Following the missions, the reports *Strategic Analysis for the Remediation of Uranium Legacy Sites in Mailuu-Suu, Kyrgyz Republic* and *Radiological Hazard Analysis of Uranium Production Legacy Sites near Min-Kush Kyrgyzstan* were prepared and presented at the CGULS coordination meeting held in Bishkek, Kyrgyzstan (June 2014). The reports will also

¹³³ This relates to operative paragraph 84 of resolution GC(57)/RES/9.

¹³⁴ This relates to operative paragraph 28 of resolution GC(57)/RES/9.

¹³⁵ This relates to operative paragraph 85 of resolution GC(57)/RES/9.

¹³⁶ This relates to operative paragraph 86 of resolution GC(57)/RES/9.

¹³⁷ This relates to operative paragraph 86 of resolution GC(57)/RES/9.

serve as a model for assessments of similar activities that are currently being implemented for Tajikistan and Uzbekistan.¹³⁸

136. A Regional Workshop on Radiation Safety Aspects of Uranium Mine Exploration, Development and Waste Management for Regulators from Countries in Africa was organized in March 2014 in Arusha, United Republic of Tanzania, with the participation of 21 experts from eleven Member States. The workshop's participants called for policy and decision makers to obtain better knowledge of the safety infrastructure for uranium production in Africa. In this regard, a report on the safety infrastructure for uranium production with a target audience of government policy and decision makers will be prepared in the 2014–2015 cycle.¹³⁹

137. The annual meeting of the International Working Forum on Regulatory Supervision of Legacy Sites (RSLs) was held in Vienna, Austria, in October 2013. The meeting was devoted to examining uranium legacy work carried out to date under the RSLs and to examining other types of legacy sites in preparation for the next activities of the RSLs. It also discussed progress reports of the RSLs working groups and the draft document summarizing results achieved and lessons learned over the past three years. The International Workshop on the Remediation of Uranium Legacy Sites: A Canadian Experience was held in Ontario, Canada (May 2014). The workshop discussed challenges and solutions for managing uranium legacy sites and shared experience on the Canadian regulatory approach with regard to the remediation of uranium legacy sites and the prevention of future legacies.¹⁴⁰

138. The Constraints to Implementing Decommissioning and Environmental Remediation (CIDER) Project was launched as a collaborative initiative under ENVIRONET and the IDN. An analysis of the global situation is being carried out under the CIDER Project to identify constraints for the implementation of decommissioning and environmental remediation projects in the context of policy, regulatory, technical and societal aspects. This analysis will lead to the proposal of solutions to overcome the identified constraints.¹⁴¹

I. The Safe Management of Radioactive Sources

139. An updated version of the web-based Regulatory Authority Information System (RAIS) became available in September 2013.¹⁴² This system helps regulatory bodies to maintain their national register of radiation sources and manage the information related to their regulatory functions.¹⁴³

140. The Agency organized a School for Drafting Regulations on Radiation Safety for Member States in Asia and the Pacific in December 2013. A European regional meeting on progress and feedback of the School for Drafting Regulations on Radiation Safety was organized in Vienna, Austria, in November 2013. Networking of radiation safety regulatory bodies is being facilitated through the dedicated Control of Sources Network (CSN) website on the RegNet/GNSSN platform. The CSN

¹³⁸ This relates to operative paragraph 86 of resolution GC(57)/RES/9.

¹³⁹ This relates to operative paragraph 86 of resolution GC(57)/RES/9.

¹⁴⁰ This relates to operative paragraph 87 of resolution GC(57)/RES/9.

¹⁴¹ This relates to operative paragraph 88 of resolution GC(57)/RES/9.

¹⁴² See <http://www-ns.iaea.org/tech-areas/regulatory-infrastructure/rais.asp?s=3&l=92>.

¹⁴³ This relates to operative paragraphs 17 and 95 of resolution GC(57)/RES/9.

website facilitates information sharing related to conferences and meetings and provides access to tools and documentation related to radiation safety and the control of sources. The CSN website is also used for online collaboration on the development of documents, training courses and specific projects.¹⁴⁴

141. In December 2013, a new project called the Regulatory Infrastructure Development Project was launched to strengthen the national regulatory infrastructure for the safe use of radiation sources in selected States from North Africa and the Middle East. The project complements the relevant technical cooperation programme of the participating States.¹⁴⁵

142. An upgraded version of the SARIS tool used by Member States to review their national regulatory infrastructure, in particular for the safe use of radioactive sources in accordance with the Agency's safety standards, as well as to prepare for IRRS missions was made available to Member States in September 2013. *SARIS Guidelines* (IAEA Services Series No. 27) was published in April 2014.¹⁴⁶

143. New training materials have been developed to address the specific needs of radiation safety regulatory bodies, namely on authorization and inspection of uranium mining activities, organization and competence of the regulatory body, and enforcement of regulatory decisions. To extend the pool of experts needed for the ambitious and diverse IRRS schedule and programme, the first training course for future IRRS team members was organized in October 2013 in Vienna, Austria. Review of regulatory oversight of radiation sources was included in the IRRS missions to Belgium (December 2013), the Czech Republic (November 2013), Jordan (June 2014), Pakistan (April 2014), the Russian Federation (November 2013) and the United Kingdom (September 2013).¹⁴⁷

144. The Radiation Safety Information Management System is being used by the Secretariat and by States to monitor the status and progress of States in strengthening their national regulatory infrastructure for radiation safety. The Agency provided training to the RASIMS coordinators and encouraged them to train others at national level. E-learning material was also developed and widely distributed.¹⁴⁸

145. A draft Safety Guide on establishing a national radiation safety infrastructure has been approved for submission to Member States. Additional Safety Guides on organization, management and staffing of a regulatory body and on regulatory body functions and processes are being developed.¹⁴⁹

146. As of 30 June 2014, 122 States, including five States in the reporting period, have made a political commitment to implement the Code of Conduct on the Safety and Security of Radioactive Sources, of which 89, including eight States in the reporting period, have also notified the Director General of their intention to act in a harmonized manner in accordance with the Code's supplementary Guidance on the Import and Export of Radioactive Sources. A total of 127 States have nominated points of contact for the purpose of facilitating the export and import of radioactive sources and have provided the details to the Agency, increasing the number of nominated points of contact to 127

¹⁴⁴ This relates to operative paragraphs 2, 17 and 21 of resolution GC(57)/RES/9.

¹⁴⁵ This relates to operative paragraphs 2 and 21 of resolution GC(57)/RES/9.

¹⁴⁶ This relates to operative paragraph 2, 10, 12, 21 of resolution GC(57)/RES/9.

¹⁴⁷ This relates to operative paragraphs 2, 10, 12 and 21 of resolution GC(57)/RES/9.

¹⁴⁸ This relates to operative paragraphs 1, 2, 4 and 69 of resolution GC(57)/RES/9.

¹⁴⁹ This relates to operative paragraphs 12, 21, 93 and 94 of resolution GC(57)/RES/9.

States. The Agency also continues to support national efforts in relation to the Code of Conduct and the provision of assistance such as training and physical protection upgrades.^{150 151}

147. The International Conference on the Safety and Security of Radioactive Sources: Maintaining the Continuous Global Control of Sources throughout their Life Cycle was held in October 2013 in Abu Dhabi, United Arab Emirates (UAE), in cooperation with the UAE's Federal Authority for Nuclear Regulation, the International Criminal Police Organization (INTERPOL), the ICRP, the International Source Suppliers and Producers Association and the World Institute for Nuclear Security. It was attended by more than 300 participants from 90 Member States and six international organizations. The conclusions and recommendations of the Abu Dhabi Conference are available on the Agency website.¹⁵²

148. The Abu Dhabi Conference noted the significant achievements in the safety and security of radioactive sources over the past decade, as well as the challenges still to be addressed. It was recognized that the long term management of disused radioactive sources remains an area where significant improvement is needed. In the findings of the President, the conference recommended that additional guidance on this topic should be developed. The Secretariat has initiated actions in this regard, and the topic will be discussed at an open-ended meeting in October 2014. The Secretariat was also asked to improve the reporting guidelines for preparing national reports on States' implementation of the Code of Conduct on the Safety and Security of Radioactive Sources, to facilitate systematic self-assessment against all provisions of the Code and to facilitate more in-depth information sharing at the next open-ended meeting planned for 2016.¹⁵³

149. Liabilities and financial responsibilities with respect to accidents involving radioactive sources, as well as management of legacy sources, are unclear. There are no provisions to ensure the availability of funds necessary to cover associated costs. In the findings of the President, the Abu Dhabi Conference recommended the Agency to examine this issue further. The International Expert Group on Nuclear Liability discussed this issue at its annual meeting in May 2014.¹⁵⁴

150. The President of the Abu Dhabi Conference's findings also noted that management of scrap metal contaminated with radioactive material continues to be a problem and that a high proportion of the incidents reported to the Conference involved orphan sources mixed with scrap metal. The findings of the President of the Abu Dhabi Conference included a recommendation that further attempts should be made to establish an international agreement to unify the approach to transborder issues concerning scrap metal containing radioactive material.

151. The results of the discussions conducted in the period 2010–2013 on the development of a code of conduct on the transboundary movement of radioactive material inadvertently incorporated into scrap metal and semi-finished products of the metal recycling industries were made available in the Agency publication *Control of Transboundary Movement of Radioactive Material Inadvertently Incorporated into Scrap Metal and Semi-finished Products of the Metal Recycling Industries: Results of the Meetings Conducted to Develop a Draft Code of Conduct* (IAEA/CODEOC/METRECYC) in

¹⁵⁰ This relates to operative paragraphs 17, 18, 93 and 96 of resolution GC(57)/RES/9.

¹⁵¹ Further details are provided on the 2014 Nuclear Security Report.

¹⁵² See http://gnssn.iaea.org/CSN/Abu%20Dhabi%20Conference/Shared%20Documents/Closing%20session/Presidents_findings.pdf.

¹⁵³ This relates to operative paragraphs 17, 18, 93, 94, 96 and 97 of resolution GC(57)/RES/9.

¹⁵⁴ This relates to operative paragraphs 17, 93, 94 and 96 of resolution GC(57)/RES/9.

February 2014. A workshop on these issues was organized for the Mediterranean region in Malta in July 2013.¹⁵⁵

J. Education and Training and Knowledge Management in Nuclear, Radiation, Transport and Waste Safety

152. The Agency's Steering Committee on Education and Training in Radiation, Transport and Waste Safety met in November 2013 to advise the Secretariat on the implementation of the *Strategic Approach to Education and Training in Nuclear Safety 2013–2020*.¹⁵⁶ The recommendations made by the Steering Committee covered areas such as the revision of the Education and Training Appraisal service, the finalization of the guidance on methodology on building competence in radiation protection and the safe use of radiation sources via a national strategy for education and training in radiation, transport and waste safety, and monitoring efficiency and effectiveness of education and training programmes on radiation protection and safety at the national level.¹⁵⁷

153. During Agency regional workshops held in Latin America (Cuba, 8–12 July 2013), Africa (Côte d'Ivoire and the United Republic of Tanzania, 17–20 June 2014), and Europe (Kazakhstan 24–27 June 2014), participants revised their countries' work plans to establish a national strategy for education and training in radiation, transport and waste safety, and conducted a preliminary analysis of the education and training needs and, in some cases, also designed the national education and training programme to meet the assessed needs. Similar workshops are planned in Europe (Bosnia and Herzegovina, November 2014) and Asia and the Pacific (Malaysia, November 2014).¹⁵⁸

154. The Agency continued to help Member States build competence in radiation safety by organizing the Postgraduate Educational Course in Radiation Protection and the Safety of Radiation Sources (which has a nominal duration of six months) and short term training events covering a wide range of topics, such as 'train the trainers' courses for radiation protection officers (Tunisia, June 2014), authorization and inspection of uranium mining and milling activities (South Africa, August 2013), occupational radiation protection programmes in medical and industrial applications (Bolivarian Republic of Venezuela, September 2013), radiation protection in vascular surgery (Thailand, December 2013), general safety provision for predisposal management, clearance regimes and control of radioactive discharges (Morocco, December 2014), and measurement protocols for national radon strategies (Thailand, September 2013).¹⁵⁹ The full list of training events for 2013 and 2014 is available on the Agency's website.¹⁶⁰

155. A draft of a syllabus for a master's degree in radiation protection and the safety of sources has been prepared following the recommendations made by the Agency's Steering Committee on Education and Training in Radiation, Transport and Waste Safety in 2012. The Agency syllabus for the Postgraduate Educational Course in Radiation Protection and the Safety of Radiation Sources

¹⁵⁵ This relates to operative paragraphs 97 and 98 of resolution GC(57)/RES/9.

¹⁵⁶ *Strategic Approach to Education and Training in Nuclear Safety for the Period 2013–2020*.

¹⁵⁷ This relates to operative paragraph 90 of resolution GC(57)/RES/9.

¹⁵⁸ This relates to operative paragraphs 90 and 91 of resolution GC(57)/RES/9.

¹⁵⁹ This relates to operative paragraphs 90 and 91 of resolution GC(57)/RES/9.

¹⁶⁰ See <http://www-ns.iaea.org/training/ni/web-video-presentations.asp?s=100&l=108>.

provides a basis for those academic institutions that want to establish a master's programme in this field. It will facilitate the dissemination of the Agency's safety standards, by including them in a consolidated academic programme.¹⁶¹

156. The Agency finalized training material for workshops on developing national infrastructures, including governmental, legal and regulatory infrastructure for a safe implementation of nuclear power programmes; safety regulations; regulatory frameworks; human resource management; and licensing processes. These materials were also adopted by some Member States for their own use. The Agency continues to develop packages of sample training material in support of the establishment of a safety infrastructure by Member States embarking on a new nuclear power programme and training material on regulatory review and assessment, regulatory inspection and enforcement, interactions with the public and other interested parties in regulatory activities, and leadership and management systems for the regulatory body. Web hits increased for training materials and the newsletter on education and training was made accessible to 85 new users during the reporting period.¹⁶²

157. Two training workshops on safety culture self-assessment were conducted at the regional level in Egypt (April 2014) and in Slovenia (November 2013).¹⁶³

158. The Steering Committee on Competence of Human Resources for Regulatory Bodies held its annual meeting in December 2013 with the participation of 22 Member States. The Steering Committee shared experiences in the implementation of national activities and advised the Agency on how it could best support Member States' needs in education and training. A permanent task force of the Steering Committee, known as the bureau group, met in December 2013 in the United Kingdom and drafted the new terms of reference, which are aligned with the extended scope of the Agency's capacity building concept. In 2014, the Agency's work programme is focused on the implementation of the *Strategic Approach to Education and Training in Nuclear Safety 2013–2020*¹⁶⁴, the establishment of a continuous improvement process for sharing relevant training information, supporting the revision of the Basic Professional Training Course on Nuclear Safety (BPTC), and the revision of the Regulatory Control Course.¹⁶⁵

159. The Agency's Education and Training Review Service (ETRES) is conducted according to guidelines which include specific questionnaires for self-assessment. These questionnaires were provided to, and used by, the Pakistan Nuclear Regulatory Authority in September 2013 and an ETRES mission was conducted in Pakistan in November 2013. This was the second ETRES mission conducted in a Member State. A third ETRES mission is planned for August 2014 in Malaysia.¹⁶⁶

160. The 15th annual Agency postgraduate BPTC was held in Argentina (September to December 2013). Within the scope of the ANSN, a regional BPTC workshop was held in the Republic of Korea (April 2014) and several training activities were conducted in specific safety areas, including a workshop on knowledge management (China, September 2013), a course on nuclear safety tailored to

¹⁶¹ This relates to operative paragraph 90 of resolution GC(57)/RES/9.

¹⁶² This relates to operative paragraphs 2 and 91 of resolution GC(57)/RES/9.

¹⁶³ This relates to operative paragraphs 2 and 90 of resolution GC(57)/RES/9.

¹⁶⁴ *Strategic Approach to Education and Training in Nuclear Safety 2013–2020*. See also <http://www-ns.iaea.org/downloads/ni/training/strategy2013-2020.pdf>.

¹⁶⁵ This relates to operative paragraph 90 of resolution GC(57)/RES/9.

¹⁶⁶ This relates to operative paragraph 90 of resolution GC(57)/RES/9.

regulators (Republic of Korea, September 2013), and a workshop on on-the-job training (Republic of Korea, May 2014).¹⁶⁷

161. Under the Agency's support to FORO, the Guidelines for Systematic Assessment of Regulatory Competence Needs (SARCoN) model was used for developing specific competence profiles focusing on regulatory activities of NPPs. Under the auspices of the ANSN and the TC programme, five SARCoN workshops were conducted in Egypt and Jordan (both in June 2014), Indonesia (November 2013 and March 2014) and Poland (December 2013) to support national education and training programmes. The SARCoN tool questionnaires and software were updated in the reporting period. A new safety report entitled *Managing Regulatory Body Competence* (IAEA Safety Reports Series No. 79) was published in February 2014.¹⁶⁸

162. Within RegNet, a specific platform¹⁶⁹ was developed for Member States to share information and documents in the area of education and training in nuclear safety. More than 80 different safety-related video lectures¹⁷⁰, including the four new videos produced during the reporting period were made available to foster and support knowledge and competence management in Member States. In addition, a project has been initiated to produce a complete set of video lectures on the Agency's Safety Requirements for nuclear installation safety.¹⁷¹

163. During the reporting period, the Agency initiated the revision of *Regulatory Control of Nuclear Power Plants Part A (Textbook) +Part B (Workbook)* (IAEA Training Course Series No. 15) to be in line with recent Agency safety standards and regulatory experience and to incorporate lessons learned from the Fukushima Daiichi accident. The e-book will be made available on the web in 2015. The ongoing project for the production of a train-the-trainers package based on a revised BPTC made major progress with the production of a revised set of the 22 BPTC chapters. Next steps entail the production of presentations, exercises and trainers' supporting materials based on the technical content of the BPTC.¹⁷²

164. The Agency conducted an expert safety mission in Thailand (September 2013) to assess the training needs of members of the research reactor regulatory body. The mission also provided guidance on performing gap analysis against the Agency safety standards and helped to identify the actions needed to address those gaps. The Agency conducted a two-week regional training course on the safety of research reactors in Morocco (June 2014), with the participation of all Member States operating research reactors in the African region. A six-week group fellowship training course on research reactors was conducted (February–March 2014) for operators from Pakistan and Saudi Arabia. These activities provided hands-on experience in the safe operation of research reactors and contributed to the development of participants' abilities in research reactor safety and operation.¹⁷³

165. The Agency supported the technical implementation of 25 national technical cooperation projects and 3 regional projects in Africa, Asia and the Pacific, and Europe in various areas of research reactor

¹⁶⁷ This relates to operative paragraph 91 of resolution GC(57)/RES/9.

¹⁶⁸ This relates to operative paragraphs 5, 13 and 91 of resolution GC(57)/RES/9.

¹⁶⁹ See http://gnssn.iaea.org/Pages/education_training.aspx.

¹⁷⁰ See <http://www-ns.iaea.org/training/ni/web-video-presentations.asp?s=100&l=108>.

¹⁷¹ This relates to operative paragraphs 5, 13 and 91 of resolution GC(57)/RES/9.

¹⁷² This relates to operative paragraph 91 of resolution GC(57)/RES/9.

¹⁷³ This relates to operative paragraph 91 of resolution GC(57)/RES/9.

safety, including regulatory oversight, operational safety, ageing management, and new research reactor projects.¹⁷⁴

166. As part of the Agency's efforts to strengthen and expand training activities on the safety of fuel cycle facilities, it conducted in Vienna, Austria, two workshops on operational radiation protection programmes (September 2013) and on criticality safety in handling fissile materials (February 2014) with the participation of Member States with fuel cycle facilities.¹⁷⁵

167. The Agency continued to support knowledge sharing on safety-relevant issues by initiating and/or continuing activities to support the issuance of new Agency publications in several safety-relevant areas such as safety goals, level 3 probabilistic safety assessment and integrated risk informed decision making.¹⁷⁶

168. The ANSN's Vision and Operational Strategy was endorsed in September 2013 at the 2nd ANSN Plenary meeting highlighting the importance of enhancing capacity building and promoting regional cooperation through human and information technology networks. An ANSN Capacity Building Management Group was established in 2013 to coordinate the implementation of capacity building activities in the region and a Capacity Building Thematic Committee was established under the GNSSN to share experiences and lessons learned globally.¹⁷⁷

169. In December 2013, a joint regional workshop on the continuous improvement of safety in view of lessons learned from the Fukushima Daiichi accident was held in Tokyo, Japan, bringing together the 10 ANSN topical groups. Over 50 participants shared experience and lessons learned from the Fukushima Daiichi accident, and discussed cooperation within the ANSN framework.¹⁷⁸

170. At its annual meeting held in Vienna, Austria, in November 2013, the ANSN's Topical Group on Education and Training agreed on a work programme on education and training for 2014. Under this work programme, a train-the-trainers seminar on nuclear safety and two regional workshops on SARCoN were held in Indonesia (November 2013, March 2014).¹⁷⁹

K. Nuclear and Radiological Incident and Emergency Preparedness and Response

171. Currently, there are 117 parties to the Convention on Early Notification of a Nuclear Accident (Early Notification Convention) and 111 parties to the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (Assistance Convention). During the reporting period, Lesotho became a State Party to both conventions.¹⁸⁰

¹⁷⁴ This relates to operative paragraphs 13 and 91 of resolution GC(57)/RES/9.

¹⁷⁵ This relates to operative paragraphs 34 and 91 of resolution GC(57)/RES/9.

¹⁷⁶ This relates to operative paragraph 92 of resolution GC(57)/RES/9.

¹⁷⁷ This relates to operative paragraphs 5, 12, 91 and 99 of the GC(57)/RES/9.

¹⁷⁸ This relates to operative paragraphs 5, 12, 90 and 91 of resolution GC(57)/RES/9.

¹⁷⁹ This relates to operative paragraphs 5, 91 and 92 of resolution GC(57)/RES/9.

¹⁸⁰ This relates to operative paragraph 100 of resolution GC(57)/RES/9.

172. The Agency continued to strengthen its arrangements and resources for official communication and sharing of information during a nuclear or radiological incident or emergency. The Agency thoroughly reviewed communication details for its emergency contact points and addressed identified communication issues in certain States. Several aspects of the Agency's Unified System for Information Exchange in Incidents and Emergencies (USIE) website were further enhanced. The USIE Connect feature now allows national counterparts to interface their own emergency information systems automatically with USIE using the Agency's International Radiological Information Exchange format as the communication standard. During the reporting period, three workshops on information exchange for incidents and emergencies were conducted for 23 Member States with a total of 48 participants. Improvements in the USIE website have been identified that will enhance the ability of States to request assistance and provide more detailed information related to the capabilities that have been registered in the Response and Assistance Network (RANET).¹⁸¹

173. The results of the questionnaire for Parties to the Assistance Convention to identify any open issues within the Assistance Convention were presented at the Seventh Meeting of Representatives of Competent Authorities held in Vienna, Austria, in May 2014.¹⁸² The meeting also reviewed the progress on implementation of the 21 conclusions of the previous meeting and discussed the way forward. All the conclusions of the previous meeting have been fully or at least partially implemented. Agreements between the Agency and other relevant international organizations of IACRNE were reviewed to agree on possible improvements. The development of new Practical Arrangements agreements with INTERPOL and the European Police Office was initiated.¹⁸³

174. Four draft IACRNE operational procedures within the framework of the Joint Radiation Emergency Management Plan of the International Organizations were developed and reviewed by the IACRNE members.¹⁸⁴

175. Through its Emergency Preparedness Review (EPREV) missions and training workshops, the Agency continuously promotes the use of the Agency's safety standards in the development and enhancement of national emergency preparedness and response (EPR) capabilities. National EPR systems and levels of compliance with the Agency safety standards were also presented and discussed at the Seventh Meeting of Representatives of Competent Authorities.¹⁸⁵

176. The ConvEx-3 (2013)¹⁸⁶ exercise was hosted by Morocco and conducted in November 2013. For the first time in the history of ConvEx-3, the exercise scenario was based on a radiological emergency triggered by a nuclear security event. Exercise findings and lessons learned are captured in the report of the ConvEx-3 (2013) exercise. Fifty-nine Member States (including Morocco) and ten international organizations, including the Agency, participated in the exercise.¹⁸⁷

¹⁸¹ This relates to operative paragraphs 100 and 102 of resolution GC(57)/RES/9.

¹⁸² This relates to operative paragraph 102 of resolution GC(57)/RES/9.

¹⁸³ This relates to operative paragraph 101 of resolution GC(57)/RES/9.

¹⁸⁴ This relates to operative paragraph 101 of resolution GC(57)/RES/9.

¹⁸⁵ This relates to operative paragraph 34 of resolution GC(57)/RES/9.

¹⁸⁶ ConvEx-3 are exercises conducted under the framework of the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency.

¹⁸⁷ This relates to operative paragraphs 101 and 104 of resolution GC(57)/RES/9.

177. The Agency assisted the Gulf Cooperation Council in reviewing and finalizing a regional nuclear and radiological EPR plan aimed at enhancing information sharing and harmonizing decision making and public communications during an emergency.¹⁸⁸

178. An assessment and prognosis process in case of a nuclear or radiological emergency was developed and discussed with Member States, in particular with those that have long-standing nuclear programmes. Limitations and constraints of the process were identified, for example, information required for the assessments and prognosis may be delayed or even be unavailable in the specific stage of emergency.¹⁸⁹

179. The Agency has initiated the development of the web-based Emergency Preparedness Information Management System. It will allow authorized users to share EPR information with selected Member States. In addition, the Agency is also developing an EPR platform, within the GNSSN, to reach out to EPR professionals and to provide them with a secure platform to exchange information and discuss issues, and raise their awareness of EPR requirements, standards and practices.¹⁹⁰

180. The Technical Meeting on Lessons Learned from Past Emergency Preparedness Review (EPREV) Missions was held in July 2014 to identify ways in which the EPREV process and results could be enhanced. Subsequently, the Agency initiated the revision of the EPREV guidelines.¹⁹¹

181. An Agency EPR-series publication *Preparedness for and Response to a Nuclear or Radiological Emergency Coincident with a Natural Disaster* (EPR-Natural Disaster) is in the publication process.¹⁹²

182. The Agency developed a programme of work related to transport emergencies. The Agency performed initial analysis on the use of the Agency's RANET assistance mechanism to assist in maritime transport emergencies.¹⁹³

183. The Agency has sensitized coastal States on the need for emergency preparedness and response arrangements, with a workshop organized in New Zealand (April 2014) for States in the Pacific region. The Agency also initiated a series of consultancies to develop a Technical Document on emergency preparedness and response for air and maritime transport emergencies.¹⁹⁴

184. The Agency reviewed its EPR training programme effectiveness, held a consultancy in February 2014 with a pedagogical expert to review the EPR training programme, training material and training approach, prepared an implementation plan for the recommendations of this review, developed training programme performance indicators, modified recruitment procedures for participants attending training workshops, and initiated work on the implementation of a learning management system, as an integral part of the GNSSN.¹⁹⁵

¹⁸⁸ This relates to operative paragraph 99 of resolution GC(57)/RES/9.

¹⁸⁹ This relates to operative paragraph 99 of resolution GC(57)/RES/9.

¹⁹⁰ This relates to operative paragraph 7 of resolution GC(57)/RES/9.

¹⁹¹ This relates to operative paragraph 12 of resolution GC(57)/RES/9.

¹⁹² This relates to operative paragraph 34 of resolution GC(57)/RES/9.

¹⁹³ This relates to operative paragraph 69 of resolution GC(57)/RES/9.

¹⁹⁴ This relates to operative paragraph 70 of resolution GC(57)/RES/9.

¹⁹⁵ This relates to operative paragraph 91 of resolution GC(57)/RES/9.

185. The Agency has undertaken the following activities to strengthen international assistance: a new functional area was included in RANET; Parties to the Assistance Convention were encouraged to register their National Assistance Capabilities in RANET and in particular in the new functional area; the assistance mechanism was improved; initial assistance compatibility guidelines were developed; and exercises were held for RANET teams. The compatibility guidelines have been prepared in close consultation with those Member States that have identified and registered their National Assistance Capabilities in RANET. The guidelines will be distributed for comments and will be field-tested as part of the RANET workshop in Fukushima, Japan, towards the end of 2014.¹⁹⁶

186. During the reporting period, Canada, China, Germany, Norway, Switzerland and the United Kingdom registered their National Assistance Capabilities in RANET, while Romania added new National Assistance Capabilities to their current registrations. RANET membership now includes 25 Member States.¹⁹⁷

187. The Agency has developed a process for assessment and prognosis in response to a nuclear or radiological emergency, identified its limitations and constraints, prepared basic assessment and prognosis tools, and initiated discussions with Member States on the provision of necessary data during an emergency. The process was tested for a severe radiological emergency in the ConvEx-3 (2013) exercise, while for nuclear emergencies the Agency proposed to Member States that they use their national nuclear exercises to test the process for the provision of necessary data.¹⁹⁸

188. From the 48 recommendations in the area of international communications, assistance and sustainable infrastructure made by the International Action Plan for Strengthening the International Preparedness and Response System for Nuclear and Radiological Emergencies, 18 have been implemented, nine have been partially implemented, seven are in implementation phase, eight require ongoing efforts, five have been omitted from implementation, and one is to be implemented by competent authorities in Member States.¹⁹⁹

189. In the reporting period, two meetings (February and May 2014) of the Emergency Preparedness and Response Expert Group were conducted. The group discussed selected challenges in EPR, including the cross-cutting nature of EPR and the associated coordination issues, and the interface that needs to exist in EPR between nuclear safety and nuclear security.²⁰⁰

190. A review of the International Nuclear and Radiological Event Scale (INES) was completed and a document on the use of INES for event communications is in the publication process. The INES e-learning tool was developed and made available to the public. In addition, the INES event rating wizard is now available on the Nuclear Events Web-based System for INES National Officers and other authorized users. The document on the use of INES for unplanned events affecting patients undergoing a medical procedure was assessed based on actual cases.²⁰¹

¹⁹⁶ This relates to operative paragraph 102 of resolution GC(57)/RES/9.

¹⁹⁷ This relates to operative paragraph 102 of resolution GC(57)/RES/9.

¹⁹⁸ This relates to operative paragraph 103 of resolution GC(57)/RES/9.

¹⁹⁹ This relates to operative paragraph 105 of resolution GC(57)/RES/9.

²⁰⁰ This relates to operative paragraph 105 of resolution GC(57)/RES/9.

²⁰¹ This relates to operative paragraph 8 of resolution GC(57)/RES/9.

L. Civil Liability for Nuclear Damage²⁰²

191. The 14th regular meeting of the International Expert Group on Nuclear Liability (INLEX) was held in Vienna, Austria, from 20 to 22 May 2014. The Group discussed, inter alia, the revision of the Board decision to exclude small quantities of nuclear material from the scope of the nuclear liability conventions following the adoption of the 2012 edition of the Transport Regulations; liability issues in the context of the Assistance Convention; whether there is a need to establish a special liability regime covering radioactive sources; the scope of application of the Agency's liability conventions as regards shutdown reactors or reactors being decommissioned; and a possible revision of the model provisions on nuclear liability in *Handbook on Nuclear Law: Implementing Legislation*.

192. INLEX also reviewed its outreach activities and held the Third Workshop on Civil Liability for Nuclear Damage in Vienna, Austria, on 19 May 2014, which was attended by 54 diplomats and experts from 39 Member States.

193. During the reporting period, three joint Agency/INLEX missions were held in Malaysia (August 2013), Nigeria (February 2014) and Saudi Arabia (April 2014) in order to raise awareness of the international legal instruments relevant for achieving a global nuclear liability regime. In addition, a Subregional Workshop on Civil Liability for Nuclear Damage was held in Viet Nam from 17 to 18 March 2014. This provided participants with information on the existing international nuclear liability regime and advised them on the development of national implementing legislation. The event was attended by 35 participants from 12 Member States.

²⁰² This relates to operative paragraphs 25, 26 and 65 of resolution GC(57)/RES/9.