IAEA
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Atoms for Peace and Development

Board of Governors
General Conference

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NUCLEAR AND RADIATION SAFETY

Report by the Director General

IAEA
Atoms for Peace and Development

Board of Governors
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(GC(69)/1 and Add.1)

Nuclear and Radiation Safety

Report by the Director General

Summary

Pursuant to resolution GC(68)/RES/8, a report covering the following subjects is submitted to the Board of Governors and the General Conference for their consideration:

- General;
- Conventions, regulatory frameworks and supporting non-legally binding instruments;
- Agency safety standards;
- Self-assessments and the Agency's peer review and advisory services;
- Nuclear installation safety;
- Radiation safety and environmental protection;
- Transport safety;
- The safety of spent fuel and radioactive waste management;
- Safety in decommissioning, uranium mining and processing, and environmental remediation;
- Capacity building;
- Safe management of radioactive sources; and
- Nuclear and radiological incident and emergency preparedness and response.

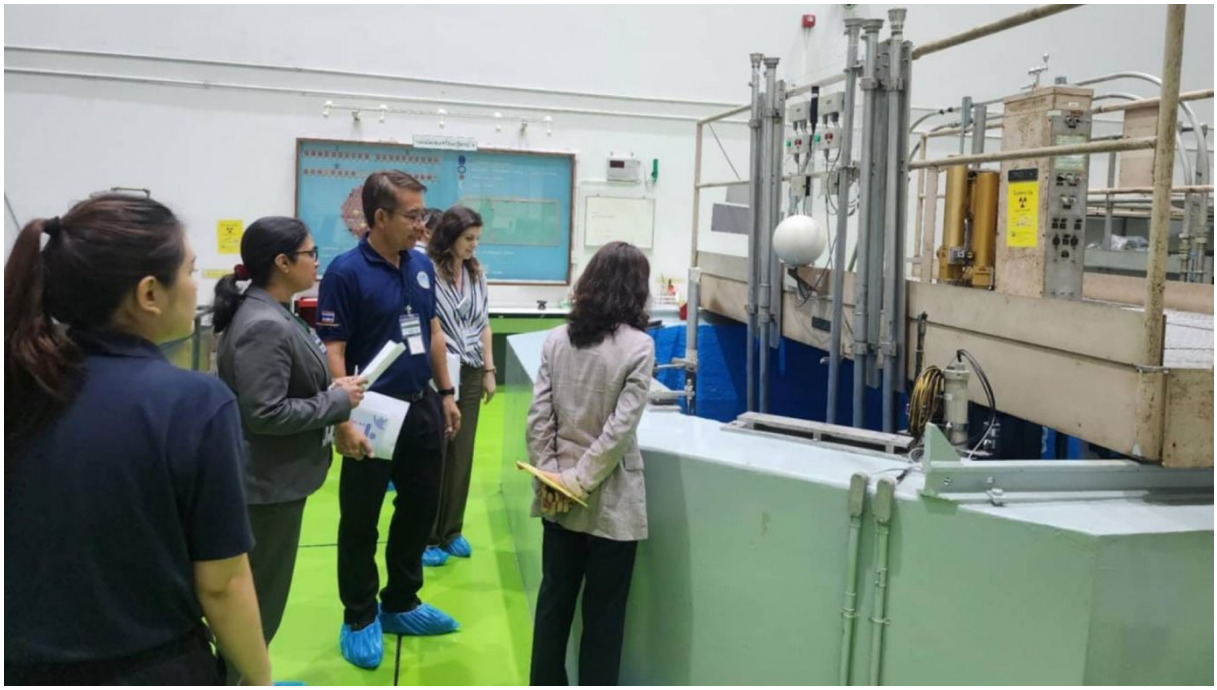
Recommended Action

- It is recommended that the Board of Governors take note of this report.

Nuclear and Radiation Safety

Report by the Director General

A. General



An Integrated Regulatory Review Service (IRRS) mission to Thailand, 2025 ((Photo: Office of Atoms for Peace of the Kingdom of Thailand).

1. This report has been produced for the 69th regular session (2025) of the General Conference in response to resolution GC(68)/RES/8, 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 from 1 July 2024 to 30 June 2025.

2. The Agency continued its efforts to maintain and strengthen nuclear, radiation, transport and waste safety, and emergency preparedness and response (EPR) capabilities, focusing, inter alia, on the technical areas and geographical regions where the need for such efforts is greatest. The Agency implemented numerous activities and services to assist Member States considering or planning for the introduction of nuclear power or radiation technology; establishing or strengthening their safety

infrastructure and regulatory framework; and building competency in several areas related to nuclear and radiation safety.[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). Activities related to the Conventions are reported in detail in subsequent sections of this report.[2]

4. In March 2025, a report by the Director General containing the draft *Nuclear Safety Review 2025* was submitted to the Board of Governors. The final version of the *Nuclear Safety Review 2025*, prepared in the light of discussions at the Board of Governors, is provided as an information document at the 69th regular session of the General Conference. The *Nuclear Safety Review 2025* includes the global trends and the Agency's activities in 2024. It also presents priorities and related activities for 2025 and beyond, as identified by the Agency, for strengthening nuclear, radiation, transport and waste safety, as well as EPR. These priorities are addressed in the Agency's Programme and Budget, including outcomes, outputs, timelines and performance indicators.[3]

5. In July 2024, *Application of the Principle of Defence in Depth in Nuclear Safety to Small Modular Reactors* (INSAG-28) was published, supplementing *Defence in Depth in Nuclear Safety* (INSAG-10) and underscoring application of the principle of defence in depth in nuclear safety for small modular reactors (SMRs) and related emerging technologies. INSAG-28 is intended to stimulate discussion and to promote practical action at all levels to enhance the safety of SMRs. The Agency held two meetings of INSAG in Vienna in October 2024 and in April 2025. These meetings were used to discuss various nuclear and radiation safety matters, to establish a planning task group and develop a nuclear landscape, and to further advise the Director General. In addition, the INSAG Forum was held in September 2024 as a side event to the 68th IAEA General Conference; the key topics were INSAG-28 and INSAG's nuclear landscape[4].

6. Through the Legislative Assistance Programme, the Agency continued to provide assistance to its Member States to support the development of adequate and comprehensive national nuclear legal frameworks and to promote adherence to the relevant international legal instruments in all areas of nuclear law. Specific bilateral legislative assistance was provided to 13 Member States through written comments on draft and enacted national nuclear legislation, and through 10 dedicated bilateral review meetings to provide specific advice on such legislation and the Agency's comments thereon. In addition, the Agency conducted 19 other legislative assistance activities, consisting of 9 awareness raising meetings for decision makers, policymakers, senior officials and parliamentarians; and 10 national workshops on international and national nuclear law. In addition, the Agency conducted the following activities: 5 regional and subregional workshops on legislative assistance for English-speaking Member States in Africa in Cairo in July 2024; for Pacific Island Member States in Vienna in September 2024; for French-speaking Member States in Africa in Abidjan, Côte d'Ivoire, in November 2024; for Member States in Asia and the Pacific in Manila in December 2024; and for Member States in the Middle East in Vienna in January 2025.[5]

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[1] This relates to operative paragraph 1 of resolution GC(68)/RES/8.

[2] This relates to operative paragraphs 1, 7 and 20 of resolution GC(68)/RES/8.

[3] This relates to operative paragraphs 1 and 7 of resolution GC(68)/RES/8.

[4] This relates to operative paragraph 34 of resolution GC(68)/RES/8.

[5] This relates to operative paragraphs 22, 23, 36 and 120 of resolution GC(68)/RES/8.

7. The Agency served as the Secretariat of the 25th Meeting of the International Expert Group on Nuclear Liability (INLEX) in Vienna in June 2025. The Group discussed the most recent developments in the field of nuclear liability, including national aspects and the implementation of the international legal instruments. Further, the Group discussed the geographical scope of the 2004 Paris Convention on Third Party Liability in the Field of Nuclear Energy, the 1997 Vienna Convention on Civil Liability for Nuclear Damage and the Convention on Supplementary Compensation for Nuclear Damage (CSC). The Group also discussed the issue of exclusion of small quantities of nuclear material from the scope of the nuclear liability instruments, as provided for in the 2014 IAEA Board of Governors Resolution (GOV/2014/63), as well as the current liability limits of the Parties to the 1963 Vienna Convention on Civil Liability for Nuclear Damage in light of the current value of gold. In addition, the Group also discussed liability issues regarding SMRs including, liability and financial security limits, as well as liability issues associated with nuclear-powered civil merchant ships. The Group also considered the possibility of updating the explanatory texts on the nuclear liability instruments adopted under the IAEA's auspices in 1997 and the Joint Protocol Relating to the Application of the Vienna Convention on Civil Liability for Nuclear Damage and the Paris Convention on Third Party Liability in the Field of Nuclear Energy.[6]

8. In response to the growing demand for legislative assistance, in April 2025 the Agency launched a third series of webinars on nuclear law, entitled "Trending Issues in Nuclear Law", focusing on nuclear safety, security and liability. The first webinar focused on the safety and security interface in nuclear law and the second, conducted in June 2025, focused on the pursuit of the global nuclear liability regime.[7]

9. The Agency organized the 12th session of the Nuclear Law Institute in Vienna in September–October 2024. This event enabled 64 participants from 59 Member States to acquire a solid understanding of all aspects of nuclear law, with a particular focus on legislative drafting. The Agency also organized the First Advanced Interregional Training Course on Nuclear Law for all Member States in Belgrade in October–November 2024. This event enabled 33 lawyers and officials from 29 Member States to gain further knowledge in this area. The Secretariat continued to strengthen training opportunities in international and national nuclear law by translating the course into French and Spanish.[8]

10. The 14th Treaty Event took place during the 68th regular session of the Agency's General Conference. It 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, including those related to nuclear safety, nuclear security and civil liability for nuclear damage.[9]

11. The Agency launched the School for the Elaboration of National Policy and Strategy Documents for Radiation Safety and Security of Radioactive Material in July 2024. The School assists participants from countries that are in the process of elaborating national policy and strategy documents to ensure that the documents are consistent with the Agency's fundamental safety and nuclear security objectives, and that they apply the IAEA *fundamental safety principles* and *Objective and Essential Elements of a State's Nuclear Security Regime* (IAEA Nuclear Security Series No. 20). The first pilot School was organized for countries of the Caribbean region in Vienna in July 2024, and the second and third Schools

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[6] This relates to operative paragraph 37 of resolution GC(68)/RES/8.

[7] This relates to operative paragraphs 36, 37 and 120 of resolution GC(68)/RES/8.

[8] This relates to operative paragraphs 22, 36 and 120 of resolution GC(68)/RES/8.

[9] This relates to operative paragraphs 36 and 120 of resolution GC(68)/RES/8.

were organized in Vienna in April 2025 for English-speaking countries in Africa, and in Rabat in June 2025 for French-speaking countries in Africa, respectively.[10]

12. The Agency held a meeting of the Steering Committee of the Regulatory Cooperation Forum (RCF), and an RCF Support Meeting in Vienna in June 2025, to review the status of regulatory infrastructure development in countries receiving support from the RCF, and to foster the exchange of experience.[11]

13. The Agency held the Annual Meeting of the Steering Committee on Education and Training in Radiation, Transport and Waste Safety in Vienna in December 2024.[12]

14. The Agency held a Technical Meeting on the Challenges Faced by Newcomer Countries in the Establishment of Effective Regulatory Frameworks and Infrastructures for Safety, in Cairo in October 2024.[13]

15. The Agency is finalizing the Generic RoadMap Project (GRM) to provide Member States with a framework for establishing the national nuclear safety infrastructure for a first nuclear reactor, by defining priorities, major steps and capacity requirements to progress according to a phased approach. GRM provides practical information on how to implement the recommendations of *Establishing the Safety Infrastructure for a Nuclear Power Programme* (IAEA Safety Standards Series No. SSG-16 (Rev. 1)) through tangible outputs such as IAEA Technical Documents (TECDOCs), training materials including e-learning, and tools to support self-assessment and capacity building.[14]

16. The Agency's Regulatory Authority Information System (RAIS+) supports Member States' management of their regulatory control programmes. During the reporting period, the Agency held the Latin America Regional Training Course on the New RAIS+) in Rio de Janeiro, Brazil, in September 2024; the Europe Regional Training Course on the New RAIS+ in Athens in September–October 2024, and the Caribbean Regional Training Course on the New RAIS+ in Castries in March–April 2025.[15]

17. As part of its comprehensive safety review, the Agency organized extensive proficiency testing schemes to corroborate the capabilities of Japanese individual monitoring services in assessing external and internal radiation exposure of workers handling Advanced Liquid Processing System -treated water at the Fukushima Daiichi nuclear power plant.[16]

18. During the reporting period, the Agency took steps to coordinate work on the use of artificial intelligence (AI) in nuclear installations by continuing its work on the development of a TECDOC provisionally entitled *Safety and Security Implications of the Use of Artificial Intelligence in Nuclear Installations*. This publication will address the use of AI in NPPs, research reactors and fuel cycle facilities and will include security considerations regarding the use of AI in nuclear installations.[17]

19. The Agency held a Technical Meeting on Safety and Operational Considerations in the Use of Advanced Technologies at Research Reactors in Vienna in September–October 2024, to provide

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[10] This relates to operative paragraphs 10, 117 and 126 of resolution GC(68)/RES/8.

[11] This relates to operative paragraphs 2 and 4 of resolution GC(68)/RES/8.

[12] This relates to operative paragraph 2 of resolution GC(68)/RES/8.

[13] This relates to operative paragraph 4 of resolution GC(68)/RES/8.

[14] This relates to operative paragraph 4 of resolution GC(68)/RES/8.

[15] This relates to operative paragraphs 4, 117 and 120 of resolution GC(68)/RES/8.

[16] This relates to operative paragraph 4 of resolution GC(68)/RES/8.

[17] This relates to operative paragraph 5 of resolution GC(68)/RES/8.

Member States with a forum to discuss and exchange experience of design and operational safety, and of regulatory oversight in the use of advanced technology, including digital control systems, robotics and AI at research reactors.[18]

20. The Agency continued to develop training tools and TECDOCs that are intended, inter alia, to assist Member States in identifying the potential benefits and challenges of AI in effective emergency response as a component of nuclear safety.[19]

21. The Agency conducted a consultancy meeting on the use of AI in improving radiation protection of patients in medicine in February 2025, as well as a series of seven webinars on this topic. A webinar entitled "Artificial Intelligence in Radiation Protection of Patients: Overview" was held in April 2025 and a further webinar entitled "Artificial Intelligence in Radiation Protection of Patients: AI Technology" was held in June 2025.[20]

22. The Agency held a Technical Meeting on Public Communication in Emergencies: Tackling Misinformation and Retaining Public Trust in Disruptive Information Environments in Vienna in June 2025, which included information exchange on EPR measures to mitigate the harm caused by human-made and AI-produced disruptive disinformation during both routine operation and emergencies.[21]

23. The Agency held a Training Workshop on the Preparation of Feasibility Study for a New Research Reactor Project in Vienna in July 2024, a Training Workshop on Technical Requirements in the Bidding Process for a New Research Reactor in Vienna in October 2024, and a Training Workshop on Assessment of the National Nuclear Infrastructure to Support a New Research Reactor Programme in Vienna in April 2025, and provided guidance to Member States embarking on new research reactor projects on assessing and developing national infrastructure.[22]

24. The Agency held a Workshop on Periodic Safety Review for Research Reactors in Vienna in March 2025.[23]

25. The Agency continued to support Member States in enhancing radiation safety culture in regulatory bodies and in healthcare settings through capacity building, including conducting training courses for operators and regulatory bodies, upon request.[24]

26. The Agency's peer review and advisory service mission reports, such as Operational Safety Review Team (OSART), Integrated Regulatory Review Service (IRRS) and Peer Review of the Operational Safety Performance Improvement Programme (PROSPER) missions, continued to include recommendations relating to leadership, management for safety and safety culture.[25]

27. The Agency held a Training Course on Leadership, Management and Culture for Safety in Vienna in May 2025 to provide training based on the requirements of *Leadership and Management for Safety* (IAEA Safety Standards Series No. GSR Part 2). Moreover, the Agency held two Training Workshops for Safety Culture Continuous Improvement in Vienna — one in July 2024 and one in June 2025 — to

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[18] This relates to operative paragraph 5 of resolution GC(68)/RES/8.

[19] This relates to operative paragraph 5 of resolution GC(68)/RES/8.

[20] This relates to operative paragraph 5 of resolution GC(68)/RES/8.

[21] This relates to operative paragraphs 5 and 146 of resolution GC(68)/RES/8.

[22] This relates to operative paragraphs 6 and 26 of resolution GC(68)/RES/8.

[23] This relates to operative paragraphs 6 and 26 of resolution GC(68)/RES/8.

[24] This relates to operative paragraph 8 of resolution GC(68)/RES/8.

[25] This relates to operative paragraph 8 of resolution GC(68)/RES/8.

train international safety culture experts on how to conduct safety culture assessments in accordance with the Agency's methodology.[26]

28. The Agency held a Workshop on Training and Qualification of Operating Personnel for Nuclear Fuel Cycle Facilities in March 2025 to facilitate the exchange of experience in the training and qualification of operating personnel at nuclear fuel cycle facilities, including the promotion of behaviour and attitudes supporting a strong safety culture through training.[27]

29. As a technical and scientific support organization (TSO) for radiation protection, the Agency's Radiation Safety Technical Services Laboratory continued to prioritize safety in all its services. Safety culture remained integral to laboratory operations and essential for assessing and supporting a safety strategy. A safety culture self-assessment was initiated, serving as a proactive measure for Member States to enhance safety margins.[28]

30. The Agency held a Regional Workshop on the Development and Implementation of Procedures for Authorization and Inspection of Radioactive Sources in Montevideo in July 2024 for Latin American and Caribbean States, conducted in Spanish.[29]

31. The Agency conducted a Regional Workshop on Organization and Staffing of an Effectively Independent Regulatory Body in Vienna in August 2024 for Caribbean States.[30]

32. Under its IRRS missions, the Agency continued to offer Module 11 on interfaces of safety with nuclear security. The Agency also continued to provide Advisory Missions on Regulatory Infrastructure for Radiation Safety and Nuclear Security (RISS) to requesting Member States to establish or enhance their regulatory framework for radiation safety and nuclear security.[31]

33. During the reporting period, the Agency continued developing three Technical Reports Series publications on safety and security interfaces, provisionally entitled *Use of Safety Analysis Approaches to Support Nuclear Security at Nuclear Installations*; *Safety, Security and Safeguards by Design in Small Modular Reactors*; and *Design Safety and Security Considerations for Transportable Nuclear Power Plants*.[32]

34. Under the active Regulatory Infrastructure Development Projects (RIDPs), all activities are designed to include safety and security topics in each of the working areas. For example, the Regional Training Course for New Regulators in Radiation Safety and Security of Radioactive Material held in Accra in May–July 2024, the National Training Course on Regulatory Control of Radiotherapy Practices held in Kingston in February 2025, and the RISS mission conducted in Bogotá in March 2025 all encompassed both radiation safety and nuclear security of radioactive material within their scopes.[33]

35. The Agency continued taking into consideration nuclear safety and security interfaces when developing or reviewing safety standards, and during Technical Safety Review (TSR) missions and Site

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[26] This relates to operative paragraph 8 of resolution GC(68)/RES/8.

[27] This relates to operative paragraphs 8 and 116 of resolution GC(68)/RES/8.

[28] This relates to operative paragraph 8 of resolution GC(68)/RES/8.

[29] This relates to operative paragraphs 4 and 117 of resolution GC(68)/RES/8.

[30] This relates to operative paragraphs 117, 120, 123 and 126 of resolution GC(68)/RES/8.

[31] This relates to operative paragraph 9 of resolution GC(68)/RES/8.

[32] This relates to operative paragraph 9 of resolution GC(68)/RES/8.

[33] This relates to operative paragraph 9 of resolution GC(68)/RES/8.

and External Events Design Safety (SEED) review missions, as well promoting them in activities related to safety infrastructure for nuclear power programme development in embarking countries.[34]

36. The Agency continued to provide support for the elaboration of a long term plan for the Agency's safety standards by the Commission on Safety Standards (CSS) to include publications on the nuclear safety–security interface.[35]

37. As part of its coordinated programmatic activities, the Agency continued its support for the Director General's Rays of Hope initiative. As safety is a key element in the initiative, technical support for radiation safety was provided to regulators and users, for example to finalize new regulations and ensure that all radiation equipment and procedures used are in accordance with the Agency's safety standards.[36]

38. As other coordinated programmatic activities, the Department of Nuclear Safety and Security and the Department of Nuclear Energy jointly organized three international conferences in Vienna. The International Conference on the Management of Spent Fuel from Nuclear Power Reactors in June 2024 considered the steps being taken to enable the safe and effective management of new spent fuel types that will support the deployment of new reactor technologies. The International Conference on Small Modular Reactors and their Applications in October 2024 provided an international forum to take stock of the progress and discuss the opportunities, challenges and enabling conditions for the accelerated safe and secure development and deployment of SMRs. Most recently, the International Conference on Research Reactors: Achievements, Experience and the Way to a Sustainable Future, held in November 2024, provided a forum for research reactor operators, managers, users, regulators, designers and suppliers to share their experience and information in all relevant areas including nuclear safety, security, operation, fuel front and back-end options, utilization, infrastructure and capacity building, and management.[37]

39. The Agency continued efforts to increase the visibility of the achievements and results of the regional and thematic networks to a wider audience through appropriate communication channels and outreach activities. Additional continued efforts include strengthening cooperation and coordination between regions by establishing new regional networks and designing joint project activities and publications within the Global Nuclear Safety and Security Network (GNSSN) to address common challenges and needs across regions that are relevant to nuclear and radiation safety and nuclear security issues. The Agency held the 22nd Meeting of the Steering Committee of the GNSSN in Vienna in April 2025 to review the GNSSN action plan and its implementation, and to share information between members of the network.[38]

40. The Agency held the 35th Steering Committee Meeting of the Asian Nuclear Safety Network in Vienna in April 2025 to review the achievements of the Asian Nuclear Safety Network (ANSN) in 2024, and to discuss the work plan for 2025. The Agency held the 13th Meeting of the Steering Committee of the European and Central Asian Safety Network in Vienna in December 2024 to review the achievements of the European and Central Asian Safety Network (EuCAS) in 2024 and to finalize the

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[34] This relates to operative paragraph 9 of resolution GC(68)/RES/8.

[35] This relates to operative paragraph 9 of resolution GC(68)/RES/8.

[36] This relates to operative paragraph 10 of resolution GC(68)/RES/8.

[37] This relates to operative paragraphs 10, 26, 104, 105 and 106 of resolution GC(68)/RES/8.

[38] This relates to operative paragraphs 11 and 122 of resolution GC(68)/RES/8.

2025 work plan. The 14th Meeting of the Steering Committee was held in Dushanbe in May 2025 to review and update EuCAS's 2025 work plan and to discuss the 2026 work plan.[39]

41. The Agency held the 22nd Meeting of the Steering Committee of the Forum of Nuclear Regulatory Bodies in Africa in Rabat in June 2025 to review the Forum's achievements in 2024, and to discuss the work plan for activities to be conducted in 2025–2026.[40]

42. The Agency held the Eighth Global Nuclear Safety and Security Communication Network Steering Committee Meeting in a virtual format in November 2024 to review the outcomes of the Network's 2024 activities, and to review and approve the 2025 work plan.[41]

43. The Agency reviewed and updated the Terms of Reference for the International Network for Education and Training for Emergency Preparedness and Response (iNET-EPR) and continued working to enhance the iNET-EPR platform.[42]

44. The Agency continued its cooperation with the Ibero-American Forum of Radiological and Nuclear Regulatory Agencies (FORO), organizing a Steering Committee meeting in Bogotá in November 2024. In addition, the Agency organized several meetings under the FORO extrabudgetary programme. The First and Second Meetings of FORO's Project on Licensing and Inspection Requirements in Proton Therapy Facilities were held in October 2024 in Spain and in Buenos Aires in May 2025, respectively. Participants contributed to the development of a guide on the criteria for licensing and inspection requirements for proton therapy facilities, which was completed in May 2025. The Agency organized the Consultancy Meeting on Licensing Criteria and Inspection Requirements for Centralized Radiopharmacies in Vienna in December 2024 to develop a sample checklist for inspections at radiopharmacy facilities. The Agency also organized a Meeting of the Management Committee for the Web Collaboration Portal (RED) of FORO in Rio de Janeiro in March–April 2025.[43]

45. In September 2024, a new joint IAEA–FORO publication on regulatory processes for authorizing and inspecting cyclotron facilities for radiopharmaceutical production (IAEA-TECDOC-2069) was published in Spanish.[44]

46. The Agency participated, as an observer, in the meetings of the European Nuclear Safety Regulators Group's Working Group 2 on Waste Management and Decommissioning, and presented work in relation to the Integrated Review Service for Radioactive Waste and Spent Fuel Management, Decommissioning and Remediation (ARTEMIS) review service.[45]

47. The 11th Annual Meeting of the ASEAN Network of Regulatory Bodies on Atomic Energy (ASEANTOM) was organized in cooperation with the Agency in August 2024 in Luang Prabang, Lao People's Democratic Republic.[46]

48. The Agency continued to provide technical support for the design, review and implementation of technical cooperation (TC) projects in the areas of regulatory framework and infrastructure, safety of

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[39] This relates to operative paragraphs 11 and 122 of resolution GC(68)/RES/8.

[40] This relates to operative paragraphs 11 and 122 of resolution GC(68)/RES/8.

[41] This relates to operative paragraphs 11 and 122 of resolution GC(68)/RES/8.

[42] This relates to operative paragraphs 11 and 122 of resolution GC(68)/RES/8.

[43] This relates to operative paragraphs 12 and 122 of resolution GC(68)/RES/8.

[44] This relates to operative paragraphs 12 and 122 of resolution GC(68)/RES/8.

[45] This relates to operative paragraph 12 of resolution GC(68)/RES/8.

[46] This relates to operative paragraph 12 of resolution GC(68)/RES/8.

radioactive waste management, and safety of nuclear installations, in particular for embarking countries.[47]

49. Inputs from the analysis of results of peer review missions, expert missions and self-assessments conducted by Member States were used to inform and prioritize TC events. With regard to assessing the design of nuclear installations, especially SMRs, against external events that might affect their safety, the Agency continued sharing relevant findings and lessons learned among regulatory bodies, TSOs, operating organizations and industry.[48]

B. Conventions, Regulatory Frameworks and Supporting Non-Legally Binding Instruments for Safety

IAEA Director General Rafael Mariano Grossi delivers opening remarks at the Eighth Review Meeting of the Contracting Parties to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, March 2025 (Photo: IAEA)

50. The Agency continued to encourage Member States, especially those planning, constructing, commissioning or operating NPPs or considering a nuclear power programme, to become Contracting Parties to the CNS and the Joint Convention. This was done through discussions with Member States' representatives during Agency conferences, meetings, peer review missions and visits of the Director

[47] This relates to operative paragraphs 15, 104 and 118 of resolution GC(68)/RES/8.

[48] This relates to operative paragraphs 15, 68, 72 and 78 of resolution GC(68)/RES/8.

General to Member States, as well as through TC projects including on legislative assistance. Activities related to the Conventions are reported in detail in subsequent sections of this report.[49]

51. The Agency held the Third Extraordinary Meeting of the Contracting Parties to the Convention on Nuclear Safety in Vienna in September 2024 to discuss proposals from Contracting Parties aimed at enhancing the effectiveness and efficiency of the CNS processes. As a result, 13 proposals were adopted, introducing significant modifications to key aspects of the peer review process, including categorization of the Contracting Parties, formation of Country Groups, identification of good practices and major common issues. It was followed by the Organizational Meeting for the Tenth Review Meeting of the Contracting Parties to the Convention on Nuclear Safety, held in Vienna in September 2024. During this meeting, decisions were made on key preparations for the Tenth Review Meeting, including election of the new CNS President, Vice Presidents and other Officers, the budget, and topical sessions.[50]

52. The Agency held the CNS Officers' Meeting in Vienna in March 2025 to facilitate knowledge transfer from outgoing to incoming CNS Officers and to train the Officers on their roles and responsibilities for the Tenth Review Meeting.[51]

53. The Agency held an educational workshop for the CNS Contracting Parties in Vienna in July 2024 to provide them with assistance and information on the implementation of their obligations under the CNS as well as the peer review process.[52]

54. The Agency also held a workshop on the CNS for Permanent Mission representatives in July 2024 in Vienna to provide them with an introduction to and overview of the CNS, the associated obligations, the peer review process and the process for adherence to the CNS. During the reporting period, one Member State (Liberia) became a new Contracting Party to the CNS, bringing the total number of Contracting Parties to 96.[53]

55. The Agency held three workshops to promote the benefits of and explain the process for adherence of Member States to the Joint Convention: an interregional workshop in Vienna in September 2024, a regional workshop in Riyadh in December 2024, and a regional workshop in Jakarta in June 2025.[54]

56. The Agency organized a virtual regional workshop (attended by Benin, the Congo and Gabon) in July 2024 to provide support to Contracting Parties to ensure effective implementation of the Joint Convention and assist Contracting Parties in preparing their first national reports under the Joint Convention. In addition, a national workshop was held in Baghdad in July 2024 to assist Iraq in preparing its first national report.[55]

57. The Agency held the Eighth Review Meeting of the Contracting Parties to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management in Vienna in March 2025. The outcomes were captured in the Summary Report, which was adopted by consensus among the Contracting Parties. Contracting Parties reported good progress and significant accomplishments in implementing their national programmes. Several overarching issues emerged, five

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[49] This relates to operative paragraphs 7, 20 and 22 of resolution GC(68)/RES/8.

[50] This relates to operative paragraphs 7, 20 and 22 of resolution GC(68)/RES/8.

[51] This relates to operative paragraphs 7, 20 and 22 of resolution GC(68)/RES/8.

[52] This relates to operative paragraphs 7, 20 and 22 of resolution GC(68)/RES/8.

[53] This relates to operative paragraphs 7, 20 and 22 of resolution GC(68)/RES/8.

[54] This relates to operative paragraphs 7, 20 and 22 of resolution GC(68)/RES/8.

[55] This relates to operative paragraphs 7, 20 and 22 of resolution GC(68)/RES/8.

of which were agreed in plenary discussions and will be reported on in the national reports for the Ninth Review Meeting. Furthermore, Contracting Parties adopted the proposed amendments to INFCIRC/603/Rev.10 and agreed to establish a working group with the aim of discussing proposals to reduce the burden on officers and enhance the efficiency of the Joint Convention peer review process. A topical session on knowledge management related to long term management of disused sealed sources, radioactive waste and spent fuel provided an opportunity to exchange experiences and share lessons learned, enriching the collective knowledge of all participants.[56]

58. During the reporting period, one Member State deposited an instrument of ratification of the Joint Convention, bringing the number of Contracting Parties to 91.[57]

59. The Agency continued to encourage Member States' adherence to the Early Notification Convention and the Assistance Convention. During the reporting period, one Member State, Liberia, adhered to the Early Notification Convention and to the Assistance Convention, bringing the total number of State Parties to 135 and 129, respectively.[58]

60. The Agency held an Africa Regional Technical Meeting of the Points of Contact for the Purpose of Facilitating the Import and Export of Radioactive Sources in Accordance with the Guidance on the Import and Export of Radioactive Sources in Windhoek in September–October 2024.[59]

61. The Agency held two Regional Technical Meetings to Share Experiences and Lessons Learned in Implementing the Code of Conduct on the Safety and Security of Radioactive Sources and its Supplementary Guidance: one in Abu Dhabi in October 2024 and one in Victoria Falls, Zimbabwe in November 2024.[60]

62. The Agency held an International Meeting on the Code of Conduct on the Safety of Research Reactors in Vienna in August 2024. The meeting showed continued improvement in the application of the Code of Conduct by Member States, notably in the areas of regulatory supervision, ageing management, and safety management of reactors in extended shutdown states. The meeting also identified areas needing further improvement in the application of the Code of Conduct with regard to preparation for decommissioning and building regulatory capacity to address emerging challenges such as the use of AI and innovative technologies.[61]

63. The Agency continued its preparatory work to organize the seventh International Conference on Effective Nuclear and Radiation Regulatory Systems. The event will play a vital part in the global efforts of senior nuclear and radiation safety and nuclear security regulators to review, identify and propose a path forward to address issues that are important to the global nuclear regulatory community. Two consultancy meetings were held in Vienna in December 2024 and April 2025 to develop the conference programme.[62]

64. The Agency held the International Conference on Enhancing Nuclear Safety and Security Through Technical and Scientific Support Organizations (TSOs): Challenges and Opportunities in a Rapidly Changing World, in Vienna in December 2024. The event was attended by 370 participants

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[56] This relates to operative paragraphs 7, 20 and 22 of resolution GC(68)/RES/8.

[57] This relates to operative paragraphs 7, 20 and 22 of resolution GC(68)/RES/8.

[58] This relates to operative paragraphs 7, 22 and 146 of resolution GC(68)/RES/8.

[59] This relates to operative paragraphs 23, 25 and 132 of resolution GC(68)/RES/8.

[60] This relates to operative paragraphs 23 and 132 of resolution GC(68)/RES/8.

[61] This relates to operative paragraphs 5, 26 and 132 of resolution GC(68)/RES/8.

[62] This relates to operative paragraph 29 of resolution GC(68)/RES/8.

from 88 Member States and 7 international organizations. The conference provided a forum for the discussion of current and emerging challenges, the interaction of TSOs with interested parties, and capacity building. It highlighted the importance of scientific and technical capabilities to support regulatory decision making for enhanced nuclear and radiation safety and nuclear security.[63]

65. The Agency held the 20th Meeting of the Steering Committee of the Technical and Scientific Support Organization Forum in Vienna in October 2024 to provide feedback on the recent achievements of the Forum and its self-assessment methodology. The 21st Meeting of the Steering Committee was held in Vienna in April 2025 to provide feedback on recent achievements and on the self-assessment methodology.[64]

66. The Agency held two National Workshops on Developing and Strengthening Technical and Scientific Capabilities Supporting Regulatory Functions: one in Accra and one in Yerevan, both in November 2024. The workshops focused on how to develop and strengthen these capabilities using the TSO Self Capability Assessment (TOSCA) methodology.[65]

67. The Agency held the Explanatory Meeting on the Methodology for Technical and Scientific Support Organizations Self Capability Assessment in Vienna in March 2025, with the participation of eight Member States. This meeting provided a forum for TSOs to share knowledge regarding the Agency's safety standards and to introduce and discuss the TOSCA process, tools and supporting mechanism. The meeting aimed to further develop, maintain and enhance technical and scientific capabilities related to nuclear and radiation safety to support regulatory functions in Member States.[66]

68. The Agency continued to encourage Member States' adherence to the nuclear liability instruments adopted under IAEA auspices through its legislative assistance programme and various other outreach activities. In the context of the Agency's legislative assistance programme, assistance was provided to 17 Member States in the development of national legislation, including on civil liability for nuclear damage. During the reporting period, two Member States (El Salvador and Tunisia) joined the 1963 Vienna Convention on Civil Liability for Nuclear Damage, bringing the number of parties to 47 (subject to entry into force for Tunisia on 29 July 2025). One Member State (Uruguay) joined the 1997 Vienna Convention on Civil Liability for Nuclear Damage, bringing the number of parties to 17. Two Member States (Belgium and Spain) joined the Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention, bringing the number of parties to 36 (subject to entry into force for Spain on 19 August 2025).[67]

69. The Agency held a Regional Workshop on the Convention on Supplementary Compensation for Nuclear Damage (CSC) for Member States of the Association of Southeast Asian Nations in Manila in July 2024, attended by 32 participants. In addition, the Agency held a National Workshop on Civil Liability for Nuclear Damage in Islamabad in August 2024, and two National Workshops on the CSC: in Cairo in November 2024 and in Estonia in January 2025.[68]

70. The Agency provided support to the Parties to the CSC in their consideration of amending the obligation under the Convention for non-nuclear Parties to contribute public funds to the supplementary international fund, through holding informal meetings, including virtual meetings, consultations and a

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[63] This relates to operative paragraph 32 of resolution GC(68)/RES/8.

[64] This relates to operative paragraphs 13 and 32 of resolution GC(68)/RES/8.

[65] This relates to operative paragraph 32 of resolution GC(68)/RES/8.

[66] This relates to operative paragraph 32 of resolution GC(68)/RES/8.

[67] This relates to operative paragraph 36 of resolution GC(68)/RES/8.

[68] This relates to operative paragraphs 22, 36, 37 and 120 of resolution GC(68)/RES/8.

hybrid meeting in November 2024. The Agency also acted as the Secretariat of the Fifth Meeting of the Contracting Parties and Signatories of the CSC, held in Vienna in June 2025. On the margins of the 68th General Conference in September 2024, the Agency hosted a side event for Member States to share their insights on joining the CSC.[69]

C. Agency Safety Standards

The 57th Meeting of the Commission on Safety Standards was held in Vienna in May 2025 (Photo: IAEA)

71. The Commission on Safety Standards (CSS) met in Vienna in November 2024 and May 2025. The Emergency Preparedness and Response Standards Committee (EPReSC), the Nuclear Safety Standards Committee (NUSSC) and the Transport Safety Standards Committee (TRANSSC) held their meetings in Vienna in November 2024 and June 2025, while the Radiation Safety Standards Committee (RASSC) held its meetings in Vienna in December 2024 and June 2025. The Waste Safety Standards Committee (WASSC) held a meeting in Vienna in October to November 2024. Additionally, NUSSC and TRANSSC held a joint meeting in November 2024, and RASSC and TRANSSC held a joint meeting in June 2025, to discuss projects of common interest.[70]

72. The Interface Group, which brings together the Chairs of the Safety Standards Committees and the Nuclear Security Guidance Committee, reviewed eight publication proposals for possible safety–security interfaces following a recommendation from the Coordination Committee on Safety Standards and Nuclear Security Guidance Publications.[71]

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[69] This relates to operative paragraph 36 of resolution GC(68)/RES/8.

[70] This relates to operative paragraph 42 of resolution GC(68)/RES/8.

[71] This relates to operative paragraphs 9, 42 and 43 of resolution GC(68)/RES/8.

73. All safety standards endorsed by the CSS up to its 56th meeting in November 2024 have now been issued. A total of five Safety Guides were published during the reporting period.[72]

74. The Secretariat, in consultation with the CSS, took action to address terminology consistency in the future translation of safety standards into all Agency official languages. The Agency undertook further efforts to translate safety standards into Chinese (30 Safety Guides), French (3 Safety Guides), Russian (9 Safety Guides) and Spanish (7 Safety Guides).[73]

75. All Member States continued to be eligible to attend the meetings of the Safety Standards Committees (SSCs).[74]

76. The Agency continued to work with the CSS to develop a new long term plan for the safety standards, addressing the existing and future set of safety standards in a comprehensive manner and taking into consideration new and innovative technologies such as SMRs, extraordinary circumstances and emerging challenges for the application of nuclear and radiation technologies.[75]

77. The CSS endorsed the following draft Safety Requirements and Safety Guides for submission for publication:[76]

- *Regulations for the Safe Transport of Radioactive Material* (DS543);
- *Safety of Nuclear Fuel Reprocessing Facilities* (DS518A);
- *Safety of Nuclear Fuel Cycle Research and Development Facilities* (DS518B);
- *Development and Application of Level 2 Probabilistic Safety Assessment for Nuclear Power Plants* (DS528);
- *Monitoring for Protection of the Public and the Environment* (DS505);
- *Investigation of Site Characteristics and Evaluation of Radiation Risks to the Public and the Environment in Site Evaluation for Nuclear Installations* (DS529);
- *Geotechnical Aspects in Siting and Design of Nuclear Installations* (DS531).

78. The Agency included all newly issued safety standards and nuclear security guidance in the Nuclear Safety and Security Online User Interface (NSS-OUI) platform. All IAEA Safety Standards Series and IAEA Nuclear Security Series publications are available in full, are up to date and can be searched as a uniform knowledge base within NSS-OUI.[77]

79. The online portal for the CSS and the SSCs continued to actively support the work of committee members and coordinators. Based on user experiences from both groups, some functionalities were adjusted. The use of the portal was promoted as the primary means for committee members to provide feedback on draft safety standards and document preparation profiles (DPPs).[78]

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[72] This relates to operative paragraphs 42 and 43 of resolution GC(68)/RES/8.

[73] This relates to operative paragraph 43 of resolution GC(68)/RES/8.

[74] This relates to operative paragraph 44 of resolution GC(68)/RES/8.

[75] This relates to operative paragraphs 42, 45 and 51 of resolution GC(68)/RES/8.

[76] This relates to operative paragraphs 43 and 92 of resolution GC(68)/RES/8.

[77] This relates to operative paragraphs 43 and 46 of resolution GC(68)/RES/8.

[78] This relates to operative paragraphs 42, 43 and 46 of resolution GC(68)/RES/8.

80. The Secretariat continued collecting technical feedback and lessons learned about the challenges faced at nuclear facilities in terms of the practical application of Agency safety standards and nuclear security guidance during an armed conflict.[79]

81. The Agency published five Specific Safety Guides, as follows:[80]

- *Chemistry Programme for Water Cooled Nuclear Power Plants* (IAEA Safety Standards Series No. SSG-13 (Rev. 1));
- *Protection of Workers Against Exposure Due to Radon* (IAEA Safety Standards Series No. SSG-91);
- *Safety of Nuclear Fuel Reprocessing Facilities* (IAEA Safety Standards Series No. SSG-42 (Rev. 1));
- *Safety of Nuclear Fuel Cycle Research and Development Facilities* (IAEA Safety Standards Series No. SSG-43 (Rev. 1)); and
- *Development and Application of Level 2 Probabilistic Safety Assessment for Nuclear Power Plants* (IAEA Safety Standards Series No. SSG-4 (Rev. 1)).

82. During the reporting period, the Agency completed the set of e-learning modules for all General Safety Requirements and Specific Safety Requirements publications by launching e-learning courses on *Safety of Nuclear Power Plants: Design* (IAEA Safety Standards Series No. SSR-2/1 (Rev. 1)), *Safety of Nuclear Power Plants: Commissioning and Operation* (IAEA Safety Standards Series No. SSR-2/2 (Rev. 1)), *Safety of Nuclear Fuel Cycle Facilities* (IAEA Safety Standards Series No. SSR-4), and *Disposal of Radioactive Waste* (IAEA Safety Standards Series No. SSR-5).[81]

83. An International Training Course on the IAEA Safety Standards was held for Member States in Vienna in May 2025 to facilitate better understanding and awareness of Agency safety standards, as well as to enhance access to and use of the safety standards in Member States.[82]

84. The Agency continued to attend meetings of committees of the International Commission on Radiological Protection (ICRP) and participated in several ICRP task groups on specific topics. The Agency continued its cooperation with the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), focusing in particular on UNSCEAR projects to assess radiation exposure of the public and patients, and continued to attend UNSCEAR's annual sessions. The Agency attended the 22nd Regular Meeting of the Inter-Agency Committee on Radiation Safety in Geneva in January 2025 in its capacity as a member of the Committee, and handed over the chair of the Committee to the International Labour Organization (ILO).[83]

85. The Agency continued working with ILO (as a co-sponsoring organization) on the development of a Safety Report Series publication on building competence of qualified experts and radiation protection officers.[84]

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[79] This relates to operative paragraphs 45 and 47 of resolution GC(68)/RES/8.

[80] This relates to operative paragraphs 43 and 45 of resolution GC(68)/RES/8.

[81] This relates to operative paragraph 49 of resolution GC(68)/RES/8.

[82] This relates to operative paragraph 49 of resolution GC(68)/RES/8.

[83] This relates to operative paragraph 50 of resolution GC(68)/RES/8.

[84] This relates to operative paragraph 50 of resolution GC(68)/RES/8.

86. The ICRP and UNSCEAR participated as observers at meetings of the CSS, RASSC and EPReSC. The Agency supported UNSCEAR as an observer, providing scientific input on UNSCEAR's public exposure review and medical exposure review updates.[85]

87. The 16th International Congress of the International Radiation Protection Association (IRPA): Radiation Harmonization — Standing United for Protection was held in cooperation with the Agency in Orlando, United States of America (USA), in July 2024.[86]

88. During the reporting period, the Agency continued the revision of the following publications, which include important considerations with regard to SMRs:[87]

- *Safety of Nuclear Power Plants: Commissioning and Operation* (SSR-2/2 (Rev. 1)) (DS532);
- *Licensing Process for Nuclear Installations* (IAEA Safety Standards Series No. SSG-12) (DS539);
- *Arrangements for Preparedness and Response for a Nuclear or Radiological Emergency* (IAEA Safety Standards Series No. GS-G-2.1) (DS504);
- *Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency* (IAEA Safety Standards Series No. GSG-2) (DS527);
- *Periodic Safety Review for Nuclear Power Plants* (IAEA Safety Standards Series No. SSG-25) (DS535).

In addition, progress was made on a new draft Safety Guide provisionally entitled *Safety Demonstration of Innovative Technology in Power Reactor Designs* (DS537).

89. The Agency continued the development of a new Safety Guide provisionally entitled *Regulatory Experience Feedback Management* (DS547) and held a consultancy meeting in May 2025.[88]

90. The Agency initiated the revision of *Preparedness and Response for a Nuclear or Radiological Emergency* (IAEA Safety Standards Series No. GSR Part 7) in March 2025. The DPP for a new Safety Guide provisionally entitled *Protection Strategy for a Nuclear or Radiological Emergency* (DS534) was approved.[89]

91. A medium term plan for the revision of NUSSC-led safety standards was developed by the Secretariat in collaboration with NUSSC to ensure the timely update of these standards in line with the priorities set by Member States.[90]

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[85] This relates to operative paragraph 50 of resolution GC(68)/RES/8.

[86] This relates to operative paragraph 50 of resolution GC(68)/RES/8.

[87] This relates to operative paragraphs 48, 51 and 66 of resolution GC(68)/RES/8.

[88] This relates to operative paragraph 30 of resolution GC(68)/RES/8.

[89] This relates to operative paragraph 51 of resolution GC(68)/RES/8.

[90] This relates to operative paragraph 51 of resolution GC(68)/RES/8.

D. Self-assessments and the Agency's Peer Review and Advisory Services

A SEED mission in Ghana (Photo: Nuclear Power Ghana of the the Republic of Ghana)

92. During the reporting period, the Agency finalized and launched an online self-training hub for registered users and participants of training events. This initiative aims to support capacity building in relation to external event safety for nuclear installations. The hub features a range of existing materials including a self-assessment tool, a hands-on practice package, standard review plan guidelines for reviewers, and a handbook for education and training on site safety, including practical examples, standard training modules and a new validated metric for the measurement of training effectiveness.[91]

93. The Agency held a Workshop on Safety Evaluation of Fuel Cycle Facilities During Operation in Vienna in September 2024 to provide practical information on operational safety assessment of nuclear fuel cycle facilities based on Agency safety standards, and the role of Safety Evaluation of Fuel Cycle Facilities During Operation (SEDO) peer review missions.[92]

94. The Agency continued to use the existing e-learning courses on Emergency Preparedness Review (EPREV) and the training course for IRRS Module 10 (on emergency preparedness and response) to train future reviewers.[93]

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[91] This relates to operative paragraph 54 of resolution GC(68)/RES/8.

[92] This relates to operative paragraphs 54 and 57 of resolution GC(68)/RES/8.

[93] This relates to operative paragraph 54 of resolution GC(68)/RES/8.

95. The Secretariat continued to organize technical meetings and workshops on peer reviews and advisory services in the area of nuclear safety and security, and to interact with Member States in order to continue to assess and strengthen the overall structure, effectiveness and efficiency of nuclear safety and security peer review and advisory services.[94]

96. The Agency held a meeting of the Peer Review and Advisory Services Committee in Vienna in April 2025 to review the status of peer review missions, make recommendations for improvement, and monitor the effectiveness and efficiency of advisory services.[95]

97. The Agency continued revising the *SARIS Guidelines: 2014 Edition* (IAEA Services Series No. 27) and the *IRIS Guidelines: 2014 Edition* (IAEA Services Series No. 28) in order to incorporate the experience gathered since 2014.[96]

98. The Agency continued developing a TECDOC based on feedback from recent SEED missions to Member States, including an analysis of the lessons learned, development of safety profiles of Member States in relation to external events, measurement of the effectiveness of the services provided, and the impact of feedback from SEED missions on the development of Safety Guides.[97]

99. The Agency conducted two Independent Safety Culture Assessment (ISCA) peer review missions: in Canada in September 2024 and in Spain in October 2024.[98]

100. The Agency continued cooperating with Member States, including European Union Member States, to discuss and address how to better integrate IRRS and ARTEMIS missions.[99]

101. The Agency developed a new IRRS mission concept, involving focused scope missions, for countries that have already completed two IRRS full scope cycles, including both an IRRS initial mission and an IRRS follow-up mission. It is recognized that after two IRRS full scope cycles, the number and nature of the findings may be limited in areas where no significant changes have occurred. The objective of a focused scope mission is to target relevant aspects of a country's regulatory infrastructure, while maintaining the overall effectiveness of the IRRS.[100]

102. The Agency conducted six IRRS missions: at the Agency's Headquarters in Vienna in October 2024, in the Republic of Korea and Bulgaria in November 2024, in Ghana in December 2024, in Thailand in February 2025 and in China in June–July 2025. Two IRRS follow-up missions were conducted: in Latvia in October 2024 and in Spain in February 2025.[101]

103. The IRRS mission of the Agency's internal regulatory system for radiation safety—the first IRRS mission to an organization rather than to a state — was conducted in September–October 2024 and

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[94] This relates to operative paragraph 54 of resolution GC(68)/RES/8.

[95] This relates to operative paragraph 55 of resolution GC(68)/RES/8.

[96] This relates to operative paragraph 55 of resolution GC(68)/RES/8.

[97] This relates to operative paragraph 55 of resolution GC(68)/RES/8.

[98] This relates to operative paragraph 8 of resolution GC(68)/RES/8.

[99] This relates to operative paragraph 56 of resolution GC(68)/RES/8.

[100] This relates to operative paragraph 56 of resolution GC(68)/RES/8.

[101] This relates to operative paragraph 56 of resolution GC(68)/RES/8.

confirmed that the system is well established, with the Agency's internal regulator showing a strong dedication to ongoing enhancement and improvement.[102]

104. Three ARTEMIS missions were requested or confirmed: in Spain (a follow-up mission scheduled for September–October 2025), Australia (scheduled for November 2025) and Kenya (scheduled for early 2026). A preparatory meeting for the ARTEMIS mission in Kenya took place in February 2025, and a preparatory meeting for the follow-up ARTEMIS mission in Spain took place in October 2024.[103]

105. The Agency conducted four OSART missions: two in the Czech Republic in September and November 2024, one in Hungary in November 2024 and one in Belgium in December 2024. Six follow-up missions were conducted: one in the USA in August 2024, two in Finland in September 2024, one in Bulgaria in December 2024, one in France in February 2025 and one in the Kingdom of the Netherlands in May 2025. A Pre-OSART mission was conducted in China in June 2025.[104]

106. The Agency conducted three Occupational Radiation Protection Appraisal Service (ORPAS) missions: in Kenya in March 2025, in the Dominican Republic in April 2025, and in Jordan in July 2025.[105]

107. The Agency conducted six SEED missions: in Armenia in July 2024, in Canada in September 2024, in Ghana in February 2025, in Romania in May 2025, and in Sri Lanka in June 2025.[106]

108. The Agency conducted three TSR design safety missions: on the SALUS-100 reactor conceptual design in the Republic of Korea in October 2024, on the NuScale US460 in the USA in December 2024, and on the deterministic safety analysis of Unit 1 of the Rooppur NPP in Bangladesh in January 2025. A TSR mission of the PALLAS reactor's probabilistic safety assessment was conducted in the Kingdom of the Netherlands in January 2025.[107]

109. The Agency conducted three SALTO missions: two in Sweden in October 2024 and March 2025, and one in Slovenia in May 2025. One pre-SALTO mission was conducted in the Kingdom of the Netherlands in November 2024 and a follow-up mission was conducted in South Africa in September 2024. A SALTO research reactor review of the WWR-SM research reactor was conducted in Uzbekistan in November 2024 and a follow-up SALTO research reactor review of the High Flux Reactor was conducted in the Kingdom of the Netherlands in July 2024.[108]

110. The Agency conducted a PROSPER mission in Argentina in December 2024.[109]

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[102] This relates to operative paragraph 56 of resolution GC(68)/RES/8.

[103] This relates to operative paragraph 56 of resolution GC(68)/RES/8.

[104] This relates to operative paragraph 57 of resolution GC(68)/RES/8.

[105] This relates to operative paragraph 79 of resolution GC(68)/RES/8.

[106] This relates to operative paragraph 68 of resolution GC(68)/RES/8.

[107] This relates to operative paragraph 57 of resolution GC(68)/RES/8.

[108] This relates to operative paragraph 57 of resolution GC(68)/RES/8.

[109] This relates to operative paragraph 57 of resolution GC(68)/RES/8.

111. The Agency conducted a SEDO mission to the Pitești Nuclear Fuel Plant in Romania in November 2024.[110]

112. The Agency conducted an Integrated Safety Assessment of Research Reactors (INSARR) mission in Malaysia in June 2025. The mission reviewed organizational and management aspects as well as operational safety programmes of the TRIGA PUSPATI Reactor.[111]

113. The Agency conducted an INSARR mission in Bolivia in February 2025. The mission covered organizational, management and technical aspects of Bolivia's first nuclear research reactor (RB-01), which is under construction. The Agency conducted an expert mission in March 2025 to advise Thailand's regulatory body on the review for the safety aspects of the construction and commissioning of a new research reactor in Thailand.[112]

E. Nuclear Installation Safety

An Agency review of the safety of Uzbekistan's 65-year-old research reactor (Photo: Institute of Nuclear Physics of the Republic of Uzbekistan)

114. The Agency continued identifying issues of relevance to Member States in line with the Summary Report of the Joint Eighth and Ninth Review Meeting of the Contracting Parties to the Convention on Nuclear Safety (CNS) held in March 2023.[113]

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[110] This relates to operative paragraph 57 of resolution GC(68)/RES/8.

[111] This relates to operative paragraph 57 of resolution GC(68)/RES/8.

[112] This relates to operative paragraph 6 of resolution GC(68)/RES/8.

[113] This relates to operative paragraph 61 of resolution GC(68)/RES/8.

115. The Agency took CNS outputs including the Summary Report of the Joint Eighth and Ninth Review Meeting into consideration when revising safety standards.[114]

116. In a collaboration between the Department of Nuclear Safety and Security and the Department of Nuclear Energy, the Agency continued to maintain the SMR Platform and progress with the implementation of the Nuclear Harmonization and Standardization Initiative (NHSI). Phase I activities were finalized by the end of 2024 and Phase II was initiated in 2025. The NHSI Regulatory Track developed collaborative processes for regulators in reviewing SMR designs, and Phase II focuses on piloting these processes and collecting feedback.[115]

117. The Agency continued to develop a safety report delineating detailed principles for design safety and regulation of future fusion power plants. *Experiences for Consideration in Fusion Power Plant Design Safety and Safety Assessment* (IAEA-TECDOC-2076) was published in December 2024.[116]

118. The Agency held a Technical Meeting on Design Safety, Safety Assessment and Regulatory Activities to Facilitate Further Development and Future Deployment of Fusion Facilities in Granada, Spain, in June 2025. The meeting served to disseminate TECDOCs and a draft IAEA Safety Report provisionally entitled *Safety and Regulation Considerations for Fusion Facilities,* and to discuss design safety, safety assessment and regulatory activities to facilitate the further development and enable the future deployment of fusion energy facilities.[117]

119. The Agency held the following International Generic Ageing Lessons Learned (IGALL) Phase 7 meetings: Working Group 1 on Mechanical Components in Leibstadt, Switzerland in September 2024 and Cologne, Germany in May 2025; Working Group 2 on Electrical and Instrumentation and Control Components) in Grenoble, France in October 2024 and Paks, Hungary in May 2025; Working Group 3 on Civil Structures in Väröbacka, Sweden in October 2024 and Beijing in May 2025; and Working Group 4 on Regulatory Oversight in Madrid in October 2024 and in Daejeon, Republic of Korea in April 2025. In addition, the First Phase 7 Steering Committee Meeting was held in Vienna in December 2024.[118]

120. The Agency held a Technical Meeting on Good Practices in Operation and Maintenance and Ageing Management Programmes for Research Reactors in Vienna in September 2024. The meeting provided a forum for sharing experiences related to good practices for operation and maintenance, and for implementation of ageing management practices for research reactors, as well as measures to minimize or mitigate the adverse effects of ageing.[119]

121. A new coordinated research project (CRP) entitled “Development of Time Limited Ageing Analyses to Support Continued Safe Operation of Research Reactors” was launched in 2024. The overall objective is to increase the knowledge and expertise of Member States in the area of ageing management and to improve the design, operation, utilization and safety of research reactors. The first research coordination meeting was organized in Vienna in February 2025.[120]

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[114] This relates to operative paragraphs 10 and 61 of resolution GC(68)/RES/8.

[115] This relates to operative paragraphs 10, 63 and 78 of resolution GC(68)/RES/8.

[116] This relates to operative paragraph 65 of resolution GC(68)/RES/8.

[117] This relates to operative paragraph 65 of resolution GC(68)/RES/8.

[118] This relates to operative paragraph 66 of resolution GC(68)/RES/8.

[119] This relates to operative paragraph 66 of resolution GC(68)/RES/8.

[120] This relates to operative paragraph 66 of resolution GC(68)/RES/8.

122. The Agency published *Periodic Safety Review for Nuclear Fuel Cycle Facilities* (Safety Reports Series No. 124) in December 2024 to provide technical information on, and practical examples of, the conduct of periodic safety review for a nuclear fuel cycle facility.[121]

123. The Agency held a Workshop on Periodic Safety Review for Research Reactors in Vienna in March 2025. The meeting provided a forum for the exchange of information and experience related to the establishment and implementation of a periodic safety review process for research reactors based on the Agency's safety standards.[122]

124. The Agency held a Technical Meeting for National Coordinators of the International Reporting System for Operating Experience on Recent Events at Nuclear Power Plants in Vienna in October 2024 and Training on International Reporting Systems for National Coordinators in Vienna in July 2024.[123]

125. The Agency continued to operate the External Events Notification System (EENS) for both real-time emergency management (including interface with the Agency's Incident and Emergency Centre) and periodic external events analysis, in order to disseminate lessons learned and support the development of relevant TECDOCs and guidelines for prevention and mitigation. A new EENS dashboard was made available for real-time statistics and correlations.[124]

126. The Agency organized a performance improvement training course for operators and regulators aligned with the *PROSPER Guidelines: 2022 Edition* (IAEA Services Series No. 10 (Rev. 1)) in Vienna in May 2024 and 2025. [125]

127. The Agency held a Technical Meeting on Identifying Good Practices and Improvement Opportunities for the Operational Safety Review Team (OSART) Missions to Nuclear Power Plants in Vienna in February 2025. The participants shared feedback from international experts, operators and regulators on OSART missions, collected ideas to improve Pre-OSART, OSART, and Corporate OSART missions, and exchanged best practices to help embarking countries prepare for Pre-OSART missions.[126]

128. The Agency developed a number of publications to consolidate the technical basis for safety assessments of multi-unit sites against combinations of extreme events, with a particular focus on SMRs, climate change, and the resilience and robustness of existing NPPs and those under construction or licensing to withstand previously unanticipated external events. These activities will be also supported by SEED review missions on this topic.[127]

129. The Agency held a Technical Meeting on the Protection of Nuclear Installations Against External Hazards in Vienna in October 2024, with 50 participants from 22 Member States discussing the latest

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[121] This relates to operative paragraph 67 of resolution GC(68)/RES/8.

[122] This relates to operative paragraph 67 of resolution GC(68)/RES/8.

[123] This relates to operative paragraph 67 of resolution GC(68)/RES/8.

[124] This relates to operative paragraph 67 of resolution GC(68)/RES/8.

[125] This relates to operative paragraph 67 of resolution GC(68)/RES/8.

[126] This relates to operative paragraph 67 of resolution GC(68)/RES/8.

[127] This relates to operative paragraph 68 of resolution GC(68)/RES/8.

topics and challenges in the field. The meeting featured sessions on the Noto Peninsula earthquake, the Risk-Informed Performance-Based approach, SMR design, and siting for waste repository facilities.[128]

130. The Agency has continued to work on the impact of climate change, including extreme weather events, and on the operation of NPPs, and has been developing safety reports and TECDOCs on event analysis, hazard development, NPP safety assessment and operational issues in relation to climate change scenarios.[129]

131. The Agency held the fourth Steering Committee Meeting and the Second Research Coordination Meeting of the CRP "Climate Change Challenges to the Safety of Nuclear Installations" in Vienna in December 2024 and June 2025, respectively.[130]

132. The Agency issued *Development and Application of Level 2 Probabilistic Safety Assessment for Nuclear Power Plants* (IAEA Safety Standards Series No. SSG-4 (Rev. 1)) as a preprint publication. The revised Specific Safety Guide now covers the assessment of multi-unit NPPs.[131]

133. The Agency continued preparations for the International Conference on Resilience of Nuclear Installations Against External Events from a Safety Perspective — Focus on Climate Change, to be held in Vienna in October 2025.[132]

134. In March 2025, the Agency published the conference proceedings of the International Conference on Topical Issues in Nuclear Installation Safety: Strengthening Safety of Evolutionary and Innovative Reactor Designs, held in 2022, and initiated the preparatory work for the 2026 edition of the conference, to be held in Vienna in June 2026.[133]

135. The Agency continued preparing two TECDOCs provisionally entitled *Major Safety Improvement Programs of Nuclear Power Plants Designed According to Earlier Standards: Modernization of Instrumentation and Control System* and *Demonstration of Software Reliability of Digital Instrumentation and Control Systems for Nuclear Power Plant Safety*.[134]

136. The Agency developed and piloted a Training Course on the Prevention, Mitigation and Assessment of Systematic Common Cause Failure in Instrumentation and Control Systems in Nuclear Power Plants.[135]

137. The Agency held a Technical Meeting on Severe Accident Analysis and Management for Non-Water Cooled Reactors in Vienna in October 2024, with a particular focus on high temperature gas cooled reactors and molten salt reactors. Participant discussions focused on identifying key challenges in severe accident analysis and approaches to managing them, and on examining regulatory challenges for non-water cooled reactors in relation to severe accidents. A major outcome of this meeting was the

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[128] This relates to operative paragraph 68 of resolution GC(68)/RES/8.

[129] This relates to operative paragraphs 68 and 69 of resolution GC(68)/RES/8.

[130] This relates to operative paragraphs 68 and 69 of resolution GC(68)/RES/8.

[131] This relates to operative paragraph 70 of resolution GC(68)/RES/8.

[132] This relates to operative paragraphs 68 and 69 of resolution GC(68)/RES/8.

[133] This relates to operative paragraph 72 of resolution GC(68)/RES/8.

[134] This relates to operative paragraph 73 of resolution GC(68)/RES/8.

[135] This relates to operative paragraph 73 of resolution GC(68)/RES/8.

development of several proposals for defining 'severe accident' in the context of non-water cooled reactors, which will greatly support the updating of *Safety of Nuclear Power Plants: Design* (IAEA Safety Standards Series No. SSR-2/1 (Rev. 1)) and relevant Safety Guides.[136]

138. The Agency completed the CRP entitled "Developing a Phenomena Identification and Ranking Table (PIRT) and a Validation Matrix, and Performing a Benchmark for In-Vessel Melt Retention", and continued the development of a TECDOC provisionally entitled *Developing a Phenomena Identification and Ranking Table and a Validation Matrix, and Performing a Benchmark for In-Vessel Melt Retention — Final Report of a CRP* to document its outcomes. The Agency held a Technical Meeting in Vienna in June 2025 to present and discuss the findings of the CRP with stakeholders, including researchers, policymakers and industry representatives, in order to maximize the impact and application of the CRP's outcomes.[137]

139. The Agency continued to work on the development of a TECDOC provisionally entitled *Safety Aspects of Equipment Qualification for Design Extension Conditions for Nuclear Power Plants*.[138]

140. The Agency held a Training Workshop on the Development of Severe Accident Management Guidelines Using the IAEA's Severe Accident Management Guideline Development Toolkit in Vienna in December 2024, using a modernized approach. The toolkit was demonstrated during the workshop, with practical examples for the development of severe accident management guidelines (SAMGs) as well as lessons learned from the development of national SAMGs and those for different water cooled reactor designs.[139]

141. The Agency held a Technical Meeting on Demonstration of Defence in Depth Implementation Using Probabilistic and Deterministic Approaches for Nuclear Power Plants in March 2025. The participants shared information among designers, licensees, operators, and regulators on practical examples of how to define and implement the defence in depth principle in a consistent and comprehensive way, specifically through the safety analysis using deterministic and probabilistic approaches. Participant discussions and findings from a questionnaire will be considered when finalizing the TECDOC under preparation and will provide inputs for the upcoming revision of the Agency's safety standards on design safety and safety assessment for NPPs.[140]

142. During the reporting period, the Agency continued to operate the International Reporting System for Operating Experience (IRS), the Incident Reporting System for Research Reactors (IRSRR) and the Fuel Incident Notification and Analysis System (FINAS).[141]

143. The Agency published *Joint IAEA and OECD/NEA Fuel Incident Notification and Analysis System (FINAS) Guidelines* (IAEA Services Series No. 14 (Rev. 1)) in September 2024. The number of Member States participating in FINAS increased from 39 to 41.[142]

144. The Agency held the biennial Technical Meeting for the National Coordinators of the Joint IAEA–OECD/NEA Fuel Incident Notification and Analysis System (FINAS) in September–October 2024 to exchange information on incidents submitted to FINAS, to discuss the implementation of

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[136] This relates to operative paragraph 74 of resolution GC(68)/RES/8.

[137] This relates to operative paragraph 74 of resolution GC(68)/RES/8.

[138] This relates to operative paragraph 74 of resolution GC(68)/RES/8.

[139] This relates to operative paragraph 76 of resolution GC(68)/RES/8.

[140] This relates to operative paragraph 76 of resolution GC(68)/RES/8.

[141] This relates to operative paragraph 77 of resolution GC(68)/RES/8.

[142] This relates to operative paragraph 77 of resolution GC(68)/RES/8.

corrective actions arising from these and other such incidents, and to discuss actions for improving the effectiveness of FINAS.[143]

145. Within the work on the SMR Platform, the Agency released a booklet on SMRs and their applications during the 68th regular session of the General Conference, providing an up-to-date overview of the Agency's work on SMRs. In partnership with the SMR Regulators' Forum, the Agency supported embarking countries, and countries expanding their nuclear programmes that have an interest in SMR deployment, by holding three Educational Workshops on Regulatory Challenges in Small Modular Reactors: one in Rio de Janeiro, Brazil in October 2024, one in Mumbai, India in December 2024 and one in Cape Town, South Africa in June 2025. These workshops allowed participants to discuss the challenges associated with the regulation of SMRs and approaches to overcoming them, including possible changes to regulatory requirements and practices based on the common positions developed by the SMR Regulators' Forum.[144]

146. The Agency organized meetings of the SMR Regulators' Forum in November 2024 and April 2025. During the meetings, the Forum continued to make progress in developing common positions on the topics selected for its Phase 4 and NHSI.[145]

147. During the reporting period, the Agency continued implementing the NHSI and held several in-person and virtual meetings under the NHSI Regulatory Track. Working Group 1 prepared a draft publication covering the key aspects of building a framework for regulators to share information, including obstacles to information sharing and potential solutions. In September 2024, Working Group 2 held its final meeting, on developing a process for multinational pre-licensing regulatory review that could include nuclear safety and security aspects of a reactor design. Working Group 3 held two meetings in September and November 2024 and prepared a draft publication on processes for leveraging other regulatory reviews, for ensuring that regulators work together during ongoing reviews, and for developing a plan to establish processes that could be used for dealing with regulatory differences while working together on regulatory reviews.[146]

148. The new activities introduced under Phase II of the NHSI Regulatory Track include the development of a regulatory cooperation toolkit that will assist in the implementation of the NHSI processes developed in Phase I. Member States contributing to this effort met in January and April 2025. The Agency began developing a regulatory cooperation and SMR regulation hub that will provide key information on SMR regulatory reviews. Two meetings were held in February and May 2025 to discuss the concept of the hub. Phase II also included the development of a step-by-step blueprint for a global regulatory review framework that was outlined during two meetings held in April and May 2025, respectively.[147]

149. The Agency held a Technical Meeting on Advanced Manufacturing and Qualification Programmes for New Materials for Small Modular Reactors and Non-Water Cooled Reactors: Safety Considerations in Vienna in November 2024, and a Technical Meeting on Progress in Performance Assessment and Regulation of Passive Safety Systems in Advanced Nuclear Power Plant Designs in Vienna in March 2025, to compile information for the future revision of relevant safety standards.[148]

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[143] This relates to operative paragraph 77 of resolution GC(68)/RES/8.

[144] This relates to operative paragraph 78 of resolution GC(68)/RES/8.

[145] This relates to operative paragraph 78 of resolution GC(68)/RES/8.

[146] This relates to operative paragraph 78 of resolution GC(68)/RES/8.

[147] This relates to operative paragraph 78 of resolution GC(68)/RES/8.

[148] This relates to operative paragraphs 72 and 78 of resolution GC(68)/RES/8.

150. The Agency published a TECDOC provisionally entitled *Handbook: Site Survey and Site Evaluation Aspects for Nuclear Installations, with Emphasis on a Graded Approach*, which provides guidelines and experience on the application of risk informed and performance based approaches to siting and safety assessment of SMRs in relation to external hazards.[149]

151. During the reporting period, five TECDOCs and four Safety Reports were being finalized, addressing hazard evaluation for natural scenarios and uncertainty control, in particular fault displacement, seismic and meteorological hazards, tsunamis, volcanic hazards and flooding, including as a result of climate change. The documents are particularly relevant for both SMR siting, where the application of a graded approach is essential for a proportionate application of safety requirements, and for the safety of existing fleets of large NPPs, where adaptation of protection in view of changing hazards is becoming urgent.[150]

152. The Agency held a Technical Meeting on the Optimization of Protection of Small Modular Reactors in Relation to External Events in Vienna in May 2025, addressing three main topics considered to be the most relevant to SMR deployment: the latest status of SMR designs related to external events, the development of TECDOCs considering SMR designs and external events, and the feedback from SMR deployment programmes in embarking Member States, including with regard to the effectiveness of the SEED missions already implemented.[151]

153. The Agency continued to develop risk informed and performance based approaches to the application of a graded approach to safety margins against external hazards, and to develop TECDOCs on uncertainty reduction in hazard analysis, in particular in relation to fault displacement, seismic and meteorological hazards, tsunamis, volcanic hazards and flooding.[152]

154. The Agency held a Joint IAEA–GIF Workshop on the Safety of Non-Water Cooled Reactors in Vienna in June 2025. The participants discussed the safety of advanced non-water cooled reactors, such as liquid metal cooled fast reactors (including sodium cooled fast reactors and lead cooled fast reactors), high temperature gas cooled reactors and molten salt reactors, with a focus on harmonizing safety approaches, design criteria and guidelines, and applying Agency safety standards for next generation reactors.[153]

155. The Agency continued the development of a Technical Report provisionally entitled *Design Safety and Security Considerations for Transportable Nuclear Power Plants*.[154]

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[149] This relates to operative paragraphs 68 and 78 of resolution GC(68)/RES/8.

[150] This relates to operative paragraphs 68 and 78 of resolution GC(68)/RES/8.

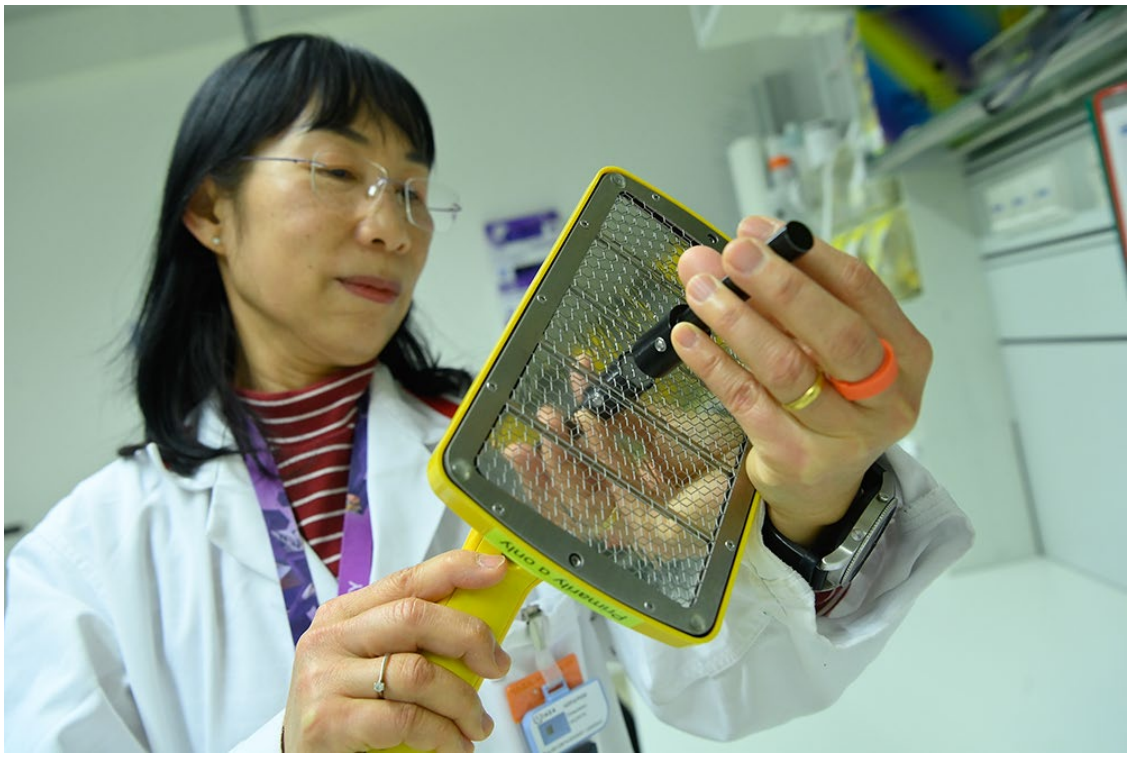
[151] This relates to operative paragraphs 68 and 78 of resolution GC(68)/RES/8.

[152] This relates to operative paragraphs 68 and 78 of resolution GC(68)/RES/8.

[153] This relates to operative paragraph 78 of resolution GC(68)/RES/8.

[154] This relates to operative paragraph 78 of resolution GC(68)/RES/8.

F. Radiation Safety and Environmental Protection



An Agency radiation monitoring technician conducts a functional test on a portable surface contamination meter using a sealed radioactive source. (Photo: IAEA)

156. The Agency held a Technical Meeting on the Implications of the International Commission on Radiation Units and Measurements Report 95 on Operational Quantities for External Radiation Exposure in Vienna in October 2024, which addressed questions and concerns related to implementation of the report and its impact on the Agency's safety standards. The meeting facilitated decision making and raised awareness among relevant stakeholders in Member States, ensuring continuous trust in the radiation protection system.[155]

157. The Agency held a Technical Meeting on Radiation Protection and Safety in High Level Background Radiation Areas in Vienna in September–October 2024 to provide an opportunity for Member States to share their experiences and perspectives of evaluating and managing exposure in these areas. The findings from the meeting indicated that, from a radiation protection standpoint, the requirements established in *Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards* (IAEA Safety Standards Series No. GSR Part 3) and the recommendations provided in existing Safety Guides are adequate for the management of the various exposure situations in such areas.[156]

158. The Agency held a Technical Meeting on Radiation Protection Challenges in Modern Nuclear Medicine in Vienna in April 2025 to discuss the status of modern practices in diagnostic and therapeutic nuclear medicine, to identify the challenges involved in radiation protection of patients, healthcare workers and the public, and to provide recommendations for synchronizing the actions of various

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[155] This relates to operative paragraph 79 of resolution GC(68)/RES/8.

[156] This relates to operative paragraph 79 of resolution GC(68)/RES/8.

stakeholders in upgrading existing guidance, education and training materials and radiation protection practices.[157]

159. The Agency held a Regional Meeting on Identifying and Addressing Gaps in Existing Radiation Exposure Situations, with Focus on Radon and other Natural Radiation Sources in Harare in March 2025. Participants discussed strategies to identify and address gaps related to radon and naturally occurring radioactive material (NORM) and contributed to the development of an action plan.[158]

160. The Agency continued to support the Information System on Occupational Exposure (ISOE), jointly operated by the Agency and the Nuclear Energy Agency of the Organisation for Economic Co-operation and Development (OECD/NEA). The Belarusian NPP joined the IAEA ISOE Technical Centre as an ISOE Licensee Member. The 2024 ISOE Management Board Meeting and the Bureau Meeting took place in Paris in December 2024, where it was decided that the Agency will host the meetings in Vienna in December 2025 and the IAEA ISOE Technical Centre will host the 2025 ISOE International Symposium in China.[159]

161. The Agency's Information System on Occupational Exposure in Medicine, Industry and Research — Industrial Radiography (ISEMIR-IR) continued routine operation and data was collected regularly from users. The system was promoted at various Agency meetings and training courses. The system was presented at the 2024 Symposium on Integration and Shared Experience in Radiological Protection organized by the Network for the Optimization of Occupational Radiation Protection in Latin America and the Caribbean, held in Recife, Brazil.[160]

162. During the reporting period, the 2023 ISEMIR-IR Annual Report and the 2024 ISEMIR-IR Global Survey Report were developed and published on the Agency's website. The Agency organized a webinar on ISEMIR-IR in September 2024. A consultancy meeting on ISEMIR-IR was held in April 2025 in Vienna to discuss the operational issues of the upgraded system and propose the annual work plan. The fourth global survey on ISEMIR-IR was launched in October 2024 to gather information on occupational exposure and experiences of radiation protection optimization in this sector.[161]

163. The Agency, together with the China Institute for Radiation Protection, held a Joint Regional Intercomparison Exercise on Individual Monitoring for External Exposure in the Asia and the Pacific Region from January to November 2024. Forty-five Member State monitoring services for assessment of external exposure participated in the exercise.[162]

164. Building on previous activities under the Enhancing Radiation Safety through Efficient and Modern Dosimetry project, the Agency initiated a ten-year major capital investment project to modernize equipment and data management systems for radiation monitoring in the Radiation Safety Technical Services Laboratory. This initiative is expected to attract extrabudgetary pledges from Member States and in-kind contributions from suppliers. Its implementation will enable the Laboratory to maintain its reputation as a reference model and a source of best practices for monitoring services in Members States assessing occupational exposure to ionizing radiation.[163]

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[157] This relates to operative paragraphs 79 and 85 of resolution GC(68)/RES/8.

[158] This relates to operative paragraph 79 of resolution GC(68)/RES/8.

[159] This relates to operative paragraph 80 of resolution GC(68)/RES/8.

[160] This relates to operative paragraph 81 of resolution GC(68)/RES/8.

[161] This relates to operative paragraph 81 of resolution GC(68)/RES/8.

[162] This relates to operative paragraph 82 of resolution GC(68)/RES/8.

[163] This relates to operative paragraph 82 of resolution GC(68)/RES/8.

165. The Agency launched the School of Drafting Regulations for the Management of Waste and NORM Residues at the Workshop on Establishing Radiation Safety Framework for the Management of Naturally Occurring Radioactive Material held in January 2025, and conducted three expert missions: one to assist the National Workshop on the Management of Naturally Occurring Radioactive Materials in Jakarta in November 2024; one to review draft regulations on NORM management and draft regulations on uranium/thorium mining in Indonesia; and one to identify challenges and opportunities in regulatory control of the management of NORM waste in Saudi Arabia in May 2025.[164]

166. The Agency, together with the Greek Atomic Energy Commission (GAEC), held a Joint Intercomparison Exercise on Radioanalytical Characterization of NORM Samples in the European Region. NORM reference material (phosphate ore and phosphogypsum) for analysis were prepared by GAEC and distributed to the participants during a regional workshop in Athens. Twenty-nine radioanalytical laboratories from 21 countries in the European region participated in the exercise.[165]

167. During the reporting period, the Agency initiated preparations for the 11th International Symposium on Naturally Occurring Radioactive Material (NORM XI) to be hosted by the Ghana Atomic Energy Commission, the Ghana Association for Radiation Protection, the African ALARA Network and Ghana's Nuclear Regulatory Authority, in cooperation with the Agency, in Accra in October 2025.[166]

168. The Agency continued to develop a new Safety Guide provisionally entitled *Decommissioning of Uranium Production Facilities* (DS551).[167]

169. The Agency undertook preparatory work for the International Conference on Radiation Protection in Medicine: X-Ray Vision, to be held in Vienna in December 2025.[168]

170. The Agency organized a webinar entitled "Improving the Evidence Base for Radiation Protection in Paediatric Diagnostic Radiology: Key Findings from the EPI-CT Study" in January 2025, and developed two e-learning modules on radiation protection in nuclear medicine in English (launched in April 2025) and on Radiation Protection in Interventional Procedures: Practical Tutorials in Spanish (launched in April 2025).[169]

171. The Agency published a package of training materials on radiation protection in diagnostic and interventional radiology in April 2025.[170]

172. The Agency continued the development of a Safety Report provisionally entitled *Education and Training for Building and Maintaining Competence in Radiation Protection in Medicine*, and the development of a TECDOC provisionally entitled *Detection of Unintended or Accidental Medical Exposures in Radiotherapy Through Patient Response and Recommendations*.[171]

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[164] This relates to operative paragraph 83 of resolution GC(68)/RES/8.

[165] This relates to operative paragraph 83 of resolution GC(68)/RES/8.

[166] This relates to operative paragraph 83 of resolution GC(68)/RES/8.

[167] This relates to operative paragraph 83 of resolution GC(68)/RES/8.

[168] This relates to operative paragraph 85 of resolution GC(68)/RES/8.

[169] This relates to operative paragraph 85 of resolution GC(68)/RES/8.

[170] This relates to operative paragraph 85 of resolution GC(68)/RES/8.

[171] This relates to operative paragraph 85 of resolution GC(68)/RES/8.

173. The Agency continued to support the implementation of the safety standards for radiation protection in medical exposure through regional and national technical cooperation projects.[172]

174. The Agency continued to support Member States in their efforts to use Safety in Radiation Oncology (SAFRON) and Safety in Radiological Procedures (SAFRAD) reporting and learning systems and to promote these systems through international and national events.[173]

175. Upon request, the Agency continued organizing workshops, training courses and other events on regulatory control of non-medical human imaging.[174]

176. The Agency held a Regional Workshop on Radiation Protection in the Context of Non-medical Human Imaging, Consumer Products, Inspection Devices and Commodities in Coimbra, Portugal in June 2025 to provide a platform to review project results, exchange best practices, and evaluate challenges and successes in radiation protection. Participants explored strategies for the continued application of radiation protection in areas such as non-medical human imaging, consumer products, commodities[175]

177. The Agency held two webinars on strategies for indoor radon mapping — Part 1 and Part 2 — in November 2024. The webinars emphasized the importance of developing radon maps, covering key aspects such as data collection, modelling and validation. They also addressed public awareness strategies. Participants explored factors affecting indoor radon, such as geology and building design, and were introduced to tools including geographic information systems for data analysis and map visualization.[176]

178. A Regional Training Course on Radon Communication, Prevention and Mitigation Methods was held in Cameroon in June 2025, in French.[177]

179. The Agency held a series of five webinars introducing Parts 1 and 2 of *Exposure Due to Radionuclides in Food Other Than During a Nuclear or Radiological Emergency* (IAEA Safety Report Series No. 114 and IAEA-TECDOC-2011) in April 2025.[178]

180. The Agency started a cooperative project with the United Arab Emirates on radionuclides in food and drinking water in non-emergency situations, for the purpose of which an expert mission was conducted in April 2025 to support the country's application of the publications *Exposure Due to Radionuclides in Food Other Than During a Nuclear or Radiological Emergency Part 1 and Part 2* - IAEA Safety Report Series No. 114 and IAEA-TECDOC-2011, respectively.[179]

181. The Agency held a Regional Workshop on Promoting International Harmonization for the Management of Radionuclides in Commodities/Consumer Goods in Buenos Aires in March 2025. The workshop presented a guidance document on requirements and regulations on radiation protection applicable to the control of commodities/consumer goods, describing the scope of regulatory control

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[172] This relates to operative paragraph 85 of resolution GC(68)/RES/8.

[173] This relates to operative paragraph 86 of resolution GC(68)/RES/8.

[174] This relates to operative paragraph 87 of resolution GC(68)/RES/8.

[175] This relates to operative paragraph 87 of resolution GC(68)/RES/8.

[176] This relates to operative paragraph 88 of resolution GC(68)/RES/8.

[177] This relates to operative paragraph 88 of resolution GC(68)/RES/8.

[178] This relates to operative paragraph 89 of resolution GC(68)/RES/8.

[179] This relates to operative paragraph 89 of resolution GC(68)/RES/8.

related to the amount of radionuclides in non-food commodities supplied for public use in Member States of the Latin America region.[180]

182. The Agency held a fourth consultancy meeting to advance drafting of the Safety Report provisionally entitled Radiation Safety in Trade of Non-food Commodities in Vienna in August 2024.[181]

G. Transport Safety

The Open-Ended Meeting of Legal and Technical Experts on the Draft Code of Conduct on the Facilitation of the Safe and Secure Transport of Radioactive Material, held at the Agency's Headquarters in Vienna, July 2024 (Photo: IAEA)

183. In July 2024, the Agency held the Open-Ended Meeting of Legal and Technical Experts on the Draft Code of Conduct on the Facilitation of the Safe and Secure Transport of Radioactive Material in Vienna, as proposed by the Denial of Shipment Working Group. The Draft Code of Conduct was developed by the Denial of Shipment Working Group and submitted to the Secretariat in July 2023 for further consideration. The Open-Ended Meeting concluded to not continue with the further establishment of a Code of Conduct. The Agency held the Fourth Meeting of the Denial of Shipment Working Group in Vienna in February 2025 to review the progress of the Working Group and its sub-

[180] This relates to operative paragraph 90 of resolution GC(68)/RES/8.

[181] This relates to operative paragraph 91 of resolution GC(68)/RES/8.

working groups, and to consider the on-going activities of the Agency to help address the issue of delay and denial of shipment.[182]

184. The Agency invited representatives from the International Maritime Organization (IMO), the International Civil Aviation Organization and the United Nations Economic Commission for Europe to the Fourth Meeting of the Denial of Shipment Working Group. The organizations shared their respective efforts in facilitating the transport of radioactive material by air and sea, and discussed various factors contributing to delays and denials, in particular the role of carriers and port authorities. Additionally, they explored measures that could be taken to mitigate these challenges.[183]

185. At the meeting of TRANSSC in Vienna in November 2024, the Denial of Shipment Working Group presented its report and TRANSSC discussed the Working Group's recommendations to address the problem of delays and denials by making changes to the transport safety standards. The Agency briefed various forums such as INSAG, the Advisory Group on Nuclear Security and RASSC on the Denial of Shipment Working Group's work.[184]

186. The Agency held a Workshop for National Focal Points on Denial of Shipment, in Vienna in November 2024, to provide training to National Focal Points in their role and responsibilities, and to allow them to exchange best practices and draft national action plans to facilitate the safe and secure transport of radioactive material[185]

187. The Agency continued to provide support, as needed, to the process of informal dialogue between coastal and shipping States.[186]

188. The Agency held a Regional Workshop on the Design Safety Assessment of Transport Packages Containing Radioactive Material in Taiyuan, China in January 2025. The workshop guided Member States in the use of *Format and Content of the Package Design Safety Report for the Transport of Radioactive Material* (IAEA Safety Standards Series No. SSG-66) and compliance with *Regulations for the Safe Transport of Radioactive Material* (IAEA Safety Standards Series No. SSR-6 (Rev. 1)).[187]

189. The Agency held a Regional Workshop on the Safe Transport of Radioactive Material in Sydney, Australia in April 2025 to raise awareness in Member States of the use of the draft fifth edition *Safe Transport of Radioactive Material* (Training Course Series No. 1), and to support compliance with SSR-6 (Rev. 1). The Agency continued the revision of Training Course Series No. 1 following a feedback analysis, resulting in a restructured format with two sections: one for all Member States and another for those involved in package design and manufacturing.[188]

190. Noting an increase in course participants, the Agency continued to update the e-learning platform on transport safety, including by translating specific modules into Arabic, Chinese, French and Russian, and by developing new modules on the transport of NORM, on transport by sea (in collaboration with

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[182] This relates to operative paragraph 97 of resolution GC(68)/RES/8.

[183] This relates to operative paragraphs 92 and 98 of resolution GC(68)/RES/8.

[184] This relates to operative paragraphs 92 and 97 of resolution GC(68)/RES/8.

[185] This relates to operative paragraphs 92 and 97 of resolution GC(68)/RES/8.

[186] This relates to operative paragraph 97 of resolution GC(68)/RES/8.

[187] This relates to operative paragraph 99 of resolution GC(68)/RES/8.

[188] This relates to operative paragraph 99 of resolution GC(68)/RES/8.

IMO, to train personnel at seaports and on ships), and on the interface of safety and security during transport.[189]

191. The Secretariat continued to support interested Member States, upon request, in their efforts to further enhance mutual confidence in the area of transport safety.[190]

H. Safety of Spent Fuel and Radioactive Waste Management

The Agency launches the first School of Drafting Regulations on Radioactive Waste and Decommissioning Safety, Vienna, February 2025 ((Photo: IAEA)

192. The Agency finalized for publication the proceedings of the International Conference on the Safety of Radioactive Waste Management, Decommissioning, Environmental Protection and Remediation: Ensuring Safety and Enabling Sustainability, held in Vienna in November 2023. The Agency disseminated the Conference findings at related events, including the International Conference on Small Modular Reactors and their Applications in October 2024, to raise the profile of the relationship between safety and sustainability, and continued to design a follow-up workshop exploring key topics raised by participants.[191]

193. The Agency continued to work on the revision of *Predisposal Management of Radioactive Waste* (IAEA Safety Standards Series No. GSR Part 5) and on the development of a new Safety Guide provisionally entitled *National Policies and Strategies for the Safety of Radioactive Waste and Spent*

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[189] This relates to operative paragraph 99 of resolution GC(68)/RES/8.

[190] This relates to operative paragraph 101 of resolution GC(68)/RES/8.

[191] This relates to operative paragraphs 104 and 113 of resolution GC(68)/RES/8.

Fuel Management, Decommissioning and Remediation (DS526). Emerging recommendations continued to be discussed at relevant technical meetings to gain additional input and feedback.[192]

194. During the reporting period, the Agency continued to work on the revision of *Storage of Radioactive Waste* (IAEA Safety Standards Series No. WS-G-6.1) and *The Safety Case and Safety Assessment for the Predisposal Management of Radioactive Waste* (IAEA Safety Standards Series No. GSG-3). The Agency also continued working on the development of other technical publications, training materials and e-learning content on topics related to the safety of predisposal management and of near surface, borehole and geological disposal of radioactive waste and spent nuclear fuel.[193]

195. The Agency continued to support Member States in the implementation of borehole disposal facilities for disused sealed radioactive sources. Activities also continued on exploring and evaluating the safety of the disposal of high level radioactive waste and spent fuel in deep boreholes, the applicability of Agency safety standards for the development of multinational disposal concepts, and the development of specific guidance for the application of Agency safety standards to different options for the disposal of disused sealed radioactive sources.[194]

196. A consultancy meeting was held in February 2025 to draft terms of reference for the new international project on the Safety Case for All Radioactive Waste Management Activities which will include activities on the safety case and safety assessment of predisposal and disposal of all types of radioactive waste.[195]

197. The Agency held a Technical Meeting on the Safety of Radioactive Waste and Spent Fuel Management, and the Decommissioning of Small Modular Reactors in Vienna in February 2025 to raise awareness and enhance understanding of regulatory, safety and technical aspects, to address infrastructure needs, and to facilitate collaboration on the safe management of radioactive waste, spent fuel and decommissioning throughout the lifetime of an SMR facility.[196]

198. The Agency continued to develop a draft TECDOC on the safe management of radioactive waste and spent fuel from SMRs and non-water cooled reactors, and initiated a project on establishing a repository of knowledge on the safe management of waste, spent fuel, decommissioning and transport of SMRs.[197]

199. The Agency organized the School of Drafting Regulations on Radioactive Waste and Decommissioning Safety in Vienna in February 2025, which was attended by 27 participants from 12 Member States of the Europe and Central Asia regions.[198]

200. The Secretariat continued to emphasize that storage is an interim step for the management of radioactive waste and that disposal is the long term solution, as set out in Agency's safety standards. This key concept underpinned all activities on storage.[199]

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[192] This relates to operative paragraphs 105 and 113 of resolution GC(68)/RES/8.

[193] This relates to operative paragraphs 105 and 106 of resolution GC(68)/RES/8.

[194] This relates to operative paragraph 105 of resolution GC(68)/RES/8.

[195] This relates to operative paragraphs 105 and 106 of resolution GC(68)/RES/8.

[196] This relates to operative paragraphs 106 and 113 of resolution GC(68)/RES/8.

[197] This relates to operative paragraphs 106 and 113 of resolution GC(68)/RES/8.

[198] This relates to operative paragraphs 107 and 113 of resolution GC(68)/RES/8.

[199] This relates to operative paragraph 107 of resolution GC(68)/RES/8.

201. The Agency launched the School of Drafting Regulations for the Management of NORM Residues/Waste, conducted advisory missions on establishing a regulatory framework for the management of NORM activities and NORM residues, performed reviews of draft national regulations and regulatory guidance related to NORM residues, and continued to support national training and awareness workshops on the safe management of NORM residues and waste.[200]

202. The Secretariat continued to provide support under the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (the London Convention) on matters pertaining to the presence of radiological substances in the oceans.[201]

203. The Agency advanced the development of the Safety Report provisionally entitled *Derivation of Specific Clearance Levels for Reuse/Recycling of Materials and for Disposal of Waste in Landfills,* and accompanying training materials on the derivation of specific clearance levels are under development.[202]

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[200] This relates to operative paragraphs 114 and 117 of resolution GC(68)/RES/8.

[201] This relates to operative paragraph 93 of resolution GC(68)/RES/8.

[202] This relates to operative paragraph 92 of resolution GC(68)/RES/8.

I. Safety in Decommissioning, Uranium Mining and Processing, and Environmental Remediation

Local and international experts discussing the ongoing remediation works at Mailuu-Suu uranium legacy site in Kyrgyzstan, conducted under the auspices of the Coordination Group for Uranium Legacy Sites (CGULS) (Photo: IAEA)

204. The Agency initiated the revision of the Safety Guide entitled *Safety Assessment for the Decommissioning of Facilities Using Radioactive Material* (IAEA Safety Standards Series No. WS-G-5.2); the revised document is provisionally entitled *Safety Assessment for the Decommissioning of Facilities*, with the first consultancy meeting held in June 2025.[203]

205. The Agency continued to work on the revision of the Safety Guide entitled *Release of Sites from Regulatory Control on Termination of Practices* (IAEA Safety Standards Series No. WS-G-5.1); the revised document is provisionally entitled *Release of Sites from Regulatory Control on Termination of Activities in Planned Exposure Situation* (DS542). The Agency also continued to work on the revision of the Safety Report entitled *Decommissioning Strategies for Facilities Using Radioactive Material* (IAEA Safety Reports Series No. 50).[204]

[203] This relates to operative paragraph 113 of resolution GC(68)/RES/8.

[204] This relates to operative paragraph 113 of resolution GC(68)/RES/8.

206. The Agency also continued to work on the development of the new draft Safety Guides provisionally entitled *Long Term Post-Remediation Management of Areas Affected by Past Activities or Events* (DS538) and *Radiation Protection and Safety in Existing Exposure Situations* (DS544).[205]

207. The Agency continued to develop e-learning materials on the safety of decommissioning and remediation.[206]

208. The Agency supported the activities of the International Decommissioning Network (IDN) through the preparations for the Biennial Forum of the IDN planned for December 2025 in Vienna. The Agency also supported the activities of the Network on Environmental Management and Remediation.[207]

209. The Agency supported the planning and implementation of activities on decommissioning, remediation and management of NORM residues, which were coordinated by the regional safety networks of the GNSSN.[208]

210. Under the Methods for Radiological and Environmental Impact Assessment (MEREIA) programme, participants from Member States used a common dose assessment approach to assess doses to humans and the environment as part of a NORM legacy site case study.[209]

211. In April 2025, the Agency held a virtual Second Training Workshop on Methods for Radiological and Environmental Impact Assessment (MEREIA) for young professionals and entry level professionals, which guided participants through the steps involved in performing an assessment of the expected radiological impacts of the operation of a uranium ore processing facility using exercises.[210]

212. The Agency continued to implement CRPs to enhance the safety of nuclear and radiation technologies, including the CRP entitled “Transfer of Radionuclides in Arid and Semi-Arid Environments for Radiological Environmental Impact Assessment”.[211]

213. The Agency organized a Technical Meeting on Preparation for Decommissioning of Research Reactors in Vienna in April 2025 to discuss issues related to preparation for decommissioning and ensuring a safe and effective transition from operation to decommissioning. It also provides participating Member States with a forum to share experiences of the consideration of ultimate decommissioning in the design and operation phases of research reactors.[212]

214. The Agency held a Workshop on Preparation for Decommissioning for Nuclear Fuel Cycle Facilities in Vienna in May 2025 to exchange experience and practical knowledge related to safety and operational aspects in preparation for decommissioning nuclear fuel cycle facilities.[213]

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[205] This relates to operative paragraphs 67 and 113 of resolution GC(68)/RES/8.

[206] This relates to operative paragraph 113 of resolution GC(68)/RES/8.

[207] This relates to operative paragraph 113 of resolution GC(68)/RES/8.

[208] This relates to operative paragraphs 11, 113 and 122 of resolution GC(68)/RES/8.

[209] This relates to operative paragraph 83 of resolution GC(68)/RES/8.

[210] This relates to operative paragraph 114 of resolution GC(68)/RES/8.

[211] This relates to operative paragraph 134 of resolution GC(68)/RES/8.

[212] This relates to operative paragraph 113 of resolution GC(68)/RES/8.

[213] This relates to operative paragraph 113 of resolution GC(68)/RES/8.

215. The Basic Training Course on the Safe Decommissioning of Facilities and the Course on Radiological Characterization for Decommissioning were launched on the Agency's CLP4NET platform for self-learning.[214]

216. The Agency maintained the IAEA Nuclear Wiki, which includes a collection of decommissioning case studies and technologies available to external experts to support the exchange of lessons learned and good practices.[215]

217. The Agency held the Annual Meeting of the Coordination Group for Uranium Legacy Sites in November 2024, as well as a consultancy meeting in April 2025 to finalize the third edition of the *Strategic Master Plan for Environmental Remediation of Uranium Legacy Sites in Central Asia*. Both meetings were held in Vienna.[216]

218. The Agency held an International Workshop of the Regulatory Forum for Safety of Uranium Production and Naturally Occurring Radioactive Material in Bangkok in May 2025.[217]

219. The Agency organized expert missions to support the development of national programmes on remediation in Kyrgyzstan, Tajikistan and Uzbekistan under CGULS.[218]

220. The Agency held a Technical Meeting of the International Working Forum on Regulatory Supervision of Legacy Sites on Safety Assessment and Environmental Impact Assessment in Remediation in Vienna in January 2025 and developed the Forum's work plan for 2025–2028.[219]

221. The Agency continued to develop REMPOR, the remediation portal, to provide easy access to relevant environmental remediation data and information.[220]

222. The Agency continued to develop training materials for the application of the Safety Guide entitled *Management of Residues Containing Naturally Occurring Material from Uranium Production and Other Activities* (IAEA Safety Standards Series No. SSG-60) and to update training materials on the safety of uranium production.[221]

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[214] This relates to operative paragraph 113 of resolution GC(68)/RES/8.

[215] This relates to operative paragraph 113 of resolution GC(68)/RES/8.

[216] This relates to operative paragraphs 113 and 115 of resolution GC(68)/RES/8.

[217] This relates to operative paragraphs 113 and 115 of resolution GC(68)/RES/8.

[218] This relates to operative paragraph 115 of resolution GC(68)/RES/8.

[219] This relates to operative paragraphs 113 and 116 of resolution GC(68)/RES/8.

[220] This relates to operative paragraph 113 of resolution GC(68)/RES/8.

[221] This relates to operative paragraph 83 of resolution GC(68)/RES/8.

J. Capacity Building

Participants engaged in case study discussions during the interregional Nuclear Safety Assessment Academy for Nuclear Power Plants (NPPs), held in Cairo in February 2025. (Photo: IAEA)

223. The Agency continued to assist Member States, upon request, to assess their capacity building infrastructure and develop strategies for establishing an effective programme consistent with the Agency's methodology for capacity building.[222]

224. The Agency conducted Education and Training Appraisal in Radiation Protection and Safety missions in Brazil in July 2024 and in Cameroon in June 2025.[223]

225. The Agency continued developing training material for radiation protection officers in specific facilities and activities, including a range of syllabi, and continued to offer related train the trainers workshops.[224]

226. The Agency held a Regional Training Course on Education and Training Strategies: Requirements, Competence and Learning Pathways for Qualified Experts and Radiation Protection Officers in support of national strategies for education and training in the Caribbean countries in Saint Lucia in June 2025, and train the trainer sessions in radiation protection in Botswana in September 2024 and the Philippines in March 2025.[225]

227. The Agency developed the SMR Safety Academy and the Nuclear Safety Assessment Academy for NPPs, which are planned to be conducted yearly at interregional events, the first of which was held in Cairo in February 2025. From 2025, the SMR Safety Academy expanded to include a second module

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[222] This relates to operative paragraph 117 of resolution GC(68)/RES/8.

[223] This relates to operative paragraphs 117 and 120 of resolution GC(68)/RES/8.

[224] This relates to operative paragraph 117 of resolution GC(68)/RES/8.

[225] This relates to operative paragraph 117 of resolution GC(68)/RES/8.

aimed at enhancing Member State capabilities in technical safety reviews of SMRs and other advanced reactor technologies.[226]

228. The Agency began developing a global directory of TSOs, including those providing individual monitoring, and workplace and calibration services.[227]

229. The Agency continued finalizing an information technology (IT) tool to facilitate nuclear safety knowledge management self-assessment, and developed corresponding guidance to assist Member States in assessing their existing status and identifying gaps at the national level, based on *Managing Nuclear Safety Knowledge: National Approaches and Experience* (IAEA Safety Reports Series No. 105).[228]

230. The Agency continued to develop the model academic curriculum for a master's degree programme in nuclear safety and nuclear security to assist Member States in ensuring the long term availability of qualified staff needed for establish and sustain a national nuclear safety and nuclear security infrastructure.[229]

231. The Agency continued to conduct the International School on Nuclear and Radiological Leadership for Safety, in Mexico City in September–October 2024, in Siem Reap, Cambodia and in Trieste, Italy in November 2024, in Abu Dhabi in December 2024, and in Hiratsuka and Iwaki, Japan in February 2025.[230]

232. The Agency held a Workshop on the Use of a Graded Approach in the Application of Safety Requirements for Nuclear Fuel Cycle Facilities in Vienna in June 2025 to provide Member States with a forum to discuss and exchange experience on this topic.[231]

233. The Agency conducted two Education Training and Appraisal (EduTA) missions in Brazil in July 2024 and in Cameroon in July 2025, and published the *Guidelines for the Education and Training Appraisal in Radiation Protection and Safety (EduTA)* (IAEA Services Series No. 51) in 2025.[232]

234. The Agency continued to offer capacity building activities such as trainings, workshops, self-assessment support and independent assessments in the areas of safety regulations, the licensing process, review and assessment, design safety and safety assessment, regulatory inspection and enforcement, and leadership for safety.[233]

235. The Agency held a Training Course on Effective Operating Experience and Continuous Performance Improvement Programmes at Nuclear Power Plants in Vienna in May 2025 to help monitor and improve nuclear safety performance that has an indirect impact on an organization's safety culture.[234]

236. In October 2024, the Agency held an event to demonstrate the potential of AI, specifically large language models, in understanding safety requirements for the decommissioning and waste management

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[226] This relates to operative paragraph 117 of resolution GC(68)/RES/8.

[227] This relates to operative paragraph 117 of resolution GC(68)/RES/8.

[228] This relates to operative paragraphs 120 and 121 of resolution GC(68)/RES/8.

[229] This relates to operative paragraph 120 of resolution GC(68)/RES/8.

[230] This relates to operative paragraph 120 of resolution GC(68)/RES/8.

[231] This relates to operative paragraph 57 of resolution GC(68)/RES/8.

[232] This relates to operative paragraphs 117, 120 and 124 of resolution GC(68)/RES/8.

[233] This relates to operative paragraphs 117 and 120 of resolution GC(68)/RES/8.

[234] This relates to operative paragraphs 117 and 120 of resolution GC(68)/RES/8.

of nuclear fuel cycle facilities. The event highlighted how AI can support tasks such as decommissioning plan preparation, safety analysis and regulatory compliance. Discussions focused on leveraging AI to enhance efficiency, improve decision making and ensure compliance with established safety standards.[235]

237. The Secretariat continued to provide technical, administrative and project management support to regional networking organizations of nuclear and radiation regulators, including the ANSN, the Arab Network of Nuclear Regulators, the Forum of Nuclear Regulatory Bodies in Africa, the Technical and Scientific Support Organization Forum, EuCAS, FORO, the Global Nuclear Safety and Security Communication Network, and the Caribbean Radiation Safety and Security Network.[236]

238. The Agency continued to work with the GNSSN Steering Committee and other stakeholders to improve the IT infrastructure for the GNSSN and its associated regional and thematic networks. It also continued to support the translation into official Agency languages of the technical publications, which would be of mutual benefit to the associated networks withing the GNSSN framework.[237]

239. The Agency held the annual Meeting of the Steering Committee on Regulatory Capacity Building in Vienna in October 2024 to seek advice from Member States on the implementation of a strategic approach to capacity building activities in nuclear safety, and to exchange information on the status of the establishment of national strategies in this area. The Bureau Meeting to the Steering Committee on Regulatory Capacity Building was held in Vienna in June 2025.[238]

240. The Agency implemented the Postgraduate Educational Course in Radiation Protection and the Safety of Radiation Sources in Argentina, Ghana, Greece, Jordan, Malaysia and Morocco, in a number of languages.[239]

241. The Agency continued to assist small island developing States in the Caribbean and Pacific regions to develop their regulatory infrastructure for radiation safety and for security of radioactive material through RIDPs.[240]

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[235] This relates to operative paragraphs 5, 117 and 120 of resolution GC(68)/RES/8.

[236] This relates to operative paragraphs 11, 120, 122 and 126 of resolution GC(68)/RES/8.

[237] This relates to operative paragraphs 11, 12 and 122 of resolution GC(68)/RES/8.

[238] This relates to operative paragraph 125 of resolution GC(68)/RES/8.

[239] This relates to operative paragraph 125 of resolution GC(68)/RES/8.

[240] This relates to operative paragraphs 125 and 126 of resolution GC(68)/RES/8.

K. Safe Management of Radioactive Sources

Participants navigating RAIS+ and performing exercises during a regional RAIS+ training course held in Centurion in the Republic of South Africa in May 2025 (Photo: IAEA)

242. The Agency continued to promote and further develop RAIS+ to address Member States' need for an enhanced tool to assist in performing core regulatory functions and in the establishment and maintenance of a national radiation sources register that is highly secure and can easily be customized to national needs. The Agency held four regional RAIS+ training courses (for Latin America in September 2024, for Europe in October 2024, for the Caribbean in March–April 2025 and for Africa in May 2025) with a focus on software installation, data migration and process customization to align with the Member State regulatory framework and core regulatory functions for the control of radiation sources. A pool of IT experts was established in January 2025 to provide online support to Member States with the first step of installation and customization of the software. Seventeen Member States received online support (Benin, Brunei, Cameroon, Colombia, Costa Rica, Croatia, Cyprus, Ecuador, Grenada, Guyana, Latvia, Mauritius, Peru, South Africa, Togo and Zambia). Two expert missions were held on site to set up RAIS+ and provide advisory services on RAIS+ customization and usage: in Ethiopia in October 2024, and in North Macedonia in February 2025.[241]

243. The Agency continued developing a TECDOC on establishing financial provisions for the management of disused radioactive sources. Regional workshops on the establishment of financial provisions and disused radioactive sources management options were organized.[242]

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[241] This relates to operative paragraph 129 of resolution GC(68)/RES/8.

[242] This relates to operative paragraph 129 of resolution GC(68)/RES/8.

244. The Agency continued to support Member States in establishing a national strategy for regaining control of orphan sources, including by providing, upon request, training in identifying orphan sources.[243]

245. The Agency continued fostering the exchange of information on the implementation of the Code of Conduct on the Safety and Security of Radioactive Sources and its associated Guidance on the Import and Export of Radioactive Sources and Guidance on the Management of Disused Sources through the organization of meetings and of regional and interregional workshops. Efforts to improve the Code of Conduct platform were ongoing.[244]

246. The Agency promoted the electronic toolkit — a web platform for information exchange on control of radioactive material inadvertently incorporated into scrap metal or products of the metal recycling industry — among interested Member States, as appropriate, and continued to update the contents of the toolkit. The Agency also promoted e-learning materials on the same topic by encouraging participants to share information regarding such radioactive material through various mechanisms.[245]

L. Nuclear and Radiological Incident and Emergency Preparedness and Response

During the ConvEx 3 in Romania, the IAEA simulated the delivery of assistance to the "Accident State". This assistance can take the form of radiation monitoring, medical or other support. During

[243] This relates to operative paragraph 131 of resolution GC(68)/RES/8.

[244] This relates to operative paragraph 132 of resolution GC(68)/RES/8.

[245] This relates to operative paragraph 133 of resolution GC(68)/RES/8.

this exercise, the IAEA coordinated international assistance for land-based and aerial radiation monitoring. (Photo: Justin Jin)

247. The Agency continued to conduct emergency exercises, including those with emergency scenarios triggered by nuclear security events, through implementation of the Convention Exercise (ConvEx) regime as defined in the *Operations Manual for Incident and Emergency Communication* (Emergency Preparedness and Response Series, EPR-IEComm 2019). The annual exercise programme for 2024 was implemented and the schedule of exercises for 2025 was developed and initiated. Thirteen ConvEx exercises were conducted during the reporting period.[246]

248. Member States were encouraged to host Level 2 Convention Exercises (ConvEx-2) exercises and these were held during the reporting period in Pakistan (ConvEx-2c, October 2024), Chile (ConvEx-2d, November 2024), Republic of Korea (ConvEx-2e, November 2024) Malawi (ConvEx-2e, November 2024), the USA (ConvEx-2e, March 2025) and Slovenia (ConvEx-2e, April 2025). ConvEx-2e exercises, four of which were conducted during the reporting period, are dedicated to assessment and prognosis.[247]

249. The Agency conducted the seventh large scale Level 3 Convention Exercises (ConvEx-3) exercise in June 2025. The exercise was hosted by Romania, two decades after the country hosted the first ConvEx-3 exercise. This major exercise simulated a severe nuclear emergency at the Cernavodă NPP; its 36-hour duration and its objectives offered a unique opportunity to test and strengthen global preparedness and response arrangements.[248]

250. The Agency continued to deliver capacity building activities such as training events and expert missions to support Member States to develop justified and optimized protection strategies for a nuclear or radiological emergency in line with the Agency safety standards.[249]

251. The Agency continued to develop a new Safety Guide provisionally entitled *Protection Strategy for a Nuclear or Radiological Emergency* (DS534) based on the existing publication *Considerations in the Development of a Protection Strategy for a Nuclear or Radiological Emergency* (Emergency Preparedness and Response Series, EPR-Protection Strategy (2020)).[250]

252. The Agency continued to provide support to Member States for strengthening their national arrangements for EPR, by developing guidance in this field, implementing training and other capacity building activities, providing peer review and expert services and supporting the implementation of EPR related national and regional projects.[251]

253. The Agency continued to consolidate the use of the assessment and prognosis tools, including the use of the nuclear security event assessment tool in the ConvEx-2d exercise with Chile in November 2024.[252]

254. The Agency continued to conduct in-person and virtual training sessions on the assessment and prognosis process and tools during a nuclear or radiological emergency. Such sessions were incorporated into the Workshops on Arrangements for Notification, Reporting and Assistance in Nuclear or

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[246] This relates to operative paragraph 136 of resolution GC(68)/RES/8.

[247] This relates to operative paragraphs 137 and 140 of resolution GC(68)/RES/8.

[248] This relates to operative paragraph 137 of resolution GC(68)/RES/8.

[249] This relates to operative paragraph 138 of resolution GC(68)/RES/8.

[250] This relates to operative paragraphs 138 and 141 of resolution GC(68)/RES/8.

[251] This relates to operative paragraph 140 of resolution GC(68)/RES/8.

[252] This relates to operative paragraph 140 of resolution GC(68)/RES/8.

Radiological Incidents and Emergencies held in October 2024, January 2025 (for Permanent Missions), February 2025 and, in a virtual format, in May 2025 (for countries that had registered to participate in ConvEx-3 in June 2025). A Workshop on Assessment and Prognosis During a Nuclear or Radiological Emergency was held in Vienna in April 2025, with the participation of nine Member States.[253]

255. The Agency continued to provide Member States with training and support in implementing the recommendations of *Arrangements for Public Communication in Preparedness and Response for a Nuclear or Radiological Emergency* (IAEA Safety Standards Series No. GSG-14), by delivering webinars and hybrid training. National workshops on communication with the public in a nuclear or radiological emergency were conducted in Islamabad (November 2024), Riga (January 2025) and Ljubljana (March 2025). Virtual training on the same topic was provided for the Africa region in October 2024 and for the Asia region in January 2025; this training was designed to supplement an updated e-learning course for all Member States launched in April 2024.[254]

256. The Agency conducted activities to improve the e-learning modules on EPR. Within the reporting period, the e-learning module on medical response was updated based on the revised EPR publication *Generic Procedures for Medical Response During a Nuclear or Radiological Emergency* (Emergency Preparedness and Response Series, EPR-Medical 2024), and one new e-learning module was developed on first response in a nuclear or radiological emergency.[255]

257. The Agency compiled feedback on the implementation of EPR-related safety standards and EPR Series publications received from committees, consultancy meetings, technical meetings, workshops, peer reviews and reviews of self-assessment by Member States.[256]

258. The Agency continued to provide support to Member States to strengthen their EPR framework and arrangements by conducting EPREV missions upon request. During the reporting period, preparations were made for an EPREV mission to Latvia planned for October 2025.[257]

259. The Agency continued preparations for the International Conference on Nuclear and Radiological Emergencies: Building the Future in an Evolving World, which will be held in Riyadh in November–December 2025. The Conference will explore how international organizations and Member States can maximize the effectiveness, sustainability and resilience of their EPR arrangements and disseminate the knowledge necessary to develop, enhance and sustain their capability to respond effectively to actual and potential nuclear and radiological incidents and emergencies, irrespective of the initiator.[258]

260. The Agency maintained the publicly accessible Nuclear Events Web-based System (NEWS), providing continuous updates on International Nuclear and Radiological Event Scale (INES) ratings published by Member States.[259]

261. The Agency continued to train Member States on reporting mechanisms using the Unified System for Information Exchange in Incidents and Emergencies (USIE) and International Radiation Monitoring

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[253] This relates to operative paragraphs 140, 144, 146 and 150 of resolution GC(68)/RES/8.

[254] This relates to operative paragraph 141 of resolution GC(68)/RES/8.

[255] This relates to operative paragraph 141 of resolution GC(68)/RES/8.

[256] This relates to operative paragraph 141 of resolution GC(68)/RES/8.

[257] This relates to operative paragraph 141 of resolution GC(68)/RES/8.

[258] This relates to operative paragraph 142 of resolution GC(68)/RES/8.

[259] This relates to operative paragraph 147 of resolution GC(68)/RES/8.

Information System (IRMIS) during the Workshops on Arrangements for Notification, Reporting and Assistance in Nuclear or Radiological Incidents and Emergencies.[260]

262. USIE users received information on 35 events communicated by Member States in the reporting period. More than 220 posts regarding the situation in Ukraine were published on the USIE platform. The USIE Exercise website was used by the Secretariat and Member States for over 28 exercises in the reporting period. In addition, 22 INES ratings were submitted through USIE and shared on NEWS. [261]

263. New core features of the USIE web portal were successfully implemented, including a user friendly design for use on a mobile device. The new version of the web portal is planned for launch in 2026.[262]

264. The Agency continued to conduct Response and Assistance Network (RANET) related activities to address the conclusions of the 12th Meeting of the Representatives of Competent Authorities Identified under the Early Notification Convention and the Assistance Convention, held in Vienna in June 2024. A key activity was the preparation and conduct of a RANET workshop in June 2025 in Cernavodă, Romania, where field teams from eight Member States (Bulgaria, Canada, France, Israel, Lithuania, the Republic of Moldova, Sweden and the USA), and the Agency practised emergency radiation monitoring in response to the simulated request for assistance made by Romania in the ConvEx-3 (2025) exercise.[263]

265. Together with the Member States sending field teams for the ConvEx-3 exercise, the Agency continued to revise the *IAEA Response and Assistance Network* (Emergency Preparedness and Response Series, EPR-RANET 2018) manual, including the review of the Assistance Action Plan templates, in view of recent requests for equipment through RANET. The Agency continued to perform, evaluate and share the analysis of the evaluations of regular tests of the emergency communication channels. The Agency's communication strategy continued to be implemented with an enhanced common approach, including through joint narratives, unified branding and messaging frameworks. The Agency maintained a roster of qualified public information officers within its Incident and Emergency System, providing them with training and exercises.[264]

266. The Agency held a ConvEx-2g exercise in February 2025 to test arrangements for the provision of information to the public in the event of a nuclear or radiological emergency. Representatives from regulatory bodies, operating organizations, and emergency response organizations from 28 countries participated.[265]

267. The Agency held a ConvEx-2f exercise in October 2024, in which ten international organizations participated to test arrangements for the provision of information during a nuclear or radiological emergency.[266]

268. The Agency continued to maintain and develop IRMIS, and support its implementation by Member States with the aim of supporting the Agency's assessment and prognosis process in a nuclear

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[260] This relates to operative paragraphs 140, 146 and 150 of resolution GC(68)/RES/8.

[261] This relates to operative paragraph 144 of resolution GC(68)/RES/8.

[262] This relates to operative paragraph 144 of resolution GC(68)/RES/8.

[263] This relates to operative paragraphs 145 and 146 of resolution GC(68)/RES/8.

[264] This relates to operative paragraphs 145, 147 and 149 of resolution GC(68)/RES/8.

[265] This relates to operative paragraph 147 of resolution GC(68)/RES/8.

[266] This relates to operative paragraph 147 of resolution GC(68)/RES/8.

or radiological emergency and the decision making process performed by counterparts in Member States.[267]

269. The Agency continued to conduct workshops on IRMIS implementation to encourage Member States to provide routine data to IRMIS and discuss further technical developments. The Agency held a Workshop on Monitoring During a Nuclear or Radiological Emergency in Miharu, Japan, in October 2024, a Workshop on the Implementation of the International Radiation Monitoring Information System (IRMIS) in Vienna in December 2024 and a consultancy meeting on IRMIS developments in Vienna in May 2025.[268]

270. The Agency continued to assist Member State efforts in providing routine data to IRMIS. During the reporting period, the Philippines started sharing environmental radiation monitoring data through IRMIS, bringing the total number of States sharing radiation monitoring data on IRMIS to 54.[269]

271. During the reporting period, the Agency continued to provide on loan eight IRMIS radiation monitoring stations, which are deployed in the Republic of Moldova.[270]

272. A new user interface for IRMIS was developed and implemented in October 2024, providing rapid data aggregation and a more suitable geographical projection.[271]

273. The Agency continued to incorporate IRMIS into exercises such as ConvEx.[272]

274. As of June 2025, 142 Member States have appointed national Emergency Preparedness and Response Information Management System (EPRIMS) coordinators, and EPRIMS has a total of 562 users. The number of published modules increased to 2159 in 2025, up from 2119 in 2024.[273]

275. The Agency continued to promote the use of EPRIMS as the optimum tool for Member States to share information and perform self-assessments against GSR Part 7, and to improve the EPRIMS external user interface and its navigation. Improvements in the arrangements for reporting and information sharing continued to be identified and implemented following ConvEx exercises. The Agency continued to identify trends from the information contained in EPRIMS, enabling it to better recognize Member States' needs in terms of strengthening national EPR arrangements.[274]

276. To implement the recommendations of the 12th Meeting of the Representatives of Competent Authorities Identified under the Early Notification Convention and the Assistance Convention, held in Vienna in June 2024, the Agency continued to work closely with competent authorities to ensure that they promptly communicate information to the public and to the Agency, and frequently issue updates on events that could be perceived by the public as emergencies.[275]

277. The Agency implemented, on a regular basis, the scheduled activities proposed at the meetings of the Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE), including the preparation and conduct of a ConvEx-2f exercise in October 2024 to test the IACRNE standard

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[267] This relates to operative paragraphs 140, 146 and 148 of resolution GC(68)/RES/8.

[268] This relates to operative paragraph 148 of resolution GC(68)/RES/8.

[269] This relates to operative paragraph 148 of resolution GC(68)/RES/8.

[270] This relates to operative paragraph 148 of resolution GC(68)/RES/8.

[271] This relates to operative paragraphs 146 and 148 of resolution GC(68)/RES/8.

[272] This relates to operative paragraphs 136, 137, 140 and 148 of resolution GC(68)/RES/8.

[273] This relates to operative paragraph 149 of resolution GC(68)/RES/8.

[274] This relates to operative paragraph 149 of resolution GC(68)/RES/8.

[275] This relates to operative paragraphs 146, 147, 148 and 150 of resolution GC(68)/RES/8.

operating procedures regarding coordination of public communications in emergencies, among responding IACRNE organizations. The Agency continued to work with IACRNE members on the review and revision of the *Joint Radiation Emergency Management Plant of the International Organizations* ((Emergency Preparedness and Response Series, EPR-JPLAN 2017) during the 30th Regular Meeting of the IACRNE in March 2025, during which IACRNE members were also encouraged to participate in the ConvEx-3 (2025) exercise.[276]

278. The Agency continued to cooperate with the World Health Organization (WHO) within the framework of the IACRNE, in line with EPR-JPLAN 2017, and in the area of developing and implementing safety standards in EPR. The establishment of Practical Arrangements between the Agency and WHO and the participation of WHO in the ConvEx-3 (2025) exercise were discussed during the 30th Regular Meeting of the IACRNE, held in Luxembourg in March 2025.[277]

279. The Agency continued to work with EPReSC working groups on the main issues to be considered when revising GSR Part 7 (DS558).[278]

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[276] This relates to operative paragraphs 136, 137, 147 and 151 of resolution GC(68)/RES/8.

[277] This relates to operative paragraphs 59, 136 and 137 of resolution GC(68)/RES/8.

[278] This relates to operative paragraph 152 of resolution GC(68)/RES/8.

Annex
Table of Concordance

Table of Concordance Between Resolution GC(68)/RES/8 Operative Paragraphs (OPs) Associated with Agency Action and Paragraphs of this Report

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