

Board of Governors
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NUCLEAR SECURITY REPORT 2024

Report by the Director General



IAEA

Atoms for Peace and Development

Board of Governors General Conference

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Item 14 of the Conference's provisional agenda
(GC(68)/1 and Add.1)

Nuclear Security Report 2024

Report by the Director General

Summary

- Pursuant to resolution GC(67)/RES/8, a report covering activities undertaken by the Agency in the area of nuclear security and highlighting significant accomplishments within the framework of the Nuclear Security Plan during the reporting period is submitted to the Board of Governors and the General Conference for their consideration.

Recommended Action

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

Nuclear Security Report 2024

Report by the Director General

A. General

1. This report was produced for the 68th regular session (2024) of the General Conference in response to resolution GC(67)/RES/8, in which the General Conference requested the Director General to report on activities undertaken by the Agency in the area of nuclear security, and on other relevant developments in the intervening period. This report covers the period from 1 July 2023 to 30 June 2024.

2. In accordance with its central role in strengthening the nuclear security framework globally and in coordinating international activities in the field of nuclear security, the Agency continued to provide assistance, upon request, to States in their national efforts to establish and maintain effective and sustainable nuclear security regimes, while avoiding duplication and overlap.¹

3. During the reporting period, the Agency continued to implement activities under the *Nuclear Security Plan 2022–2025*, approved by the Board of Governors in September 2021 and taken note of by the General Conference at its 65th regular session in September 2021.²

4. The Agency continued to engage with Member States about the process and scope of the Nuclear Security Plan prior to the development of its next iteration, covering the period 2026–2029.³

5. This report is intended to complement the *Nuclear Security Review 2024*. In March 2024, a report by the Director General containing the draft *Nuclear Security Review 2024* was submitted to the Board of Governors. The final version of the *Nuclear Security Review 2024*, prepared in the light of discussions at the Board of Governors, is provided as an information document at the 68th regular session of the Agency's General Conference. The *Nuclear Security Review 2024* includes the global trends and the Agency's activities in 2023, highlighting significant accomplishments. It also presents priorities and related activities for 2024 and beyond, as identified by the Agency and its Member States, for strengthening nuclear security globally. These priorities are addressed in the *Nuclear Security Plan 2022–2025* and the Agency's Programme and Budget, including outcomes, outputs, timelines and performance indicators. The Agency conducted bilateral and multilateral meetings at which matters related to the Nuclear Security Review, the Nuclear Security Report and the Nuclear Security Plan were discussed. In consultation with Member States, the complementarity and timing of the issuance of the

¹ This relates to operative paragraph 1 of resolution GC(67)/RES/8.

² This relates to operative paragraph 4 of resolution GC(67)/RES/8.

³ This relates to operative paragraph 4 of resolution GC(67)/RES/8.

assorted reports, within their defined scopes and with an objective of minimizing duplication, has been considered in the development of the *Nuclear Security Review 2024* and the present report.⁴

B. Responding to Current and Evolving Challenges and Risks to Nuclear Security



IAEA Director General Rafael Mariano Grossi at the opening of the Ministerial Segment of the International Conference on Nuclear Security: Shaping the Future, held in Vienna in May 2024. (Photo: D. Calma/IAEA)

6. With a view to developing technical guidance and publications, establishing research networks and databases, and facilitating training to support Member States in implementing measures that will effectively confront current and evolving challenges, risks and threats to nuclear security, the Agency continued implementation of multiple coordinated research projects (CRPs)⁵, including:

- Advancing Maintenance, Repair, and Calibration of Radiation Detection Equipment;
- Enhancing Computer Security for Radiation Detection Systems;
- Facilitation of Safe and Secure Trade Using Nuclear Detection Technology — Detection of RN and Other Contraband;
- Improving the Security of Radioactive Material throughout its Lifecycle, Associated Facilities, and Associated Activities;

⁴ This relates to operative paragraph 21 of resolution GC(67)/RES/8.

⁵ This relates to operative paragraphs 5 and 57 of resolution GC(67)/RES/8.

- Nuclear Forensics Science to Bridge the Radiological Crime Scene to the Nuclear Forensics Laboratory;
- Nuclear Security Implications of Counterfeit, Fraudulent, and Suspect Items; and
- Preventive and Protective Measures Against Insider Threats at Nuclear Facilities.

7. A new CRP entitled “Enhancing Computer Security of Small Modular Reactors and Microreactors” was launched in December 2023 to assess and advance computer security for small modular reactors (SMRs), focusing on safety, security, operational modes, emergency preparedness, human factors, novel technologies (disruptive, innovative, and emerging) and methodologies applied to instrumentation and control, physical protection systems, communications, network infrastructure, accountancy and control, and other associated systems.⁶

8. The Agency held a Technical Meeting on Emerging Threats and Technologies in Nuclear Security, Including the Detection of Nuclear and Other Radioactive Material Out of Regulatory Control in Bangkok in July 2023.⁷

9. The Agency held the Third Technical Meeting on Radiation Detection Instruments for Nuclear Security: Trends, Challenges and Opportunities in Vienna in August 2023. Participants included 145 experts from 76 Member States. Additionally, there were 46 exhibitors from 19 radiation detection instrumentation companies.⁸

10. The Agency held a Technical Meeting on Nuclear Security Countermeasures for Uncrewed Aerial Vehicles in October 2023 in Albuquerque, United States of America (USA).⁹

11. During the reporting period, the Agency continued to place great emphasis on the planning and implementation of its advisory services and missions, including those under the International Nuclear Security Advisory Service (INSServ), the International Physical Protection Advisory Service (IPPAS) and the Regulatory Infrastructure for Radiation Safety and Nuclear Security (RISS). The assorted missions are conducted upon request and in coordination with Member States, enabling them to benefit from the comprehensive expertise of the Agency and peers in reviewing and providing advice on issues including, but not limited to, the identification of nuclear security framework requirements related to nuclear and other radioactive material out of regulatory control; the implementation of international instruments; Agency guidance on the physical protection of nuclear and other radioactive material, associated facilities and associated activities; and the establishment and improvement of regulatory infrastructures for the security of radioactive material. During the reporting period, the Agency completed 2 INSServ, 5 IPPAS, and 3 RISS missions.¹⁰

12. The Agency continues to explore artificial intelligence (AI) applications in order to address challenges and to help ensure secure uses of AI in nuclear technologies. Several AI-related meetings, at which nuclear security linkages were discussed, were held during the reporting period. These meetings included a workshop entitled “Introduction to the Role of Artificial Intelligence in Strengthening the Security of Nuclear Facilities”, hosted by the World Institute for Nuclear Security in Vienna in February 2024, an IAEA Technical Meeting on Deployment of Artificial Intelligence Solutions for the Nuclear Power Industry: Considerations and Guidance, in Rockville, USA in March 2024, and quarterly

⁶ This relates to operative paragraphs 5, 53 and 57 of resolution GC(67)/RES/8.

⁷ This relates to operative paragraph 5 of resolution GC(67)/RES/8.

⁸ This relates to operative paragraph 5 of resolution GC(67)/RES/8.

⁹ This relates to operative paragraph 5 of resolution GC(67)/RES/8.

¹⁰ This relates to operative paragraphs 5 and 17 of resolution GC(67)/RES/8.

meetings of the Working Group on Artificial Intelligence convened under the auspices of the International Network on Innovation to Support Operating Nuclear Power Plants.¹¹

13. Throughout the reporting period, the Agency undertook intensive efforts to plan for and conduct the International Conference on Nuclear Security: Shaping the Future (ICONS 2024), held in Vienna in May 2024. The conference was planned in consultation with a diverse Programme Committee through meetings co-chaired by Costa Rica and Sweden and held in Vienna, in which representatives from 45 Member States and 5 international organizations were invited to participate. The first Programme Committee meeting was held in March 2023 and led to the selection of the conference themes: “Policy, Law and Regulations for Nuclear Security”; “Technology and Infrastructure for Nuclear Security”; “Capacity Building for Nuclear Security”; and “Cross-cutting Topics”. Additional Programme Committee meetings were held in November 2023 and February 2024 to discuss a range of conference planning topics, including the preliminary programme, topics and speakers for plenary sessions, and new ideas for engaging non-traditional audiences — such as students, early career professionals and industry — in the conference.¹²

14. During the ministerial segment of ICONS 2024, the conference Co-Presidents, Australia and Kazakhstan presented a Joint Statement on nuclear security. The Co-Presidents’ Joint Statement was developed following a series of open-ended working group and small group meetings held in Vienna from February to May 2024. Additionally, during the ministerial segment, 99 national statements, 3 joint statements, and 2 statements from international organizations were delivered by Ministers and other Heads of Delegations. The ministerial segment featured a panel discussion on the topic of “Securing Sustainable Progress: the Important Role of Nuclear Security in Advancing the Sustainable Development Goals”; a special event for Ministers and other Heads of Delegations entitled “Beyond Borders — A Collaborative Discourse on the Future of Nuclear Security”; and an interactive session to explore the benefits of the universalization of important nuclear security legal instruments.¹³

15. During the technical and scientific segment of ICONS 2024, 52 technical sessions were delivered, covering different aspects of nuclear security. The 367 papers and 60 posters presented at the conference were selected from the 715 abstracts submitted to the Secretariat and reviewed by a review committee composed of 20 external experts and 20 Agency staff members.¹⁴

16. High importance was placed on diverse workforce and geographical representation at ICONS 2024. 2066 representatives from 142 Member States and 16 invited organizations participated in the conference. During the technical and scientific segment, papers and posters were presented by representatives from 89 Member States and invited organizations. 33% of presentations were made by women. Session chairs hailed from 41 Member States and invited organizations. 31% of the session chairs were women. 34% of registered conference participants were women.¹⁵

17. In the spirit of the conference’s theme of “Shaping the Future” and with a desire to meaningfully engage young people in the field of nuclear security, ICONS 2024 featured the “Nuclear Security Delegation for the Future”. University students and early career professionals applied to be a part of the delegation to learn, collaborate, and contribute to the advancement of nuclear security. From an applicant pool of more than 200, 24 participants (9 men and 15 women) were selected from 19 countries.

¹¹ This relates to operative paragraph 6 of resolution GC(67)/RES/8.

¹² This relates to operative paragraph 8 of resolution GC(67)/RES/8.

¹³ This relates to operative paragraph 8 of resolution GC(67)/RES/8.

¹⁴ This relates to operative paragraph 8 of resolution GC(67)/RES/8.

¹⁵ This relates to operative paragraphs 8 and 61 of resolution GC(67)/RES/8.

The delegation met several times virtually in advance of the conference and developed a statement which they delivered at the closing session of the conference.¹⁶

C. Strengthening Legal Instruments, National Legislative and Regulatory Frameworks and International Cooperation



A Technical Meeting to Promote the Universalization of the Convention on the Physical Protection of Nuclear Material (CPPNM) and its Amendment was held in Vienna in November 2023. (Photo: D. Calma/IAEA)

18. In October–November 2023, the Agency convened a Technical Meeting of the Representatives of Parties to the Convention on the Physical Protection of Nuclear Material (CPPNM) and the CPPNM Amendment (Points of Contact Meeting) in Vienna to facilitate discussions and experience sharing on various matters within the scope of the CPPNM and its Amendment.¹⁷

19. The Agency held a national workshop to raise awareness of the Amendment to the CPPNM (A/CPPNM) in Monrovia in August 2023. In coordination with the United Nations Office on Drugs and Crime (UNODC), the International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT) was also discussed at the workshop.¹⁸

20. The Agency conducted outreach on the CPPNM and A/CPPNM at the Regional Workshop on Integrated Nuclear Security Support Plans, held in Lomé in August 2023 and at the Regional Workshop

¹⁶ This relates to operative paragraphs 8 and 61 of resolution GC(67)/RES/8.

¹⁷ This relates to operative paragraphs 13 and 17 of resolution GC(67)/RES/8.

¹⁸ This relates to operative paragraphs 13 and 16 of resolution GC(67)/RES/8.

to Coordinate the Implementation of Integrated Nuclear Security Sustainability Plans, held in Melbourne, Australia in April 2024. In coordination with UNODC, ICSANT was also discussed at these regional workshops.¹⁹

21. The repository of documents on the CPPNM and the A/CPPNM generated in the context of the 2022 Conference of the Parties to the A/CPPNM, including preparatory and outcome documents of the Conference, is located on the Nuclear Security Information Portal (NUSEC) to ensure that it is easily accessible by Member States. During the reporting period, four countries deposited their instruments ratifying the A/CPPNM — Zimbabwe and Belarus in September 2023, Congo in November 2023, and South Africa in February 2024.²⁰

22. For the first time, the Agency organized a Technical Meeting to Promote the Universalization of the Convention on the Physical Protection of Nuclear Material and its Amendment in Vienna in November 2023, enabling discussions on practical experiences and lessons learned in adherence to and implementation of the CPPNM and the A/CPPNM.²¹

23. The Agency held a Regional School on Drafting Regulations for Radiation Safety and Security of Radioactive Material in Vienna in July 2023 to train teams of regulators from the Caribbean region in drafting regulations for radiation safety and security of radioactive material.²²

24. The Agency assisted, upon request, Bahamas, Barbados, Colombia, Cote d'Ivoire, Dominica, El Salvador, Grenada, Iraq, Mongolia, South Africa and Trinidad and Tobago in the development of national legislative and regulatory frameworks.²³

25. The Agency held two Nuclear Security Information Exchange Meetings in Vienna in October 2023 and April 2024, which were attended by representatives of intergovernmental and non-governmental organizations and initiatives involved in nuclear security. The purpose of these meetings was to provide opportunities for the sharing of experiences and good practices and to identify areas of cooperation in nuclear security.²⁴

26. An Interregional Workshop on Nuclear Security Information Exchange and Cooperation for Central Asian Countries was held in Dushanbe in August 2023. Three National Workshops on Nuclear Security Information Exchange and Cooperation were conducted during the reporting period, in Siem Reap and in Manama in May 2024, and in Vientiane in June 2024. The objective of the workshops was to strengthen national, regional and international capacities for preventing and combating illicit trafficking in nuclear and other radioactive material, as well as other nuclear security events, through enhanced information exchange and coordination.²⁵

¹⁹ This relates to operative paragraphs 13 and 16 of resolution GC(67)/RES/8.

²⁰ This relates to operative paragraphs 13 and 15 of resolution GC(67)/RES/8.

²¹ This relates to operative paragraphs 13 and 14 of resolution GC(67)/RES/8.

²² This relates to operative paragraph 17 of resolution GC(67)/RES/8.

²³ This relates to operative paragraph 17 of resolution GC(67)/RES/8.

²⁴ This relates to operative paragraphs 19 and 31 of resolution GC(67)/RES/8.

²⁵ This relates to operative paragraphs 19 and 31 of resolution GC(67)/RES/8.

D. Improving Communication and Developing Agency Nuclear Security Guidance



The IPPAS team visited the Netherlands Cancer Institute in Amsterdam during the IPPAS mission in the Netherlands in October 2023. (Photo: Dutch Authority for Nuclear Safety and Radiation Protection, ANVS)

27. The Agency continued communication and outreach about its nuclear security activities through the available platforms, including the Agency website, social media and NUSEC. Specifically, the Agency issued 11 press releases and 24 articles on nuclear security-related topics on its website, as well as an edition of the IAEA Bulletin entitled *Nuclear Security Shaping the Future*. All IPPAS and INSServ missions conducted in Member States were communicated to the media and the public through press releases, subject to confidentiality requirements between the Agency and Member States. New security-related publications were communicated to a broad audience through the Agency's social media accounts.²⁶

28. The Agency presented its activities with regard to communication on nuclear security at the 41st Meeting of the Advisory Group on Nuclear Security, held in Vienna in October 2023, and at the Seventh Global Nuclear Safety and Security Communication Network Steering Committee Meeting held in Vienna in November 2023. In addition, the Agency presented its activities with regard to public communication in case of nuclear security events at the "Operation PABAL: Crisis Communication Workshop and Tabletop Exercise" co-hosted by the Republic of Korea and the USA in Seoul in December 2023. As part of an official visit to Costa Rica in March 2024, an Agency lecture on nuclear security was hosted by the Ministry of Foreign Affairs and Worship in collaboration with its Diplomatic Academy and the Latin University of Costa Rica. Additionally, during ICONS 2024, the Agency presented about its activities in increasing visibility and awareness of nuclear security through communication in the technical session "Let's Talk about Nuclear Security: Considerations for Public Communication".²⁷

²⁶ This relates to operative paragraph 20 of resolution GC(67)/RES/8.

²⁷ This relates to operative paragraphs 8 and 20 of resolution GC(67)/RES/8.

29. In May 2024, the Agency completed the first phase of a major update of NUSEC. The updated portal features new content, a user-friendly interface and easy access to resources related to the Agency's nuclear security programme.²⁸

30. During the reporting period, the Agency issued two new brochures entitled *Nuclear Security Training and Demonstration Centre (NSTDC): Catalogue of Training Courses* and *International Physical Protection Advisory Service (IPPAS): 100 nuclear security good practices from 100 IPPAS missions: Nuclear Safety and Security Programme*, two new flyers entitled *International Nuclear Security Advisory Service (INSServ)* and *Nuclear Security Information Portal (NUSEC)*, one infographic entitled *Key data and numbers about the IAEA's nuclear security programme - Developments and accomplishments since ICONS 2020 (February 2020–April 2024)*, and updated existing security-related brochures as well as a poster on the IAEA Nuclear Security Series.²⁹

31. The Agency developed and published on its website a podcast entitled “Nuclear Explained — Computer Security in the Nuclear World” and four videos entitled “IAEA Nuclear Security Centre Opens”, “International Conference on Nuclear Security: Shaping the Future (ICONS 2024)”, “IAEA Conference Shapes the Future of Nuclear Security – ICONS 2024” and “IAEA Nuclear Security Training and Demonstration Centre”.³⁰

32. In January 2024, the Nuclear Security Guidance Committee (NSGC) began a new term. Membership of the NSGC increased to 71 Member States and 9 organizations for its fifth term, compared to 64 countries and 9 organizations in its previous term.³¹

33. The Agency convened the NSGC in a hybrid format in December 2023 and June 2024 in order to ensure extensive participation by Member States. At these meetings, draft publications in the IAEA Nuclear Security Series to be submitted to Member States for comment and drafts for publishing were approved, and draft publications in the IAEA Safety Standards Series that have interfaces with nuclear security were cleared.³²

34. Two new Technical Guidance publications, *Detection at State Borders of Nuclear and Other Radioactive Material out of Regulatory Control* (IAEA Nuclear Security Series No. 44-T) and *Detection in a State's Interior of Nuclear and Other Radioactive Material out of Regulatory Control* (IAEA Nuclear Security Series No. 47-T), were issued in October 2023 and June 2024, respectively, bringing the total number of publications in the Nuclear Security Series to 45. Both publications were cosponsored by other international organizations.³³

35. During the reporting period, the Agency made available 13 Implementing Guide documents in Chinese, 8 in Russian and 1 in Spanish. The Agency also made available 6 Technical Guidance documents in Arabic, 7 in French, 5 in Russian and 6 in Spanish.³⁴

36. Work on the Agency's nuclear security guidance continues to focus on enhancing the set of Nuclear Security Series publications. To ensure that the entire Series and its publications remain up to date, and following the recommendations of the NSGC and an open-ended meeting of technical and

²⁸ This relates to operative paragraph 20 of resolution GC(67)/RES/8.

²⁹ This relates to operative paragraph 20 of resolution GC(67)/RES/8.

³⁰ This relates to operative paragraph 20 of resolution GC(67)/RES/8.

³¹ This relates to operative paragraph 22 of resolution GC(67)/RES/8.

³² This relates to operative paragraph 22 of resolution GC(67)/RES/8.

³³ This relates to operative paragraph 22 of resolution GC(67)/RES/8.

³⁴ This relates to operative paragraph 22 of resolution GC(67)/RES/8.

legal experts, held in December 2022, on the Nuclear Security Fundamentals publication *Objectives and Essential Elements of a State's Nuclear Security Regime* (IAEA Nuclear Security Series No. 20), the Agency decided to revise that document and three Recommendations in the Nuclear Security Series (Nos 13, 14 and 15)). To facilitate the revision, the Secretariat initiated a review of the terminology used in the Nuclear Security Series and conducted two consultancy meetings on the subject in parallel with the development of document preparation profiles for the top-tier nuclear security guidance documents.³⁵

37. During the reporting period, the Agency continued developing two Technical Reports Series publications on safety and security interfaces, provisionally entitled *Use of Safety Analysis Approaches to Support Nuclear Security at Nuclear Installations* and *Design Safety and Security Considerations for Transportable Nuclear Power Plants*.³⁶

38. The Agency continued work to support interested Member States, upon request, in applying nuclear security concepts for SMRs. The Agency held a Technical Meeting on Sharing International Needs, Views and Priorities Concerning the Nuclear Security of Small Modular Reactors in Vienna in July 2023.³⁷

39. The Agency conducted the First Consultancy Meeting on Computer Security Research Activities for Small Modular Reactors in Vienna in October 2023. This was the first meeting to be held in the framework of the CRP entitled “Enhancing Computer Security of Small Modular Reactors and Microreactors”.³⁸

40. The Agency continued preparing a technical document that will analyse the issues and challenges faced at nuclear facilities in terms of the practical application of Agency safety standards and nuclear security guidance during an armed conflict, using the knowledge and experience collected in Ukraine since February 2022, and how these issues and challenges might be addressed, if possible, by all interested parties, including the Agency.³⁹

E. Promoting Nuclear Security Culture

41. The Agency held a Regional Workshop on Safety and Nuclear Security Culture Values and Approaches in Castries, Saint Lucia, in November 2023 to raise awareness of the importance of nuclear safety and security culture among Member States in the Caribbean region.⁴⁰

42. The Agency continued its efforts to enhance understanding of nuclear security culture self-assessment through a national workshop held in Putrajaya, Malaysia in April 2024.⁴¹

³⁵ This relates to operative paragraph 26 of resolution GC(67)/RES/8.

³⁶ This relates to operative paragraph 27 of resolution GC(67)/RES/8.

³⁷ This relates to operative paragraph 30 of resolution GC(67)/RES/8.

³⁸ This relates to operative paragraphs 5, 30, 53 and 57 of resolution GC(67)/RES/8.

³⁹ This relates to operative paragraph 68 of resolution GC(67)/RES/8.

⁴⁰ This relates to operative paragraphs 32 and 33 of resolution GC(67)/RES/8.

⁴¹ This relates to operative paragraphs 32 and 33 of resolution GC(66)/RES/7.

F. Strengthening Education and Training



The NSTDC was inaugurated on 3 October 2023. (Photo: D. Calma/IAEA)

43. During the reporting period, the Agency focused on enhancing its offering of train-the-trainers courses and workshops in order to amplify capacity building efforts through increased impact.⁴² The Agency conducted several train-the-trainers events, including:

- A National Train-the-Trainer Course on Radiological Crime Scene Management: Session 2 in Bangkok in July 2023;
- Sessions I and II of the International Train-the-Trainers Course on the Security of Radioactive Material and Associated Facilities held virtually in September 2023 (Session I) and at the NSTDC in March 2024 (Session II);
- An International Train-the-Trainers Course on Physical Protection of Nuclear Material and Nuclear Facilities in Obninsk, Russian Federation in November 2023;
- A Train-the-Trainer Course on Radiological Crime Scene Management for Subject Matter Experts at the NSTDC in December 2023;
- A Train-the-Trainers Course on Nuclear Security Measures and Emergency Response Arrangements for Major Public Events at the NSTDC in February 2024;
- An International Train-the-Trainers Course for Instructors of Front Line Officers on the Detection of Nuclear and Other Radioactive Material out of Regulatory control in Cairo in April 2024;

⁴² This relates to operative paragraph 34 of resolution GC(67)/RES/8.

- An International Train-the-Trainers Course on the Computer Security Modules of the NSTDC in Vienna in April 2024;
- A virtual Train-the-Trainer Course on Integrated Workshop on Radiological Crime Scene Management and Nuclear Forensics in Vienna in April 2024; and
- A Train-the-Trainers Course on Major Public Events for Equipment Specialists at the NSTDC in June 2024.

44. The Agency continues to conduct e-learning and some technical events in hybrid or virtual formats. During the reporting period, 5 177 e-learning modules were completed by 3 051 users. During the same period, the Agency implemented 138 nuclear security training events, of which 3 were held in a virtual format and 6 in a hybrid format.⁴³

45. The Technical Meeting of the Working Groups of the International Network for Nuclear Security Training and Support Centres (NSSC Network) was held in Vienna in December 2023. It was attended by 86 participants from 42 countries and 2 observer organizations, as well as leadership members of the International Network of Front Line Officers and Organizations for Nuclear Security Detection (FLO Network). Topical sessions equivalent to 14 consultancy meetings were held, advancing the NSSC Network's overall priorities and individual working group objectives to enable information and experience sharing on key technical themes relevant to developing and operating a Nuclear Security Support Centre (NSSC).⁴⁴

46. The 2024 Annual Meeting of the NSSC Network was held in Vienna in June 2024. It was attended by 96 participants from 52 States and 1 observer organization. The meeting brought together members of this community of practice on human resource development, technical support and scientific support to progress activities that support development of State-level NSSCs and inaugurated the first iteration of the NSSC Network Junior Professionals Programme. Additionally, at the meeting 2 new members from Iraq and Zimbabwe and 2 new member institutions from France and Romania were welcomed, bringing total NSSC Network membership to 71 States and 10 observer organizations.⁴⁵

47. During the reporting period, eight new members from Cuba, Germany, Japan, Malawi, Saudi Arabia, Somalia, Togo and the USA, including one new institution based in South Africa with observer status, joined the International Nuclear Security Education Network (INSEN). These gains brought total INSEN Network membership to 210 institutions from 74 States and 14 observers.⁴⁶

48. The annual meeting of the INSEN was held in Vienna in July 2023, bringing together 94 participants from 45 States. Nuclear security education activities, the revision of the INSEN action plan, and a report on new and ongoing activities of INSEN members were discussed including new academic and research programmes. The meeting included a panel session on women in nuclear security. Currently, 50% of the chairs of INSEN and its working groups are women.⁴⁷

49. The 2024 INSEN leadership meeting was held in Vienna in January 2024. At the meeting, participants evaluated the progress of the INSEN action plan for the current year, discussed nuclear

⁴³ This relates to operative paragraph 35 of resolution GC(67)/RES/8.

⁴⁴ This relates to operative paragraph 36 of resolution GC(67)/RES/8.

⁴⁵ This relates to operative paragraphs 36 and 61 of resolution GC(67)/RES/8.

⁴⁶ This relates to operative paragraphs 36 and 61 of resolution GC(67)/RES/8.

⁴⁷ This relates to operative paragraphs 36 and 61 of resolution GC(67)/RES/8.

security working group activities, and identified new topical areas to be discussed at the INSEN Working Groups Meeting in August 2024.⁴⁸

50. The Agency inaugurated the NSTDC at Seibersdorf in October 2023 to help strengthen countries' abilities to tackle nuclear terrorism. The centre is equipped with specialized technical infrastructure and equipment and offers training courses and workshops in the physical protection of nuclear and other radioactive material and associated facilities, and the detection of and response to criminal or intentional unauthorized acts. Since opening, the centre has hosted 38 events for about 500 participants and 150 experts. The Agency continues to consider all aspects, including planning for financial resources, related to the long term sustainability of the NSTDC and to keep Member States informed of progress made. During the reporting period, 18 NSTDC visits and briefings were conducted for about 400 visitors to keep Member States informed of progress.⁴⁹

G. Assisting in the Development and Implementation of Integrated Nuclear Security Sustainability Plans, and Supporting Member State Needs



An INSSP review mission was held in Thailand in January 2024. (Photo: Office for Atoms for Peace -OAP, Thailand)

51. The Agency continues to assist with efforts around the world to establish effective and sustainable national nuclear security regimes, including obligations under relevant international legal instruments.

⁴⁸ This relates to operative paragraph 36 of resolution GC(67)/RES/8.

⁴⁹ This relates to operative paragraph 37 of resolution GC(67)/RES/8.

INSSP missions and awareness-raising missions for senior officials are key tools that the Agency uses for these efforts.⁵⁰

52. The Agency conducted 16 INSSP review missions, to Antigua and Barbuda, Bahrain, Cameroon, Congo, Ecuador, Jordan, Libya, Malawi, Oman, Poland, Tanzania, Thailand, Uruguay, Venezuela, Viet Nam and Yemen; and 6 INSSP finalization missions, to Angola, Burundi, Eswatini, Honduras, Mozambique and Serbia. The Agency conducted 4 awareness-raising missions targeting decision makers, to Bahrain, Burundi, Cameroon and Congo. In addition, North Macedonia and Türkiye benefited from INSSP preparatory missions during the reporting period.⁵¹

53. Regional Workshops to Coordinate the Implementation of Integrated Nuclear Security Sustainability Plans were held in Lomé in August 2023, in Samarkand, Uzbekistan in November 2023, in Melbourne, Australia in April 2024, and in Bar, Montenegro in June 2024.⁵²

54. The Agency hosted an International Workshop for Potential Team Members of Integrated Nuclear Security Sustainability Plans Missions in Vienna in May 2024. Through the workshop, future experts were prepared for participation in INSSP missions, with a focus on the new INSSP conceptual approach and the use of upgraded tools following recent changes to the INSSP framework.⁵³

55. The Agency continued its efforts to develop a voluntary mechanism to match Member State requests for assistance with other Member State offers of assistance, highlighting urgent needs and with due regard to confidentiality.⁵⁴

⁵⁰ This relates to operative paragraph 41 of resolution GC(67)/RES/8.

⁵¹ This relates to operative paragraph 41 of resolution GC(67)/RES/8.

⁵² This relates to operative paragraph 41 of resolution GC(67)/RES/8.

⁵³ This relates to operative paragraph 41 of resolution GC(67)/RES/8.

⁵⁴ This relates to operative paragraphs 42 and 66 of resolution GC(67)/RES/8.

H. Supporting Continued Dialogue on the Security of Radioactive Sources and New Technologies



The Technical Meeting of Technical and Legal Experts on Implementing the Guidance on the Import and Export of Radioactive Sources took place in Vienna in May 2024. (Photo: V.Tafili/IAEA)

56. The Agency addressed two new requests related to strengthening physical protection at facilities with high activity radioactive sources in use and storage. The Agency assisted in the removal of 15 high activity disused radioactive sources from 2 States, continued to support the ongoing removal of 9 high activity disused radioactive sources in 1 State and initiated the preparatory work for the removal of an additional 44 sources from 8 States.⁵⁵

57. The Agency continued its support for the implementation of borehole disposal systems in Ghana and Malaysia, a disposal solution that combines financial affordability and technological feasibility, where disused sealed radioactive sources can be safely, securely and permanently emplaced.⁵⁶

58. As of 30 June 2024, 151 States had made a political commitment to implement the Code of Conduct on the Safety and Security of Radioactive Sources, of which 138 had also notified the Director General of their intention to act in a harmonized manner in accordance with the Code's supplementary Guidance on the Import and Export of Radioactive Sources. A total of 153 States have nominated points of contact to facilitate the export and import of radioactive sources. In addition, 70 States have notified

⁵⁵ This relates to operative paragraphs 43 and 44 of resolution GC(67)/RES/8.

⁵⁶ This relates to operative paragraphs 43 and 44 of resolution GC(67)/RES/8.

the Director General of their intention to act in a harmonized manner and in accordance with the Code's supplementary Guidance on the Management of Disused Radioactive Sources.⁵⁷

59. The Agency held two Regional 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, in Jakarta in November 2023 and in Mexico City in February 2024. The meetings provided a platform for exchanging experience, lessons learned, successes and challenges in the implementation of the Code of Conduct and its Supplementary Guidance.⁵⁸

60. The Agency held the Technical Meeting of Technical and Legal Experts on Implementing the Guidance on the Import and Export of Radioactive Sources in Vienna in May 2024.⁵⁹

61. The Agency held a Consultancy Meeting on Development of a Self-Assessment Tool for National Implementation of the Code of Conduct on the Safety and Security of Radioactive Sources and its Supplementary Guidance in Vienna in June 2024.⁶⁰

⁵⁷ This relates to operative paragraph 45 of resolution GC(67)/RES/8.

⁵⁸ This relates to operative paragraph 45 of resolution GC(67)/RES/8.

⁵⁹ This relates to operative paragraph 45 of resolution GC(67)/RES/8.

⁶⁰ This relates to operative paragraphs 45 and 63 of resolution GC(67)/RES/8.

I. Using the Incident and Trafficking Database and Advising on Threat Assessment, Including for Insider Threats



During ICONS 2024: Shaping the Future, a Side Event entitled "Missing or Stolen? The Incident and Trafficking Database (ITDB) has the info!" was held in Vienna in May 2024. (Photo: V. Tafili/IAEA)

62. The Agency provided quarterly Incident and Trafficking Database (ITDB) analytical summary reports and in May 2024 issued its annual factsheet summarizing ITDB incidents for public information. The release of the factsheet was accompanied by a briefing for the media and a Side Event at ICONS 2024. Further, in response to requests from Member States, the Agency provided additional information services in support of two major public events (MPEs).⁶¹

63. The Agency held the International Training Course for New and Prospective Points of Contact of the Incident and Trafficking Database in Vienna in November 2023.⁶²

64. In December 2023, the document *Guidelines for the ITDB States' Points of Contact* (IAEA Services Series No. 49) was published. Through this document, the Agency aims to support participating States in meeting recommended nuclear security practices at the national level, through enhancing awareness of the benefits of comprehensive reporting to and analysis by the ITDB.⁶³

⁶¹ This relates to operative paragraph 49 of resolution GC(67)/RES/8.

⁶² This relates to operative paragraph 49 of resolution GC(67)/RES/8.

⁶³ This relates to operative paragraph 49 of resolution GC(67)/RES/8.

65. The Agency held National Training Courses on Preventive and Protective Measures against Insider Threats to Nuclear Material in Obninsk, Russian Federation for Bangladesh in September 2023 and in Accra in November 2023.⁶⁴

66. The Agency held the International Training Course on Insider Threat Using the Shapash 3D Model at the NSTDC in October 2023 and February 2024.⁶⁵

67. The Agency held a National Training Course on Preventive and Protective Measures Against Insider Threats to Radioactive Material and Associated Facilities in Niamey, Niger in June 2024.⁶⁶

J. Strengthening Information and Computer Security



*An International Workshop on Drafting Computer Security Regulations was held in Cologne, Germany, December 2023.
(Photo: T. Nelson/IAEA)*

68. The Agency conducted several training courses related to computer security during the reporting period.⁶⁷ These courses included:

⁶⁴ This relates to operative paragraph 51 of resolution GC(67)/RES/8.

⁶⁵ This relates to operative paragraph 51 of resolution GC(67)/RES/8.

⁶⁶ This relates to operative paragraph 51 of resolution GC(67)/RES/8.

⁶⁷ This relates to operative paragraph 53 of resolution GC(67)/RES/8.

- A National Training Course on Conducting Computer Inspections for Nuclear Facilities, in Abuja in October 2023;
- An International Training Course on Computer Security Incident Response for Nuclear Security in Obninsk, Russian Federation, in November 2023;
- An International Workshop on Drafting Computer Security Regulations in Cologne, Germany in December 2023;
- A Regional Training Course on Computer Security Fundamentals for Nuclear Security in São Paulo, Brazil, in December 2023;
- A Regional Training Course on Computer Security for Industrial Control Systems for Nuclear Security in Vienna in December 2023;
- A Regional Training Course on Conducting Computer Security Assessments in Mexico City in January–February 2024;
- A Regional Workshop on Conducting Computer Security Exercises for Nuclear Security in Paris in March 2024;
- A Regional Training Course on Conducting Computer Security Inspections for Nuclear Facilities in Accra in April 2024; and
- A National Exercise on Computer Security for Nuclear Security in Bucharest in May 2024.

69. Recommendations from the International Conference on Computer Security in the Nuclear World: Security for Safety, held in Vienna in June 2023, are helping to inform the Agency's future planning and programmatic activities in relation to the implementation of information and computer security activities. In particular, Member State interest at the conference highlighted a desire for Agency support to promote a computer security culture, with an emphasis on bridging gaps between information technology and operational technology professionals and nuclear engineers in the realm of nuclear cybersecurity.⁶⁸

⁶⁸ This relates to operative paragraph 54 of resolution GC(67)/RES/8.

K. Assisting in Building Capacity in Nuclear Forensics



Nuclear forensics demonstration at the NSTDC. (Photo: F. Biquet/IAEA)

70. During the reporting period, the Agency conducted several training courses related to nuclear forensics.⁶⁹ These courses included:

- Three Regional Training Courses on Introduction to Nuclear Forensics in Bangkok in September 2023, in Port Louis in November 2023, and in Nairobi in June 2024;
- An International Integrated Workshop on Radiological Crime Scene Management and Nuclear Forensics at the NSTDC in May 2024; and
- The Fourth Seminar on Introduction to Nuclear Forensics in Belgrade in June 2024.

71. The Agency hosted two webinars aimed at engaging personnel from around the world in developing capacity in nuclear forensics. The first session, held in July 2023 and entitled “Establishing a Nuclear Forensic Capability”, detailed the value of *Establishing a Nuclear Forensic Capability: Application of Analytical Techniques* (IAEA-TECDOC-2019) as a resource for Member States. The second session, held in February 2024 and entitled “The First 24 Hours of a Nuclear Forensic Examination”, informed participants about the steps taken once a sample is received by a nuclear forensic laboratory.⁷⁰

72. A CRP entitled “Nuclear Forensics Science to Bridge the Radiological Crime Scene to the Nuclear Forensics Laboratory” continued. It focuses on how a stronger connection between nuclear forensics and radiological crime scene management directly enhances nuclear security.⁷¹

⁶⁹ This relates to operative paragraphs 55 of resolution GC(67)/RES/8.

⁷⁰ This relates to operative paragraphs 55 of resolution GC(67)/RES/8.

⁷¹ This relates to operative paragraphs 5, 55 and 57 of resolution GC(67)/RES/8.

L. Providing Technical Assistance for MPEs and Detecting Nuclear and Other Radioactive Material out of Regulatory Control



The Agency supported Côte d'Ivoire's nuclear security at the African Cup of Nations (AFCON), by providing local experts with hands-on training on required measures. (Photo: B. Kaboro/IAEA)

73. During the reporting period, the Agency provided support for five MPEs.⁷²

74. The Agency held four National Workshops on Developing and Implementing Nuclear Security Measures for Major Public Events in Abidjan in July 2023, in Cotonou in August 2023, in Accra in January 2024, and in Harare in June 2024.⁷³

75. The Agency also held two National Workshops on Responding to Nuclear Security Events and Emergencies Triggered by Nuclear Security Events at Main Venues and other Strategic Locations at Major Public Events in Qinhuangdao, China, in November–December 2023, and in Accra in February 2024. It also held two National Workshops on Responding to Criminal or Intentional Unauthorized Acts Involving Nuclear and other Radioactive Material at Main Venues and other Strategic Locations of Major Public Events in Abidjan in December 2023, and in Kampala in April 2024.⁷⁴

⁷² This relates to operative paragraph 56 of resolution GC(67)/RES/8.

⁷³ This relates to operative paragraph 56 of resolution GC(67)/RES/8.

⁷⁴ This relates to operative paragraph 56 of resolution GC(67)/RES/8.

76. The Agency held three National Training Courses in Vienna on Equipment Operation, Testing and Maintenance in Preparation for Major Public Events for Benin in July 2023, for Côte D'Ivoire in November 2023, and for Ghana in December 2023.⁷⁵

77. The Agency continued to support Member State requests for loaned or donated hand-held radiation detection equipment in support of their detection systems, including nuclear security assistance for preparation and support for MPEs, and training in radiation detection equipment operation, frontline maintenance and calibration. During the reporting period, 2 Member States received equipment through a loan process; 224 items of equipment in total were loaned from over 1590 items of nuclear security detection and monitoring equipment maintained by the Agency.⁷⁶

M. Strengthening Agency Internal Planning and Improving Workforce Diversity



An International School on Nuclear Security was held in Havana in February–March 2024. (Photo: O. Hakam/IAEA)

78. During the reporting period, the Agency continued to strengthen its results based management approach. Specifically, the Agency implemented pre- and post-training knowledge tests for selected courses to quantify the increase in knowledge among trainees resulting from instruction. In addition,

⁷⁵ This relates to operative paragraph 56 of resolution GC(67)/RES/8.

⁷⁶ This relates to operative paragraphs 56 and 64 of resolution GC(67)/RES/8.

follow-up surveys were distributed to trainees six or more months after the training to understand the practical actions and measures taken by trainees after the training. The data obtained highlights specific results and informs further programme planning.⁷⁷

79. The Agency circulated follow-up surveys among IAEA Fellowship Programme participants completing the international Master's programme in nuclear security at the University of National and World Economy (UNWE) in Sofia, Bulgaria, and among participants of the International School on Nuclear Security for students of the Marie-Sklodowska Curie Fellowship Programme (MSCFP) to understand the impact of these initiatives, which are aimed at enhancing nuclear security.⁷⁸

80. The Agency also placed significant emphasis on defining performance indicators for the revised functional areas of the INSSP and the Nuclear Security Information Management System self-assessment questionnaire. These aim to help States review their nuclear security infrastructure, track progress, identify and prioritize further needs, and enable the Agency to provide targeted approaches to meeting nuclear security needs at the State, regional and international levels. The Agency continued to cluster and sequence its responses to Member States needs into a smaller number of larger projects along thematic and geographical lines, focusing on outcomes and taking into account the graded approach and the order of operations for training in establishing and sustaining national nuclear security regimes.⁷⁹

81. During the reporting period, the Agency continued to focus on gender parity in nuclear security by including sessions on the topic in training courses, nuclear security schools and the INSEN meetings. The Agency also hosted meetings including the Leadership Academy for Nuclear Security, held in Vienna in August 2023 and in Rabat in October 2023.⁸⁰

82. During the reporting period, 17 fellows of the MSCFP continued their enrolment in Master's programmes related to nuclear security, and 3 were placed in the Division of Nuclear Security for their internships.⁸¹

83. During the reporting period, the Agency held three International Schools on Nuclear Security: one in Vienna in July 2023 for fellows of the MSCFP; one in Havana in February 2024; and one in Trieste, Italy, in April 2024. The purpose of the Schools was to provide early career professionals from nuclear facilities and other relevant institutions with a basic understanding of nuclear security. Participants learned and explored a broad spectrum of topics in nuclear security to enhance their skills in the field. The Schools also included specific sessions related to gender parity in nuclear security, including panels organized by the Women in Nuclear Security Initiative.⁸²

⁷⁷ This relates to operative paragraph 60 of resolution GC(67)/RES/8.

⁷⁸ This relates to operative paragraph 60 of resolution GC(67)/RES/8.

⁷⁹ This relates to operative paragraph 60 of resolution GC(67)/RES/8.

⁸⁰ This relates to operative paragraph 61 of resolution GC(67)/RES/8.

⁸¹ This relates to operative paragraph 61 of resolution GC(67)/RES/8.

⁸² This relates to operative paragraph 61 of resolution GC(67)/RES/8.

N. Supporting Infrastructure and Technology Upgrades and Associated Training Needs



*A Regional Workshop on Developing a National Framework for Managing the Response to Criminal or Intentional Unauthorized Acts Involving Nuclear or Other Radioactive Material was held in Tokai, Japan in August–September 2023.
(Photo: F. Liu/IAEA)*

84. The Agency provided continued assistance to 7 Member States with physical protection upgrades at nuclear facilities. These upgrades are complemented by specialized technical training to support the operation, maintenance and sustainability of physical protection equipment, systems and measures for detection, delay and response.⁸³

85. The Agency conducted a Regional Workshop on Developing a National Framework for Managing the Response to Criminal or Intentional Unauthorized Acts Involving Nuclear or Other Radioactive Material in Tokai, Japan, in August–September 2023 and an International Workshop on the same topic in Beijing in October–November 2023.⁸⁴

86. In April 2024, the Agency conducted a mission to Hanoi in relation to Viet Nam’s Roadmap for Capability Development to Respond to Criminal or Intentional Unauthorized Acts involving Nuclear or other Radioactive Material.⁸⁵

⁸³ This relates to operative paragraph 64 of resolution GC(67)/RES/8.

⁸⁴ This relates to operative paragraph 64 of resolution GC(67)/RES/8.

⁸⁵ This relates to operative paragraph 64 of resolution GC(67)/RES/8.

O. Conclusions

87. All Agency activities related to nuclear security continue to be undertaken in a prioritized manner within available resources and with due regard to the protection of confidential information.⁸⁶

88. The Agency will continue to produce this report and the Nuclear Security Review on an annual basis as complementary documents, within their defined scopes and minimizing duplication, in response to nuclear security resolutions and in consultation with Member States.⁸⁷

⁸⁶ This relates to operative paragraphs 60, 66 and 69 of resolution GC(67)/RES/8.

⁸⁷ This relates to operative paragraph 67 of resolution GC(67)/RES/8.

Annex

Table of Concordance

Table of Concordance Between Resolution GC(67)/RES/8 Operative Paragraphs (OPs) Associated with Agency Action and Paragraphs of this Report

OP	Report Paragraph	OP	Report Paragraph
1	2	36	45, 46, 47, 48, 49
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5	6, 7, 8, 9, 10, 11, 39, 72	41	51, 52, 53, 54
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