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(GC(64)/1 and Add.1)

NUCLEAR SECURITY REPORT 2020

Report by the Director General

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Nuclear Security Report 2020

Report by the Director General

Summary

This report has been produced for the sixty-fourth regular session (2020) of the General Conference in response to resolution GC(63)/RES/8, in which the General Conference requested that the Director General submit an annual report on activities undertaken by the Agency in the area of nuclear security, and on external users of the Incident and Trafficking Database (ITDB) and on past and planned activities of educational, training and collaborative networks, as well as highlighting significant accomplishments of the previous year within the framework of the Nuclear Security Plan and indicating programmatic goals and priorities for the year to come. This report covers the period 1 July 2019–30 June 2020.

Recommended Action

It is recommended that the Board of Governors take note of the Nuclear Security Report 2020.

Nuclear Security Report 2020

Report by the Director General

A. Introduction

1. This report has been produced for the sixty-fourth regular session of the General Conference in response to resolution GC(63)/RES/8. In operative paragraph 53 of that resolution, the General Conference requested the Director General to submit an annual report to the General Conference on activities undertaken by the Agency in the area of nuclear security, and on external users of the Incident and Trafficking Database (ITDB) and on past and planned activities of educational, training and collaborative networks, as well as highlighting significant accomplishments of the previous year within the framework of the Nuclear Security Plan and indicating programmatic goals and priorities for the year to come. This report covers the period 1 July 2019–30 June 2020.

2. Responsibility for nuclear security rests entirely within a State. The Agency continued to provide assistance, upon request, to States in their national efforts to establish and maintain effective and sustainable nuclear security regimes.[1] During the reporting period, the Agency continued to implement activities under the *Nuclear Security Plan 2018–2021*, approved by the Board of Governors in September 2017 and taken note of by the General Conference at its 61st regular session in September 2017.[2] All activities continue to be undertaken with due regard to the protection of confidential information.[3]

3. During the period of this report, a number of Agency activities were postponed or deferred due to national and international measures taken to limit the spread of the virus causing COVID-19. In many cases, solutions were developed to continue activities remotely. However, some meetings, workshops and training courses planned for this period needed to be postponed to late 2020 or early 2021 and will be addressed under the Nuclear Security Report 2021.

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[1] See GC(63)/Res/8, paragraph 27 and 28

[2] See GC(63)/Res/8, paragraph 3

[3] See GC(63)/Res/8, paragraph 52

B. Summary

IAEA Director General Rafael Mariano Grossi delivers his remarks at the opening of the IAEA Gender Side Event - Women in Nuclear during the International Conference on Nuclear Security ICONS 2020: Sustaining and Strengthening Efforts held at the Agency headquarters in Vienna, Austria. 11 February 2020

4. The Agency plays a central role in strengthening the nuclear security framework globally and in coordinating international activities in the field of nuclear security, while avoiding duplication and overlap. During the reporting period, in support of this central role as set out in multiple General Conference resolutions, the Agency undertook a number of activities.

5. Notably, the Agency continued to develop international consensus guidance on nuclear security and published it as part of the IAEA Nuclear Security Series. These publications are consistent with, and complement, international nuclear security instruments, such as the Convention on the Physical Protection of Nuclear Material (CPPNM) and its Amendment, the International Convention for the Suppression of Acts of Nuclear Terrorism, United Nations Security Council resolutions 1373 and 1540, and the Code of Conduct on the Safety and Security of Radioactive Sources. The IAEA Nuclear Security Series forms the basis of the Agency's nuclear security assistance to States.

6. In addition, through Integrated Nuclear Security Support Plans (INSSPs), the Agency worked together with States to review States' nuclear security regimes and identify areas where they need to be strengthened. An INSSP, tailored specifically for a State, allows the State to identify priority actions towards establishing an effective and sustainable nuclear security regime. The Agency provides targeted assistance to States, upon request, in the form of national, regional and international workshops and training courses, as well as technical assistance and risk-reduction activities.

7. Further, to build and maintain the framework needed for States to effectively communicate with and assist one another, the Agency undertook activities such as organizing major conferences and

Technical Meetings on nuclear security topics, worked towards the universalization of international legal instruments relevant to nuclear security and convened information exchange meetings to encourage communication among organizations active in various aspects of nuclear security.

8. At the same time, the Agency continued to strengthen its work to promote workforce diversity, including gender equality and geographical diversity in the context of its nuclear security activities. Notably, the Agency convened a Gender Side Event - Women in Nuclear during the International Conference on Nuclear Security: Sustaining and Strengthening Efforts in February 2020, as well as a panel discussion on Gender Initiatives on Women in Nuclear Security during the International Nuclear Security Education Network (INSEN) Annual Meeting in July 2020.[4]

9. In line with the ongoing priorities identified by Member States, the main programmatic goals and priorities in nuclear security for the reporting period, as identified in the *Nuclear Security Report 2019* (document GC(63)/10/Rev. 1), were to:

- Promote further adherence to the Amendment to the CPPNM with the aim of its universalization and continue preparations for the 2021 Conference of the Parties to the Amendment to the CPPNM;
- Continue preparations for the International Conference on Nuclear Security, held in Vienna in February 2020;
- Continue to strengthen the Agency's work to assist States, upon request, in strengthening their nuclear security regimes, particularly with respect to capacity building and the development of regulatory frameworks, and to enhance the internal coordination at the Agency needed to accomplish this effectively;
- Improve the Agency's communications on nuclear security; and
- Initiate a project to establish a demonstration and training facility for nuclear security at Seibersdorf.

During the reporting period, the Agency recorded achievements in each of these areas. These achievements, among others, are described briefly in the following paragraphs. In addition to the meetings detailed in Section C, several consultancy meetings and expert missions took place virtually in the second quarter of 2020 owing to the COVID-19 outbreak. In addition, a virtual process was initiated to continue discussions related to the need for a revision of the *Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Revision 5)* (IAEA Nuclear Security Series No. 13).

The CPPNM and its Amendment

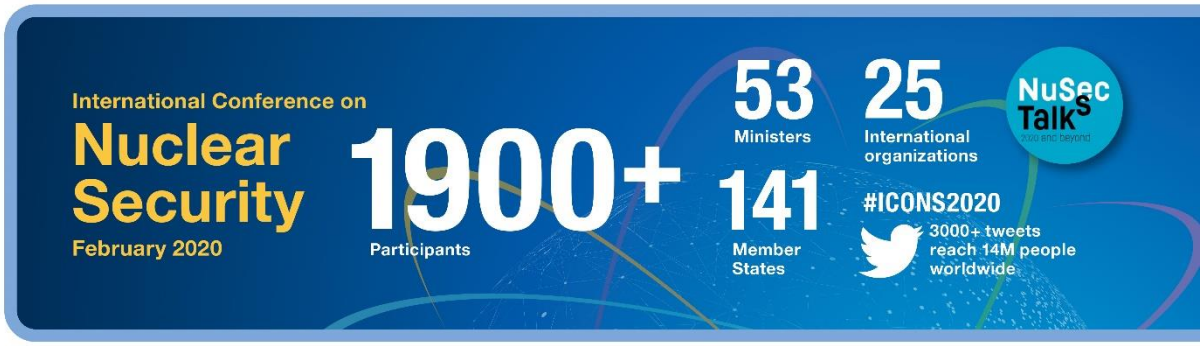
10. The Agency increased its efforts to promote universal adherence to the Amendment to the CPPNM, with targeted outreach efforts to both States that are party to the CPPNM but not yet the Amendment as well as to those that have not yet ratified the CPPNM, including through the organization of two regional events. Side events and technical sessions at major conferences were

[4] See GC(63)/Res/8, paragraph 49

also organized, as well as Agency participation in outreach events convened by other organizations.[5]

11. In parallel, the Agency intensified its efforts to assist States Parties in preparing for the 2021 Conference of the Parties to the Amendment to the CPPNM (2021 Conference) by holding two meetings of legal and technical experts in preparation for the 2021 Conference with the aim of facilitating the review, at the 2021 Conference, of the implementation and adequacy of the CPPNM as amended, as foreseen in Article 16.1 thereof.[6]

The International Conference on Nuclear Security



12. In February 2020, the Agency organized the International Conference on Nuclear Security: Sustaining and Strengthening Efforts (ICONS 2020). The conference, held in Vienna, brought together more than 1900 participants, including a record number of 53 ministers, from 141 Member States, 4 non-Member States and 25 international organizations, to formulate and exchange views on experiences and achievements, current approaches, future directions and priorities for nuclear security. Member States adopted a Ministerial Declaration reaffirming their support for nuclear security, and 109 national statements were delivered. [7]

Assisting States in strengthening their nuclear security regimes

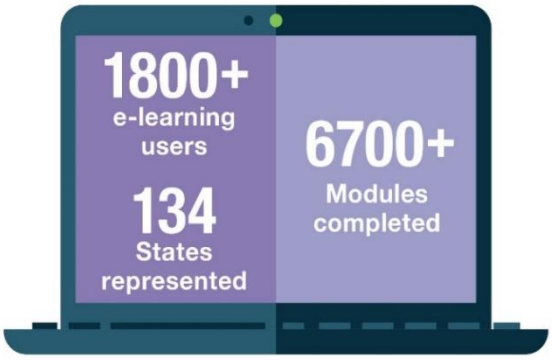
13. The Agency continued to strengthen its work to assist States, upon request, in strengthening their nuclear security regimes. The Agency published three new and two revisions of guidance publications in the IAEA Nuclear Security Series. More than 2400 participants from 142 States took part in 113 training activities based on the Series. In addition, more than 1800 users from 134 States completed over 6700 e-learning modules on nuclear security.[8]

[5] See GC(63)/Res/8, paragraph 10

[6] See GC(63)/Res/8, paragraph 11

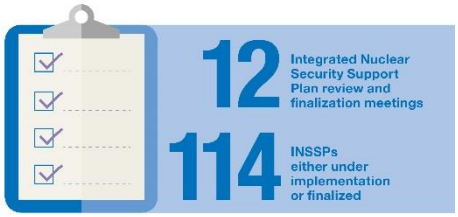
[7] See GC(63)/Res/8, paragraph 5

[8] See GC(63)/Res/8, paragraph 25



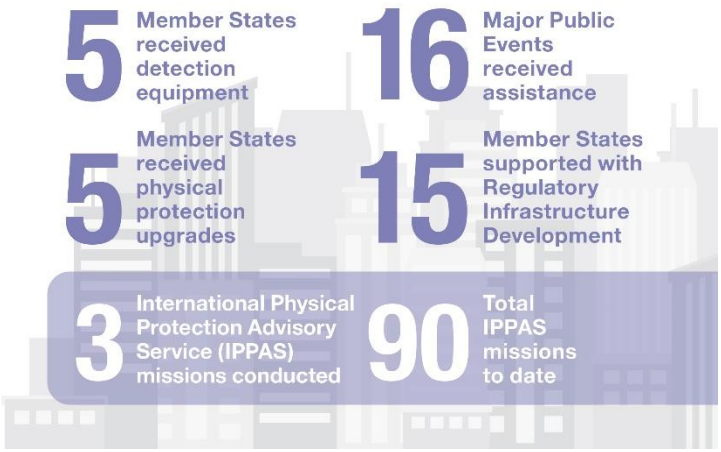
14. One Member State formally approved an INSSP, bringing the number of approved INSSPs to 84. The total number of INSSPs either under implementation or finalized increased from the previous reporting period to 114, and the Agency organized 8 INSSP review meetings and 4 INSSP finalization meetings. [9]

15. The Agency also conducted three International Physical Protection Advisory Service missions and provided assistance to 11 States hosting 16 major public events[10] in order to strengthen the implementation of nuclear security measures before and during the events. The Agency provided five States with handheld detection equipment.



16. During the reporting period, States reported 208 national incidents to the ITDB. Five reported incidents involved acts of trafficking or malicious use. None of these five incidents involved nuclear material or Category 1 to 3 radioactive sources.[11]

17. In addition, during the reporting period, the Agency supported the removal of one high activity disused sealed radioactive source and the consolidation of nine others. At the request of Member States, the Agency continued to assist with physical protection upgrades for facilities, and physical protection upgrades were completed in 5 Member States at 1 nuclear power plant and 12 hospitals with high activity radioactive sources. During the reporting period, the Agency provided assistance related to draft nuclear security regulations to 15 Member States, including to 6 Member States on regulations for physical protection of nuclear facilities and material, to 7 Member States on regulations for security of



[9] See GC(63)/Res/8, paragraph 30

[10] See GC(63)/Res/8, paragraph 44

[11] See GC(63)/Res/8, paragraph 38

other radioactive material, associated facilities and activities, and to 5 Member States on transport security regulations.[12] [13]

18. The Agency continued to strengthen coordination between the Division of Nuclear Security and other parts of the Agency, including through activities undertaken jointly between the Division of Nuclear Security and other Divisions and Departments. Examples of this cooperation include a Regulatory Infrastructure Development Project in Africa, launched in January 2020; the participation of nuclear security experts in three imPACT Review missions; the launching of a new nuclear security project to support the safe and secure storage of radioisotope thermoelectric generators, jointly established with the Division of Radiation, Transport and Waste Safety and in close coordination with the Departments of Technical Cooperation and Nuclear Energy; and two joint Technical Meetings on safety–security interfaces with the Division of Nuclear Installation Safety. Further, efforts were made during the reporting period to bring the IAEA Nuclear Security Series development process further in line with the process used for the IAEA Safety Standards Series.

Communications on nuclear security

19. The Agency increased its external communications on nuclear security, publishing 30 articles, 1 photo essay and 2 videos on the Agency's website, as well as issuing 5 press releases. Nuclear security was also mentioned in many articles not primarily focused on nuclear security. The Agency also executed a print and social media communication campaign in advance of and during ICONS 2020. The campaign included an essay competition for young professionals and an issue of the Agency's flagship publication, the *IAEA Bulletin*, focused on nuclear security and ICONS 2020. Over 3000 tweets with the hashtag #ICONS2020 were published by the Agency and other Twitter users, reaching around 14 million people worldwide. In addition, Director General Grossi has emphasized the importance of nuclear security in numerous speeches and presentations, including in 12 public statements delivered to broad audiences and focused primarily on nuclear security.[14]

Establishment of a demonstration and training facility in Seibersdorf

20. The Agency initiated work to establish a specialized training facility for the demonstration of equipment and technologies related to nuclear security and the organization of training activities on the implementation of nuclear security systems and measures at major public events. When complete, this facility will be available for use by all parts of the Agency for events, as needed, and will serve as a meeting and briefing point for the Agency's external visitors, trainees and fellows. The facility will complement the activities of national Nuclear Security Support Centres and its infrastructure investments are planned to be implemented effectively and sustainably managed.

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[12] In some cases, assistance with regulations was provided in multiple areas to Member States.

[13] See GC(63)/Res/8, paragraph 14

[14] See GC(63)/Res/8, paragraph 16

C. Major Achievements

C.1. Information Management

Participants in a cybersecurity exercise are working to defend a mock nuclear power plant's computer system against a fictitious computer attack. (Photo: S. Purivs/IAEA). IAEA International Training Course (ITC) on Protecting Computer Based Systems in Nuclear Security Regimes; Daejeon, South Korea from 4-15 November 2019.

21. Agency work in this sub-programme is carried out under three projects: assessing nuclear security needs and priorities, information sharing, and information and computer security and information technology services.

C.1.1. Assessing nuclear security needs and priorities

Integrated Nuclear Security Support Plans[15]

22. The Agency continues to give high priority to the development and implementation of Integrated Nuclear Security Support Plans (INSSPs) to assist States, upon request, in applying a systematic and comprehensive approach to enhancing their nuclear security regimes. The development and implementation of INSSPs also enables increased coordination between the Agency, the State concerned and potential donors to ensure appropriate allocation of resources and to avoid duplication of efforts.

23. One Member State formally approved its INSSP, bringing the total number of approved INSSPs to 84. As of 30 June 2020, there were 21 INSSPs awaiting Member State acceptance and 2 INSSPs awaiting finalization with the respective Member States. Seven INSSPs were in the initial drafting stage. The Agency held eight INSSP review meetings and four INSSP finalization meetings.

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[15] See GC(63)/Res/8, paragraph 30

24. The Agency held two regional coordination meetings: for Europe, in Bucharest in July 2019, and for Africa, in Dakar in November 2019. In addition, nine expert missions were undertaken to raise awareness of nuclear security among decision-makers in Africa, Latin America and the Caribbean, and Asia.

25. To assist Member States to better prepare for INSSP review and finalization meetings, a preparatory information package was finalized during the reporting period that is systematically provided to Member States prior to these meetings, and arrangements were made to enable the convening of preparatory discussions via videoconference, when necessary. Efforts were also initiated to better align the Nuclear Security Information Management System self-assessment tool, addressed below, with the INSSP structure.

Nuclear Security Information Management System

26. The Agency continued to maintain and update the Nuclear Security Information Management System (NUSIMS), a web-based platform that includes a tool for States to perform nuclear security self-assessments on a voluntary basis.[16] Ninety-seven Member States have nominated points of contact for NUSIMS. NUSIMS self-assessment questionnaires were systematically used in INSSP finalization and review meetings. The Agency conducted INSSP meetings in Africa, Latin America and the Caribbean, Europe and Asia using NUSIMS self-assessments as a tool to frame discussions. In addition, the Agency actively worked to promote the completion of NUSIMS self-assessment surveys prior to and in preparation for INSSP meetings, and a regional workshop to assist Member States with the self-assessment of their nuclear security regimes was convened for Latin America and the Caribbean in Vienna in February 2020.

C.1.2. Information Sharing

Incident and Trafficking Database[17]

27. In the period between the inception of the Incident and Trafficking Database (ITDB) and 30 June 2020, States had reported — or otherwise confirmed to the ITDB — a total of 3768 incidents. Reports of 208 incidents were added to the database in the reporting period. Of these incidents, 94 occurred between 1 July 2019 and 30 June 2020. While the Agency does not verify States' reports, the number of incidents voluntarily reported by participating States to the ITDB demonstrates that illicit trafficking, thefts, losses and other unauthorized activities and events involving nuclear and other radioactive material continue to occur.

28. Of the 208 newly reported incidents, 5 were related to trafficking, including 2 scams. All of the material involved in these incidents was seized by the relevant competent authorities within the reporting State. No incidents involved high enriched uranium, plutonium or Category 1 sources.

29. There were 67 reported incidents in which the intent to conduct trafficking or malicious use could not be determined. These included 55 thefts, 3 unauthorized possession and 9 incidents of missing materials. In 53 incidents, the materials, all of which involved lower-risk sources below Category 3, were not recovered.

30. There were also 136 reported incidents in which the material was out of regulatory control but not related to trafficking, malicious use or scams. Most of these incidents involved unauthorized

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[16] See GC(63)/Res/8, paragraph 50

[17] See GC(63)/Res/8, paragraph 38

disposal, unauthorized shipments and unexpected discoveries of material such as previously lost radioactive sources.

31. External users of the ITDB include the United Nations, the United Nations Office for Disarmament Affairs, the United Nations Office on Drugs and Crime, the United Nations Economic Commission for Europe, the International Civil Aviation Organization, the International Maritime Organization, the International Rail Transport Committee, the International Criminal Police Organization, the Organisation for Co-operation between Railways, the Universal Postal Union, the World Customs Organization, the Police Community of the Americas, the European Commission (including the Joint Research Centre Karlsruhe), the European Atomic Energy Community, the European Union Agency for Law Enforcement Cooperation, and the Organization for Security and Co-operation in Europe.

32. During the reporting period, the Agency provided information on incident notifications and conducted membership outreach through two information and coordination workshops: one for Member States in the Black and Caspian Sea regions, held in Tbilisi in September 2019; and an one for Member States in North Africa and the Middle East, held in Amman in November 2019. An international training course for new and prospective ITDB points of contact was held in Vienna in July 2019.

33. The Agency also provided quarterly ITDB analytical summary reports, an annual factsheet summarizing ITDB incidents for public information and, in response to requests from Member States, additional information services in support of four major public events. Further details of the events are set out in paragraphs 83-86 of this report.

34. The ITDB programme provided analytical support in the development and implementation of INSSPs for nine Member States.

Nuclear Security Information Portal

35. The Agency continued to maintain and improve the Nuclear Security Information Portal (NUSEC), an information tool for Member States that supports the exchange of information across the nuclear security community. The web-based NUSEC has more than 6000 registered users from 170 Member States and 17 organizations. An approximately 10 per cent increase in registered users in the past year has enabled the Agency to reach a wider international security community with information on developments in nuclear security. Improvements made to NUSEC in the reporting period include continued work to redesign the International Nuclear Security Education Network (INSEN) pages and further enhancements to the International Network for Nuclear Security Training and Support Centres (NSSC Network) database to bring it in line with the newly revised publication provisionally entitled *Establishing and Operating a Nuclear Security Support Centre*. In addition, two additional user groups have been established on NUSEC, one focused on major public events and another on response frameworks and plans.

C.1.3. Information and Computer Security, and Information Technology Services[18]

Guidance development

36. An Implementing Guide provisionally entitled *Computer Security for Nuclear Security* and a Technical Guidance provisionally entitled *Computer Security Techniques for Nuclear Facilities* received final approval for publication as part of the IAEA Nuclear Security Series.

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[18] See GC(63)/Res/8, paragraph 42

Assistance provided to States

37. During the reporting period, the Agency convened an International Training Course for Protecting Computer Based Security Systems in Nuclear Security in Daejeon, Republic of Korea, in November 2019. In addition, four regional training courses were held: two on raising awareness for information and computer security, for Latin America in Buenos Aires in August 2019 and for Africa in Cairo in November 2019; one on computer security for industrial control systems for Africa in Vienna in December 2019; and one on computer security incident response for nuclear facilities for East Asia and the Pacific in Sydney, Australia in March 2020.

38. The Agency held a Technical Meeting on Computer Security Approaches and Applications in Nuclear Security in Berlin in September 2019, to discuss the identification of computer-based systems and the essential role they play in safety and security with a view to protecting and defending against cyberattacks, involving 142 participants from 67 Member States.

39. The Agency also developed three computer-based cybersecurity demonstrations and organized numerous other demonstrations with participants as part of a dedicated side event entitled ‘Cyber Village’ during ICONS 2020 in February 2020. This side event had the goal of raising awareness of the need for computer security across the breadth of nuclear security through technical demonstrations of actual digital components relating to the prevention and detection of and the response to nuclear security events.

C.2. Nuclear Security of Materials and Associated Facilities

Participants present results after a small group scenario-based discussion about strengthening physical protection at a hypothetical facility at a security upgrades workshop held in March 2020 in Vienna.

40. Agency work in this sub-programme is carried out under four projects corresponding to four areas of expertise relevant to nuclear security of nuclear and other radioactive materials and associated facilities and activities: nuclear security approaches for the whole nuclear fuel cycle, enhancing nuclear material security using accounting and control, upgrading security of radioactive material and associated facilities, and nuclear security in transportation of nuclear and other radioactive material.

C.2.1. Nuclear Security Approaches for the Whole Nuclear Fuel Cycle

Guidance development

41. The Technical Guidance *Developing a Nuclear Security Contingency Plan for Nuclear Facilities* was published as IAEA Nuclear Security Series No. 39-T. The Technical Guidance publication provisionally entitled *Regulatory Authorization for Nuclear Security during the Lifetime of a Nuclear Facility* was approved by the Nuclear Security Guidance Committee (NSGC) to be sent to Member States for review. A document preparation profile for a Technical Guidance publication provisionally entitled *Identification of Sabotage Targets and Vital Areas at Nuclear Facilities*, which would revise and merge the two existing publications *Engineering Safety Aspects of the Protection of Nuclear Power Plants against Sabotage* (IAEA Nuclear Security Series No. 4) and *Identification of Vital Areas at Nuclear Facilities* (IAEA Nuclear Security Series No. 16), was approved by the NSGC.

Assistance provided to States

42. The Agency provides assistance to States, on request, for the development and enhancement of their regulatory frameworks for nuclear security.[19] During the reporting period, the Agency provided support to Egypt, Ghana, Morocco, Rwanda and Sudan to review and finalize their draft regulations on the physical protection of nuclear material and facilities. Two national workshops were held on this topic, one for Ghana, in Accra in October 2019, and another for Romania, in Vienna in December 2019.

43. During the reporting period, the Agency conducted one International Train-the-Trainers Course on the Physical Protection of Nuclear Material and Nuclear Facilities in New Delhi in December 2019. A regional training course was held in Tokai, Japan in September 2019 and national training courses and workshops were convened in Cape Town, South Africa and in Islamabad, in July 2019, and in Rawalpindi, Pakistan, in August 2019. The Agency also conducted an International Workshop on Management of the Response to a Nuclear Security Event at Nuclear Facilities in Daejeon, Republic of Korea in July 2019; two national workshops on this topic, in Rawalpindi, Pakistan in September 2019 and in Amman in October 2019; and a National Workshop on Contingency Response Performance Testing Exercises at Nuclear Facilities in Paks, Hungary in October 2019.

44. The Agency, in cooperation with the Russian Federation, conducted three international training courses in the Russian Federation: on physical protection inspections at nuclear facilities in Obninsk in October 2019; on the establishment of a nuclear security regime for nuclear power programmes in Saint Petersburg in November 2019; and on field training for university students, in Obninsk in December 2019.

45. The Agency, in cooperation with the United States of America, continued to conduct an advanced three-week International Training Course on the Physical Protection of Nuclear Material and Nuclear Facilities. This course is available to Member States that have nuclear facilities in operation, under construction or under decommissioning. The course was conducted in October–November 2019 at Sandia National Laboratories in the United States of America. It was attended by 57 participants from

[19] See GC(63)/Res/8, paragraph 14

40 Member States and was the largest in this series to date. Since its introduction in 1978, this course has been attended by 982 participants from 75 Member States.

46. Through the Uranium Ore Concentrate (UOC) project, the Agency has continued to assist Member States through training courses based on the Agency publication *Nuclear Security in the Uranium Extraction Industry*. The courses focus on implementing prudent management practices to protect, control and manage UOC in processing, storage and transport. The Agency conducted a Regional Training Course on Nuclear Security in the Uranium Extraction Industry in Cairo in September 2019.

47. At the request of five Member States, the Agency provided assistance with physical protection upgrades for nuclear facilities. These upgrades include specialized technical training to support the operation, maintenance and sustainability of physical protection equipment, systems and measures for detection, delay and response. The Agency also conducted an International Workshop on Project Support and Management Approaches for Nuclear Security Upgrade Projects in Vienna in March 2020, and national workshops were organized on this topic in Cairo in December 2019 and in the United Kingdom for Egypt in March 2020.

Cross-cutting themes

48. Work described in this section relates primarily to the facilities and activities involving nuclear and other radioactive material, including transport.

Threat characterization and assessment

49. The Implementing Guide provisionally entitled *National Nuclear Security Threat Assessment, Design Basis Threats and Representative Threat Statements* (a revision of IAEA Nuclear Security Series No. 10) received final approval for publication in the IAEA Nuclear Security Series.

50. The Agency continued to advise States on threat characterization and assessment; the development, use and maintenance of design basis threats (DBTs) or representative threat statements; vulnerability analysis; and the development of methodologies for performance assessment of physical protection systems.

51. The Agency delivered two regional workshops on threat assessment and DBTs during the reporting period, in Beijing, for Member States in East Asia and the Pacific, and in Kingston, for Member States in the Caribbean, both in November 2019. The Agency also delivered three national workshops on this topic: in Harare in October 2019; in Tegucigalpa, in December 2019; and in Warsaw, in March 2020.

Nuclear security culture[20]

52. The Agency continued its efforts to enhance States' understanding of nuclear security culture and its application in practice through one international workshop, held in Moscow in July 2019, and one regional workshop for Latin America, held in Buenos Aires in November 2019. In addition, four national workshops on this topic were convened: in Tunis in September 2019, in Tirana in October 2019, in Niamey in November 2019 and in Tashkent in March 2020. The Agency also organized two national workshops on self-assessment of nuclear security culture, in Yerevan in July–August 2019 and in Cairo in February 2020, and one on nuclear safety culture and nuclear security culture, including interfaces between the two, in Riyadh in January 2020.

[20] See GC(63)/Res/8, paragraphs 23 and 24

Safety–security interface[21]

53. A Technical Meeting on Managing the Interface between Safety and Security for Nuclear Fuel Cycle Facilities was held in Vienna in October 2019. Twenty-three participants from 18 Member States met to exchange information on and share experiences in challenges and approaches for managing the interface between nuclear safety and security throughout the lifetime of nuclear fuel cycle facilities.

54. In addition, a Technical Meeting on Member States Specific Approaches to the Regulatory Oversight of the Safety and Security Interface for Nuclear Installations was held in Vienna in December 2019. Seventeen participants from 13 Member States attended.

International Physical Protection Advisory Service

55. Since 1996, a total of 90 International Physical Protection Advisory Service (IPPAS) missions have been conducted, upon request, in 54 Member States. During the reporting period, IPPAS missions were conducted in Madagascar in August 2019, in Uruguay in November 2019 and in Paraguay in December 2019.

56. The Agency held national IPPAS workshops, in Montevideo in July 2019, in Asunción in September 2019, in Kuwait City in October 2019, in Cape Town, South Africa in December 2019 and in Dakar in February 2020, to provide information on the processes for preparing and conducting IPPAS missions and on the benefits of such missions.

57. An international workshop for potential IPPAS team members was convened in Vienna in September 2019 to provide comprehensive information and hands-on training on the preparation for and conduct of IPPAS missions. Fifty-three participants from 34 Member States attended this workshop.

58. During the reporting period, the Agency updated the IPPAS Good Practices Database to include good practices identified during IPPAS missions conducted between May 2015 and December 2019. The data were generalized to remove specific references to the host country, the competent authority and the facility operator, and permission was requested from host countries to share good practices identified during missions in their countries with registered IPPAS points of contact on NUSEC.

C.2.2. Enhancing Nuclear Material Security Using Accounting and Control

Assistance provided to States

59. The Agency held an International Training Course on Nuclear Material Accounting and Control for Nuclear Security Purposes at Facilities in Daejeon, Republic of Korea, in August 2019. Sixty-seven participants from 30 Member States took part in the course.

60. The Agency’s Division of Nuclear Security and the Office of Safeguards Analytical Services initiated joint work to upgrade the nuclear security infrastructure at the Agency’s Nuclear Material Laboratory in Seibersdorf, Austria, in compliance with local regulations and the recommendations contained in IAEA Nuclear Security Series No. 13.

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[21] See GC(63)/Res/8, paragraph 19

Advising States on preventive and protective measures against insider threats[22]

61. The Implementing Guide *Preventive and Protective Measures against Insider Threats* was published as IAEA Nuclear Security Series No. 8-G (Rev. 1).

62. The Agency held an advanced international training course on preventive and protective measures against insider threats in Albuquerque, United States of America in July 2019. A regional training course for East Asia and the Pacific, on preventive and protective measures against insider threats, was held in Tokai, Japan in December 2019, and two national training courses were held on this topic in Chakri, Pakistan and in Pretoria in October 2019.

63. The Shapash Nuclear Research Institute, a hypothetical research facility, is used to support Agency training on nuclear security. During the reporting period, the Nuclear Security of Materials and Facilities Section developed an enhanced 3D model of the hypothetical facility and site layout, and it is currently developing an online database and virtual reality training tool for the facility. These tools are expected to enhance insider threat and nuclear material accounting and control (NMAC) training courses by providing trainees with a 3D representation of a facility's layout and buildings, including interior items (e.g. physical protection systems, NMAC systems and intra-site transport routes). Instructors can use these training tools throughout course presentations to enhance trainees' understanding of the associated content. The tools can also be adapted for use in other training courses that involve nuclear facilities or materials.

C.2.3. Upgrading Security of Radioactive Material and Associated Facilities

64. The Agency continued its efforts to support Member States through the development of guidance, training, and expert and technical support.

Guidance development

65. The Implementing Guide *Security of Radioactive Material in Use and Storage and of Associated Facilities* was published as IAEA Nuclear Security Series No. 11-G (Rev. 1). Technical Guidance provisionally entitled *Security Management and Security Plans for Radioactive Material and Associated Facilities* was approved for final publication.

Assistance provided to States[23]

66. The Agency completed its project dedicated to enhancing the national regulatory frameworks for nuclear security in African States.[24] The objective of the project was to assist States in the development and drafting of regulations to support national nuclear security regimes. As part of this project, the Agency organized a Regional Workshop to Facilitate the Creation of a Qualified Workforce of Nuclear Security Experts in the Africa Region, held in Vienna in January 2020. The Agency also launched a related project focused on enhancing national regulatory infrastructure for radiation safety and security of radioactive material in Africa, which was initiated at a Technical Meeting on the Development of Regulatory Infrastructure for African Countries, held in Vienna in January 2020, attended by 51 participants from 26 beneficiary States, alongside representatives of donor States and international experts.

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[22] See GC(63)/Res/8, paragraph 40

[23] See GC(63)/Res/8, paragraph 32

[24] See GC(63)/Res/8, paragraph 14

67. In addition, the Agency continued a similar project, with a focus on enhancing national regulatory infrastructure for both radiation safety and security for States in Latin America and the Caribbean, increasing the number of participating States from 8 to 15 during the reporting period, and organized a school for drafting radiation safety and nuclear security regulations for Member States in the Asia and the Pacific region, convened in Vienna in July–August 2019. [25]

68. During the reporting period, the Agency provided support to Ghana, Cameroon, Rwanda, Lesotho, Uganda, Seychelles and Burkina Faso to review and finalize their draft regulations on the security of other radioactive material and associated facilities and activities.[26] The Agency also developed guidelines, a questionnaire and a report template for advisory missions on regulatory infrastructure for radiation safety and security of radioactive material, which were piloted in the Central African Republic in September 2019.

69. During the reporting period, the Agency conducted a Regional Training Course on Security of Radioactive Material in Use and Storage in San José in March 2020, and a national workshop on this topic was held in Chisinau in February 2020. Two additional regional training courses related to this topic were held: on the basic aspects of the design of physical protection systems for radioactive sources, for Europe, in Obninsk, Russian Federation in November 2019, and on authorizations and inspections for the security of radioactive material and associated facilities, for Africa, in Algiers in October 2019. A national training course was also held on authorizations and inspections in Jakarta in September–October 2019.

70. Two Regional Training Courses on Addressing Insider Threats for Radioactive Material and Associated Facilities were held, for Africa in Yaoundé in July 2019 and for Latin America in Lima in October 2019, as well as a national workshop on this topic in Chisinau in August 2019. Two Regional Training Courses on Establishing a National Register of Radiation Sources Using the Agency's Regulatory Authority Information System were also conducted, for Africa in Rabat in October 2019 and for Latin America in San Salvador in March 2020.

71. Expert assistance was provided to Member States through international, regional and national technical cooperation projects and nuclear security projects. Physical protection projects to secure radioactive material in fixed applications in Egypt, Libya and Pakistan are ongoing.

72. The Agency continued to assist States with the secure management of disused sources. New projects were initiated in Algeria, Burkina Faso, the Congo, the Dominican Republic and Nicaragua for the removal of high activity disused sources, and a project is ongoing in Colombia for the consolidation of nine high activity disused sources. As part of an ongoing project to support the sustainable management of disused sealed radioactive sources in countries in Latin America and the Caribbean, in Africa and in the Asia-Pacific region, which supports States in the implementation of the 2018 Guidance on the Management of Disused Radioactive Sources, supplementary to the Code of Conduct on the Safety and Security of Radioactive Sources, 11 expert missions were undertaken during the reporting period. Further, in October 2019, the Agency launched a new project to assist Member States in strengthening the safety and security of disused radioisotope thermoelectric generators.

73. The Agency continued to support Member States in establishing a borehole disposal capacity through a pilot project for Ghana and Malaysia. This project focused on the development of regulations for borehole disposal, the development of guidance to assist competent authorities and operators, the

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[25] See GC(63)/Res/8, paragraph 14

[26] See GC(63)/Res/8, paragraph 14

conduct of expert missions to address technical implementation requirements, the development of mobile hot cell capabilities, the review of site characterization and design reports, and the review of safety and security cases by a team of international experts. The Malaysian authorities issued a licence for borehole disposal in August 2019.

Support for the Code of Conduct on the Safety and Security of Radioactive Sources[27]

74. As of 30 June 2020, 141 States have made a political commitment to implement the Code of Conduct on the Safety and Security of Radioactive Sources, of which 123, including 4 States in the reporting period, have also notified the Director General of their intention to act in a harmonized manner in accordance with the Code's supplementary Guidance on the Import and Export of Radioactive Sources. A total of 145 States have nominated points of contact to facilitate the export and import of radioactive sources. Thirty-nine States have notified 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, including 15 States in the reporting period.

C.2.4. Nuclear Security in the Transport of Nuclear and other Radioactive Material

Assistance provided to States

75. The Agency continues to assist Member States, upon request, in strengthening transport security arrangements at the national and international levels, based on the relevant recommendations, and with their practical implementation.

76. The Agency held an International Training Course on the Security of Radioactive Material in Transport in Beijing in September 2019, and a Regional Workshop on Conducting a Transport Security Inspection for French-speaking African States was held in Rabat in July 2019. The Agency also held two national training courses aimed at improving the security of nuclear and other radioactive material in transport, in Dushanbe in November 2019 and in Bucharest in March 2020.

77. The Agency assisted States with the development and improvement of national regulatory infrastructures related to transport security of nuclear and other radioactive material.[28] Five national workshops were held to discuss completed regulations: in Dakar and Yaoundé, in October 2019; in Abuja and Bamako, in November 2019; and in N'Djamena, in January 2020.

78. In October 2019, the Agency assisted the Republic of Moldova with the transport of a disused irradiator from Tiraspol to a waste repository in Chisinau.

C.3. Nuclear Security of Materials out of Regulatory Control[29]

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[27] See GC(63)/Res/8, paragraph 34

[28] See GC(63)/Res/8, paragraph 14

[29] The project titles listed here under C.3.1 and C.3.2 have changed relative to the last Nuclear Security Report, for consistency with the project titles in the 2020-2021 IAEA Programme and Budget.

At a mock crime scene with radioactive material and contaminated evidence, participants practiced how to investigate and securely and safely collect evidence during an IAEA National Workshop on Radiological Crime Scene Management (RCSM) in Yerevan, Armenia. November 11-15, 2019.

79. Agency work under this sub-programme is carried out under three projects: institutional response infrastructure for nuclear and other radioactive material out of regulatory control, nuclear security detectionarchitecture, and radiological crime scene management and nuclear forensic science.

C.3.1. Institutional Response Infrastructure for Material out of Regulatory Control

Assistance provided to States[30]

80. The Agency uses a project approach to assist Member States, upon request and in coordination with NSSCs, for the response to nuclear security events involving material out of regulatory control. The project approach follows the Agency's Implementing Guides and begins with a Member State developing a road map of response activities that the Agency can support by holding a national workshop. The Agency's assistance covers the development of national response plans for nuclear security events, the exercising of those plans, training of national law enforcement personnel in radiological crime scene management and the procurement of radiation detection equipment to support the response. In support of this approach, the Agency held a regional workshop for Member States in the Balkan region, in Mostar, Bosnia and Herzegovina in November 2019. National workshops on this topic were held in Cairo in August 2019, in Bangkok in September 2019 and in Minsk in January 2020.

[30] This section describes only assistance provided by the Agency with respect to response to nuclear security events, and does not include assistance with response to emergencies triggered by nuclear security events. The Agency's assistance in this area is described in detail in the report by the Director General on *Nuclear and Radiation Safety* (GOV/2020-35-GC(64)/7).

81. Under the Collaborating Centre Agreement between the Agency and Spain's Civil Guard, signed in March 2019, the Agency and the Civil Guard conducted their first official joint nuclear security activity, an International Workshop on Developing a National Framework for Managing the Response to Nuclear Security Events for Spanish-speaking Member States at the Civil Guard's Explosive Ordinance Disposal and Chemical, Biological, Radiological and Nuclear Defence Training Centre (CADEX-NRBQ) in Valdemoro, Spain in March 2020.

82. The Agency and the United States of America co-organized an International Workshop on Nuclear Security Measures and Emergency Response Arrangements for Ports to strengthen Member States' capabilities for planning and preparing for the implementation of nuclear security and emergency preparedness and response systems and measures at ports. This workshop was delivered in Las Vegas, United States of America, in November 2019.

Major public events[31]

83. The Agency provides, upon request, assistance to States hosting major public events to strengthen the implementation of nuclear security measures before and during the events. Such assistance includes coordination meetings, the delivery of workshops and training in the deployment of resources and use of detection equipment at such events. During the reporting period, the Agency assisted with preparations for the following major public events: the Tokyo 2020 Olympic and Paralympic Games in Japan, the African Union Assembly of Heads of State and Government in the Niger, the 2019 Africa Cup of Nations in Egypt, the 2019 Pan American Games and the 2019 Parapan American Games in Peru, the 2019 Asia-Pacific Economic Cooperation Summit and 2019 United Nations Climate Change Conference, initially planned to take place in Chile, the visits of Pope Francis to Madagascar and Mozambique, the Royal Barge Procession in Thailand, the 2020 African Nations Championship in Cameroon, the 2020 Commonwealth Heads of Government Meeting in Rwanda, the 2020 Association of Southeast Asian Nations Summit in Viet Nam, Expo 2020 Dubai in the United Arab Emirates, and the 2020 Copa América in Argentina[32].

84. In October 2019, the Agency successfully conducted the International Seminar on Nuclear Security Systems and Measures for Major Public Events — 15 Years of Experience: Challenges and Good Practices in Chengdu, China. A total of 114 participants from 33 Member States participated in the seminar.

85. The Agency held a Regional Workshop on Developing Nuclear Security Systems and Measures for Major Public Events for Latin America in Rio de Janeiro, Brazil in November 2019. The Agency also held two national training activities, in Maputo in August 2019 and in Yaoundé in March 2020, as well as several expert missions in support of major public events. A technical visit was also conducted to the United States of America in relation to the 2020 Super Bowl in January 2020, with the goal of assisting a Japanese delegation to improve their understanding of how nuclear security measures could be successfully applied for the 2020 Tokyo Olympic Games.

86. The Agency loaned a total of 704 radiation detection instruments to States for major public events.

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[31] See GC(63)/Res/8, paragraph 44

[32] Although some of these events had to be postponed or cancelled owing to the COVID-19 outbreak or other reasons, the Agency's assistance had already been provided during the reporting period.

C.3.2. Nuclear Security Detection Architecture

87. The Agency develops guidance and provides training and assistance to States, upon request, to establish and sustain their capabilities to detect criminal or intentional unauthorized acts involving nuclear and other radioactive material out of regulatory control, and to respond to nuclear security events. The Agency also initiates and manages coordinated research projects to address emerging nuclear security issues identified by Member States and to enhance States' technical capabilities.

Guidance development

88. The Implementing Guide entitled *Preventive Measures for Nuclear and other Radioactive Material out of Regulatory Control* was published as IAEA Nuclear Security Series No. 36-G and the Implementing Guide entitled *Developing a National Framework for Managing the Response to Nuclear Security Events* was published as IAEA Nuclear Security Series No. 37-G. Also during the reporting period, Technical Guidance provisionally entitled *Detection at State Borders of Nuclear and Other Radioactive Material out of Regulatory Control* was approved by the NSGC for publication. A document preparation profile for Technical Guidance provisionally entitled *Expert Assessment of Alarms and Alerts for Nuclear and Other Radioactive Material out of Regulatory Control* was approved by the NSGC.

Assistance provided to States

89. The Agency uses a project approach to assist Member States, upon request and in coordination with NSSCs, for the detection of material out of regulatory control. The project approach follows the Agency's Implementing Guides, beginning with a Member State identifying a need to develop nuclear security detection architecture. The Agency's assistance covers development and sustainability of a nuclear security detection architecture by assisting in identifying a strategy based on threat assessment, followed by assistance with the establishment of detection operations at strategic locations. In support of these activities, the Agency conducted a regional workshop for South East Asia and the Pacific in Pattaya, Thailand in November 2019.

90. The Agency also conducted four regional workshops and training courses on threat assessment for and development of nuclear security detection architectures: for Central Asian Member States in Tehran in July 2019; for Asia and the Pacific in Bangkok in December 2019 and in February 2020; and for French-speaking African States in Dakar, in November 2019. National workshops on this topic were held in Abuja in October 2019 and in Manama in February 2020.

91. A new project to support and enhance national efforts in Latin America to establish national strategies for the detection of material out of regulatory control was launched during a regional workshop held in Mexico City in August 2019.

92. The Agency continued its cooperation with the Centre for Security Cooperation (RACVIAC) for South Eastern Europe to deliver workshops on nuclear security detection architecture. A regional workshop on the evaluation and exercising of nuclear security detection architecture took place in Zagreb in December 2019 with the cooperation of RACVIAC.

93. The second Meeting of the International Network of Front Line Officers was held in Vienna, in October 2019. This meeting provided a platform for direct communication between individual front line officers from Member States and organizations, enhancing their ability to exchange good practices and coordinate detection and response capabilities, including across borders. A dedicated section of the NUSEC portal was established to enable communication between Network members between meetings.

94. In addition, an international workshop on instructor training for detection of material out of regulatory control by front line officers was held in Selangor, Malaysia in July–August 2019. Three regional courses on this topic were held: for Africa, in Ispra, Italy in September 2019 and in Accra in November 2019; and for Europe, in Saint Petersburg, Russian Federation in October 2019.

95. The Agency continued to provide support to Member States on the detection of nuclear and other radioactive material in urban areas. An international workshop on this topic, including a demonstration on how nuclear security can be implemented in an urban area, was convened in Selangor, Malaysia in November 2019.

96. The Agency continued work on a project to design and supply radiation portal monitor maintenance and calibration training units to Nuclear Security Training and Support Centres (NSSCs). These training units, when complete, will enable States to more effectively perform hands-on training of front-line officers responsible for the maintenance and calibration of radiation portal monitors. The Agency also continued work on the Integrated Nuclear Security Network project, which aims to develop a networked system that enables States to more effectively maintain awareness of the status of their radiation detection equipment.

97. The Agency convened five Technical Meetings to address the challenges faced by Member States in using radiation detection instruments: on advancing techniques for complex spectra analysis, in Ankara in July 2019, with 26 participants from 13 Member States; on advanced radiation portal monitor testing and configuration techniques, in Seibersdorf, Austria in October 2019, with 22 participants from 18 Member States; on environmental testing of handheld and portable radiation detectors, in Beijing in October 2019, with 26 participants from 20 Member States; on enhancing alarm assessment and equipment maintenance and tools, in Panama City in October–November 2019, with 45 participants from 12 Member States; and on determining minimum detectable quantities and alarm thresholds, held in Mumbai, India in March 2020, with 43 participants from 15 Member States.

98. The Agency held six national training courses at its Nuclear Security Detection and Monitoring Equipment Laboratory in Vienna on testing methods for detection equipment: for Mozambique and Viet Nam in August 2019; for Malaysia and Thailand in September 2019; and for Albania and Montenegro in October 2019. The Agency maintains a laboratory to support activities in relation to handheld detection equipment. The laboratory’s aim is to provide a repository of equipment to loan or donate to a State to support its detection system; to manage the pool of equipment used by the Agency for major public events and training, including operation of equipment, frontline maintenance and calibration; and to perform demonstrations of new types of equipment.

99. The Agency provided handheld detection equipment to five Member States: Albania, Montenegro, Mozambique, Thailand and Viet Nam.

International Nuclear Security Advisory Service missions

100. During the reporting period, preparations were initiated to conduct International Nuclear Security Advisory Service (INSServ) missions in three Member States: Jordan, Malaysia and Sudan.

Coordinated research projects

101. The Agency implements coordinated research projects (CRPs) under the Nuclear Security Plan to promote research and development in the area of nuclear security. Details of all CRPs implemented

under the Nuclear Security Plan can be found on the NUSEC portal and the Agency's website.[33] [34] The CRP entitled "Improved Assessment of Initial Alarms from Radiation Detection Instruments" concluded in December 2019. This CRP produced an online catalogue of commodities containing naturally occurring radioactive material (NORM) that frequently trigger radiation alarms. It also developed a Tool for Radiation Alarm and Commodity Evaluation (TRACE), which serves as a reference for assisting in the assessment of radiation alarms. The tool is provided as a smartphone application and is available in Arabic, Chinese, English, French, Russian and Spanish. There are around 13 000 users of TRACE in more than 160 States.

C.3.3. Radiological Crime Scene Management and Nuclear Forensics Science[35]

Assistance provided to States

102. The Agency conducts regular training courses in radiological crime scene management based on INSSP requests and in response to direct requests received from States. Three national workshops on this topic were conducted during the reporting period: in Jakarta in July 2019; in Kampala in September 2019; and in Yerevan in November 2019.

103. The Agency continued its assistance to Member States in responding to events involving nuclear and other radioactive materials encountered out of regulatory control by supporting the development and sustainability of nuclear forensics capabilities as part of a nuclear security infrastructure.

104. An international training course providing a practical introduction to nuclear forensics was held in Budapest in September 2019. The Agency also organized an International Training course on Nuclear Forensics Methodologies at the European Commission's Joint Research Centre in Karlsruhe, Germany in October 2019. Regional training courses on this topic were convened for Africa, in Accra in September–October 2019, and for Central Asian Member States, in Almaty, Kazakhstan in December 2019. A national workshop on nuclear forensics examinations was held for Sudan in Vienna in July 2019.

105. The Agency encouraged international collaboration in nuclear forensics research by providing funding for the placement of a Moldovan scientist at the European Commission's Joint Research Centre in Karlsruhe, Germany, from September to December 2019. To promote functional skills in the nuclear forensics laboratory, the Agency also provided for the placement of experts from Georgia and the Republic of Moldova at the Horia Hulubei National Institute for Research and Development in Physics and Nuclear Engineering in Romania from September to December 2019. The Agency also placed forensics examiners from Ghana, Lebanon, and South Africa at the Centre for Energy Research in Budapest from September to November 2019.

106. To facilitate the provision of assistance in nuclear forensics science, the Agency signed Practical Arrangements with Thailand's Office of Atoms for Peace in July 2019, China's State Nuclear Security Technology Centre in February 2020 and the Netherlands Forensic Institute in February 2020.

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[33] https://www.iaea.org/services/coordinated-research-activities

[34] See GC(63)/Res/8, paragraphs 4 and 45

[35] See GC(63)/Res/8, paragraph 43

C.4. Programme Development and International Cooperation

"Gender Initiatives on Women in Nuclear Security" panel discussion at the International Nuclear Security Education Network (INSEN) Annual Meeting held at the Agency headquarters in Vienna, Austria. 9 July 2019

107. Agency work under this sub-programme is carried out under three projects: international cooperation on nuclear security networks and partnerships, coordinating nuclear security guidance and advice services, and education and training programmes for human resource development.

C.4.1. International Cooperation on Nuclear Security Networks and Partnerships

Promoting further adherence to international legal instruments

108. The Agency conducted two regional workshops to promote the universalization of the Amendment to the CPPNM, for English-speaking African States in Mombasa, Kenya in July 2019, and for Latin America and the Caribbean in San José in October 2019. In January 2020, the Director General sent official letters to States not party to the CPPNM, as well as to those party to the CPPNM but not its Amendment, encouraging them to adhere to the CPPNM and its Amendment. During the reporting period, six States became party to the Amendment and four became party to the original CPPNM. [36] [37]

109. The fifth Technical Meeting of the Representatives of States Parties to the CPPNM and its Amendment was held in Vienna in November 2019, with the participation of 64 Parties to the CPPNM

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[36] See GC(63)/Res/8, paragraph 10

[37] The latest status for the Amendment to the CPPNM is available at the following link: http://www-legacy.iaea.org/Publications/Documents/Conventions/cppnm_amend_status.pdf

and its Amendment and to the CPPNM only. The representatives discussed, inter alia, laws and regulations giving effect to the CPPNM and its Amendment, the role of designated Points of Contacts, and national experiences in the implementation of the CPPNM and its Amendment. [38]

110. Further, several activities related to the universalization of the Amendment to the CPPNM have included segments on ICSANT delivered by UNODC.

111. In July and November 2019, the Agency convened two meetings of legal and technical experts in preparation for the 2021 Conference. The aim was to facilitate the review, at the conference, of the implementation of the CPPNM as amended and its adequacy as concerns the preamble, the whole of the operative part and the annexes in the light of the then prevailing situation, as foreseen in Article 16.1 thereof. Over 100 experts from 70 Parties to the CPPNM and its Amendment, as well as Parties to the CPPNM only, participated in the two meetings.[39] In addition, the Secretariat continues to maintain an online repository of documents related to the CPPNM, its 2005 Amendment and relevant Conferences.[40]

112. The Agency also continued to maintain a database of designated Points of Contact for the CPPNM and its Amendment and of information on national laws and regulations giving effect to the CPPNM and its Amendment, as provided by States Parties pursuant to Articles 5 and 14 of the Convention, respectively. During the reporting period, eight States provided information on their national laws and regulations to the Agency in accordance with Article 14.

Playing a central and coordinating role in nuclear security

113. The Agency hosted one Information Exchange Meeting in Vienna, in October 2019 to coordinate activities in nuclear security and to avoid duplication in the activities undertaken by various relevant organizations. A total of 19 participants from 8 organizations and initiatives exchanged information, discussed various themes within nuclear security and gained a better understanding of activities being undertaken by each organization.[41]

114. In February 2020, the Agency organized ICONS 2020.More than 1900 participants attended the conference, from 141 Member States, 4 non-Member States and 25 international organizations, including a record number of 53 ministers. It provided a forum for ministers, policymakers, senior officials and nuclear security experts to formulate and exchange views on experiences and achievements, current approaches, future directions and priorities for nuclear security. Member States adopted a Ministerial Declaration reaffirming their support for nuclear security, intended to inform the *Nuclear Security Plan 2022–2025*, and delivered 109 national statements. The Co-Presidents' Report for ICONS 2020 was published in May 2020 and highlighted the key issues and main conclusions from the conference.[42]

115. The Agency, in cooperation with the Moroccan Nuclear and Radiation Safety and Security Agency, organized the third International Regulators Conference on Nuclear Security in October 2019, in Marrakech, Morocco. The event addressed a wide range of thematic areas and topics on nuclear security, and enabled the sharing of experiences and best practices among regulators, technical support organizations, decision makers and relevant regional and interregional actors, with a view to further

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[38] See GC(63)/Res/8, paragraph 10

[39] See GC(63)/Res/8, paragraph 11

[40] See GC(63)/Res/8, paragraph 12

[41] See GC(63)/Res/8, paragraph 22

[42] See GC(63)/Res/8, paragraphs 5 and 6

enhancing national, regional and international nuclear security activities and to strengthening nuclear security globally. The conference attracted more than 300 participants.

C.4.2. Education and Training Programmes for Human Resource Development

Training programmes[43]

116. In the reporting period, more than 2400 participants from 142 States took part in 113 training activities, and around 1800 users from 134 States completed over 6700 e-learning modules. Nuclear security e-learning modules accounted for 34 percent of Agency e-learning enrolments during the reporting period on the Agency's open e-learning platform. In addition, two new modules entitled Transport Security and Nuclear Material Accounting and Control (NMAC) for Nuclear Security were re-developed and are now available on the Agency's open e-learning platform.

117. The Agency continues to devote additional resources to the development, translation, revision and maintenance of e-learning courses to make training more readily available. Since the conception of the e-learning project, over 19 700 Agency nuclear security e-learning modules have been completed by over 8100 users from 167 States. Five e-learning modules were translated and made available in Arabic, Chinese, English, French, Russian and Spanish during the reporting period.

118. Working in collaboration with Member State experts and using information from INSSPs and NUSIMS, the Agency regularly identifies areas where new and updated training courses are needed. During the reporting period, more than 80 items in the Nuclear Security Training Catalogue were reviewed, training materials for 47 courses and workshops were updated and revised, and training materials for 19 new courses or workshops were developed. Materials for four training courses were translated, including into Russian, French and Spanish.

119. To assist States in better identifying their human resource development needs, to establish human resource development plans for nuclear security and to promote a systematic approach to training (SAT), the Agency conducted two Technical Meetings in support of human resource development in nuclear security in Vienna in October 2019, on management of training in nuclear security by training organizations and on human resource development in nuclear security. A national workshop on this topic was held in Abuja in August 2019. More broadly, the SAT methodology continued to be further implemented in developing, revising, evaluating and improving Agency training courses.

Nuclear security education[44]

120. INSEN continues to assist its member institutions and States in establishing and enhancing educational programmes on nuclear security based on international guidance and recommendations. The Network now has 194 institutions from 65 States. Over 80 per cent of members offer modules, courses or degree programmes in nuclear security, using largely INSEN-developed teaching materials. INSEN and the NSSC Network continued to collaborate with their members to promote human resource development good practices and to share information, expertise and resources. The INSEN annual meeting was held in Vienna, in July 2019. To mark the tenth anniversary of INSEN in 2020, an education impact assessment survey was conducted during the reporting period.

121. The Agency continued to support graduate education programmes in nuclear security by providing fellowships to 15 students from 12 developing Member States to attend the master's degree

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[43] See GC(63)/Res/8, paragraph 25

[44] See GC(63)/Res/8, paragraph 26

programme in nuclear security at the University of National and World Economy in Bulgaria and the online master's programme in nuclear security at the Brandenburg University of Applied Sciences in Germany.

122. The Agency offers regional schools on a regular basis. Two Regional Schools on Nuclear Security were held during the reporting period: for French-speaking African States in Kenitra, Morocco in September–October 2019, with 35 participants and 2 observers from 18 Member States and 2 non-Member States; and for English-speaking African States in Cape Town, South Africa in November 2019, with 24 participants and 3 observers from 17 Member States. The Agency also organized a regional workshop aimed at professional development in nuclear security education for the Asia Pacific region in Singapore in October 2019. The Agency, jointly with the Permanent Mission of Italy, organized a side event at ICONS 2020 in February 2020 to mark the tenth anniversary of the Joint International Schools on Nuclear Security organized by the Agency and the Abdus Salam International Centre for Theoretical Physics in Trieste, Italy.

Nuclear security support centres[45]

123. The Agency continues to respond to State requests for assistance with the development of national NSSCs as a means to strengthen the sustainability of nuclear security through programmes in human resource development, technical support and scientific support for the prevention and detection of and the response to nuclear security events.

124. The NSSC Network facilitates sharing of information and resources to promote coordination and collaboration among States with an NSSC or those having an interest in developing such a centre. The Network has grown since its inception in 2012 and now has representatives from 64 Member States. Over the past year, NSSC Network members have held 206 training courses, workshops and other events to build capacity in nuclear security. Of these, 35 were implemented by or in cooperation with the Agency. To facilitate information sharing among NSSCs, the Agency organized an International Workshop on Nuclear Security Support Centre Programmes on the Security of Radioactive Material and Associated Facilities in Vienna in July 2019.

125. During the reporting period, the Agency designated the China Atomic Energy Authority (CAEA) and Rosatom Technical Academy as IAEA Collaborating Centres. The Agency and the CAEA will cooperate on research, development, testing and training for nuclear security detection and physical protection technologies, and the Agency and Rosatom Technical Academy will work together to help Member States strengthen knowledge management and human resource development for nuclear energy and nuclear security.

126. The Agency continued to work together with the NSSC Network to implement a systematic and structured plan of activities to support the Network's members, including technical exchange visits among centres.

C.4.3. Coordinating Nuclear Security Guidance and Advice Services

127. The NSGC met in Vienna in July and November 2019. The NSGC approved one draft for publication in the IAEA Nuclear Security Series and one draft publication for submission to Member States for comment. The NSGC continued to oversee a plan prepared by the Secretariat to initiate a review of the IAEA Nuclear Security Series Fundamentals and Recommendations in order to determine whether there is a need to revise these publications in the near future. In this regard, an Open-ended

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[45] See GC(63)/Res/8, paragraph 26

Meeting of Legal and Technical Experts on IAEA Nuclear Security Series No. 13 and INFCIRC/225/Revision 5 was convened in July 2019, involving around 75 participants from 48 Member States.

128. In order to better understand Member State use of the IAEA Nuclear Security Series and to assist with the work of the NSGC, a survey on the use of the Series was finalized and distributed to Member States in January 2020. [46]

129. By 30 June 2020, there were 38 publications in the IAEA Nuclear Security Series, 9 were approved for publication, and 9 others were at various stages of development, in accordance with the road map agreed with the NSGC. Delays in the publication process were discussed at the NSGC meeting in December 2019. The issue was also mentioned in the Chair's report of the NSGC's sixteenth meeting.[47]

130. The Advisory Group on Nuclear Security (AdSec) met in Vienna in October 2019. AdSec and the International Nuclear Safety Group continued discussions on a proposed joint publication on safety–security interfaces. AdSec continued to advise the Director General on nuclear security, including on the Agency's nuclear security programme.

D. Programme Management and Resources

D.1. Results-Based Management and Internal Coordination [48]

131. The Secretariat continues to strengthen its results-based management and internal coordination for its nuclear security programme.

132. The results-based approach is applied in the development, implementation and reporting of nuclear security activities in accordance with the Agency's established practice. The approach is focused on achieving results, improving performance and integrating lessons learned into management decisions. In parallel, the Agency continued to further develop, in close consultation with Member States, a voluntary mechanism to match Member States' requests for assistance with other Member States' offers of assistance, with due regard to the confidentiality of information relevant to nuclear security.[49]

133. Strengthened internal coordination on agreed activities and projects, including those set out in INSSPs, has been used to improve the effectiveness and efficiency of the management of the Nuclear Security Fund (NSF). Strengthened internal coordination also provides opportunities to identify and eliminate potential conflicts between guidance and assistance provided by different parts of the Agency. During the reporting period, the Division of Nuclear Security, which has the primary responsibility within the Agency for activities relevant to nuclear security, worked to increase coordination with other Divisions and Departments on activities related to nuclear security as well as to increase the number of jointly organized activities involving nuclear security, where appropriate.

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[46] See GC(63)/Res/8, paragraph 17

[47] See GC(63)/Res/8, paragraph 18

[48] See GC(63)/Res/8, paragraph 48

[49] See GC(63)/Res/8, paragraph 31

134. During the reporting period, a number of efforts focused on the security of radioactive sources. Opportunities were sought to provide support in addressing the nuclear security aspects of radiation sources delivered through the technical cooperation (TC) programme. This support can be provided through the nuclear security programmes implemented by the Division of Nuclear Security or through nuclear security activities under the relevant projects implemented through the TC programme by footnote-a/ funding, and funded from the NSF or other extra-budgetary resources.[50] The latter approach considered as part of the TC project design is chosen in consultation with and based on the agreement by the national counterpart.

135. Additional activities in this area were undertaken in coordination and cooperation not only with the Department of Technical Cooperation, but also with other relevant Divisions and Departments, notably the Division of Radiation, Transport and Waste Safety in the Department of Nuclear Safety and Security. Several of these activities are highlighted in the following paragraphs.

136. The Division of Nuclear Security, in coordination with the Department of Technical Cooperation, the Division of Radiation, Transport and Waste Safety, and the Office of Legal Affairs, contributed to the organization and development of the school for drafting radiation safety and nuclear security regulations for Member States in the Asia and the Pacific region (see paragraph 67). Further, in close coordination with the Department of Technical Cooperation, the Division of Nuclear Security co-organized the launch of a new regulatory infrastructure development project in Africa with the Division of Radiation, Transport and Waste Safety, to support States in building strong regulatory infrastructures for nuclear security (see paragraph 66). The Division of Nuclear Security also provided funding to support the participation of several Latin American States in interregional workshops organized by the Division of Radiation, Transport and Waste Safety on radiation safety information management systems coordination held in October and November 2019. It also worked closely with the Division of Radiation, Transport and Waste Safety to upgrade the Agency's Regulatory Authority Information System to include relevant nuclear security features.

137. During the reporting period, nuclear security experts from the Division of Nuclear Security participated in three imPACT Review missions, in Burkina Faso, Seychelles and Sri Lanka. This support included advising States in the secure use of high activity radioactive sources for medical applications, including with regard to national infrastructure, end of life management of disused sources and physical protection systems. Nuclear security experts also participated in two Integrated Nuclear Infrastructure Review (INIR) missions, in Egypt in October to November 2019 and in Belarus in February–March 2020.

138. The Agency launched a new nuclear security project to support the safe and secure storage of radioisotope thermoelectric generators, organized by the Division of Nuclear Security in close coordination with Department of Technical Cooperation and in cooperation with the Division of Radiation, Transport and Waste Safety as well as the Department of Nuclear Energy's Division of Nuclear Fuel Cycle and Waste Technology (see paragraph 72).

139. The Division of Nuclear Security is undertaking a coordinated approach to ensure that the security of radioactive sources during transport is included in a range of Agency projects, working closely with the Department of Technical Cooperation and the Division of Radiation, Transport and Waste Safety. For example, assistance to Burkina Faso and the Congo in dismantling and securing the transport of

[50] Unfunded elements of the TC programme, where projects or project components have been approved but resources are not sufficient to implement them, are referred to as footnote-a/ projects and components.

disused irradiators is being provided jointly by the Division of Nuclear Security and the Division of Radiation, Transport and Waste Safety.

140. In addition to the increased coordination and cooperation in the nuclear security of radioactive sources, cooperation between the Division of Nuclear Security and the Division of Nuclear Installation Safety also increased. For example, two Technical Meetings were jointly organized by these two Divisions: a Technical Meeting on Managing the Interface between Safety and Security for Nuclear Fuel Cycle Facilities, in Vienna in October 2019, and a Technical Meeting, held in Vienna in December 2019, to develop case studies and country-specific examples for an IAEA Technical Document on the safety and security interface for the oversight of nuclear power plants (see paragraphs 53–54). In addition, the Agency submitted for publication *The Safety and Security Interface: Approaches and National Experiences* (Technical Report Series No. TRS-1000). The report will reflect the recommendations and the discussions from a Technical Meeting on this subject held in October 2018. [51]

141. The Division of Nuclear Security coordinates with the Agency's Incident and Emergency Centre (IEC) on matters of response to nuclear or radiological emergencies, including in the organization of the International Workshop on Nuclear Security Measures and Emergency Response Arrangements for Ports held in Las Vegas, United States of America, in November 2019 (see paragraph 82). Furthermore, experts from the Division of Nuclear Security supported the Agency's Incident and Emergency System by taking part in its on-call system and participating actively in related training activities and exercises during the reporting period. The Division of Nuclear Security also participated in two workshops organized by IEC on arrangements for notification, reporting and assistance in nuclear or radiological incidents and emergencies, and provided funding from the NSF to support the participation of several States in these workshops.

142. Coordination also continued within the Department of Nuclear Safety and Security on publications. The Interface Group, comprising representatives of the Safety Standards Committees and the NSGC, reviewed three publication proposals for possible safety–security interfaces following a recommendation from the Agency's Coordination Committee on Safety Standards and Nuclear Security Publications. During the reporting period, the NSGC reviewed drafts of 9 safety standards identified as having interfaces with security, and relevant Safety Standards Committees reviewed one draft Nuclear Security Series publication having interfaces with safety. [52]

143. Furthermore, to ensure the consistency and compatibility of publications in the Nuclear Security Series and Nuclear Safety Standards, during the reporting period, the process for development of the Nuclear Security Series was brought more closely in line with that of the Nuclear Safety Standards. This included increased involvement by the Office of Safety and Security Coordination in providing technical reviews and more oversight during some stages of the publication process for the Nuclear Security Series, similar to its role with respect to the Nuclear Safety Standards.

144. In addition, extrabudgetary funding from the NSF was used to support the recruitment of a Legal Officer in the Office of Legal Affairs who will provide legal expertise to the Division of Nuclear Security for INSSP missions and related events, as well as for activities related to the universalization of the Amendment to the CPPNM.

145. The participation of the Division of Nuclear Security in the Nuclear Power Support Group ensures better coordination of nuclear security assistance by integrating nuclear security aspects in planning assistance to Member States embarking on nuclear power programmes. The Division also participates

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[51] See GC(63)/Res/8, paragraph 19

[52] See GC(63)/Res/8, paragraph 19

in INIR missions and provides preliminary assessments of security infrastructure. Similarly, it participates in the Agency's Safeguards by Design Working Group.

D.2 Resources

146. In the period 1 July 2019 to 30 June 2020, the Agency accepted pledges and received contributions to the NSF from the following Member States: Belgium, Canada, China, Estonia, France, Italy, Japan, the Republic of Korea, Norway, the Russian Federation, Spain, Sweden, Switzerland, the United Kingdom and the United States of America, as well as other contributors.

147. The Division of Nuclear Security's Regular Budget primarily funds staff costs to support the implementation of activities designed to benefit the greatest number of Member States. In addition, extrabudgetary expenditure in the period from 1 July 2019 to 30 June 2020 comprised disbursements of approximately €21 million. Total unliquidated obligations were approximately €4.8 million as of 30 June 2020.

148. The total balance for the NSF in *The Agency's Financial Statements for 2019* was €88.3 million[53], an increase from the €81.4 million reported in 2018[54]. This total primarily consists of active NSF contributions in various stages of implementation and funds available for implementing a wide range of activities that support the implementation of the *Nuclear Security Plan 2018–2021*.

149. The net surplus for the year amounted to €5.7 million, which was driven by the difference between the revenue of €27.8 million and expenses of €23.3 million, and, in addition, a foreign exchange gain of €1.2 million which was realized in 2019 as a result of the appreciation of the holdings in US dollars with respect to the euro.

150. The total balance for the NSF as presented in the Agency's financial statements relates to active contributions that are in various stages of implementation. Some of the contribution amounts are at late stages of procurement, while others are still in the programmatic planning stages. Where funds are not yet designated for projects in the system, it is generally because a contribution is recent, because negotiations are ongoing with a donor on how to use its contribution, or because the early planning stages of a longer-term project are under way.

151. Activities funded by Member States under the NSF often span multiple years of implementation, and, therefore, a positive fund balance is expected. Many of these contributions are also earmarked for specific activities, and, as a result, the use of these funds may take an extended period of time. Additional funds continue to be required to ensure the sustainable implementation of the Agency's activities in nuclear security.

E. Goals and Priorities for 2020–2021

[53] The fund balance for the NSF presented in the Agency's financial statements is not a cash balance. Rather, it is the cash balance adjusted for the number of accounting entries.

[54] Document GC(63)-6.

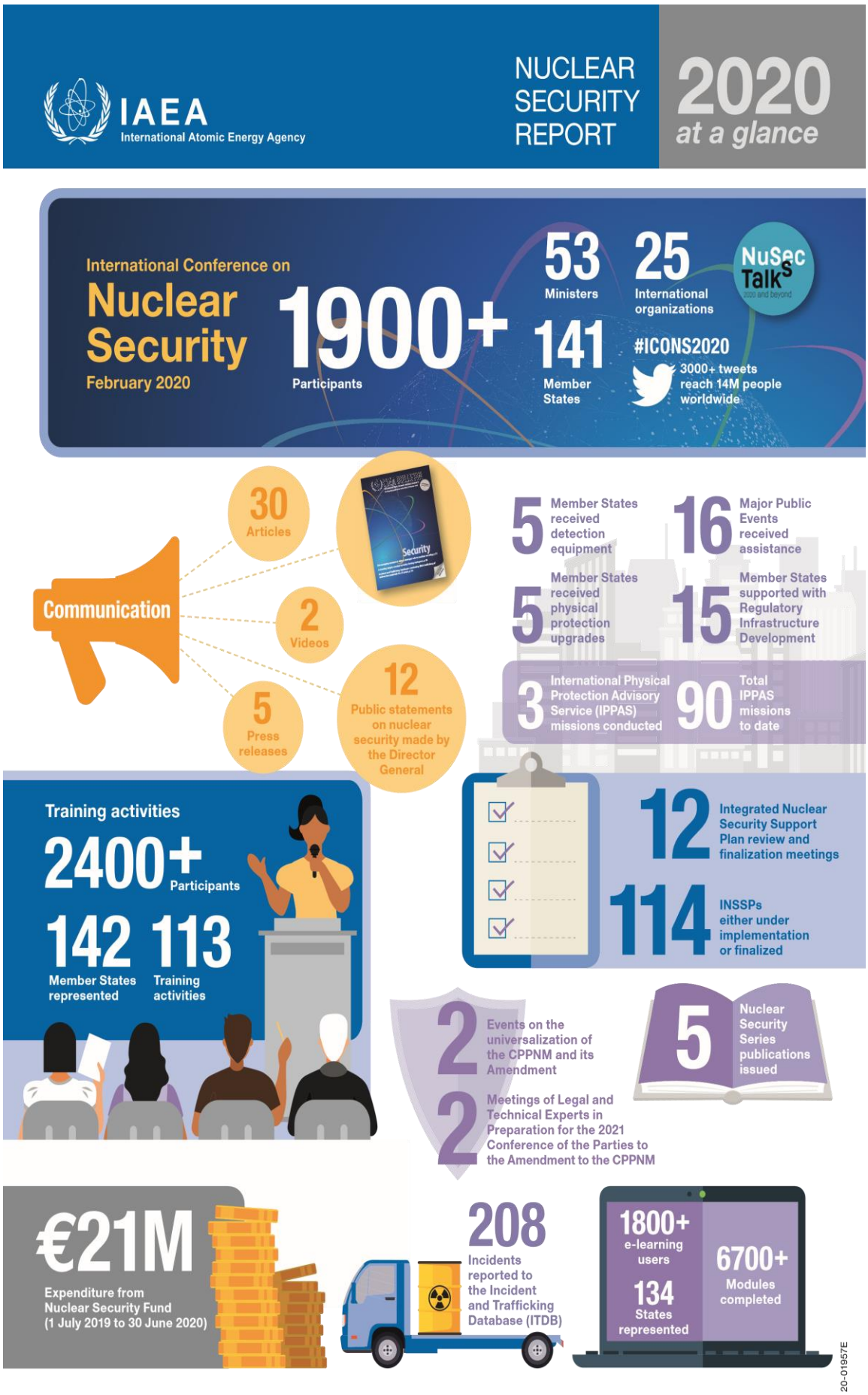
152. In the next reporting period, the Agency will continue to implement the actions called for in the *Nuclear Security Plan 2018–2021* in a prioritized manner within available resources. [55]

153. In line with the ongoing priorities identified by Member States, the following are the main nuclear security programmatic goals and priorities for 2020–2021, subject to the *Nuclear Security Plan 2018-2021* and availability of resources:

- Promote further adherence to the Amendment to the CPPNM with the aim of its universalization and continue preparations for the 2021 Conference of the Parties to the Amendment to the CPPNM;
- Continue preparations for the International Conference on the Safe and Secure Transport of Nuclear and Radioactive Materials, to be held in December 2021;
- Continue to strengthen the Agency's work to assist States, upon request, in strengthening their nuclear security regimes, particularly with respect to capacity building and the development of regulatory frameworks, and to enhance the internal coordination at the Agency needed to accomplish this effectively;
- Improve the Agency's communications on nuclear security;
- Continue development of a demonstration and training facility for nuclear security at Seibersdorf and to approach donor states through a resource mobilization plan for the establishment of the facility; and
- In close consultation with Member States consider strengthening international norms and guidance supporting nuclear security.

[55] See GC(63)/Res/8, paragraph 54

ANNEX 1: Nuclear Security Report 2020 at a glance



ANNEX 2: Table of Concordance

Table of Concordance between Resolution GC(63)/RES/8 Operative Paragraphs (OPs) Associated with Agency Action and Paragraphs of this Report

OP	Report Paragraph	Notes
3	2	
4	101	
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10	10, 108-110	
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28	2	
30	14, 22-25	
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