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# Strengthening the Effectiveness and Improving the Efficiency of Agency Safeguards

*Report by the Acting Director General*

## A. Introduction

1. The General Conference, in resolution GC(62)/RES/10 entitled ‘Strengthening the Effectiveness and Improving the Efficiency of Agency Safeguards’, requested the Director General to report on the implementation of the resolution to the General Conference at its 63rd regular session. This report responds to that request and updates the information in last year’s report to the General Conference (document GC(62)/8)<sup>1</sup>.

## B. Safeguards Agreements and Additional Protocols

### B.1. Conclusion and Entry into Force of Safeguards Agreements and Additional Protocols

2. Additional protocols (APs) based on the Model Additional Protocol<sup>2</sup> entered into force for two States<sup>3</sup>. Small quantities protocols (SQPs) were amended for four States<sup>4</sup> and rescinded by another

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<sup>1</sup> This report covers the period between 1 July 2018 and 30 June 2019.

<sup>2</sup> The text of the Model Protocol Additional to the Agreement(s) between State(s) and the International Atomic Energy Agency for the Application of Safeguards is contained in document INFCIRC/540 (Corrected).

<sup>3</sup> Liberia and Serbia.

<sup>4</sup> France, Papua New Guinea, Paraguay and the United States of America. France amended its SQP to the safeguards agreement reproduced in document INFCIRC/718 between France, the European Atomic Energy Community and the Agency pursuant to the Protocol I to the Tlatelolco Treaty (INFCIRC/718/Mod.1), and the United States of America amended its SQP to the safeguards agreement reproduced in document INFCIRC/366 between the United States of America and the Agency pursuant to the Protocol to the Tlatelolco Treaty (INFCIRC/366/Mod.1).

State<sup>5</sup>, in keeping with the Board of Governors' decision of 20 September 2005 regarding such protocols. As of 30 June 2019, 59 States<sup>6</sup> had an operative SQP in force based on the revised standard text, and 33 States had an operative SQP that had yet to be amended.

3. Between 1 July 2018 and 30 June 2019, a comprehensive safeguards agreement (CSA) with an SQP based on the revised standard text and an AP thereto entered into force for one State<sup>7</sup>.

4. As of 30 June 2019, 183 States<sup>8</sup> had safeguards agreements in force with the Agency, 134 of which (including 128 States with CSAs) also had an AP in force. An AP has been applied provisionally since January 2016 for one State<sup>9</sup> pending its entry into force. As of 30 June 2019, 49 States had yet to bring into force APs to their safeguards agreements.

5. Eleven States Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT)<sup>10,11</sup> have yet to bring CSAs into force pursuant to Article III of the Treaty.

6. The latest status of safeguards agreements and APs is published on the Agency's website<sup>12</sup>.

## **B.2. Promotion and Assistance in the Conclusion of Safeguards Agreements and Additional Protocols**

7. The Agency has continued to implement elements of the plan of action outlined in resolution GC(44)/RES/19 and in the Agency's updated *Plan of Action to Promote the Conclusion of Safeguards Agreements and Additional Protocols*<sup>13</sup>. Among the elements of the plan of action proposed in resolution GC(44)/RES/19 are:

- Intensified efforts by the Director General to conclude safeguards agreements and APs, especially with those States having substantial nuclear activities under their jurisdiction;
- Assistance by the Agency and Member States to other States by providing their knowledge and the technical expertise necessary to conclude and implement safeguards agreements and APs; and
- Reinforced coordination between Member States and the Secretariat in their efforts to promote the conclusion of safeguards agreements and APs.

8. Following the guidance of the Policy-Making Organs and the Agency's updated plan of action, the Agency has continued to encourage and facilitate wider adherence to safeguards agreements and APs, primarily using extrabudgetary funds. The Agency organized an outreach workshop for diplomats

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<sup>5</sup> Malaysia.

<sup>6</sup> This number does not include two operative SQPs reproduced in INFCIRC/718/Mod.1 and INFCIRC/366/Mod.1, respectively.

<sup>7</sup> Liberia.

<sup>8</sup> And Taiwan, China.

<sup>9</sup> Islamic Republic of Iran.

<sup>10</sup> The designations employed and the presentation of material in this section, including the numbers cited, do not imply the expression of any opinion whatsoever on the part of the Agency or its Member States concerning the legal status of any country or territory or of its authorities, or concerning the delimitation of its frontiers.

<sup>11</sup> The referenced number of States Parties to the NPT is based on the number of instruments of ratification, accession or succession that have been deposited.

<sup>12</sup> <https://www.iaea.org/sites/default/files/status-sg-agreements-comprehensive.pdf>

<sup>13</sup> The plan of action is available on the Agency's website:

<https://www.iaea.org/sites/default/files/18/09/sg-plan-of-action-2017-2018.pdf>

from Permanent Missions and Embassies located in Berlin, Brussels, Geneva and London (Vienna, 9-10 June 2019), national workshops for Nepal (Kathmandu, 10–12 December 2018) and Oman (Muscat, 17–18 June 2019), and a country visit to Eritrea (14–17 January 2019). During these outreach activities, the Agency encouraged States to conclude a CSA and an AP and to amend their SQPs. In addition, the Agency held consultations with representatives from a number of Member and non-Member States in Geneva, New York and Vienna during the reporting period.

## C. Implementation of Safeguards

### C.1. Developing and Implementing State-Level Safeguards Approaches

9. General Conference resolution GC(61)/RES/12, *inter alia*, welcomed the clarifications and additional information provided in the *Supplementary Document to the Report on The Conceptualization and Development of Safeguards Implementation at the State Level (GOV/2013/38)* (document GOV/2014/41 and Corr.1), and noted the Secretariat's intention to keep the Board of Governors informed of progress made in the development and implementation of safeguards in the context of the State-level concept.

10. As of 30 June 2019, State-level safeguards approaches (SLAs) had been developed for 130 States with a comprehensive safeguards agreement in force. These 130 States hold 97% of all nuclear material (by significant quantity) under Agency safeguards in States with a comprehensive safeguards agreement and include 67 States<sup>14</sup> with a comprehensive safeguards agreement and an additional protocol in force for which the broader conclusion has been drawn (of which 17 are States with an SQP); 35 States<sup>15</sup> with a comprehensive safeguards agreement and an additional protocol in force for which the broader conclusion has yet to be drawn (of which 24 are States with an SQP); and 28 States<sup>16</sup> with a comprehensive safeguards agreement with an SQP in force but no additional protocol in force. Previously, an SLA was developed for one State<sup>17</sup> with a voluntary offer agreement (VOA) and an additional protocol in force. As described in the Supplementary Document, in developing and implementing an SLA, consultations were held with the relevant State and/or regional authority, particularly on the implementation of in-field safeguards measures.

11. In response to General Conference resolutions GC(60)/RES/13 and GC(61)/RES/12, the Director General submitted in July 2018 a report to the Board of Governors entitled *Implementation of State-level Safeguards Approaches for States under Integrated Safeguards — Experience Gained and Lessons Learned* (document GOV/2018/20). This report contains the Secretariat's analysis of

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<sup>14</sup> Albania, Andorra, Armenia, Australia, Austria, Bangladesh, Belgium, Botswana, Bulgaria, Burkina Faso, Canada, Chile, Croatia, Cuba, Czech Republic, Denmark, Ecuador, Estonia, Finland, Germany, Ghana, Greece, Holy See, Hungary, Iceland, Indonesia, Ireland, Italy, Jamaica, Japan, Kazakhstan, the Republic of Korea, Kuwait, Latvia, Libya, Lithuania, Luxembourg, Madagascar, Mali, Malta, Mauritius, Monaco, Montenegro, Netherlands, New Zealand, North Macedonia, Norway, Palau, Peru, Philippines, Poland, Portugal, Romania, Seychelles, Singapore, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Tajikistan, Ukraine, United Republic of Tanzania, Uruguay, Uzbekistan and Viet Nam.

<sup>15</sup> Afghanistan, Antigua and Barbuda, Azerbaijan, Bosnia and Herzegovina, Burundi, Cambodia, Central African Republic, Chad, Congo, Côte d'Ivoire, Cyprus, Democratic Republic of the Congo, Eswatini, Fiji, Gabon, Gambia, Georgia, Guatemala, Kyrgyzstan, Malawi, Marshall Islands, Mongolia, Mozambique, Namibia, Niger, Nigeria, Republic of Moldova, Rwanda, Saint Kitts and Nevis, Senegal, Thailand, Togo, Turkmenistan, Uganda and Vanuatu.

<sup>16</sup> Barbados, Belize, Bhutan, the Plurinational State of Bolivia, Brunei Darussalam, Dominica, Ethiopia, Grenada, Guyana, Kiribati, Lao People's Democratic Republic, Maldives, Myanmar, Nauru, Nepal, Papua New Guinea, Saint Lucia, Saint Vincent and the Grenadines, Samoa, San Marino, Sierra Leone, Solomon Islands, Suriname, Tonga, Trinidad and Tobago, Tuvalu, Zambia and Zimbabwe.

<sup>17</sup> United Kingdom.

experience gained and lessons learned in the updating and implementation of SLAs for States under integrated safeguards, as described in documents GOV/2013/38, and GOV/2014/41 and Corr.1.

12. To further ensure consistency and non-discrimination in the implementation of safeguards, the Agency has continued to improve internal work practices. These include better integration of safeguards activities conducted in the field with those carried out at Headquarters; further development of internal procedures and guidelines for the implementation of safeguards at the State-level; adjustments to the safeguards training programme, and strengthening the Departmental oversight mechanisms relevant to the implementation of safeguards at the State level.

## **C.2. Dialogue with States on Safeguards Matters**

13. The Secretariat has continued to engage in open and active dialogue with States on safeguards matters.

14. The Secretariat held a seminar on 12 March 2019 to familiarize new Vienna-based diplomats with Agency safeguards. The Secretariat provided an overview of the safeguards legal framework, the core safeguards processes and activities, and the assistance available to States in safeguards implementation.

15. In November 2018, the Agency held the Symposium on International Safeguards: Building Future Safeguards Capabilities. The Symposium, which was the 13th such Symposium and was mostly funded through extrabudgetary contributions, focused on identifying innovative technologies that might have potential benefits for safeguards; strengthening existing partnerships and creating new ones; and improving the day to day work of safeguards implementation. Its sessions were designed to foster information exchange, experience sharing and networking. More than 90 individuals from developing countries received travel support to attend the event. This resulted in an improved geographical diversity in the more than 800 participants from 90 States, in comparison to 54 States at the previous symposium in 2014. More than 42% of the participants came from regions outside of Europe and North America (20% in 2014) and 29% were women (20% in 2014). Some ideas for potential action and practical proposals related to innovation, partnering and improving communication and collaboration among States, industry, academia, non-governmental organizations and the Agency will be presented in a symposium report.

## **C.3. Strengthening Safeguards Implementation in the Field**

16. The Agency has continued to seek improvements to the effectiveness and efficiency of safeguards implementation in the field. For example, the Agency has implemented a new laser mapping technique for containment verification of welds on spent fuel dry storage casks in Canada. The Agency has also begun using a neutron portal monitoring system for verification of transfers of nuclear material to a Canadian low level waste storage facility. This is the first time such a portal monitor has been used by the Agency for safeguards purposes.

17. The Agency has continued to develop and improve safeguards approaches, including the application of dual containment and surveillance systems on spent fuel items that are difficult to access for verification at spent fuel dry storages in Germany and Lithuania. In Germany, cooperation with the European Commission (EC) and facility operators has improved the efficiency of sealing arrangements during spent fuel transfers. In Lithuania, the use of remote data transmission and implementation of other agreed measures has allowed a reduction in the frequency of inspections to verify spent fuel transfers. Implementation of remote data transmission began in Spain in March 2019 and its implementation is under discussion with a number of other States from the European Atomic Energy Community. A safeguards approach using instrumentation for verifying transfers of spent fuel to dry storage in Mexico is being implemented. This will allow a reduction in inspector presence during the transfers without compromising safeguards implementation effectiveness. A similar approach for

verifying spent fuel transfers in Pakistan has been developed and implementation is planned for the third quarter of 2019. The shared remote data transmission server installed in through 2017 and 2018 in the Brazilian–Argentine Agency for Accounting and Control of Nuclear Materials (ABACC) Headquarters, used for remotely transmitting information to the Agency on the state-of-health of equipment installed at two facilities in Argentina and Brazil, has allowed for early identification of possible system failures and corrective actions as needed.

18. Site or facility specific safeguards approaches and procedures were developed or improved for the implementation of unannounced inspections at a hot cell laboratory in Switzerland and for the verification of the core fuel at a CANDU reactor in Argentina. The Agency, in cooperation with the EC, is developing arrangements for the implementation of safeguards measures for the Belgian RECUMO project. The Agency has continued to develop an approach for the verification of spent fuel transferred from Ukrainian NPPs to the centralized spent fuel storage facility, currently under construction in the Chernobyl exclusion zone. The Agency is in the final stage of the development of an effective and efficient approach to safeguard the nuclear material to be contained in the new safe confinement of Unit 4 of the Chernobyl NPP. Development of a safeguards approach for the transfer of the irradiated fuel from wet storage to the interim dry storage at the Chernobyl NPP is ongoing.

19. Nuclear material inaccessible for verification remains in damaged Units 1–3 at the Fukushima Daiichi site in Japan. Transfers of fuel assemblies from the spent fuel ponds of Unit 3 started in the first half of 2019, enabling the nuclear material to be re-verified by the Agency. Surveillance and neutron-gamma monitoring systems have been installed at the site to ensure that nuclear material cannot be removed from the damaged reactors without the Agency’s knowledge. The data from these systems are also being transmitted remotely to the Agency’s regional office in Tokyo, thereby increasing the efficiency of Agency monitoring activities. The Agency also conducted short notice inspections at the site to confirm the absence of any undeclared movements of nuclear material.

20. The Agency continued to prepare for the future application of safeguards to new types of facility (e.g. geological repositories, spent fuel encapsulation plants, pyroprocessing facilities, small modular reactors and pebble bed reactors). The Agency, Finland, Sweden and the EC have continued to cooperate closely in the planning of safeguards implementation at encapsulation plants and geological repositories in Finland and Sweden. The Agency, in cooperation with the EC, has finalized a plan regarding equipment infrastructure requirements and specifications for the installation of safeguards equipment at the encapsulation plant in Finland and continues work to identify the equipment infrastructure requirements for the associated geological repository. In 2018, the Agency initiated a new Member State Support Programme (MSSP) task to identify the key technical challenges for safeguards implementation involving small modular reactors (SMRs), and steps that can be taken to support the incorporation of safeguards-by-design principles into SMR designs.

21. The Agency and the Republic of Korea have continued close cooperation on planning for safeguards implementation at future pyroprocessing plants, including in the early design stages of the plants. The Agency is working with China to develop safeguards approaches for the high temperature gas cooled pebble bed reactor, currently under construction, that was designated for the application of safeguards under China’s VOA. In parallel, China has accepted a task under its support programme that will facilitate the consideration of safeguards-by-design for pebble bed reactors.

22. The Agency contributed to assessments of the proliferation resistance of nuclear facilities through continued participation in the Agency’s International Project on Innovative Reactors and Fuel Cycle (INPRO) and the Generation IV International Forum. In addition, the Agency continued to participate in the Safeguards and Security Working Group under the Joint Fuel Cycle Study launched by the Republic of Korea and the United States of America. The Agency is developing guidance documents aimed at enhancing the understanding of nuclear facility vendors and designers regarding safeguards

needs, and encouraging the consideration of safeguards measures in the design and construction of nuclear facilities.

23. Since the last report, the Agency has continued to hold expert meetings on updating its ‘physical model’, which characterizes all elements of the nuclear fuel cycle and is used for safeguards planning, implementation and acquisition path analysis. Three meetings were held, covering two separate elements of the nuclear fuel cycle (fuel fabrication and uranium enrichment).

24. Taking into account the increasing number of nuclear facilities that are reaching the end of their operating life cycle and being taken out of operation, the Agency is working with Member States to develop guidelines for facilities in the post-operation phase. These guidelines will include a revised design information questionnaire (DIQ) template to be used for provision of information related to decommissioning activities. In 2019, two meetings of Member States’ experts were held to update the DIQ templates and to draft the DIQ completion guidelines.

#### **C.4. Information Technology**

25. Since last year’s report, the Agency has continued to work with its in-house users for the specification, development and maintenance of all safeguards IT systems, including the software applications developed under the Modernization of Safeguards Information Technology (MOSAIC) project.

26. During the reporting period, the Agency began incorporating lessons learned from the MOSAIC project in how it delivers IT solutions that meet customers’ needs, while ensuring compliance with its internal information security policies and procedures. This includes new governance practices and processes and the establishment of a safeguards IT panel to assist in the review and prioritization of safeguards software.

#### **C.5. Information Analysis**

27. In order to draw soundly-based safeguards conclusions, the Agency evaluates all safeguards-relevant information, including declarations and reports submitted by States, data generated from its own verification activities in the field and at Agency Headquarters, and other safeguards-relevant information available to it. Throughout the reporting period, the Agency continued to identify new open sources of safeguards-relevant information, improve processes and to enhance methodologies and tools, in support of the preparation of in-field verification activities and the State evaluation process. The Agency has continued to improve the effectiveness and efficiency of its evaluation processes by drawing on an increased amount of information from verification activities performed at Agency Headquarters and in the field, including the results from non-destructive assay (NDA), destructive assay, environmental sample analyses and remotely transmitted data. During the reporting period, legacy software and databases related to measurement verification data evaluation have continued to be re-engineered and prepared for consolidation and integration into the secure IT environment.

28. The Agency has continued to increase its use of high resolution commercial satellite imagery to improve its ability to monitor nuclear facilities and sites in support of its safeguards activities, introducing imagery obtained from new commercially available sensors. A number of Member States voluntarily provided the Agency with information concerning unfulfilled procurement enquiries for nuclear-related products, which was used as an input in assessing the consistency of nuclear activities declared by States to the Agency.

## **C.6. Analytical Services**

29. The collection and analysis of nuclear material and environmental samples are essential for effective safeguards. The analysis of such samples is performed at the Agency's Safeguards Analytical Laboratories (SAL) in Seibersdorf, comprising the Nuclear Material Laboratory and the Environmental Sample Laboratory. Analyses are also performed at the other laboratories of the Agency's Network of Analytical Laboratories (NWAL).

30. The NWAL currently consists of the Agency's SAL in Seibersdorf and 22 other qualified laboratories in ten Member States plus the EC. NWAL expansion continues, and laboratories in the following countries are undergoing qualification: Belgium, Canada and the Netherlands, for nuclear material analysis; Argentina, for heavy water analysis; the United Kingdom, for nuclear material characterization analysis; and Germany, for reference material production.

31. The Agency's safeguards laboratories continued to enhance their analytical capabilities in cooperation with partner laboratories in the Member States through technical meetings, inter-laboratory comparisons, and subject-specific MSSP activities. The timeliness of environmental sample processing also continued to improve, with further reductions in the time required for sample screening, distribution to the NWAL, and analysis by the NWAL.

## **C.7. Equipment and Technology**

32. Verification activities rely heavily on the use of equipment, whether portable or installed at facilities. Remote data transmission continued to enhance efficiency by eliminating the need for data retrieval by inspectors at facilities and enabled early detection of any deterioration in the performance of data collection. Significant efforts continue to be dedicated to preventive maintenance and performance monitoring to ensure the reliability of Agency equipment. During the reporting period, the digital surveillance, NDA and unattended monitoring systems and active seals exceeded the target goal of 99% reliability. This level of reliability was achieved through the implementation of effective preventive maintenance policies and through redundancy designed into such systems and their components. The Agency continued to develop data automation and inspector review tools to help streamline equipment data collection and review processes. The modernization and development of NDA systems continued in particular with the procurement of two units of a passive gamma emission tomography (PGET) system for the verification of the integrity of spent fuel and irradiated items.

33. The Agency continued to conduct acceptance testing, installation, training and maintenance with regard to safeguards equipment, including that authorized for joint use, in cooperation with State and/or regional authorities. Such cooperation also supported the field testing of new safeguards equipment, which is an important step in the process of authorizing such equipment for safeguards use. For example, the development of two new software applications, the Integrated Review and Analysis Package and the Inspector Record Integration Software, was completed; and the Multi-Component Inspector Kit was authorized for use. A new version of the Autonomous Navigation and Positioning System was also developed. Within the framework of the sealing and containment modernization programme, the Agency continued to pursue implementation of new sealing technologies and to enhance their overall security.

34. Technology foresight activities aim to identify and evaluate the potential application of emerging technologies for use in verification. Since the last report, the Agency has conducted evaluation and testing of several technologies that could support Agency safeguards implementation. For example, as a result of the 'Robotics Challenge', three prototypes were selected, further developed and tested, demonstrating feasibility and acceptability by the operator of a commercial NPP. Making full use of available technologies is necessary to ensure improvements in efficiency as demands on the Department of Safeguards, driven by the Agency's safeguards obligations, continue to grow. Building on the success

of previous technology challenges that provided highly effective means to trigger innovation, a new technical challenge was launched in 2019 to improve data processing algorithms for PGET.

## **C.8. Cooperation with, and Assistance to, State and Regional Authorities**

35. The effectiveness and efficiency of Agency safeguards depend, to a large extent, on the effectiveness of State and regional systems of accounting for and control of nuclear material (SSACs/RSACs) and on the level of cooperation between the State or regional authorities responsible for safeguards implementation (SRAs) and the Agency.

36. SRAs need legislative and regulatory systems to be able to exercise the necessary oversight and control functions, as well as resources and technical capabilities commensurate with the size and complexity of the State's nuclear fuel cycle. Recognizing the challenges faced by some States in establishing an effective SSAC, the Agency continued to provide assistance to strengthen their technical capabilities to implement the requirements of their safeguards agreements and APs.

37. A number of States have taken actions to enhance safeguards implementation. Examples of such actions include: hosting regional and international training courses to raise awareness of Agency safeguards; providing the Agency with early design concepts to assist in developing safeguards approaches for emerging nuclear fuel cycle technologies; performing national inspections at facilities and locations outside facilities (LOFs); validating operator data and ensuring the quality of records, reports and declarations prior to submitting information to the Agency; making facilities available for training Agency staff and for Member State training; and providing experts to facilitate and lecture at workshops and training courses.

38. The Agency continued to enhance the safeguards pages of its website, providing SRAs and others with access to publications as well as safeguards-related videos, guidance and reference documents, forms and templates.

39. The Agency has continued to promote an improved IT environment for States to prepare and submit reports and declarations to the Agency through the use of the Protocol Reporter version 3 software and the State Declarations Portal (SDP). The SDP substantially increased productivity by saving time and effort in communicating with States on matters relating to the implementation of safeguards and reducing manual data entry and transcription errors.

40. The IAEA SSAC Advisory Service (ISSAS) provides States, at their request, with advice and recommendations on the establishment and strengthening of their SSACs, based on an in-depth evaluation with respect to safeguards obligations, guidance and good practices. ISSAS missions provide recommendations for strengthening the regulatory, administrative and technical elements of the SSAC, and enhancing the cooperation with the Agency. Since last year's report, the Agency has conducted ISSAS missions in Belarus, Malaysia and Mexico.

41. The Agency has continued to provide training to personnel of SRAs as well as operators of facilities and LOFs and staff of relevant stakeholders, such as customs authorities. Over the past year, the Agency has conducted twelve training courses at international, regional and national levels.

42. Three international SSAC courses were conducted: two in Japan, one on SSACs and one for States with SQPs; and one in the United States of America on SSACs. Three regional SSAC courses were conducted in Brazil, India and South Africa; the latter was conducted, for the first time, in collaboration with the African Commission on Nuclear Energy. In addition, one regional course was held in South Africa focusing on the implementation of the AP.



43. Upon the request of Member States, five training courses were organized at the national level. These included national training courses on SSACs for the Islamic Republic of Iran and the United Kingdom, and on safeguards implementation for Bahrain, Turkmenistan and Kyrgyzstan.

44. The Safeguards Traineeship Programme for young graduates and junior professionals took place between February and November 2018. Six trainees, out of which four were female, from Cameroon, Jordan, Kenya, Thailand, Turkey and Viet Nam, participated in the programme.

45. The Agency provided lecturers and conducted tabletop exercises to support training courses organized by Member States. The Agency participated in one regional workshop in Finland for newcomer States. In addition, the Agency participated in one national training course on complementary access in Kazakhstan; three national training courses on the implementation of the AP in Honduras, Kazakhstan and Nepal; one regional workshop on the implementation of the AP and modified SQP in Chile; one regional training course on NDA in Ukraine; and one national outreach workshop for decision makers in Sierra Leone — all organized by the Government of the United States of America through the International Nuclear Safeguards and Engagement Program. Since the previous report, safeguards-related issues have been discussed with officials in Saudi Arabia during the Agency-led Integrated Nuclear Infrastructure Review (INIR) mission.

### **C.9. Safeguards Workforce**

46. Since last year's report, 32 new inspectors have completed the Introductory Course on Agency Safeguards (ICAS), which includes modules on the legal framework for Agency safeguards; safeguards implementation and verification techniques, including NDA methods and containment and surveillance; radiation protection; Agency and State reporting; and negotiation and communication skills. The ICAS concluded with an inspection exercise at a light water reactor and the presentation of a case study.

47. Courses for safeguards staff continued to be offered on the full range of safeguards activities conducted in the field and Agency Headquarters to develop the technical and behavioural skills required for safeguards implementation. The training programme was implemented as planned and additional training was provided at short notice to support verification in the Islamic Republic of Iran, to provide specialized training for identified potential inspectors for initial activities in the DPRK, and to address other training needs across the Department, in response to States' needs.

48. The Agency continued to provide training for staff in the Department of Safeguards through a radiation protection course which is composed of an online component and a practical exercise.

### **C.10. Quality Management**

49. Throughout the reporting period, the Department of Safeguards continued to undertake activities to strengthen and improve its quality management system (QMS). The Department updated its policy on quality and introduced a number of new procedures designed to improve the awareness and overall effectiveness of the QMS. Specific actions were undertaken to further integrate risks and opportunities into QMS activities. Activities continued to strengthen the functional alignment between applications developed under MOSAIC and the safeguards processes they support.

50. Ongoing training was undertaken to raise awareness of the QMS, including managing and controlling safeguards documents, the use of the condition report system, and the principles of continual process improvement. The Department conducted three internal quality audits during the year and opened 41 condition reports in response to findings from these audits.

51. The SAL in Seibersdorf maintained their certification to the ISO 9001 management system standard and in March 2019 the Equipment Radiation Monitoring Laboratory obtained accreditation to the ISO 17025:2017 standard.

## C.11. Information Security

52. During the reporting period, the Department of Safeguards continued to strengthen its information security through improved governance of the Security Management System. Since July 2018, the Department has consolidated its information security activities into a coordinated programme, with a better-defined strategy in alignment with ISO 27000 and the United Nations security framework.

53. The Department has continued to enhance the safeguards authorization management system to further strengthen and streamline authorization and access management for the secure IT environment, according to the principles for authorizing access to safeguards information laid out in the Departmental policy on authorization and access management. The Department has further strengthened its physical security management system by enhancing IT security aspects of the system and introducing new procedures, in cooperation with the United Nations Security and Safety Service in Vienna.

54. The Department continued to integrate an effective risk based approach by increasing information security awareness. In the reporting period, it carried-out new and targeted phishing campaigns which include training, testing and communications material. The testing aspect of the campaign measures the effectiveness of such awareness efforts and the Department, once again, exceeded its target benchmarks for security awareness related to phishing attacks. A new dedicated internal website was also developed to facilitate staff access to safeguards security policies and procedures.

## C.12. Safeguards Reporting

55. The Secretariat reported the safeguards conclusions for 2018 in *The Safeguards Implementation Report for 2018* (GOV/2019/22 and Corr.1)<sup>18</sup>, which also provided data on the numbers and types of facilities and LOFs under safeguards, and the inspection effort and related cost of safeguards implementation. At its June 2019 meeting, the Board of Governors took note of the report and authorized the release of the Safeguards Statement for 2018 and of the Background to the Safeguards Statement and Summary.

## C.13. Strategic Planning

56. The Secretariat carries out strategic planning to ensure that safeguards implementation will continue to be both effective and efficient. To this end, the Department of Safeguards conducts long, medium, and short term planning. This contributes towards addressing the increasing workload and static resources; anticipating and responding to new demands; keeping up with technology and innovation; and sustaining the safeguards workforce and institutional knowledge. Such planning also facilitates cooperation with Member States. In this reporting period, the Department of Safeguards continued to develop and implement its strategic planning processes and tools with emphasis on enhancing strategy implementation, including the monitoring of progress and results.

57. The Agency implemented its *Research and Development Plan: Enhancing Capabilities for Nuclear Verification* (STR-385), which outlines the capabilities the Secretariat wishes to develop and for which Member State research and development support is required. Through its well-established coordination of the MSSPs, the Agency also implemented the *Development and Implementation Support Programme for Nuclear Verification 2018–2019* (STR-386) and generated substantive support for Agency safeguards, such as extrabudgetary funding, expertise, access to facilities and in-kind donations.

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<sup>18</sup> The Safeguards Statement for 2018 and the Background to the Safeguards Statement and Summary of *The Safeguards Implementation Report for 2018* are published on the Agency's website at: <https://www.iaea.org/sites/default/files/19/06/statement-sir-2018.pdf>