

**General Conference**

**GC(65)/16\***

**General Distribution**  
Original: English

**Sixty-fifth regular session**

# **STRENGTHENING THE EFFECTIVENESS AND IMPROVING THE EFFICIENCY OF AGENCY SAFEGUARDS**

*Report by the Director General*



# General Conference

**GC(65)/16**  
Date: 21 July 2021

**General Distribution**  
Original: English

---

## Sixty-fifth regular session

Item 19 of the provisional agenda  
(GC(65)/1 and Add.1)

# Strengthening the Effectiveness and Improving the Efficiency of Agency Safeguards

*Report by the Director General*

## A. Introduction

1. The General Conference, in resolution GC(64)/RES/13 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 65th regular session. This report responds to that request and updates the information in last year’s report to the General Conference (document GC(64)/13).<sup>1</sup>

2. The restrictions implemented worldwide to contain the COVID-19 pandemic have created unprecedented challenges to the Agency’s implementation of safeguards, primarily in the field, but also at Headquarters. The most significant impact was on the Agency’s ability to conduct some of its planned in-field verification activities. This required the Agency to take a number of measures to overcome or mitigate this impact, including prioritizing time-critical in-field verification activities, enhancing the protection of the health and safety of Agency staff on duty travel, and strengthening collaboration with States to facilitate the necessary access to nuclear facilities and locations outside facilities (LOFs). Despite the difficulties caused by the COVID-19 pandemic, the Agency maintained a level of effectiveness of safeguards implementation consistent with previous years to meet its safeguards objectives.

---

<sup>1</sup> This report covers the period between 1 July 2020 and 30 June 2021.

## B. Safeguards Agreements and Additional Protocols

### B.1. Conclusion and Entry into Force of Safeguards Agreements and Additional Protocols<sup>2</sup>

3. A comprehensive safeguards agreement (CSA) with a small quantities protocol (SQP) based on the revised standard text and an additional protocol (AP) entered into force for one State.<sup>3</sup> A voluntary offer agreement (VOA) and an AP entered into force for one State.<sup>4</sup> SQPs based on the original standard text were amended for three States,<sup>5</sup> in keeping with the Board of Governors' decision of 20 September 2005 regarding such protocols. As of 30 June 2021, 67 States<sup>6</sup> had an operative SQP in force based on the revised standard text, and 28 States<sup>7</sup> had an operative SQP in force based on the original standard text.

4. As of 30 June 2021, 185 States<sup>8</sup> had safeguards agreements in force with the Agency, 137 of which (including 131 States with CSAs) also had an AP in force. As of 30 June 2021, 47 States had yet to bring into force APs to their safeguards agreements.

5. Nine States Party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT)<sup>9,10</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>11</sup>

---

As of 30 June 2021,

**185 States**<sup>8</sup>

had safeguards agreements in force with the Agency,

**137 States**

of which (including 131 States with CSAs) also had an AP in force.



---

<sup>2</sup> GC(64)/RES/13, OP 16.

<sup>3</sup> Eritrea.

<sup>4</sup> The United Kingdom.

<sup>5</sup> Belize, Maldives and Sudan.

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

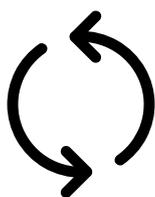
<sup>7</sup> This number does not include one operative SQP reproduced in INFCIRC/229.

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

<sup>9</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>10</sup> The referenced number of States Party to the NPT is based on the number of instruments of ratification, accession or succession that have been deposited.

<sup>11</sup> <https://www.iaea.org/sites/default/files/20/01/sg-agreements-comprehensive-status.pdf>.



Between 1 July 2020 and 30 June 2021, SQPs based on the original standard text were amended for

**3 States**<sup>5</sup>

As of 30 June 2021,

**67 States**<sup>6</sup>

had an operative SQP in force based on the revised standard text, and

**28 States**<sup>7</sup>

had an operative SQP in force based on the original standard text.

---

## **B.2. Promotion and Assistance in the Conclusion of Safeguards Agreements and Additional Protocols<sup>12</sup>**

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 the knowledge and 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. Pursuant to 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, and amendment and rescission of SQPs. During the reporting period, the Director General wrote to all 31 States with SQPs based on the original standard text calling upon them to amend or rescind them. The Director General also wrote to nine States Parties to the NPT without a CSA in force calling upon them to conclude a CSA. The Agency held virtual national events with the Lao Peoples Democratic Republic (11 February 2021) and Saint Vincent and the Grenadines (7 April 2021). The Agency also 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(64)/RES/13, 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

---

<sup>12</sup> GC(64)/RES/13, OP 17.

<sup>13</sup> The plan of action is available on the Agency's website at: <https://www.iaea.org/sites/default/files/20/09/sg-plan-of-action-2019-2020.pdf>.

GOV/2014/41 and Corr. 1) (Supplementary Document) 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. The Agency has progressively developed and implemented State-level safeguards approaches (SLAs) as set out in the Supplementary Document. The development and implementation of an SLA for a State enables the Agency to better focus the Agency's verification efforts on the relevant safeguards objectives for that State. During the reporting period, the Agency developed or updated an SLA for three States with a CSA and an AP in force. This brings the total number of States with a CSA in force for which an SLA has been developed to 133. These 133 States hold 97% of all nuclear material (by significant quantity) under Agency safeguards in States with a CSA in force. These 133 States are comprised of 70 States with a CSA and an AP in force for which the broader conclusion has been drawn for 2020 (of which 17 are States with an SQP); 36 States with a CSA and an AP in force for which the broader conclusion was not drawn for 2020 (of which 25 are States with an SQP); and 27 States with a CSA and an SQP in force but no AP in force. There are also two States<sup>14</sup> with a VOA and an AP in force for which an SLA has been developed. 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. To further ensure consistency and non-discrimination in the implementation of SLAs, the Agency has continued to improve internal work practices. In doing so it has taken account of experience gained and lessons learned in the development and implementation of SLAs for States under integrated safeguards. During the reporting period, the Agency continued a two-year project focusing on refining internal procedures for conducting acquisition path analysis and developing SLAs.

12. The updated SLA procedure includes performance targets, which define the intensity and frequency of safeguards activities to meet the technical objectives of the SLA. Between March and June 2021, the Agency established a reflection group consisting of in-house safeguards experts to review, test and further refine the updated procedures in an effort to ensure effectiveness and efficiency of the current safeguards implementation effort in any State with an SLA.

13. These updates to the overall SLA development process offer several benefits over the previous SLA development process. The updated process increases consistency in the development of SLAs and improves the link between the planning and implementation of safeguards activities and the State evaluation process. The Secretariat will continue to keep Member States informed on the work aimed at improving consistency in the implementation of State-level safeguards approaches including through a dedicated technical meeting.<sup>15</sup>

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

14. The Secretariat has continued to engage in open and active dialogue with States on safeguards matters. In April 2021, for example, the Secretariat held a technical meeting focused on the Agency's efforts to strengthen safeguards implementation in States with SQPs. In addition, during the reporting period the Secretariat also:

- Organized a virtual side event in the margins of the 64<sup>th</sup> regular session of the General Conference to launch the new IAEA Comprehensive Capacity-Building Initiative (COMPASS). This event attracted 113 participants from around the world;

---

<sup>14</sup> France and the United Kingdom

<sup>15</sup> GC(64)/RES/13, OP 27, 28 and 30.

- Participated in the joint IAEA-United Nations Office for Disarmament Affairs (UNODA) virtual event entitled ‘The Tenth NPT Review Conference: IAEA Safeguards in the 21st Century’;
- Presented the work of the Department of Safeguards at the seminar ‘Introduction to the IAEA: A Seminar for Diplomats’; and
- Held an online ‘Webinar Series on IAEA Safeguards’.<sup>16</sup>



*Massimo Aparo, Deputy Director General and Head of the Department of Safeguards addresses the seminar, ‘Introduction to the IAEA: A Seminar for Diplomats’ (Photo credit: Dean Calma / IAEA)*

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

15. The Agency has continued to seek improvements to the effectiveness and efficiency of safeguards implementation in the field. These improvements apply to all stages of the nuclear fuel cycle, and include advances related to both safeguards equipment and safeguards approaches.

16. Site- or facility-specific safeguards approaches/procedures were developed or updated for:

- The application of a dual containment and surveillance system at interim spent fuel dry storages in Australia, Brazil, Canada and Spain;

---

<sup>16</sup> The webinar was placed on the Agency’s learning management system and is available here: <https://elearning.iaea.org/m2/course/view.php?id=693>.

- The routine use of remote data transmission at light water reactors and spent fuel storages in Switzerland and light water reactors in the United Arab Emirates;
- The verification of nuclear material at light water reactors, spent fuel storages, reprocessing plants and enrichment plants in Japan; and
- The implementation of a laser surface mapping system for containment verification at dry spent fuel storage facilities in Canada.

17. The Agency continued to prepare, with Member States' support, for the future application of safeguards to new types of facility (e.g. geological repositories, spent fuel encapsulation plants, pyroprocessing facilities and small modular reactors). For example, as part of several Member State Support Programmes' (MSSPs) tasks on safeguards by design, interactions continued between the Agency and designers of small modular reactors.

18. The Agency continues to develop an effective and efficient approach, including through the provision of hardware, to safeguard the nuclear material contained in the damaged reactor Unit 4 of the Chernobyl nuclear power plant covered by the new safe confinement. The Agency continued the development of the safeguards approach for the transfer of spent fuel from wet storage to interim dry storage, following conditioning. Safeguards equipment installed at the conditioning and interim dry storage facilities ensured the successful verification of fuel transfers during hot testing.



*IAEA safeguards inspectors inside the new safe confinement at Unit 4 of the Chernobyl nuclear power plant (Photo credit: IAEA staff)*

19. Finland and Sweden each have plans to construct an encapsulation plant and a geological repository (EPGR) in which to dispose spent fuel. The Agency's EPGR project coordinates the development of specific safeguards approaches for such repositories, assesses verification methods, and identifies the needs for new safeguards equipment and techniques necessary for safeguarding these facilities. The aim is to optimize safeguards measures at the time when these facilities become operational.

20. In Japan, due to continuing construction delays at the Japan Mixed-Oxide Fuel Fabrication Plant, development and implementation activities at this plant continued to be limited. The Agency continued to update the planned safeguards systems necessary to meet the safety requirements of the plant. Construction and commissioning of the plant are not expected to be completed before 2024.

21. The Agency has developed a safeguards approach for the Fukushima Daiichi site in Japan, to safeguard the nuclear material contained in the storage and undamaged reactor facilities on site while re-verifying undamaged nuclear material items retrieved from the damaged reactors unit. The Agency continues to develop a safeguards approach for the planned retrieval of fuel debris from the damaged reactors including safeguarding the operations at planned new hot cell and fuel debris storage facilities.

#### C.4. Information Technology

22. The Agency continued to enhance existing safeguards software and develop new software capabilities. The Agency focused on improving user experience and upgrading key technologies in the information technology (IT) infrastructure, to better respond to users' evolving needs and accommodate recent technological advancements. These improvements also enabled the Agency to successfully adapt to the challenges presented by the COVID-19 pandemic and the lockdown measures implemented by host countries.

23. At the end of June 2021, the Department of Safeguards had over 58 000 active items registered in the safeguards asset registry. These items cost the Department over €238 million and are deployed to support safeguards activities in over 60 States. Under the Integrated Lifecycle Management of Safeguards Assets (ILSA) project, the Department created an asset management strategy to provide guidance for, and ensure consistency in, managing the lifecycle of all safeguards assets, including IT equipment, safeguards equipment supporting in-field activities, laboratory equipment and software. A key component of this strategy was a 15-year forecast of estimated asset expenditures which concluded that the Agency will be able to maintain the current health of the safeguards' asset base if historical funding levels — including both regular and extrabudgetary contributions — continue for the next 15 years. It also demonstrated that funding needs regularly change and a new major capital investment project was created to help address these fluctuations. Overall, this initiative enabled the Agency to improve its foresight of the funding needs required to maintain, replace and renew its safeguards assets.

---

At the end of June 2021, the  
Department of Safeguards  
had over

**58 000**

active items registered in  
the safeguards asset  
registry.

These items cost the  
Department over

**€238 million**

and are deployed to support  
safeguards activities in over

**60 States**



## C.5. Information Analysis

24. The analysis of all safeguards relevant information available to the Agency is an essential part of evaluating a State's nuclear activities and drawing safeguards conclusions. In drawing its safeguards conclusions, the Agency analyses the consistency of State declarations and compares them with the results of Agency verification activities and other safeguards relevant information available to it. In support of this process, the Agency draws on information from verification activities performed in the field and at Headquarters, including the results from non-destructive assay (NDA), destructive analysis (DA), environmental sampling (ES) analysis and data transmitted by its remotely-monitored equipment. The Agency also draws on a diverse range of other safeguards relevant information sources, including commercial satellite imagery and trade information. The Agency continued to identify new safeguards relevant open sources of information, improve processes and enhance methodologies and tools.



*An IAEA safeguards inspector takes an environmental sample (Photo credit: IAEA staff)*

25. Material balance evaluation reports are prepared routinely by the Agency for all nuclear material bulk handling facilities with an inventory or throughput of more than one significant quantity of nuclear material. The objectives of material balance evaluations are to evaluate the consistency of State declarations with the result of the Agency's verification, through the processing, reconciliation and statistical analysis of NDA and DA measurements.

26. Taking advantage of technical advancements in commercial satellite imagery, the Agency was able to acquire more extensive, timely and historical images from online catalogues of satellite imagery providers. Images of a higher resolution were acquired, and with improved timeliness, to improve the quality of satellite imagery analysis and increase its cost effectiveness.

27. Data on nuclear relevant trade from public and internal sources was used to assess the consistency and completeness of nuclear activities declared by States to the Agency.

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

28. Environmental and nuclear material samples collected by safeguards inspectors are analysed by the Agency's Safeguards Analytical Laboratories (SAL) in Seibersdorf, Austria – consisting of the Nuclear Material Laboratory (NML) and the Environmental Sample Laboratory (ESL) – and by other laboratories within the Agency's Network of Analytical Laboratories (NWAL). The NWAL includes 24 qualified laboratories located in Australia, Brazil, China, France, Germany, Hungary, Japan, the Republic of Korea, the Russian Federation, the United Kingdom, the United States of America and the European Commission. In addition, the Agency operates the On-Site Laboratory (OSL) in Rokkasho, Japan, for the analysis of nuclear material samples collected at this site.

29. The Agency also provides logistical support for the collection, transport and analysis of nuclear material and environmental samples. Key performance indicators are used to monitor all stages of this process in order to identify potential problems and make improvements in timeliness. Moreover, the Agency administers a rigorous quality control programme, which includes regular inter-laboratory comparison exercises covering the major analytical techniques relevant to safeguards, to confirm the quality of analytical results across the NWAL.

30. The Agency continued work on a project aimed at the procurement, commissioning and calibration of a new Large Geometry Secondary Ion Mass Spectrometer (LG-SIMS) to replace the existing LG-SIMS and sustain particle analysis capabilities for uranium isotopes. This project, which is critical for the Agency to be able to continue to fulfil its verification responsibilities, has been entirely funded through extrabudgetary contributions provided by several Member States. The purchase order of the new instrument was issued in November 2020 and its installation is planned to begin in the second quarter of 2022.

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

31. The Agency provided uninterrupted technical support and equipment for verification activities, despite the numerous challenges and restrictions associated with the COVID-19 pandemic. Overall, the Agency delivered technical support for safeguards activities in the field to a level comparable with what was observed in recent years. All departmental requests for safeguards equipment and personal protective equipment (PPE) to be used by inspectors and technicians during safeguards activities in the field were fulfilled.

32. During the reporting period, the Agency's investment in remote data transmission, unattended monitoring systems, and containment and surveillance systems used in the field played an important role in maintaining continuity of knowledge on nuclear material and essential equipment at facilities where physical access to Agency inspectors was restricted or delayed due to the COVID-19 pandemic. The performance of these systems contributed significantly to the achievement of the Agency safeguards objectives.

33. During the reporting period, the reliability of digital surveillance systems, NDA systems, unattended monitoring systems and electronic seals exceeded the target goal of 99% availability. Despite the travel restrictions due to the COVID-19 pandemic which significantly impacted the scheduled corrective and preventive maintenance activities, the Agency succeeded in conducting technical activities in the field to the level necessary to guarantee the desired performance of the installed equipment.

34. The Equipment Radiation Monitoring Laboratory (ERML) provided uninterrupted radiation monitoring of items returned from verification activities in the field, including components of safeguards systems, seals, and environmental samples. During the reporting period the ERML monitored approximately 30 400 items for surface contamination.

35. A transportable data acquisition system for an unattended fork detector monitor (mini-UFD) was developed to replace obsolete UFD systems and also to address urgent operational requests for spent fuel verification activities.

---

Between 1 July 2020 and 30 June 2021, the effort spent to install, maintain and support the use of equipment in the field required

**1208 days**

of in-field work, plus associated travel days and days related to quarantine or other travel restrictions.



36. The effort spent to install, maintain and support the use of equipment in the field required 1208 days of in-field work, plus associated travel days and days related to quarantine or other travel restrictions. Of these days in the field, 209 days were dedicated to safeguards activities, including 113 person-days of inspection (PDIs) accumulated by safeguards technical experts designated to conduct inspection work.

37. As in previous years, State or regional authorities responsible for safeguards implementation (SRAs) continued to provide the Agency with resources and solutions in the area of system design, data security and maintenance of safeguards equipment, including equipment authorized for joint use.

### **C.8. Evaluation of the Effectiveness of Safeguards Implementation**

38. Effectiveness evaluation is a process involving every step of safeguards implementation to assess the extent to which safeguards objectives were attained by verification activities conducted in the field and at Headquarters. Effectiveness evaluation of safeguards implementation is based on internal documents, such as the approved safeguards approaches and other related safeguards documentation, which are reviewed by departmental committees and safeguards evaluators.

39. Internal evaluation of the effectiveness of safeguards implementation was performed through peer reviews of annual implementation plans (AIPs) and State evaluation reports. The AIPs approved at the beginning of the year are reviewed to assure that safeguards activities conducted in the field and at Headquarters are planned to a level sufficient to achieve the safeguards objectives for the year. After conducting safeguards activities, the AIPs are reviewed to ensure that planned safeguards activities were successfully conducted and, whenever safeguards implementation issues were encountered, actions related to their resolution were properly taken. This additional layer of internal evaluation is expected to further strengthen the effectiveness of safeguards implementation and increases the level of consistency and standardization across the Department.

40. State evaluation reports are regularly reviewed by inter-departmental committees. As an additional review mechanism, every year ad hoc departmental teams are appointed by the Deputy Director General and Head of the Department of Safeguards to peer review the State evaluation for a selected number of States.

41. Results from effectiveness evaluation activities are recorded and reported to senior management within the Department, identifying good practices and areas for improvement, and highlighting recommended actions.

### **C.9. Cooperation with, and assistance to, SRAs**

42. The effectiveness and efficiency of Agency safeguards depend, to a large extent, on the effectiveness of State systems of accounting for and control of nuclear material (SSACs), regional

systems of accounting for and control of nuclear material (RSACs) and on the level of cooperation between SRAs and the Agency.

43. Actions that contributed to the enhancement of the effectiveness and efficiency of Agency safeguards implementation were undertaken by a number of States, within the framework of existing or newly launched initiatives.

### **C. 9.1. COMPASS - Strengthening the effectiveness of SRAs and SSACs**

44. The Agency launched COMPASS, designed to further support States in their efforts to strengthen and sustain the effectiveness of their SRA and SSAC. COMPASS consolidates the initiative that was announced in 2019 and builds on the experience gained in 2019 and 2020 to address areas of difficulty in safeguards implementation related to the effectiveness of SSACs and SRAs. On the basis of this experience and existing safeguards related support to States, the Agency developed COMPASS's main components, with a view to providing States with an optimized assistance package tailored to their specific SSAC/SRA needs.

45. Seven States,<sup>17</sup> including three States with SQPs, expressed an interest in participating and were selected to take part in COMPASS's pilot phase through 2022. The Agency and the States' designated officials identified the areas that would benefit the most from customized assistance, with a view to strengthening and sustaining the effectiveness of their SSACs and SRAs, and corresponding COMPASS workplans were developed in consultation with these officials. Notwithstanding the logistical challenges posed by the COVID-19 pandemic, implementation of these workplans commenced in early 2021, inter alia, through the use of virtual meetings, the organization of remote outreach and capacity-building events, and the procurement of equipment aimed at strengthening the technical capabilities of SRAs. The planned duration of COMPASS is five years, two of which are at the pilot level, and the costs associated with its implementation are covered mainly through the use of extrabudgetary resources.

### **C.9.2. Other initiatives enhancing cooperation with State and regional authorities**

46. The Agency continued discussions with the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC) and the European Commission aimed at strengthening cooperation and enhancing the effectiveness and efficiency of safeguards implementation in the relevant States. An Agency task force continued to work with Japan to address the long-term verification challenges at the Fukushima Daiichi site.

47. The Agency provides the International SSAC Advisory Service (ISSAS) to States, at their request, with advice and recommendations on the establishment and strengthening of SSACs. During the reporting period no ISSAS missions were conducted due to the COVID-19 pandemic.

48. The Agency held a technical meeting in April 2021 on enhancing national safeguards infrastructure to support the introduction of nuclear power. Seventy-six participants from 29 Member States were nominated by their governments to participate in the meeting. The outcome of the meeting will be a guidance document on developing a safeguards infrastructure for countries embarking on nuclear power programmes. This document would assist States that are newcomers to nuclear power to better understand the necessary safeguards infrastructure and associated activities required for the implementation of a nuclear power programme, within the context of a country's international safeguards obligations.

---

<sup>17</sup> Guatemala, Jordan, Malaysia, Rwanda, Saudi Arabia, Turkey and Uzbekistan.

49. The Agency's Integrated Nuclear Infrastructure Review (INIR) missions are designed to assist Member States, at their request, in evaluating the status of their national infrastructure for the introduction of a nuclear power programme. INIR missions cover 19 infrastructure issues, of which one is safeguards, to be considered during the different stages of developing a nuclear power programme<sup>18</sup>. During the reporting period, the Department of Safeguards' staff participated in the INIR missions for Uzbekistan and Sri Lanka.

50. The Agency continued to conduct international, regional and national training courses aimed at assisting States in building capacity for implementing their safeguards obligations. The courses were redesigned and developed for blended learning, including e-learning modules, self-study components and virtual classrooms. Over the past year, the Agency has held five national training courses and three international or regional courses.

51. Three international SSAC courses were conducted: two in collaboration with the United States and one in collaboration with Japan for States with SQPs.

52. Upon the request of Member States, four training courses were organized at the national level. These included: a national training course on SSACs conducted virtually over two weeks for Armenia; a webinar and an in-person national training course on Safeguards Implementation at Bulk Handling Facilities for Egypt; and a national training course on Safeguards Implementation in the United Kingdom.

53. The Agency provided lecturers and conducted table-top exercises to support training courses organized by Member States and the European Commission. The Agency participated in various webinars on safeguards implementation, organizational resilience and preparing for in-field activities held by the United States and in one international SSAC training course organized by Japan. The Agency also participated in an international training course on the Additional Protocol organized by Japan.

54. The Agency also continued to expand and promote the State Declarations Portal (SDP), a web-based secure system that supports the communication exchange between the Agency and SRAs. By using the SDP, SRAs can provide the Agency with a wide variety of submissions, including nuclear material accountancy reports, AP declarations, and design information questionnaires (DIQs), as well as receive feedback communications from the Agency, all in a fast and secure way. Data security is a key feature of the SDP, which uses multiple reinforcing security layers to guarantee the confidentiality of communications. In addition, the SDP allows for better integration with other safeguard applications and for more efficient analysis of the data received. To increase institutional memory, the SDP also offers an electronic historical log of the communication exchanges between the Agency and SRAs.



Between 1 July 2020 and  
30 June 2021,  
the Agency has held

**5**

national training courses  
and

**3**

international or regional  
courses

---

<sup>18</sup> For more information see the Agency publication *Milestones in the Development of a National Infrastructure for Nuclear Power*, IAEA Nuclear Energy Series, NG-G-3.1 (Rev.1) (2015).

## C.10. Safeguards Workforce

55. As the knowledge and skills required of its workforce evolve, so does the Agency's workforce planning. The Department undertakes workforce planning and forecasting on a regular basis, both as part of the programme and budgeting process and as part of standard human resources activities.

56. The Agency continually updates its training curriculum to ensure that Agency staff are equipped with the necessary knowledge and skills to perform their role. Courses held at nuclear facilities are designed to enhance practical competencies for safeguards implementation in the field. They enable effective and integrated training of safeguards staff in a realistic environment. In particular, such training improves inspectors' ability to prepare for, conduct and report on inspections, design information verifications and complementary accesses. Courses held at Headquarters aim to develop skills for analysing safeguards relevant information using different techniques, including collaborative analysis tools.

57. The global restrictions imposed by the COVID-19 pandemic significantly affected the Agency's training programme. Most training at Headquarters had to be re-designed and adjusted in accordance with the regulations to mitigate risks of COVID-19 transmission. The number of course offerings was 110, however the ability to conduct courses at facilities was significantly reduced.



*IAEA staff record online safeguards training (Photo credit: IAEA staff)*

---

As of 30 June 2021,

**36%**

of all regular staff  
members in the  
Department were women.

Women represented

**26%**

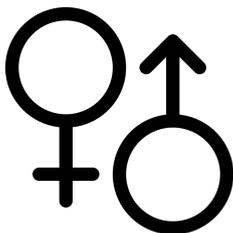
of the staff in the  
Professional and higher  
categories,

**24%**

of the safeguards  
inspectors in the  
Divisions of Operations  
and the Office for  
Verification in Iran, and

**15%**

of positions at the Section  
Head level and above.



---

Professional and higher categories. Moreover, women comprised 24% of the safeguards inspectors in the Divisions of Operations and the Office for Verification in Iran, and 15% of positions at the Section Head level and above.

64. The Department increased its activities to encourage women candidates in recruitment exercises, enhance outreach opportunities and ensure improved gender balance on recruitment panels.

58. The Introductory Courses for Agency Safeguards (ICAS) for new inspectors has been re-designed to integrate a virtual learning component prior to the start of ICAS. This provides new inspectors with the opportunity to commence their learning to become familiar with the Agency and the basics of safeguards at their own pace.

59. In an effort to prepare new inspectors for their work in their respective sections, the Department integrates a mentoring programme in the ICAS. As part of this, each new inspector is assigned a mentor who serves as a resource throughout ICAS and assists with specific mentor-led assignments. The development needs for all staff within the Department are also factored into their personal annual performance development plans which allow staff and managers to discuss and agree development objectives.

60. In addition to Secretariat staff training, the Agency continues to support the development of the global safeguards workforce. In order to broaden the access to safeguards-related learning opportunities, the Agency launched the Safeguards e-learning site<sup>19</sup>, as a part of its remote learning strategy.

61. Through the Safeguards Traineeship Programme for Young Graduates and Junior Professionals, the Agency provides development opportunities designed to enhance the technical skills and competence of the trainees regarding the implementation of safeguards. This training also broadens trainees' knowledge of the peaceful applications of nuclear techniques and the implementation thereof in their respective States. Participation for the 2021 Traineeship represented nine countries: Angola, Indonesia, Jordan, Malaysia, Saudi Arabia, Senegal, Sri Lanka, Tunisia and United Arab Emirates. Participants were selected with due consideration to gender parity.

62. In line with the Agency Gender Equality Policy and the Special Measures for the Achievement of Gender Parity, the Department of Safeguards is committed to supporting gender equality and is seeking to strengthen efforts to promote both gender parity in its staff and gender mainstreaming considerations in relevant programmatic activities.

63. As of 30 June 2021, 36% of all regular staff members in the Department were women. According to the gender scorecard analysis for the Department, women represented 26% of the staff in the

---

<sup>19</sup> The Agency's learning management system is available at <https://elearning.iaea.org>.

## **C.11. Quality Management**

65. To ensure impartiality, effectiveness and efficiency of safeguards implementation, the quality management system (QMS) of the Department of Safeguards provides the means for conducting oversight of the key safeguards processes. As part of the QMS, the Department of Safeguards conducts internal quality audits and assessments to determine the performance and effectiveness of its processes. During the reporting period, the Department initiated four internal quality audits and completed a comprehensive assessment on the maturity of the Department's process framework. The Department continued to implement other quality management activities associated with condition reporting, root cause analysis, knowledge management, process improvement and document control.

## **C.12. Organizational Resilience**

66. The Department's business continuity and disaster recovery plans played an essential role in guaranteeing continuous operations during the global restrictions imposed by the COVID-19 pandemic. Flexible and safe travel arrangements were established to ensure the safeguards activities in the field could continue without interruption, while providing the necessary care and protection for the health and well-being of the staff involved. The departmental business continuity team facilitated and led a number of major initiatives to assist logistical operations in the field and at Headquarters adjust and adapt to a rapidly changing environment. Flexible information systems were established and expanded to ensure that staff were able to perform their duties remotely while still maintaining a high level of information security.

67. The Department of Safeguards continued its efforts to ensure business continuity and disaster recovery. A focus of this effort was to maintain the continuation of critical business processes and the availability of information during a disruptive event. During the year, the Department successfully tested the availability, and piloted technical solutions to increase the reliability, of the safeguards IT network and information systems at the Vienna International Centre, while simultaneously reducing overall costs. Efforts continued towards securing sufficient resources to establish disaster recovery capabilities at the Agency's premises in Seibersdorf.

68. Safeguards information security continued to be a priority.<sup>20</sup> The Department further refined its integrated approach to security, in the areas of information security, physical security, and business continuity and disaster recovery.

69. The efforts of the Department in the area of information security focussed on strengthening defences against targeted cyber intrusion. A number of security assessments were conducted to identify vulnerabilities in the departmental information systems and remediate them in a timely fashion. The Department also worked to improve the secure configuration and the automated maintenance of these systems.

70. Information security awareness training continued, with both in-person and online courses offered specifically for new staff members and affiliates. Testing in the form of simulated email phishing attacks were used to measure the effectiveness of the training provided.

71. A pilot project was initiated to assess physical security technologies and techniques to ensure the effectiveness and efficiency of the Department's physical security management system.

---

<sup>20</sup> GC(64)/RES/13, OP 38.

### C.13. Safeguards Reporting

72. The Secretariat reported the safeguards conclusions for 2020 in *The Safeguards Implementation Report for 2020* (GOV/2021/23), which also provided data on the number and type of facilities and LOFs under safeguards, and the inspection effort and related cost of safeguards implementation.<sup>21</sup> At its June 2021 meeting, the Board of Governors took note of the report and authorized the release of the ‘Safeguards Statement for 2020’ and of the ‘Background to the Safeguards Statement and Summary’.<sup>22</sup>



*The Safeguards Implementation Report for 2020 (GOV/2021/23)*

### C.14. Programmatic Planning

73. The Department of Safeguards conducts internal foresight and planning activities to help ensure that safeguards continue to be implemented effectively and efficiently into the future. These activities contribute towards: addressing the increasing workload in the context of static resources; anticipating and responding to new demands; keeping up with technology and innovation; sustaining the safeguards workforce and institutional knowledge; and enhancing organizational performance and resilience.

---

<sup>21</sup> GC(64)/RES/13, OP 39.

<sup>22</sup> The ‘Safeguards Statement for 2020’ and the ‘Background to the Safeguards Statement and Summary’ is available at: <https://www.iaea.org/sites/default/files/21/06/statement-sir-2020.pdf>.

74. The COVID-19 pandemic has demonstrated the potential impact of global external events and the importance of continuing to closely monitor and analyse changes in the Agency's operating environment. Following the COVID-19 pandemic, the Agency conducted a comprehensive analysis of the changed external environment to inform the review of departmental strategy, including its Research and Development (R&D) Plan, which it began to update in the spring.

75. The Agency relies on MSSPs to enhance its technical capabilities regarding the implementation of safeguards activities. During the reporting period, the Agency also began strengthening partnerships with non-traditional entities. The Agency continued implementing the *Development and Implementation Support Programme for Nuclear Verification, 2020–2021*, which, along with the R&D Plan, supports Agency verification capabilities by identifying R&D areas relevant to safeguards, and by communicating priority R&D needs and the types of external support necessary to meet these needs.





# IAEA

International Atomic Energy Agency

*Atoms for Peace and Development*

[www.iaea.org](http://www.iaea.org)

International Atomic Energy Agency  
PO Box 100, Vienna International Centre  
1400 Vienna, Austria  
Tel.: (+43-1) 2600-0  
Fax: (+43-1) 2600-7  
Email: [Official.Mail@iaea.org](mailto:Official.Mail@iaea.org)