

Additional results of the 2021 survey are detailed below. While replies to the questionnaire provided by of States Parties were the primary source of data, much information came from follow-up discussions with project participants and participants to the virtual workshop conducted by the VCDNP.

## 1. National authorities and Amendment

### 1.1 Advocates of ratification process

#### 1.1.1 Overall result

Provisions related to the physical protection of nuclear material and nuclear facilities are the main focus of the Amendment, and other topics covered by the amended agreement span several domains, such as criminalization offences related to nuclear material and facilities and international cooperation. Overall, adding such complexity to the original agreement impacted responses of project participants, provided on what national authorities actively advocated for the smooth ratification of the Amendment.

Mentioned by 23 of 28 States, the national NRA was the most commonly reported advocate for the ratification of the Amendment. This is followed by the ministry of foreign affairs and the ministry of energy, which were indicated by 64 % and 18 % of countries, respectively. In addition to that, three participants also noted that the ministry of justice actively was involved in the ratification process while two States mentioned the involvement of the ministry of interior. The following national entities were reported by one State each: the ministry of health, the ministry of economy, the ministry of environment, ministry of industry, the tax authority, the ministry of defence, and the federal government in general in being instrumental in the implementation of the agreements.

Regarding the number of national authorities, about less than half of the 28 States replied that the ratification of the Amendment had been actively championed or promoted by one national authority. Approximately one third of participants mentioned two authorities being highly involved in the process, where five participants reported three authorities and three States identified four or more national bodies that were active advocates of the Amendment respectively. The combination most often cited by States was the NRA and the ministry of foreign affairs.

#### 1.1.2 Results by group

The size of nuclear activities in the State does not seem to have had a significant impact on the entities actively supporting and promoting ratification of the Amendment. The majority of States across all three groups noted the NRA, the ministry of foreign affairs and/or the ministry of energy as being most instrumental entities in support and promotion of ratification.

## 1.2 Implications for responsible national authorities

### 1.2.1 Overall results

The next questions were designed to elicit comments as to how joining the Amendment impacted national authorities responsible for its implementation, including in terms of organizational structure, involved personnel and related budget questions.

At least a quarter of States noted changes in the responsible authorities regarding implementation activities, with two States mentioning more than one change across the responsible authorities. Among the rest of participants, three reported changes that, however, were not directly attributed to the States' becoming party to the Amendment: for two respondents, it was the renaming of the responsible authorities or merging them with another bodies, while in another State, a process of creating a new regulatory authority had already been under way at the time it joined the Amendment. In one additional State, a permanent high-level commission was created to advise the head of State and support national efforts to strengthen the prevention and response capacity of the competent institutions in case of nuclear or radiological incidents. While not directly related to the Amendment, this commission consists of representatives across various ministries and contributes to strengthen physical security of nuclear material, among other activities.

On the substance of the changes, three States reported the establishing of new authorities. According to one respondent, although the ratification of the Amendment occurred when the decision to form a single regulatory body was in the process during adoption, it was decisive in terms of giving the new authority essential budgetary and institutional resources to fulfil its role in the field of physical protection. After two States joined the Amendment, the responsible national authorities changed its name while in another State, the authorities were merged with other State bodies. Among additional changes to national authorities, three participants reported expansion of their responsibilities or sharing responsibilities with another entities.

In only three cases did becoming a party to the Amendment require the hiring of additional staff by the responsible national authorities. In all three of these cases, the recruitment process occurred after the ratification of the Amendment.

When asked whether the budget of the responsible national authority experienced an increase as a consequence of the State's joining the Amendment, three-fourths of the participants replied that it was not the case. With regard to particular expenditures, additional funds were needed for the purpose of hiring new staff in three States, and in one State – for hiring consultants. In addition, covering travel expenses for employees to attend training and paying fees of experts who provided training were mentioned by five participants. Other expenses associated with the Amendment related to revision of regulations; evaluation of the existing physical protection systems at nuclear installations; increasing nuclear security-related communication and coordination with other State agencies; broader scope and increased number of inspections; establishment of a new authority with responsibilities in nuclear safety and security; and purchasing new equipment to carry out physical protection duties.

Two participants noted requiring additional budgetary resources before adopting the Amendment and three participants required additional budgetary resources after

becoming party to the Amendment. Two other States experienced the need for extra funds both before and after they joined the Amendment.

### 1.2.2 Results by group

In the significant majority of project participants – 21 of 28, or three fourths – joining the Amendment did not entail major changes in the responsible national authorities. This number was inclusive of all States with nuclear material in research facilities (Group 2). One State in the same group, however, reported having established a special high-level advisory commission on topics related to nuclear and radiological safety and security. The other responsive twenty States noted the national authorities were not impacted by the Amendment organizationally, yet one State in Group 1 and one – in Group 3 reported either the establishment of a new responsible authority, merging the responsible authority with another bodies, or renaming the existing one. While these changes occurred after both States joined the Amendment, they were nevertheless not directly related to it.

The remaining seven States that noted changes in their responsible national authorities included three States with no nuclear material use for research or power generation (Group 1) and four participants with nuclear power programmes (Group 3). They provided similar comments that joining the Amendment entailed the establishing new authorities or renaming the existing ones, and the expansion of their responsibilities in order to cover the domain of physical protection of nuclear material and facilities. Additional responses included the merge of the responsible national authority with another State entities (one State in Group 1), and sharing of the former responsible authority's competence in nuclear security with the newly established NRA (one Group 3 State).

All seven Group 2 States provided a negative reply to the question whether joining the Amendment required hiring of additional staff by the responsible national authorities. Only two States of Group 1 and one State of Group 3 replied affirmatively.

In terms of increase in budget of the responsible national authorities directly attributable to the Amendment, almost half (four of nine) of States in Group 1 experienced such an increase, compared to one and two States in the other two Groups, respectively. As regards specific purposes for which additional funds were required, Group 1 and Group 3 States provided similar replies and mentioned hiring new staff and covering costs associated with trainings for employees. In Group 1, some States also indicated the need for additional funds to cover costs of establishing a new NRA and to purchase new equipment.

The only Group 2 State to reply affirmatively, and also two Group 3 States, reported budget increments that were related to the increased duration, frequency and scope of inspection of the physical protection systems. In terms of specific areas that required extra funds, one State of Group 2 additionally reported the work on the revision of existing regulatory framework and physical protection system and efforts to enhance cooperation and coordination between national stakeholders, whereas the NRA in one Group 3 State had to hire consultants.

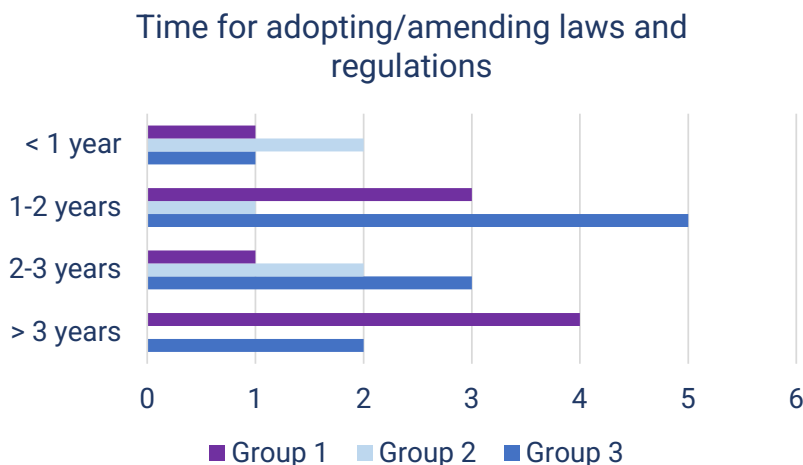
## 2. Implications for legislative and regulatory frameworks

### 2.1 Overall results

Provisions under the CPPNM Amendment require States Parties to adopt measures related to the physical protection of nuclear material and nuclear facilities, and criminalize certain offences, among other requirements. The next questions within the survey addressed the issue of changes in the relevant legal and regulatory framework that resulted from the State’s joining the Amendment.

More than half of the participants reported that they had adopted new laws or regulations, and almost three-quarters of States amended existing frameworks, while three States did not indicate any changes to their legal or regulatory requirements. Twelve participants commented that the process of adoption of new laws or regulations, or amendment of existing ones started before becoming a party to the Amendment. One of the States noted that it was its policy not to finalise ratification of any international treaty until the State is able to fully implement it, which, in case of the Amendment, required modifications to domestic laws, including the criminal code. Out of another thirteen States, ten introduced changes to their legal and regulatory framework after they had become party to the Amendment and three States – both before and after joining the Amendment.

With regard to the time needed for the adoption of new laws or regulations, or amending existing ones, the majority of participants (68 %, or 19 States out of 28) completed these procedures within three years, with four of them requiring up to one year, nine States – from one to two years, and six States – from two to three years. Six additional replies featured periods longer than three years. Five respondents mentioned that the process was still ongoing.



In terms of the number of new laws and regulations adopted, the most common reply was one or two. Five of the total of twenty-eight participants reported the adoption of three to eight new laws and/or regulations. In so far as the number of amended laws and regulations was concerned, the results were somewhat similar, as the majority of replies mentioned changing one law or regulation, while the other eight States ranged from two to three and up to eleven modifications.

## 2.2 Results by group

The need to adopt new legislation or regulations, or amend the existing ones, did not seem to depend on the scope of the respondents' nuclear activities. The majority of project participants in all three groups indicated that they had adopted new norms or amended the existing ones in order to introduce the Amendment provisions into the national normative framework, whereas five States with no nuclear material in research or power generating facilities (Group 1) noted that new laws or regulations are currently being adopted. Only two States of Group 2 and one State of Group 3 reported no changes in this context.

## 3. International assistance

### 3.1 Overall results

As the level of preparedness for the ratification or implementation of the Amendment differ from State to State and by each respondent, this question intended to elicit information on the level, intensity and effectiveness of international assistance received by participants.

More than three-quarters of the surveyed States confirmed having received assistance from international organizations or other States: five States did so before they became a party to the Amendment; nine States – after joining the Amendment; six States – both before and after officially joining the Amendment; and two States did not provide information in that regard.

There were four types of assistance received by project participants: expertise, capacity building, equipment and funding. Three-quarters of the respondents indicated having received internationally provided expertise related to the Amendment provisions and nuclear security in general. In that regard, the most cited provider of such assistance was the IAEA, which offered a wide range of expertise, including the development of Integrated Nuclear Security Support Plan (INSSP) and IPPAS missions. Tailored to a State's specific needs, the INSSP is intended to provide the State with a comprehensive framework for reviewing its nuclear security regime by identifying and prioritizing areas where improvements are determined to be needed, and specifies additional assistance needed in that regard.<sup>1</sup> The INSSP makes use of numerous information sources, including IPPAS missions. These missions provide peer advice on strengthening national protection of nuclear and other radioactive material, and associated facilities and activities by scrutinizing national practices against international instruments and IAEA nuclear security documents.<sup>2</sup> An important function of IPPAS missions is to identify gaps in a State's implementation of the CPPNM and its Amendment.

1 More detailed information is available on the IAEA's website:  
<https://www.iaea.org/topics/integrated-nuclear-security-support-plan-inssp>.

2 More detailed information is available on the IAEA's website:  
<https://www.iaea.org/services/review-missions/international-physical-protection-advisory-service-ippas>.

## ANNEX: Full Survey Results

In terms of other forms of IAEA expertise, three responses featured legislative assistance received with regard to States' drafting or amending national laws that implemented the Amendment. One additional type of IAEA expertise, which was requested by two project participants, was the International Nuclear Security Advisory Service (INSServ). This mechanism is designed to help States to establish and maintain their nuclear security regime with a particular focus on nuclear and other radioactive material out of regulatory control.<sup>3</sup>

Two project participants responded that they had benefitted from the expertise provided by the US DOE and by the Swedish Radiation Safety Authority (SSM). SSM assistance helped to develop and revise national laws and regulations regarding physical protection of nuclear material and nuclear facilities.

Nearly two-thirds of participants (19 out of 28) benefited from capacity building offered by international organizations and other countries to employees of the NRA, law enforcement agencies, operators and other national stakeholders. Moreover, all these States mentioned that their designates had participated in IAEA training courses, seminars/workshops related to physical protection and nuclear security. Some highlighted topics covered such as design basis threat, security of radioactive material during transport, and nuclear security systems and measures for public events. One project participant particularly mentioned the usefulness of the IAEA training courses for new NRA personnel.

Eleven participants reported having participated in training courses on physical protection and nuclear security organized or supported by the US DOE. Other organizations and countries cited in this regard included the World Institute for Nuclear Security (WINS) (by two States), the International Criminal Police Organization (INTERPOL) (two), the European Union (one State), the Arab Atomic Energy Agency (one), the SSM (one), Ukraine (one), and the United Kingdom (one). Two States also mentioned exchange programmes with other countries and international conferences that helped national representatives to acquire knowledge about implementation of the Amendment.

Seven project participants received equipment as part of international assistance, such as that for border monitoring and surveillance and for searching and securing material out of regulatory control. Representatives of one State were provided financial support to attend workshops related to the Amendment and the original Convention. International assistance provided to the significant majority of the participants included more than one type of assistance, with one State having received all four: expertise, capacity building, equipment, and financial support.

More than half of participants noted that the international assistance was received individually on a State level. Of eight negative replies, five indicated that assistance had been received both individually and in combination with other States. For example, one respondent individually received equipment and training for State employees while its representatives also participated in nuclear security related regional and international forums, and also attended regional workshops organized by the IAEA.

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3 More detailed information is available on the IAEA's website:  
<https://www.iaea.org/services/review-missions/international-nuclear-security-advisory-service-insserv>.

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While the majority of project participants were supported by third parties during the process of becoming party to the Amendment or implementing it, ten respondents indicated that they also provided assistance to other States Parties to the Amendment. In virtually all cases, the assistance was rendered after the donor State itself had ratified the Amendment. With regard to the geographical scope of assistance, six States supported their neighbours in the region while four provided assistance both regionally and globally. The most cited types of assistance were the provision of expertise and capacity building activities. For the former, the assistance ranged from organizing regional workshops that promoted universalization of the Amendment, to preparation of technical guides and provision of experts for IAEA or bilateral support programmes. In one case, a State helped build capacity in States Parties to the Amendment through funding and providing experts to assistance programmes carried out under the auspices of international organizations, such as the IAEA and the United Nations Office on Drugs and Crime (UNODC). The provision of equipment was further mentioned in three replies, and two States reported having rendered financial support with regard to the Amendment, which included, voluntary contributions to the IAEA Nuclear Security Fund and to the UNODC.

### 3.2 Results by group

Whether or not the State used nuclear material for electric power generation seemed to affect the need for international assistance in the context of the Amendment. All five States that responded negatively to this question had nuclear power programmes (Group 3) whereas all States in Groups 1 and 2 benefited from international assistance.

As regards the stage at which the assistance was received, most of participants of all three groups mentioned that it occurred either before or after the State became party to the Amendment while two States in each group received the assistance in both periods.

Regarding the types of assistance received, project participants of each of the three Groups mostly cited provision of expertise and capacity building, e.g. IPPAS and INSServ missions; development and revision of legislation and regulations; creation of an INSSP; training courses for regulators, operators and other nuclear security stakeholders; international, regional and national workshops; and conferences. Roughly half the States in Groups 1 and 2 received physical protection equipment through international assistance, and designates of one Group 1 State were able to participate in workshops related to the CPPNM and the Amendment thanks to international donors' financial support.

In most instances where respondents specified assistance providers, they mentioned the IAEA and US DOE. One respondent in Groups 1 and 2 additionally mentioned INTERPOL's capacity building activities, with one Group 1 participant specifically commending a local INTERPOL office for raising awareness at the ministerial and parliamentary levels about the provisions and benefits of the Amendment. Two Group 1 States benefitted from capacity building activities offered by the Arab Atomic Energy Agency, the European Union or WINS. One Group 2 State also mentioned WINS training courses whereas one Group 3 State participated in UK Office for Nuclear Regulation training and received assistance from the SSM for drafting new physical protection laws and regulations or amending the existing ones.

A significant majority of project participants in Groups 1 and 2 benefitted from more than one type of assistance whereas one Group 3 State received all four types of assistance: expertise, capacity building, equipment, and financial support. Most of Group 3 States that received international assistance – four out of seven – needed just one type, and for three of them the assistance took the form of IPPAS missions.

There was also some difference between the States that used nuclear material for energy production and other project participants in terms of the format of international assistance. All Group 3 States but one received such assistance individually whereas States in Group 1 and Group 2 provided a wide range of responses, which indicated that they had received such assistance individually (e.g. IPPAS and INSServ missions or national training courses), together with other States Parties to the Amendment (e.g. regional workshops), or both.

There seemed to be certain link between the participating States' scope of nuclear activities and their provision of assistance to other States Parties to the Amendment. Only one Group 1 State responded affirmatively, specifying that it hosted – in cooperation with the IAEA – a regional workshop that aimed at promoting the universalization of the Amendment. In Group 2, two States offered capacity building and expertise to neighbouring States either on a bilateral basis or via IAEA assistance programmes. One of these two States also reported having made financial contributions to the Nuclear Security Fund, which is a voluntary funding mechanism administered by the IAEA that supports the Agency's nuclear security activities, including assistance provided to States upon request.

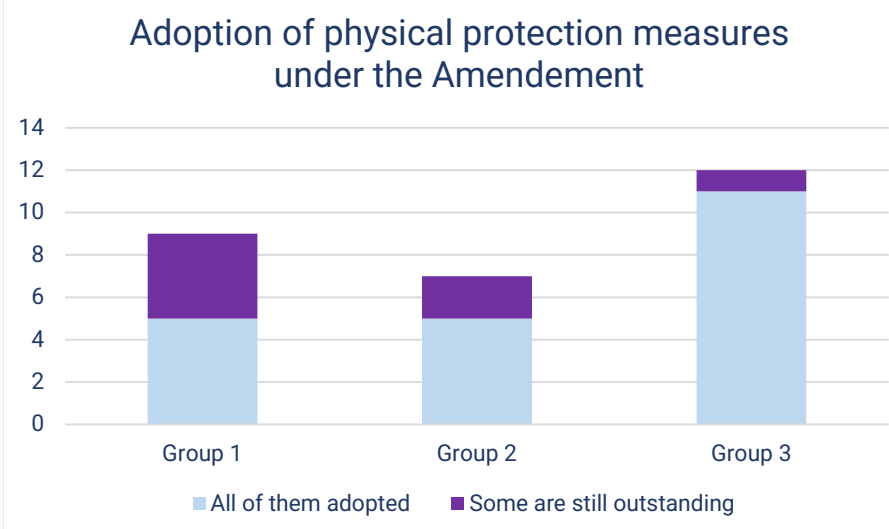
The majority of the Group 3 States indicated having provided assistance to other States Parties, which encompassed a broad range of items: capacity building, provision of expertise, outreach activities, financial support of assistance programmes of international organizations, and provision of equipment. For example, some States organized workshops that promoted the universalization of the Amendment or helped States with preparations for the 2022 Review Conference, while one State particularly noted that its experts helped international organizations in drafting technical guides on nuclear security related issues. The geographical scope of the assistance was also broad and included countries beyond the regions of the assistance providers. In terms of format, Group 3 States provided support both directly to States and through international organizations, such as the IAEA and the UNODC.

### 3.3 Scope of nuclear activities

By and large, the scope of nuclear activities in the surveyed States did not have a significant impact on the responses provided. Only a few topical areas were exceptions.

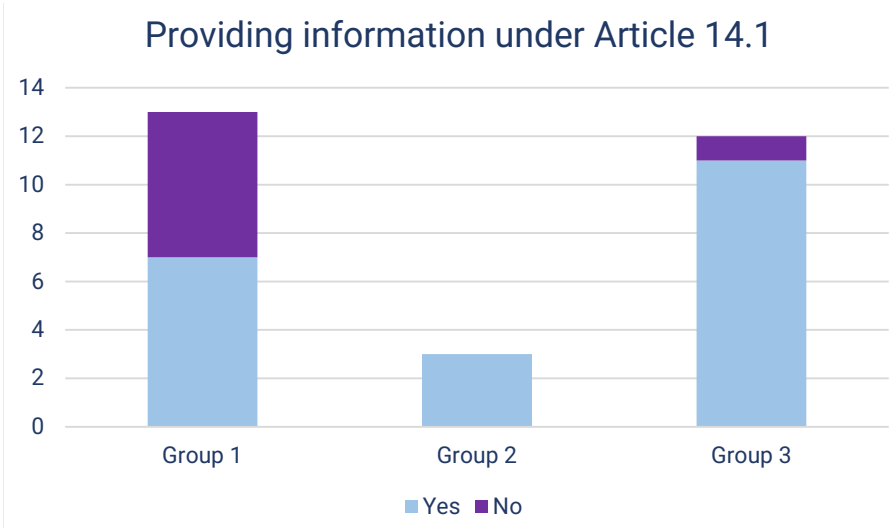
First, all five participants still in the process of adopting new laws or regulations pursuant to the Amendment were States with no nuclear material in research or power generating facilities. Second, the proportion of project participants that had introduced all physical protection measures under the Amendment was significantly higher for States with nuclear material in nuclear fuel cycle facilities used for power generation.





Third, States with a broader scope of nuclear activities were less likely to report challenges during the implementation of the Amendment. Regarding specific challenges, States with nuclear power programmes reported difficulties related to strategic vision and perceptions of nuclear security. Participants with nuclear material only in research facilities did not report challenges related to limited resources.

Fourth, replies of States with nuclear power programmes indicated that they did not require international assistance, and instead provided assistance to other States Parties considerably more often than other surveyed States.



Fifth, the benefits of joining the Amendment were reported, including enhanced national security, and this was especially true for States with no nuclear material, research or power production activities (Group 3). Lastly, considerably fewer States in this group submitted information to the IAEA regarding their national laws and regulations which give effect to the Convention and the Amendment, required by Article 14.1.

### 4. Implementing three main areas of Amendment

Overall, the Amendment significantly extended the scope of the original Convention in three main areas: physical protection, criminalization, and international cooperation. The Amendment requires States Parties to establish a physical protection regime covering nuclear material and nuclear facilities under their jurisdiction, beyond only transport as in the original agreement. To achieve this goal, the Amendment contains twelve Fundamental Principles of physical protection of nuclear material and nuclear facilities that States Parties should implement. The Amendment's provisions have also expanded cooperation between States regarding, for example, stolen or smuggled nuclear material, sabotage of nuclear material and facilities, and related offences, and the design of physical protection systems. Lastly, the Amendment requires criminalization of new offences relating to nuclear smuggling, illicit trafficking and sabotage of nuclear facilities.

The next three questions were intended to elicit information on how implementation of the Amendment provisions affected States Parties.

#### 4.1 Physical protection provisions

##### 4.1.1 Overall results

The questionnaire contained a list of eight measures related to physical protection and in line with the Fundamental Principles as comprised in Article 2A(3) of the Amendment.

1. The State has established that the prime responsibility for the implementation of physical protection of nuclear material or of nuclear facilities rests with the holders of the relevant licenses or of other authorizing documents.
2. The State has planned and implemented a programme to improve nuclear security culture.
3. The State's physical protection is based on the State's current evaluation of the threat.
4. The State has based its physical protection requirements on a graded approach.
5. The State's requirements for physical protection has started to reflect a concept of several layers and methods of protection.
6. The State has established and started implementing a quality assurance policy and quality assurance programmes.
7. The State has established requirements that contingency (emergency) plans to respond to unauthorized removal of nuclear material or sabotage of nuclear facilities or nuclear material, or attempts thereof, should be prepared and appropriately exercised by all license holders and authorities concerned.
8. The State has established requirements for protecting the confidentiality of information, the unauthorized disclosure of which could compromise the physical protection of nuclear material and nuclear facilities.

Of the 28 States that participated in the project, ten initiated all eight measures only after becoming party to the Amendment. One of these States noted that it had additionally adopted measures related to insider threat, cyber security and protection of infrastructure, while another one specified that the majority of measures were introduced through administrative instruments pending the adoption of a new comprehensive law regulating nuclear activities.

For eleven project participants, joining the Amendment resulted in the adoption of only some or none of the measures, as such measures had been implemented prior to joining. Two States indicated previously taking all the measures in accordance with provisions of the IAEA Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (published as INFCIRC/225).<sup>4</sup> First published in 1976 and now in its fifth iteration, INFCIRC/225 has become a reference document in comprehensively covering the following issues: elements of a State's physical protection regime; requirements for measures against unauthorized removal and sabotage of nuclear material in use, storage and transport; and sabotage of nuclear facilities.

The other seven participants reported that the adoption of some of the measures was still pending, with their number ranging from one (two States), to two (one State) to three (one State) and more measures (three States). In most cases, they included the establishment and implementation of a quality assurance policy and programmes, the development and implementation of a programme to improve nuclear security culture, and the introduction of the 'defence in depth' concept, i.e. several layers of physical protection that adversaries needs to overcome in order to achieve their objectives.

Among the comments offered in connection with physical protection, two States noted that outstanding measures would be covered by new laws undergoing the process of being adopted. Of particular interest was the response by one participant that the lack of expertise in physical protection was partly responsible for the delay. The State suggested that it would be beneficial for States Parties to the Amendment and the CPPNM if international organizations could share texts of model legislation and regulations based on the provisions of the two agreements, which could be easily adjusted to a particular situation within an adoptive State.

*“The reason is in part due to the lack of expertise in this area. Since it is incumbent on all member countries of the CPPNM and its Amendment to have texts containing all the measures stipulated by the Amendment or the measures necessary for the physical protection of nuclear material and nuclear facilities, it would be wise for the VCDNP to make these texts available to States, which could be amended taking into account the realities of each country. Thus, the texts will be easily taken and applied by all within a reasonable time.”*

When asked whether any training was provided in relation to the physical protection provisions of the Amendment, a significant majority of participants (25 of 28 States) replied positively, with all but two of them noting that the training was offered to NRA employees. In 16 States, representatives of industry and operators received related training, while in nine States, training was provided to employees of national law enforcement agencies, including customs, police, civil protection, and border or coast guards. One State also

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4 Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Revision 5), IAEA, 2011. Available at: [https://www.iaea.org/sites/default/files/publications/documents/infcircs/1975/pub1481\\_web.pdf](https://www.iaea.org/sites/default/files/publications/documents/infcircs/1975/pub1481_web.pdf).

mentioned a training session for port authority employees. In the majority of the responses, more than one category of potential trainees was mentioned.

In 15 States, the national NRA provided training related to physical protection in the context of the Amendment. Nine project participants reported training sessions offered by another State, which in two cases was the US DOE. In 14 replies, the IAEA was identified as the primary trainer, while two States reported other international or regional organizations (the European Union and the Arab Atomic Energy Agency). Other training providers included non-governmental organizations and national police – as reported by four States and one State, respectively. Similar to previous responses, most participant participants indicated that the training had been delivered by multiple providers.

### 4.1.2 Results by group

Among the project participants with no nuclear material in research or power reactors and associated facilities (Group 1), slightly less than half (four States out of nine) took all measures indicated above after joining the Amendment. One State in the same group reported having adopted three of the eight measures after ratifying the Amendment and the other five before that. For the other four Group 1 States, three to six measures related to physical protection are still pending adoption. Two of these States noted that the outstanding measures would be covered by a new law that is being adopted whereas another State cited the lack of expertise in drafting nuclear security laws and regulations, which prevented the State from implementing this part of the Amendment expeditiously.

Replies from States with nuclear material in research facilities (Group 2) revealed a more even distribution of the adoption of physical protection measures. Two participants of this group adopted all measures subsequent to joining the Amendment, three States did so both before and after becoming party to the Amendment, and the other two still had one measure – the establishment and implementation of a quality assurance policy and programmes – pending adoption.

The proportion of project participants with nuclear power programmes (Group 3) that had introduced all physical protection measures was significantly higher. Four of twelve Group 3 respondents did so after becoming party to the Amendment, another seven States beforehand, and only one State had measures (two) pending adoption. Some States in this group specifically mentioned having taken measures beyond the Amendment's provisions, which related to insider threats, cyber security, sensitive nuclear technology, protection of infrastructure, and drones. The nuclear security regime in one Group 3 State addresses all nuclear material, including natural uranium and smaller quantities than those contained in the categorization table found in Annex II of the CPPNM.

In terms of training provided in relation to physical protection provisions of the Amendment, only one Group 1 State and two Group 3 responded negatively. According to most other project participants — regardless the scope of their nuclear activities — the main recipients of such training were employees of the national NRA, industry and operators. From two to four States in each of the three groups also cited other stakeholders participating in capacity building activities, such as customs agents, police, security agencies, civil protection bodies, border/coast control, and military personnel. In the case of one Group 3 State, representatives of five national law-enforcement bodies jointly participated in the same nuclear security seminar.

The majority of States in Groups 1 and 2 cited the IAEA as the principal training provider, while approximately half of the States in these two groups relied on the national NRA for capacity building. The results were somewhat inverted for Group 3 States, most of which received physical protection training from the national NRA and only a third participated in relevant IAEA activities.

Proportionally, more Group 1 participants – roughly a half compared to one-quarter in the other two groups – relied on training provided by another countries, such as Sweden, Ukraine and the US, and one State in this group specifically mentioned having invited experts from France, Germany and the UK to speak at workshops on enhancing knowledge of risks, consequences and response to accidents associated with international nuclear transport. Two States in Group 1 were the only project participants who received training through international organizations other than the IAEA, namely the European Union and the Arab Atomic Energy Agency, whereas one additional State mentioned the national police in that regard. Some States in all three groups also benefited from training offered by non-governmental organizations, with one respondent in Groups 1 and 2 mentioning in this regard WINS and a national organization, respectively, while two Group 3 participants reporting the assistance of national centres of excellence.

## 4.2 International cooperation

### 4.2.1 Overall results

With regard to the question on possible cooperation with other States Parties, the IAEA or other international organizations on the physical protection system or in addressing other issues contained in Article 5 of the Amendment, two-thirds of participants provided affirmative replies.

The project participants were involved in cooperative activities on a number of subjects, the most cited of which – by six States – was the exchange of sensitive information and sharing nuclear security related experience bilaterally, regionally or through mechanisms provided by the IAEA. Five States also noted cooperation on the subject of strengthening national capacities in the area of nuclear security, which included holding joint training courses and seminars. Three respondents reported the establishment and improvement of physical protection systems, one form of which was provision of equipment. In the context of cooperation, four States mentioned the IAEA Incident and Trafficking Database (ITDB), which is an information system containing cases, voluntarily reported by States, of illicit trafficking and other unauthorized activities and events that involve nuclear and other radioactive material outside of regulatory control.<sup>5</sup> Support of technical cooperation programmes, including through the IAEA, was mentioned by four participants, two of which made their experts available for IPPAS peer review missions. Other topics of cooperation on the issues covered by the Amendment encompassed international nuclear transport (3), cooperation on the promotion of the Amendment universalization (3), and development and implementation of international guidance and IAEA programmes on physical protection of nuclear material and facilities (2).

<sup>5</sup> IAEA, Incident and Trafficking Database (ITDB).  
Available at: <https://www.iaea.org/resources/databases/itdb>.

Two of twenty-eight project participants noted that their cooperation with another State not party to the CPPNM and the Amendment was challenging because that State was not yet a party to the agreement. More information on the specificities of these challenges and also how they were resolved are provided further in the report in Section 5 “Major challenges during ratification and implementation of Amendment”. Twenty participants responded that they had not encountered any challenges related to such cooperation, with one of them noting that the cases of its cooperation with States not party to the Amendment were in the domain of joint exercises and planning, which was covered by other existing arrangements. Of six States that reported no cases of such cooperation, one specified that it had a number of other bilateral and multilateral agreements which enabled information exchanges on related topics.

Article 5 of the Amendment also stipulates that States Parties should designate a point of contact (PoC) in relation to matters covered by the Amendment. All project participants fulfilled this obligation. The majority of the States (24 of 28 participants) also indicated that the State’s representative participated the PoC meetings convened by the IAEA.

### 4.2.2 Results by group

Approximately half of respondents in Group 1 (States with no nuclear material in research or power production) and Group 2 (States with nuclear material in research facilities) reported at least one occasion of cooperation with other international partners on the topics covered by the Amendment. That number was higher for Group 3, where all but one State provided the affirmative answer. One of the Group 1 States that answered negatively, however, added that it had participated in the US Global Threat Reduction Initiative in relation to the security of radiological sources.

The size of States’ nuclear activities also seemed to influence areas of cooperation. Among Group 1 participants, the most cited subject of cooperation was the international transport of nuclear material, as reported by two States. It may be explained by the fact that most respondents in this group witnessed cases of transit of nuclear material through their national territory. The exchange of sensitive information and sharing nuclear security experience, further enhancing national capacities in nuclear security, providing information to the IAEA ITDB, and the establishment of physical protection systems were each reported by one Group 1 State.

The Group 2 States echoed the above responses insofar as information exchange and provision of data to the ITDB were concerned, which were cited by one State each. Unlike Group 1, however, the subject on which the majority of participants in this group cooperated was related to the strengthening of national nuclear security capacities, including through organizing and participating in joint training courses and seminars. One State in this group additionally stated that its experts had participated in IAEA IPPAS missions and assisted the IAEA with the development and implementation of international physical protection guidance and programmes in this field.

Among the cooperation subjects most cited by the States in Group 3 were the exchange of information and nuclear security-related experience (four of the twelve States) and also support through technical cooperation programmes (three States), which for one State included participation in IPPAS missions. Some Group 3 States also mentioned



the following subjects of cooperation: submission of data to the ITDB (2); promotion of universalization of the Amendment (2); improvement of physical protection systems (2); enhancing security of international transport of nuclear material (1); and developing and implementing IAEA guides and programmes on physical protection of nuclear material and nuclear facilities (1).

Cooperation with countries that were not yet party to the Amendment posed certain challenges to one State without nuclear material in research or power production, but which is an important transport hub, and to another State with an extensive nuclear power programme. Two participants in each of the three groups were not involved in cooperation with States not party to the Amendment, while the rest of the project participants did not find such cooperation difficult. Two States in Group 3 specified that agreements other than the Amendment and other bilateral or multilateral arrangements helped facilitate smooth cooperation with States that have not yet joined it.

Article 5 of the Amendment requires States to identify a point of contact with regard to the issues covered in the agreement, and make it known to other State Parties. All project participants have complied with this provision. One Group 1 State additionally specified that the ministry of foreign affairs was provisionally acting as a PoC since a new regulatory authority, which would act as a PoC for all nuclear-related treaties and conventions, had not yet been established. The reason for that is the protracted adoption of a new comprehensive nuclear law.

Two respondents in Groups 1 and one in Group 2 replied that their designates had not participated in PoC meetings, while additional Group 2 State did not provide an answer. One State with no nuclear material used in research reactors or for power generation commented that the reason for not participating in those meetings was the low amount of travel assistance provided by the IAEA, which only covered plane tickets. That fact notwithstanding, the State was represented by a designate of its permanent mission in Vienna.

### 4.3 Criminalization of offences

#### 4.3.1 Overall results

Article 7 of the Amendment extends the scope of offences previously criminalized by the original Convention. For example, unlawful receipt, possession, use, transfer, alteration, disposal or dispersal of nuclear material are punishable if they are capable of causing of substantial damage to the environment. The Amendment also introduced new offences to be criminalized by States Parties, such as sabotage of nuclear facilities and smuggling of nuclear material.

A vast majority of participating States, 25 of 28, replied that there were no criminal cases investigated with regard to the offences criminalized pursuant to Article 7 of the Amendment. Three of them added that they had included these offences into criminal codes prior to joining the Amendment. As one response suggested, the cases with regard to Article 7 offences did not involve an international element, therefore, the Amendment mechanism of international cooperation was not activated.

As regards the question on Article 7-related training and which entities developed this expertise, the most recurring answer (by half of the surveyed States) was law-enforcement agencies. Operators and court judges received such training in five and two countries, respectively. Other stakeholders to receive training included the ministry of foreign affairs, the ministry of transport and communication, the attorney general's office, the NRA, the national intelligence authority, the border guard, and the civil defence body. Twelve countries out of twenty-eight replied that no training had been provided to national stakeholders on Article 7.

The training provider most cited – by 11 of 28 States – was the national NRA. Regional organizations were mentioned twice, and international organizations were referenced on eight occasions in that context: eight States reported the training offered by the IAEA and one State by INTERPOL. Eight project participants reported that training had been provided by Sweden, Ukraine and the USA, and two States reported activities hosted by non-governmental organizations. The national centre of excellence and the ministry of justice were mentioned by one State each, while yet another participant shared that the national police offered on-the-job Article 7 training to their employees. As the replies suggest, eight States received the training by more than one provider.

### 4.3.1 Results by group

Three project participants, which reported having investigated criminal cases regarding offences criminalized by Article 7 of the Amendment after joining the agreement, comprised one State without nuclear material in research or power generation facilities and two States with nuclear power plants. In case of the former State, however, the cases did not involve nationals of other countries or any other foreign elements, thus the State did not launch the international cooperation instruments as enshrined in the Amendment. Among the respondents that replied negatively to this question, three Group 3 States specified that the Article 7 offences had been criminalized prior to these countries' joining the Amendment.

When asked about training provided to national stakeholders in relation to Article 7 of the Amendment, slightly less Group 3 States responded affirmatively (one half) whereas among the States in Groups 1 and 2 these number was approximately two-thirds. As suggested by the Group 1 States, the beneficiaries of Article 7-related training included law enforcement agencies (for more than half of participants), operators (two participants), and the attorney general's office (one participant). The States in Groups 2 additionally mentioned court judges and the border guard in that context while two Group 3 also reported having provided training to a number of other stakeholders, such as employees of the NRA, the industry, the civil defence body, the ministry of foreign affairs, the intelligence authority, and the ministry of transport and communication.

According to the majority of States in Groups 1 and 2, the Article 7 training they received was provided by the national NRA, international organizations (IAEA and INTERPOL), or another State. In case of the latter, the most cited answers were the US DOE, Sweden, and Ukraine. Two Group 1 States further reported the capacity building assistance provided by regional organizations – the Arab Atomic Energy Agency and the European Union – and by non-governmental organizations, one of them being WINS. In one project participant in Group 1, police officers received on-the-job training. Similar to the other two groups, in

most of the Group 3 States it was the NRA who offered the Article 7 training. The number of States in this group that relied on international organizations and another State in this context was, however, far lower – one and two, respectively. Two additional Group 3 participants received training from the national centre of excellence and the ministry of justice.

## 5. Major challenges during ratification and implementation of Amendment

The next set of questions tackled one of the most important aims of the questionnaire and in evaluating the process, which sought to elicit comments on major challenges that the participating States faced during ratification of and implementation of activities related to the Amendment. Furthermore, it gauged how those challenges were addressed or resolved.

### 5.1 Major challenges to achieving ratification of Amendment

#### 5.1.1 Overall results

When seeking ratification of the Amendment, more than 70 % of the surveyed States indicated that they encountered at least one challenge in the ascension of the Amendment. One of the other eight States reported that it did not find the ratification challenging, as it had previously put in place a regulatory framework for physical protection of nuclear facilities and nuclear material – thus the ratification of the Amendment demonstrated the State’s willingness to comply with international agreements.

*“Due to the good preparation before ratification, there were no major challenges, the national regulatory framework included most of the provisions of the Amendment”*

General challenges cited more often than the others (by 5 of 28 States) related to the ratification process itself, which was “very lengthy” or “lengthy and time consuming”. In terms of issues concerned, the more specific challenges can be placed in three categories as referring to: coordination between national stakeholders; legal aspects of the ratification; and other, independent issues.

#### 5.1.1.1 Coordination between national stakeholders

Challenges that fall under this category were mentioned on more occasions than the others, encompassing responses from nearly a third of respondents (nine States). For four of them, the dissemination of information and raising awareness of the government bodies in charge of ratification presented certain difficulties. One of these States noted, in particular, that was easier “to have individuals and agencies understand issues pertaining

to chemicals and biological substances” than it was for nuclear material. The response to this challenge included ongoing education and awareness raising within its own ranks and also constant work in the national parliament and different government entities with roles related to the content of the Amendment.

Furthermore, achieving the approval of the national laws by all multiple authorities, which would provide a green light to the ratification of the Amendment, was reported as challenging by another three States, while the lack of a single regulatory body in one State was identified, which would be necessary to launch a policy and a clear position on nuclear security. The establishment of a single regulatory body addressed and alleviated the issue.

Lastly, one State found it challenging to achieve an arrangement with security agencies and port authorities to track the transportation of nuclear material through ports. The issue was resolved through cooperation with the relevant national stakeholders, receiving advice from the IAEA and participating in IAEA capacity building sessions.

### 5.1.1.2 Challenges related to legal aspects of ratification

According to a general comment made by one State, preparing the new national nuclear security legislation was challenging. In a similar vein, another State raised interpretation of the texts of the Convention and the Amendment thereto and their transposition into national legislation was a challenge. These difficulties were alleviated through the cooperation with national legal counterparts and local agencies, consulting IAEA experts where necessary and attending relevant IAEA courses.

More specifically, two States reported that they found it challenging to meet the provisions of Article 7 of the Amendment in the national legislation, which requires criminalization of sabotage, smuggling and other offences involving nuclear material and nuclear facilities. The challenge was addressed by revising the existing laws. In the case of one respondent, this process required the span of about two years.

Many States that participated in the project are also Parties to the International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT), which entered into force on 7 July 2007. Although the Amendment to CPPNM and the ICSANT have similar provisions, there are a number of significant differences in scope. The ICSANT covers not only nuclear material but also “other radioactive substances”. While the Amendment explicitly excludes from its scope nuclear material and facilities used for military purposes, the ICSANT does not contain such provision and thus covers all nuclear material and facilities. The definition of “nuclear facility” contained in the ICSANT is also broader insofar as it encompasses nuclear reactors and also “any plant or conveyance being used for the production, storage, processing or transport of radioactive material”. On the other hand, in the Amendment, associated buildings and equipment are explicitly mentioned as part of a nuclear facility.

In view of the above, one State participant in the project reported some difficulties with ensuring coherence with definitions and concepts in the ICSANT while ratifying the Amendment. To tackle this issue, the State grouped criminalization concepts of both treaties in order to capture all of the relevant offence elements without having to introduce into the criminal code multiple offences with overlapping elements. Furthermore, the State

consulted with nuclear science experts domestically to make sure that all of the definitions in the national legislation were used consistently with the Amendment definitions. Another specific challenge in this category, which was mentioned by one State in relation to both the Amendment and the original Convention, was setting up a licensing regime to track and monitor the international transport of nuclear material through ports. Like the above mentioned issues with the transposition of the treaty provisions into the national legislation, this challenge was addressed by cooperation with national stakeholders and reaching out to the IAEA for expertise and capacity building.

### 5.1.1.3 Other challenges

While most of the participating States faced internal difficulties related to the ratification of the Amendment, one State responded about a challenge of external origin due to regional constraints. First, the State experienced a little delay in national ratification of the Amendment because it had to wait for the EU-wide ratification. Second, although the State ratified the Amendment in less than three years, the eventual integration of the Amendment provisions into the national legislation warranted a wait for enough States ratified the Amendment before it eventually entered into force on 8 May 2016. To guarantee a smooth and timely transition to a new legislation after that date, the Government of this State had to adopt several decrees, which usually takes considerably less time than passing laws.

There was also one State that expressed a lack of resources to build capacity or hire new staff for the national responsible authority or adequately train other governmental departments in order to ready themselves to implement the Amendment upon ratification. Those issues were addressed through the establishment of a national coordination body on nuclear security, comprising of representatives of around twenty Government agencies, where this body now sustains the national nuclear security regime by assessing nuclear security threats, and coordinating national activities. In particular, the body is in charge of optimising existing national resources and adopting physical protection action plans that prioritise certain areas of work, such as capacity building, enhancing search and recover capabilities, and establishing control of nuclear and other radioactive material in the scrap metal industry.

### 5.1.2 Results by group

The nature of challenges associated with the ratification of the Amendment, and also whether a participating State faced any challenge at all, did not seem to be substantially dependent on the scope of nuclear activities in the State. While only two States in Group 1 and Group 3 each reported no difficulties at all at that stage, this number was slightly higher for Group 2: four out of seven States in that group did not face any challenges to ratification. As a reason for that, one of these Group 2 participants mentioned the previously created regulatory framework regarding physical protection of nuclear facilities and nuclear material in order to address the challenge.

### **5.1.2.1 Group 1: States with no nuclear material in research, power generation and associated facilities**

Challenges most cited by Group 1 States were connected to the coordination of ratification activities between national stakeholders. In particular, States in that group experienced difficulties related to the dissemination of information and raising awareness of government bodies (two surveyed States), or alternatively faced difficulties due to lack of a single regulatory body that could lead the ratification process (one State), and, more specifically, the inability to reach an arrangement with security agencies and port authorities to monitor nuclear transport through national ports (one State). Yet, most of these issues were reported as having been resolved through awareness raising, provision of IAEA expertise and capacity building, including IAEA courses.

With regard to general difficulties related to the ratification of the Amendment, two Group 1 States indicated that the process was “very lengthy”. Due to the nature of not maintaining robust nuclear capabilities, one Group 1 State also experienced some difficulties with interpretation of the original Convention and the Amendment and its transposition into the national legislation in general, and with establishing a licensing regime to control the international transport of nuclear material through its ports. These issues were successfully addressed through the cooperation with national stakeholders, consultations with IAEA experts and attending IAEA workshops and courses. Yet another State in this group reported that the lack of resources for capacity building and hiring new staff was alleviated through the establishment of a national coordination body on nuclear security, which now prioritises action plans and optimises the limited resources available on the topic.

### **5.1.2.2 Group 2: States with nuclear material in research facilities**

While the majority of four Group 2 participants did not experience challenges in connection to the ratification of the Amendment, three States still reported some difficulties in coordination between existing national stakeholders. Two difficulties mentioned were raising awareness of national parliamentarians and of government bodies in charge of the ratification. They addressed this challenge through constant engagement among these bodies, including holding roundtable events and other awareness raising activities. In the last State of this Group, national authorities still needed to revise existing laws that regulated the nuclear regulatory spheres covered by the Amendment prior to its ratification. The revision was difficult logistically, as it required approval by all multiple national authorities and required additional bandwidth for coordination.

### **5.1.2.3 Group 3: States with nuclear material in nuclear fuel cycle facilities used for power generation**

While three countries in Group 3 described the ratification process as generally challenging, the issues most cited by other States in this group were associated with various legal aspects of ratification. Three States mentioned in that regard preparation of new national nuclear security legislation and, in particular, incorporation of provisions of Article 7 of the Amendment into the national legal framework, which require the criminalization of a number of offences, including smuggling of nuclear material and sabotage of nuclear



facilities. Another State considered it challenging to ensure coherence of the Amendment with definitions and concepts of the ICSANT in national legislation, a matter resolvable through ensuring that certain definitions only applied to certain offences, avoiding overlapping elements, and consulting with national nuclear science experts.

Two States in Group 3 indicated that while achieving the approval of the national laws by multiple authorities is a difficult task, the goal is still achievable. One EU State in Group 3 was required to pass several governmental decrees in order to mitigate the lengthy ratification of the Amendment in other EU members and other States that had signed the Amendment, thus guaranteeing smooth transition in implementing the Amendment after its entry into force.

## 5.2 Major challenges after State became a party to Amendment

### 5.2.1 Overall results

Less than a half of participating States responded that they did not face any major challenges while implementing the Amendment, demonstrating that a majority encountered difficulties in coordinating national and international objectives. At least for one State, the reason for such smooth implementation was the thorough preparation before the ratification, which included the updating of the national regulatory framework in line with the Amendment. One additional participant mentioned that the process of adopting new regulations and laws related to the Amendment was as lengthy in general as any other legislative and regulatory process, but not particularly unique or challenging. As for the other sixteen States, the challenges encountered were related to the following five topics described below, starting with the most cited ones.

#### 5.2.1.1 Nuclear regulatory body and other national stakeholders

Improving cooperation and coordination between a multitude of federal stakeholders at the national level was identified as a primary and specific challenge by 5 of 28 States. In particular, it was reported that “fragmented laws being implemented by different institutions” was an issue while another emphasised the lack of cooperation between law-enforcement entities; this demonstrates that greater coordination is needed in order to meet Amendment standards. To address this challenge, a large number of measures and approaches were adopted, which included: (1) reviewing the existing nuclear law; (2) raising awareness on the provisions of the Amendment and how they expand the scope of the original Convention; (3) designating contact and coordination managers in each institution; (4) and creating an informal body that includes all major stakeholders dealing with nuclear issues in the country in order to exchange information on a regular basis. In a State with no previously established norms governing cooperation between the NRA and law-enforcement agencies, the NRA sometimes signed a memorandum of understanding with the police in order to smoothen the process. This document guaranteed priority treatment for NRA reports on nuclear security incidents and ensured provision of NRA assistance in criminal cases related to nuclear security, from investigations to court hearings.

Additionally, one State found it difficult to involve nuclear security as a new regulatory oversight field into the organizational structure of the NRA, while another participant

mentioned limited independence of the NRA as a challenge. In case of the former, the issue was resolved through the hiring of new personnel, while in the latter case the issue was pending resolution.

### 5.2.1.2 Legislative and regulatory framework

The adoption of the CPPNM Amendment required many Parties to amend their legislation and/or regulations or adopt new norms, raising new requirements and more involved parties. One participant State found it challenging to establish a legislative infrastructure in conformity with new treaty provisions while another four States reported difficulties associated with reducing the existing gaps in national regulatory frameworks.

Project participants addressed these challenges in a number of different ways. In one country, the inter-ministerial high-level commission for nuclear and radiological security is currently examining these issues, while another two States are developing the framework of physical protection regulations with assistance of the IAEA and another States Parties. For one participating State, given the crucial role of each of internal stakeholders (the parliament, the ministry of justice, the ministry of foreign affairs and law-enforcement agencies) with regard to the implementation of the Amendment, it was essential for the NRA to concentrate special attention and persistence on them in order to overcome the gaps in national legislation and regulations.

### 5.2.1.3 Strategic vision and perception of nuclear security

According to one State, constant challenge is the need for continual improvement and evolution in the field of nuclear security, which must adequately respond to changes in the security environment and also to emerging threats. The key to success in this case focused on continual capability and knowledge improvement by utilizing peer review mechanisms. For example, it is helpful to incorporate security into a periodic review of nuclear facilities alongside with safety.

Along similar lines, two additional surveyed States mentioned difficulties with defining a medium or long-term programming in implementing the provisions of the Convention and Amendment. One addressed these gaps by raising awareness about expanded obligations contained in the Amendment among State bodies responsible for physical protection, law enforcement and international cooperation, and also coordinated work of these and other relevant stakeholders to review the existing nuclear law of the State. In the other State, the high-level commission on nuclear and radiological security is currently evaluating these challenges and developing a response.

Other difficulties identified by two States included raising awareness of key concepts of nuclear security and placing it into the wider national security context, in addition to putting efforts into strengthening nuclear security culture. Both States reported reduction in these difficulties through ongoing education and training for stakeholders and through conducting meetings and activities that promote awareness.

#### 5.2.1.4 International cooperation

Alongside issues related to cooperation between national stakeholders involved in the implementation of the Amendment, the need to improve cooperation and coordination at the international level was also challenging. To tackle this issue, one State reported that its representatives actively participate in international programmes and events related to nuclear security, such as workshops, training courses and conferences. Another project participant planned to conduct an exercise in cooperation with the IAEA and competent authorities of neighbouring States in order to test Article 5 of the Amendment in practice. The same State also considered organizing a virtual workshop on the international cooperation in case of a nuclear security incident, which is planned to use the Unified System for Information Exchange in Incidents and Emergencies (USIE).<sup>6</sup> To leverage existing avenues of virtual cooperation, USIE is a secure IAEA website where contact points of States Parties to the Early Notification and Assistance Conventions and also other IAEA Member States are able to exchange urgent information during nuclear or radiological incidents and emergencies, including security related ones.

Another challenge raised by respondents included interactions with a State not party to the Amendment or the CPPNM, which was involved in international shipment of nuclear material. Although not party to these two documents, the State was nevertheless party to International Maritime Organization's (IMO) agreements, particularly the International Ship and Port Facility Security Code.<sup>7</sup> Since the security measures to be applied to specific nuclear material contained in the Code are an equivalent to those of the CPPNM, the international transport of nuclear material was successfully completed.

#### 5.2.1.5 Limited resources

Limited resources of States were highlighted as a challenge, and reported as a constraint by three States. The three noted, in particular, limited human resources and expertise in the development of regulations and implementation of the Amendment, coupled with the lack of adequate equipment. For example, one of these States witnessed cancellation of open vacancies in nuclear security and other fields due to a national austerity policy. Two project participants additionally reported the following challenges undermine the effective implementation of the Amendment and compliance with its provisions, to include: the insufficient level of training of national stakeholders' personnel and, for one State, limited financial resources for ensuring the inspections regime.

As a general approach, States actively sought support from the IAEA for the purpose of assistance in addressing the resourcing issue, e.g. through the development of an INSSP. Additionally, through establishing a national coordination committee on nuclear security and prioritising on developing and implementing physical protection regulations. One State's response to the understaffing of the NRA was to temporarily redistribute nuclear security functions among employees of other departments, who obtained professional

6 IAEA, Unified System for Information Exchange in Incidents and Emergencies (USIE). Available at: <https://iec.iaea.org/usie/actual/LandingPage.aspx>.

7 SOLAS/CONF.5/34, ANNEX 1, <https://portalcip.org/wp-content/uploads/2017/05/ISPS-Code-2003-English.pdf>

certification by the WINS before assuming relevant duties. To address the lack of adequate equipment, one State replied that this challenge was mitigated by better optimising physical protection measures at nuclear facilities.

### 5.2.2 Results by group

Less than half of participating States did not report any challenges related to implementation of the Amendment. This number seemed to be dependent on the scope of a State's nuclear activities, as States that implement the Amendment without major challenges constituted two thirds of participants that have nuclear power programmes (Group 3), nearly half of States with nuclear material in research facilities (Group 2) and roughly one fifth of respondents with no nuclear material use for research or power generation (Group 1). One Group 2 State explained that the implementation of the Amendment went smoothly due to thorough preparation before the ratification, which included incorporation of new provisions into national regulations. Moreover, the criminal code of this State had already had in place the offences criminalized by the Amendment. Yet another Group 2 State shared that, while the adoption of new laws and regulations took considerable time due to national procedures, it nevertheless did not pose any particular difficulties.

#### 5.2.2.1 Group 1: States with no nuclear material in research, power generation or associated facilities

Although other States shared similar challenges, Group 1 was affected slightly more than other groups in reference to long term vision for nuclear security and its perception by relevant stakeholders. Three countries in this group indicated that it was not simple to elaborate a medium and long-term programme in line with Amendment provisions, which include to raise awareness about the nuclear-related branch of national security, or to strengthen nuclear security culture. These challenges were generally addressed through increased outreach, awareness raising and capacity building activities.

Two out of nine States in Group 1 noted the issue of limited resources for successful implementation of the Amendment, which included human resources and expertise in development of regulations, training possibilities, equipment and funds. Responses to this challenge included developing action plans, establishing a coordination committee, prioritising on adopting new regulations and reaching out to the IAEA for assistance.

Ensuring coordination and cooperation between all national stakeholders was challenging for two States in Group 1. For one State, the issue referred to a patchwork of laws that were implemented by different institutions while another State struggled to ensure smooth cooperation between law-enforcing agencies. In case of the former, a new law is being adopted with all relevant stakeholders providing their feedbacks on the gaps it should cover, while in the latter case, contact and coordination managers were designated in each law-enforcing agency.

Putting the legislative and regulatory infrastructure in compliance with the Amendment proved to be challenging for yet another two States in Group 1, which was resolved by adopting new or amending existing norms, including with international assistance in drafting them. Lastly, one State in this group mentioned that it had experienced difficulties

with an international transport of nuclear material through its territory by a State not party to the Amendment or the original convention. The adherence of the transporting State to IMO agreements helped to resolve the issue.

### **5.2.2.2 Group 2: States with nuclear material in research facilities**

The lack of strategic vision and different perceptions of nuclear security were the most cited difficulties within Group 2. One State reported difficulties with defining a medium and a long-term nuclear security strategy, which would be in line with the provisions of the Amendment and the CPPNM. A work on it is still ongoing. Another State mentioned the constant challenge of the continual improvement in nuclear security, a key solution to which is constant improvement of knowledge and capability through, e.g. peer review mechanisms.

In one State in this group, which faced difficulties with adopting or amending regulations, a permanent high-level commission that support national efforts to strengthen nuclear and radiological security is still evaluating a possible response and developing an action plan.

As regards difficulties in the context of cooperation and coordination between various stakeholders, two Group 2 States provided their comments. For one of them, ensuring effective cooperation between the NRA and law enforcement agencies was challenging because there was no previously established normative framework for nuclear security related interaction between them. Signing the memorandum of understanding between the NRA and national police helped alleviate the issue. Another Group 2 State encountered difficulties related to the lack of experience in cooperating and coordinating joint actions under Article 5 of the Amendment between stakeholders at the international level. To address this issue, the State is planning to conduct an exercise and a virtual, USIE-based workshop involving other State Parties and also the IAEA.

### **5.2.2.3 Group 3: States with nuclear material in nuclear fuel cycle facilities used for power generation**

In Group 3, challenges most raised related to the national NRA and other national stakeholders. Three States reported in particular that it was difficult to properly include nuclear security into the organizational structure of the existing NRA, provide for the arrangement of smooth cooperation and coordination between national stakeholders responsible for the Amendment implementation, or ensure independence of the NRA from other State bodies responsible for the promotion or use of nuclear energy. While the last challenge still requires resolution, two others were resolved by hiring new personnel, conducting national workshops or creating an informal forum for exchanging information on a regular basis between major stakeholders.

As with two other groups, two States in Group 3 also experienced difficulties with developing its national regulatory framework in line with Amendment provisions, which have been mitigated by international assistance and the NRA's drawing special attention of and persistent outreach to the corresponding authorities. Yet another two Group 3 States faced challenges of international dimension, such as improving cooperation and

coordination with other States Parties and international transport of nuclear material by a State not party to the Amendment or the CPPNM. The former was addressed through participation of the country's representatives in international programmes while the latter issue, similarly to the case of Group 1 State described above, was resolved by the State through accepting levels of physical protection provided for in the IMO agreements. Additionally, only one Group 3 State mentioned limited resources (equipment and human resources) as hindering the implementation of the Amendment. Partly provoked by austerity measures, these challenges were mitigated by redistributing nuclear security tasks among other departments of the NRA whose employees received ad hoc certification of the WINS. It is remarkable that none of the States in this group mentioned any challenge with regard to the topic of strategic vision and perception of nuclear security.

## 6. Benefits of becoming a party to Amendment

Select provisions of the CPPNM Amendment aim to achieve three main objectives: the establishment and maintenance of effective physical protection of nuclear material and facilities in peaceful use worldwide; to prevent and combat offences relating to such material and facilities worldwide; and to facilitate cooperation between States Parties to those ends. Although the previous section demonstrates that many States participating in the project face certain difficulties while implementing Amendment obligations, it was overwhelmingly perceived that the negative burdens placed on the State by the Amendment were outweighed by benefits it brought, both at international and national levels.

### 6.1 Overall results

#### 6.1.1 International dimension

All States except one shared a multitude of benefits by becoming party to the Amendment, the majority of which had an international and cooperative dimension. The benefit cited by more than half of the participants related to international and regional cooperation. The specific cooperation domains included sharing information or procedures related to criminal proceedings; protection or recovery of unlawfully taken material, which may not remain in the State it originated in; advances in physical protection activities; and timely information exchange between States, the IAEA or other international organizations on related events. Similarly, two States pointed to the use of experience exchange on nuclear security, while another four project participants commended ongoing international and regional support, to be inclusive of capacity building activities and the development of a more effective nuclear security infrastructure. In a similar vein, almost a third of participants reported that the Amendment is crucial in achieving a worldwide physical protection regime based on an international legally binding framework and harmonized procedures among States.

One additional State emphasised in this regard the increased mutual trust and understanding between the States Parties to the Amendment. Two project participants additionally noted that being party to the Amendment enhances the global non



proliferation regime, while another two States mentioned that implementation of the Amendment helps fulfil their obligations under the UN Security Council Resolution 1540.

### 6.1.2 National dimension

Among the benefits that had mostly national dimension, slightly less than half of the participants noted that adherence to international reference standards within the Amendment ensured a strong motivation and basis for adopting nuclear security related laws and regulations, and also for assigning nuclear security responsibilities and powers to national responsible authorities, as needed. For nine States, becoming party to the Amendment led to improvement in national security measures, including by ensuring a better control of nuclear material within national borders, and helping to reduce the threat of criminal activities. Yet another benefit of the Amendment – according to two States – was the creation of new momentum for continued strengthening of the domestic regime of the physical protection of nuclear material and facilities. One respondent additionally commented that the Amendment brought greater clarity in the roles and responsibilities of the State and operators in this domain.

*“For our country, it is a priority to be party to international agreements, including the Amendment, and to implement recommendations on the physical protection of nuclear materials, which has ensured a better control of them”*

Implementation of Amendment provisions helped one participant to establish the nuclear and radiological security regime. This facilitated this country’s access to nuclear science and technology for peaceful uses as international providers of the nuclear technology and the general public alike were reassured that radioactive material and facilities containing them are adequately secured. Similarly, another country mentioned that it was considering to acquire research or power reactor capabilities, so the Amendment is very instrumental in helping to prepare the NRA personnel in terms of equipment and experience with physical protection.

## 6.2 Results by group

A strong majority of participants, with the exception of one, provided examples of benefits associated with the implementation of the Amendment. Seven of nine participants without nuclear material in research facilities or in nuclear fuel cycle facilities used for power generation (Group 1), underlined that implementation of the Amendment overall improved national security, which included a better control of nuclear material within country’s borders and in transit, while enhancing the fight against terrorism or other criminal activities, and the reduction of nuclear terrorism threats.

Benefits of international cooperation under the auspices of the Amendment were the second most cited positive response to this question, between the participants in Group 1. Five States indicated, in particular, that the cooperation took place in the domains of

technical advances in physical protection and of timely information exchange between States, the IAEA and other international organizations. The crucial role of enhanced regional cooperation was also particularly emphasised by two of these States.

Other benefits shared by Group 1 participants included the following:

- Strong basis for the adoption of laws and regulations, vests the relevant national competent body with necessary authority in the field of physical protection
- Access to nuclear science and technology for peaceful uses
- NRA staff members are properly equipped and have experience in implementing measures contained in the Amendment in case a decision to build research or power reactors is taken and nuclear material is present in the country in the future
- Enhancement of the global non-proliferation regime
- Fulfilling UNSCR 1540 obligations of States Parties to the Amendment
- International and regional support, e.g. in the fields of capacity building and establishing physical protection infrastructure
- Possibility to exchange experience in the field of physical protection
- Improved global and regional security
- The Amendment harmonized procedures among States Parties thus providing a global physical protection regime

The Group 2 and Group 3 States (with nuclear material and experience in operating research facilities or nuclear power programmes, respectively) echoed the following responses regarding the Amendment, which:

- prompted the creation of national legal and regulatory frameworks on physical protection;
- helped to fulfil UNSCR 1540 obligations;
- boosted international cooperation and support;
- laid foundation to the global physical protection regime.

Only one State in Group 2 and two States in Group 3 reported that the Amendment had improved national, regional or global security, compared to all but two Group 1 States as outlined above.

Group 3 participants additionally identified the following specific benefits related to the implementation of the Amendment:

- Building up mutual trust and understanding
- Creating new momentum for strengthening domestic physical protection regime
- Bringing greater clarity in responsibilities for physical protection in the field.

## 7. Lessons learned

### 7.1 Overall results

The project participants were also asked to share any lessons they learned while preparing to become a party to the Amendment and while implementing its provisions. Almost all respondents provided contributions. The exception was three States, which indicated that their established domestic nuclear security regimes, including those based on IAEA nuclear security guidance such as INFCIRC/225, rendered the process of ratifying and implementing the Amendment a more straightforward administrative endeavour and thus no specific lesson could be shared.

#### 7.1.1 Awareness raising and cooperation between national authorities

Respondents most positively cited lessons related to raising awareness and cooperation between national authorities. Five States, for example, highlighted the importance of generating awareness on Amendment provisions, including the national, regional and international benefits it brings, among all State bodies that are involved in the implementation of the Amendment. Such awareness raising would introduce the Amendment

*“Patience is required. That is especially real due to the number of available personnel”*

into the regular agenda of all stakeholders and also potentially expedite the ratification process and implementation thereof. This was particularly true to small island developing States without nuclear activities, where decision makers could be sceptical about the significance of nuclear-related issues. While awareness raising was generally mentioned in the context of achieving the ratification of the Amendment, one State expressly mentioned that the ratification itself constituted a fundamental step to raising awareness among national authorities, operators and society in general of the importance of the secure use of nuclear technologies, which are beneficial for healthcare and industry.

While two States described the importance of defining the competent State authorities responsible for ratification process and clearly defining their roles, another two participants emphasised the need for strong cooperation between national security related organizations, such as government departments, regulators, and national research and development centres. Such cooperation is desirable both before and after a State becomes party to the Amendment, to enhance overall understanding and smooth progression. Additionally, the key role of the nuclear industry in meeting obligations of the State under the Amendment was underlined by one country, and another two countries mentioned the importance of the high level officers’ initiative. The latter holds particularly true for some small developing States, where a government official may perform several functions, and the Amendment thus needs someone who is passionate and dedicated to accomplish its ratification and ensure its complete implementation.

The last lesson in this subgroup was related to the “back-end” element of nuclear security.

One State confirmed that effective response and coordination are crucial in case of a nuclear security event, and the Amendment provides valuable foundation for establishing such mechanisms.

### **7.1.2 Relationship with other international instruments and universalization of Amendment**

There are 6 of 28 States that shared lessons regarding links between the implementation of the Amendment and the global normative framework. Three respondents stressed that the Amendment and the original Convention could not be implemented fully without the integration of international architecture of nuclear security, while another country specifically suggested considering the relationship between the Amendment and the ICSANT criminalization requirements when conducting implementation of the Amendment. According to one participant, numerous A/CPPNM requirements had previously been covered in the national legislation following the ratification of other comparable Conventions in the nuclear security arena, such as the Convention on Nuclear Safety. Points along these lines highlight the importance of ratifying related conventions, which subsequently support and further the objectives of others. Lastly, two States commented on the importance of raising other countries' awareness of threats, usefulness of international nuclear security framework and capacity building for the implementation of international commitments, which is an effective approach to the universalization of the Amendment and, subsequently, reinforcing the global nuclear security regime.

### **7.1.3 National legislative and regulatory framework**

Select participants also offered some lessons in the context of the national legislation and regulations. In more general terms, it was recommended that a State Party should – without undue delays – create and strengthen a regulatory and legislative framework on nuclear security and apply it fully, according to three surveyed States. Two other States underlined the necessity of having a functioning institutional infrastructure in the State, which can implement the Amendment and enhance capabilities around the convention as a central pillar. The recommendation would include a NRA with necessary powers and responsibilities in the domain of physical protection. For example, a State without a nuclear power programme but which is a major transit hub could maintain a licensing regime to ensure that all nuclear transport is tracked and monitored through the State's territory. For that reason, the State supported efforts to protect nuclear material during international transport, ratified the Amendment and amended national legislation expeditiously.

### **7.1.4 International assistance and cooperation**

Lessons shared by four participants specifically referenced international assistance and cooperation, in addition to the cooperative regional, national and international highlights above in the report. They mentioned the usefulness of international and regional cooperation, which included receiving timely information and experience of other States Parties through professional exchanges programmes (including information sharing), training and cooperation. Two States additionally emphasised the crucial role of assistance provided by third parties, including the IAEA and regional bodies.

## 7.1.5 Resources

Two participating States mentioned the importance of resources. One of them specifically mentioned sufficient financial resources as a prerequisite for enlarging the nuclear regulatory body, which needs to assume additional nuclear security responsibilities, and for training national experts. The other participant commented that, in view of the limited number of the available personnel, “patience is required”.

## 7.1.6 Other

According to one State, implementation of nuclear security measures and approaches, particularly at the level of facilities, is a living process which changes in line with the situation at a given time. Yet another State suggested that exemplary implementation of the Amendment by the NRA can undoubtedly help avoid making mistakes if a decision to develop a nuclear energy programme is taken in the future.

## 7.2 Results by group

The range and scope of State nuclear activities appear to affect the types of lessons shared by the project participants. Generally, most States regardless of their group referred to the importance of awareness raising and cooperation between national authorities and also underlined the importance of generating awareness of the Amendment and its benefits among all national stakeholders. One of the Group 1 States additionally commented that the active awareness raising can help expedite ratification process and implementation of the Amendment, while another participant of the same Group noted that, in small developing States without a nuclear programme, decision makers may be quite sceptical about importance of nuclear-related issues.

In a similar vein, participating States in all three groups raised the crucial role of international cooperation and assistance, which included receiving timely information and experience from other States through professional exchanges and training. On that note, most of the remainder of lessons learned were more group-specific and rarely mentioned by States with differences as to the scope of their nuclear activities.

With regard to other lessons related to national stakeholders’ awareness and cooperation, States without nuclear material used for research or power generation (Group 1) mentioned the following good practices:

- Ratification of the Amendment raised awareness among national authorities, operators and society in general of the importance of the secure use of nuclear technologies and their benefits for the State;
- Strong cooperation is crucial between national security related bodies, both before and after becoming party to the Amendment;
- Nuclear industry is an important stakeholder in the Amendment implementation;
- Initiative of high level officers is important, particularly in some small island developing States where lower level State employees may be in charge of a number of dossiers several functions and the nuclear field may not be among the priorities.

Select members of the group also underlined the importance of creating and strengthening the national legislative and regulatory framework of nuclear security and institutions that support it, thereby avoiding the need for protracted ratification of the Amendment, which would further ensure the expedited establishment of the national regime for licencing nuclear transport. The need for “patience” during the implementation, and for the complete implementation of the Amendment were additional lessons identified by Group 1 States.

Additional advice offered exceptionally by participants of Group 2 with nuclear material in research facilities included the following:

- While prevention is the most beneficial element in nuclear security, establishing effective response and coordination mechanisms is crucial in the case of a nuclear security incident;
- Bringing national laws in line with the Amendment provisions can be difficult and processes can last longer than expected;
- While adopting the Amendment is a clearly defined step-change in the regime, the implementation of new nuclear security measures or approaches, especially at the facility level, is something that changes over time in response to the stepwise change in policy or legal settings.

An observation offered by one Group 2 State, and also one Group 3 participant, suggested that, for countries with an established domestic nuclear security regime based on IAEA nuclear security guidance, ratifying and implementing the Amendment is typically an administrative issue that requires limited changes to existing legal and regulatory frameworks. Another lesson shared by one participant in Groups 2 and 3 highlighted the importance of the universalization of the Amendment, which would subsequently reinforce the global nuclear security regime. An effective approach to that end is to raise other States’ awareness regarding threats, usefulness of international nuclear security framework and capacity building for the implementation of international commitments.

Group 3 (States with nuclear material in nuclear fuel cycle facilities used for power generation) had particular interest in providing lessons related to the relationship of the Amendment with other international instruments. These observations included the following:

- A majority of the Amendment requirements were satisfied as a result of a prior ratification of other comparable international treaties;
- Full implementation of the amended Convention cannot be achieved without the State’s perfectly integrating into the international nuclear security architecture;
- States Parties to the Amendment and ICSANT could consider the relationship between the criminalization provisions of the two agreements.

*“The ratification of the Amendment constitutes a fundamental step to raise awareness among national authorities, operators and society in general, that just as this technology provides necessary benefits for health and industry, it also has inherent risks that must be faced officially by all States”*



While some States with nuclear power echoed comments by States without such infrastructure regarding the importance of establishing and strengthening the regulatory and legislative frameworks and institutions that support them, other Group 3 participants offered the following additional observations as to their implementation of the Amendment:

- It is important to define the competent state authorities responsible for ratification process and to ensure each of them understands its roles and responsibilities;
- Assistance of other countries and the IAEA is vital for successful implementation;
- Sufficient funds are a prerequisite for enlarging the regulatory body and training its experts in nuclear security.

## 8. Submission of information to IAEA under Article 14.1 of Amendment

### 8.1 Overall results

Article 14 paragraph 1 of the original Convention, which has not been altered or substituted by the Amendment, requires that all States Parties inform the IAEA of their laws and regulations which give effect to the Convention and the Amendment. For that purpose, a draft template is available for States Parties, which contains items that could be included in the of content of a national report.

Three-quarters of the project participants submitted the required information to the IAEA. Of the remaining seven States, one State commented that it had no nuclear facility on its territory and had had “no opportunity to report”. Yet another State replied that it was studying formats of other States Parties’ reports since Article 14 paragraph 1 does not contain a deadline for submitting the information, nor does it provide guidance as to a specific format and contents of a national report. In five of seven States that replied negatively on reporting to the IAEA, the process of adopting new laws and/or regulations was still under way, with one of the participants indicating that, while a comprehensive nuclear law is still being adopted, the criminalization provisions of the Amendment were contained in national antiterrorism laws. These laws have already been circulated to the UN system under provisions of other conventions or resolutions (e.g. UNSCR 1540), and the State plans to submit information about them to the IAEA as well.

### 8.2 Results by group

Responses to this question provided by project participants revealed correlations between the scope of nuclear activities in a State and submission of information on national laws and norms related to the Amendment. One-third of States without nuclear material in research or power generating facilities submitted to the IAEA information on their laws and regulations which give effect to the Convention and the Amendment. Of the six Group 1 States that have not submitted information to the IAEA, five commented that they were still in the process of adopting new laws and/or regulations, with one of these States having already criminalized offences outlined in Article 7 of the Amendment by national

laws. These laws were made known to other States Parties through the UN channels, and the State plans to provide this information to the IAEA in due course.

The number of project participants in two other groups who provided affirmative replies was substantially higher: all States having nuclear material in research facilities and all but one State with nuclear material used for power generation submitted Article 14.1 information to the IAEA. One respondent with an extensive nuclear power programme underlined that the Amendment provision does not specify a time limit for submitting the required information, nor does it provide a format or contents of such submission.

## 9. Review Conference of Parties to Amendment in 2022

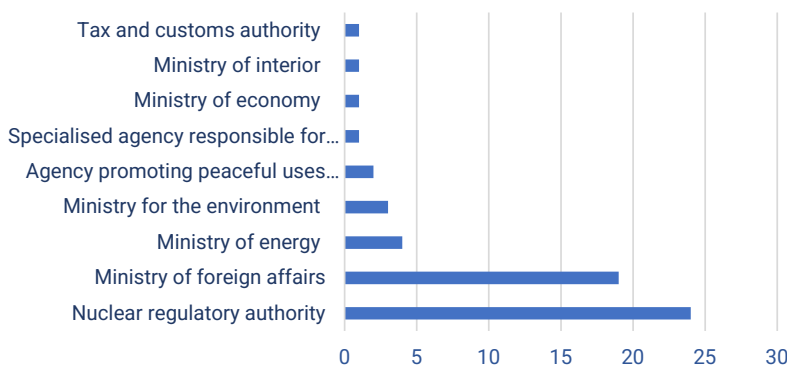
### 9.1 Preparatory work

#### 9.1.1 Overall results

Article 16 of the Amendment requires that, five years after its entry into force, the IAEA should convene a conference to review the implementation of the Convention and its adequacy “in the light of the then prevailing situation”. The questionnaire included two questions related to the preparatory works ahead of the Conference of the Parties to the Amendment to the CPPNM, scheduled to be held March 2022.

For eighteen project participants, the preparation for the upcoming 2022 Conference was a joint effort of two and more national authorities, while the remainder of the States designated one state body for that purpose. All except four project participants replied that the national NRA participated in the preparations, in majority of instances accompanied by or in conjunction with the ministry of foreign affairs. In remaining replies, the following entities were indicated: an agency promoting peaceful uses of nuclear technology; a specialised authority responsible for nuclear security; tax and customs authorities; and ministries of energy, environment, economy, and interior.

Authorities preparing for the upcoming 2022 Conference



Ahead of the 2022 Conference, which was initially scheduled for 2021 but experienced COVID 19 related delays, two open ended meetings of Technical and Legal Expert Group were convened at the IAEA Headquarters in July and November 2019. The Expert Group discussed procedural and substantive issues pertaining to the Review Conference, including the review of: the implementation of the amended Convention; the “then prevailing situation”; and adequacy of the amended Convention. The Expert Group’s work resulted in a report that informed further discussions at the Preparatory Committee (PrepCom), which took place in December 2020 and in February 2021.

Five project participants were represented at the PrepCom meeting only and one participant – at the Technical and Legal Expert Group meetings only, while representatives of twenty States participated in both gatherings. Among the reasons that prevented States from participating in the PrepCom or Expert Group meetings, two participants reported the lack of human and financial resources, or a busy internal agenda. One surveyed State indicated that it had not received an invitation to participate in any preparatory meetings ahead of the Review Conference.

### 9.1.2 Results by group

In most of States participating in the project, regardless of status of respective nuclear activities, the national NRA and the ministry of foreign affairs are primarily responsible for preparations ahead of the 2022 Review Conference. One State with no nuclear material in research or power generating facilities (Group 1) and one with nuclear research facilities (Group 2) mentioned the involvement of a domestic agency promoting peaceful uses nuclear technology. Among additional State bodies reported by Group 1 and Group 3 States (with nuclear power programmes), ministry of energy (one and three States, respectively) and the ministry for the environment (one and two States, respectively) were cited. In one Group 2 State, the preparations for the Review Conference are carried out by the specialised nuclear security and non-proliferation body, whereas two Group 3 participants mentioned in this regard the ministry of economy, the ministry of interior and the tax and customs authorities.

The overwhelming majority of project participants of all three Groups took part in the meetings of the Expert Group or the PrepCom. The two States that did not send their representatives to participate in any of the preparatory meetings ahead of the Review Conference included one project participant in Group 1 and Group 2. For the Group 1 State, the lack of human and financial resources constituted the impediment to its participation, while the Group 2 State did not receive an official invitation to take part in the meetings. Limited staff coupled with conflicting internal agenda additionally prevented one Group 2 State from participating in the work of the Expert Group.

### 9.2. Possibility of regular review conferences beyond 2022

#### 9.2.1 Overall results

Article 16 paragraph 2 of the CPPNM Amendment provides for the possibility of convening further (and periodic) review conferences, and so the questionnaire included a question on whether such conferences would offer benefits to the implementing parties. The significant majority of States (25 out of 28) agreed that periodic review conferences would be beneficial for States Parties to the Amendment. Most respondents commented that such conferences would provide an opportunity to additionally share and evaluate best practices and experience of implementation of the Amendment and identify gaps in implementation, thus guaranteeing its “continual improvement”. Three participants similarly mentioned the chance to discuss the adequacy of the treaty and the possibility of its future adjustments.

According to nine States, periodic review conferences would provide a forum for evaluation of the international situation and evolving threats to physical protection of nuclear material and nuclear facilities, whereas for another two States, such conferences could reinforce the importance of the Convention its the Amendment, and relevance of the two documents to the then prevailing situation. A number of participants also noted the usefulness of this forum for discussing the role of emerging technologies vis-à-vis physical protection, sharing their interpretations of the Amendment, assisting with maintaining momentum on universalization efforts, or enhancing awareness and collaboration with neighbouring countries. One reply suggested that periodic conferences would sustain the Nuclear Security Summit mechanism, which was in place in 2010-2016.

Only three respondents did not provide an affirmative response to this question. They indicated that the 2022 Conference, and also the preparatory work to it, would indicate whether this idea enjoys enough support and is a realistic option. One of these States, however, shared a hope that the Conference could adopt a decision to convene at least a follow-up conference in a certain number of years.

*“Regular review conference of Parties to the Amendment may be a framework, which sustains the Nuclear Security Summit mechanism”*

#### 9.2.2 Results by group

States with no nuclear power programmes (Group 1 and Group 2) unanimously supported the idea that regular review conferences beyond the 2022 Conference would be advantageous for States Parties to the Amendment, compared to three-fourths of participants with nuclear material used for power generation (Group 3). There were similarities between the three groups as to specific reasons for that: the reply most frequently offered (by a majority of States in Group 1 and Group 2 and by slightly less than a half of Group 3 States) was the opportunity to discuss best practices and experience of the Amendment implementation and identify possible gaps thereof. Examination of the prevailing situation and also current threats to physical protection was the second most shared comment by participants in all Groups, followed by a discussion of the impact

of emerging technologies on the physical protection of nuclear material and nuclear facilities. Discussing adequacy of the Amendment and possibilities of further adjustments was reported by one participant in Group 2 and Group 3.

*“In general, all international instruments should be regularly reviewed and updated as necessary. What specifically regards a security-focused instrument like the Amendment, the addressed issues rely heavily on prevailing situation and emerging technology since nuclear security governs cross-cutting areas. The effectiveness of nuclear security measures are impacted by these changes or evolution”*

Some benefits of future regular review conferences were group specific. One Group 1 participant indicated that such conferences would enhance awareness of, and collaboration with, neighbouring countries, whereas only Group 3 participants highlighted the chance to share their interpretation of the Amendment, reinforce the importance of the Amendment, enhance universalization efforts and sustain the Nuclear Security Summit mechanism.