

South Korea's Ongoing Efforts to Strengthen the Physical Protection Regime Under the CPPNM and its Amendment

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1. Introduction

As the destructive power of nuclear weapons was confirmed historically, it has been recognized that nuclear energy should be used only for peaceful purposes because the misuse of nuclear energy for malicious acts can cause a catastrophe. However, as the peaceful use of nuclear energy cannot be achieved through the efforts of one country alone, all countries around the world must work together.

Accordingly, the Convention on the Physical Protection of Nuclear Material (CPPNM) and its Amendment, the only legally binding treaty undertaking in the area of physical protection of nuclear material, were proposed, adopted, and entered into force. South Korea has joined the convention as a State Party to lead its universalization.

In this study, the comparative analysis between the CPPNM and its Amendment was performed, and it was summarized that what kind of efforts South Korea is making to implement the international norm under the CPPNM and its Amendment.

2. Methods and Results

2.1 A brief history of the Convention on the Physical Protection of Nuclear Material and its Amendment

As the nuclear industry expanded in the late 1970s and the international transport of nuclear materials became frequent, the need for international standards of the physical protection related to nuclear power emerged. To prevent illegal nuclear trade and protect nuclear materials during international transport, the CPPNM was proposed and adopted in 1979, and entered into force in 1987 [1]. According to the terms of the CPPNM, the international export, import, or transfer of nuclear materials is not permitted in the case of insufficient protection measures.

However, as the country's physical protection system collapsed in the early 1990s with the collapse of the Soviet Union, interest expanded to threats to nuclear facilities and domestic transport of nuclear materials. Moreover, in the wake of the 9/11 terrorist attacks, a diplomatic conference to amend and strengthen the CPPNM was convened in 2005. By the conference, the Amendment to the Convention on the Physical Protection of Nuclear Material (A/CPPNM) was

proposed and adopted. The A/CPPNM entered into force in 2016 after it was ratified by 2/3 of the States Parties to the CPPNM [1].

2.2 Characteristics of the Amendment to the Convention on the Physical Protection of Nuclear Material

The A/CPPNM significantly strengthens the CPPNM, and extends its scope by adding the protection measures to minimize the risk of sabotage and radiological consequences on nuclear materials and facilities [2]. For comparison, the scope added in the A/CPPNM is presented in Table I.

Table I: The general scope of the original CPPNM and added in the A/CPPNM summarized by the IAEA [2].

Category	CPPNM	A/CPPNM
Physical Protection	· Nuclear material in international transport	· Nuclear facilities and nuclear material in domestic use, storage and transport · Physical protection regime (e.g. establishment of a legislative and regulatory framework, competent authority)
Offences	· Intentional unauthorized acts involving nuclear material · Threat to use nuclear material to cause harm · Theft or robbery of nuclear material · Ancillary offences (attempt to commit a listed offence and participation therein)	· Smuggling of nuclear material · Sabotage of nuclear facilities · Coverage of "substantial damage to environment" · New ancillary offences (organization or direction of others to commit a listed offence)
International Cooperation	· Cooperation and assistance in connection with criminal proceedings and physical protection systems · Information exchange to protection or recover unlawfully taken material	· Expanded cooperation, assistance and information sharing in case of sabotage

The main additions to the original CPPNM are as follows:

- 1) Expansion of the scope for application to nuclear facilities, including all buildings and equipment which produce, process, use, handle, store, and dispose of nuclear materials

- 2) Reinforcing the physical protection regulations by adopting the 12 fundamental principles of physical protection
- 3) New provisions regarding mutual cooperation for physical protection of nuclear materials and facilities and prior notification in case of danger
- 4) New provisions regarding criminal sabotage, and damage to the environment

2.3 South Korea's Efforts as a State Party to the Convention on the Physical Protection of Nuclear Material and its Amendment

2.3.1 Enactment and revision of the Act on Physical Protection and Radiological Emergency

As shown in Table II, South Korea has joined the CPPNM and A/CPPNM, and applied the content of two conventions to the national law in order to strengthen the physical protection regime.

Table II: The application process of the CPPNM and A/CPPNM in South Korea.

	CPPNM	A/CPPNM
Application Process in South Korea	<ul style="list-style-type: none"> · Ratified in 1982 · Entered into force in 1987 · Enactment of the Act on Physical Protection and Radiological Emergency in 2003 	<ul style="list-style-type: none"> · Ratified in 2014 · Entered into force in 2016 · Revision of the Act on Physical Protection and Radiological Emergency in 2014 and 2020

The national law called as the Act on Physical Protection and Radiological Emergency has been revised in 2014 and 2020 [3]. The main additions to the original national law are as follows:

- 1) Supplementing the contents related to the international transport of nuclear materials
 - Reflection of protection requirements for the international transport
 - Introduction of approval/inspection system for international transport security plan
- 2) Establishing the contents about mandatory notification of information recognized such as nuclear terrorism to international organizations
- 3) Supplementing the contents related to nuclear-related crimes and penalties
 - Expansion of targets for nuclear-related crimes
 - Expansion of penalties for criminal acts related to "nuclear materials" to "nuclear/radioactive materials, related facilities, nuclear explosive devices, radiological dispersal devices, and radiation-emitting devices"
 - Addition of criminal penalties

2.3.2 Participation in A/CPPNM-related conferences for international cooperation

The technical meeting of the representatives of parties to the CPPNM and its amendment has been held every year since 2015. With the participation of point of contacts and officials from competent ministries in State Parties, the purpose of this meeting is to discuss obligations and implementation mechanisms upon entry into force of the convention, to share information and experiences in effectively implementing the A/CPPNM, to introduce IAEA support activities, and eventually to universalize the A/CPPNM.

As a State Party to the CPPNM and A/CPPNM, South Korea has been attending this meeting every year to discuss the implementation mechanisms and share the lessons learned from experiences.

In addition, to agree on the validity of the A/CPPNM and lead the universalization, South Korea attended the conference of the parties to the A/CPPNM held at the end of March 2022.

3. Conclusion

Because the international legal framework is not static but continually evolving and adapting to new challenges, the CPPNM adopted in 1979 did not fit the current situation, and that is why the A/CPPNM was newly adopted. Thus, the universalization of the A/CPPNM plays an important role in strengthening the current global nuclear security. Although a country tries to enhance the physical protection regime under the CPPNM and A/CPPNM, nuclear security cannot be achieved if neighboring countries do not follow it.

Therefore, South Korea has been making continuous efforts to lead the universalization of the A/CPPNM by reflecting the content of the A/CPPNM in the national law and attending the A/CPPNM-related conferences for international cooperation.

REFERENCES

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