

A Study on the Improvement of Legislative System in the Nuclear Control Regulations

Min Baek

Korea Institute of Nuclear Non-proliferation and Control, 1534 Yuseong-daero, Daejeon, 34154, Korea
E-mail: baekmin@kinac.re.kr

1. Introduction

Since the industries and research fields related to the nuclear power have rapidly become diverse and complicated in recent years for peaceful use and development of the nuclear power, it is necessary to establish a statutory system in order to properly respond to the increasing demand for a new safety regulation system. It is necessary to rearrange the statutory system for the safety of nuclear power so as to eliminate inefficiency and imbalance caused by overlapped or conflicting statutes on the safety of the nuclear power and remove relational ambiguity caused by the complicatedness of the relevant statutory system.

In particular, after the 9/11 terrorist attacks, the international community started a full-fledged discussion on nuclear security challenges facing the international community, such as the prevention of nuclear terrorism and the safety management of nuclear materials, through the Nuclear Security Summit. Safety and security issues for nuclear power plants are more important than any other facility, as exploitation by terrorist groups or threats to nuclear power plants can be posed as a threat to life and body due to massive damage caused by nuclear weapons use or radioactive leakages.

Korea also laid the legal and institutional basis for the establishment and operation of a physical protection system for nuclear materials through the *Act on Measures for the Protection of Nuclear Facilities, etc. and Prevention of Radiation Disasters*.

With the occurrence of hacking of nuclear facilities, it became necessary to strengthen information security for nuclear power plant facilities. However, the legal basis is weak due to the limitations of related laws and the lack of systematic coherence with international norms.

Therefore, in a situation where the possibility of internal and external threats to nuclear power plant facilities is increasing, in order to guarantee the safety and security of nuclear power plant facilities, it is necessary to establish a physical protection system linked to safety from the design and construction stage of nuclear power plant facilities. It would be necessary to re-establish the physical protection system of nuclear facilities through the amendment of the relevant legislation.

This study examines the current status and problems of the domestic nuclear control-related legal system and proposes a provisional law for implementing the nuclear

non-proliferation and nuclear security under the *Framework Act on Nuclear Safety*.

2. Current status of legal system related to nuclear control

In Korea, the policy for the peaceful use of nuclear energy has been clarified in the Comprehensive Plan for Nuclear Promotion. The Nuclear Safety and Security Commission has implemented the corresponding nuclear control since October 2011. The legal system for the implementation of the nuclear control system in Korea is based on the *Nuclear Safety Act* and consists of Act, Enforcement Decree, Enforcement Ordinances and Notices related to three major control measures of nuclear energy, namely, safeguards, import/export control, and physical protection. Safeguards for internationally regulated materials, such as nuclear materials, are stipulated in the *Nuclear Safety Act*, and its Enforcement Decree, its Enforcement Ordinance and Notices of the Nuclear Safety & Security Commission. It includes state obligations and procedures to be implemented in accordance with treaties signed with international organizations, such as the Comprehensive Safeguards Agreement.

The international trade and import procedures for nuclear material which must be approved by the Government under the *Nuclear Suppliers Directive*, are based on the *Nuclear Safety Act* and the *Foreign Trade Act*, and the detailed procedures are implemented according to the *Notice on Export and Import for Strategic Goods*.

Physical protection against terrorism in nuclear materials and nuclear facilities are stipulated in the *Act on Measures for the Protection of Nuclear Facilities, etc. and Prevention of Radiation Disasters*. Detailed procedures are prescribed in the relevant notices such as *Regulations on Education and Training of persons Performing Physical Protection-related Tasks*.

In relation to safeguards, there are five notices, including *Notice on the subject of internationally regulated goods*, *Notice on the reporting of internationally regulated goods*, *Notice on the preparation of regulations for accounting for special nuclear materials*, *Notice on the quantitative management and inspection of specific nuclear materials*, and *Notice on education of nuclear control*.

Regarding import/export control, there are four notices including *Notice on Import/Export of Strategic*

Goods, Notice on the subject of internationally regulated goods, Notice on the reporting of internationally regulated goods, and Notice on Integrated Announcement.

In order to maintain nuclear transparency, safeguards are reflected in the *Nuclear Safety Act*, physical protection is reflected in the *Act on Measures for the Protection of Nuclear Facilities, etc. and Prevention of Radiation Disasters*, and import/export control is reflected in the *Nuclear Safety Act* and *Foreign Trade Act*, and all examinations and inspections are performed according to the related laws.

3. Problems of current legal system related to nuclear control

The scope and contents of nuclear control are unclear as there is no definition of nuclear control, safeguards, and accounting management of nuclear materials in the current *Nuclear Safety Act*. As provisions related to nuclear control are scattered in the *Nuclear Safety Act*, *the Act on Measures for the Protection of Nuclear Facilities, etc. and Prevention of Radiation Disasters*, and *the Foreign Trade Act*, there is a lack of relevance among statutes.

Although safety measures and safeguards are different in terms of their tasks and characteristics, by inserting the provisions of safeguards in the *Nuclear Safety Act*, the term safety measures may be used in a double sense, leading to confusion or misunderstanding in Korean language.

It is necessary to establish a legal system for the implementation of international norms such as the *Convention on the Physical Protection of Nuclear Material(CPPNM)* / *International Export Control Guidelines, etc.* to improve security vulnerabilities of nuclear facilities and manage nuclear power plant export activities.

3.1. Problems related to nuclear control under the current laws

As a matter of nuclear control in the *Nuclear Safety Act*, only safety management according to research, development, production, and use of nuclear power is prescribed in the Purpose Clause of Article 1, so the part of nuclear control (physical protection) is not fully reflected. There are no provisions concerning "safety measures" and "physical protection" in the definition of Article 2.

In relation to the establishment of a comprehensive nuclear safety plan under Article 3, the physical protection of nuclear power plant facilities is unclear.

While it is said that matters concerning the establishment and operation of nuclear safety specialized institutions under the supervision of the Nuclear Safety & Security Commission shall be separately prescribed by law, the Korea Institute of Nuclear Nonproliferation and

Control (KINAC) prescribed in Articles 6 and 7, which are not systematic.

In addition, Article 6 stipulates the establishment of the Korea Institute of Nuclear Nonproliferation and Control (KINAC) to efficiently implement safeguards and import/export controls on nuclear-related facilities and nuclear materials, the provision of "physical protection" is omitted and leaves out the analysis of nuclear activities of neighboring countries in Article 7.

As a matter of physical protection in *the Act on Measures for the Protection of Nuclear Facilities, etc. and Prevention of Radiation Disasters*, the purpose and definition of Articles 1 and 2 stipulate that only nuclear materials and nuclear facilities are subject to management, and radioactive materials are excluded from physical protection. In relation to the responsibility of nuclear power plant operators for physical protection in Article 9 of the same Act, it is pointed out that there is a gap in the physical protection work from the site selection of nuclear power plant facilities to the completion of nuclear power plant facilities.

3.2. A gap in the physical protection regulatory system before the operation of nuclear power plant facilities

In the *Act on Measures for the Protection of Nuclear Facilities, etc. and Prevention of Radiation Disasters*, physical protection regulatory system is established and physical protection regulations are approved for physical protection of nuclear materials and nuclear facilities, and the inspection system for nuclear power plant facilities, etc. is implemented.

In addition, it can be seen that the post-physical protection regulatory system related to the operation of nuclear power plant facilities has been legislated to some extent by imposing various duties such as education and training.

However, in that the provisions on physical protection in the *Act on Measures for the Protection of Nuclear Facilities, etc. and Prevention of Radiation Disasters* are applied 5 months before the operation of a nuclear power plant., physical protection must be carried out from the design of the nuclear power plant to the completion of the construction before that. In addition, the *Nuclear Safety Act* does not specifically stipulate these matters.

In other words, it is pointed out as a problem in that there is a difference in the timing of permission of safety and approval of physical protection of nuclear power plant facilities. Specifically, the period of permission (Articles 10 and 20) for the construction and operation of nuclear facilities under the *Nuclear Safety Act* and the approval period for the physical protection under the *Act on Measures for the Protection of Nuclear Facilities, etc. and Prevention of Radiation Disasters* (Articles 9 and 20) are different. The problem is pointed out that the license system of the *Nuclear Safety Act* requires nuclear business operators to consult with regulatory agencies from about 10 years before operation, whereas the

approval system of the *Act on Measures for the Protection of Nuclear Facilities, etc. and Prevention of Radiation Disasters* requires nuclear business operators to consult with regulatory agencies about 5 months before operation.

Therefore, there is no regulatory action for physical protection in the site selection, design, and construction stages of nuclear power plants. As a result, physical protection regulations are not reflected in the design and construction stages of nuclear power plants, and the physical protection is excluded from safety analysis reports and examinations of nuclear power plant facilities.

4. Direction of Improvement of legal System related to nuclear control

Under the premise of converting the nuclear safety legal system from the current single law system to an individual law system centered on *the Framework Act on Nuclear Safety*, the items to be included in the *Act on the Implementation of Nuclear Non-Proliferation and Nuclear Security* (tentative name) were reviewed.

In order to properly respond to the rapidly changing nuclear environment, it is necessary to secure Korea's nuclear transparency to the international community, and to reorganize the legal system to support this.

It is necessary to integrate the three major measures of safeguards, import/export control, and physical protection, which are dispersed in the *Nuclear Safety Act*, the *Foreign Trade Act*, and the *Act on Measures for the Protection of Nuclear Facilities, etc. and Prevention of Radiation Disasters*, so that they can be organically linked.

Additional provisions regarding clarification of concepts such as safeguards and nuclear security, establishment and implementation of nuclear control plans, subjects and reporting of safeguards, information collection and analysis on import and export transactions, establishment and operation of an information system for import/export management of internationally regulated material are required.

5. Conclusion

In order to improve the nuclear safety legal system, it is necessary to separate the current nuclear safety law by classifying it according to the subject and function of regulatory management. It is desirable to maintain a specialized and subdivided legal system for each work field while each individual law is connected with the basic law as the center.

In order to secure the consistency of the nuclear non-proliferation/nuclear security legal system, it is necessary to contribute to the enhancement of transparency in the peaceful use of nuclear power through the enactment of the *Act on the Implementation*

of Nuclear Non-Proliferation and Nuclear Security (tentative name).

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