

A Study on the Nuclear Nonproliferation Obligations of Nuclear Fuel Cycle Research Activities Funded by the Government

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1. Introduction

Recently, international community pays close attention to the nuclear fuel cycle research activities and IAEA also observes carefully those unreported activities of the respective member countries.

Korea has signed the full safeguards agreement and additional protocols to comply with the international nuclear nonproliferation regime. However, the difficulty lies for researchers in obeying international nuclear nonproliferation obligation due to current domestic legal system.

In this paper, nuclear nonproliferation obligations reflected to domestic laws will be reviewed and troubles and improvements for researchers to implement those duties when they conduct national R&D projects associated nuclear fuel cycle will be discussed.

2. Analysis of domestic laws

2.1 Nuclear Safety Act

Article 98 of the Nuclear Safety Act [1] stipulates the duty to report information for nuclear fuel cycle research activities funded by the government. It includes the specific report subject, the content of the research, procedures, outputs, the deadline and etc.

However, there is high probability for researchers to violate reporting obligations because there is no separate procedures to ensure that their national R&D projects are related to the nuclear fuel cycle. Therefore, they must determine the need for reporting by themselves. Furthermore, if researchers

use special nuclear materials, State Systems of Accounting for and Control of Nuclear Materials (SSAC) substitutes for the obligation to report research activities. Researchers should be well aware of these legal systems to fulfill their reporting duties.

In order to include researchers studying nuclear fuel cycle in the international nuclear nonproliferation regime, it is necessary to extensively inform the nuclear nonproliferation obligations by active outreach activities such as holding briefing session and distributing brochures containing related subjects.

2.2 Foreign Trade Act

Korea has implemented strategic export control under NSG Export Control Guidelines and Foreign Trade Act [2] since Korea joined NSG in 1995. In order to export nuclear-related materials, equipment and facilities corresponding to strategic items, it is necessary to obtain and the export license from the Nuclear Safety and Security Commission.

The revised Foreign Trade Act in 2015 put the intangible transfer of technology under strategic export control regime and it is required to acquire an export permit to provide education and training program for foreigners in Korea.

In case of participation of foreigners in national R&D projects associated with strategic technologies, it is highly possible to occur intangible transfer of technology. Hence, foreign students and researchers conducting national R&D projects related to strategic technologies should obtain export permits in advance

not to violate the Foreign Trade Act.

The Foreign Trade Act prescribes to obtain an export permit if research results are corresponding to strategic items and they are transferred to out of a country. Research results would be various form like equipment, technical data, design drawings, patents, and so on. Although the criteria for strategic items are stipulated at Table 2 in the Strategic Items Import and Export Notice, there is difficulty for researchers to determine whether their research result are relevant with strategic items.

Hence, it is strongly recommended for researchers to request classification service for their research outputs to specialized government organization, Korea Institute of Nuclear Nonproliferation and Control(KINAC), to ensure whether they need to get an export permit. Consequently, they can reduce the possibility of illegal export.

2.3 Framework Act on Science and Technology

In accordance with the Framework Act on Science and Technology [3], if National R&D projects handle manufacture, development, or use of strategic items, those projects should be designated as security projects. Security projects are required to prepare security measures that prevent to divulge research outcomes outside.

However, the procedure to designate security projects are arbitrary in current legal system because selection reviews of security projects follow non-mandatory provision. According to the Foreign Trade Act and Nuclear Safety Act, national R&D projects can be reviewed for relevance to security projects by Korea Strategic Trade Institute or KINAC only at researchers' request.

Therefore, some national R&D projects related with strategic items are highly likely to be classified as non-security projects, which do not need to prepare security measures, without any review

process. This arbitrary procedure can lead violation of both export permits under Foreign Trade Act and reporting obligations under the Nuclear Safety Act.

In order to remove loopholes in selection of security projects, it is necessary to make the abovementioned procedure to be mandatory obligations.

3. Conclusion

We have discussed nuclear nonproliferation obligations reflected to domestic laws for nuclear fuel cycle research activities funded by government.

It is analyzed that the duties of nuclear nonproliferation are divided into several laws and implementation procedures are not systematic.

In order to enhance the export control regime for nuclear fuel cycle research activities in current legal system, it is essential to strengthen outreach activities and control of intangible transfer of technology. In addition, mandatory procedures for selecting security projects should be established.

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