

An Analysis of Issues for the Implementation of Online Nuclear Nonproliferation Training

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1. Introduction

The INSA has run international and domestic education and training programs as an institution specializing in training human resources in nuclear nonproliferation and security. The domestic training programs include a compulsory program by law for nuclear fuel cycle-related researchers and the staff for nuclear material accountancy in nuclear facilities such as Nuclear Power Plant, Nuclear Fuel Fabrication, etc. The nuclear nonproliferation training program has played an essential role in improving Korea's transparency of nuclear activities. It contributes to enhancing awareness of nuclear nonproliferation among the related personnel.

The Korean government pays so much attention that it mandates this personnel to take the program and imposes fines on the organization with the person who does not complete the program. So, the nuclear nonproliferation training program is recognized as one of the legally important compulsory education in the nuclear field.

Nevertheless, the outbreak of Corona Virus Disease 2019 (COVID-19) worldwide has occurred huge changes in the education and training field. Because of the risk of infection, most international/domestic programs were postponed or held in the form of non-face-to-face education using internet platforms. These trends are expected to continue for a long time.

Considering the importance of the nuclear nonproliferation training program, this report reviewed the current status and legal system of the program and discussed the problems of the act related to conducting non-face-to-face education and its improvement measures for implementing of the program under the outbreak of COVID-19.

2. Legal Basis and Status of the Programs

KINAC has provided nuclear nonproliferation training program entrusted by the ROK since December 2005. The training is legally based on the Regulation, which is specified in the Decree on Nuclear Nonproliferation Training. The objective of the training is to ensure trainees are fully versed in international regimes on nuclear nonproliferation and fulfill their international obligations. Details of the Training Program are given in Table 1.

Table 1. Specific Status of nuclear nonproliferation training

Course	The course for personnel in charge of accounting for and control of special nuclear material at nuclear facilities		The course for project managers of nuclear fuel cycle-related research	
Legal Basis	-Article 106 (3) of the Nuclear Safety Act -Article 150 of the Enforcement Decree -Article 141 of the Enforcement Regulation -Regulation on Nuclear Nonproliferation Training			
Time	Introductory Program	16 H/Y	Introductory Program	8 H/Y
	Supplementary Program	8 H/Y	Supplementary Program	4 H/Y
Contents	-International Treaty and Regime on Nuclear Nonproliferation -Safeguards & Export Control -Current issues on Safeguards & Export Control			
Program Form	-Theoretical and practical training is possible -Attendance training only (remote education is not allowed) - Introductory program has the exam			
No. of Trainees	- Introductory Course: about 40 P/Y - Supplementary Course: about 160 P/Y			

3. An Analysis of Problem for holding Non-Face-to-Face training

Because of the outbreak of COVID-19, many compulsory programs in the ROK have been changed from the form of face-to-face to that of online. Online education has advantages in terms of prevention of the corona-19 virus spread among participants; it can also be an alternative to holding the training.

However, the transformation of nuclear nonproliferation training from face-to-face education to online education has issues that need to be addressed in the viewpoint of legal, content volume, and training management.

3.1 Legal Issue

The Regulation on Nuclear Nonproliferation Training addresses the details on the implementation of the training. Article 8 of the Regulation stipulates that the training is implemented as the form of face-to-face. So, the amendment of this article is the prerequisite for the implementation of online training. Table 2 shows the current status and the amendment of Paragraph 3 of Article 8 of the Regulation.

Table 2. The amendment of Paragraph 3 of Article 8 of the Regulation for online training

Current Status	The Amendment
<p>③The Nuclear Nonproliferation Training is implemented as the form Face-To-Face, and a score of at least 60 out of 100 points shall be considered to have completed the training, but a re-examination may be held if the score is below 60. In the supplementary course, the test is not conducted.</p>	<p>③The Nuclear Nonproliferation Training is implemented as the form Face-To-Face and Online and ~~~(As same as the left) ~~~</p>

There are some issues to be considered before the amendment for effective online training. The Regulation stipulates that participants for the introductory course must take an examination at the end of the course and obtain a score of at least 60. Therefore, it is important to prevent substitute exam-takers when conducting online training. It is also important to find ways to maintain as much concentration as face-to-face training.

3.2 Online-Content Issue

The Enforcement Rules of the Nuclear Safety Act stipulates the time of completion of Nuclear Nonproliferation Training. Each course varies from 240 to 960 minutes. However, the volume of contents listed on the KINAC E-learning platform for the training is about 270 minutes. Therefore, it is essential to create an additional volume (at least 690 min.) of online content for comprehensive online training.

The contents should reflect the curriculum of face-to-face training contents and do not overlap with existing E-learning contents. Table 3 shows the contents which should be added to the platform to fulfill the obligated time. The additional contents were selected from the other KINAC domestic training based on the preference from participants.

Table 3. The Contents Status for the Training of KINAC E-learning Platform

Contents	Time	Status
The concept of nuclear nonproliferation	270 (Min.)	completed
International Nuclear Nonproliferation Regime		
Nuclear Control System in Korea		
The concept of Safeguards and IAEA Safeguards System (I)		
The concept of Safeguards and IAEA Safeguards System (II)		
National Safeguards System		
Export Control of Nuclear Material (NM)		
The concept of Export Control in Nuclear Nonproliferation		
IAEA Safeguards Verification Activities		
The concept of Export Control and International Regime		
Domestic Nuclear Export Control System (I)	680 (Min.)	incompleted
Domestic Nuclear Export Control System (II)		
Exercise on Nuclear Material (NM) Accounting and Reporting		
AP Declaration		
International Cooperation in Nuclear Nonproliferation & Security		
The history of WMD	960 (Min.)	
Current Issues in Domestic Nuclear Export Control		
Total	960 (Min.)	

3. Conclusions

Nuclear nonproliferation training is a unique compulsory program that is not conducted in advanced countries in nuclear nonproliferation. It has played a key role in improving the transparency of nuclear activities in Korea.

This report addressed expected issues for conducting the online form of the training. Many experts predict that the COVID-19 situation will continue in the future. So, it is important to establish a system in which the training can be carried out under any circumstances, and online training can be a good alternative under this COVID-19 situation.

For the effective implementation of the online training, revising laws and securing sufficient online

content are considered important factors that must be implemented first.

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