

## **Review on the Practices of Public Engagement in Nuclear Safety and Challenges**

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### **1. Introduction**

In the recent years, there has been growing public anxiety against nuclear safety in Korea due to domestic and foreign nuclear and radiation related accidents and events such as the tragic accident at Fukushima Daiichi NPP, decision on the continued operation of Wolsong unit 1 and court judgement on its revocation, and the earthquake took place in Gyeongju area last year. With such event taken place, the public and the media expressed overflowing negative view on nuclear safety, as well as on the transparency and expertise of the regulatory decision made by the regulatory authority, building up inseparable relation with the issue of information disclosure.

By paying due regard that nuclear safety is no longer considered as the sole domain of experts, but an issue also goes far beyond the everyday life of the public, the issue of information disclosure or public engagement needs to be actively considered in more practical level. Furthermore, it is essential to continuously seek for the better way to gather public opinion including that of local residents, during the processes of discussing nuclear safety issues. To enable such initiative, it needless to say, is crucial that how information disclosure system and opinion gathering process are established and operated. Yet, it should not be overlooked that understanding what information the public seeks, and what opinions the public would want to propose should come first.

With such enlarged public concern against and interest in nuclear safety issues, the regulatory body is currently fully engaged in public information disclosure and public engagement. In this paper, activities regarding public engagement including policy direction, establishment of relevant frameworks, and the way forward will be presented.

### **2. Paradigm shift of public engagement**

The accident took place at Fukushima Daiichi was a major turning point for the paradigm towards public engagement. Prior to the accident, the main activities that carried out under the title 'public communication' or 'information disclosure' were persuading and explaining nuclear safety related matters. In other words, the public engagement used to be one-way communication; informing, educating, or sharing information with public. However, after the accident, with growing public interest and concern towards nuclear safety that affects everyday life, the public began to consider themselves as stakeholders who should also take part and have influence to the decision-making processes. Therefore,

under the concept of public engagement nowadays, the public would no longer be the object of unidirectional information disclosure, but the party practically engaging, through two-way dialogue, in the decision making processes by debating, providing feedback, etc.

The paradigm shift of public engagement also brought changes and, thus, challenges to the regulator especially for their role in public engagement. As the source of the trusted and impartial information, the role of independent regulator has gotten more important. Specifically, openness and transparency is no longer a recommended option for the regulator, but became a key trait of a trusted regulator. Additionally, the establishment of process and rationale of public engagement, who and what should be included and when to include, has emerged as a challenge to the regulator.

Furthermore, the Nuclear Safety and Security Commission (NSSC) and the Korea Institute of Nuclear Safety (KINS) set transparency as a core organizational value. Having regard to the core value as the basis of the regulatory tasks, NSSC and KINS are actively engaged in information disclosure and public communication to leave no doubts throughout the regulatory processes. For instance, major regulatory actions are taken after the deliberation of the Commission, all matters discussed in the Commission meetings are open to the public, and the public can participate in the Commission meetings as observers.

### **3. Institutional basis**

To better cope with the changes in the public engagement initiative, institutional basis such as policy direction, legal basis has been established.

#### *3.1. Establishment of national policy direction*

The national policy direction towards public engagement was further strengthened in 2016 as a part of the 'Second Comprehensive Nuclear Safety Plan for 2017-2021'. The plan is consisted of 7 strategies and 21 main tasks. Among the strategies and tasks, the plan provides national policy direction for public engagement as follows; improve transparency through information releases and other communication means by releasing nuclear safety information in an active manner, and arranging communication opportunities with the public in an active manner. [1]

With the policy direction acting as the backbone, relevant legal framework is in place to ensure, in systematical level, the transparency and openness of

regulators. As well, through diverse channels, public engagement or communication is being actively implemented. The detailed information for the diverse channels of public engagement or communication will be provided further later in this paper.

### *3.2. Legal basis for public engagement or communication*

In January 2015, article 103 'Gathering consensus from residents' of Nuclear Safety Act (NSA) was amended to require a person or applicant who intends to obtain a permit or approval of construction permit (CP), operating license (OL), continued operation (CO) or radioactive waste management facilities, and who intends to obtain approval of decommissioning of reactors and facilities to make a draft report available to the public, hold a public hearing and incorporate residents' opinions into the reports.

Also, article 103-2 'Obligation of active disclosure of nuclear safety information' of NSA was newly established in June 2015, requiring NSSC to make public in an active manner the results of reviews and inspections for construction permit and operating license of nuclear utilizing facilities to further promote and ensure public safety. As to specifically provide the target and method of proactive information release accordingly, 'Enforcement decree of the NSA' was amended and relevant NSSC notice was established. The Enforcement decree requires the following documents to be made public proactively, even without the public's request; documents for application of construction permit, operating license, or continued operation, review reports of CP, OL, or CO, inspection report, environment monitoring report, maritime environmental assessment report, and etc. As well, as a method for such information disclosure, 'Nuclear Safety Information Center (NSIC)' was established and currently being operated. [2]

The 'Rules on operation of NSSC meeting' was also amended to require disclosure of shorthand report, and the meeting minutes as well as the procedure of disclosure. Furthermore, as a part of the transparency and openness initiative, the public can apply to attend and observe the meeting by submitting application form 24 hours prior to the meeting, and getting permission from the chairman.

## **4. Diversified channels**

The public engagement and communication initiative is being carried out through diverse channels either in the forms of information disclosure and the voluntary participation of the public.

### *4.1. Local Nuclear Safety Councils*

With the purpose of establishing a communication system for nuclear safety among NSSC, KINS, local

governments and local residents, Nuclear Safety Councils (NSC), currently 7 NSCs in total being operated in the regional basis, Kori, Shin-kori, Wolsong, Youngkwang, Gochang, Daejeon, were established and being operated. The role of the NSCs are information exchange and consultation on the issues related to nuclear safety, nuclear accident, radioactive waste, consultation on issues raised by local residents, and other nuclear safety related matters that need to be explained to the residents.

The each NSCs is composed of less than 20 members, NSSC and local government officials, experts from KINS or those who are recommended by local government, and local resident representatives. The regular Council meeting is held in quarterly basis, and if there is any urgent matters or issues to be discussed, the chairman can call upon a temporary meeting.

Moreover, along with the meetings, the NSSC and KINS are subjected to the provision of the information related to the safety of relevant NPPs located in the region to the local residents.

### *4.2. NPPs private environment monitoring organization*

According to the 'Act on assistance to electric power plants neighboring areas', five local 'NPPs private environment monitoring organizations' in Kori, Shin-kori, Wolsong, Youngkwang and Ulchin area, were established and being operated. The organizations carry out programs including survey and research activities necessary for the development of the neighboring area, its environment and security management, and the advancement of the development of electric power resources.

The each NPPs private environment monitoring organization is composed of security management committee and security management center. The Committee is constituted of less than 20 members from officials, experts, and local residents recommended by civic group, city council and residents. The security management center can be composed of less than 7 qualified or degree holding members.

The regular meeting is being held in bi-annual basis, and temporary meeting can be held upon the request of the chairman.

KINS holds the forums and training programs with NPPs Private Environment Monitoring Organizations. [3]

### *4.3. Education and training program for public*

KINS is providing safety experience courses to the target audiences of school teachers, students and their parents, university students, etc., with the focus of providing basic and general information of nuclear power generation, radioactive waste management,

emergency preparedness, etc., to promote public awareness about nuclear safety.

The experience course is being operated with 2 day schedule, classroom training and field trip to NPPs or nuclear related facilities such as national research lab, etc., to provide firsthand experience of safely operated nuclear facilities. In 2015, total of 74 programs were carried out and more than 3500 participants from the public attended the course.

#### *4.4. Operation of Nuclear Safety Information Center*

As briefly introduced at Article 3.2 of this paper, Nuclear Safety Information Center (NSIC) was established as a method for proactive information disclosure. NSIC is an online portal being operation for comprehensive collection and release of safety information.

Furthermore, NSIC not only collects and disclose nuclear safety related information including its quality control, but it also has a function of preparing policies and standards for active information disclosure, as well as answering the inquiries raised by the public on the online portal.

The information being provided through the online NSIC portal are as follows: survey on stress test, real-time environmental radiation level, performance indicators, legislation, report of latest regulatory activities, safety information regarding nuclear installation, radiation monitoring, emergency preparedness, wastes, spent fuel, news briefing, etc.

#### *4.5. Operation of Social network services*

Along with the NSIC, the NSSC is also actively engaged into online public information disclosure. The NSSC is operating and updating its blog which is with the average daily visit of over 2,100. The primary purpose of the blog is to provide nuclear safety related information in more general manner so that the public can easily access and understand the disclosed information. The blog is also linked to the official NSSC web-site for those who seeks for further detailed information.

The information being posted on the blog are as follows: Meeting minutes of commissioners, General information regarding regulatory framework and process, Explanation of regulatory issues, Information sharing of government policy besides nuclear, Real-time monitoring of environmental radiation, Graphic information.

#### *4.6. Provision of real-time environmental radiation monitoring level*

KINS is operating online web-site, IERNet and a smartphone application, eRAD@NOW which provides real-time nationwide environmental radiation monitoring level. Both IERNet and eRAD@NOW are open to the public.

#### *4.7. Participation of civic team to stress tests*

After Fukushima accident, stress test on operating NPPs has been carried out globally to evaluate plant response to extreme natural hazards exceeding design basis as a way to reassess the safety of operating NPPs.

In Korea, pilot stress test on Kori unit 1 and Wolsong unit 1 has been carried out to evaluate coping capability of the target NPPs against extreme natural disasters beyond the design basis, and there are plans to gradually expand the scope of stress test to all operating NPPs in Korea.

The public is engaged in the review process for the stress test. The review for stress test is being carried out through 3-step approach; self-assessment by operator, expert review, and report to the NSSC. During the step of expert review, not only experts from KINS, but also civic expert team reviews the result of the self-assessment carried out by the operator. Furthermore, with the purpose of ensuring the objectivity and transparency of assessment result, the local residents and NSC of the area are being briefed with the assessment result, as well as being opened to the website.

#### *4.8. Joint exercises of radiological emergency preparedness and response*

As stipulated in the Act of Physical Protection and Radiological Emergency (APPRE), joint exercise of radiological emergency preparedness and response are being organized by local government in every two years to enhance emergency response capability of local government and to improve the effectiveness of resident protective measures through voluntary metropolitan measures.

## **5. Conclusion and Challenges**

Under the present concept of Public Engagement, anyone who is involved in or affected by a course of a regulatory action, and not only the ones who support or express confidence, but also those who object or offer criticism against nuclear safety are involved. Furthermore, the public engagement initiative are pursued not only by means of typical outreach activities or press release through web sites, SNS, brochure, books, etc., but also regulators' activities and decisions are currently actively disclosed in such forms of provision of meeting minutes, shorthand, expert reviews, public hearing, etc.

In order for the Public Engagement initiative to be effectively carried out, those who are involved should take part in a decision making process, not by providing afterthoughts after any decision is made.

Transparency and openness are the cornerstone of a regulator as the strong and trusted source of information. Under the endeavor to be a stronger and trusted regulator, public engagement initiative can be an effective tool for ensuring transparency and openness. As well, a regulator shall be effectively independent to ensure being an objective and impartial source of information.

Nowadays, regulatory missions can only be accomplished through proactive and active public engagement when we open the process, listens to opinions, and get feedback from others, and cooperate as partners who work with and make decision together.

However, there still remains some challenges we need to thoroughly consider to make public engagement initiative more effective; to what extent, how to leverage, and how to address differing standards of accountability.

#### **REFERENCES**

- [1] NSSC, Second Comprehensive Nuclear Safety Plan, 2016
- [2] NSSC, Nuclear Safety Act, Article 103, 2015
- [3] MOTIE, Act on Assistance to Electric Power Plants-Neighboring Areas, Article 10, 2011