

2014 International Physical Protection Advisory Service (IPPAS) Mission to the Republic of Korea (ROK)

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1. Introduction

On 21th March 2012, the Nuclear Safety and Security Commission (NSSC) formally requested an IPPAS mission to assess the physical protection regime of the ROK and the physical protection system (PPS) at selected facilities and for the transport of nuclear and other radioactive material (RM). This was announced at the 2nd Nuclear Security Summit, held in Seoul on 24th to 25th March 2012.

The IPPAS program, initiated in 1995, is an essential part of the IAEA's efforts to assist States in establishing and maintaining an effective physical protection regime of nuclear and other RM and associated facilities and activities. This program is based on the requirements set out in international instruments and International Atomic Energy Agency (IAEA) recommendations and guidance.

The IAEA IPPAS mission to ROK was held in Daejeon during two weeks 24th February to 7th March 2014 following a request of the Government of the ROK, covering all five modules, that reviewed the nation's nuclear security, the PPSs at Nuclear Power Plant (NPP) and Research Reactor (RR), also the security arrangements applied to the transport of nuclear material and RM, and to the computer systems.

This paper will provide the preparation activities surrounding the IPPAS and outcomes from the IPPAS mission to ROK.

2. Background of IPPAS

The IPPAS program is not regulatory inspection, it is intended to be a peer review of the State nuclear security regime conducted by a team of international nuclear security and other relevant experts who will also use their extensive experience and international guidance to suggest improvements to that system. An IPPAS mission will be initiated only after has been approached formally by an interested State at the appropriate governmental level. The scope of each mission will be as agreed between the host country and the IAEA.

The IPPAS missions have two objectives. First, the national competent authorities and operators can assess their nuclear security regime, the physical protection

system and implementation of international obligations, guidance and international best practices. Second, key staffs of the national competent authorities, operators and nuclear security specialists from other countries can have opportunities to broaden their experience and knowledge in their own field.

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Finally, the implementation of recommendations and suggestions presented by the IPPAS mission is strongly encouraged, but the decisions to do so is at the discretion of the relevant authorities of the host country.[1]

3. IPPAS mission to ROK

The objective of 2014 IPPAS mission to ROK is to make an assessment of ROK national protection regime of nuclear material and other RM and associated nuclear facilities and activities in the ROK, and its implementation at a NPP, as well as for related transports, and to compare the procedures and practices in the ROK with the Convention on Physical Protection of Nuclear Material (CPPNM) and its 2005 Amendment, the IAEA recommendations NSS No.13 (INFCIRC/225/rev.5) and other relevant Nuclear Security Series (NSS) guidance documents.

The scope of the IPPAS mission to ROK was broad and covering all five modules. The State level review covered the legislative and regulatory framework, regulatory practices and coordination between organizations involved in physical protection. The facility level review covered the PPSs at Hanbit NPP, operated by Korea Hydro and Nuclear Power Company (KHNP), at the High-flux Advanced Neutron Application Research Reactor (HANARO) operated by the Korea Atomic Energy Research Institute (KAERI). The transport review covered the PPS in transport of nuclear fuel from Korea Electric Power Company's Nuclear Fuel Fabrication Facility (KEPCO NF). The security of RM review covered the legislative and regulatory framework and PPS of the Advanced Radiation Technology Institute (ARTI) of KAERI. The computer security review covered the cyber security at Hanbit NPP operated by KHNP.

In order to prepare for the IPPAS mission, the ROK formed a IPPAS Task Force Team (IPPAS TF Team) with technical experts for each areas. The IPPAS TF Team had conducted self-assessment using IPPAS guideline and INFCIRC/225/rev.5. In this process, IPPAS TF Team could confirm and check PPS of each areas and found insufficiencies. The IPPAS TF Team made a plan to supplement insufficiencies.

A preparatory meeting was held on 18th to 19th July 2013. In this meeting, the ROK government and IAEA discussed a IPPAS mission plan including date, scope, schedule, logistics, documents, confidential issues and financial issues. And then, IPPAS TF Team prepared Advance Information Package (AIP), relevant laws and regulations, licensing procedures, facilities specific information and list of all documents relevant to nuclear security not including confidential information.

The IPPAS mission team was composed of eight international experts from six member states and IAEA. The IPPAS TF Team prepared and provided presentations to explain physical protection in ROK in detail. The following topical areas were covered during the presentations:

- National Review
 - Nuclear Activities Overview
 - Legal Framework
 - Nuclear Security Regime
 - Cooperation with Other Organizations
 - Physical Protection Implementation
 - Nuclear Security Culture
 - Nuclear Security Training Program
- Facility Review (NPP)
 - PPS Overview
 - PPS of Hanbit NPP
 - PPS Equipment and Maintenance of Hanbit NPP
 - Guards and Response System
- Facility Review (RR)
 - PPS for HANARO Research Reactor
- Transport Review
 - Transport Review
- Security of RM Review
 - Security of Radioactive Source
 - Security of ARTI's Irradiation Facilities
- Computer Security Review
 - National Computer Security
 - Computer Security of KHNP
 - KHNP Cyber Security Center

4. Result of IPPAS mission to ROK

A site visits were conducted to the Hanbit NPP, HANARO RR, ARTI facility and Cyber Security Center (CSC). And some of members of IPPAS mission team observed transport of nuclear fuel from KEPCO NF to Hanbit NPP.

By assessment of the IPPAS mission team, nuclear security within the ROK has been significantly

enhanced during recent years. The in national review, a very important development is the creation of the NSSC and its technical support organizations such as KINAC and KINS. And another development is the significant increase in education, training and testing capabilities by the establishment of the International Nuclear Nonproliferation and Security Academy (INSA).

In the other reviews, response capabilities based on the graded approach available at the nuclear facilities are strong and well-coordinated. And implementation of security measure during transport of nuclear material is very strong and well-established.

A total of 17 good practices have been identified by the IPPAS mission team. The IPPAS mission team concludes that a mature and well-established nuclear security regime exists within the ROK for protection of nuclear material and radioactive sources. Furthermore, it appears that implementation of physical protection measures in place or being developed at the facilities visited exceeds international guidelines in some cases.

Some recommendations and suggestions have been made while IPPAS mission to ROK. The recommendations and suggestions address such as better defining graded protection levels for sabotage of nuclear materials or nuclear facilities on the basis potential consequences of sabotage and so on. All the recommendations and suggestions have been kept in 'official use only' for information security of nuclear facilities. An action plans for improving the recommendations and suggestions have been drawn up and are being implemented.

5. Meaning of IPPAS mission to ROK

IPPAS mission to ROK has three significances. First, in preparing for the IPPAS mission, the IPPAS TF Team conducted self-assessment and implemented to review physical protection regime in ROK. In this process, a lot of things related to physical protection in ROK were improved and arranged by IPPAS TF Team.

Second, the ROK is the 40th State to receive an IPPAS mission. The ROK is one of the first countries to request that the IPPAS mission include a comprehensive review of the national physical protection regime and include all five IPPAS modules. And ROK has become the first Asian country to host IPPAS mission.

Third, the ROK had succeeded to live up the former president's pledge by finishing the IPPAS mission before the 2014 Hague Nuclear Security Summit.

6. Conclusions

The IPPAS mission to ROK was a great opportunity not only to review the physical protection regime of ROK, but also to exchange views on ways to enhance international nuclear security. Before follow-up mission, there will be some improvement issues for upgrading recommendations and suggestions from IPPAS mission. By continually managing the results of 2014 IPPAS

mission to ROK, it will be desirable to meet with good results in post-IPPAS mission to ROK.

REFERENCES

- [1] International Physical Protection Advisory Service (IPPAS) Guidelines, November, 2012
- [2] International Physical Protection Advisory Service (IPPAS) Mission Report : Republic of Korea, June, 2014