

## **Perspectives on the International and Internal Nuclear Security Regime**

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### **1. Introduction**

The term, 'Nuclear Security' became more familiar to Korean public after the government hosted 2012 Seoul Nuclear Security Summit.

Nuclear Security is prevention of, detection of and response to criminal or intentional unauthorized acts involving or directed at nuclear material, other radioactive material, associated facilities, or associated activities [1]. Nuclear Security includes physical protection, security of radioactive sources, nuclear forensics, nuclear smuggling prevention, border monitoring, and cyber security with regard to nuclear and other radiological materials.

This abstract will review recent international trends and discuss the nuclear security regime in the Republic of Korea (ROK).

### **2. International Nuclear Security Regime**

#### *2.1. Current International Trends*

Three consecutive nuclear security summits [5-7] and the final Chicago summit planned for 2016 have given notice to world leaders, presidents and prime ministers to this particular issue. Thus the international supports for nuclear security have been strengthened. Many states have ratified important international conventions on nuclear security, built education and training centers, and increased endowment to the IAEA nuclear security fund.

Second, the concept of nuclear security has evolved and expanded. Nuclear forensics and cyber security at nuclear facilities recently entered the area of nuclear security, and are now given the strong attention by the international community. At the first Washington Summit in 2010, Nuclear Security meant systems and measures to prevent a catastrophic disaster by an improvised nuclear weapon by a terrorist group. However, through the Seoul and Hague Summits, this concept was expanded to measures against sabotage of nuclear facilities and measures against intentional contamination by the disposal of radioactive sources.

Third, international framework and cooperation have become more important in enhancing nuclear security globally. Nuclear Security is the sovereign area of individual state. States, however, have a consensus that international cooperation is necessary to counter global threats of nuclear terrorism.

Finally, nuclear security culture and capacity building has been strengthened. Many States do not have a nuclear security infrastructure which includes education and training. This is easier to achieve compare to ratifying conventions and establishing laws as well as regulatory regimes.

#### *2.2. Perspectives on near future*

The most important international instrument in Nuclear Security is the IAEA's Amended Convention of Physical Protection of Nuclear Materials (CPPNM). This would likely enter into force in near future, hopefully in 2016, the year of the Chicago Summit. It will have a major impact on the international community. In particular, the IAEA will have a legal basis for its activities of Nuclear Security.

After 2016 Chicago Summit, the strong momentum would likely decrease. The Nuclear Security Summit was initiated by President Obama of U.S.A. by hosting the 2010 Washington Summit. The objective of the summit is securing all vulnerable nuclear materials around the world and many fruitful results has been achieved from 2010. Representatives of States, diplomat, experts, regulator, and operator would feel that the work is over.

Thus, the international community needs to establish a new 'Global Nuclear Security Governance after summits'. The governance is a mechanism to sustain global efforts in nuclear security. The IAEA and the Global Initiative to Combat Nuclear Terrorism (GICNT) would take a leading role.

### **3. Nuclear Security Regime of the ROK**

While the ROK took a leading role in international nuclear security by hosting the 2012 Seoul Summit, the domestic nuclear security regime has been continuously reviewed and renovated to meet international standards.

International Nuclear Non-proliferation and Security Academy (INSA) was established in February 2014. As a member of IAEA's Nuclear Security Support Center network, INSA has successfully hosted international, regional and domestic trainings courses.

The ROK accepted the IAEA's international physical protection advisory service (IPPAS) to review the nation's nuclear security regime in 2014. This service valued the high standard of nuclear security of ROK, and suggested good practices to strengthen its regime.

(○: Good, Δ: Under working, ×: Bad)

International Recommendations	Regime of the ROK (2012.12)	Regime of the ROK (2015.4)
Law and Legislative Structure	Δ	○
Safety-Security Interface	×	Δ
Spent-fuel management	○	○
Transport Security	○	○
Incident Trafficking	×	Δ
Nuclear Forensic	×	Δ
Training and Exercise	Δ	○
Nuclear Security Culture	Δ	○
Cyber Security	×	○
Risk Management	×	Δ
Performance-based regulation	×	Δ
Insider Threat (NMAC)	×	Δ
Sabotage Protection	Δ	Δ
Central Alarm Station and Encryption of communication	Δ	Δ
Stand-off attack	×	Δ
Security of Radioactive Source	×	Δ

**Table 1. The change of Nuclear Security Regime of the ROK**

The changes in the Nuclear Security Regime of the ROK are depicted in Table 1. The left label in this table lists the international standards suggested in the summits [5-7] and the IAEA's Nuclear Security Series [1-4]. In most areas recommended by international community, the ROK satisfies them or has made a good progress.

This Table 1 is compiled based on my presentation of INMM-Korean Chapter in 2012 [8] and the report of IAEA's IPPAS on the ROK [9, 10]. In 2012, ROK concentrated on only the security of nuclear facilities to meet international obligations. In 2014, the IPPAS team recognized that nuclear security within ROK has been significantly enhanced during recent years. In particular, they mentioned the significant enhancements in areas such as Nuclear Security Culture and Cyber Threat.

## 5. Observation and Conclusion

The international Nuclear Security Regime has been strengthened. The upcoming Chicago Summit in 2016 and the entry into force of the Amendment of Convention on Physical Protection of Nuclear Materials (CPPNM) will bring major changes in nuclear security.

The Republic of Korea hosted the 2012 Seoul Summit and strengthened domestic regime to meet international standards. The ROK has worked hard to contribute to the international security regime and to establish a robust domestic security regime against terrorist threats. Even if the nuclear security regime is robust, Risk-informed Nuclear Security management should be established to meet international standards and to implement effective as well as an efficient nuclear security regime.

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