

## **Review of the Korean SSAC According to Changes in the Nuclear Environment**

Min Su Kim, Wan Ki Yoon, Kwan Kyoo Choe, Seong Youn Jo, Jae Bum Park  
*National Nuclear Control and Management Agency, 103-6 Munji-dong, Yuseong-gu, Daejeon, 305-732  
kms-nmca@kns.re.kr*

### **1. Introduction**

Korea has been maintaining efficient and systematic State System for Accounting and Control of nuclear materials (SSAC) for elevation of our nuclear transparency and reliability to international society. So far, Korean SSAC had been considered as a good example of SSAC together with Euratom, Japan, ABACC. But, owing to changing environment such as a series trial due to the KAERI's past nuclear material experiments, strengthened international non-proliferation scheme, advent of integrated safeguards and technology development in nuclear fields, voices of demand for changes in Korean SSAC are being brought up.

Therefore, this study grasped and analyzed international nuclear environment and direction of changes in nuclear control regime, besides re-examine the roles of Korean SSAC and proposed the direction where Korean SSAC should be shifted.

### **2. Changes in nuclear control environment**

#### *2.1 Strengthening of nuclear control*

Discovery of clandestine nuclear program and increasing threat of terror by non-state organization gave a chance to emphasize the reinforcement of existing nuclear control regime and necessity of information management as well as importance of SSACs. Limited resources of the IAEA made their interest turn to the improvement of efficiency as well as effectiveness of nuclear control. And, non-proliferation is being underlined so that proliferation resistance is considered as one of the requirement that should be met.

Due to these conditions, the IAEA and the international society are making an effort to universalize the Additional Protocol as international standard which can assure strong implementation of safeguards by establishing strengthened safeguards system. On the other hand, the IAEA is applying measures which can increase efficiency such as increased cooperation between IAEA and SSACs, and integrated safeguards utilizing the overall information collection and analysis. Further, advanced nuclear states are urging to adopt a proper measure for physical protection, implementation of severe export/import control and conclusion of the Additional Protocol stressing the relation between non-proliferation and peaceful use of nuclear energy.

#### *2.2 Nuclear control trend of each country*

Japan the only state that has full nuclear fuel cycle as a non nuclear weapon state, got ready for production of nuclear weapon within a few months potentially. This may be cause of anxious of near countries. However, Japan is making every endeavor for non-proliferation with faithful implementation of safeguards. So, the IAEA was able to reach all conclusions needed for the implementation of integrated safeguards in Japan.

In addition, plan for the Non-proliferation Center after the merger of JAERI and JNC with synergy effect in verification technology would show a strong will in non-proliferation and could be deemed as a purpose to lead international trend.

USA who is practically leading international non-proliferation regime is actively responding to the prevention of proliferation of WMD and terror with the declaration of Proliferation Security Initiative, and leads the nuclear control to the direction to limit the new nuclear fuel cycle elements as well as to strengthen the control of nuclear materials.

### **3. Necessity of shift in the culture of SSAC**

These trends could be restrictive element to the nuclear energy R&D and if there is no active movement against these trends, our nuclear energy technology development may be fettered to international demand in future.

Position and role of Korea as the 6<sup>th</sup> ranked nuclear country in nuclear power generation has been improved and expanded. So, it is necessary for Korea to fulfill the requirement of the international society to strengthen the non-proliferation regime. As provision of information pursuant to the Additional Protocol and Integrated Safeguards is extended and necessity for systematic independent management on every domestic nuclear materials and activities is demanded, it is more emphasized that progress in capability of SSAC to analyze the information is need.

That is why strategic movement according to the setting up an objective in technical, political and diplomatic aspects is important.

### **4. Direction of SSAC culture shift**

So far, Korean SSAC has been established focusing on the implementation of safeguards inspection to keep an obligation pursuant to the international agreement and to settle national inspection system. However, from now on, to reduce the State's burden due to the strengthened non-proliferation regime, cooperation between the IAEA and Korea SSAC should be

increased and for this, Korean SSAC should have political validity and be capable of producing technically valid results.

Under integrated safeguards system with the much greater nuclear transparency, political validity may be achieved. However, application of integrated safeguards requires political and diplomatic capability together with the faithful implementation of traditional safeguards. In order to enter into the integrated safeguards system, the core of the SSAC culture should be shifted to the fields of nuclear control policy, information management and verification technology development which were no more than a supplementary means until now.

In addition, independent verification technology of SSAC, that has integrity enough for the IAEA make use of SSAC inspection results to its safeguards conclusion, should be secured in order to prepare the verification on new technology fields and facilities where the IAEA could not prepared yet.

More and more investment should be given to the policy and planning part to establish procedures and measures to make independent conclusion of non-proliferation implementation. With independent evaluation and conclusion, vulnerable points could be grasped and supplemented so that Korea can keep pace with international standard and lead international trend to our advantage.

## **6. Conclusion**

In order to be acknowledged our specific conditions from the international society and keep pace with the international current and changing environment as mentioned above, SSAC culture should shift to the direction where information, research and policy related fields is expanded based on the existing implementation centered system which has one dimensional and quantitative characters.

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