A Review on the New Direction of IAEA Safeguards Policy – State Level Concept

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1. Introduction

IAEA safeguards has been evolved since its establishment in 1957. With the advent of NPT, IAEA safeguards has achieved a systematic structure equipped with the Comprehensive Safeguards Agreement (INFCIRC/153), which has made a great contribution to the preventing the proliferation of nuclear weapon. Under the CSA, a state is required to install SSAC which can provide nuclear material accountancy and support for the IAEA verification activities.[1] But the Iraqi and NK's clandestine nuclear programs in 1990s proved the imperfectness of the CSA and induced the development of Additional Protocol (INFCIRC/540).[2] The newly allowed verification methods like environmental sampling, complementary access enhanced the IAEA's capability to detect undeclared nuclear activities.[3] But those new measures also returned financial difficulties to the IAEA.

The IAEA has continued its effort to enhance the effectiveness and efficiency of safeguards while trying to overcome limitation of inspection resources. Recently, the IAEA proposed a new safeguards concept in the Board of Governors: State Level Concept. This is on the flow of IAEA safeguards evolution, and the IAEA is trying to persuade international community to accept this concept. Under the state level concept, the IAEA is to apply different safeguards measures on each country considering specific factors of the country, which is expected to bring drastic changes to current safeguards environment. The state like the ROK which depends largely on nuclear energy needs to review this news safeguards policy and establish counter measures to minimize probable impacts from it.

2. Background of Developing State Level Concept

SLC (State Level Concept) was introduced in 2004 SIR (Safeguards Implementation Report) in order to explain the Board members the necessity of new safeguards approaches to cope with the increase of verification demand and shortage in inspection budget without compromising safeguards effectiveness. IAEA seeks to find various measures to address new challenges arising from changes in safeguards environment, taking into account of previous inspection experience and the state of the art technology. Nevertheless, there are several principles to be abided by as following:

- Implementation by the safeguards agreement
- Non-discriminatory implementation
- Technically based implementation
- Effective and efficient implementation
- Independent safeguards conclusion

Basically, the IAEA safeguards implementation has been focused mainly on nuclear material and facilities declared by the state and based on the safeguards approaches for each type of facility. This is criteria based approach in which the frequency, scope and intensity of safeguards inspection are usually determined according to the facility type. With the introduction of the AP, the IAEA had some chance to upgrade its ability to consider the state as a whole, especially through use of increased information. The IAEA was able to enhance the safeguards efficiency through optimized safeguards measures from CSA and AP, and using site specific factor and relevant information. This way of implementation was called "Integrated Safeguards." The IAEA started to apply this new approach to the states with broader conclusions since 2001. Some safeguards activities in the level of state were reflected in the approaches, but the primary basis for safeguards implementation was still safeguards criteria for each facility type.

3. State Level Approach[4]

3.1 Generic and Technical Safeguards Objectives

The primary concern about the SLC is how to apply that concept without any discrimination. To avoid any misunderstanding from the state concerned, it is prerequisite to specify generic safeguards objectives common to all states. The IAEA presents generic state level objectives as following:

- To detect any undeclared nuclear material or activities in the state as a whole
- To detect any undeclared production or processing of nuclear material
- To detect any diversion of declared material

In order to address above generic objectives, the IAEA has to do some analysis of all possible paths for acquiring nuclear material, which is 'acquisition path analysis.' All the paths are prioritized according to the safeguards significance, and then technical objectives are established for each path. After prioritization of technical objectives according to the relative importance, safeguards measures are identified to suffice the technical objectives.

3.2 State Specific Factors

There are some factors which should be considered during preparation of state level approach, plan and conduct of safeguards activities as following:

- Type of safeguards agreement
- Fuel cycle
- Technical capability of SSAC
- Agency ability to implement specific safeguards measures in the state
- Cooperation scope and nature with the IAEA
- Agency experience

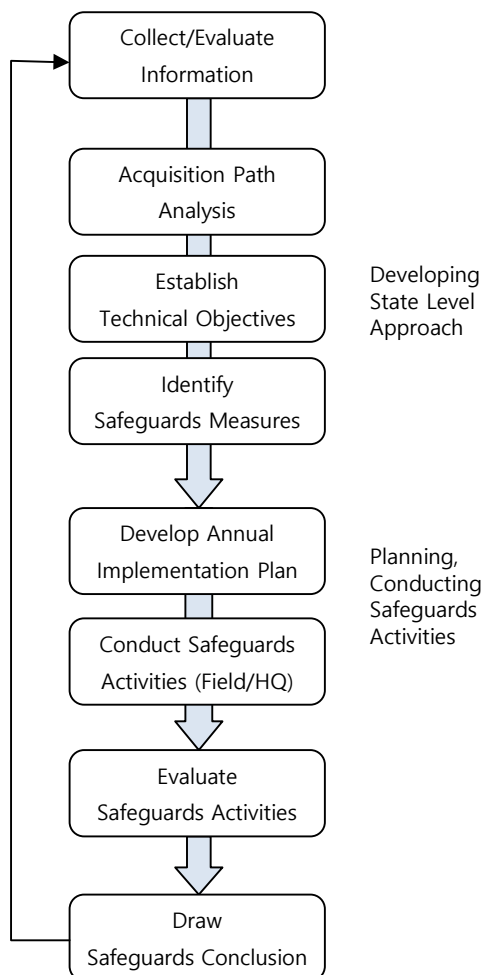*3.3 Implementing Process – Example for CSA state*

Fig.1. Process for SLA Implementation for CSA states

According to IAEA, SLC has been already applied to some clean states by state level approach which was developed by IAEA's state evaluation group. IAEA wants to expand the scope of SLC to all member states including INFCIRC/66 and even VOA states. The details for those countries cannot be same, but the overall process is not much different from the current SLA process.

The first step of SLA is to collect and evaluate information about the state. The IAEA uses wide range of sources including information provided by the state, acquired from inspection results, open source, or 3rd parties as well. The evaluation results of information are used to develop the next step: developing state level approach. As depicted in Fig. 1, the acquisition path analysis should be performed at first, and establishment of technical objectives and specifying pertinent safeguards measures are followed. During this step, IAEA is to discuss with the state about how to implement the safeguards measures. Once the state level approach is developed, the IAEA should prepare annual implementation plan with specific safeguards activities. The next step is to draw safeguards conclusions based on the results of safeguards activities and its own findings. Finally, the conclusions are to feedback for information evaluation step.

4. Review on Major Issues

From the point of view of IAEA, SLC can be a proper alternative to solve deficiency in inspection resources and maintain the effectiveness of its verification activities. With the current criteria based safeguards approach, IAEA uses unnecessary cost for the state without any diversion possibility. For the state with some hidden intention to develop nuclear weapon, the IAEA cannot assure non diversion of nuclear material with the criteria based approach. So this holistic approach is the right way to improve IAEA safeguards. Currently, there has been occurred serious discussion between member states about how to guarantee nondiscriminatory implementation, the objectivity of state factors, and scope of SLC application, etc. So it is expected that it takes somewhat long time before international community come to agreement on SLC. The current major issues are listed as following.

1) SLC Scope
2) SLC Legal Framework
3) State Specific Factors
4) Technical Objectives
5) Safeguards Relevant Information
6) Verification Effort
7) Measurement on SLC Effectiveness
8) Consultation with Member States

The questions and objections from member states about SLC are mostly about how the IAEA will proceed without any discrimination. Some countries express definite objection against the state-specific approach favored by the IAEA because it is not possible to remove discriminatory characteristic. Many countries requested that IAEA provide more information about what the state-level approach means and how it will be implemented.

Regarding state specific factors, most countries want to know how IAEA defines and uses those factors in preparing state level approach and selecting safeguards measures. The scope of SLC application is another

important issue because it is not clear SLC is just for the states with AP signed or all countries including countries with CSA, INFCIRC/66 type agreements.

Regardless of IAEA's efforts to progress discussions, a lot of member states still have concern about SLC itself.[5] This implies that IAEA needs to provide more information about the SLC and put an extra effort for communication with states. IAEA is preparing supplementary document to help enhance member states' understanding of SLC and is to release next Board of Governors meeting.

5. Conclusions

Under the changing environment, IAEA will continue its efforts to maintain the safeguards effectiveness and efficiency. The SLC can be understood in the context of IAEA safeguards evolution, but the impact cannot be neglected because it requires every state to be equipped with completely new paradigm. IAEA has already implemented integrated safeguards in the ROK which reflects the state level approach, so it is expected that there will not be much burden on state if SLC is applied. However, the SLC requires big changes in current safeguards system so the impact of SLC should be carefully examined and appropriate measures are to be prepared in advance.

REFERENCES

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