

A Study on Changes in the International Export Control Regimes and Measures for Strengthening Nuclear Export Controls

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I. Introduction

◆Changes in the Export Control Environment

- Rapid development of advanced technologies such as artificial intelligence(AI) and quantum computing
- Weakening influence of the existing four major export control regimes(WA, NSG, AG, MTCR)

Regimes	Items Controlled
WA	Conventional arms, dual-use goods and technologies
NSG	Nuclear materials, reactors, related equipment and technology
AG	Chemical substances, biological agents, dual-use equipment and technology
MTCR	Missiles, UAVs, related parts and technology

- Shift to export control based on cooperation among small countries

◆Objectives

- This paper analyzes the international environment and proposes appropriate measures in response to these changes in order to strengthen domestic nuclear export controls.

II. Analysis of changes in the export control environment

◆Features and Limitations of the International Export Control Regimes

- Cooperative body based on multilateralism
 - Structural limitations of inefficient and delayed decision-making
 - Some issues have not been agreed upon for more than 10 years and have been withdrawn
- Traditional weapon and technology-centric control regime
 - Difficulty in responding to rapidly advancing technological changes

◆Export Control centered on independent on small-scale cooperation between countries

- Prioritizing national security interests
- A flexible approach to responding to issues
- Strengthening export controls on technology

Topic	Description
U.S. ECRA (2018)	• Legally reinforced U.S. export control authority • Included emerging and foundational technologies such as AI and quantum technologies in control scope
EU Dual-use Regulation Rev. (2023)	• Strengthened control on advanced technologies such as AI and semiconductors • Incorporated policy-based controls related to human rights and cybersecurity
Emerging Small-Group Coop. Network	• Rise of strategic alliances like AUKUS and Chip4 • Preference for flexible and rapid-response frameworks prioritizing national security interests

- ✓ **Proposal to strengthen control through the introduction of ICP and conclusion of NCA**

III. Introduction of ICP

◆The Necessity of Operating the ICP Specialized for Nuclear Field

* ICP : Internal Compliance Programs

- Many countries operate the ICP to efficiently utilize human and other resources.
- ROK applies the ICP to dual-use items, but not to TL items.
- Due to differences in the scale of exporters and the export licensing system, it is not easy to apply the ICP for dual-use items to the trigger list items.

Category	Dual-use	TL
Scale	About 5,000	About 20
Type	• Manufacturing • Logistic-Trade • Academic-Research	• Public Corporation • Public Institute
Export Licensing System	• Individual License • Comprehensive License	• Individual License

- ✓ **The ICP tailored to TL items is needed**

◆The Examples of Incentives specific to TL items

- Allow self-classification for TL items
- Provide the emergency transfer system
- Extend the reporting period

IV. Strengthening export control through the NCA

◆Significance of the NCA

* NCA : Nuclear Cooperation Agreements

- Many Countries are implementing nuclear cooperation and export controls through NCAs.
- ROK has signed NCAs with 28 countries and supplementary administrative agreements with 4 countries.
- * The United States, Canada, Australia, The UAE

◆Changes in the export control environment

- There is a growing need to consider the NCA as an important.
- The existing NCA can be amended, or an administrative agreement can be signed to strengthen export control.

V. Conclusion

◆Suggestion

- This paper analyzes the limitations of the existing multilateral export control regime and proposes new measures to strengthen export control based on the ICP and NCA, considering the characteristics of the nuclear energy field.

◆Future Work

- Further research is needed to develop new cooperation methods or systems to strengthen export controls.