

## **Institutional Challenges for Implementing Security Cooperation Under the 2025 ROK-U.S. Joint Statement**

Yonhong Jeong\*, Byungmarn kho, Minsoo Kim, Gayeon Ha  
*Division of Nuclear Nonproliferation Policy, Korea Institute of Nuclear Nonproliferation and Control,  
1418 Yuseong-daero, Yuseong-gu, Daejeon 34101, Republic of Korea*  
*\*Corresponding author: jyh1404@kinac.re.kr*

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### **1. Introduction**

The Korea-U.S. summit held in Gyeongju on October 29, 2025, signified a pivotal moment in the evolution of the Republic of Korea's national defense and security strategy. President Lee Jae-myung and President Donald Trump reached a sudden agreement on South Korea's nuclear-powered submarine (SSN) construction project and officially announced a 'Joint Fact Sheet' to support it. This agreement is regarded as a strategic decision to counter North Korea's advanced nuclear and missile threats, particularly its nuclear-powered ballistic missile submarine (SSB) development, which North Korea initiated with great fervor in March 2025. The Republic of Korea (ROK) has demonstrated a persistent interest in acquiring nuclear propulsion technology to address the constraints imposed by diesel-electric submarines, particularly their limited submerged endurance and restricted operational range. This summit agreement signifies a pivotal moment, as it is the inaugural instance in which a consensus has been achieved regarding the establishment of a diplomatic and political foundation for this undertaking.

This study analyzes three institutional constraints that must be resolved for this nuclear-powered submarine construction project to progress beyond a mere political declaration and lead to actual operational deployment. First, it examines the legal constraints within the United States, such as the Atomic Energy Act (AEA). Secondly, it addresses constraints under the U.S.-ROK Nuclear Agreement (123 Agreement) and international law. Thirdly, the proposal calls for the implementation of an integrated policy for the implementation of International Atomic Energy Agency (IAEA) safeguards.

### **2. Institutional Constraints**

#### *2.1 Constraints under U.S. Law*

According to the Atomic Energy Act (42 U.S.C. §§2011 et seq.), U.S. Naval Nuclear Propulsion (NNP) technology is classified as the most strictly controlled technology. Nuclear power plant (NPP)-related information is classified as "Restricted Data (RD)" under Section 11(y) of the Act, which encompasses all data concerning the "production of energy from special

nuclear material." The Director of the Naval Nuclear Propulsion Program (NAVSEA 08) possesses exclusive authority over the protection and declassification of Naval Nuclear Propulsion Information (NNPI). It is imperative that even unclassified NNPI be marked 'NOFORN' (Not for Foreign Nationals). The three key statutory provisions that serve as the legal foundation for the transfer of NNP technology are as follows:

According to Section 91(c)(2)-(3) of Title 42 of the United States Code, also known as 42 U.S.C. §2121, This agreement facilitates the international transfer of special nuclear material, production facilities, and utilization facilities for military purposes, contingent upon the existence of a nuclear cooperation agreement under Section 123.

According to Section 123 (42 U.S.C. §2153): The following text delineates the procedures for concluding all nuclear cooperation agreements. Section 123(a)(4) stipulates that assurances be provided regarding the utilization of materials and equipment transferred under agreements with non-nuclear-weapon states, ensuring that these materials and equipment will not be employed for "any other military purpose." However, for military nuclear cooperation agreements based on Section 91(c) and Section 144(c)(2), the applicable conditions are reduced. It is imperative to note that the provisions pertaining to the prohibition of nuclear weapons and the establishment of return rights are of mandatory nature.

According to Section 144(c)(2) of Title 42 of the United States Code, also known as 42 U.S.C. §2164,

This provision sanctions the dissemination of restricted information pertaining to the research, development, or design of "military reactors" with foreign countries, contingent upon the President's determination that such collaboration "promotes mutual defense and security and does not pose an unreasonable risk." This provision serves as the foundational legal framework for the dissemination of NNP technology, a principle that is further reinforced by the AUKUS agreement.

The fundamental distinction is as follows: The legal nature of the general Article 123 Agreement for civilian nuclear cooperation (peaceful use) is fundamentally different from agreements based on Article 91(c)/Article 144(c)(2) for transferring military reactor technology. The current ROK-US Nuclear Agreement

(2015) falls under the former category; a separate agreement under the latter is essential for ROK nuclear submarine cooperation..

## 2.2 Constraints under International Law

### 2.2.1 ROK-US Atomic Energy Agreement

Article 13 No explosive or military application: The ROK-US Nuclear Agreement, effective 2015, stipulates the following: Pursuant to the stipulations outlined in this Agreement, the transfer of nuclear material, moderator material, equipment, and components is strictly prohibited for any purpose that would result in their utilization for a nuclear weapon or any nuclear explosive device. This prohibition extends to research and development of such devices, as well as any military application.

The definition clause in Article 1(k) stipulates that "peaceful purposes" "do not include use in, research on, or development of any nuclear explosive device, or any military purpose." While naval nuclear propulsion is non-explosive, its primary function is clearly for military purposes. Consequently, under the terms of the current Agreement, it is not feasible for the United States to provide cooperation on nuclear submarine fuel or reactor technology to South Korea.

Article 13 is considerably more extensive than the provisions outlined in the NPT. According to the provisions stipulated in Articles I and II of the NPT, the use of "nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices, directly or indirectly," is prohibited. However, this prohibition does not extend to non-explosive military nuclear uses, such as naval nuclear propulsion. Consequently, the legal impediments to South Korean nuclear-powered submarines are not found in international law (NPT) but rather in bilateral treaties (the US-ROK Nuclear Agreement) and U.S. domestic law (the Atomic Energy Act).

Article 11 Enrichment, reprocessing, and other alteration in form or content: The enrichment of uranium is subject to the terms of the Agreement, and it is only permissible with the written consent of the High-Level Bilateral Committee (HLBC) of both countries. Additionally, the maximum enrichment level is set at less than 20% (LEU). Reprocessing necessitates the prior written agreement of both countries. It is important to note that South Korea has not obtained "advance consent," and all cases are approved on a case-by-case basis.

### 2.2.2 NPT

The NPT does not prohibit the implementation of nuclear propulsion for naval vessels operated by non-nuclear-weapon states. The legal foundation for this phenomenon, colloquially referred to as the "submarine loophole," is as follows: According to Article III, Paragraph 1 of the NPT, non-nuclear-weapon states are obligated to implement International Atomic Energy

Agency (IAEA) safeguards in regard to all source or special fissionable material in all peaceful nuclear activities.

In this context, the restriction of safeguards to "peaceful nuclear activities" engenders a lacuna, as nuclear material utilized in non-explosive military nuclear activities, such as naval nuclear propulsion, falls outside the purview of safeguards implementation.

### 2.3 Constraints in the IAEA Safeguards Agreement and Implementation

INFCIRC/153 (Revised, June 1972), Paragraph 14, "Non-Application of Safeguards to Nuclear Material Used in Non-Peaceful Activities," is the sole legal mechanism allowing a non-nuclear-weapon state to withdraw nuclear material from safeguards for use in non-prohibited military activities. Since each country's Comprehensive Safeguards Agreement (CSA) is modeled on INFCIRC/153, the Korean CSA (INFCIRC/236, October 31, 1975) also contains a corresponding Article 14.

The procedural requirements for invoking Article 14 are as follows:

First, notification to the IAEA: Clearly state that the nuclear material will be used for non-prohibited military activities and will not be used for the production of nuclear weapons or nuclear explosive devices.

Second, conclusion of an "arrangement" with the IAEA: (a) Specify, as precisely as possible, the period or circumstances during which safeguards will not apply; (b) Continuously notify the IAEA of the total quantity and composition of nuclear material withdrawn during the period of non-application of safeguards; (c) Specify matters concerning temporal and procedural requirements, reporting commitments, etc. This Arrangement does not imply approval of the military activity or the provision of confidential knowledge.

Third, Reapplication of Safeguards upon Return to Peaceful Activities: Safeguards are immediately reapplied when nuclear material is reintroduced into peaceful nuclear activities.

Key Interpretative Point: The IAEA Secretariat confirmed, on August 20, 1987, that "the production process itself for material intended for activities such as enrichment or reprocessing is not considered a prohibited military use and therefore remains subject to safeguards in non-nuclear-weapon States." Thus, the enrichment process for submarine fuel is not exempted under Paragraph 14, and safeguards continue to apply. The exemption applies only at the stage when the finished fuel is loaded into a reactor and used for military purposes. Furthermore, the transport and storage of nuclear material are considered peaceful activities and are not subject to Paragraph 14 exclusion. This means safeguards must be maintained even during the movement and storage of fuel while the submarine is under construction.

### 3. Conclusions

To overcome these institutional constraints, an integrated policy approach is required.

– Principle A: Proceed with a package combining three documents of differing legal character, not a “single grand agreement”.

1) (U.S. Domestic) KORUS—Naval Nuclear Propulsion Special Legislation (or NDAA Annex): Transplant the AUKUS-style oversight and certification model into a Korean framework:

2) (Bilateral) Naval Nuclear Propulsion Agreement (Based on §2121(c)): Directly utilize the military purpose exception while maximizing non-proliferation conditions.

3) (Multilateral) IAEA Paragraph 14 Arrangement + Transparency Annex: Design a balanced approach for verification, reporting, and confidentiality protection.

– Principle B: Separate the fuel cycle (enrichment/reprocessing) into “civilian” and “naval” sectors, simplifying the naval sector as much as possible.

Even if the White House document mentions civilian enrichment/reprocessing alongside nuclear-powered submarines, what Congress and the international community are most sensitive about is the ‘combination of military purposes and the fuel cycle.’

Therefore, the civilian and naval components must be separated and designed as follows.

**(Navy)** “External supply (approved channels) + Prohibition of domestic enrichment/reprocessing + Right of return + IAEA safeguards”

**(Civilian)** “Phased expansion within peaceful use parameters (conditional)”

### REFERENCES

[1] Atomic Energy Act of 1954, 42 U.S.C. § 2011 *et seq.* (1954).

[2] Ministry of Foreign Affairs of the Republic of Korea. (2015). *Agreement for cooperation between the Government of the Republic of Korea and the Government of the United States of America concerning peaceful uses of nuclear energy.*

[3] Treaty on the Non-Proliferation of Nuclear Weapons, July 1, 1968, 729 U.N.T.S. 161.

[4] International Atomic Energy Agency. (1971). *The structure and content of agreements between the Agency and states required in connection with the Treaty on the Non-Proliferation of Nuclear Weapons* (INFCIRC/153 [Corrected]).