

# **A Suggestion on the National Measure for Multilateral Approaches to the Nuclear Fuel Cycle**

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## **1. Introduction**

Various tries to get nuclear weapons capabilities using a loophole of existing non-proliferation regimes have been detected all over the world. Also the possibilities of a sensitive nuclear materials acquisition by non-state actors, such as terrorist groups are awakening worldwide attentions to nuclear proliferation. For confronting such a situation, initiatives for global nuclear security are being strengthened. In line with such initiatives, the IAEA proposed multilateral approaches to the sensitive nuclear fuel cycles, such as enrichment and reprocessing. In this article, the suggestion of the IAEA is analyzed and actions to be considered for national countermeasures are suggested.

## **2. IAEA's suggestion on the Multilateral Nuclear Approaches**

During the last several years, the Director General of the IAEA has stressed that there has been growing concerns on the integrity of the worldwide safeguards regimes. He also stressed that recognitions on necessity for the reviewing the means for separated Pu and the disposal of spent fuel and radioactive waste have enhanced. As a solution to these concerns, he proposed multilateral approaches for the management of a sensitive nuclear fuel cycle such as enrichment, reprocessing, spent nuclear fuel and radioactive waste [1]. The international expert group to identify issues and possible options for the proposal submitted their report to the Director General in March 2005 [2]. The report will be a starting point for further discussions among international community on this matter.

The expert group suggested five approaches for the multilateral nuclear approaches (MNA) under the consideration of several options such as ownership, utilization of existing facilities and the construction of new facilities. First suggestion is reinforcing the existing commercial market mechanism on a case-by-case basis through long-term contracts. Under this option, suppliers' arrangement with governmental backing is suggested. Second is developing and implementing international supply guarantees with IAEA participation. In this approach, the IAEA acts as a guarantor of the service suppliers or an administrator of a fuel bank. Third is promoting the voluntary conversion of existing facilities to MNAs and pursuing them as confidence-building measures, with the participation of NPT States as well as non-NPT States. Fourth is creating multinational, and in particular regional MNAs for new facilities based on joint ownership, drawing rights or co-management for front-end and back-end nuclear facilities. Fifth is developing a nuclear fuel cycle with stronger multilateral arrangements - by region or by continent - in the case of a further expansion of nuclear energy around the world. However, the suggestions implicitly include the complicated conflicts among countries having interests such as assurance of supply of nuclear fuel and hosting countries that was already exposed during the discussion on regional fuel cycle centers in 1970s.

## **3. Suggestions for Korean Approaches**

Being scarce of energy resources, Korea imports more than 97% of its primary energy consumption. Nuclear contributes a stable

energy supply by sharing around 40% of electricity generation in the nation. In Korea, nuclear power plants are designed and constructed by localized technologies and resources. In contrast, nuclear fuel cycle services depend on foreign suppliers except for design and manufacturing. In 1992, Korea made a joint declaration of the denuclearization on the Korean Peninsula. Through the declaration both South and North Korea declared not to possess nuclear reprocessing and uranium facilities in their territories. However there is an opinion that the declaration should be reconsidered when the tension in the Korean Peninsula is dissolved and the number of nuclear power plants is increased in the future.

Facing the suggestions on the MNA, there can be various options to be considered in Korea depending on the interest of the stakeholders. First, as the 6th nuclear power generation country in the world, an entire localization strategy for the nuclear facilities including nuclear fuel cycle services can be considered as an option. Under this strategy, reducing the dependency on foreign suppliers and enhancing the national energy security can be counted as major virtues. However recent world trends show some barriers against this strategy. In 2004, the G-8 leaders agreed not to inaugurate new initiatives involving the transfer of enrichment and reprocessing equipment and technologies to additional states temporarily. Also the recent Iranian case shows a transparency issues for the national fuel cycle strategy. Thus implementation of this strategy in the near term seems to be not plausible.

The other option stands for an opposite direction to the first one. More than 19 years of Korean Government efforts for the siting of a radioactive waste disposal facility is still fruitless because of the anti nuclear movement by local districts. So the second option is to support multilateral cooperation for sensitive nuclear fuel cycle facilities to be located abroad. However under this strategy, it can be interpreted that Korea gives up part of its

sovereign right endorsed on global non-proliferation regimes. Also it can be foreseen that discussions on the MNA could amplify the debates on the NPT, such as disarmament and most of all the validity of the NPT itself.

Also one can postpone a final decision in parallel with participating in the international debates on this matter.

#### **4. Conclusion**

To establish criteria for the nation's optimal decision on the MNA is a very complicated one. If Korea decides to support the MNA approach, it means Korea waives its inalienable rights to the peaceful application of nuclear energy endorsed in Article 4 of the Treaty on the Non-proliferation of Nuclear Weapons [3]. To compensate for such a loss, counter presentations such as joint ownership of the facilities, joint development of advanced technologies and compensation for the termination of MNA should be reserved. If Korea decides not to support the MNA approach, channels to acquire nuclear fuel services other than MNA should be researched. Also the formation of a coalition and its potential influence should be considered. Thus it is necessary for Korea, to exchange the various views of the stakeholders and to evaluate the profits and losses of the potential details for a future negotiation on the MNA.

#### **References**

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