

A Strategy for the Korean ODA Model Development for Global Nuclear Safety

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1. Introduction

This paper aims to suggest the new Korean ODA model specialized in nuclear safety to implement the advanced aid and to make a foundation of safety infrastructure to the country embarking on NPP.

2. Feasibility of Model Development

2.1 Contribution to Global Nuclear Safety

Currently 30 countries have nuclear power in their energy mix accounting for nearly 16% of the total power generation in the world [1]. The growing demand for power and fuel diversity is the key driving factor behind the emerging nuclear power market. The share of nuclear power in the global energy mix will increase in the long run with the new countries which do not currently have nuclear power. The total value of the emerging nuclear power market is estimated to be more than \$160 billion during the period 2010-2030 [2].

It has been recognized by international community that every country considering embarking on a nuclear power program should establish the nuclear safety infrastructure to provide a sound foundation for ensuring a sustainable high level of nuclear safety. The coherent set of institutional, organizational and technical elements and conditions is essential to achieve the fundamental safety objective [3].

2.2 Enhancement of International Cooperation

As the world's 13th largest economy and a member of the OECD by overcoming poverty and attaining rapid economic growth, Korea has joined the Development Assistance Committee (DAC) on 25 November, 2009 to further enhance its development cooperation. This makes Korea a member of all 25 OECD committees and Korea has a unique history of transforming from a recipient to a donor country. Korea has been requested to provide more and better Official Development Assistance (ODA), which means the flows of official financing administered with the promotion of the economic development and welfare of developing countries as the main objective. Even though Korea has participated in aid to the international community, it was little more than providing \$0.8 billion in 2008, which amounts to 0.09% of its Gross National Income [4].

2.3 Combination of Two Strategies

Korea raised its global status by becoming one of the six exporters of NPP in the world and the government approved a master plan to lead the nuclear industry into one of the country's key export markets after winning \$40 billion contract with UAE Nuclear Deal. Korea should take a reliable role in supporting nuclear safety of country launching the first NPP as the exporter and contribute to global nuclear safety as IAEA member state.

At the same time, Korean government has to make a greater contribution to the global poverty reduction, commensurate with its economic standing and significance in global affairs [5].

Therefore the best way to meet the goals of advanced international development aid as well as contribution to global nuclear safety is the development of Korean ODA model for nuclear safety.

3. Suggestion of a Strategy for Model Development

3.1 Strategy for Model Development

The purpose of Korean ODA model for nuclear safety is to contribute the nuclear safety infrastructure to the developing countries considering the first NPP by ODA program. Nuclear safety infrastructure can be defined as the set of institutional, organizational and technical elements and conditions covering before deciding to launch a nuclear power program, during implementation and operation of NPP and decommissioning. ODA would take the role of the financial solution as well as the confirmation of Korean government's willingness to support.



Fig. 1. Concept and Effectiveness of Korean ODA Model for Nuclear Safety

The aid of nuclear safety infrastructure through the ODA makes it possible to improve nation's stability and

prosperity in the international community and to enhance competitiveness power in the emerging nuclear market. Therefore it is the right time to run with to contribute to the global nuclear safety as the exporter of NPP and to strengthen the cooperation with developing countries as DAC member.

The government estimated the project of UAE would be worth \$40 Billion as follow-up operations and management of the plants over 60 years of life time and it would be equal to create 111,000 jobs [6]. Provided that at least 10% of total job creations come from the nuclear safety activities, ODA of nuclear safety would have the economic effect of creating about 10,000 jobs.

In terms of the aid effectiveness, ODA for nuclear safety policy originally should answer the purpose of basic philosophy of ODA. The aid of nuclear safety infrastructure is to expand the typical type of untied grant aid and to provide humanitarian aid for the developing country. It is possible to secure Korea's image as a donor by improving its ODA in quantity and quality and to transfer systematically Korea's development history in nuclear power program with more than 30 years experience. The strategy of development for Korean ODA model is as follows.

First, to improve the effectiveness of ODA for nuclear safety, it needs to select and focus on the foundation of nuclear safety infrastructure. Next, the aid plans need to be expanded to the whole nuclear supply chain from bid for launching NPP to operation and decommissioning. To support the national export firm of NPPs, it needs to promote Korean nuclear industry's participation. In the long term, Korea's aid program should be linked to the aid-receiving country's energy program, which leads its energy program with nuclear energy. It would be the basis of the future export of Korean NPPs and the enhancement of the aid effectiveness based on country-specific aid plans.

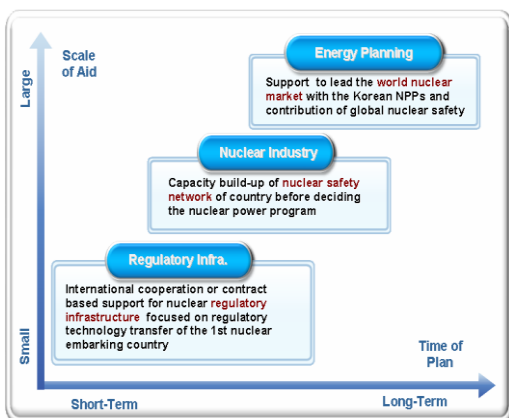


Fig. 2. Strategy of Korean ODA Model for Nuclear Safety

3.2 Contents of Model

The content of model focuses on the competencies of regulatory body through consulting, education & training and technical service for developing country with little or no relevant experiences on NPP such as Egypt, ASEAN, and Middle East. It provides specific

implementation guides to be taken during the lifetime of NPPs, education and training programs to ensure the competence of regulatory staff, technical support for safety review and inspection of nuclear facilities, and IT-based tool to manage knowledge and DB. This guide is based on the IAEA Safety Standards and is fully proven by Korea's performance record. Korea would support the aid-receiving country's regulatory infrastructure by ODA program, provided that nuclear safety as the aid program is defined in the Korean ODA program and the aid-receiving country applies to its ODA program to establish its nuclear safety infrastructure.



Fig. 3. Contents of Korean ODA Model for Nuclear Safety

4. Conclusions

Korea has to contribute to the global nuclear safety as the exporter of NPP as well as IAEA member state and to implement the effective international cooperation commensurate with its economic standing and significance in global affairs. Therefore Korean ODA model specialized in nuclear safety can be practically used in the foundation of developing country's nuclear regulatory infrastructure and this approach can be one of the effective ways to promote the nuclear industry into one of the country's key export industries.

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