

# **Current Status of the Radioactive Waste Management Program in Korea**

H S Park, Y S Hwang, and C H Kang  
Nuclear Fuel Cycle Development  
Korea Atomic Energy Research Institute Republic of Korea  
hspark@kaeri.re.kr

Since the April of 1978, Korea has strongly relied on the nuclear energy for electricity generation. As of today, eighteen nuclear power plants are in operation and ten are to be inaugurated by 2015. The installed nuclear capacity is 15,716 MW as of the end of 2002, representing 29.3% of the nation's total installed capacity. The nuclear share in electricity remains around 38.9 at the end of 2002, reaching at the level of 119 billion kWh's.

New power reactors, KSNP's (Korea Standard Nuclear Power Plant) are fully based on the domestic technologies. More advanced reactors such as KNGR (Korea Next Generation Reactor) will be commercialized soon. Even though the front end nuclear cycle enjoys one of the best positions in the world, there have been some chronic problems in the back end fuel cycle. That's the one of the reason why we need more active R&D programs in Korea and active international and regional cooperation in this area. The everlasting NIMBY problem hinders the implementation of the nation's radioactive waste management program. We expect that the storage capacity for the LILW(Low and Intermediate Level radioactive Waste) will be dried out soon. The situation for the spent fuel storage is also not so favorable too. The storage pools for spent fuel are being filled rapidly so that in 2008, some AR pools cannot

accommodate any more new spent nuclear fuels.

The Korean Government in strong association with utilities and national academic and R&D institutes have tried its best effort to secure the site for a LILW repository and a AFR site. Finally, one local community, Buan in Jeonbook Province, submitted the petition for the site. At the end of the last July, the Government announced that the Wido, a small island in Buan, is suitable for the national complex site. The special force team headed by Dr I S Chang, president of KAERI teamed with Government officials and many prominent scholars and journalists agreed that by the evidences from the preliminary site investigation, they could not find any reason for rejecting the local community's offer.

Even though the local community's petition led by the mayor Kim in Buan is strongly supported by the general public, the other communities in Buan are still strongly against the petition. The alliance of anti-petition groups with the nation-wide anti-nuclear activists escalates the anti-nuclear movements in that area. Even though the Korean Government assured the safety of the complex and financial aid packages for local communities, some residents mainly not living in the island, are very strongly against the decision.

The Government would like to initiate the dialogue with local residents. All nuclear communities are deeply involved in the promotion for the facility. Also to get the international support, the special international conferences are scheduled. For example, in November we had a very special symposium in Seoul to listen to the world wide experiences on radioactive waste management.

To overcome NIMBY is not a problem for a science world. The so called two way dialogue between scientists and stakeholders is essential to overcome the wrong perception on the radioactive waste management. The authenticity of scientists in technologies and in hearts will be a locomotion to bring down the hidden fear on the radioactive waste in general public.

For the last 50 years, KAERI has developed the technologies on the radioactive waste management such as spent fuel management, the DUPIC cycle, radioactive waste disposal and treatment, and decommissioning and decontamination. The new initiative on spent nuclear fuel will be a key R&D subject. Through this project the innovative technologies to manage spent nuclear fuel will be developed. The R&D on radioactive disposal is the imminent task for the nation. The scientific development and the new methodologies for risk communication should be achieved for both low- and high- level radioactive waste disposal. Partitioning and transmutation is the one of the future prospects. Even though it needs extensive investment of time and money, it will be worthwhile to study the feasibility of it. Soon some of the reactors in Korea will be retired. The timely technological development on decommissioning and decontamination is important to preserve the environment. Now KAERI is developing the fundamental technologies throughout the decommissioning mission of an old TRIGA reactor.

Achieving all scientific missions and getting more social support for radioactive waste management, KAERI in full support from the Korean Government is doing its best. The international and regional cooperation is essential for this task. Korea and China have been close neighbors throughout the history. Collaboration on the R&D in the field of radioactive waste management will enhance not just the scientific capabilities but also the public perception on the credibility of technologies in two nations.