

Execution of the Decommissioning of Nuclear Facilities and the Treatment and Disposal of Radioactive Waste

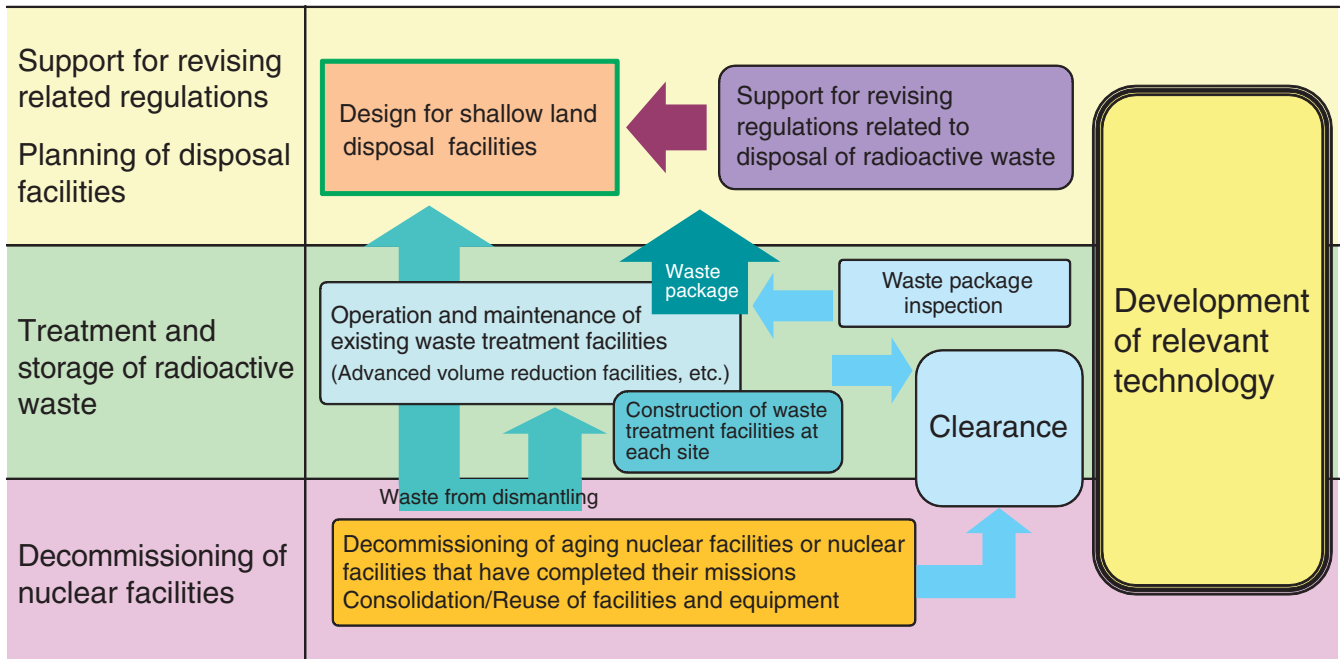


Fig.10-1 Outline of measures for decommissioning and radioactive waste treatment/disposal

We are establishing systems for decommissioning nuclear facilities and for radioactive waste management. In addition, we are developing related technology (decommissioning, treatment, disposal, etc.), planning and constructing radioactive waste treatment/disposal facilities, and providing support for revising related regulations.

Safe and efficient decommissioning of nuclear facilities and radioactive waste treatment/disposal are two of our major missions for advancing our R&D activities. We will be disposing of radioactive waste generated not only from our research activities but also from universities, institutes, industrial facilities, etc.

We are establishing systems for decommissioning nuclear facilities and for managing radioactive waste, and are also developing the related technology (Fig.10-1).

In addition, we are studying the applicability of our R&D products for dealing with the accident at the Tokyo Electric Power Company, Incorporated Fukushima Daiichi Nuclear Power Station.

R&D for Waste Disposal

Radioactivity in low-level radioactive wastes, such as those generated during decommissioning of nuclear facilities, should be identified in order to be able to properly dispose of them.

Methods for the dissolution of radioactive contaminants attached to the surface of metal wastes and the chemical

separation of an infinitesimal quantity of Pu and Am in a dissolved solution containing a large amount of Fe(III) were developed for the quantification of Pu and Am. Approximately 100% of Am was recovered from a solution containing 1 g of Fe(III) using a transuranium (TRU) resin with the addition of 1.3 equivalents of ascorbic acid. The developed method was applied to the analysis of Pu and Am in the pipe waste sampled from the advanced thermal reactor Fugen (Topic 10-1).

R&D for Waste Treatment

For radioactive waste processing and disposal, it is important to reduce the expense and to improve the safety of disposal. Incinerated ash generated from burnable wastes is stored by the JAEA and contains a small amount of heavy metals such as Pb and Zn. The incinerated ash is solidified with cement, and then the solidified cement form is disposed of in an underground facility. However, the heavy metals are eluted from the solidified form when it comes in contact with groundwater. Therefore, we have developed a technique for preventing heavy-metal elution using additives (Topic 10-2).