

Executing Decontamination & Dismantling and Radwaste Treatment & Disposal

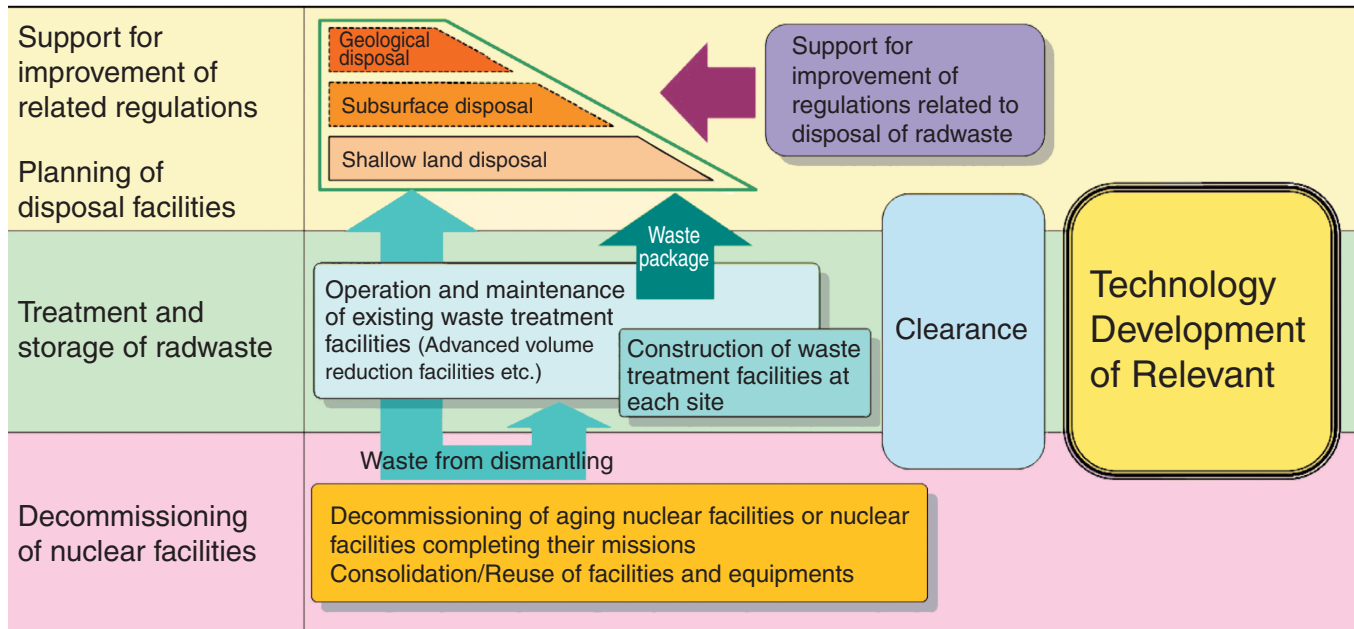


Fig.9-1 Outline of measures for decommissioning and radwaste treatment/disposal

Decommissioning and radwaste treatment/disposal are two of our major missions. In these missions, we will be disposing of radwaste arising not only from our research activities but also those of universities, institutes, industrial facilities, etc.

We are setting up systems for the decommissioning of nuclear facilities and for radwaste management, through related technology development, planning and construction of radwaste treatment/disposal facilities, and support for improvement of related regulations (Fig.9-1).

R&D for Decommissioning

We are developing a decommissioning engineering system and a waste/scrap material clearance verification/evaluation system.

To develop this decommissioning engineering system, a method for evaluating decommissioning cost efficiently which is applicable to various types of nuclear facilities has been constructed (Topic 9-1).

R&D for Waste Treatment

In order to dispose of radwaste in a cost effective manner, research in the following waste treatment techniques is being conducted: a nitrate degradation method for low level effluent, a cement solidification technique for incineration ashes, and a decontamination technique using supercritical carbon dioxide fluid to remove plutonium from radwaste.

Furthermore, we have developed a waste management system which is used for systematic management of the radwaste data acquired through various operations from generation to disposal of the wastes. This management system supplies the data needed for safety assessment of disposal of radwaste etc. (Topic 9-2).

R&D for Waste Disposal

Studies on rapid measurement of various radionuclides are underway to establish practical methods to evaluate the radioactive inventory in waste packages.

By literature review and actual measurements of natural uranium concentration, the contribution of uranium to natural background radiation has been estimated (Topic 9-3). This result will be applied to conceptual design of a clearance and disposal system for uranium bearing waste, taking into consideration the existence of natural uranium.

As for study on a subsurface disposal system for uranium-bearing waste, exposure dose in the case of “less-likely scenarios” was preliminary calculated to be less than “standard dose value” recommended by Nuclear Safety Commission.

In addition, radioactivity concentrations in radwaste generated by reactor facilities were characterized. This data will be used for safety assessment which will be applied during the implementation of disposal.