

## Executing Decontamination & Dismantling and Radwaste Treatment & Disposal

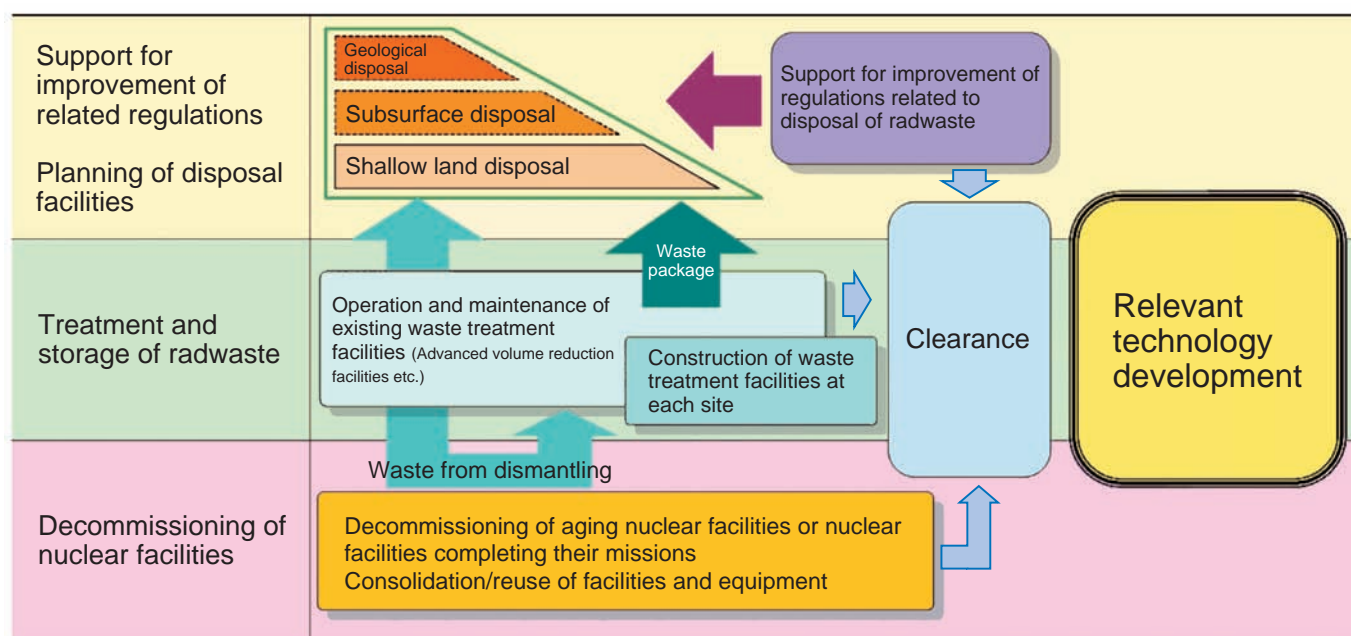


Fig.11-1 Outline of measures for decommissioning and radwaste treatment & disposal

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.11-1).

### R&D pursuing effective judgment of clearance decommissioning

Clearance activities (reducing wastes to very small radioactive concentration levels that have a negligible effect on human health) for a large amount of waste arising from decommissioning of nuclear facilities have been planned by the JAEA. This reduction is to at or below the clearance level of the waste that arises from decommissioning. To improve the efficiency of clearance activities, a clearance level verification evaluation system (CLEVES) has been developed to support safe and secure waste clearance (Topic 11-1).

### R&D for reasonable uranium waste disposal

Radioactive wastes are generated by various activities at the nuclear facilities of JAEA. Uranium waste having a long half-life is included in this waste. Safe disposal of these radioactive wastes is an important issue in atomic energy. We

are conducting safety assessments to confirm the safe disposal of uranium waste over a long period of time. Because the half-life of uranium is extremely long, the engineered barriers (low diffusivity layer, low permeability layer, etc.) cannot maintain their confinement function for a long period of time (Topic 11-2).

### R&D for analytical techniques for radioactive nuclides in wastes

For proper disposal of radwaste packages generated by various research facilities, an evaluation of radioactivity inventories in the waste packages is indispensable. In order to establish a practical and reliable estimation method for radioactivity inventories, we need to collect data concerning radioactivity concentrations in radwastes.

In JAEA, an analytical method that held down costs was developed as an analytical method for the important nuclides included in the melted solidified substances produced in waste treatment in advanced volume reduction facilities (AVRF).

As a result, efficiency improvements, sample pretreatment and simple speedup of methods of separating nuclides, rapid non-destructive analysis methods for long-lived nuclides, etc., were established, and these results were arranged as analysis guidelines (Topic 11-3).