

Interim Storage Facility Basic Concept for Safe Use of Removed Soil Processed into Recycled Materials

- The Ministry of the Environment (MOE) released "Basic Concept" in June 2015 to realize the use of the removed soil under proper management after volume reduction and recycling materialization on the premise of securing radiation safety.
- According to a policy of Basic Concept, MOE implements demonstration and model projects, confirms radiation safety, studies specific management systems, while fostering understandings of public all over Japan and developing an environment towards full-scale recycling.

Limited Use

- ✓ The use of contaminated soil is to be limited to public project whose management entity and responsible system are clear such as basic structure of banking, which assumed not to change shape artificially for a long time.
E.g. coastal levees, seaside protection forests, embankment materials for roads, cover soil for waste disposal sites, landfill materials and filler for land development, and farmland for flowers and resource crops

Proper Management

- ✓ The additional exposure dose should be restricted below 1 mSv/y during the construction.
- ✓ Radioactivity concentration recycling level of Cs-137 included in the soil is below 8,000 Bq/kg as a principle, and is set separately for each use.
- ✓ Shielding is installed to cover soil and prevent the leakage and scattering. The data is also recorded.

The diagram illustrates a cross-section of a soil structure. At the base is a layer of 'Recycled materials'. Above this is a layer of 'Covering soil'. A 'Safety margin' is indicated between the recycled materials and the covering soil. Labels indicate that the covering soil thickness should be 'allowable enough to conduct repairing as a civil engineering structure' and that 'Even if there is any cave-in or collapse of slope, the thickness of cover soil is ensured.' A note at the bottom states: 'Covering soil should be designed to ensure the necessary thickness to confine the additional exposure dose, even under general repairing of a civil engineering structure.'

Prepared by the Ministry of the Environment

With the aim of obtaining public understanding and trust for recycling of the soil removed through off-site decontamination work in Fukushima Prefecture, and at the same time promoting safe use of removed soil processed into recycled materials by stage, the Ministry of the Environment (MOE) compiled the Basic Concept for Safe Use of Removed Soil Processed into Recycled Materials in June 2016. This Basic Concept imposes a limitation that processed removed soil be only used in public works, etc. where management entities and responsibility-related systems are clarified. It also sets the upper limit for radioactivity concentrations of recycled materials to limit additional exposure doses, while supposing that they are used under proper management, such as with shielding by cover soil.

At present, based on this Basic Concept, MOE is implementing demonstration projects in Minamisoma City and Iitate Village to confirm the safety of processed removed soil. The results obtained so far through the demonstration projects have shown no significant changes in ambient dose rates or other values since commencing the projects, and measured values of radioactive cesium in seepage water through cover soil were all below the detection limit.

In the demonstration project in Iitate Village, the development of farmland was commenced in FY2020 and an experiment to grow edible crops has been conducted to confirm growth and safety. As of December 2020, concentrations of radioactive cesium in those edible crops measured by the method specified by the Ministry of Health, Labour and Welfare can be all assessed as below the detection limit (less than 20 Bq/kg) (as a result of continuing measurements until Cs was detected, all values were 0.1 to 2.3 Bq/kg, far below the standard limit for general foods (100 Bq/kg)).

MOE's website, "Interim Storage Facility": Demonstration Project for Recycling in Minamisoma City

<http://josen.env.go.jp/chukanchozou/facility/effort/recycling/minamisoma.html> (in Japanese)

MOE's website, "Interim Storage Facility": Demonstration Project for Recycling in Iitate Village

<http://josen.env.go.jp/chukanchozou/facility/effort/recycling/iitate.html> (in Japanese)

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