

Progress in Off-site Environmental Remediation in Japan

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Progress of off-site decontamination

環境省

Full-scale decontamination was completed in 100 municipalities of 8 prefectures both in the Special Decontamination Areas (SDA), and the Intensive Contamination Survey Areas (ICSA), by March 19, 2018, except for the Restricted Areas. In the Restricted Area, decontamination still continues (e.g. in the Specific Revitalized Residential Areas).



Transportation to the Interim Storage Facility



- Transportation of removed soil and waste to the ISF has been implemented from the end of FY2014 and almost all of the removed soil and waste have been transported to the ISF, by Mar. 2022 other than the Restricted Areas.
- Approximately 13.76 million m³ of removed soil and waste (including those in the Restricted Areas) have been transported to the ISF (as of the end of Mar. 2024).



Overview of the Interim Storage Facility

- The Interim Storage Facility (ISF) was constructed to manage and store removed soil and waste arising from decontamination activities in Fukushima prefecture and the Specified Waste (>100,000 Bq/kg), safely and in an integrated manner, until final disposal outside Fukushima prefecture, which is stipulated in the Japanese law, to be completed within 30 years (by Mar. 2045) from the start of transportation to the ISF.
- The ISF occupies around 1,600 ha (almost same area with Shibuya City in Tokyo). Okuma Town and Futaba Town accepted the ISF by making very difficult decisions. The MOE will continue to work on the ISF project by placing top priority on its safety.



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The Interim Storage Facility (1)



Source: Interim Storage Facility Information Center (<u>https://www.jesconet.co.jp/interim_infocenter/index.html</u>) 澴境省

The Interim Storage Facility (2)

Source: Interim Storage Facility Information Center (<u>https://www.jesconet.co.jp/interim_infocenter/index.html</u>) 睘璄省

The Interim Storage Facility (3)

Source: Interim Storage Facility Information Center (<u>https://www.jesconet.co.jp/interim_infocenter/index.html</u>) 睘璄省

Necessity for recycling of removed soil





Amount of removed soil and waste transported to the Interim Storage Facility: **Equivalents to volume of 11 Tokyo Domes** (Baseball park)

Toward final disposal outside the Fukushima Prefecture: Volume Reduction before the final disposal is a key measure

Distribution of radioactivity concentration in removed soil



Technology Development Strategy for Volume Reduction and Recycling



- To promote volume reduction and recycling, significant efforts have been made in accordance with the "<u>Technology Development Strategy for</u> <u>Volume Reduction & Recycling of the Removed Soil and Waste under Interim Storage</u>" and the "Process Chart," formulated in 2016 and reviewed in 2019.
- In particular, with regard to the recycling, the MOE has been implementing demonstration projects based on the <u>Basic Concept for Safe Use of</u> <u>Removed Soil Processed into Recycled Materials</u> compiled in 2016 as a guideline, as well as efforts to build nationwide understanding.
- Setting FY2024 as the strategic target, the development of basic technology has been promoted, and several feasible options will be presented, for the required area and structure of the final disposal site. In FY2025 onward, it will proceed to processes for studies and coordination related to the selection of final disposal site.



Demonstration Projects for Recycling in Fukushima Prefecture

- In the Specified Reconstruction and Revitalization Base Area in litate Village, a demonstration project is in progress for recycling of removed soil to be used as <u>embankment for farmland</u> development, with covering soil on top of the removed soil.
- The demonstration project for paddy and other products was launched in April 2021 to build large-scale embankment for farmland, with approx. area of 22ha.
- In addition, in order to study the possibility of recycling in road construction, a demonstration project for <u>road embankment</u> started in the premise of the Interim Storage Facility in October 2022.
- > As a result of these demonstration projects, the safety of recycling removed soil has been confirmed.

Farmland demonstration project in Nagadoro District, litate Village



Road embankment demonstration project in the Interim Storage Facility premise





Efforts to Build Understanding for Recycling and Final Disposal (in Japan)



Nationwide Dialogue Forum



Site visits



Interim Storage Facility



Demonstration Project Site in Nagadoro, litate

Installation of potted plants using removed soil



← Removed soil with radioactvity concentration of approx. 5,100 Bq/kg is used.

In FY2022, potted plants using removed soil were placed at METI, MLIT and other relevant ministries and agencies (23 facilities outside Fukushima Prefecture as of the end of November 2023).

Efforts to Build Understanding for Recycling and Final Disposal (international)



- Since shortly after the accident, the MOEJ has had a number of opportunities to discuss and exchange views on off-site remediation activities through meetings with the IAEA and bilateral meeting with countries with experience to address similar challenges.
- In 2022, 2023 and 2024, tours were held for foreign press to disseminate progress made for decontamination activities and remaining issues to be addressed.
- Taking opportunities of international conferences (e.g. G7 Summit in Hiroshima, the COP28 to the UNFCCC), reconstruction efforts following the Great East Japan Earthquake and the accident at Fukushima Daiichi Nuclear Power Station were disseminated.



G7 Summit (Hiroshima)







Cooperation between the IAEA and the MOEJ

<International Experts Meeting>

- > Three International Experts Meetings were held by the IAEA upon the request of the MOEJ, aiming at providing international assessment and advice from technical and social perspectives, concerning the measures taken by the MOEJ for recycling and disposal of removed soil.
- > The result of the three meetings was compiled as the Final Report by the IAEA, which was handed over to the MOEJ and published on September 10, 2024.

<Courtesy visit by the Director General>

> In March 2024, IAEA Director-General Grossi made a courtesy visit to the Minister of the Environment ITO and confirmed that the IAEA will continue to support MOEJ in its further efforts for the recycling and the final disposal.

IAEA-MOEJ International Experts Meeting



Demonstration project site in Nagadoro, litate Village



Interim Storage Facility



Courtesy visit by the DG Grossi to Minister ITO (Mar. 2024)



Final Report of the International Experts Meetings (on September 10, 2024)

- Conclusions in the Executive
 Summary of the Final Report state:
 - ✓ Approach and activities implemented by the MOEJ to date for the managed recycling and the final disposal are consistent with the IAEA Safety Standards.
 - Looking ahead, with continuous efforts to meet fully the advice provided by the team of experts, the IAEA is confident that the MOEJ's evolving approach will be consistent with the IAEA Safety Standards. This can be confirmed by future follow-up assessments.
- The MOE will continue to update the IAEA on its efforts and disseminate information domestically and internationally.



https://www.iaea.org/newscenter/pressreleases/japans-fukushima-soil-recycling-and-disposal-plan-meets-safety-standards-iaea-says

The Final Report is available at:

Summary

(Decontamination)

- Full-scale decontamination activities were completed by March 2018, other than the Restricted Areas (RA). In conjunction with progress of other reconstruction activities, evacuation orders were lifted by March 2020, other than the RA.
- Evacuation orders in the Specified Reconstruction and Revitalization Base Areas (SRRBA) in 6 municipalities were lifted by the end of November 2023. In the RA, decontamination activities have been still in progress, and in December 2023, decontamination activities in the Specified Revitalized Residential Areas (SRRA) started.

(Transportation, Storage of generated soil and waste)

- Soil and waste arising from the decontamination activities in Fukushima Prefecture have been transported into the Interim Storage Facility (ISF), and <u>almost all of the removed soil and waste had been transported into the ISF by March 2022, other</u> <u>than the RA.</u>
- More than 13 million m³ of soil and waste have been transported into the ISF, and soil stored in the ISF is supposed to be recycled, or finally disposed of outside Fukushima Prefecture by March 2045.

(Promotion of volume reduction and recycling)

- Taking account of the difficulties to find out the place to accommodate all of the removed soil and waste, as well as high occupancy of removed soil with relatively low radioactivity concentration, volume reduction and recycling of removed soil have been promoted.
- Based on the Strategy, technology development and demonstration projects have been promoted, aiming at completion of development of necessary basic technologies by March 2025.

(Efforts to build public understanding)

- > Efforts to build public understanding have been implemented through, for example, dialogue forums and site visits.
- The MOEJ has shared a wide range of experience and lessons learned obtained through more than 13-year off-site remediation activities. These efforts will be continued, for example, through cooperation with the IAEA, international meetings and conferences.



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