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# Progress in Off-site Environmental Remediation in Japan

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14<sup>th</sup> UK-Japan Nuclear Dialogue



December 2025

# Progress of off-site decontamination

- Radioactive materials were released into the environment due to the accident at TEPCO's Fukushima Daiichi Nuclear Power Station, causing environmental contamination.
- The Ministry of the Environment implemented environmental restoration measures, including decontamination, resulting in a large amount of removed soil in Fukushima Prefecture.
- 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 continues.

## **Intensive Contamination Survey Areas** (decontamination implemented by municipalities)

Completed in March 2018



## **Special Decontamination Areas** (decontamination implemented by the national gov.)

Completed in March 2017



## Decontamination of houses

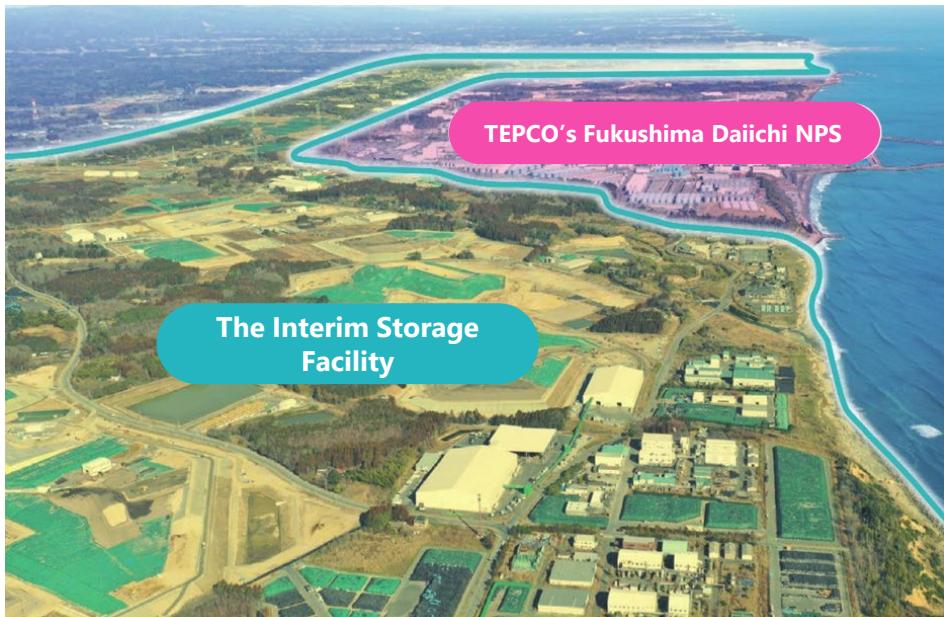


## Demolition of houses

# Overview of Initiatives for Environmental Restoration after the Accident of the Nuclear Power Station

- Interim storage facilities were established in Okuma Town and Futaba Town, with the consent of the prefecture.
- The Interim Storage Facility covers a vast area of approximately 1,600 hectares in Okuma Town and Futaba Town, and land acquisition is being carried out while providing careful explanations to landowners.
- The law stipulates that necessary measures shall be taken to complete the final disposal of removed soil and waste generated in Fukushima Prefecture outside Fukushima Prefecture within 30 years (by March 2045) after the start of interim storage.

The Interim Storage Facility

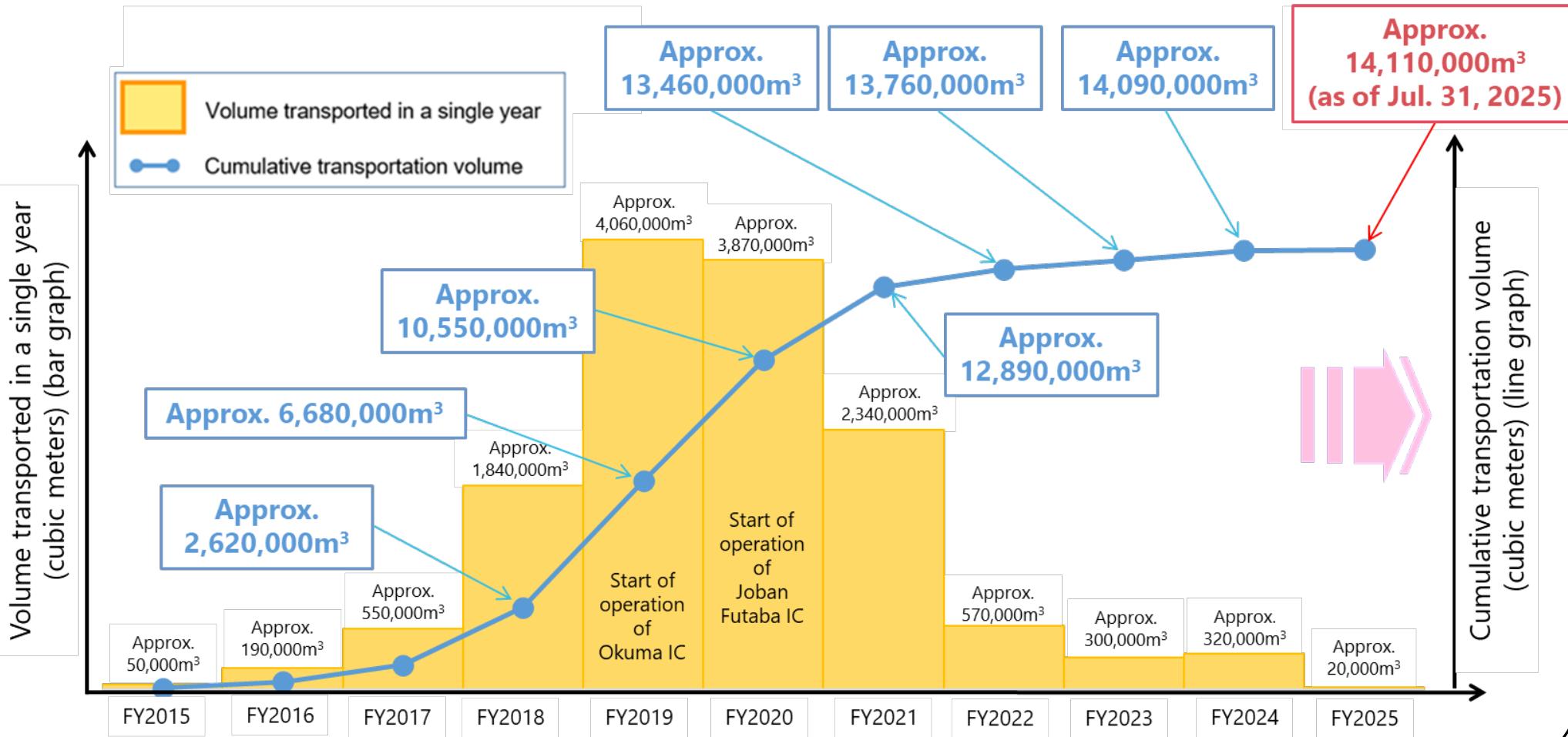


Removed Soil stored at the Interim Storage Facility



# 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 14.11 million m<sup>3</sup> of removed soil and waste** (including those in the Restricted Areas) **have been transported to the ISF** (as of the end of July 2025).



# 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

Soil with relatively **low**  
radioactivity concentration



8,000 Bq/kg or lower  
**Approx. 3/4**

**Recycling**

**Recycling under management  
in public work projects, etc.**

Covering soil

Recycled soil

More than 8,000 Bq/kg  
**Approx. 1/4**

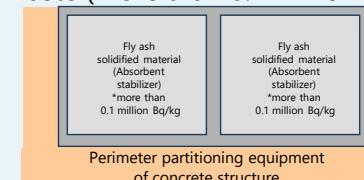
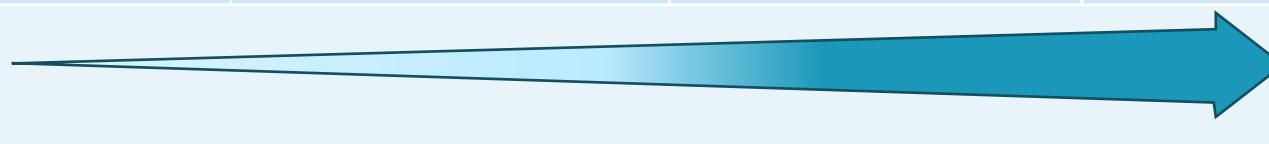


**After the volume reduction**

**Complete final disposal  
outside Fukushima within 30  
years from the start of  
transportation to the ISF**

**Approx. 14 million m<sup>3</sup>  
(as of the end of Oct 2025)**

# Options for Final Disposal Outside Fukushima Prefecture (Draft)

	Scenario (1)	Scenario (2)	Scenario (3)	Scenario (4)
Combination of Volume Reduction Technologies	No volume reduction technology applied	Classification	Classification + Heat treatment	Classification + Heat treatment + Fly ash cleaning
Final disposal volume <sup>1</sup>	Approx 2.1 to 3.1 million m <sup>3</sup> <small>&lt;Breakdown&gt;</small> Removed soil: 2 to 3 million m <sup>3</sup> Waste: 0.1 million m <sup>3</sup>	Approx 1.5 to 2.2 million m <sup>3</sup> <small>&lt;Breakdown&gt;</small> Removed soil: 1.4 to 2.1 million m <sup>3</sup> Waste: 0.1 million m <sup>3</sup>	Approx 0.3 to 0.5 million m <sup>3</sup> <small>&lt;Breakdown&gt;</small> All waste	Approx. 0.05 to 0.1 million m <sup>3</sup> <small>&lt;Breakdown&gt;</small> All waste
Radioactivity concentration (Soil derived)	Several ten thousand Bq/kg	Several ten thousand Bq/kg	Several hundred thousand Bq/kg -	- Several ten million Bq/kg
Structure (Type of disposal site)	<small>&lt;(1) Removed soil&gt;</small> 	<small>&lt;Waste(0.1million Bq/kg or less)&gt;</small> 	<small>&lt;(3) Waste (more than 0.1 million Bq/kg)&gt;</small> 	
Required space <sup>*2</sup>	Approx. 30 – 50 hectares	Approx. 30 – 40 hectares	Approx. 20 – 30 hectares	Approx. 2 – 3 hectares
Volume reduction cost <sup>*3</sup>				

\*1 Based on the results of the technical demonstration projects that have been carried out to date, the volume reduction rate was set and calculated, and then converted to bulk density at the time of compaction. The quantities are rounded off for ease of comparison between scenarios.

\*2 The thickness of the landfill for types (1) and (2) is 10m, and for type (3) it is 5m. The evaluation is based on the area required for the landfill only, and does not take into account factors such as the distance between the landfill and other facilities.

\*3 In scenario (1), the cost of volume reduction treatment is zero because volume reduction technology is not applied, but the cost of volume reduction treatment increases as the application of volume reduction technology increases.

# Efforts to Build Understanding for Managed Recycling and Final Disposal

## Nationwide Dialogue Forum



## Site visits



Interim Storage Facility



Tours for foreign press at ISF Information Center

## Installation of potted plants using removed soil



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 Nov. 2023).

\* Removed soil with radioactivity concentration of approx. 5,100 Bq/kg is used.

## COP29(Azerbaijan)



# 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 )



Site visit to Fukushima (May 2023)

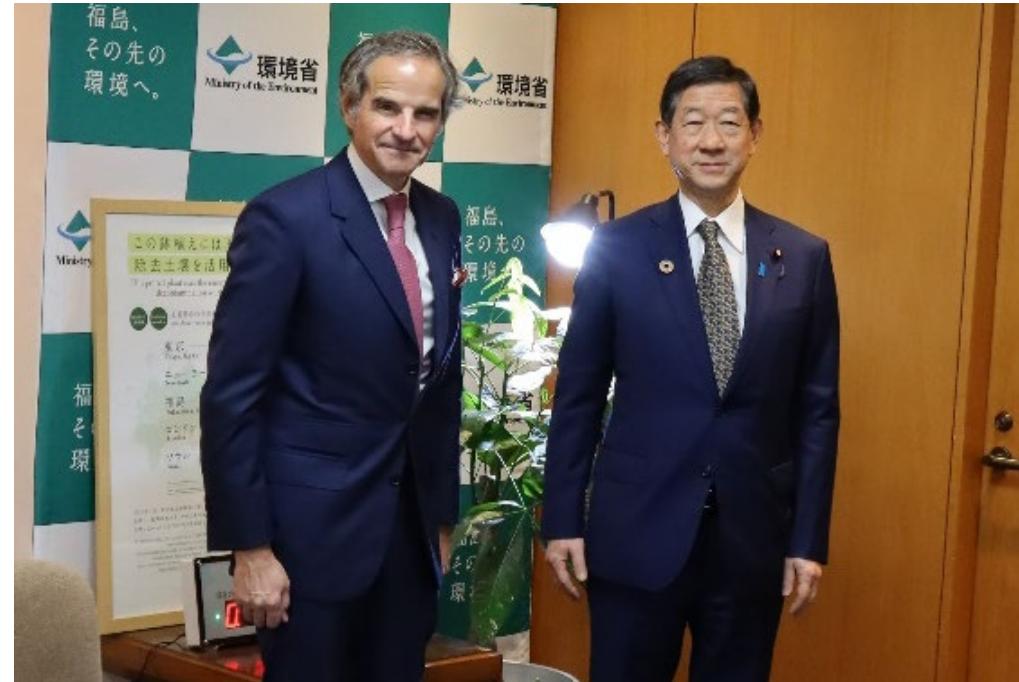


Interim Storage Facility



The third IEM (Feb. 2024)

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



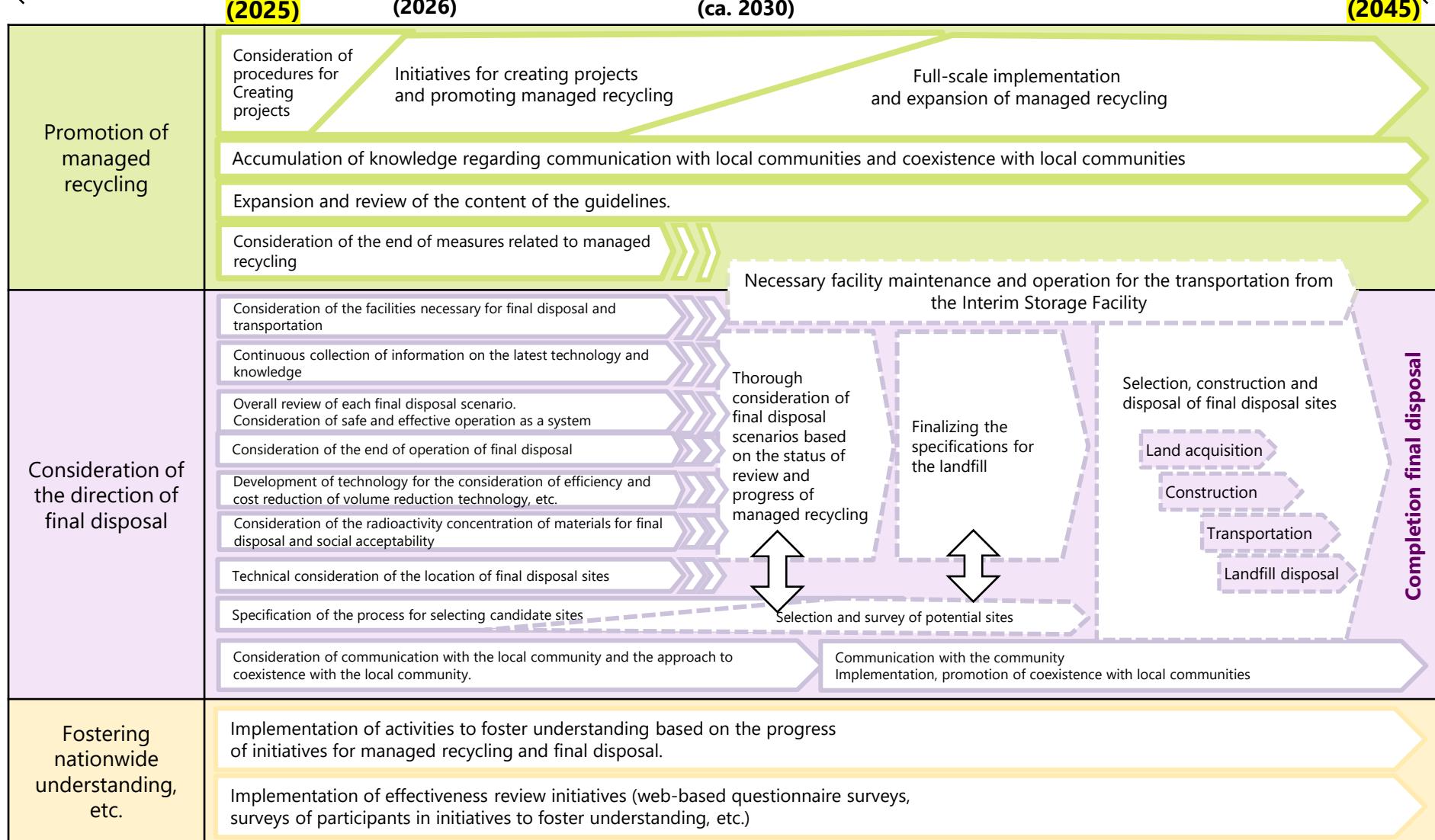
Handover to Minister of the Environment (10 Sep. 2024)

**Future follow-up evaluation** of the progress on the managed recycling, final disposal and communications activities will be conducted **annually until 2030**.

The Final Report is available at:

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

# Approach Beyond FY2025 for the Final Disposal of Removed Soil and Waste Outside Fukushima Prefecture



\* The dotted line indicates that the process and period may change depending on the final disposal scenario.

\* The project in the Nagadoro District of Iitate Village will be continuously monitored, etc., and will be used as a venue for fostering understanding with the cooperation of the local community.

\* The implementation of projects to foster understanding will also be considered.

\* The use of the site of the Interim Storage Facility, will also be considered.

\* The progress of the above initiatives will be followed up by the IAEA and disseminated internationally.

March 2025

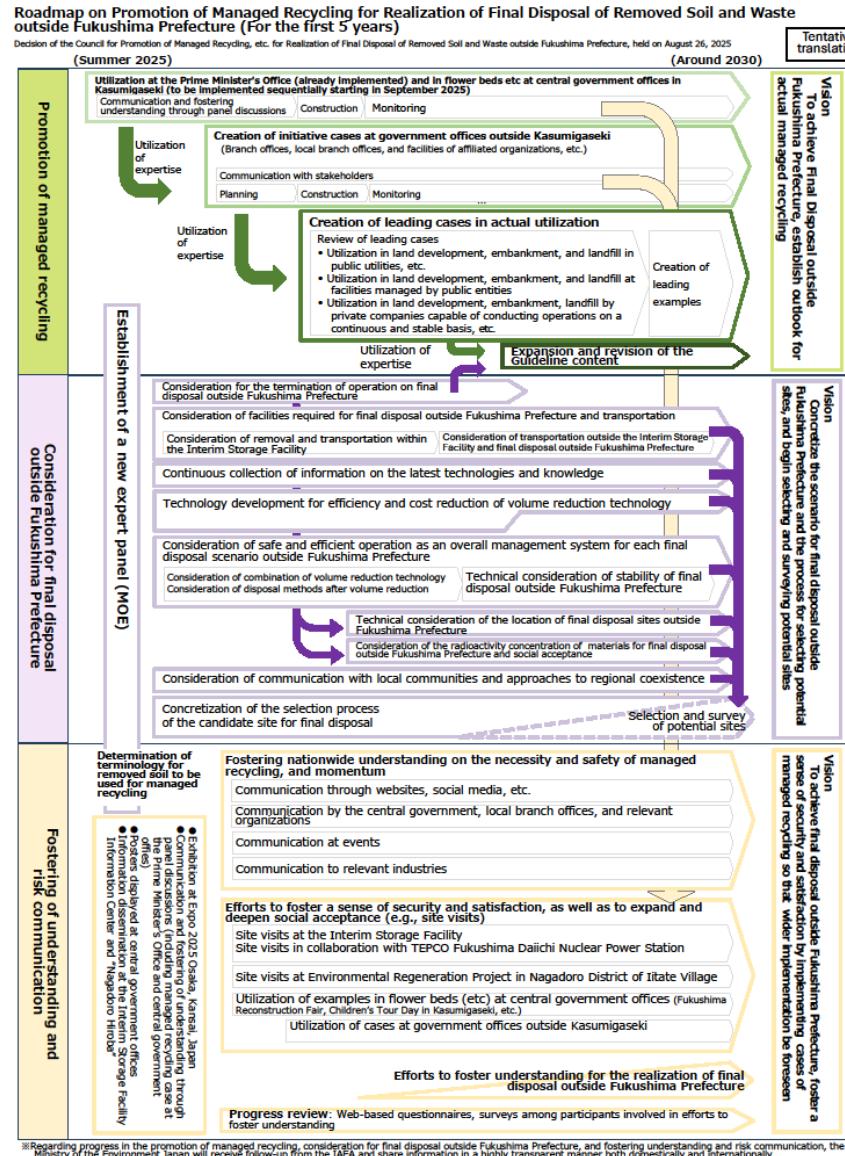
# Roadmap on Promotion of Managed Recycling for Realization of Final Disposal of Removed Soil and Waste outside Fukushima Prefecture

Aug. 2025

## Promotion of managed recycling

## Consideration for final disposal outside Fukushima Prefecture

## Fostering of understanding and risk communication



## Consideration for final disposal outside Fukushima Prefecture

### Formation of a new expert panel (MOE)

Consideration for the termination of operation on final disposal outside Fukushima Prefecture

Consideration of facilities required for final disposal outside Fukushima Prefecture and transportation

Consideration of removal and transportation within the Interim Storage Facility

Consideration of transportation outside the Interim Storage Facility and final disposal outside Fukushima Prefecture

Continuous collection of information on the latest technologies and knowledge

Technology development for efficiency and cost reduction of volume reduction technology

Consideration of safe and efficient operation as an overall management system for each final disposal scenario outside Fukushima Prefecture

Consideration of combination of volume reduction technology

Consideration of disposal methods after volume reduction

Technical consideration of stability of final disposal outside Fukushima Prefecture

Technical consideration of the location of final disposal sites outside Fukushima Prefecture

Consideration of the radioactivity concentration of materials for final disposal outside Fukushima Prefecture and social acceptance

Consideration of communication with local communities and approaches to regional coexistence

Concretization of the selection process of the candidate site for final disposal

### Selection and survey of potential sites

**Vision**  
Concretize the scenario for final disposal outside Fukushima Prefecture and the process for selecting potential sites, and begin selecting and surveying potential sites

# First Implementation of the Managed Recycling, the Prime Minister's Office



- Toward the realization of the final disposal, it is important to reduce the amount of soil to be disposed of, and the key is to promote the use of soil with low radioactivity levels in public works projects (the managed recycling). It is also important to foster understanding of the necessity and safety of the final disposal and the managed recycling.
- Therefore, the Prime Minister's Office took the initiative in promoting the managed recycling efforts.

## ● Conceptual image



Changes in  
Radiation Levels

Before  
**0.07-0.10**  
 $\mu\text{Sv}/\text{h}$   
Above the planned area

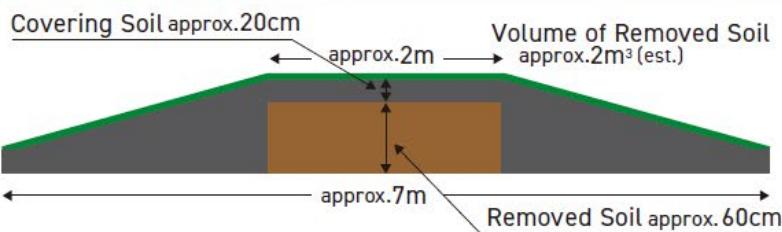
## ● Construction completed



After  
**0.11**  
 $\mu\text{Sv}/\text{h}$   
Above the embankment

\*This change in radiation levels is negligible for human health.

## Vertical Section View

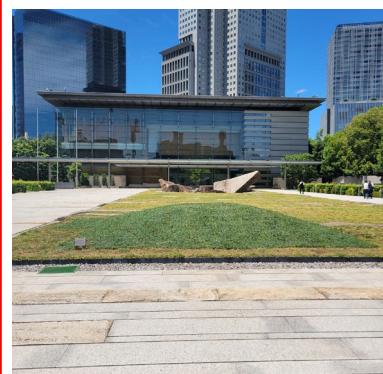


The Prime Minister's Office, July 2025

# Initiative Cases of Managed Recycling in Central Government



Ministry of Foreign Affairs



Prime Minister's Office

Cabinet Office

Ministry of Finance

Ministry of Land,  
Infrastructure,  
Transport and  
Tourism

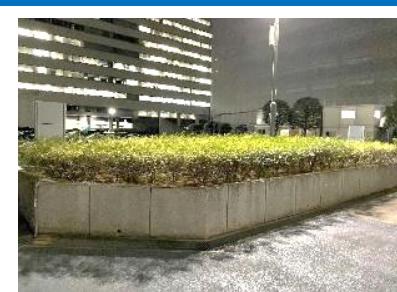


Ministry of Justice

Ministry of Internal Affairs  
and Communications

Ministry of  
Agriculture, Forestry  
and Fisheries

Ministry of the  
Environment



Ministry of  
Economy, Trade  
and Industry



## Timeline of IAEA Assistance to MOE on Managed Recycling and Final Disposal of Removed Soil

May 2023 – Feb. 2024	IAEA International Experts Meetings (3 Sessions)
Sep. 2024	Final Report on the IAEA Experts Meeting
Mar. 2025	<MOE> "Enforcement Regulations for the Act" was amended <MOE> "Guidelines for Managed Recycling" were announced
May 2025	<MOE> "Basic Policy on Promotion of Managed Recycling for the Realization of Final Disposal" was announced
Jul. – Sep. 2025	<MOE> Initiative cases of managed recycling at 10 government offices including Prime Minister's Office
Aug. 2025	<MOE> "Roadmap on Promotion of Managed Recycling for Realization of Final Disposal" was announced
<IAEA & MOE> A contract for follow-up evaluation through 2030 is in the process of being concluded.	

## (Decontamination)

- **Full-scale decontamination activities were completed by March 2018, other than the Restricted Areas (RA).**  
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 are still in progress**, and in December 2023, decontamination activities in the Specified Living Area for Returnees (SLAR) 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 **almost all of the removed soil and waste had been transported into the ISF by March 2022, other than the RA.**
- **More than 14 million m<sup>3</sup> 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, volume reduction and recycling of removed soil have been promoted.
- **Based on the Strategy, technology development and demonstration projects have been promoted, development of necessary basic technologies was completed by March 2025.**
- **Standard for the managed recycling and landfill disposal of removed soil were formulated in March 2025 based on the achievements of initiatives to date. In addition, the Ministerial Council compiled the basic policy for the realization of final disposal outside Fukushima Prefecture in May 2025, and the roadmap on promotion of managed recycling for realization of final disposal in August 2025.**
- **To promote managed recycling, as a leading example, it is being implemented in 10 central government offices, including the Prime Minister's Office.**

## (Cooperation with international community)

- **The MOEJ has shared a wide range of experience and lessons learned obtained through more than 14-year off-site remediation activities. These efforts will be continued, for example, through cooperation with the IAEA, international meetings and conferences. The IAEA and the MOE are in the process of concluding a contract for follow-up assessments through 2030.**

Thank you



For more information:  
<http://josen.env.go.jp/en/>