



# The Current Situation of Off-site Clean-up in Japan

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Kazumi Yoshikawa

Director



Ministry of the Environment, Japan

# **1.Current Situation of Off-site Decontamination**

## **2. Interim Storage Facility**

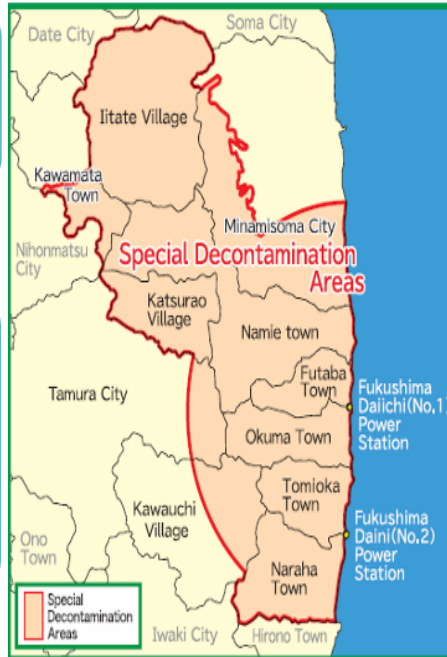
# Decontamination based on the “Act on Special Measures”

## 1) Special Decontamination Area

Designation of SDA by  
the Minister of the  
Environment

Development of the  
decontamination  
implementation plan  
in the SDA  
by the Minister of the  
Environment

Implementation of decontamination  
by the national government



## 2) Intensive Contamination Survey Area

Designation of ICSA by  
the Minister of the Environment  
(Areas where air dose rate is  $0.23\mu\text{Sv/h}$  or more)  
※ $0.23\mu\text{Sv/h}$  is a criterion for designation of ICSA and not a decontamination target

Survey measurement by the mayors of the  
municipalities

Development of the decontamination  
implementation plan by the mayors of the  
municipalities

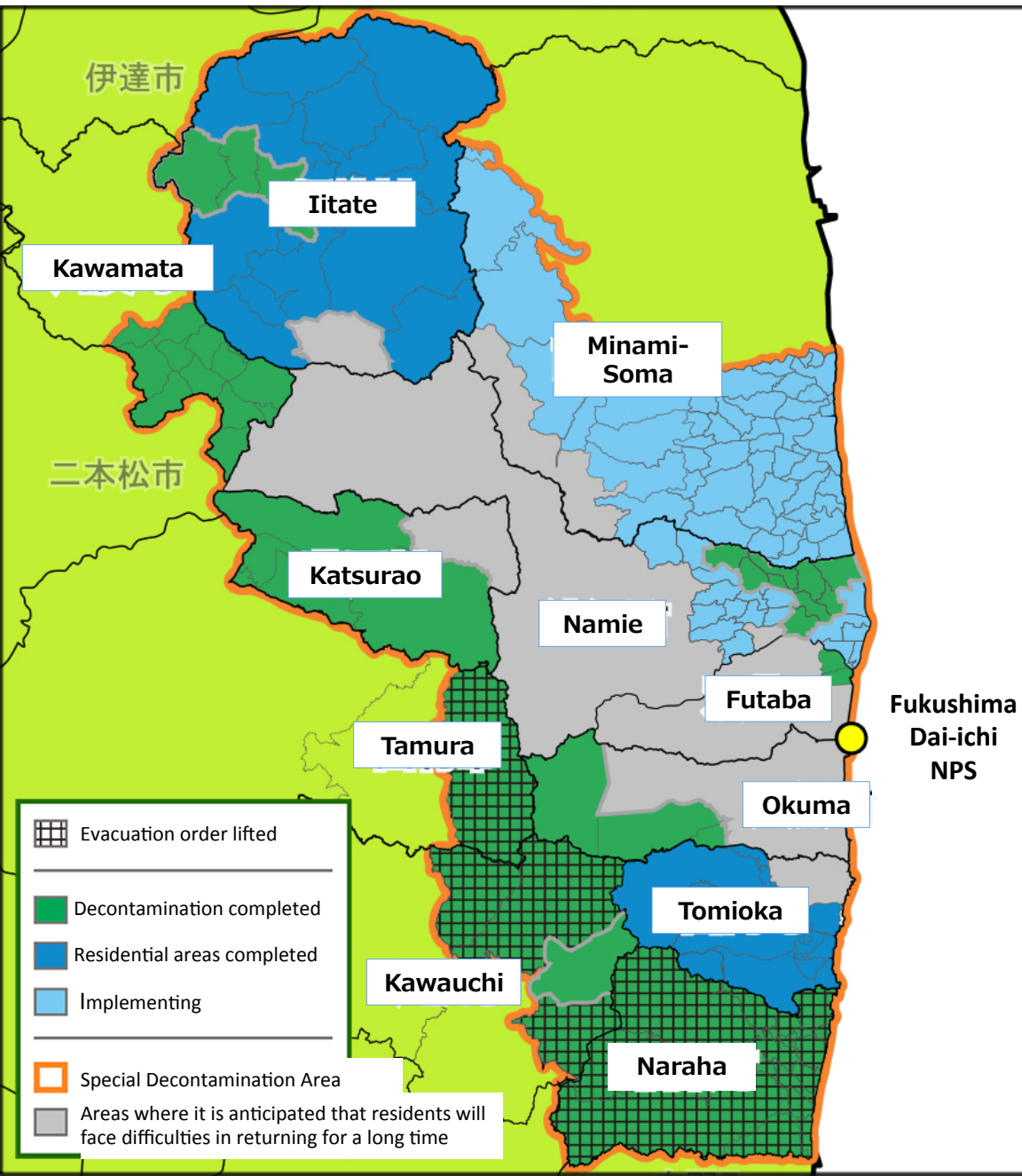
Implementation of decontamination  
by the municipalities, etc.  
(The national government allocates budgets.)

Note: The air dose rate  $0.23\mu\text{Sv/h}$  corresponds to a cautiously estimated individual exposure dose of  $1\text{mSv/y}$  assuming that people spend  
① 8 hours outside ② 16 hours in a wooden house with a low shielding rate in a day

## Decontamination and disposal of soil at NPS

Implemented by the nuclear power station operating company in charge (TEPCO)

# Progress in the Special Decontamination Area② (As of the end of March, 2016)



<Municipalities in which evacuation order were lifted>

Municipality	Evacuation order was lifted on
Tamura city	April 1, 2014
A part of Kawauchi village (former “areas to which evacuation orders are ready to be lifted”)	October 1, 2014
Naraha town	September 5, 2015

# Progress in the Special Decontamination Area ③ (As of the end of March, 2016)

## Main Topic

- Decontamination in progress with max. 11,700 labor per day (Feb. 16 – Mar. 31, 2016)
- Decontamination has completed in Minami-Soma and Tomioka (residential area), Futaba (whole area)

### 1. Municipalities implementing whole area decontamination (aimed to complete all the decontamination by March 2017)

	Securement of TSS Note 1,3	Consent on decontamination Note 3	Execution rate (%) Note 2,3			
			Residential area	Farmland	Forest	Road
Iitate	Secured	almost completed	100	55	86	48
Minami-Soma	Mostly secured	approx. 90%	88	33	58 (53)	39
Namie	approx. 90%	almost completed	48 (44)	37 (36)	75 (61)	68
Tomioka	Secured	Completed	100 (93)	98 (85)	100	99.7 (98)

### 2. Municipalities completed decontamination

	Time of Completion Note 4
Tamura	June 2013
Naraha	March 2014
Kawauchi	March 2014
Okuma	March 2014
Katsurao	December 2015
Kawamata	December 2015 Note 5
Futaba	March 2016

Note 1: The ratio shows: Contracted TSS area / Necessary TSS area. It might change because of increase and decrease of the necessary area depending on the progress of decontamination construction

Note 2: Implementation ratio: Decontamination-completed area / Target decontamination area. They might be both revised with future investigation. "Areas where it is anticipated that residents will face difficulties in returning for a long time" are basically not included

Note 3: Numbers in () are the numbers in a previous month. Numbers without () have not been changed from the previous month

Note 4: Time of decontamination completion means the time which decontamination is completed in the area with resident's consent. If the area is not decontaminated, it will be eventually decontaminated once the consent is obtained

Note 5: A part of farmland struck by heavy rain disaster is not included

# Progress in the Intensive Contamination Survey Area ①

- ◇ Number of municipalities designated as the Intensive Contamination Survey Area:

104 (at the start) → 97 (at present)

The designation was lifted in seven municipalities because of the radiation dose decrease, etc.

- ◇ Municipalities that formulated decontamination implementation plans:

93 municipalities (all that had intended to do)

- ◇ Municipalities that have completed or almost completed their plans (and continued monitoring of air dose rates).

49 municipalities

- ◇ Municipalities in process of implementing decontamination based on the plans:

44 municipalities

In most of the decontamination plans, ending time period is set between FY2015- FY2016.

- ◇ The progress of decontamination

• **In Fukushima Pref.** (as of the end of March 2016):

Public facilities: approx. 90%

Residential houses: approx. 80%

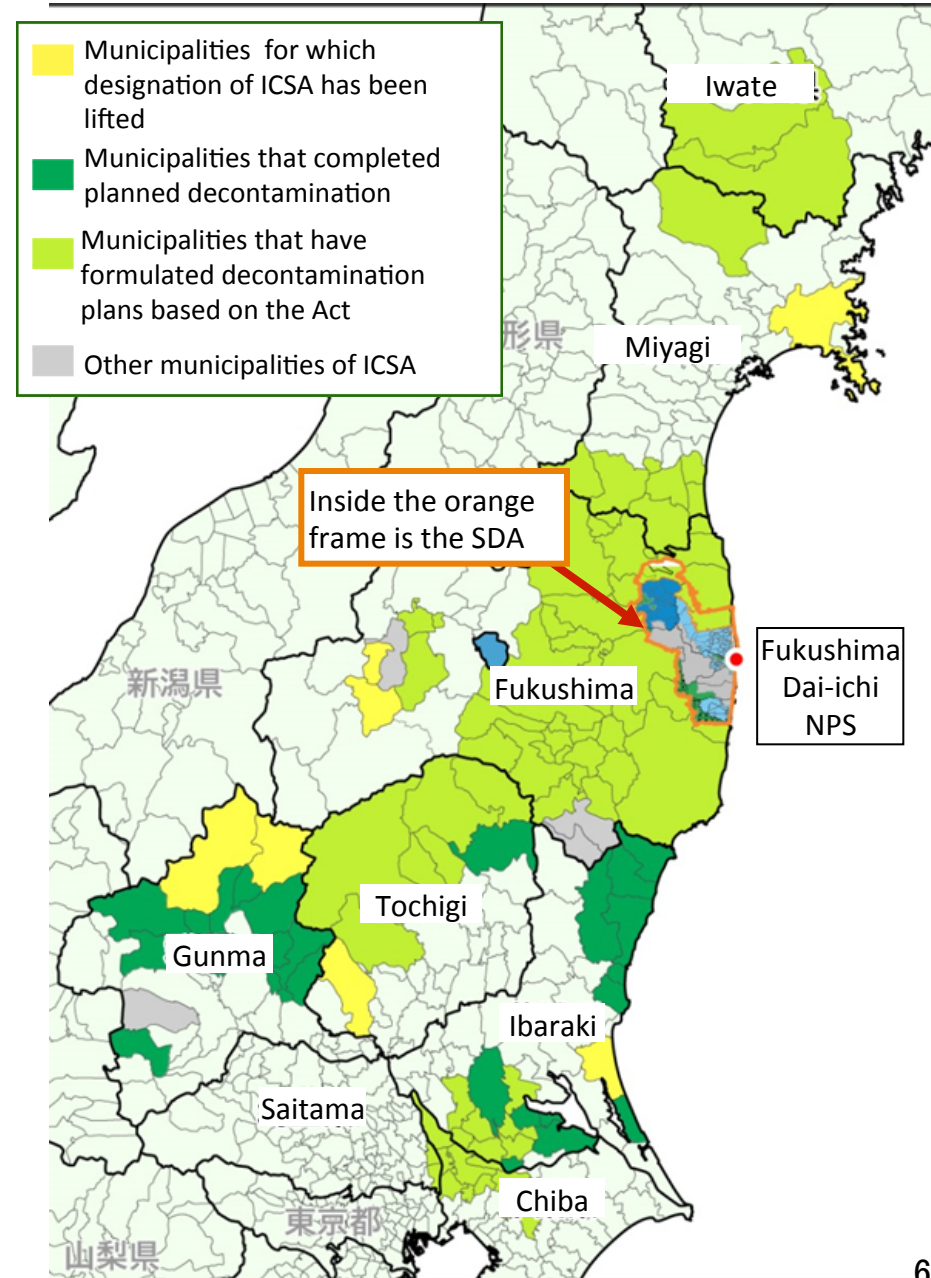
Roads: approx. 50%    Forests in living area: approx. 50%

• **Outside Fukushima Pref.** (as of the end of Dec. 2015):

Schools & nurseries/ parks, sports facilities / residential houses: almost completed

Roads: approx. 90%

Farmland & meadows/ forests in living area: completed



# Progress in Intensive Contamination Survey Area ③

Within Fukushima Prefecture (As of the end of March 2016)	Ordering Ratio (Number of ordering/Number of planning)	Executing Ratio (Number of actual achievement/ Number of planning)
Public facilities, etc.	mostly ordered	approx. 90%
Residential houses	approx. 90%	approx. 80%
Roads	approx. 70%	approx. 50%
Farmlands & meadows	mostly ordered	approx. 90%
Forests(in living areas)	approx. 70%	approx. 50%

Note: The number of planning areas have been continuously revised, based on the investigation result made by Fukushima Prefecture

Outside Fukushima Pref. (As of the end of Dec. 2015)	Ordering Ratio (Number of Ordering/number of planning)	Executing Ratio (Number of actual achievement/ number of planning)
Schools and nurseries	mostly ordered	almost completed
Park, Sports facilities	mostly ordered	almost completed
Residential houses	mostly ordered	almost completed
Other facilities	approx. 90%	approx. 80%
Roads	mostly ordered	approx. 90%
Farmlands & meadows	ordered	completed
Forests( in living areas)	ordered	completed

Note: The number of planning is the total number until the end of Dec. 2015, which might be increased in future depending on each municipality's status.



# Effects of Decontamination Work in Kawauchi

【Air dose rate at the height of 1m from the ground at entire Kawauchi village\*】

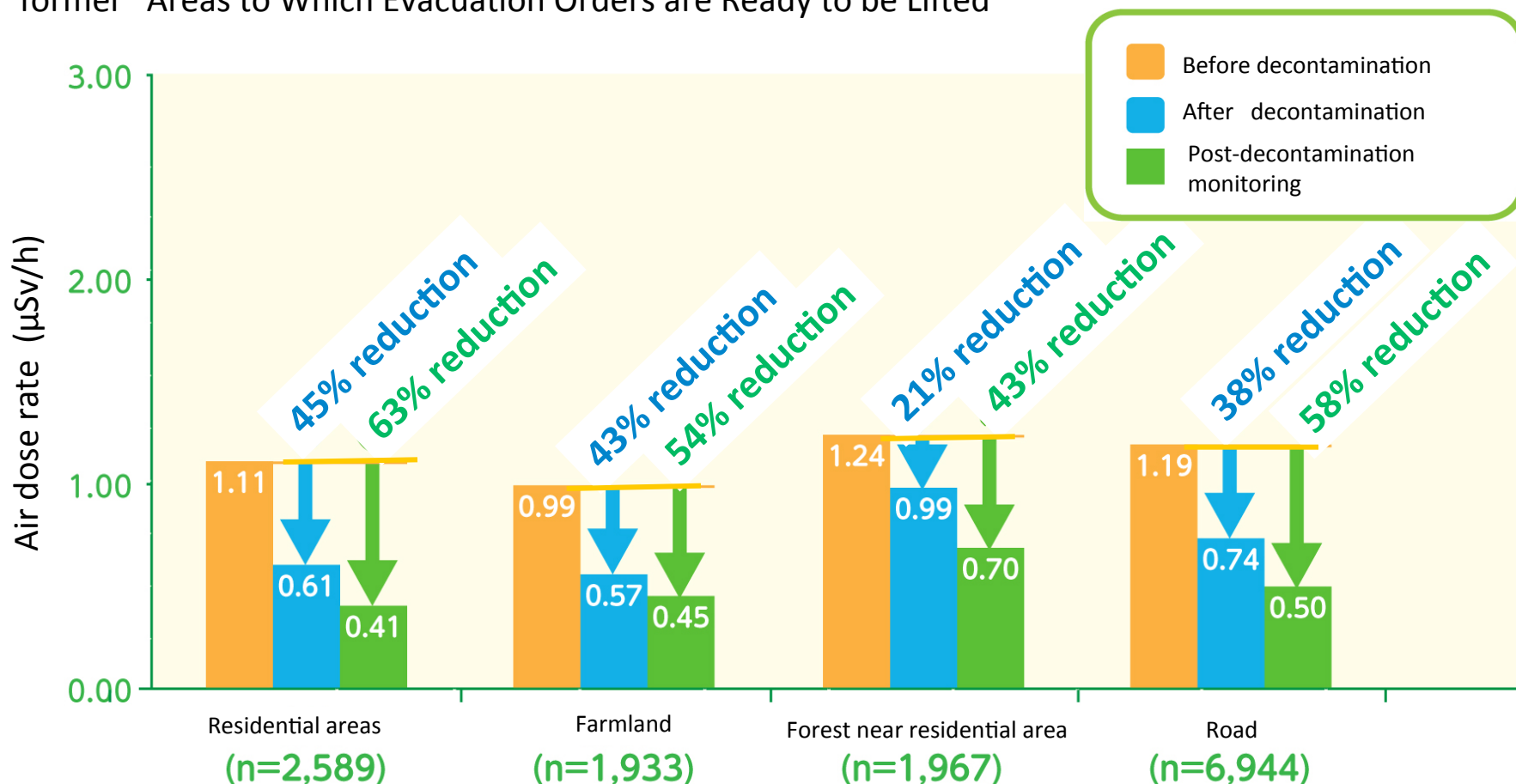
Air dose rates at residential areas :

decreased approx. 45% comparing before decontamination to after decontamination

decreased approx. 63% comparing before decontamination to post-decontamination monitoring

and the effects of decontamination have been retained

\*entire Kawauchi village: indicates both former “Areas in Which Residents are not Permitted to Live” and former “Areas to Which Evacuation Orders are Ready to be Lifted”





1. Current Situation of Off-site Decontamination

**2. Interim Storage Facility**

# What is an Interim Storage Facility (ISF)?

- ◆ In Fukushima Prefecture, large quantities of contaminated soil and waste have been generated from decontamination activities.
- ◆ Currently, it is difficult to clarify methods of final disposal of such soil and waste.
- ◆ Until final disposal becomes available, it is necessary to establish an Interim Storage Facility (ISF) in order to manage and store soil and waste safely.

The following materials generated in Fukushima Prefecture will be stored in the ISF.

1. Soil and waste (such as fallen leaves and branches) generated from decontamination activities, which have been stored at the Temporary Storage Sites.



\* In principle, combustible materials will be incinerated, and incinerated ash will be stored.

2. Incineration ash with radioactive concentration more than 100,000 Bq/kg.

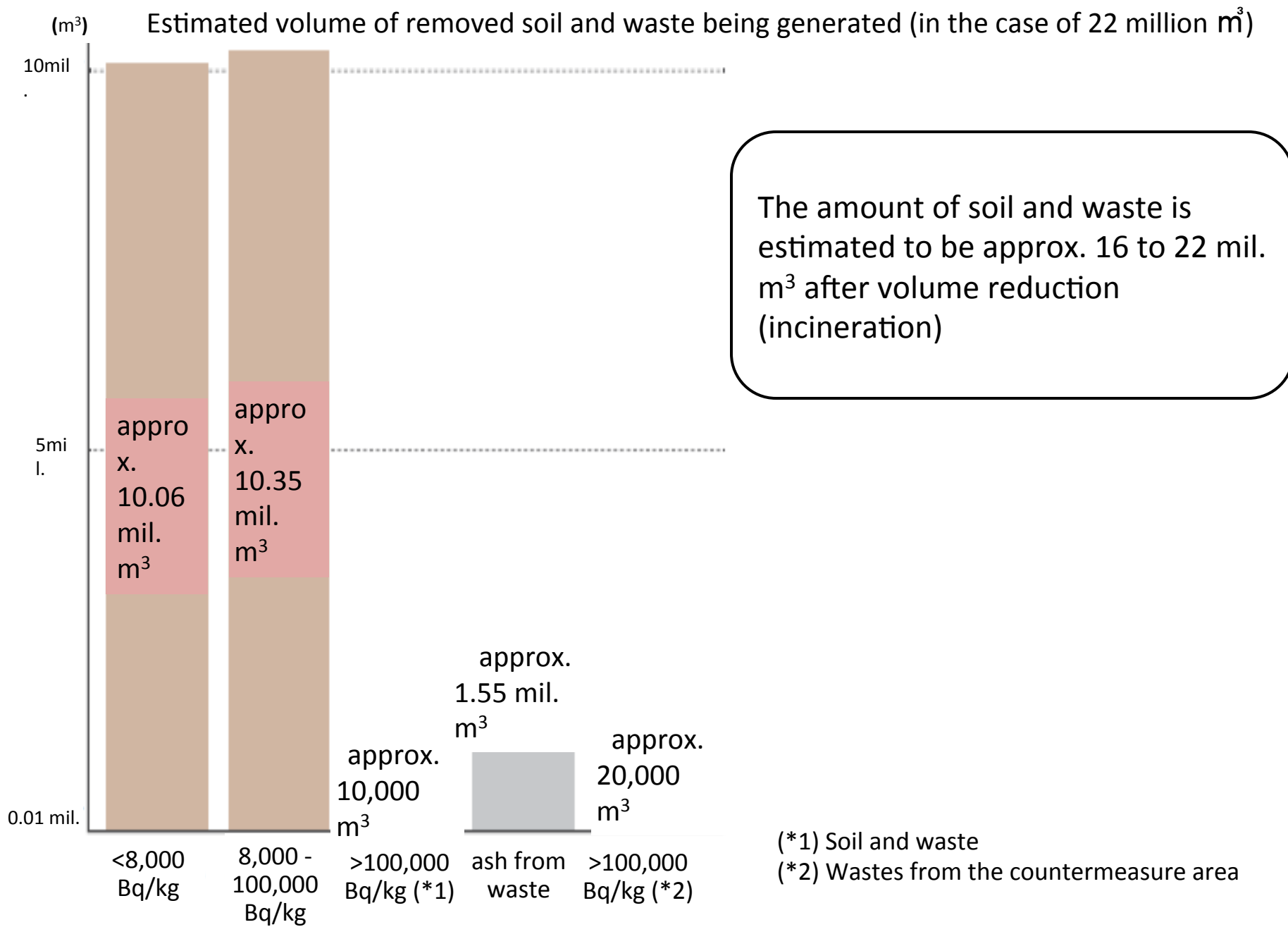
# Process regarding the Interim Storage Facility

TIME	CONTENTS
Oct. 2011	MOE announced the Basic Principles of the roadmap of the Interim Storage Facility (ISF).
April 2013-	MOE started the field survey including boring survey, obtaining the consent from the local communities..
Dec. 2013	MOE requested that Fukushima Prefecture and the 3 towns (Futaba, Okuma and Naraha) accept the establishment of the ISF .
Feb. 2014	The Governor of Fukushima requested the national government to consolidate the ISF in Okuma and Futaba.
May-June, 2014	The Government held <u>explanatory meetings for residents. (16 times in total: 10 times in Fukushima, 6 times outside Fukushima)</u>
Sep. 1, 2014	<u>The Governor of Fukushima accepted the construction of the ISF, and both mayors of Okuma and Futaba agreed that the government would explain to the landowners. At the same time, the Governor asked confirmation of the five conditions of the national government before its acceptance of transportation of soil.</u>
Sep. 2014 -	MOE held <u>explanatory meetings for landowners</u> (12 times in total: 9 times in Fukushima and 3 times outside Fukushima).
Oct. - Nov. 2014	<u>The amendment bill for the Japan Environmental Safety Corporation (JESCO) Law in order to legislate the final disposal of contaminated soil and waste outside Fukushima Prefecture</u> was approved by the Cabinet and submitted to the Diet in Oct. The law was enacted in Nov. and put into effect in Dec.
Dec.2014-Jan.2015	<u>Both Okuma and Futaba accepted the construction of the ISF.</u>
Feb. 3, 2015	<u>The construction of stock yards in the ISF started.</u>
Feb. 8, 2015	<u>The Minister of the Environment and the Minister for Reconstruction explained to the Governor of Fukushima the progress related to the five conditions which should be confirmed before the transportation of soil to the ISF.</u>
Feb. 25, 2015	<u>The Governor of Fukushima and both mayors of Okuma and Futaba conveyed the acceptance to the Minister of the Environment and the Minister for Reconstruction.</u>
March, 2015 -	<u>Transportation of soil from temporary storage sites to the stock yards started in Okuma on March 13, in Futaba on March 25, and sequentially in other municipalities.</u>

# Planned Site for the Interim Storage Facility



# Estimated Storage Volume in the Interim Storage Facility



# Facilities and Disposal Process at the Interim Storage Facility

○The Interim Storage Facility consists of several facilities with various functions.

Temporary Storage Sites,  
etc.

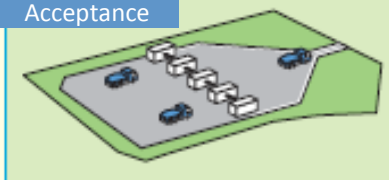


## Acceptance & Separation Facility

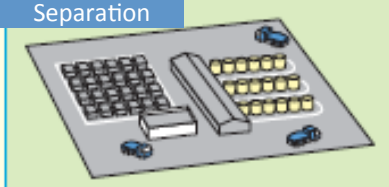
To classify the soil and waste transported by measuring the weight and radiation dose.

Image

Acceptance



Separation



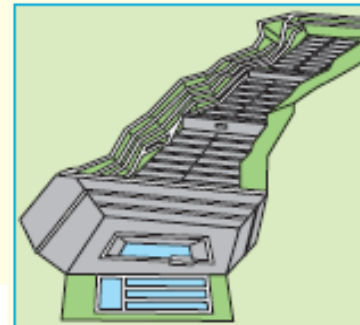
## Other Facilities

- Screening
- Water treatment
- Stock yard
- Admin. Office
- R&D

## Soil Storage Facility

To store soils after classification by radioactive cesium concentrations and other features

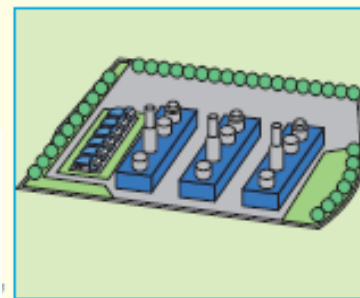
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## Volume Reduction Facility

To reduce the volume of stockpile by incinerating the combustibles (branches and plants, etc.)

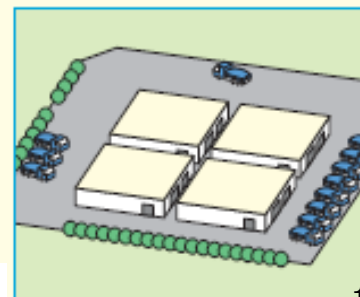
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## Waste Storage Facility

To store waste (incineration ash, etc.) measuring more than 100,000 Bq/kg

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# Pilot Transportation / Stock Yards

- ◆ In order to confirm safe and secure delivery towards the transportation of a large amount of decontamination soil, MOE implemented pilot transportation approx.  $1,000\text{m}^3$  each from 43 municipalities in Fukushima Prefecture from 2015-2016
- ◆ Pilot transportation period: March 13, 2015 – March 28, 2016

## <Actual achievement of the pilot transportation>

- ◆ **Stored volume:  $45,382\text{m}^3$  in total**

Stock Yards in Okuma:  $23,266\text{ m}^3$

Stock Yards in Futaba:  $22,116\text{ m}^3$

(Incombustibles:  $40,034\text{m}^3$ , Combustibles:  $5,348\text{m}^3$ )

\* Calculated on the assumption that the volume of a large bag is  $1\text{ m}^3$

- ◆ **Total number of trucks used: 7,529 in total**

Stock yards in Okuma: 3,868 trucks

Stockyards in Futaba: 3,661 trucks

- ◆ Results of truck screening

Surface doses of all the trucks from the Stock yards have been screened and proved to be below the standard of 13,000 cpm.



Facilitation of bags at Stock Yards



Operation of a truck screening



# Measures towards the Final Disposal of Decontamination Soil outside Fukushima Pref.

## 8 steps towards the final disposal and technological review

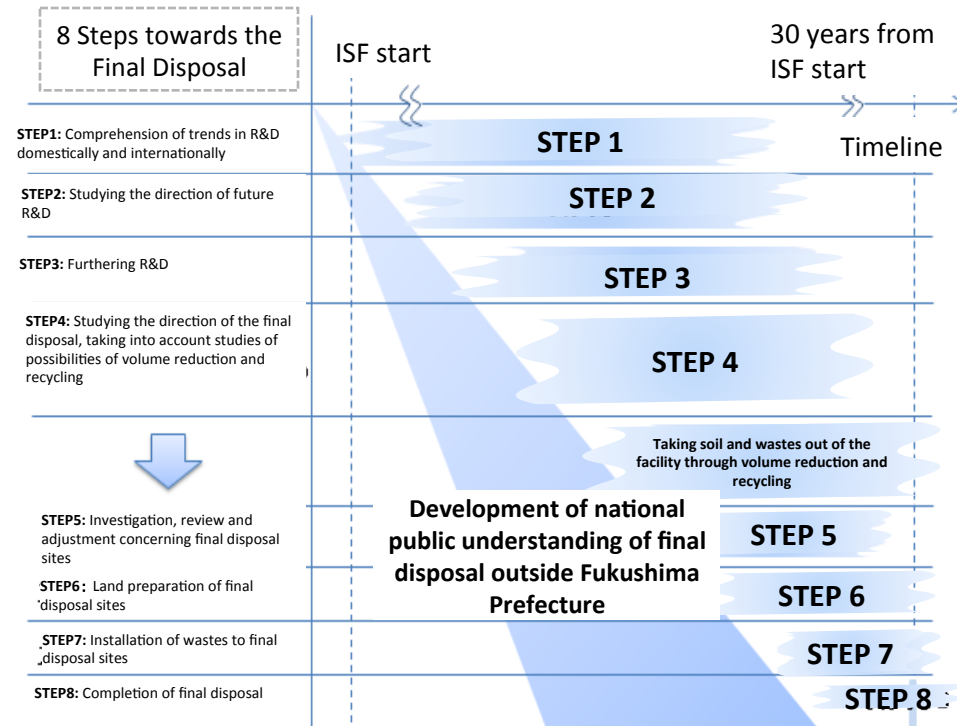
- ◆ Measures will be processed according to 8 steps towards the final disposal
- ◆ MOE established a meeting with experts reviewing development and concept of volume reduction and recycling technologies, and sequentially proceed them from the possible field
- ⇒ MOE shall plan final disposal volume, radioactive concentration, structure and dimension of the site based on technological review and measures, then discuss investigation and adjustment of the final disposal site

## Strategy for volume reduction & recycling technology development and the roadmap

In April 2016, MOE summarized “Strategy for volume reduction & recycling technology development” and “Roadmap” as a mid-and long term policy concerning recycling promotion of technology development and decontamination soil after volume reduction treatment towards final disposal outside Fukushima based on the discussion among experts meeting

<Major contents>

- ◆ Volume of the final disposal shall be reduced while increasing the target purified materials as much as possible, and treat decontamination soil by using volume reduction technology
- ◆ Basic technology development will be completed within a decade in order to implement volume reduction & recycling
- ◆ To realize the recycling of purified materials, MOE shall foster the national public for safety and securement, and shall make efforts concerning recycling business operators and social acceptance, cooperating with relevant ministries



# Public Communication

## Provision of basic and comprehensive

### information

■ Web <http://josen.env.go.jp/en/>

■ Call centers in Fukushima and in Tokyo

## Decontamination Information Plaza (Information hub run by MOE and Fukushima Pref.)

### ■ Providing interactive communications with people and municipalities

- Interactive exhibition and workshops
- Dispatch of experts to municipalities, communities, schools, etc.



## Pamphlets, comic books, and videos

### ■ Providing easy-to-understand information with detailed data on decontamination and radiation

- Distributed at meetings, workshops, city offices, banks, and supermarkets in Fukushima, and also available on the Web



## Collaboration with news organizations

### ■ Providing information that helps people understand remediation and the state of the region after remediation, in collaboration with media organizations in Fukushima (Media is the largest information source for Fukushima people)

- Newspaper ads and TV/radio programs

- "Thanks Helmet", a campaign to motivate the decontamination workers and improve relationships between the residents and the workers



## Development of national public understanding

### ■ Widely disseminate information of remediation and the state of the region after remediation to the public so that they can correctly understand the current status of Fukushima and its products



PR of rice harvested from decontaminated paddy fields

Exhibition at Tokyo about "Steps for Restoration of Fukushima"

# Cooperation with International Societies

## Information exchange through bilateral frameworks (U.S., France, UK, etc.) and international organizations (IAEA, OECD/NEA, etc.)

MOE has exchanged information among policy makers and experts, concerning decontamination policy, methods, and research for the environmental behavior of radioactive materials and utilized shared knowledge and information to review and implement its decontamination activities.

### Nov.3-4,2015

4th Meeting of Decommissioning and Environmental Management Working Group (DEMWG)  
U.S./Japan Bilateral Commission (BLC) on Civil Nuclear Cooperation (@Washington D.C.)

### Nov.10-11,2015

The 4th Japan-UK Nuclear Dialogue (@London)

### Nov.24-25,2015

The 5th meeting of the Japan-France Nuclear Cooperation Committee (@Tokyo)

### Nov. 26, 2015

The 3rd Meeting of Japan-Ukraine Joint Committee for the cooperation to advance aftermath response to accident at nuclear power stations

### Nov. 27, 2015

The 3rd Meeting of Japan-Belarus Joint Committee for the cooperation to advance aftermath response to accident at nuclear power stations

### Feb.4-5,2016

The 1st IAEA-MOE Experts Meeting on Environment Remediation of Off-Site areas after the Fukushima Dai-ichi Nuclear Power Station Accident (@Tokyo)

