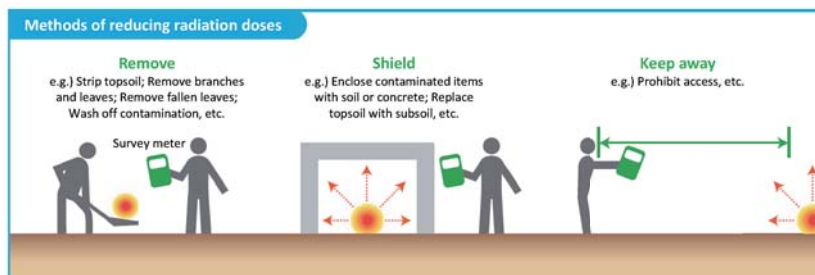


Reduction of Radiation Doses

Radioactive materials released into the air due to the accident at Tokyo Electric Power Company (TEPCO)'s Fukushima Daiichi NPS fell onto the ground with rain, etc. and adhered to soil, vegetation, and buildings in people's living environment. Soil and vegetation, etc. thus contaminated are being removed through decontamination work. Removed soil and vegetation, etc. are shielded to prevent them from affecting the surroundings, thereby reducing radiation doses people receive from the environment.



Prepared based on the website, "Environmental Remediation," of the Ministry of the Environment

Radioactive materials released into the air due to the accident at TEPCO's Fukushima Daiichi NPS fell onto the ground with rain, etc. and adhered to buildings, soil, and vegetation, etc. across a wide area. Therefore, the national government has been striving to reduce additional exposure doses through decontamination such as removing those released radioactive materials.

There are three methods of reducing additional exposure doses to remove, to shield, and to keep away radioactive materials. Combination of these methods can reduce additional exposure doses efficiently.

The first is to remove radioactive materials adhering to soil, vegetation or buildings, etc. from people's living environment by such means as stripping topsoil, removing tree leaves, branches and fallen leaves, and washing and cleaning the surface of buildings.

The second is to cover radioactive materials with soil, etc. thereby shielding radiation and reducing ambient doses and exposure doses accordingly.

The third is to take advantage of the characteristic of radiation that the radioactivity intensity reduces as the distance increases (in inverse proportion to the square of the distance from the relevant radioactive material) (p.50 of Vol. 1, "Characteristics of External Exposure Doses").

If radioactive materials are kept away from people, exposure doses can be reduced. Therefore, one option is to prohibit access to places where radioactive materials exist.

These methods are combined and employed to reduce people's additional exposure doses.

(Related to p.176 of Vol. 1, "Three Principles of Reduction of External Exposure")

Included in this reference material on March 31, 2013

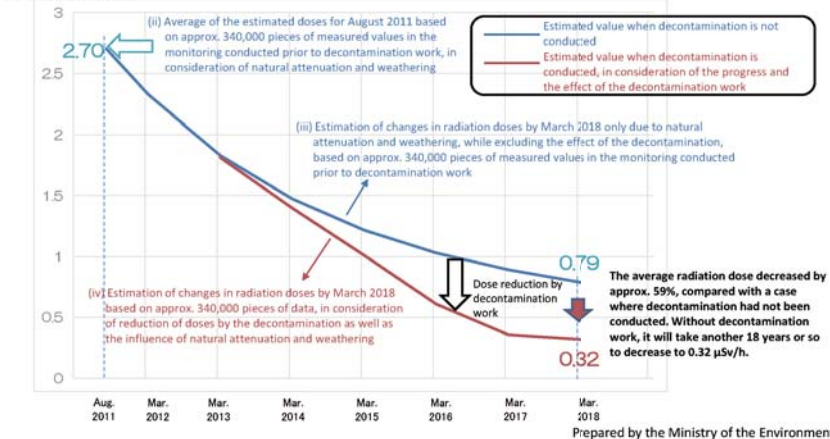
Updated on February 28, 2018

Purpose of Decontamination

Changes in Average Doses in Areas where the National Government Directly Conducted Decontamination Work (Housing Sites and Farmland)

- Radiation doses have been reduced approx. 18 years earlier through decontamination work, compared with a case where no measures had been taken.
- Decontamination is the basis for the reconstruction of disaster-affected areas. The national government is committed to contributing to the reconstruction of those areas, including the lifting of evacuation orders, through achieving early reduction of radiation doses.

(i) Estimation based on approx. 340,000 pieces of data from the results of the monitoring conducted prior to decontamination work from November 2011 to October 2016 and the results of the monitoring conducted after decontamination work from December 2011 to June 2017



This figure shows decreases in doses of accident-derived radioactive materials as estimated based on approx. 340,000 pieces of data from the results of the monitoring conducted prior to decontamination work from November 2011 to October 2016 and the results of the monitoring conducted after decontamination work from December 2011 to June 2017.

The blue line in the graph shows ambient dose rates estimated only taking into account the influence of natural attenuation and weathering (natural factors such as wind and rain), by using the values of August 2011 as the basis. The red line in the graph shows ambient dose rates estimated also taking into account the effects of decontamination. When comparing both of these ambient dose rates as of March 2018, it is known that the average ambient dose rate decreased by approx. 59% as a result of decontamination. This means that the reduction of ambient dose rates was accelerated by approx. 18 years through decontamination work.

In this manner, decontamination work has brought about an earlier reduction of radiation doses, while assisting the effects of natural attenuation of radioactive materials. (Related to p.11 of Vol. 1, "Half-lives and Radioactive Decay")

Included in this reference material on March 31, 2014
 Updated on March 31, 2021

Decontamination has been conducted in accordance with the circumstances of respective areas.
Specific methods differ by location.

Effective methods differ depending on the status of contamination with radioactive materials. First, ambient dose rates are measured, and an optimal method is selected on a case-by-case basis. Radiation doses are measured before and after decontamination work to confirm the effects.



This figure explains specific decontamination methods.

Even in areas where radiation doses are relatively low, fallen leaves and dirt containing radioactive materials are apt to accumulate under the leaves or in gutters of houses or in ditches on the street, causing higher ambient doses in the surrounding areas. At such locations, fallen leaves and dirt are removed and the relevant places are washed and cleaned.

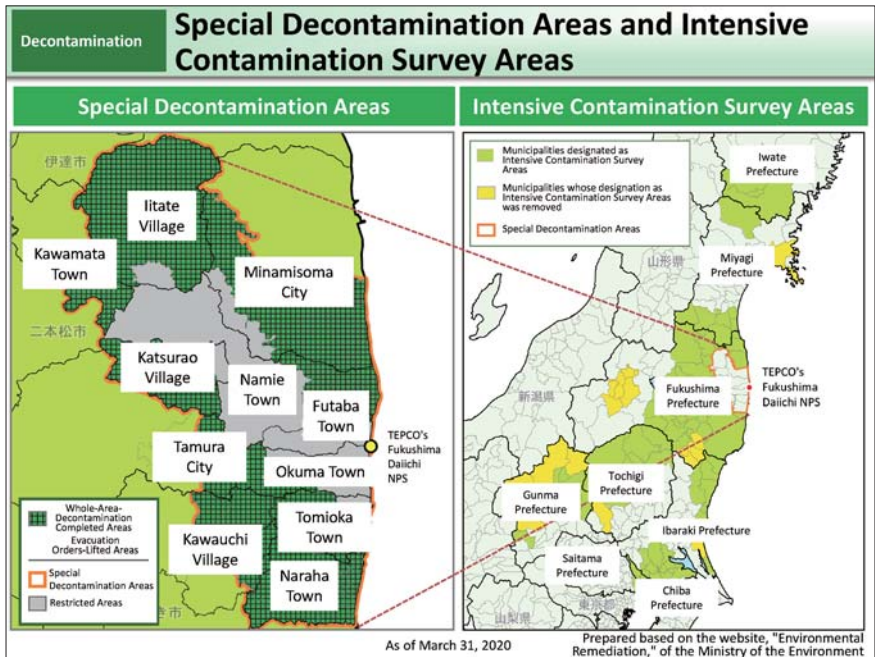
There are areas where radioactive materials adhere to the shrubbery, underbrush or fallen leaves. Radioactive materials are removed through mowing of vegetation, pruning and removal of fallen leaves.

In areas where radiation doses are relatively high, other decontamination methods, in addition to those employed at areas with relatively low radiation doses, may need to be employed. For example, as radioactive materials mostly exist within a layer a few centimeters below the ground surface, effects of radioactive materials can be mostly diminished by stripping topsoil (for example, to a depth of 5 cm) or replacing topsoil with subsoil.

Areas where radioactive materials adhere to roofs and walls of buildings or on the paved road, relevant parts are washed and cleaned but such method may not be effective in cases where radioactive materials adhere firmly depending on the nature of their raw materials.

For farmland, proper methods need to be selected in consideration of the effects on agricultural products, as well as the effects on people due to exposure. In farmland plowed after the accident, radioactive materials exist little deeper from the ground surface. However, if all contaminated soil is removed, the farmland becomes unsuitable for farming. Therefore, at such farmland, various methods such as deep tillage (plowing soil as deep as 30 cm in principle) or inversion tillage (replacing topsoil with subsoil) (p.66 of Vol. 2, "Measures for Reducing Transfer of Radioactive Materials to Crops (1/5) - Decontamination of Farmland -") are being employed.

Included in this reference material on March 31, 2013
Updated on February 28, 2018



After the accident at Tokyo Electric Power Company (TEPCO)'s Fukushima Daiichi NPS, the Diet enacted the Act on Special Measures Concerning the Handling of Environmental Pollution by Radioactive Materials Discharged by the Nuclear Power Station Accident Associated with the Tohoku District - Off the Pacific Ocean Earthquake that Occurred on March 11, 2011 (Act on Special Measures Concerning the Handling of Environment Pollution by Radioactive Materials) in August 2011.

Special Decontamination Areas and Intensive Contamination Survey Areas were designated as areas where decontamination is to be conducted under this Act on Special Measures. The decontamination has been conducted in these areas in line with the Act. The soil and waste removed through decontamination work are collected, transported, stored, and finally disposed of safely based on the same Act.

Special Decontamination Areas are areas where the national government directly conducts decontamination work. 11 municipalities in Fukushima Prefecture which were once designated as a Restricted Area or a Deliberate Evacuation Area are designated as Special Decontamination Areas.

Intensive Contamination Survey Areas are areas where municipalities take the initiative in decontamination work, and the national government takes financial measures and technical measures to assist these municipalities.

Whole area decontamination work was completed in all municipalities designated as Special Decontamination Areas by the end of March 2017. Thereafter, by the end of March 2018, whole area decontamination work was completed in all 100 municipalities in eight prefectures including Intensive Contamination Survey Areas, except for Restricted Areas.

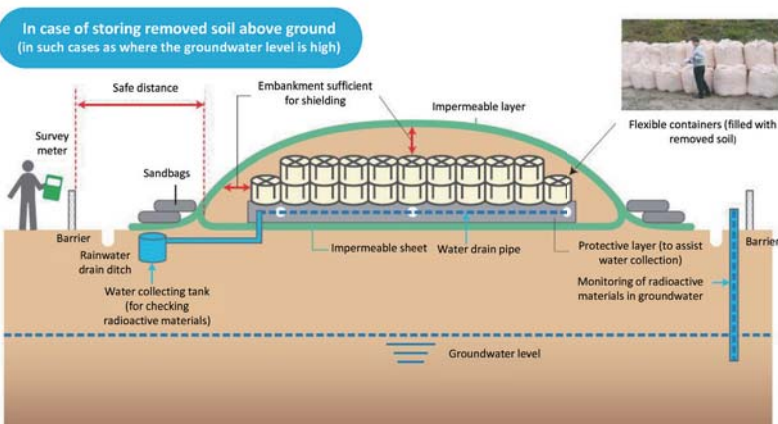
In cases that there are any points where the effects of decontamination are not maintained after the completion of whole area decontamination work, causes are to be ascertained to the extent possible depending on the circumstances of individual points, and follow-up decontamination is to be conducted when it is found necessary by comprehensively taking into consideration the spread of the contamination and the effects and feasibility of decontamination work, in addition to additional exposure doses.

In Special Decontamination Areas, evacuation orders were all lifted by March 4, 2020, for all Habitation Restricted Areas and Preparation Areas for Lifting of Evacuation Orders. Additionally, in Intensive Contamination Survey Areas, it was confirmed that radiation doses decreased to below 0.23 $\mu\text{Sv/h}$ in 16 municipalities by the end of March 2020, and the designation as Intensive Contamination Survey Areas was removed for these 16 municipalities.

Included in this reference material on March 31, 2013
 Updated on March 31, 2021

Storage in Temporary Storage Sites (When Storing Removed Soil above Ground)

Soil removed through decontamination work is stored safely on site or at Temporary Storage Sites for a certain period of time.



Prepared based on the website, "Environmental Remediation," of the Ministry of the Environment

The soil and waste removed through decontamination work are stored and managed temporarily on site or at Temporary Storage Sites.

Specifically, removed soil is put in a container (flexible container, etc.) and placed on an impermeable layer (impermeable sheet, etc.), and is shielded sufficiently by such methods as placing sandbags filled with uncontaminated soil around the site to reduce ambient dose rates at the boundary to the same level as that in the surrounding areas.

Additionally, the site is covered with an impermeable sheet, etc., thereby preventing scattering and leakage of removed soil and further preventing infiltration of rainwater and resulting contamination of groundwater, etc.

Radiation doses at the site and radioactivity concentrations in groundwater are measured regularly.

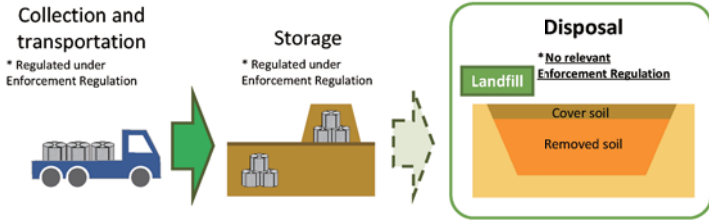
Furthermore, from the perspective of keeping the site away from the public (securing distance), public access to the site is prohibited, and shortening of working hours and other measures are also considered from the perspective of reducing workers' exposure to radiation (p.176 of Vol. 1, "Three Principles of Reduction of External Exposure").

Included in this reference material on March 31, 2013

Updated on March 31, 2019

Status of Removed Soil Outside Fukushima Prefecture

- Removed soil outside Fukushima Prefecture has been stored safely by respective municipalities based on the storage methods regulated by the national government.
 - Municipalities are to follow the disposal methods regulated by the national government, if they collect removed soil and dispose of it by means of landfill in the future.
 - However, specific disposal methods have yet to be determined, and the national government is required to specify disposal methods by Enforcement Regulation.
- At present, the Study Team on Disposal of Removed Soil, which consists of intellectuals, is deliberating on disposal methods from professional standpoints. Furthermore, demonstration projects on landfill disposal have been implemented in Tokai Village in Ibaraki Prefecture and Nasu Town in Tochigi Prefecture.



Prepared by the Ministry of the Environment

Removed soil outside Fukushima Prefecture has been stored safely by respective municipalities (decontamination entities) based on the storage methods regulated by the national government.

Municipalities are to follow the disposal methods regulated by the national government, in case of disposing of removed soil by means of landfill.

However, specific disposal methods have yet to be determined, and the national government is required to specify disposal methods by Enforcement Regulation.

Accordingly, the Ministry of the Environment (MOE) established the Study Team about Disposal of Removed Soil, which consists of intellectuals, in December 2016, and the Study Team has been continuing deliberations from professional standpoints. Furthermore, MOE has been implementing demonstration projects on landfill disposal at two locations, Tokai Village in Ibaraki Prefecture and Nasu Town in Tochigi Prefecture, with the aim of confirming influence on the workers and surrounding environments in case of disposing of removed soil by means of landfill.

Based on the results of the demonstration projects and deliberations by the Study Team, the national government will establish a necessary Enforcement Regulation and Guidelines.

Included in this reference material on March 31, 2019

Updated on March 31, 2020

Comprehensive Efforts toward Regeneration of Forests and Forestry in Fukushima

Others

○ In order to ensure safe and secure lives of the residents and regenerate forests and forestry in Fukushima, relevant ministries and agencies carry out the following measures comprehensively in collaboration with the prefecture and municipalities, while obtaining the understanding of the people in Fukushima.

I. Efforts toward regeneration of forests and forestry

- 1. Efforts for ensuring safe and secure living environment**
 - Steadily continue decontamination work for forests near people's houses, etc.
 - For residential areas surrounded by forests on three sides, taking measures as necessary, such as decontaminating forests 20m or further from the border or installing barriers to prevent soil runoff
- 2. Efforts for restoring *Satoyama* forests close to residential houses**
 - Based on needs of local people, decontamination was conducted properly at places in the forest where residents enter for recreation or daily use; Make efforts for regenerating forestry in broad leaf forests and bamboo groves, etc.
 - Select model districts in and around Areas under Evacuation Orders (including areas where evacuation orders have been lifted), comprehensively promote efforts for restoring *Satoyama* forests in those model districts, and reflect the outcomes of such efforts in carrying out further appropriate measures.
- 3. Efforts for regenerating forestry in mountainous areas, etc.**
 - Promote a project to conduct tree thinning or other forest maintenance work together with measures concerning radioactive materials, and a demonstration project aiming for regeneration of forestry
 - Newly prepare a guidebook on radiation safety that is easy to understand for workers

II. Future-oriented efforts for research and studies

- Continuously engage in research and studies for monitoring radiation doses in the forest, understanding behavior of radioactive materials and reducing radiation doses; Continue efforts for regeneration of forests and forestry into the future while utilizing the outcomes of such research and studies in formulating further measure

III. Information provision and communication

- Meticulously provide the latest information regarding knowledge on radioactive materials in forests and the national government's efforts toward regeneration of forests and forestry, using such media as relevant ministries' websites and PR magazines
- Continue efforts for ensuring safe and secure lives of the people in Fukushima through maintaining good communication, including dispatching experts

Picture of *Satoyama* Forest Restoration Model Project

Prepared by the Ministry of the Environment

In addition to decontamination, comprehensive efforts for regenerating the forestry industry and ensuring safe and secure lives of the residents are indispensable for the regeneration of forests and forestry in Fukushima Prefecture. Based on the guideline, "Comprehensive Efforts toward Regeneration of Forests and Forestry in Fukushima," which was compiled by the Reconstruction Agency, the Ministry of Agriculture, Forestry and Fisheries, and the Ministry of the Environment in March 2016, relevant ministries and agencies have been carrying out measures comprehensively for those purpose, while obtaining the understanding of the people in Fukushima. In November 2020, the outcome of the *Satoyama* Forest Restoration Model Project, which had been conducted in 14 districts based on the guideline, was compiled and published. In FY2020 onward, efforts for restoring *Satoyama* forests will be continued by expanding the coverage as the *Satoyama* Forest Restoration Project.

According to the knowledge obtained at the Environment Restoration Panel established in the Ministry of the Environment, it is found that removal of sedimentary organic materials at locations 20m or further from the border of the forest adjacent to houses and farmland, etc. has little effect in reducing ambient dose rates at the forest border. Also, broad removal of sedimentary organic materials in forests may even make things worse, in ways such as increasing bad effects on trees due to causing erosion of dirt, etc. containing radioactive cesium or impoverishing the soil. Accordingly, under the basic policy to prioritize areas especially necessary from the perspective of protecting human health, decontamination of forests has been conducted within approx. 20m from the borders of the forests adjacent to houses or farmland, etc., in principle.

Included in this reference material on March 31, 2017
Updated on March 31, 2021

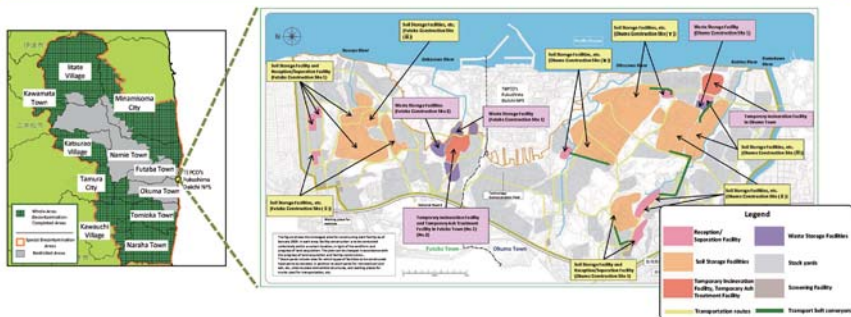
Interim Storage Facility for Removed Soil and Waste

Outline of the Interim Storage Facility

- In Fukushima Prefecture, large quantities of contaminated soil and waste have been generated from decontamination works.
- Currently, it is difficult to clarify methods of final disposal of the soil and waste.
- **It is necessary to establish an Interim Storage Facility (ISF) in order to manage and store the soil and waste safely and intensively until final disposal.**

(Site Area: approx. 16 km²)

- Removed soil and waste generated from decontamination works in Fukushima Prefecture and incineration ash with radioactivity concentrations exceeding 100,000 Bq/kg are stored.
- The national government has legally specified its intention to take measures necessary for completing final disposal outside Fukushima Prefecture within 30 years after the commencement of interim storage (the Amended JESCO (Japan Environmental Storage & Safety Corporation) Act was promulgated in November 2014).



Prepared by the Ministry of the Environment

In Fukushima Prefecture, large quantities of contaminated soil and waste have been generated from decontamination work. The whole amount of material to be transported to the Interim Storage Facility (ISF) is estimated to be approx. 14 million m³, which is equivalent to approx. 11 times the volume of the Tokyo Dome.

Currently, it is difficult to clarify methods of final disposal of the soil and waste, and it is indispensable to establish an ISF as a facility to manage and store the soil and waste safely and intensively until final disposal.

At the ISF, the following are to be stored:

- (i) Removed soil and waste (e.g. fallen leaves and branches, etc.) generated from decontamination work which is currently stored in Temporary Storage Sites;
- (ii) Incineration ash with radioactivity concentrations exceeding 100,000 Bq/kg.

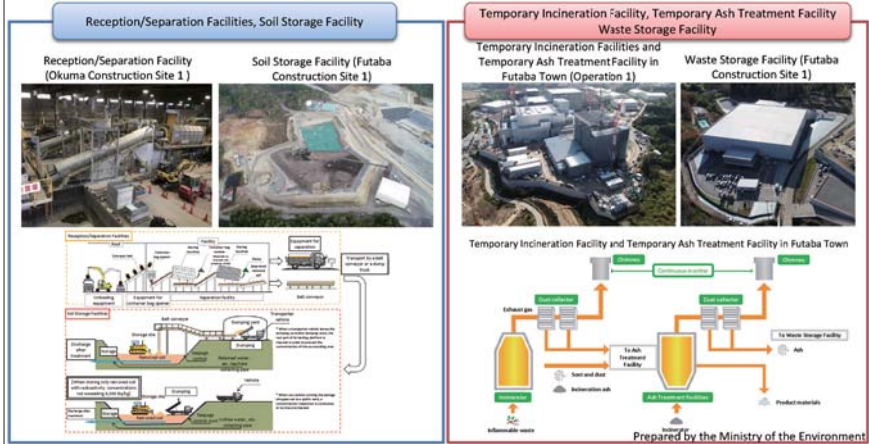
Consent to accept the construction of the ISF was obtained from Fukushima Prefecture in September 2014 and from Okuma Town and Futaba Town in January 2015. The total area of the planned site is approx. 16 km², almost the same area as Shibuya Ward in Tokyo.

• Breakdown of the whole amount of material to be transported to the ISF (approx. 14 million m³)

- (i) Volume of the soil and waste that have already been transported to the ISF
- (ii) Volume to be transported (volume of the soil and waste stored at Temporary Storage Sites, etc., including combustibles before incineration)
- (iii) Volume of waste reduced and stored at Temporary Incineration Facilities

Included in this reference material on January 18, 2016
 Updated on March 31, 2021

- As a site for constructing the Interim Storage Facility (ISF), the national government plans to secure approx. 1,600 ha. As of the end of December 2020, the national government concluded contracts for approx. 1,205 ha (approx. 75.3% of the envisaged construction site; with regard to privately-owned land, 91.1% of the total area was acquired) with 1,787 registered land owners (approx. 75.7% of the total). The acquisition of required land has thus been progressing steadily.
- The development of the facilities also progressed steadily, and in March 2020, the ISF commenced operations for all processes from the treatment and to the storage of removed soil and waste.



The site necessary for the construction of the Interim Storage Facility (ISF) is estimated to be approx. 1,600 ha and the number of relevant registered land owners is 2,360. By the end of December 2020, the contracts have been steadily concluded for approx. 1,205 ha (approx. 75.3% of the envisaged construction site; with regard to privately-owned land, 91.1% of the total area was acquired) with 1,787 registered land owners (approx. 75.7% of the total). The national government considers it most important to obtain understanding on the construction of the ISF, not to mention building a relationship of trust with land owners, and is committed to continuing efforts of providing sufficient explanations to land owners.

Construction of the Reception/Separation Facilities and Soil Storage Facilities started in November 2016. The Reception/Separation Facilities receive the removed soil and waste which is transported from the Temporary Storage Sites in Fukushima Prefecture to the ISF. The soil and waste are unloaded from trucks, taken out from container bags and separated into combustibles and incombustibles. The Soil Storage Facilities store the soil treated at the Reception/Separation Facilities safely in accordance with their radioactivity concentrations and other properties. Reception and separation of the removed soil and waste started in June 2017 and storage of the treated soil at the Soil Storage Facilities started in October 2017. In March 2020, the ISF commenced operations for all processes of the treatment and storage of removed soil and waste.

At the ISF, safety measures to prevent scattering and leakage of radioactive materials are taken. At the Reception/Separation Facilities, scattering of radioactive materials to outside of the facilities is being prevented by roofs, walls, and double doors and through negative pressure control. Floors are structured not to allow permeation of a liquid for the purpose of preventing contaminated water, etc. from permeating into groundwater. At Soil Storage Facilities, scattering of radioactive materials is prevented by watering, and covering with soil, and permeation into groundwater is prevented by seepage control. Leachate, etc. generated at these facilities is treated properly at a leachate treatment facility and is discharged after water quality management.

Included in this reference material on February 28, 2018
Updated on March 31, 2021

- Transportation of the soil and waste from Temporary Storage Sites (TSS) to the Interim Storage Facility (ISF) has been implemented mostly using 10-ton dump trucks.
- Transportation was commenced at the end of FY2014. In FY2020, removed soil and waste were transported from 25 municipalities.
- Safe and secure transportation is being conducted through managing the whole amount of material to be transported and operation of trucks used for transportation, and conducting environmental monitoring, etc.

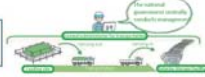


* Even in municipalities where transportation has been completed, if any object that needs to be transported is generated, such object is to be transported to the ISF.

Management and monitoring of transportation

Management of the whole amount of material to be transported

- Objects to be transported from Temporary Storage Sites are all managed centrally by the unit of storage container.



Management of operators of trucks used for transportation

- Positional information, etc. of trucks is ascertained on a real-time basis by the use of GPS or other means.
- Instructions concerning schedule adjustments and route changes, etc. are given depending on circumstances, including traffic conditions.



Prepared by the Ministry of the Environment

By the end of December 2020, an accumulative total volume of approx. 10,110,000 m³ of the removed soil and waste had been transported to the Interim Storage Facility (ISF).

Transportation to the ISF is being conducted on a safety-first policy. Major traffic safety measures are as follows.

1. Training for new and existing workers

Training on transportation of removed soil and waste to the ISF is provided to truck drivers and other workers newly employed. Workers already engaging in transportation also receive training again every fiscal year.

2. Pre-driving of transportation routes

All drivers drive the transportation routes in advance to mutually check high-risk spots and things to note, etc.

3. On-site checking of driving status

At spots where attention should be paid for speeding or heavily trafficked spots, etc. driving status of trucks transporting removed soil and waste is checked (including on their way back).

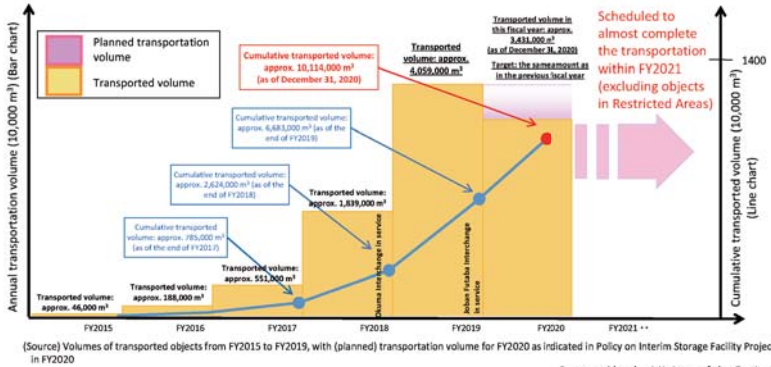
4. Commendation of superior drivers

With the aim of improving and maintaining drivers' motivation and safety awareness, superior driver certificates (to be put on helmets and dashboards) are given to drivers who conducted transportation safely for 100 days or longer via contractors.

Included in this reference material on February 28, 2018

Updated on March 31, 2021

- In order to transport the whole amount of material to be transported to the Interim Storage Facility (ISF) (approx. 14,000,000 m³), transportation is being conducted **on a safety-first policy**, in light of the status of acquisition of the required site and development of facilities, while **making efforts to obtain understanding of local residents**.
- It is expected to **almost complete transportation of removed soil and waste that have been temporarily stored in Fukushima Prefecture (excluding those in Restricted Areas) to the ISF by the end of FY2021**.
- In FY2020, **the same amount of removed soil and waste as in the previous fiscal year is to be transported** on a safety-first policy. So far, **a total of approx. 10,110,000 m³, which accounts for over 70% of the whole amount of material to be transported, has been transported to the ISF** (as of December 31, 2020).

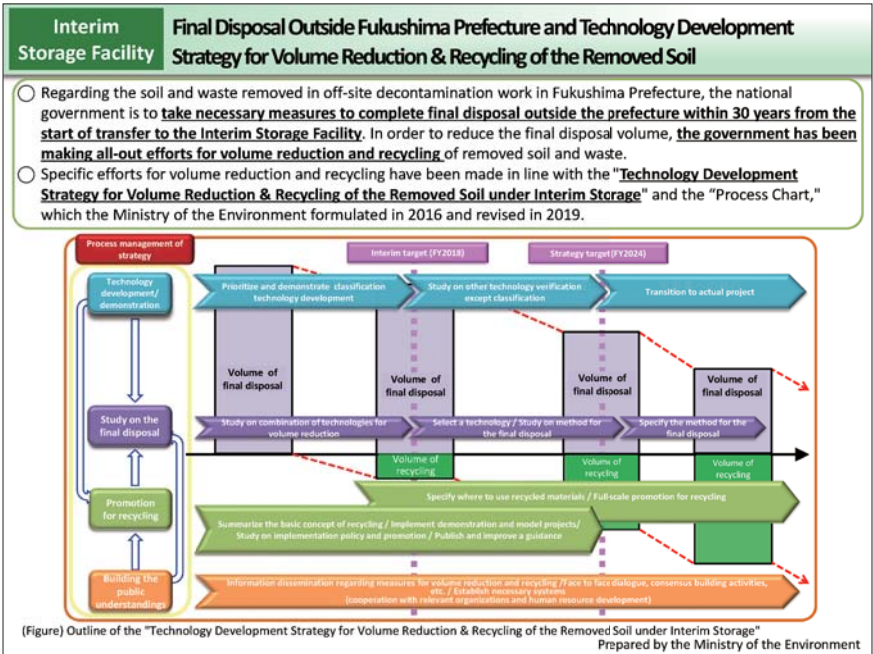


In accordance with the "Policy on the Interim Storage Facility Project in FY2021" announced on December 11, 2020, the transportation of removed soil and waste temporarily stored in Fukushima Prefecture (except the Restricted Areas) is expected to be mostly completed by the end of FY2021. At the same time, the transportation of the removed soil and waste from Specified Reconstruction and Revitalization Base Areas has been carried out.

The figure shows transported volumes from FY2015 to FY2020, etc.

Included in this reference material on March 31, 2017

Updated on March 31, 2021



For achieving final disposal of the soil and waste removed through off-site decontamination work outside Fukushima Prefecture within 30 years from the start of transfer to the Interim Storage Facility, it is important to increase the amount of removed soil and waste that can be recycled to the extent possible through processing them while fully utilizing volume reduction technology, etc., thereby reducing the total amount for final disposal. Regarding volume reduction and recycling of removed soil and waste, efforts have been made steadily to develop technologies, promote recycling, and study the direction for final disposal in line with the "Technology Development Strategy for Volume Reduction & Recycling of the Removed Soil under Interim Storage," which the Ministry of the Environment (MOE) published in April 2016. In the mid fiscal year of the Strategy (FY2018), MOE comprehensively reviewed the achievement of the interim target and the forecast of technology development and recycling in the future, etc. and revised the Strategy in March 2019. Additionally, MOE published a guide (draft), which compiled technological matters to note in handling recycled materials safely in public works, etc., in March 2019 and updated it in December 2019.

Included in this reference material on March 31, 2019

Updated on March 31, 2021

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 'Thickness allowable enough to conduct repairing as a civil engineering structure' is the thickness of the covering soil. Another label states '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)

Included in this reference material on March 31, 2019

Updated on March 31, 2021

Progress of Disposal of Disaster Waste Directly Governed by the National Government in Designated Areas in Fukushima Prefecture

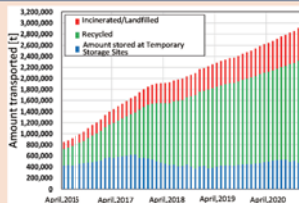


Temporary Incineration Facility in Okuma Town (December 2017)

Disaster waste has been disposed of based on the Treatment Plan on Waste within the Management Areas (partial revision on December 26, 2013).

[Amount of Waste within the Management Areas having been transported to Temporary Storage Sites]

○As of the end of December 2020, a total of approx. 2.93 million tons of waste had been transported to Temporary Storage Sites (of which, approx. 510,000 tons were incinerated, approx. 1,840,000 tons were recycled, and approx. 170,000 tons were landfilled).



Amount of Waste within the Management Areas having been transported from designated areas to Temporary Storage Sites

[Removal of tsunami rubble]

○Tsunami rubble in former Restricted Areas was all transported to Temporary Storage Sites in March 2016, except for such rubble left in Restricted Areas.

[Installation of Temporary Incineration Facilities]

Now treating disaster waste, etc.	Katsurao Village, Namie Town, Iitate Village (Warabidaira district), Futaba Town and Okuma Town
Disposal of disaster waste completed	Kawauchi Village, Iitate Village (Komiya district), Tomioka Town, Naraha Town, and Minamisoma City



Demolition of a damaged house, etc.

*Tamura City and Kawamata Town use existing waste disposal facilities for disposing of disaster waste.
*Futaba Town has two Temporary Incineration Facilities.

Prepared by the Ministry of the Environment

Waste within the Management Areas in Fukushima Prefecture has been disposed of based on the Plan on Waste within the Management Areas, which was revised in December 2013.

Such waste, which includes tsunami rubble, debris of damaged houses, and waste from houses after cleaning-up, has been transported sequentially to Temporary Storage Sites. As of the end of December 2020, a total of approx. 2.93 million tons had already been transported. Transported waste is recycled as much as possible.

It was decided to incinerate inflammable waste to reduce volume at Temporary Incineration Facilities constructed at 11 locations in nine municipalities. As of the end of December 2020, six such facilities were in operation and waste is being steadily incinerated.

Included in this reference material on February 28, 2018

Updated on March 31, 2021

Ensuring Safety for Temporary Storage of Designated Waste

Temporary storage work (in the case of agricultural by-products)



Elevate a certain parcel of land by adding soil



Put waste in tough bags and surround those bags with sandbags



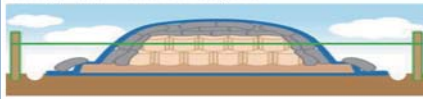
Cover them up with soil to shield radiation



Cover the whole area with an impermeable sheet

Structure of a Temporary Storage Site (in the case of agricultural by-products)

- Take measures to prevent scattering and runoff of waste
- Take required measures against radiation (isolation or shielding using sandbags, etc.)
- Take measures to prevent infiltration of rainwater using impermeable sheet, etc.



Checking of storage status

The status of storage at Temporary Storage Sites is to be checked to ensure that designated waste is properly stored in compliance with the standards, etc. specified in the Act on Special Measures.



Staff of the Regional Environmental Office checking the storage status

Prepared based on the website, "Information on Disposal of Radioactive Waste," of the Ministry of the Environment

Designated waste includes ash left after incinerating waste contaminated with radioactive materials, sludge generated through sewage treatment, soil that remains at purification plants to supply tap water (p.38 of Vol. 2, "Waterworks System"), agricultural by-products such as rice straw and pasture grass, etc.

As of the end of September 2020, there was a total of over 320,000 tons of designated waste in 10 prefectures, including Tokyo Metropolis. Such waste is temporarily being stored at incineration facilities, purification plants, sewage treatment facilities, farmland, etc., where it was generated, until the national government establishes a proper disposal system.

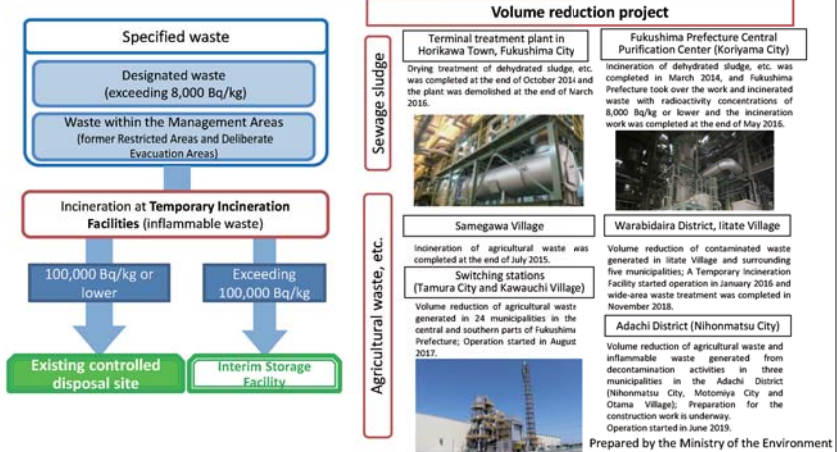
The waste is to be covered with impermeable sheets, etc. to prevent infiltration of rainwater and measures to prevent scattering and runoff of the waste are being taken in line with the guidelines and the Act on Special Measures Concerning the Handling of Environment Pollution by Radioactive Materials. Officials of the Ministry of the Environment visit various locations and check the status of temporary storage periodically to ensure safe and proper storage of designated waste.

Included in this reference material on January 18, 2016

Updated on March 31, 2021

Procedures for Disposal of Designated Waste in Fukushima Prefecture

- The Ministry of the Environment has been carrying out a program to reduce volume and stabilize properties of designated waste through incineration and drying, etc.
- With regard to designated waste generated in Fukushima Prefecture, waste with radioactivity concentrations exceeding 8,000 Bq/kg but 100,000 Bq/kg or lower is to be transported to the existing controlled disposal site, while waste with radioactivity concentrations exceeding 100,000 Bq/kg is to be transported to the Interim Storage Facility.



In Fukushima Prefecture, designated waste with radioactivity concentrations exceeding 8,000 Bq/kg but 100,000 Bq/kg or lower is to be transported to the existing controlled disposal site, while designated waste with radioactivity concentrations exceeding 100,000 Bq/kg is to be transported to the Interim Storage Facility.

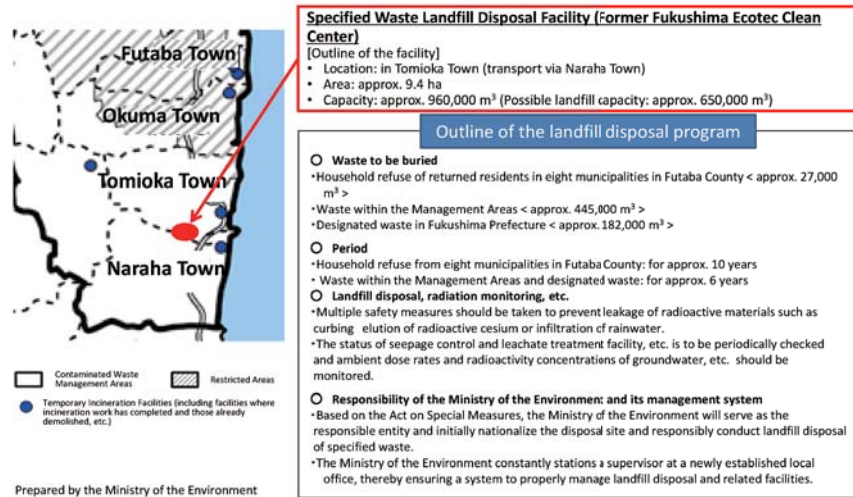
Additionally, designated waste is incinerated, dried or otherwise handled to reduce volume and stabilize their properties in Fukushima Prefecture.

Included in this reference material on January 18, 2016

Updated on March 31, 2021

Landfill Disposal Plan of Specified Waste Utilizing the Controlled Disposal Site

In order for reconstruction of eight municipalities in Futaba County and ultimately the entirety of Fukushima Prefecture, the issue of waste contaminated with radioactive materials needs to be solved as early as possible. It is planned to safely and promptly bury waste with radioactivity concentrations not exceeding 100,000 Bq/kg at the existing controlled disposal site, former Fukushima Ecotec Clean Center. Transport of specified waste was commenced in November 2017.



Waste with radioactivity concentrations not exceeding 100,000 Bq/kg generated in Fukushima Prefecture is to be buried promptly at the existing controlled disposal site.

In order to implement this program, the national government first asked Fukushima Prefecture for consent to accept the construction of an Interim Storage Facility in December 2013, and then provided explanations to Tomioka Town and Naraha Town, and their assemblies and residents.

In December 2015, consent was obtained from Fukushima Prefecture, Tomioka Town and Naraha Town for the implementation of this program. The national government nationalized the existing controlled disposal site in April 2016 and concluded a safety agreement with Fukushima Prefecture and the two municipalities in June 2016. Preparatory work was conducted thereafter and the transport of waste to the facility was commenced in November 2017. Additionally, the Ministry of the Environment (MOE) has endeavored to provide related information positively through the Reprun Fukushima, a specified waste landfill information facility, which commenced operation in August 2018.

In order to steadily facilitate disposal of waste contaminated with radioactive materials, utmost efforts will be continued to properly carry out this program with safety as the top priority and to build a stronger relationship of trust with local residents.

Included in this reference material on January 18, 2016

Updated on March 31, 2021

Waste Status of the Five Prefectures concerning Designated Waste				
Miyagi Prefecture	Tochigi Prefecture	Chiba Prefecture	Ibaraki Prefecture	Gunma Prefecture
<p>[Municipal mayors' conference]</p> <p>1st to 4th: Oct. 2012 to Nov. 2013</p> <p>5th: Jan. 20, 2014</p> <p>→ Three candidate sites for detailed survey were presented (Fukuyamadake, Kurihara City; Shimohara, Taiwa-cho; Tashirodake, Kami Town).</p> <p>7th (held by the prefecture): Aug. 4, 2014</p> <p>→ The prefectural governor announced the acceptance of a detailed survey as a consensus of all municipal mayors.</p> <p>Detailed surveys were commenced at the three candidate sites in August 2014. However, an on-site survey was not possible due to protests by Kami Town (also suspended in 2015).</p> <p>Apr. 5, May 29, and Oct. 13, 2015: Forum targeting prefectural residents</p> <p>Oct. to Nov. 2015 (twice): Opinion exchange with Kami Town with the participation of experts</p> <p>9th: Mar. 19, 2016</p> <p>→ Results of the remeasurement for designated waste and approaches of the Ministry of the Environment were explained.</p> <p>Apr. 15, 2016: The prefecture requested the suspension of an on-site survey until certain prefectural policy is decided.</p> <p>11th (held by the prefecture): Nov. 3, 2016</p> <p>→ Results of the measurement for waste other than designated waste were released. The prefecture presented its draft policy on disposal of waste with radioactivity concentrations not exceeding 8,000 Bq/kg (including designated waste).</p> <p>12th (held by the prefecture): Dec. 27, 2016</p> <p>→ Agreement on the prefectural disposal policy was not obtained from Kurihara City and Tome City, and it was decided to have discussions again.</p> <p>13th (held by the prefecture): Jun. 18, 2017</p> <p>→ The prefecture presented its new draft disposal policies such as to require each district to independently treat contaminated waste generated therein.</p> <p>14th (held by the prefecture): Jul. 15, 2017</p> <p>→ Agreement was reached on the draft disposal policy presented at the previous meeting.</p> <p>Test incineration was completed in four districts, Ishinomaki, Sennan, Kurokawa and Osaki. → Ishinomaki: Full-fledged incineration was completed. Kurokawa: Application to farmland is planned. Sennan and Osaki: Full-fledged incineration is underway.</p>	<p>[Municipal mayors' conference]</p> <p>1st to 3rd: Apr. 2013 to Aug. 2013</p> <p>4th: Dec. 24, 2013</p> <p>→ Selection method was determined.</p> <p>Jul. 30, 2014</p> <p>→ One candidate site for detailed survey was presented (Terashimami, Shiyoa Town).</p> <p>5th and 6th: Jul. 2014 to Nov. 2014</p> <p>May 14, Jun. 22, and Sep. 13, 2015: Forum targeting prefectural residents</p> <p>Oct. 14, 2015: Survey of the effects of the heavy rain in Terashimami, Shiyoa Town</p> <p>Dec. 7, 2015: The mayor of Shiyoa Town declared the surrender of the designation as a candidate site for detailed survey.</p> <p>7th: May 23, 2016</p> <p>→ Remeasurement for designated waste was decided.</p> <p>8th: Oct. 17, 2016</p> <p>→ Results of the remeasurement were released and future directions were presented.</p> <p>Mar. 30, 2017: Results of the confirmation of intentions of people temporarily storing waste by themselves were released.</p> <p>Jul. 10, 2017: Meeting of mayors of municipalities concerning measures to ease burdens of farm households storing waste by themselves (i)</p> <p>→ Draft of policy for measures to ease burdens of farm households storing waste by themselves were presented.</p> <p>Nov. 26, 2018: Meeting of mayors of municipalities (ii)</p> <p>→ Agreement was reached on efforts to muster opinions of municipalities, including those on remeasurement.</p> <p>Mar. 19, 2019: Results of the remeasurement was released.</p> <p>Jun. 26, 2020: Meeting of mayors of municipalities (iii)</p> <p>→ Participants confirmed future directions.</p> <p>Efforts are to be made continuously to seek agreement on detailed surveys and make adjustments with the prefecture and municipalities storing waste regarding measures to ease the burden on farm households storing waste by themselves.</p>	<p>[Municipal mayors' conference]</p> <p>1st to 3rd: Apr. 2013 to Jan. 2014</p> <p>4th: Apr. 17, 2014</p> <p>→ Selection method was determined.</p> <p>Apr. 24, 2015</p> <p>→ One candidate site for detailed survey was presented.</p> <p>(Part of the premises of TEPCO's Chiba Thermal Power Station (Chuo Ward, Chiba City))</p> <p>May 20 and Jun. 2, 2015: Chiba City Assembly Primary Meeting</p> <p>Jun. 8 and Jun. 30, 2015: Chiba City Assembly and the city mayor requested fresh discussions.</p> <p>Jun. 29, Jul. 7, 13 and 20, and Aug. 7, 2015: Explanations were given to community organization leaders and residents of Chiba City.</p> <p>Dec. 14, 2015: Response to the request for fresh discussions was made.</p> <p>Jun. 28, 2016: Chiba City requested for removal of the designation.</p> <p>Jul. 22, 2016: Designation was removed for designated waste in Chiba City.</p> <p>Efforts are to be made continuously to seek agreement on detailed surveys.</p>	<p>[Meeting of mayors of municipalities where waste is temporarily stored]</p> <p>1st: Apr. 12, 2013</p> <p>2nd: Apr. 27, 2013</p> <p>3rd: Dec. 25, 2013</p> <p>4th: Jan. 28, 2015</p> <p>→ The policy to continue on-site storage and promote staged disposal was determined.</p> <p>1st: Apr. 6, 2015</p> <p>2nd: Feb. 4, 2016</p> <p>Mar. 31, 2017: Remeasurement for designated waste, etc. in the prefecture was conducted and the results were released.</p>	<p>[Municipal mayors' conference]</p> <p>1st: Apr. 19, 2013</p> <p>2nd: Jul. 1, 2013</p> <p>3rd: Dec. 26, 2016</p> <p>→ The policy to continue on-site storage and promote staged disposal was determined.</p>
Prepared by the Ministry of the Environment				

Prefectures other than Fukushima Prefecture which are in urgent need to secure Temporary Storage Sites for designated waste (Miyagi Prefecture, Tochigi Prefecture, Chiba Prefecture, Ibaraki Prefecture and Gunma Prefecture) are taking measures in accordance with the circumstances of respective prefectures. They ascertain the current status through the measurement of radioactivity concentrations, based on discussions at municipal mayors' conferences.

Regarding candidate sites for detailed surveys, Miyagi, Tochigi and Chiba Prefectures followed selection methods determined through discussions at expert meetings and municipal mayors' conferences, and presented selected candidate sites in January 2014, July 2014 and April 2015, respectively. However, detailed surveys have not been conducted due to a failure to obtain understanding of relevant regions.

In the meantime, Miyagi Prefecture determined its policy that each municipality is to make efforts to dispose of contaminated waste with radioactivity concentrations not exceeding 8,000 Bq/kg under the initiative of the prefectural government, and the Ministry of the Environment is offering financial and technical support. As part of such efforts, test incineration was commenced sequentially in four districts (Ishinomaki, Kurokawa, Sennan and Osaki) from March 2018 and was completed by July 2019. As of the end of December 2020, full-fledged incineration was completed in the Ishinomaki district and was underway in the Sennan and Osaki districts. In the Sennan district, full-fledged incineration is suspended to prioritize disposal of waste generated by the 2019 East Japan Typhoon.

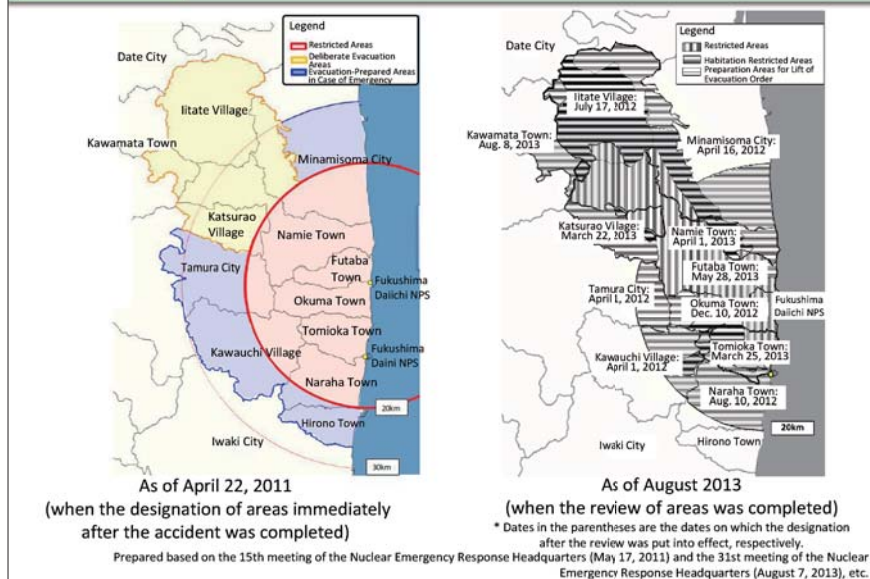
In November 2018, the national government presented a provisional policy for volume reduction and centralized collection of designated waste by the unit of municipality, targeting Tochigi Prefecture and municipalities storing designated waste, with the aim of easing burdens of farm households that have been storing designated waste by themselves, while maintaining the basic policy to ultimately develop long-term management facilities. Agreement was reached on the provisional policy. Additionally, it was confirmed that the national government will compile its approach for the selection of provisional storage sites and make efforts to select relevant sites as promptly as possible in collaboration with Tochigi Prefecture and municipalities.

As for Chiba Prefecture, it is also making efforts to obtain understanding of local residents for the implementation of a detailed survey concerning long-term management facilities.

Ibaraki and Gunma Prefectures determined the policies to continue on-site storage and promote staged disposal respectively in February 2016 and December 2016. Based on the determined policies, both prefectures will repair or reinforce storage sites as necessary and will dispose of designated waste whose radioactivity concentrations have reduced to 8,000 Bq/kg or lower at existing disposal facilities in a staged manner.

Included in this reference material on March 31, 2016
Updated on March 31, 2021

Designation of Areas under Evacuation Orders



Based on Article 15, paragraph (2) of the Act on Special Measures Concerning Nuclear Emergency Preparedness, a Declaration of a Nuclear Emergency Situation was issued at 19:03 on March 11, 2011. At 18:25 on the following day, evacuation orders were issued for the 20-km zone of TEPCO's Fukushima Daiichi NPS.

On April 11, 2011, areas around the 20-km zone where annual cumulative doses would be highly likely to exceed 20 mSv after the accident were designated as Deliberate Evacuation Areas, taking into account the standard limits for radiological protection in emergency exposure situations, and areas within 20 km to 30 km were designated as Evacuation-Prepared Areas in Case of Emergency. Additionally on April 21, 2011, considering future risks due to the accident, areas within 20 km from the NPS were designated as Restricted Areas and access was prohibited in principle.

In June 2011 onward, spots where decontamination work would not be easy and annual cumulative doses would be highly likely to exceed 20 mSv were designated as specific spots recommended for evacuation, based on the results of the environmental monitoring by the national government and Fukushima Prefecture.

On December 16, 2011, the reactors reached a state of cold shutdown and it was confirmed that the discharge of radioactive materials was under control. Accordingly, on December 26, the designation of Restricted Areas was removed and it was proposed to review Areas under Evacuation Orders and to newly designate Restricted Areas, Habitation Restricted Areas and Preparation Areas for Lifting of Evacuation Orders. Upon reviewing Areas under Evacuation Orders, four problems common to all subjected areas were cited as problems to be addressed: (i) need to ensure safety and security of residents; (ii) need for decontamination and due consideration of children's radiation exposure; (iii) reconstruction of infrastructure and job creation; and (iv) compensation.

As requirements for lifting evaluation orders, the following were set: (i) it is certain that annual cumulative doses estimated based on ambient dose rates will become 20 mSv or lower; (ii) infrastructure (such as electricity, gas, water and sewer services, major transportation systems, and communication networks) and living-related services (such as medical services, nursing care, and postal services) indispensable for daily lives have been almost restored and decontamination work has progressed sufficiently centered on children's living environments; and (iii) consultations have been held sufficiently among the prefecture, municipalities and residents.

(Related to p.173 of Vol. 1, "ICRP Recommendations and Responses of the Japanese Government")

Included in this reference material on February 28, 2018

Updated on March 31, 2020

April 22, 2011, onward Area designation immediately after accident	April 2012, onward After confirming cold shutdown of the reactors
Restricted Areas^(*1) Areas within 20 km in radius from the Nuclear Power Station (NPS); The relevant areas were designated as Areas under Evacuation Orders on March 12, 2011.	Preparation Areas for Lift of Evacuation Order Areas where it is confirmed that annual cumulative doses will surely become 20 mSv or lower ^(*2)
Deliberate Evacuation Areas Areas 20 km or farther from the NPS where cumulative doses would be highly likely to exceed 20 mSv within one year after the accident	Habitation Restricted Areas Areas where annual cumulative doses would be highly likely to exceed 20 mSv ^(*2)
Evacuation-Prepared Areas in Case of Emergency Areas within 20 km to 30 km in radius from the NPS other than Deliberate Evacuation Areas; The relevant areas were designated as In-house Evacuation Areas on March 12, 2011.	Restricted Areas^(*3) Areas where annual cumulative doses exceed 50 mSv ^(*2) at present and would be highly likely to remain above 20 mSv ^(*2) even after 6 years from the accident

Areas under Evacuation Orders:

Areas for which evacuation orders were issued based on Article 15, paragraph (3) of the Act on Special Measures Concerning Nuclear Emergency Preparedness; Areas under Evacuation Orders and the 20-km zone of the Nuclear Power Station were rearranged and were newly designated as Preparation Areas for Lift of Evacuation Order, Habitation Restricted Areas or Restricted Areas.

(*1) Areas where access is restricted pursuant to the provisions of Article 63, paragraph (1) of the Disaster Countermeasures Basic Act as applied pursuant to Article 28, paragraph (2) of the Act on Special Measures Concerning Nuclear Emergency Preparedness, following the deemed replacement of terms

(*2) Based on the dose data obtained through the 4th airborne monitoring survey after correction as of March 31, 2012

(*3) The term "Areas where returning is difficult" was formerly used instead of "Restricted Areas" as a literal translation from Japanese.

Prepared based on the "Basic Idea on Review of the Restricted Areas and Areas under Evacuation Orders in Response to the Completion of Step 2 and Matters to be Discussed" (December 26, 2011; Nuclear Emergency Response Headquarters)

Immediately after the accident at Tokyo Electric Power Company (TEPCO)'s Fukushima Daiichi NPS on March 11, 2011, the Nuclear Emergency Response Headquarters issued evacuation orders in order to avoid risks to residents' lives and designated the areas within 20 km from the NPS as Areas under Evacuation Orders on March 12.

On April 22, for fear of any risks that residents might be exposed to a large amount of radiation at one time as a result of worsening of the situation, the Headquarters designated the relevant areas as Restricted Areas to prohibit access in principle, and also designated areas 20 km or farther from the NPS where cumulative doses would be highly likely to exceed 20 mSv within one year after the accident as Deliberate Evacuation Areas.

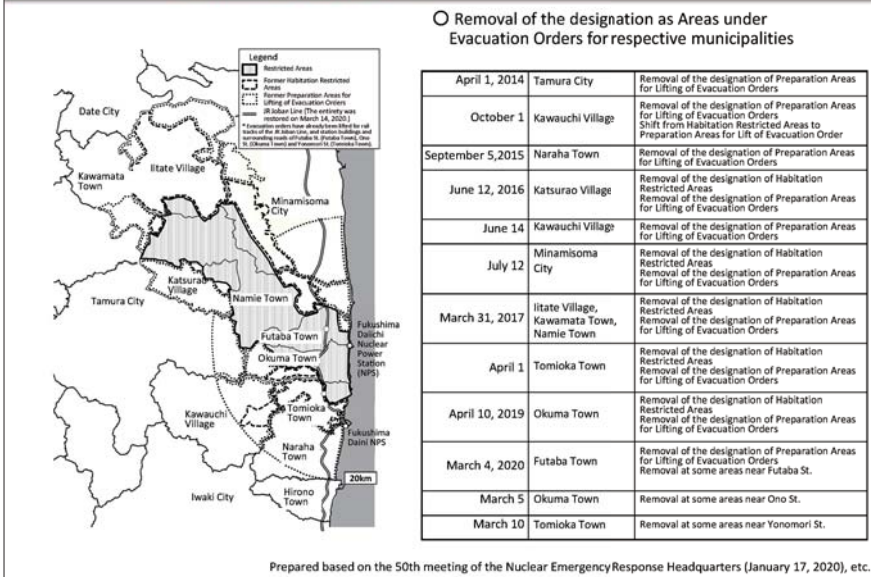
On December 16, the reactors reached a state of cold shutdown and the Nuclear Emergency Response Headquarters confirmed that the chaotic situation after the accident ended. Accordingly, on December 26, the basic idea on review of Restricted Areas and Areas under Evacuation Orders was presented. The Headquarters made preparations for the review while closely consulting with the prefecture, municipalities and residents and making adjustments, and at the same time endeavored to address problems common to all subjected areas.

On March 30, 2012, the Nuclear Emergency Response Headquarters reviewed Restricted Areas and Areas under Evacuation Orders in accordance with radiation doses and problems unique to respective areas. By August 2013, the designation of Restricted Areas and Specific Spots Recommended for Evacuation was completely removed, and Areas under Evacuation Orders were newly designated as Preparation Areas for Lifting of Evacuation Orders, Habitation Restricted Areas, or Restricted Areas.

(Related to p.173 of Vol. 1, "ICRP Recommendations and Responses of the Japanese Government")

Included in this reference material on February 28, 2018
Updated on March 31, 2020

Removal of the Designation of Areas under Evacuation Orders



At the joint meeting of the Reconstruction Promotion Council and the Nuclear Emergency Response Headquarters held on March 7, 2013, it was pointed out that "a certain view should be indicated within the year" regarding the lift of evacuation orders. Accordingly, procedures to be followed for lifting evacuation orders were presented based on the discussions over the Cabinet decision on December 20, 2013, titled "For Accelerating the Reconstruction of Fukushima from the Nuclear Disaster." In order to ease returning residents' anxiety over health effects of radiation, measures are being taken to reduce radiation exposure and eliminate health concerns (risk communication program). These measures include deployment of counselors, development of counselor support centers, ascertaining and management of personal doses, and radiation monitoring.

In the meantime, evacuation orders were lifted by March 2020 for all areas designated as Preparation Areas for Lifting of Evacuation Orders or Habitation Restricted Areas, except for Restricted Areas.

Regarding Restricted Areas, evacuation orders were lifted for the first time for some areas in Futaba Town, Okuma Town and Tomioka Town within the Specified Reconstruction and Revitalization Base Areas designated as Restricted Areas, upon the reopening of the entirety of the JR Joban Line. Kawauchi Village and Hirono Town had recommended evacuation for areas other than Areas under Evacuation Orders designated by the national government, based on their independent determinations, but lifted the evacuation recommendation on January 31, 2012, and on March 31, 2012, respectively.

The latest information, the current status of evacuees and the details of the areas under evacuation orders in 12 municipalities are posted on the portal site, "Fukushima Revitalization Station".

"Fukushima Revitalization Station"

<https://www.pref.fukushima.lg.jp/site/portal-english/>

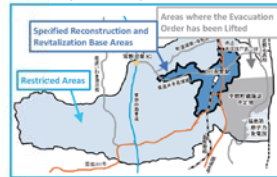
Included in this reference material on February 28, 2018
Updated on March 31, 2020

Development of Specified Reconstruction and Revitalization Base Areas and Radiological Protection Measures Therefor

[Approval of Plans for Specified Reconstruction and Revitalization Base Areas and Targeted Timing for Lifting Evacuation Orders]

Municipality name	Approval date	Targeted timing for lifting evaluation orders
Futaba Town	Sep. 15, 2017	Around spring of 2022
Okuma Town	Nov. 10, 2017	By around spring of 2022
Namie Town	Dec. 22, 2017	March 2023
Tomioka Town	Mar. 9, 2018	Around spring of 2023
Iitate Village	Apr. 20, 2018	Around spring of 2023
Katsurao Village	May 11, 2018	By around spring of 2022

Example of a Specified Reconstruction and Revitalization Base Area (Futaba Town)



"Specified Reconstruction and Revitalization Base Area Reconstruction and Revitalization Plan" by the Reconstruction Agency
<https://www.reconstruction.go.jp/topics/main-cat1/sub-cat1-4/saiseikyoten/20170913162153.html> (in Japanese)

"Radiological Protection Measures at Specified Reconstruction and Revitalization Base Areas"

(Dec. 12, 2018, by the Cabinet Office's Support Team for Residents Affected by Nuclear Incidents, the Reconstruction Agency, the Ministry of the Environment, and the Secretariat of the Nuclear Regulation Authority)

As Specified Reconstruction and Revitalization Base Areas are areas where entries have been strictly restricted as Restricted Areas, required measures are to reduce residents' exposure doses and meticulously respond to their worries over radiation.

Under this concept, radiological protection measures should be taken in two stages, the first stage to make preparations for returning and rebuild communities ahead of the lifting of the evacuation order and the second stage to achieve the lifting of the evacuation order for further accelerating related initiatives.

Prepared based on the "Radiological Protection Measures at Specified Reconstruction and Revitalization Base Areas" (2018) by the Cabinet Office's Support Team for Residents Affected by Nuclear Incidents, the Reconstruction Agency, the Ministry of the Environment, and the Secretariat of the Nuclear Regulation Authority and the "Toward the Lifting of Evacuation Orders and Returning and Inhabitation of Residents for Specified Reconstruction and Revitalization Base Areas" (2018) by the Nuclear Emergency Response Headquarters

As radiation doses have decreased in some Restricted Areas, the national government published its policy in August 2016 to develop "reconstruction bases with the aim of lifting evacuation orders and permitting inhabitation in such areas within around five years in light of the status of decreases in radiation doses". In response, the Act on Special Measures for the Reconstruction and Revitalization of Fukushima was amended in May 2017 and the system for Specified Reconstruction and Revitalization Base Areas was established thereby. Plans for reconstruction and revitalization that all municipalities (Futaba Town, Okuma Town, Namie Town, Tomioka Town, Iitate Village, and Katsurao Village) had formulated for Specified Reconstruction and Revitalization Base Areas were approved by May 2018 and their development has been promoted.

In December 2018, as moves toward the lifting of evacuation orders for these municipalities had become active, the national government presented its policy to take radiological protection measures for Specified Reconstruction and Revitalization Base Areas in two stages, a stage to prepare for returning and a stage to achieve the lifting of evacuation orders, with the aim of further accelerating efforts for lifting evacuation orders.

In a stage to prepare for returning, the national government will not only ensure steady management of individuals' doses and secure a consultation system, but also minutely obtain doses and other information and provide estimated exposure doses based on detailed dose maps and representative behavior patterns or otherwise take multi-layered measures in cooperation with local governments.

In a stage to achieve the lifting of evacuation orders, as residents spend more time and move around more widely than in the preparatory stage, the national government will take measures to reduce residents' exposure doses based on dose data and individuals' living conditions and risk communication measures to meticulously respond to residents' worries and anxieties, comprehensively and in a multi-layered manner in line with each local government's wishes, in addition to steadily managing individuals' doses and securing a consultation system.

Included in this reference material on March 31, 2020

- Works to demolish houses and other buildings and decontamination work have commenced in all of the six towns and villages (Futaba Town, Okuma Town, Namie Town, Tomioka Town, Iitate Village and Katsurao Village). Works have been completed for station squares, kindergartens, gymnasiums and other public facilities. Efforts to restore the environment are thus steadily progressing.
- Ahead of the full reopening of the Japan Railway (JR) Joban Line on March 14, 2020, evacuation orders were lifted partially for some of the Specified Reconstruction and Revitalization Base Areas (on March 4 for Futaba Town, on March 5 for Okuma Town, and on March 10 for Tomioka Town) in advance of other areas.
- In Specified Reconstruction and Revitalization Base Areas, **decontamination has been completed for over 70%, and the demolition of houses and other buildings has been completed for approximately 79% out of the total number of applications** (as of the end of December 2020).



Prepared by the Ministry of the Environment

When the Prime Minister approves Reconstruction and Revitalization Plans of Specified Reconstruction and Revitalization Base Areas in Restricted Areas made by the relevant municipalities, the demolition of houses and other buildings, decontamination work, development of infrastructure, etc. are conducted in an integrated manner in those areas.

The Ministry of the Environment (MOE) is now carrying out the demolition of houses and other buildings and decontamination work in all Specified Reconstruction and Revitalization Base Areas of Futaba Town, Okuma Town, Namie Town, Tomioka Town, Iitate Village and Katsurao Village based on their plans. Ahead of the full reopening of the JR Joban Line in March 2020, evacuation orders were lifted for some parts around Yonomori Station, Ono Station and Futaba Station among Specified Reconstruction and Revitalization Base Areas in advance of other areas.

At present, toward the lifting of evacuation orders for the entirety of respective areas, the demolition of houses and other buildings and decontamination work are being intensively promoted. As of the end of December 2020, decontamination has been completed for over 70% and the demolition of houses and other buildings has been completed for approximately 79% out of the total number of applications. Specified waste from demolished houses and other buildings is to be buried after volume reduction for disposal at the controlled disposal site managed by the Futaba Regional Municipal Association (Clean Center Futaba), and MOE, the Association and Fukushima Prefectural Government concluded the basic agreement thereon in August 2019.

Included in this reference material on March 31, 2021

- The framework aiming to **create new industries** in Hamadori District for the purpose of industrial revitalization of the district
- The "**Fukushima Innovation Coast Promotion Organization**" (since July 2017; President: Saito Tamotsu (Senior Advisor, IHI)), the national government, Fukushima Prefecture, and municipalities are cooperatively carrying out activities for such purposes as forming industrial clusters, providing education and fostering human resources, increasing the number of visitors, and providing information, while placing the focus on **six priority fields**.

Six priority fields



Regarding the Fukushima Innovation Coast Framework, deliberations were commenced with the aim of having people around the world witness the spectacular recovery of the Hamadori District at the time of the Tokyo Olympic and Paralympic Games in 2020. The Fukushima Innovation Coast Framework Workshop compiled the Framework in June 2014, aiming to build a new industrial base in the Hamadori District in order to recover the industry and employment in the district that was severely affected by the earthquake and the nuclear disaster.

For achieving the framework, efforts have been made to develop bases for R&D on decommissioning, research and demonstration on robot technology, and information provision (archives base), to materialize projects in such fields as environment and recycling, energy including hydrogen and renewable energy, the agriculture, forestry and fisheries industry, medical services, and aerospace, and to form industrial clusters, foster human resources and develop living environment, etc.

In December 2019, the Reconstruction Agency, the Ministry of Economy, Trade and Industry and Fukushima Prefecture jointly compiled the "Blueprint of Industrial Development Placing the Fukushima Innovation Coast Framework at the Core," which shows envisaged independent and sustainable industrial development in the Hamadori District and concrete measures therefor also in consideration of the future after the reconstruction and revitalization period. Based on the Blueprint, Fukushima Prefecture formulated a draft revision of the Intensive Promotion Plan based on the Act on Special Measures for the Reconstruction and Revitalization of Fukushima in March 2020, and the revised plan was approved by the Prime Minister on May 1, 2020.

Additionally, Fukushima Prefecture established a general incorporated foundation, "Fukushima Innovation Coast Promotion Organization," in July 2017 as the central organization in promoting the Fukushima Innovation Coast Framework towards its realization. The Organization has strengthened its system sequentially since April 2018 and became a public interest incorporated foundation on January 1, 2019. In June 2020, the Act on Special Measures for the Reconstruction and Revitalization of Fukushima was amended, and a system was newly introduced to make it possible to dispatch national public employees to the Organization while maintaining their status as national public employees.

Included in this reference material on February 28, 2018
Updated on March 31, 2021

Traffic on Major Roads in Restricted Areas

- **Joban Expressway:** The entirety was restored in March 2015.
Source: https://www.e-nexco.co.jp/en/pressroom/head_office/2014/1225/00006647.html
- **JR Joban Line:** The entirety was restored in March 2020.
Source: https://www.jreast.co.jp/press/2019/20200117_ho01.pdf (in Japanese)
- **National roads and prefectural roads:** Transit without carrying and presenting a pass came to be permitted for National Road 6 from September 2014, for National Road 114 from September 2017, and for Prefectural Road 35 from September 2019.



Exposure doses of drivers passing through					
Dose survey period	November 2018 to January 2019	August 2017	November to December 2019		
Section	Japan Expressway: between Hirono IC and Minamisona IC	National Road 114: between the border of Sawamata Town and Namie IC	National Road 6: in Restricted Areas	Prefectural Road 35: in Restricted Areas	
Exposure dose while passing through (μSv)	Automobiles	0.28	1.01	0.39	0.51
	Motorcycles	0.34	-	0.49	0.63

Reference) Exposure dose during a round flight between Tokyo and New York: approx. 80 to 110 μSv

Source: Prepared by the Support Team for Residents Affected by Nuclear Incidents based on the "Results of Radiation Dose Surveys in Restricted Areas along National Roads 114, 399 and 459 and Prefectural Roads 49 and 34" (September 15, 2017), the "Results of Radiation Dose Surveys in Restricted Areas along National Roads 6 and 114 and Prefectural Roads 34, 35, 36, 253 and 256" (January 30, 2020), and NEXCO East's website (<https://jobando.jp/hibacusenryo/hibakuryo.html>) (in Japanese)

In Restricted Areas, transit had been restricted except for temporary entry of residents and transit based on the Special Transit Permission System.

As National Road 6 is a key major road for reconstruction and recovery of Fukushima Prefecture, after completion of decontamination and road repair work, special transit without carrying and presenting a pass came to be permitted for National Road 6 and Prefectural Road 36 on September 15, 2014, as a result of consultations with the relevant municipalities.

The Special Transit Permission System has also been applied to National Road 114 and Prefectural Road 35 based on consultations with the relevant local governments and organizations. From March 2020, motorcycles are also permitted to use some routes, such as National Road 6 and Prefectural Road 35. The most recent status of the application of the Special Transit Permission System and the results of dose surveys under the application of the system are published in the form of a notice of the Support Team for Residents Affected by Nuclear Incidents, Cabinet Office (<https://www.meti.go.jp/earthquake/nuclear/kinkyu.html>, in Japanese).

Included in this reference material on February 28, 2018

Updated on March 31, 2020