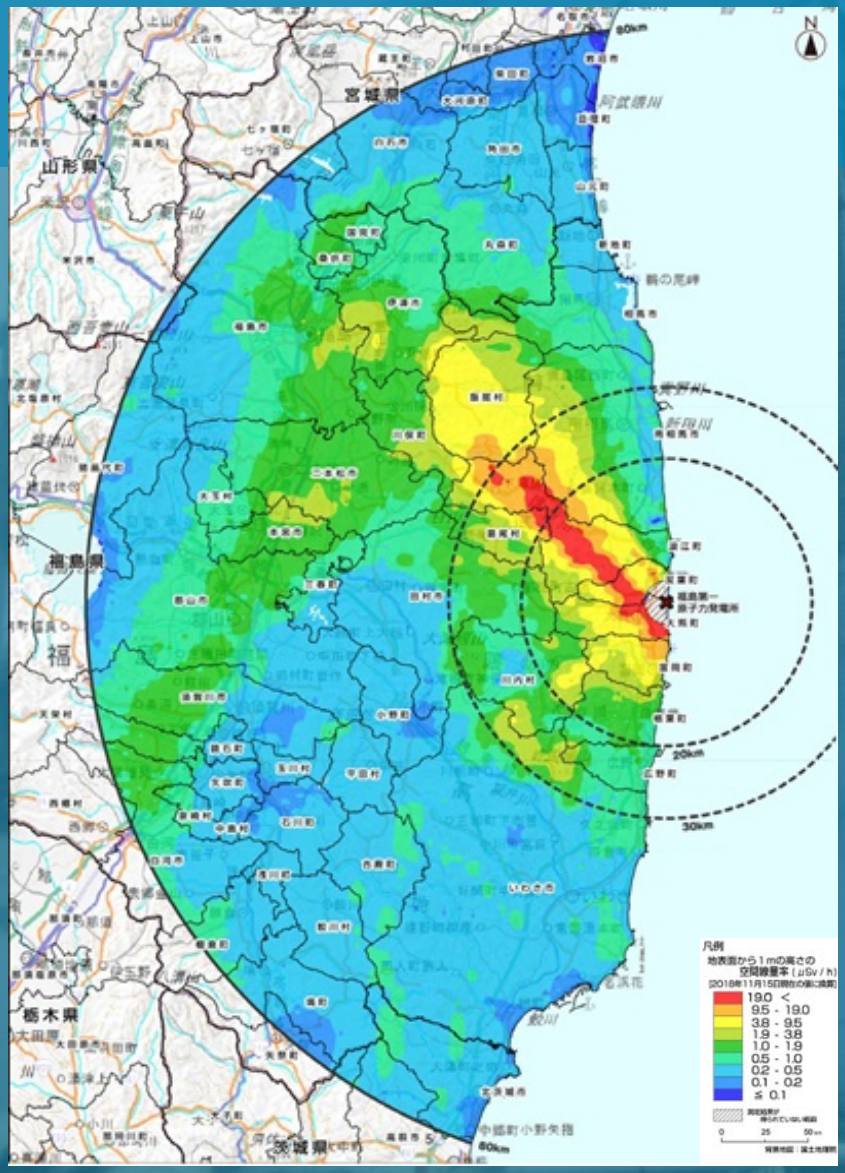
福島、
その先の
環境へ。
対話フォーラム

Remaining Challenges for Long-Term Remediation following the Fukushima Daiichi Nuclear Accident

Yoshinori Momose[1], and Akihiro Kuwamura[2]

[1]Japan Ministry of Environment, Intermediate Storage Department Soil Recycling Promotion Division of Fukushima Regional Environment Office.
[2] Japan Ministry of the Environment, Environmental Regeneration and Material Cycles Bureau, Office of Director for Facilities for Contaminated Waste and Soil.

Background



80㎞圏内における空間線量率の分布マップ（文部科学省発表　2011.12.16）

Accident at TEPCO's Fukushima Daiichi NPS

Environment Pollution by Radioactive Materials

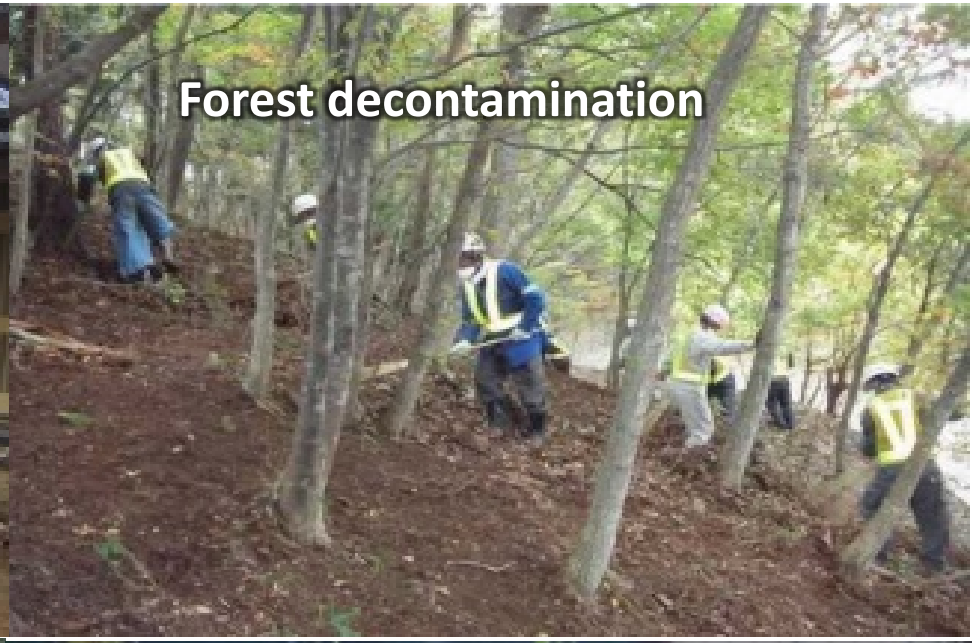
避難指示区域の概念図（区域見直し後）

Aim at the reduction of air dose rate

The implementation of

Decontamination Work

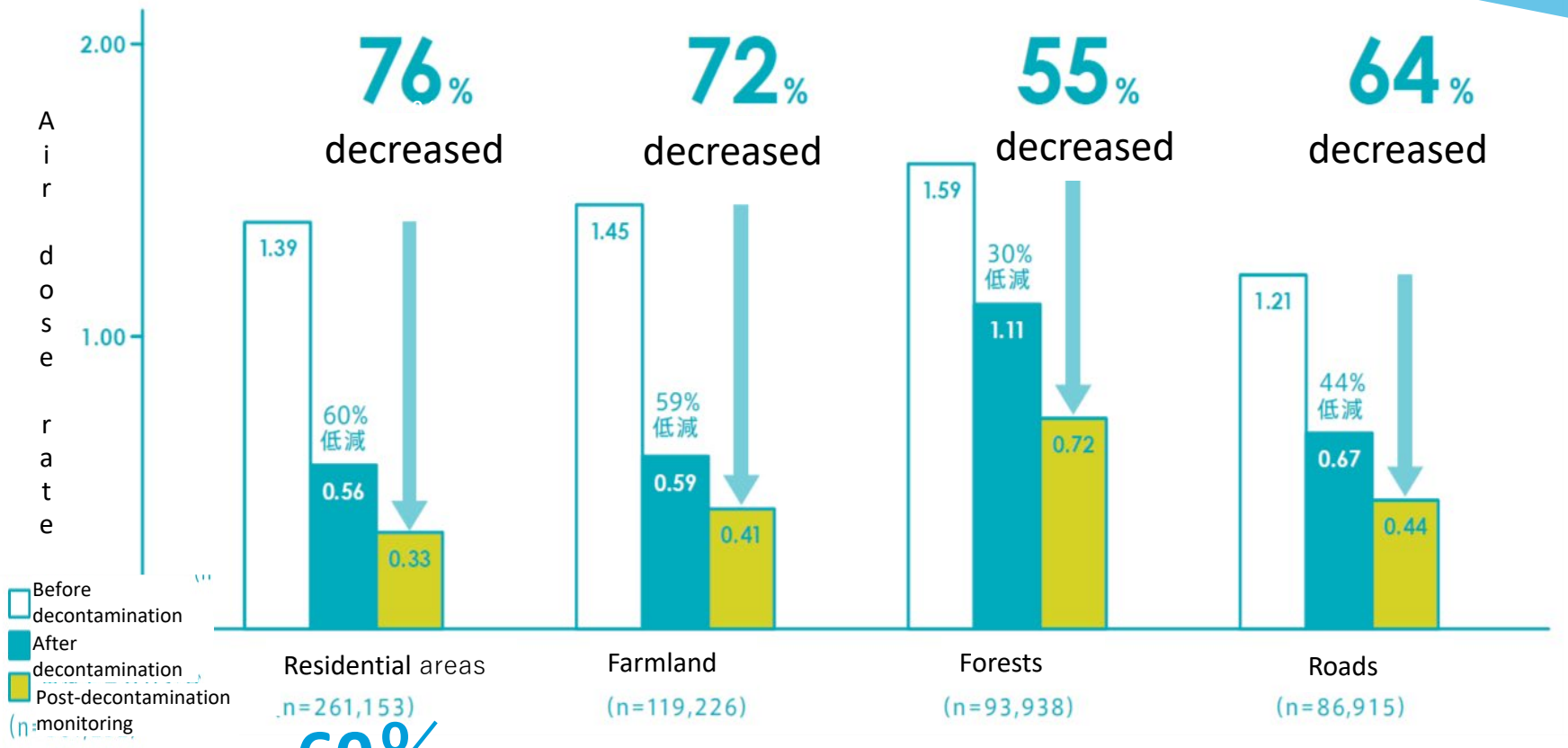

Residential area
decontamination


Forest decontamination


Farmland decontamination


Road decontamination

Effects of Decontamination



60% decreased at residential areas by decontamination

Up to **76%** decreased according to the monitoring investigation

Effect of whole area decontamination is maintained

Air Dose Rate of Fukushima
Same level as major cities in the world

Measurement results of major cities (reference)

New York	0.05 μSv/h
Fukushima	0.07 μSv/h
Peking	0.07 μSv/h
Berlin	0.08 μSv/h
London	0.11 μSv/h
Seoul	0.12 μSv/h

The air dose rate of Fukushima has been decreasing year by year.

Almost the same level as major cities in the world.

As the result of the decontamination work, **a large amount of removed soil** was generated.
In order to accelerate the reconstruction work in Fukushima, removed soil was transported to the **Interim Storage Facility.**

Interim storage facility

Interim Storage Facility is located in Okuma town and Futaba town.

When accepting, the local residents made a difficult decision.

Toward the Final Disposal

Legal responsibilities of the Government

©福島民報社提供

Waste will be removed outside Fukushima prefecture to complete final disposal within 30 years.

The public understanding of the serious environmental damage and the heavy burden of residents in Fukushima.

The necessity of removed soil recycling

The amount of removed soil and waste transported to the Interim Storage Facility

11 cups of Tokyo Dome※

Towards the final disposal,

For the purpose of reducing the final disposal amount, recycling is the Key.

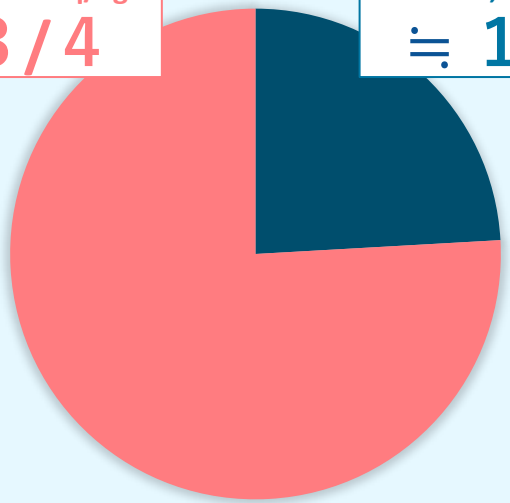
※Except the restricted area

Radioactivity concentration distribution of removed soil

Low Concentration of soil

Under 8,000Bq/kg ≒ 3/4

Over 8,000Bq/kg ≒ 1/4



Recycling

Under the management of public works

After the volume reduction,

Completion of final disposal out of Fukushima within 30 years, from the start of Interim Storage Facility

Recycling Process

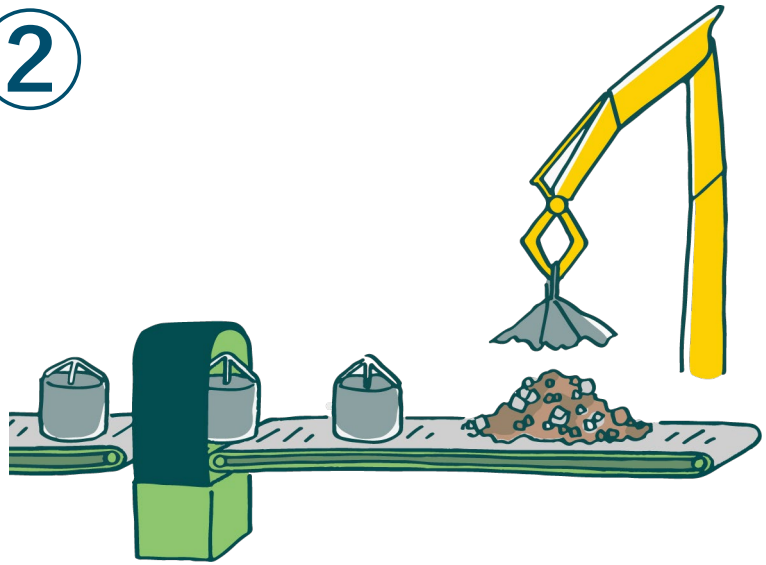
① Separate → ② Break the bag → ③ Remove debris → ④ Develop

1

Separate

Removed soil was separated in each large container bag of “less than 8,000Bq/kg” and “over 8,000Bq/kg”.

2



Break the bag

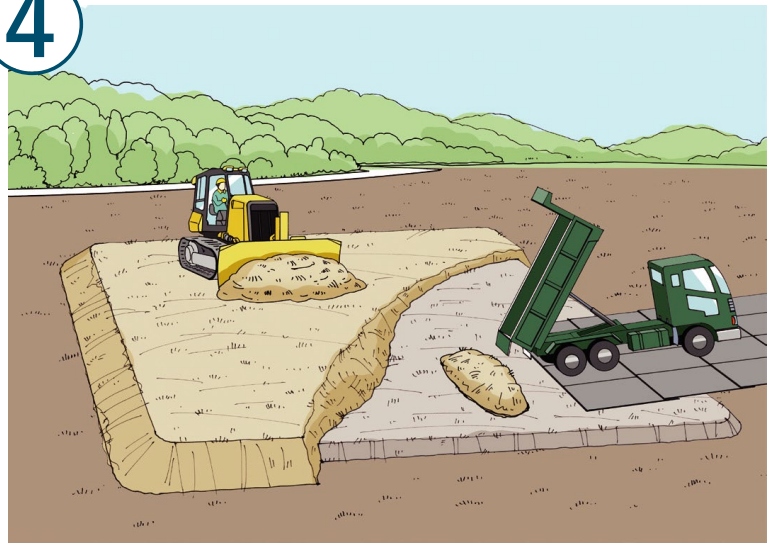
To take out the soil, large container bags with removed soil less than 8,000Bq/kg broken by machine.

Recycling Process

① Separate → ② Break the bag → ③ Remove debris → ④ Develop

③

④



Remove debris

Remove plants and metals using sieving machine, there would be quality adjustment if necessary.

Develop the land

After the confirmation of radioactive concentration, use removed soil for the construction work and cover the land.

Concept on safe use of the removed soil after recycling

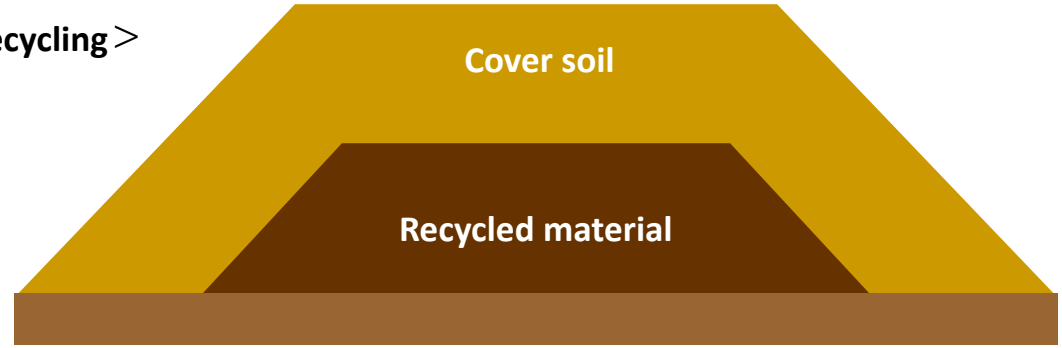
Ensuring the safety, use under proper management

The additional exposure dose should not exceed 1mSv/year
(Setting the limit of radioactivity level below 8,000Bq/kg in principle)

Shielding by cover soil, preventing scattering, overflow of radioactive materials implemented

(It is possible to cut 99％ of radiation by 50cm of covering soil)

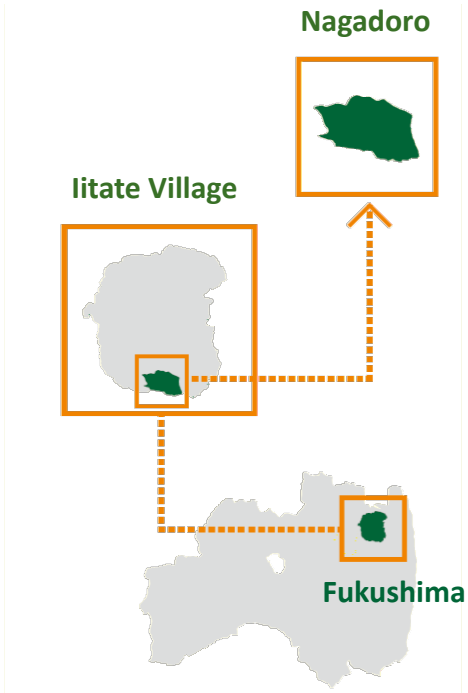
＜Image of Recycling＞

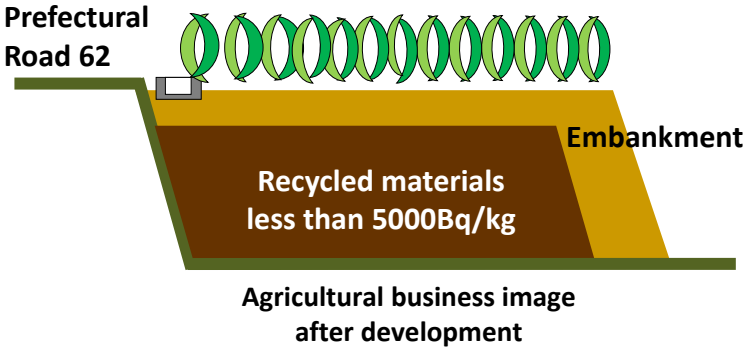


Currently, confirming the safety of radioactive materials by demonstration project.

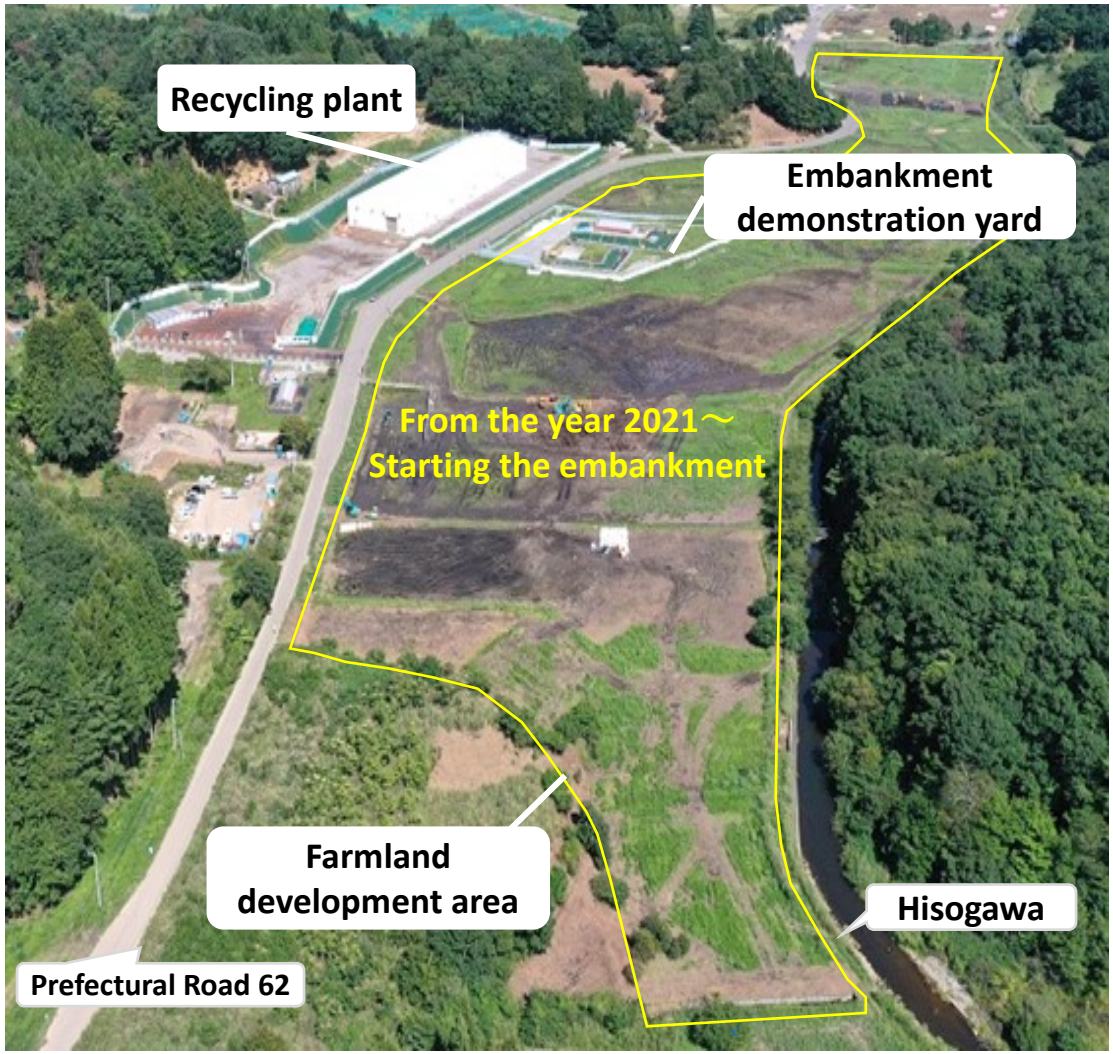
Recycling demonstration project at Nagadoro district, Iitate Village

On the premise of securing **safety**, demonstration project for Recycling



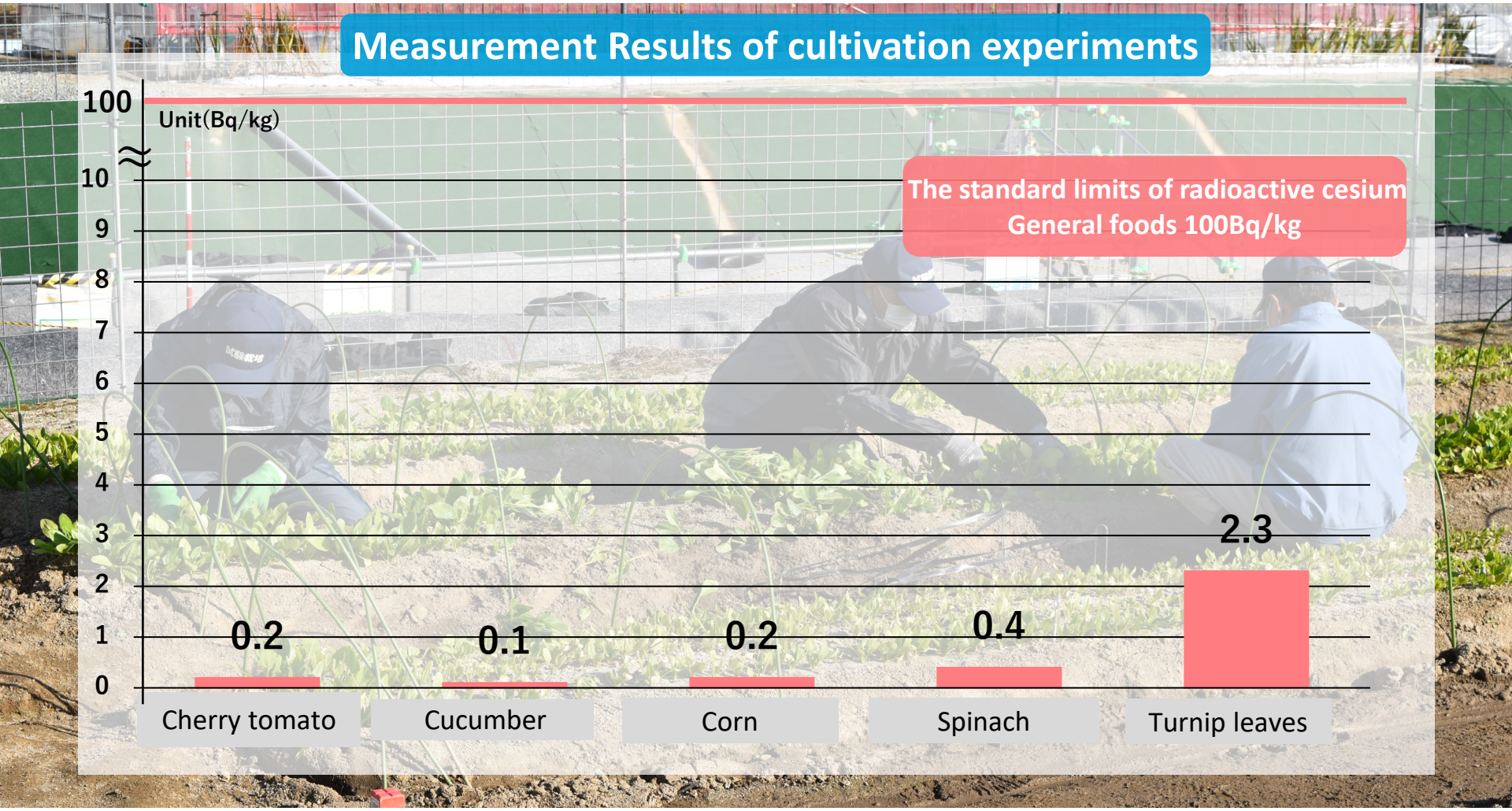


Agricultural business image after development



MOE cultivated **flowers and resource crops** 2 years ago, **edible crops** last year with the cooperation of the residents.

The Radiation Monitoring Status in the Demonstration Project



In the Demonstration Project for recycling, **there was no increase of air dose rate and no detection of radioactive cesium from the seepage water.**

Installation of potted plants using removed soil of Fukushima Prefecture

* Other installations are at HQ of Liberal Democratic Party, Komeito.

During 16 months before and after installation, there was **no change of air dose rate** around the pots of the Ministry of the Environment. (air dose rate : approx. 0.06μSv/h)

SUMMARY

1. **Background**

   The accident at TEPCO's Fukushima Daiichi Nuclear Power Station

   → Environmental pollution due to Radioactive Materials

2. **Decontamination**

   Decontamination in residential area, forest, farmland and road

   → By reducing the air dose rate, the level is same as major cities in the world

3. **Final disposal out of Fukushima Prefecture**

   For the reduction of final disposal amount, recycling is the key

   → Confirmation of the safety by the recycling demonstration project


Energy crops test planted in Nagadoro


Making dried persimmon


Apples in Minamisoma

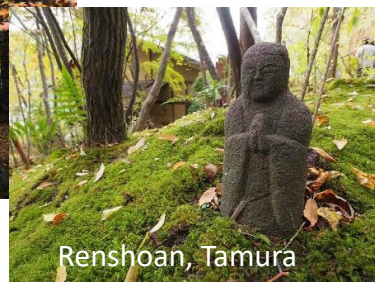
Making dried persimmon

Thank you for your attention

Updated information is available on the web-site below:

http://josen.env.go.jp/en/


Odaka shrine In Minamisoma


Renshoan, Tamura

環境省
Ministry of the Environment


Turkish bellflowers in Iitate