

# Eliminating Negative Reputation Impact

～ Reconstruction from Nuclear Disaster &  
the History of Safety and Revitalization of Fukushima ～

April, 2017



Reconstruction Agency

New Stage towards Reconstruction & Revitalization





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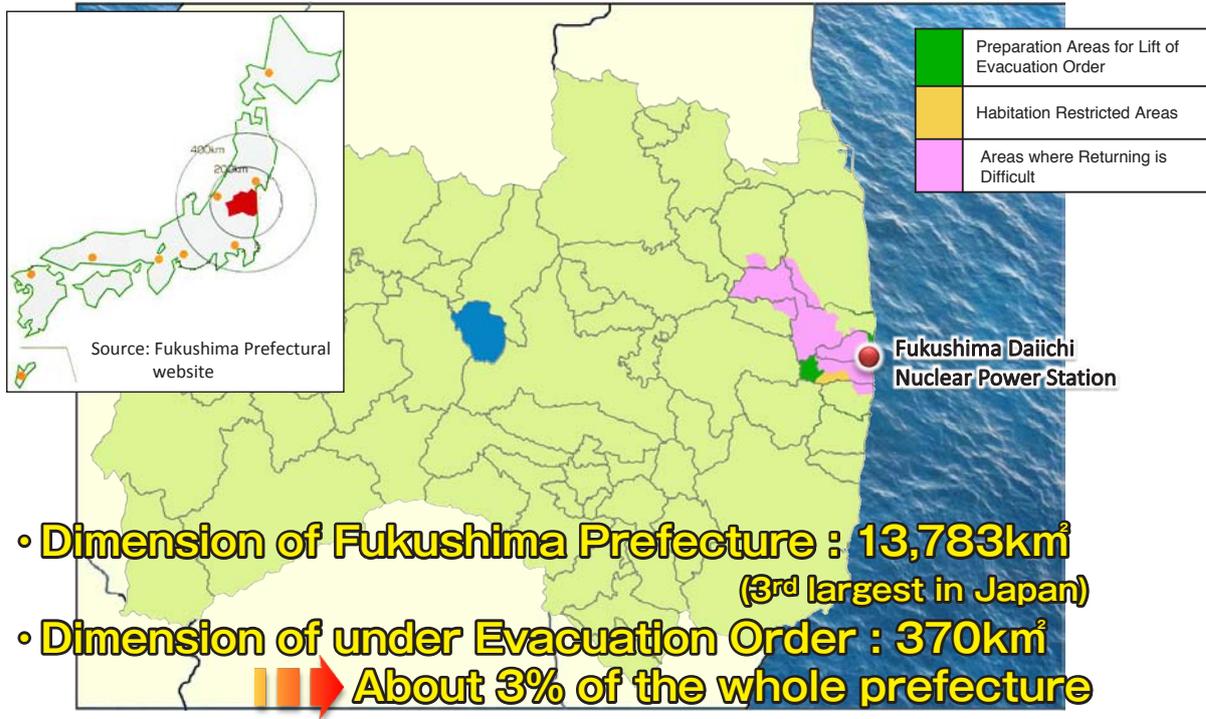
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# Reconstruction and Recovery of Fukushima: Status of the Areas under Evacuation Orders ①

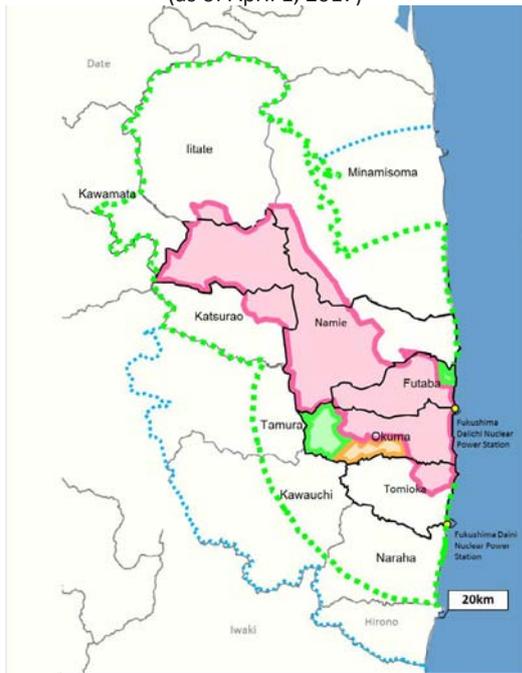
- Dimension of areas under evacuation order is about 3% of the whole prefecture.  
People in 97% of the prefecture can live a normal life.



# Reconstruction and Recovery of Fukushima: Status of the Areas under Evacuation Orders ②

- By April 1, 2017, evacuation orders were lifted for Tamura City, Naraha Town, Kawauchi Village, Katsurao Village, Minamisoma City, Iitate Village, Kawamata Town, Namie Town and Tomioka Town, which are Preparation areas for lift of evacuation order and Habitation restricted areas.

Conceptual diagram of areas under evacuation orders  
(as of April 1, 2017)



Areas in which evacuation orders were lifted within one year after the disaster.



Areas in which evacuation orders were lifted between 2012 and 2017 spring.



### Preparation Areas for Lift of Evacuation Order:

Of the areas under evacuation orders, areas that have been confirmed to have a clear annual concentrated radiation dose of less than 20 mSv from air dose rates (confirmed based on radiation dose as of March 2012).



### Habitation Restricted Areas:

Of the areas under evacuation orders, areas that have been confirmed to have potential an annual cumulative radiation dose estimated from the air dose rate exceeding 20 mSv (confirmed based on radiation dose as of March 2012).

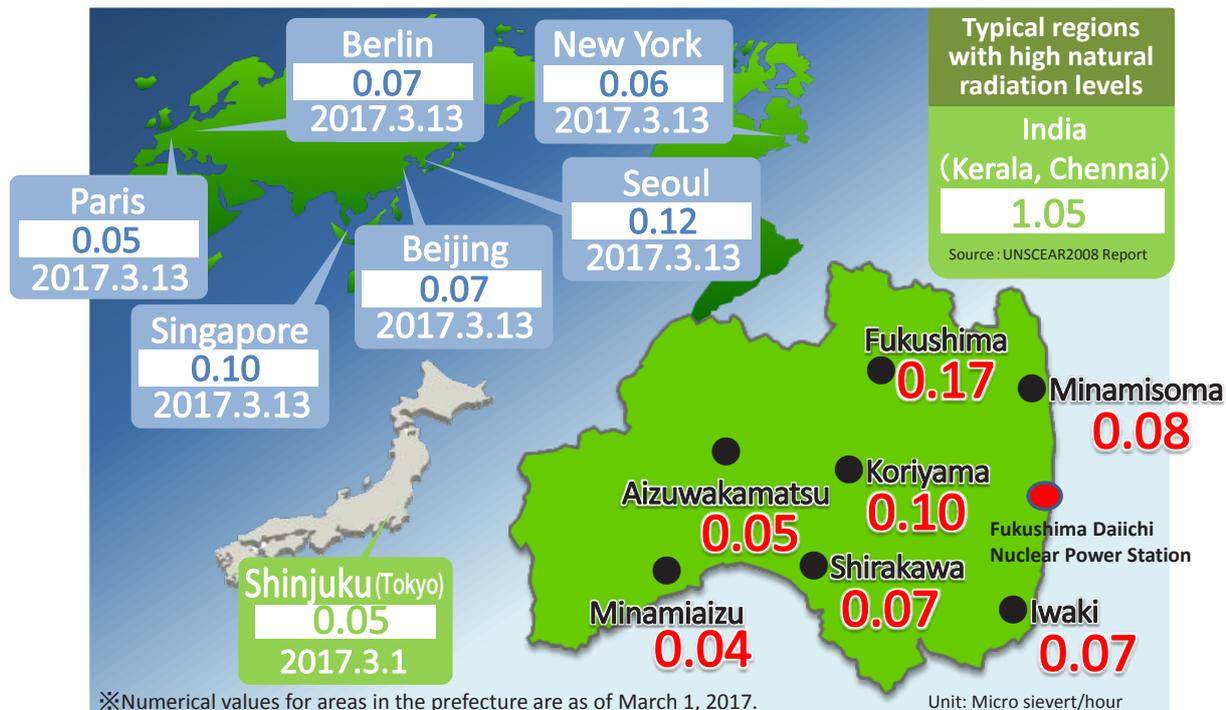


### Areas where Returning is Difficult:

Areas where the annual cumulative radiation dose estimated from the air dose rate may not fall below 20 mSv even six years after the nuclear accident. Areas where the annual cumulative radiation dose estimated from the air dose rate exceeds 50 mSv as of March 2012.

# Current State of Air Dose Rates within Fukushima: Comparisons with Other Parts of the World

- The air dose rate in Fukushima Prefecture is about the same level as other major cities overseas.

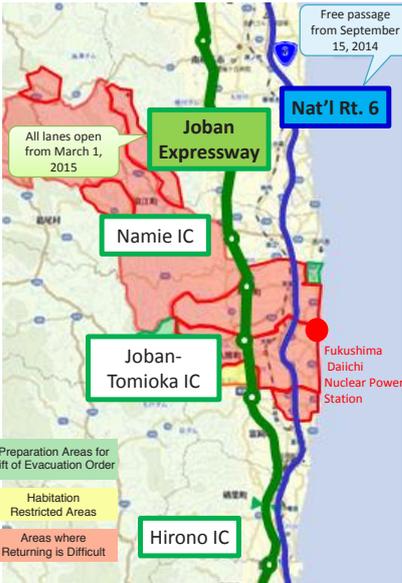


※Numerical values for areas in the prefecture are as of March 1, 2017.

Source: Created by the Reconstruction Agency based on Fukushima Prefecture "Steps for Revitalization in Fukushima (19th)", Nuclear Regulation Authority Radiation monitoring information, Japan National Tourism Organization, "Basic Information on Radiation Risk", United States Environmental Protection Agency and Institut de radioprotection et de sûreté nucléaire(France).

# Improvement of Transportation Infrastructure in Areas under Evacuation Orders and Fukushima Innovation Coast Framework

- As of September 2014 and March 2015, traffic is permitted in all lanes on National Rt. 6 and the Joban Expressway, respectively. In addition, the JR Joban Line is expected to be fully opened by the end of fiscal 2019.
- Fukushima Innovation Coast Framework is in progress toward the building of a new industrial base in the Hamadori area, with decommissioning, robot technologies, and energy, etc.

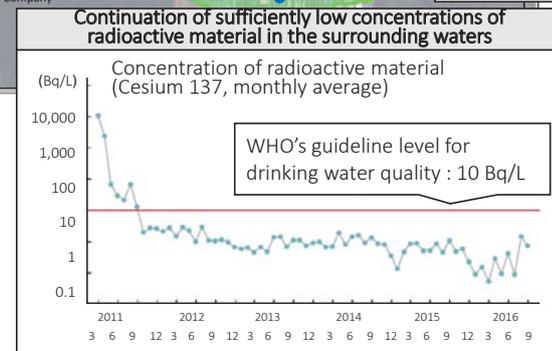
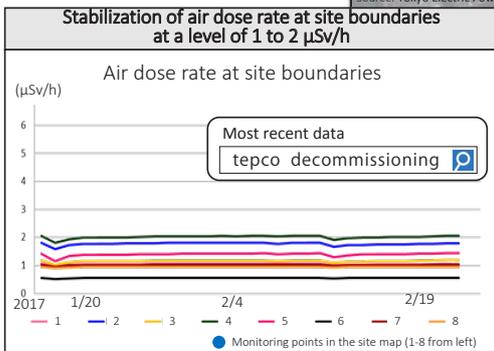
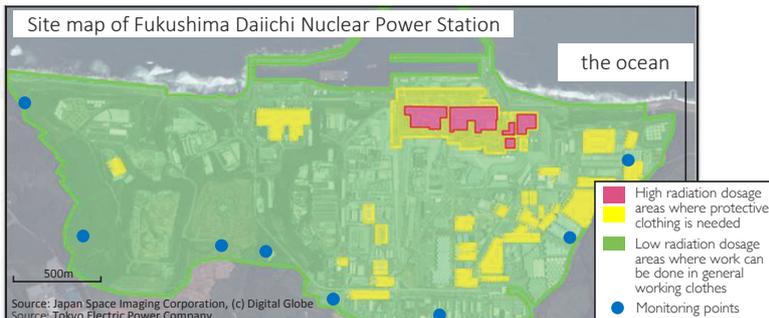
Improvement of Transportation Infrastructure	Major Projects in the Fukushima Innovation Coast Framework	
	 <p data-bbox="799 566 1002 580">Source: Japan Atomic Energy Agency</p>	 <p data-bbox="1177 566 1380 580">Source: Japan Atomic Energy Agency</p>
	<p data-bbox="691 586 1002 667">CLADS (Collaborative Laboratories for Advanced Decommissioning Science) International Joint Research Building (Tomioka Town) (Open in April 2017)</p>	<p data-bbox="1043 586 1380 667">Naraha Remote Technology Development Center (Naraha Town) (Start of full-scale operation in April 2016)</p>
	 <p data-bbox="778 863 1034 876">Source: Fukushima Offshore Wind Consortium</p>	 <p data-bbox="1278 841 1380 854">(Image)</p>
	<p data-bbox="652 888 1034 975">Floating Offshore Wind Farm Demonstration Project (Offshore of Fukushima) (Sequential start of wind turbine operations from fiscal 2013)</p>	<p data-bbox="1043 888 1380 975">Robot Test Field A development/demonstration test base for field robot and drone (Minamisouma City, Namie Town) (Sequential start of operations from fiscal 2018)</p>

# Current Status of Fukushima Daiichi Nuclear Power Station

- Monitoring of parameters, such as reactor temperatures, and checking that stable conditions are being maintained.
- The environment has been improved and impacts on the site and surrounding areas have been significantly reduced.



Source: Tokyo Electric Power Company



# Efforts for Decommissioning and Contaminated Water Management at Fukushima Daiichi Nuclear Power Station

- Efforts for decommissioning and contaminated water management at Fukushima Daiichi Nuclear Power Station have been steadily progressing towards the decommissioning in the next 30 to 40 years.

### Progress of Measures for Contaminated Water

**(1) "Isolating" groundwater from contamination source**  
Control groundwater inflow by frozen soil walls, sub-drains (wells), etc.

**(2) "Preventing leakage" of contaminated water**  
Prevention of outflow to the sea by impermeable walls made of steel etc.

**(3) "Removing" the contamination source**  
Water purification treatment by mean of multi-nuclide removal equipment, etc.  
Reduction of groundwater inflow to buildings (=control generation of contaminated water)

Source: Created by Ministry of Economy, Trade and Industry based on material from Tokyo Electric Power Company

### Actions for Decommissioning

- Progress of preparations for removal of fuel from spent fuel pools (removal at unit 4 was complete).
- Conduction of investigations inside primary containment vessels and steadily gathering of information for removal of fuel debris.

#### Unit 3

■ Installation of fuel removal equipment began in Nov 2016

#### Unit 4

■ Completion of the removal of all fuel in Dec 2014

Source: Tokyo Electric Power Company

#### Investigation inside Buildings for Unit 1 and 2

##### Unit 1: PMORPH

In the water

##### Unit 2: Scorpion-type robot

■ Remote robots were introduced into unit 1 and 2, which were able to obtain photos of the inside and information on dose rates, etc.

Source: IRID

Explanatory videos and a brochure can be found at the following URL:  
<http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/index.html#video>

# Adoption of the World's Strictest Level of Standard Limits as Set in Scientific Basis

- Food safety is ensured through a thorough inspection of radioactive substances based on the strictest level of standard limits in the world as set in scientific basis.

(Unit : Bq/kg)

Japan		E U		USA		CODEX	
Standard Limits under Food Sanitation Act		Council Regulation (Euratom) 2016/52		CPG Sec. 560.750 Radionuclides in Imported Foods - Levels of Concern		CODEX STAN 193-1995	
Drinking Water	10	Drinking Water	1,000	All Foods	1,200	Infant foods	1,000
Milk	50	Dairy Products	1,000				
Infant Foods	50	Infant Foods	400				
General Foods	100	General Foods	1,250				
				General Foods		1,000	

※Standard Limits in the above table are used to make radiation doses received be below a certain level and are not necessarily the boundaries between safety and danger.

※CODEX: An international intergovernmental body set up by the UN Food and Agriculture Organization (FAO) and the World Health Organization (WHO) for purposes including to protect consumer health and ensure fair trade in food. It writes the international code on food (the Codex Alimentarius). (Member states : 187 countries and the EU as of Aug 2016)

Source: Created by the Reconstruction Agency based on material from Ministry of Health, Labour and Welfare

# Initiatives for the Safety and Security of Food in Fukushima Prefecture

- Announcement of results of thorough monitoring of agriculture, forestry, and fishery products prior to shipment.
- Significant reduction of products that exceed standard limits (100Bq/kg) in recent years, in comparison to immediately after the disaster.
- Shipments of products that exceed standard limits are restricted. Products on the market are safe.
- The lifting of restrictions on distributions is carried out on the basis of strict criteria.

## State of monitoring of agricultural, forestry and fishery products produced in Fukushima Prefecture

(April 1, 2016 to February 28, 2017)

※Monitoring for brown rice only was conducted from August 24, 2016 to February 28, 2017.

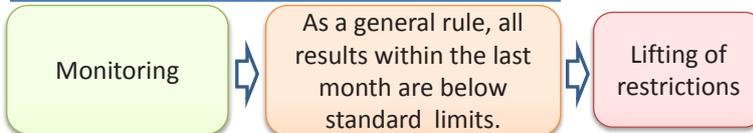
Classification	Total No. samples	No. of samples exceeding standard limits	Proportion of samples exceeding standard limits
 Brown rice (produced 2016)	Approx. 10.23 million	0	0.00%
 Vegetables & Fruits	3,763	0	0.00%
 Livestock products	4,026	0	0.00%
 Cultivated edible Mushrooms	1,026	0	0.00%
 Marine Fishery products	7,785	0	0.00%
 Inner water-cultivated fish	103	0	0.00%
 Wild edible plants & Mushrooms	762	2	0.26%
 Inland water Fishery products	577	4	0.69%

No products were over standard limits

- ▶ Safe shipment
- ▶ Continued inspections towards the lifting of restrictions

Restrictions of distributions are instructed on each production area for items that are in excess of standard limits

## Flow until Lifting of Restrictions on distributions



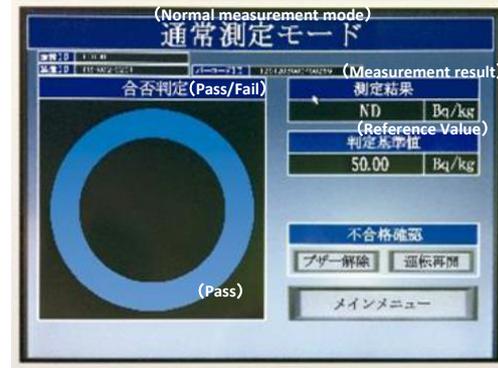
### Most recent data:

[http://www.new-fukushima.jp/foreign\\_language\\_potai](http://www.new-fukushima.jp/foreign_language_potai)  
(Find the latest information on areas and crops, etc.)

Source: Created by the Reconstruction Agency based on Fukushima Prefecture "Steps for Revitalization in Fukushima (19th)" and website "Towards a new future of Fukushima".

# Initiatives for Inspections of All Bags of Rice in Fukushima Prefecture

- The world's first inspections for radioactive substances have been carried out on all bags of rice since 2012.
- Results of inspections on rice produced since 2015 show that all bags of rice are within the standard limit (100Bq/kg).

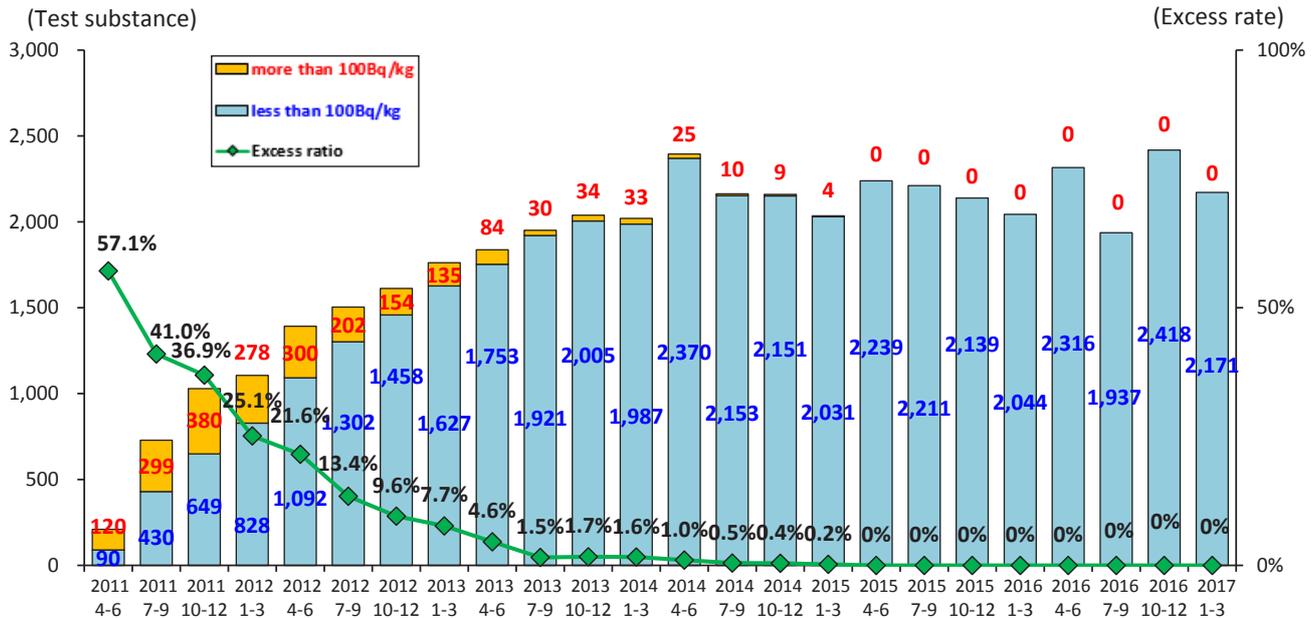


## Evaluation of monitoring, etc. by IAEA (Excerpts from IAEA report (October 2016))

- Measurements of cesium radionuclide levels in foodstuffs, together with appropriate regulatory action and the publication of monitoring results, are helping to maintain confidence in the safety of the food supply.
- Food restrictions continue to be revised and updated as necessary in line with the results of food sampling and monitoring. This indicates the continued vigilance of the authorities in Japan and their commitment to protecting consumers and trade.
- Based on the information that has been made available, the Joint FAO/IAEA Division understands that the measures taken to monitor and respond to issues regarding radionuclide contamination of food are appropriate, and that the food supply chain is controlled effectively by the relevant authorities.

# Results of Surveys of Marine Fishery Products in Fukushima Prefecture

- Between April and June 2011 immediately after the disaster, the percentage of marine fishery products in Fukushima Prefecture that exceeded the standard limit (100Bq/kg) was 57.1%. This percentage has continued to decline, and has fallen to 0% since April 2015.

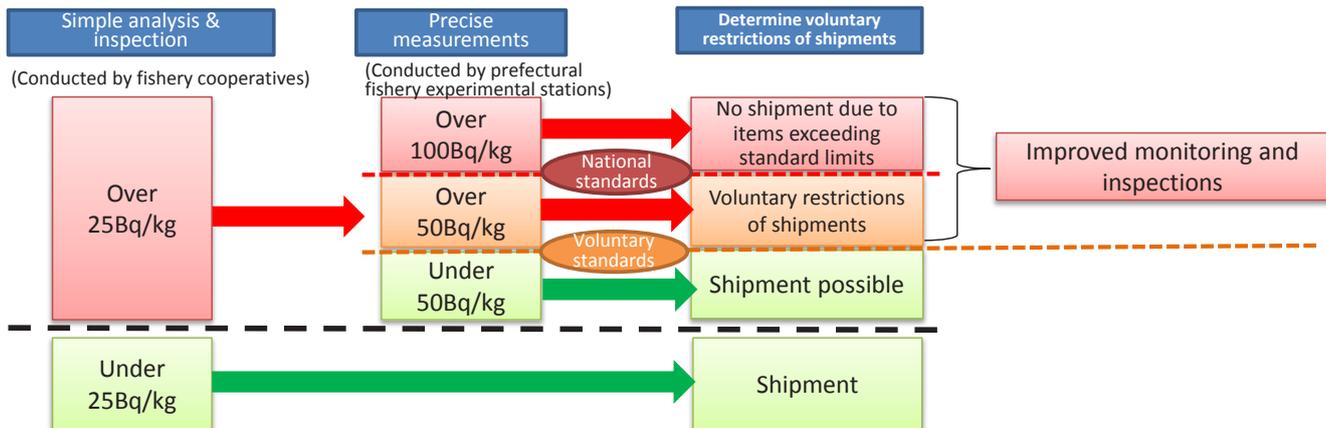


Source: Excerpt from materials created by the Ministry of Agriculture, Forestry and Fisheries

# Voluntary Testing of Marine Fishery Products in Fukushima Prefecture

- Voluntary restrictions of fishing operations and implementation of test operations and sales\* in Fukushima Prefecture.
- Restrictions on distributions are imposed upon items that exceed the standard limit to ensure the safety of marine fishery products reaching consumers.
- Fishery cooperatives give due attention to safety and security by conducting voluntary inspections based on voluntary standard limits (50Bq/kg) that are stricter than national standards.

\*Test operations and sales: As a result of inspections of radioactive substances in marine fishery products during voluntary restrictions since March 2011, operations and sales in ocean areas and fish species that are stably below standard limits are being conducted on a trial basis.



Source: Created by Reconstruction Agency based on Fukushima Prefectural website

## Evaluation of monitoring by the IAEA (Excerpt from IAEA report (February 2014))

Japan adopted a limit of 100 Bq/kg in combined Cs-134 and Cs-137 for food products in 2012, which also applies for marine fishery products, to keep public dose below the international standard level. Accordingly, the comprehensive monitoring system has been developed by Japan, both for seawater and for the products in the food chain. Additionally, Japan has introduced limits for food controls that are based on the international standard level. This systematic approach, together with the distribution restrictions by relevant local governments, ensures the safety of the marine fishery products in the market.



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