Decontamination Project in Fukushima Prefecture
Conducted by Japanese Government

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Radioactive materials spread over wide areas including the high dose rate regions in the North-West of Fukushima plant.

* Results of aircraft monitoring by MEXT (September 12, 2011)
Decontamination including detailed monitoring are currently in progress in 11 municipalities except Futabamachi.

※Futabamachi municipal government has expressed their will to be excluded from the decontamination model-case project.
ICRP's recommendations

Radiation exposure during emergency [scheduled evacuation areas; off-limits areas]

Situation in which emergency actions are required as in the case of nuclear accidents.

Aiming at the annual dose of 20 mSv or less

Basic emergency guidelines for decontamination
(Aug. 26, 2011: by Nuclear Disaster Taskforce)

- National Government will be responsible for conducting decontamination until the residents return to their land.

Existing radiation exposure

Long-term exposure following emergency

[Relatively high-dose region]
Large-scale surface decontamination is needed.

Municipalities will prepare and implement decontamination plans.

[Relatively low-dose region]
Intensive decontamination of hot spots such as road ditch and gutters.

National Government sends experts and provides financial assistance to facilitate decontamination.

Vertical Axis: Annual Dose

[mSv/yr]

100mSv/yr

20mSv/yr

1mSv/yr
Framework of Decontamination Project

Actions to be taken in accordance with the Act on Special Measures Concerning Nuclear Emergency Preparedness

Basic emergency policies for decontamination
+ Decontamination guidelines of the municipalities

Aug. 26: Nuclear Disaster Taskforce

Sep. 9: Contingency funds of about 220 billion yen allocated for restoration from the Great East Japan Earthquake.

(Under the direct control of National Government)
Conducting model-case projects etc.

Municipalities preparing plans

Feedback to guidelines etc.

Municipalities starting decontamination

Smooth transition

The Act Concerning Special Measures for the Radioactive Contamination

Aug. 26: Passed (lawmaker-initiated legislation)
Aug. 30: Promulgated and became partially effective

Cabinet approval of the basic policies

Issuing Government and ministerial orders stipulating requirements for area designation, process standards, etc.

Designation of special decontamination areas
Designation of priority survey areas

Come into full force on Jan. 1, 2012

National Government's decontamination plans prepared.
Municipalities' decontamination plans prepared.

Full-scale decontamination by National Government.
Full-scale decontamination by the municipalities.
1. Decontamination Demonstration Model-Case Project of the Cabinet Office [from Nov. 2011]
To demonstrate technologies required for conducting effective decontamination, demonstration projects are under way for the 12 municipalities within the off-limits areas and the scheduled evacuation areas.

2. Decontamination of City Halls by SDF (Ministry of Defense) [Dec. 2011]
Prior to the start of the full-scale decontamination, city halls of Iitatemura, Namiemachi, Tomiokamachi, and Narahamachi were decontaminated.
**Outline of the Project**
To demonstrate technologies required for conducting effective decontamination, demonstration projects will be carried out for the 12 municipalities within the off-limits areas and the scheduled evacuation areas.

**Setups for the Project**

- National Government (Cabinet Office)
- Fukushima Engineering Headquarters of Japan Atomic Energy Agency

**Commissioned Groups**

- **Group A** (Minamisouma-city, Kawamatamachi, Namiemachi, Iitatemura)
- **Group B** (Tamura-city, Futabamachi, Tomiokamachi, Katsuraomura)
- **Group C** (Hironomachi, Ookumamachi, Narahamachi, Kawauchimura)

**Key Points**

- ◊ Confirm the reduction of the air dose rate.
- ◊ Confirm the effectiveness and cost of decontamination and the amount of dirt etc. removed.
- ◊ Confirm procedures for radiological protection and safety management
- ◊ Confirm the reduction in volume of dirt etc. removed, procedures for making temporary storage, etc.

**Current Status of the Project**

- **Nov. 7** Decontamination operators selected.
- **Nov. 8~** Field surveys started.
- **Nov. 18~** Decontamination started (including detailed surveys, monitoring, etc.)

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**Example of Ookumamachi and the surrounding area**

- **Area to be covered:** Approx. 4.5 ha
- **Residents:** Approx. 30 households
- **Public facilities:** Ookumamachi city hall, Ookumamachi community center, parks (approx. 1.2 ha)
- **No plowland; groves in the park**
- **Procedure:** Partition into four sectors to proceed.

**Timeline**

- **November**
  - Buildings of the city hall etc.
  - Trees in the park
  - Community center

- **December**
  - Parking area of the city hall
  - Parking area
  - Trees and fallen leaves in the park

- **January**
  - Ditches and sidewalks
  - Remove topsoil
  - Remove topsoil
  - Roots of private houses > garden trees > garden soil
  - Roads and ditches
**Decontamination Efforts of SDF**

- **Period**
  Dec. 7 (Wed.) to 19 (Mon.)

- **Implementation Units (Total approx. 900 troops)**
  - The 6th Division, Northeastern Army, SDF
  - The 44th Infantry Regiment (Fukushima)
  - The 6th Artillery Regiment (Koriyama)

- **Details of Decontamination**
  - Cleansing with high-pressure water discharge etc.
  - Peeling turfs, removing topsoil
  - Cleaning ditches etc.

- **Locations**
  Four city halls in Fukushima prefecture
  - Iitatemura city hall (inside the scheduled evacuation area)
  - Namiemachi city hall (inside the off-limits area)
  - Tomiokamachi city hall (inside the off-limits area)
  - Narahamachi city hall (inside the off-limits area)
3. **Advance Decontamination** [from Jan. 2012]
Prior to the start of the decontamination project in earnest, the advance decontamination will be conducted to secure storage spaces for equipment to be needed for the decontamination work, resting places for workers and infrastructure etc.

4. **Full-Scale Decontamination** [from End of Mar. 2012]
Full-Scale Decontamination will be successively conducted in the 11 municipalities within the off-limits area and the scheduled evacuation area ready for work. Designation of evacuation areas will be reviewed, and priorities are considered.
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<th>Fiscal 2012</th>
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<td>Conduct detailed monitoring</td>
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<td>Prepare decontamination plans for specially designated areas</td>
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<td><strong>Model-Case Project</strong></td>
<td>Decontamination demonstration model-case project (Cabinet Office)</td>
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<td><strong>Decontamination</strong></td>
<td>Area selection; coordinate with municipal governments and residents</td>
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<td>Start full-scale decontamination</td>
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<td>Conduct successively as adjustments are made</td>
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<tr>
<td><strong>Temporary Storage</strong></td>
<td>Site-selection etc. for the temporary storage; coordinate with municipal governments and residents</td>
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<td>Installations</td>
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To make it operational as soon as possible, the cell system, where individual sections are put in service as they are completed, will be adopted (construction and operation at the same time).

**Schematic View of Interim Storage Facilities**

- **Readied for construction**
- **Under construction**
- **Carry-in in progress**
- **Carry-in completed**
- **After carry-in**

**Facilities for high-level radioactive or elution-susceptible dirt**
- Roofs to ward off rain water (during construction phase only)
- Radiation monitoring
- Reinforced concrete outer shields for artificial structures
- Use of appropriate containers (flexible container bags etc.)
- Lids (to be placed after carry-in)

**Facilities for low-level radioactive or non-elution-susceptible dirt**
- Tree planting (after carry-in)
- Covered with fresh dirt (after carry-in)
- Radiation monitoring
- Monitoring for radioactive substance in the ground water

**Use of appropriate containers (flexible container bags etc.)**

- Ditches for rainwater
- Seepage control work (top; side; bottom)
- Leak water collecting facilities; water treatment facilities (monitoring for radioactive substance)

**Monitoring**
- Radiation monitoring

**After carry-in**

**Tree planting**
- After carry-in

**Covered with fresh dirt (after carry-in)**

- After carry-in
Decontamination Information Plaza (Ministry of the Environment, Fukushima Prefecture)

- To be established alongside of Fukushima Environment Restoration Office (MOE) from March 2012.
- Collect and provide various information on decontamination. Coordinate the needs of advisory experts and municipalities.
- Support municipalities' effort in the implementation of decontamination plans or installation of temporary storage facilities.
- Help volunteer activities concerning decontamination in the municipalities.