The Treatment of the Disaster Waste by Great East Japan Earthquake in Sendai city

Hirosegawa-riv. length 51km

Moriya ENDOH

Senior Director, City of Sendai Environmental bureau

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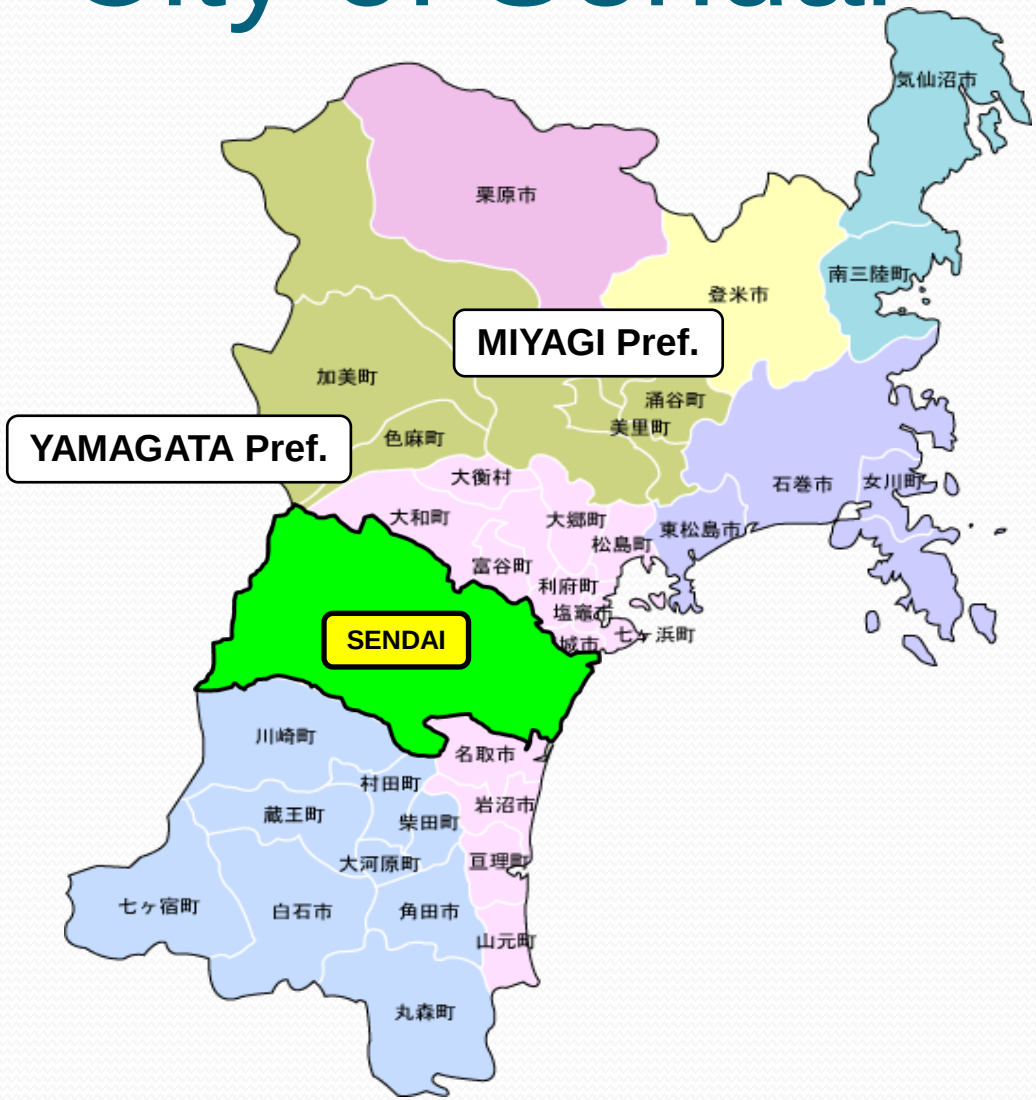
City of Sendai

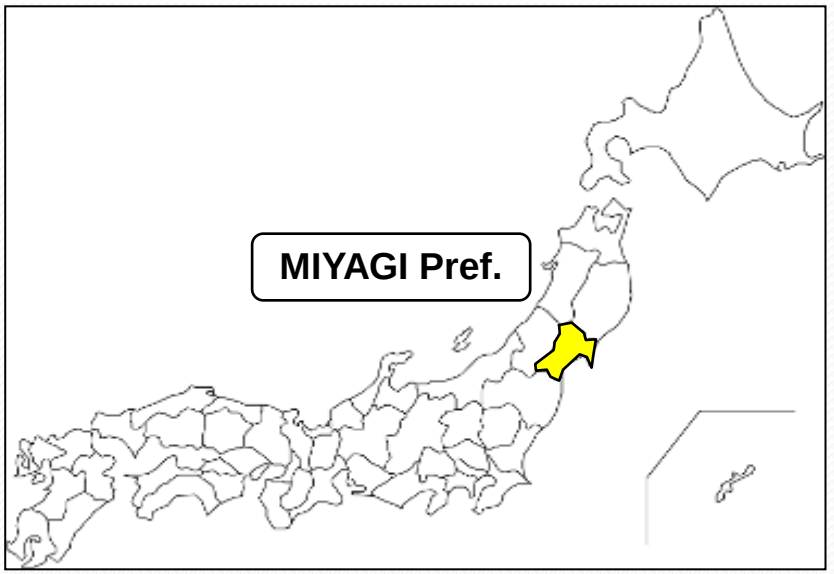


Total Area: 788.09㎢

Population: 1,082,185

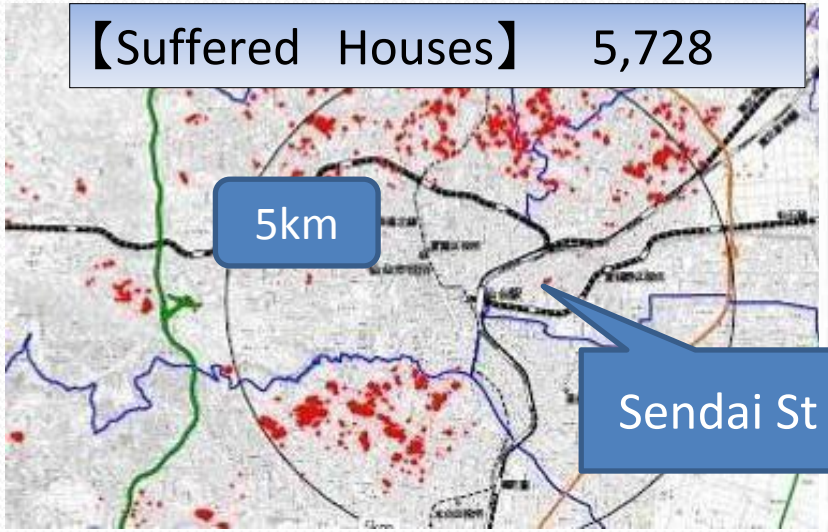
Households: 499.090

(as of Oct.2015)



Damage in Sendai City (Coastal Area)

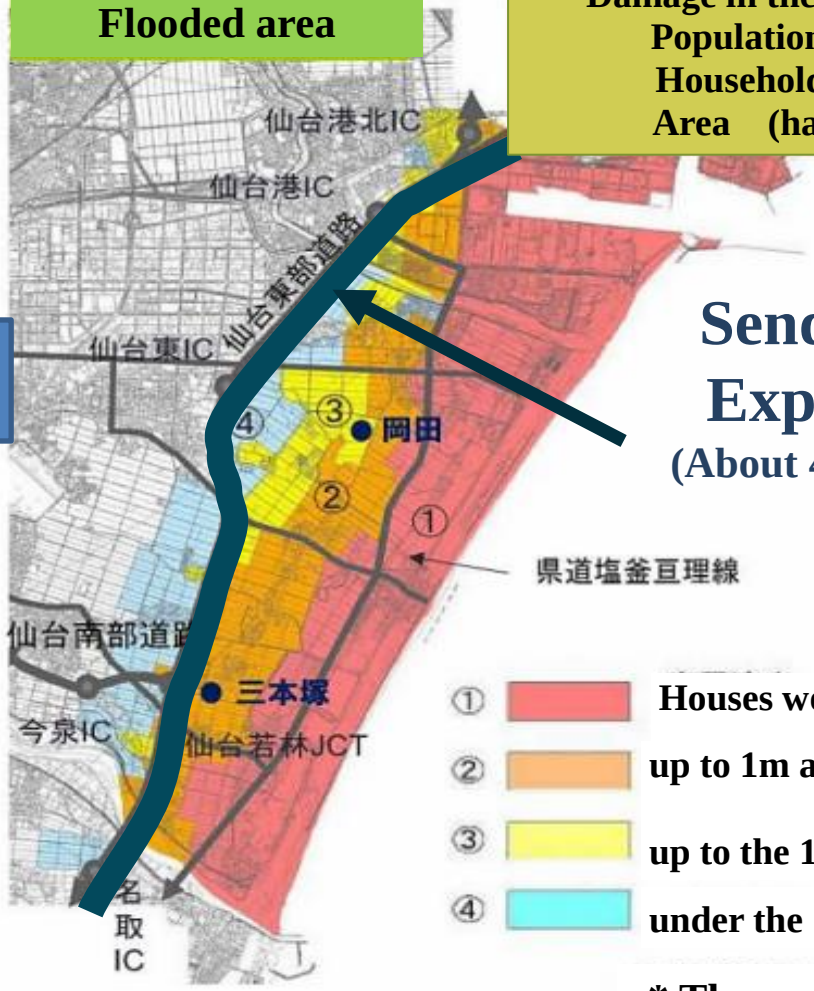
【Suffered Houses】 5,728




沿岸部の津波被害（若林区三本塚付近）

Flooded area

Damage in the flooded area
Population : 22,021
Households : 8,110
Area (ha.) : 4,523



Sendai Tobu Expressway
(About 4 km from the coast)

① **Houses were washed**
② **up to 1m above the 1st floor.**
③ **up to the 1st floor**
④ **under the 1st floor**

*** The areas were designated based on site research.**

Two Sendai systems

1 UN World Conferences on disaster Risk Reduction

"The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries"

–Sendai Framework

2 Treatment of disaster waste

With partnership of citizens, local industry, specialists and local government and thorough sorting and recycling disaster waste was treated rapidly.

—Sendai System in waste treatment

What is the “Sendai System”?

Local Contractors Perform Recovery Work

- Reconstruct Local Economy

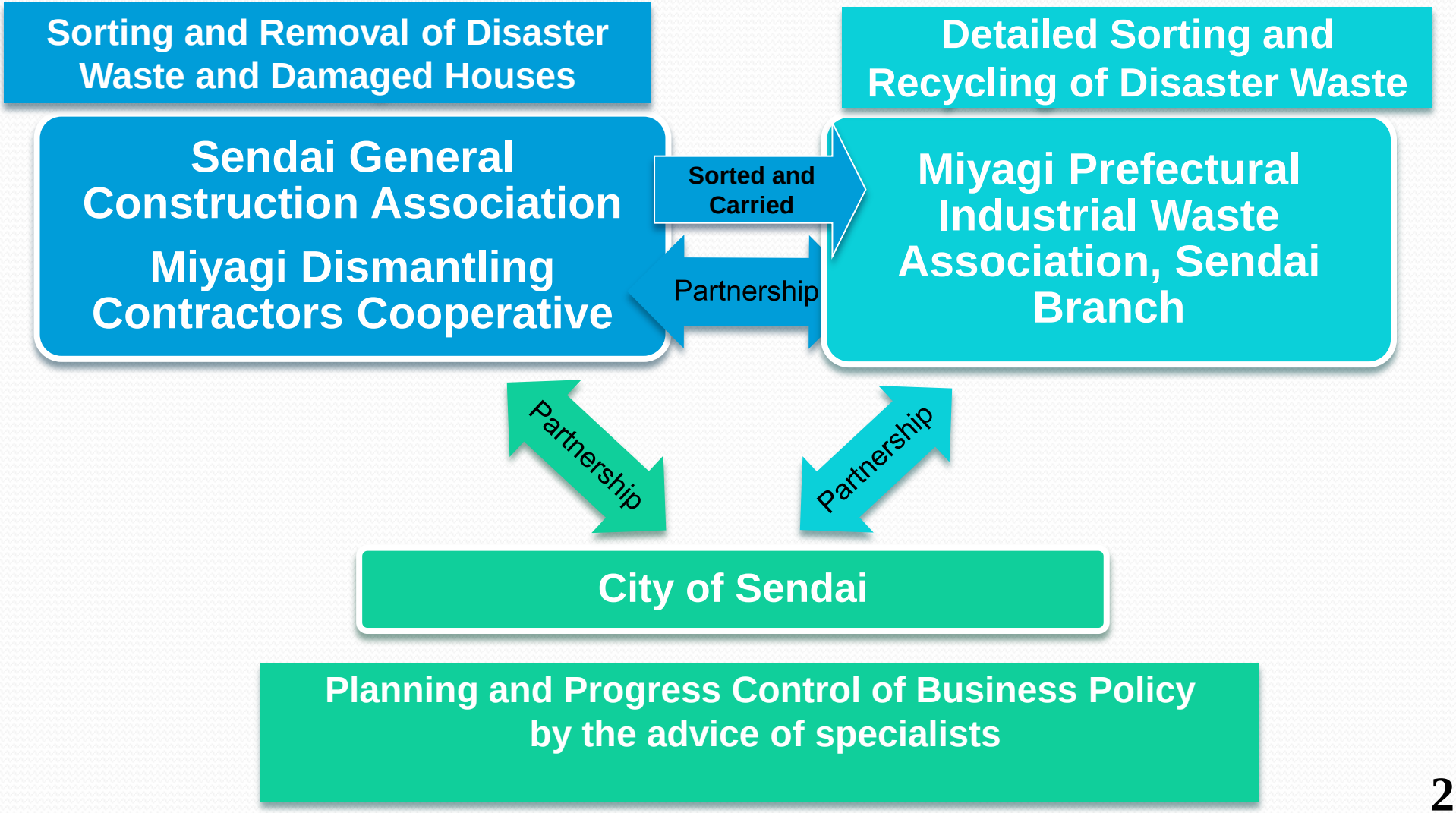
Thorough Public-Private Partnerships and Clear Role sharing

- Rapid Recovery of Damaged Areas

Thorough Sorting and Recycling of Disaster Waste

- Efficient and Rapid Treatment
- Complete Treatment within Sendai area

System for Disaster Waste Treatment



Issues and actions immediately after the occurrence of the Great East Japan Earthquake

The Great East Japan Earthquake breaks out

○ Recovery of general garbage and excreta treatment system

- Recovery of garbage and excreta treatment facilities
- Recovery of garbage and excreta collection system
  (Collection from the places of refuge started on the following day.)

→ Returned to normal in 2 months after the disaster

○ Secure sites for storing disaster waste (clean-up waste)

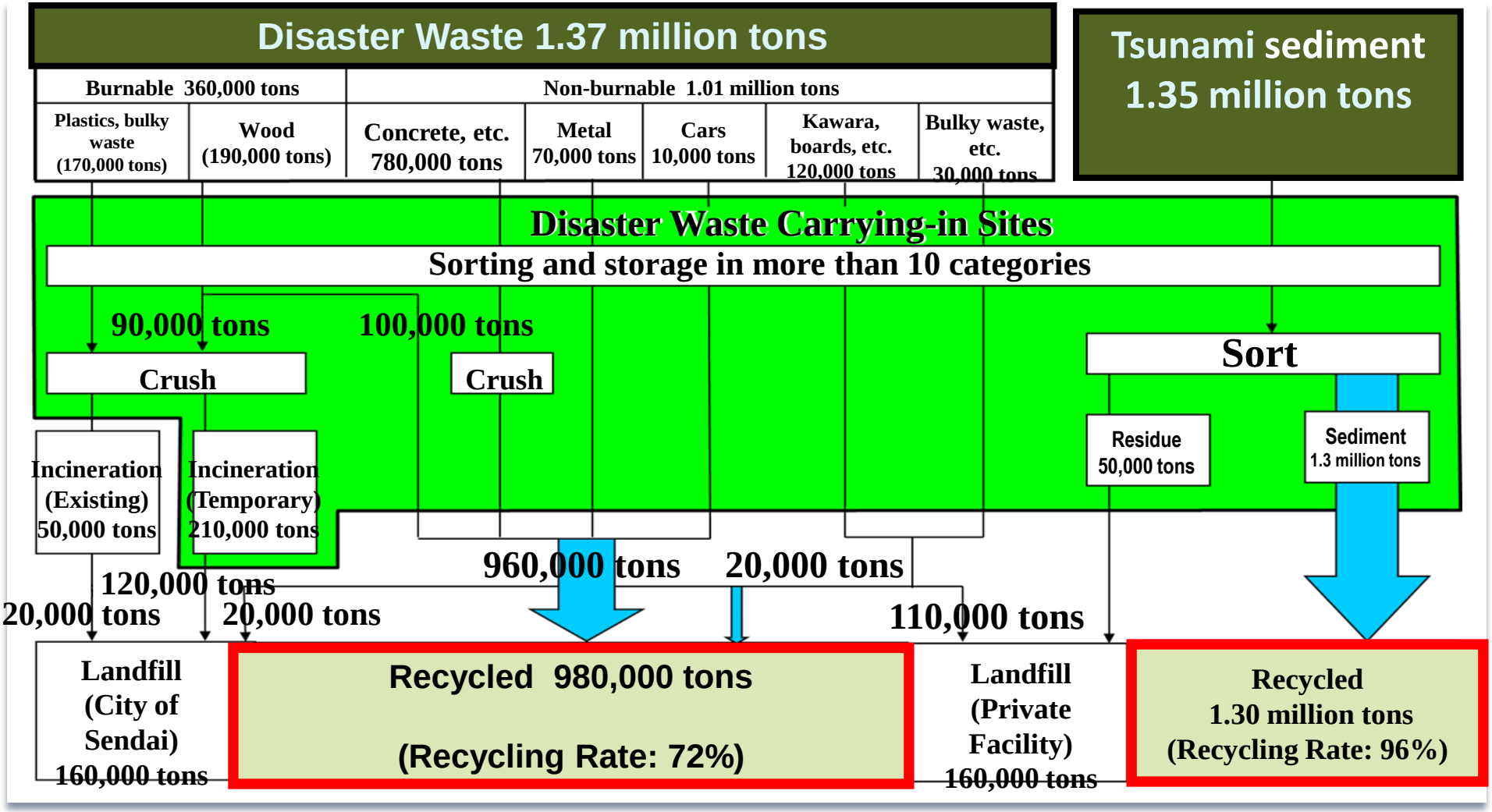
- Installing temporary waste collection sites that citizens themselves carry clean-up waste (within 4 days after the disaster, for 2 months)
- Collection from respective houses (starting within 2 weeks after the disaster)

○ Removal of disaster waste

- Start using disaster waste carrying-in sites (within 3 weeks after the disaster).
- Removal of disaster waste (within 3 weeks after the disaster).

Result of Recycled and Treated Disaster Waste

- to remove the disaster waste in one year, to dispose in 3 years after the disaster
- recycling rates 72%(debris), 96%(sediments) total rate 84%



Actions against unexpected disaster

○ Enormous of disaster waste: 2,720,000 tons

⇒ Secure large areas of temporary carrying-in sites.

⇒ Construction of a new treatment system by local construction/demolition/industrial waste industries

⇒ Construction of a support system by officials of other cities to supplement the treatment system of general waste

○ Tremendous tsunami damage

- Very many missing persons and left properties, and disaster waste scattering across wide areas

⇒ Careful sorting and removal in wide areas

- Salt damage

⇒ Recycling wood waste at the advice of an academic society and installing temporary incinerators

- Mixing disaster waste and Tsunami sediment

⇒ Thorough sorting and stable incineration by mixing with burnable

○ Consideration of various environmental matters

- Measures against pollution by asbestos, dioxins, hazardous substances, radioactive substances

⇒ Monitoring and announcement to the public, and securing effective utilization

- Measures against soil pollution

⇒ Installation of water shielding sheets in the storage areas for vehicles and electric appliances ,etc.

Proposals

1 Preparation for disaster

Agreed disaster waste treatment scheme applying general garbage treatment process made through communication among the national government and municipalities which play a central role in waste treatment.

2 Collaboration in local area

Collaboration with local industries and specialists of academic societies to carry out treatment process

3 Points of disaster waste treatment

- Human Resources: Public bodies, technical advice from an academic society, support from wider area and human resource development
- Financial Resources: Support by the national government
- Facilities: Local infrastructure, heavy industrial machinery, dump trucks, prior responses