Disaster Waste Management

THE CASE OF JAPAN'S 11 MARCH 2011 EARTHQUAKE AND TSUNAMI – JAPAN AND THE INTERNATIONAL RESPONSE

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Disaster **EV**A**c**uation and Ri**S**k Percep**T**ion in Democracies (DEVAST)

Purpose: to analyse the chain of impacts, from the immediate response to the long-lasting impacts induced by the Great East Japan Earthquake and the following Fukushima nuclear accident, focusing particularly on the displacement of population.

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Disaster Evacuation and Risk Perception in Democracies

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Democracy and Disaster Evacuation – Lessons from the Fukushima Catastrophe

東京工業大学
Tokyo Institute of Technology

WASEDA University

JST
Japan Science and Technology Agency

SciencesPo.
PARIS

Agence Nationale de la Recherche
ANR

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Disaster Evacuation and Risk Perception in Democracies

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Chapter Topics

- **How the disaster unfolded: the organization of the evacuation process**
- **Away from home: the evacuation through the lens of the evacuees**
- **Tensions and inequalities in the evacuation process**
- **To be a "flyjing" or not to be. The dilemma of foreigners living in Japan during the crisis**
- **Evacuation and disasters: an international comparison**
- **Perspectives of return and consequences of the evacuation**
- **Disaster Waste Management - the clean-up of debris and decontamination process**
- **Reconstruction, disaster prevention and adaptive capacity**
- **Nuclear governance after the Fukushima accident**
- **The meanings of the disaster for the Japanese**
- **How democracies deal with disasters**

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Great East Japan Earthquake in the Tohoku Region

3 Main Prefectures

- Iwate
- Miyagi
- Fukushima

Triple Disaster

- 9.0Mw Earthquake
- Tsunami reaching 40.5 meters
- Dai'ichi Nuclear Power Plant Explosions

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Over 400,000 people displaced

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Long-term emotional, physical and mental impacts

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Structural and economic figures do not account for the true loss experienced

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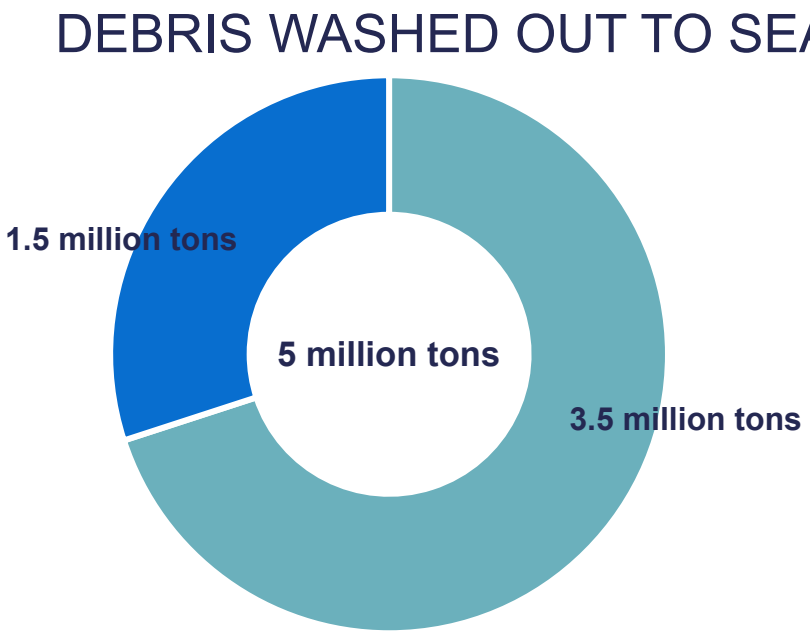
Earthquake and Tsunami Debris



- Total tons of debris = 20, million tons
- 5 million tons – Washed out to sea

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Tsunami Debris – Complications

1. Identification and recovery of materials
2. Hazardous and non-hazardous, biodegradable, recyclable and non-recyclable mixed together
3. Salt water bath – increases corrosion, incineration is more difficult
4. Debris scattered on land and dragged out to sea – hazardous to the marine life
5. Tsunami sludge

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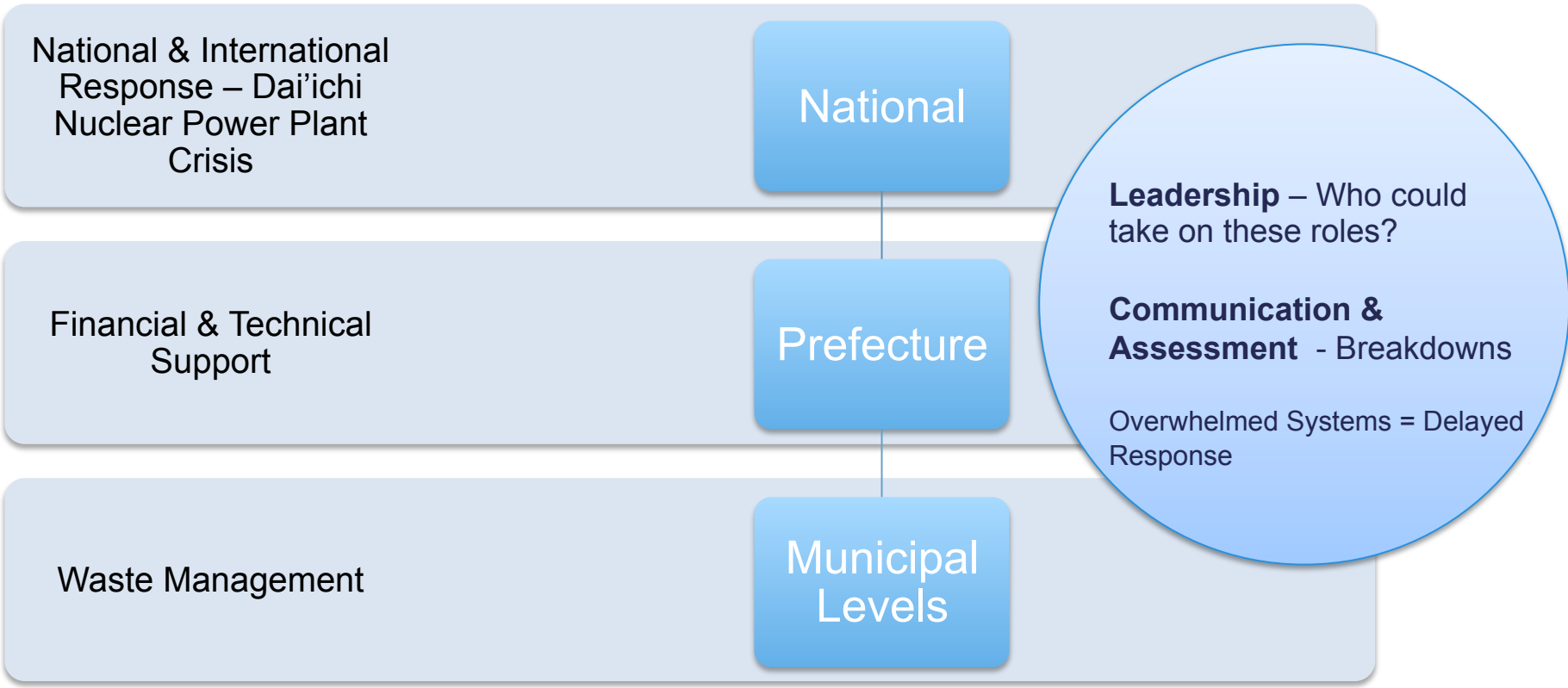
Response – systems in place



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Unknown Risks – Chemical Contamination

In accordance with Japan's Pollutant Release and Transfer Register (PRTR) it is dependent on the company's size that indicates if it is required for a company to report the amount of priority hazardous chemicals released or transferred each year (Bird & Grossman 2011).

- *A lack of information is crippling when attempting to develop waste management methods that are safe for the population as well as the environment.*

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Local Response

Sendai

- Strengths
  - Contingency plan
  - Tohoku University
  - Maximized local business opportunities
  - More residential materials that industrial

Ofunato

- Strengths
  - Adaptation of undamaged facilities
  - “Safer” storage of hazardous materials
  - Taiheiyo Cement Corporation

Soma

- Difficulties
  - Close proximity to Dai’ichi Nuclear Power Plant
  - Local & National Resistance – the the treatment and disposal of debris
  - Tsunami Sediment – contamination of agricultural soil – no disposal place

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Public Response to Disaster Waste Management

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Conclusion

- Communication
- Information sharing
- Shared chemical information
- Open source disaster debris management systems

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