

**がんばろう！東北**

Ganbarou! TOHOKU

# **Response of Tohoku Regional Bureau, MLIT, to the Great East Japan Earthquake**



# Outline of the Great East Japan Earthquake

## Date/Time:

March 11 14:46, 2011

## Magnitude:

9.0

## Place:

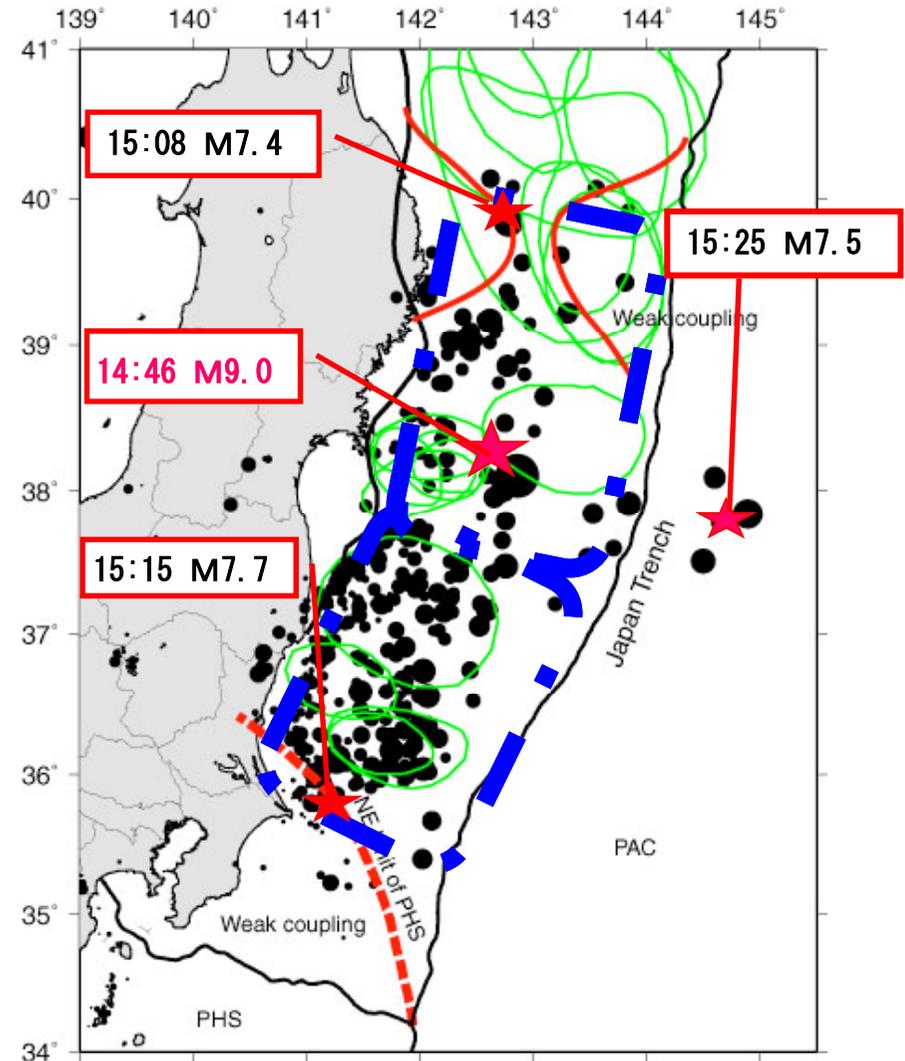
The coastal area on the Pacific Ocean  
(about 130km ESE from Oshika peninsula)

## Depth:

Approximately 24km

## Seismic Intensity:

Max 7(Kurihara, Miyagi)

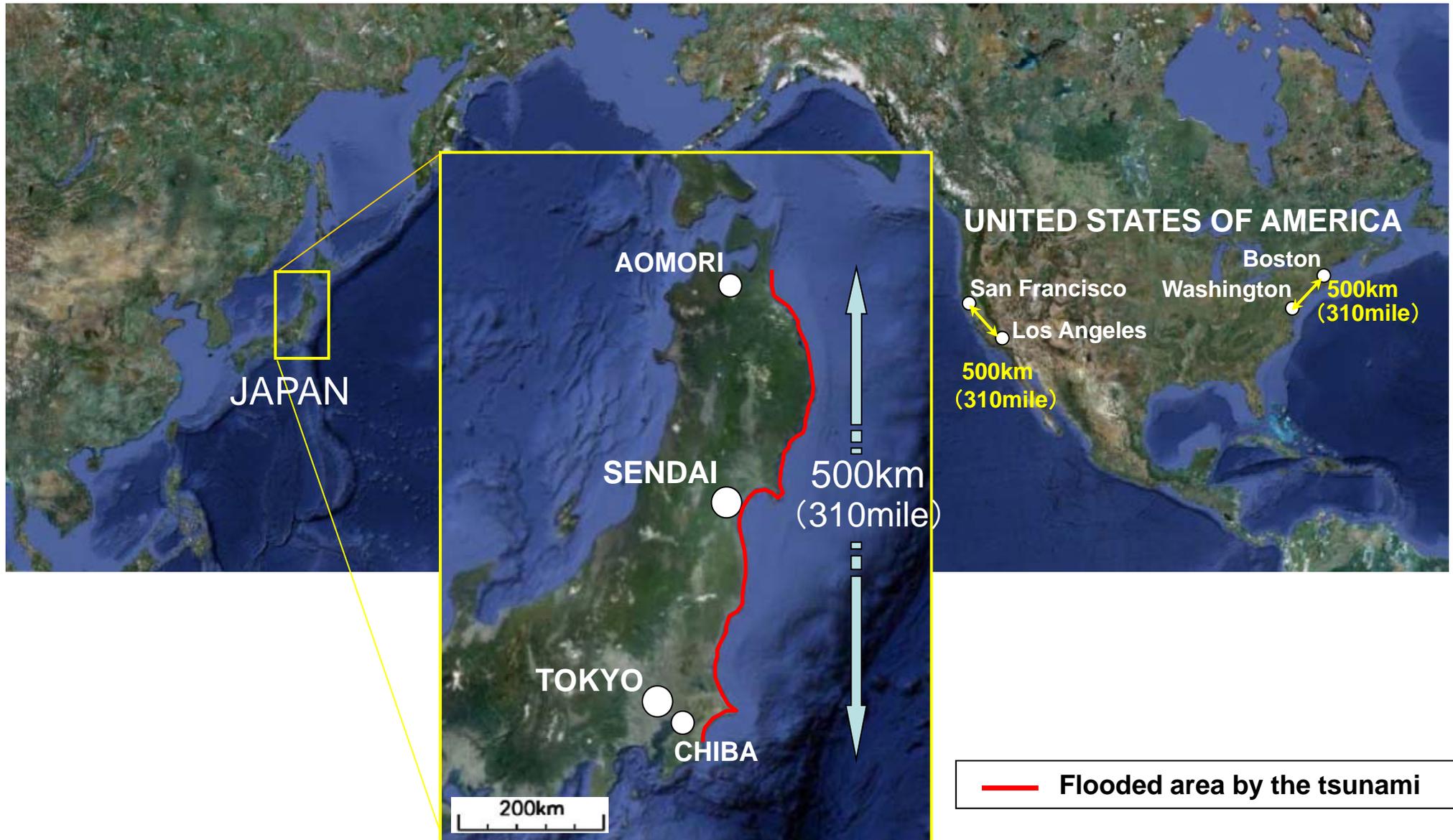


東北大学・地震噴火予知, 内田助教

[http://www.aob.geophys.tohoku.ac.jp/info/topics/20110311\\_news/index\\_html](http://www.aob.geophys.tohoku.ac.jp/info/topics/20110311_news/index_html)

# Tsunami Flooded Area

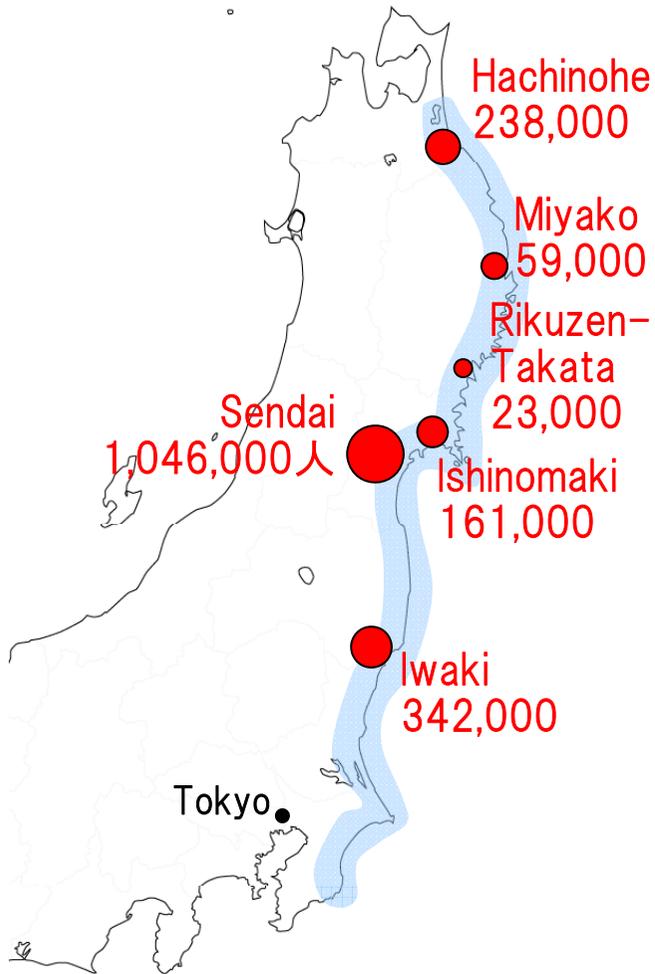
Tsunami affected vast areas extending 500km (310 mi) north-south.



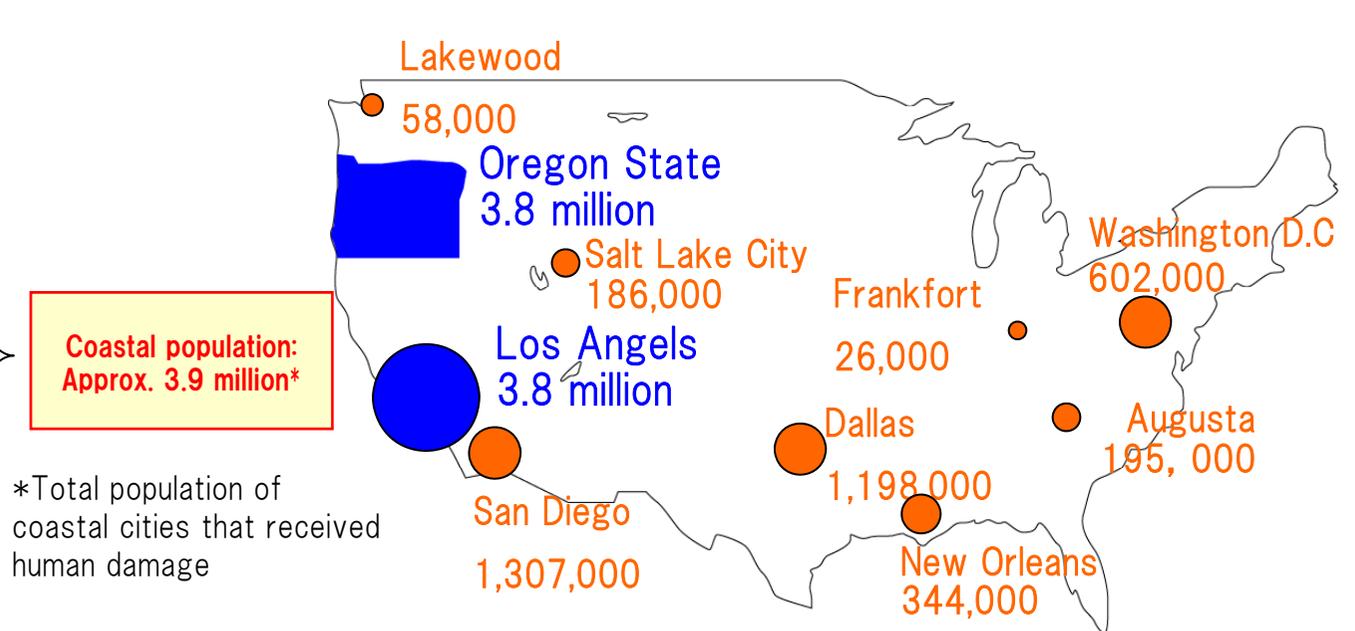
# Population of the Flooded Cities

Total population of the affected cities is some 3.9 million, which is equivalent to the Population of Los Angeles City or the State of Oregon.

## JAPAN



## UNITED STATES OF AMERICA



Coastal population:  
Approx. 3.9 million\*

\*Total population of coastal cities that received human damage

■ : Areas with human damage from tsunami

[2010 Census]

[2010 Census (Wikipedia)]

# Before and After the Disaster (Rikuzen-Takata City)

Before the disaster

Rikuzen-Takata Station



Rikuzen-Takata, Iwate



# Before and After the Disaster (Rikuzen-Takata City)

After the Disaster

Rikuzen-Takata  
Station



Rikuzen-Takata, Iwate

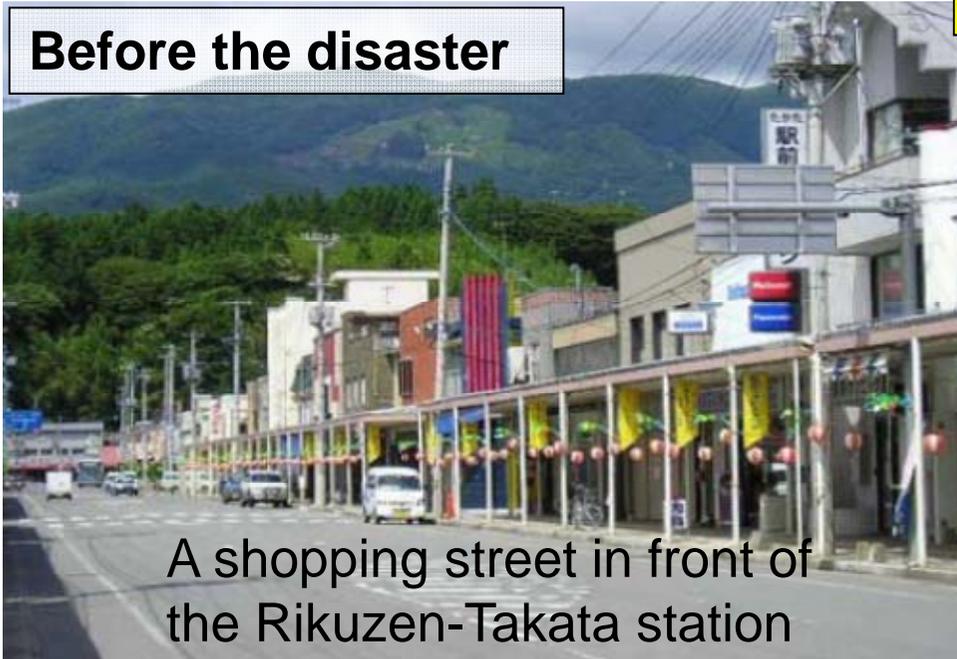
# Before and After the Disaster (Rikuzen-Takata City)

**Before the disaster**



The Rikuzen-Takata station square

**Before the disaster**



A shopping street in front of the Rikuzen-Takata station

**After the disaster**



The Rikuzen-Takata station square

# Before and After the Disaster (Ishinomaki City)

Before the disaster



Ishinomaki, Miyagi

# Before and After the Disaster (Ishinomaki City)

After the disaster



Ishinomaki, Miyagi

# Before and After the Disaster (Ishinomaki City)

Before the disaster



Ishinomaki,  
Miyagi

Nakase, Ishinomaki City (Former Kitakami River)

# Before and After the Disaster (Ishinomaki City)

After the disaster



Ishinomaki,  
Miyagi

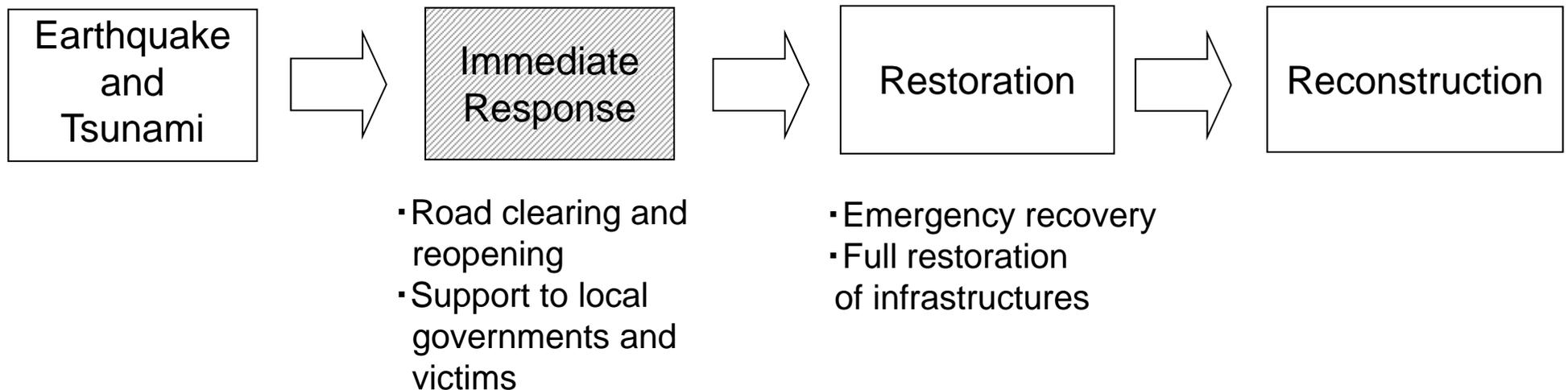
Nakase, Ishinomaki City (Former Kitakami River)

Former-  
Kitakami River



# Response to the Great East Japan Earthquake

- **Road clearing and reopening** for creating rescue routes and **reconstruction** were critically important.
- The Tohoku Regional Bureau of MLIT provided **direct support to local governments and victims** because of the extensive damage over coastal areas.



# Tohoku Regional Bureau's Helicopter "Michinoku" took off

**A monitoring helicopter "Michinoku" took off from the Sendai Airport for disaster investigation at 3:23pm (37 minutes after the earthquake).**



Helicopter "Michinoku"



Fukushima Daiichi Nuclear Plant



Sendai Airport at 4:00pm, March 11

# Videoconference with the Minister of MLIT



# Operation Comb

## 1<sup>st</sup> Step: North-south inland routes

(Tohoku Expressway, National Highway 4)

## 2<sup>nd</sup> Step: 16 East-west routes

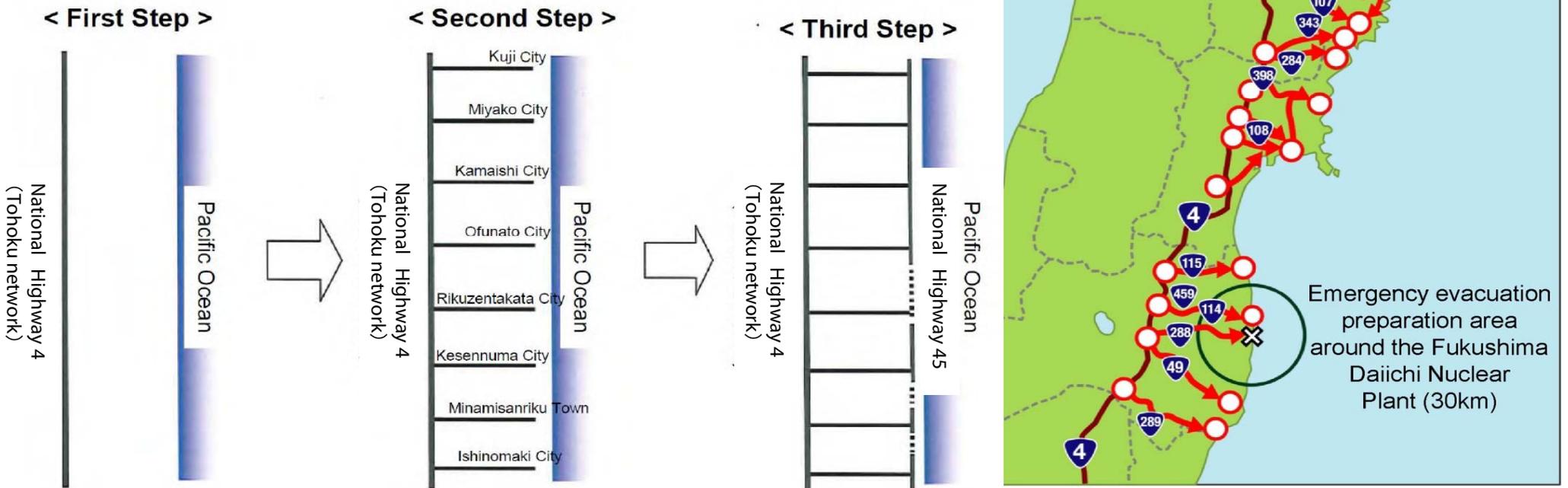
3/12: 11 routes cleared

3/15: 15 routes cleared

## 3<sup>rd</sup> Step: Coastal route

(National Highway 45 and 6)

97% cleared (Mission completed)



# Road Clearing



National Highway 340 (Rikuzen-Takata, Iwate)

Source: Iwate Pref.

# Clearing and Reopening Land, Sea and Air Routes

## ○ Land Routes

By Mar 15, 15 of a total 16 east-west routes were opened with the cooperation of local construction companies (52 teams) based on prior disaster agreements.

## ○ Sea Routes

By Mar 23, all 10 ports on the pacific coast were back in operation to accommodate receiving emergency goods.

## ○ Air Routes

Drain-pump vehicles were intensively mobilized for the “restoration of the Sendai Airport”.

# What Made the Swift Road Clearing Operation Possible?

- ① The implementation of reinforcement measures to bridges, before the earthquake, mitigated the damage in this disaster.
- ② MLIT intensively mobilized its resources on carefully selected 16 routes in “Operation Comb.”
- ③ Local construction companies immediately provided support, based on prior disaster agreements.

# Disaster Recovery Equipment

- **By March 14**, the Tohoku Bureau could communicate with **16 local municipalities** by providing them its satellite communication equipment.
- At the peak of the response, MLIT mobilized 192 disaster operation vehicles in the affected localities. **70% of them were brought in from other regional bureaus.**

## ■ Drain-pump vehicles



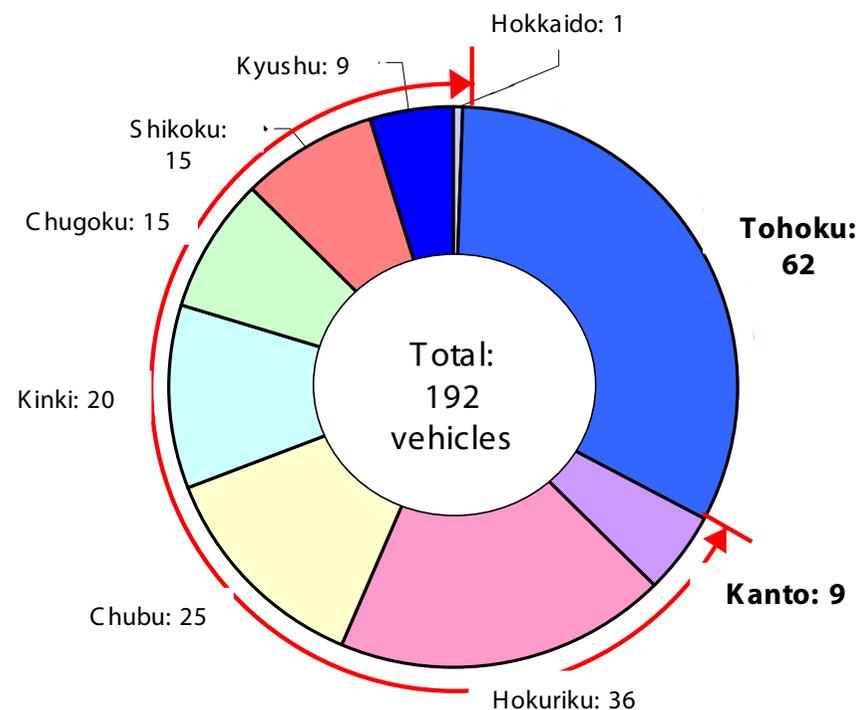
## ■ Satellite phones



## ■ Disaster operation vehicles



## ■ Ku-sat



Origin of 192 disaster operation vehicles mobilized for the Tohoku Earthquake (April 15)

# Liaison Personnel

- On the day of the earthquake, 10 persons were sent as liaisons from the Tohoku Regional Bureau to 4 affected prefectures (Aomori, Iwate, Miyagi and Fukushima).
- By March 23, **31 municipalities in the 4 prefectures** had received liaison support.
- At the peak (March 23), **60% of total 96 personnel were sent in from other regional bureaus.**

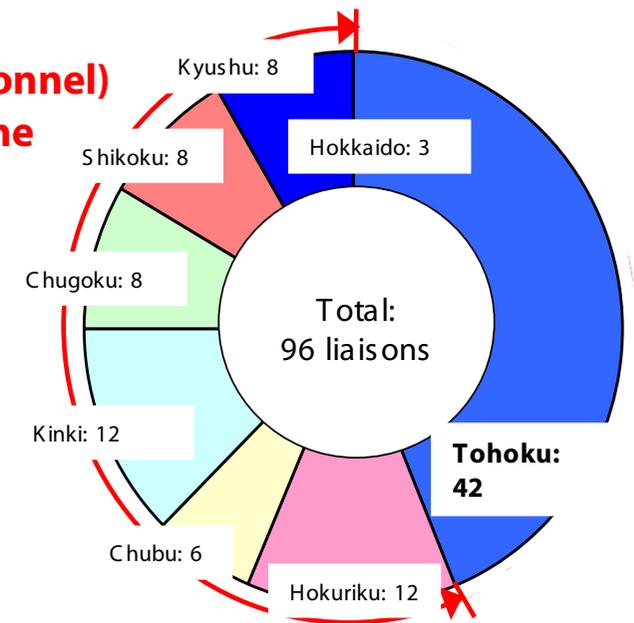


▲ A Liaison from Kyusyu Regional Bureau reports to the mayor of Kamaishi City on the assessment of securing power for the Kamaishi Municipal Clean Center.



▲ MLIT liaisons perform an on-site assessment to prepare for the removal of the tank in Iwate. (Iwate Office of River and National Highway)

**60% (54 liaison personnel) came from outside the Tohoku Region.**



▲ Number of persons sent from regional bureaus across the country (as of 3/23)

# Relief Supplies



▲ Minamisanriku Temporary City Hall



▲ Temporary lavatories



▲ Tents



▲ Daily Commodities

# Outreach Activities

- A total of **11 million** members of the Self-Defense Forces worked in the affected areas after the disaster (**110 thousand** members at the peak of the recovery effort).
- Some **1 million** volunteers have assisted.
- Up to **25 thousand** US Forces kindly got involved in the outreach activities.

	Number of people involved	Highest number on a single day
SDF	10,580,000	107,000
Police	922,000	5,000
Volunteers	958,000	12,000
Civil servants (excl. SDF and Police)	152,000	
US Forces		24,500
Total	12,612,000	



SDF's activities  
(Reference: MOD website)



Volunteers activities  
(Reference: Japan National Council of Social Welfare website)



U.S. Forces activities  
(Reference: Ministry of Foreign Affairs of Japan)

Number of people involved in outreach activities on site

(Reference: Ministry of Defense (MOD), National Police Agency (NPA), Ministry of Internal Affairs and Communications and Japan National Council of Social Welfare websites)

# Lessons Learned

## 1 Unified Organization and Mission

Establishment of a structurally flat chain of command with accurate information sharing

## 2 Resiliency of a Disaster Management Organization

Durability of the disaster operation center and communication systems

## 3 Collaboration with Related Organizations

Prefectural and municipal governments, SDF, Coast Guard and NEXCO

## 4 Nationwide Organization

TEC-FORCE, liaison and disaster operation vehicles from other regional bureaus  
Cooperative agreements with oil companies to maintain fuel

## 5 Collaboration with Construction Industries

52 support teams formed overnight for “Operation Comb”  
Prompt relief supply procurement by construction industries  
(Japan Federation of Construction Contractors and the Japan Road Contractors Association)

## Lessons Learned

- Provided support, considering needs of affected populations.
- Responded to the affected localities' requests beyond the Bureau's jurisdiction.
- Made decisions based on collected and analyzed information.
- Intensively mobilized MLIT's human and equipment resources (Operation Comb).
- Maintained sprit of professionalism in the relief delivery and supporting activities.

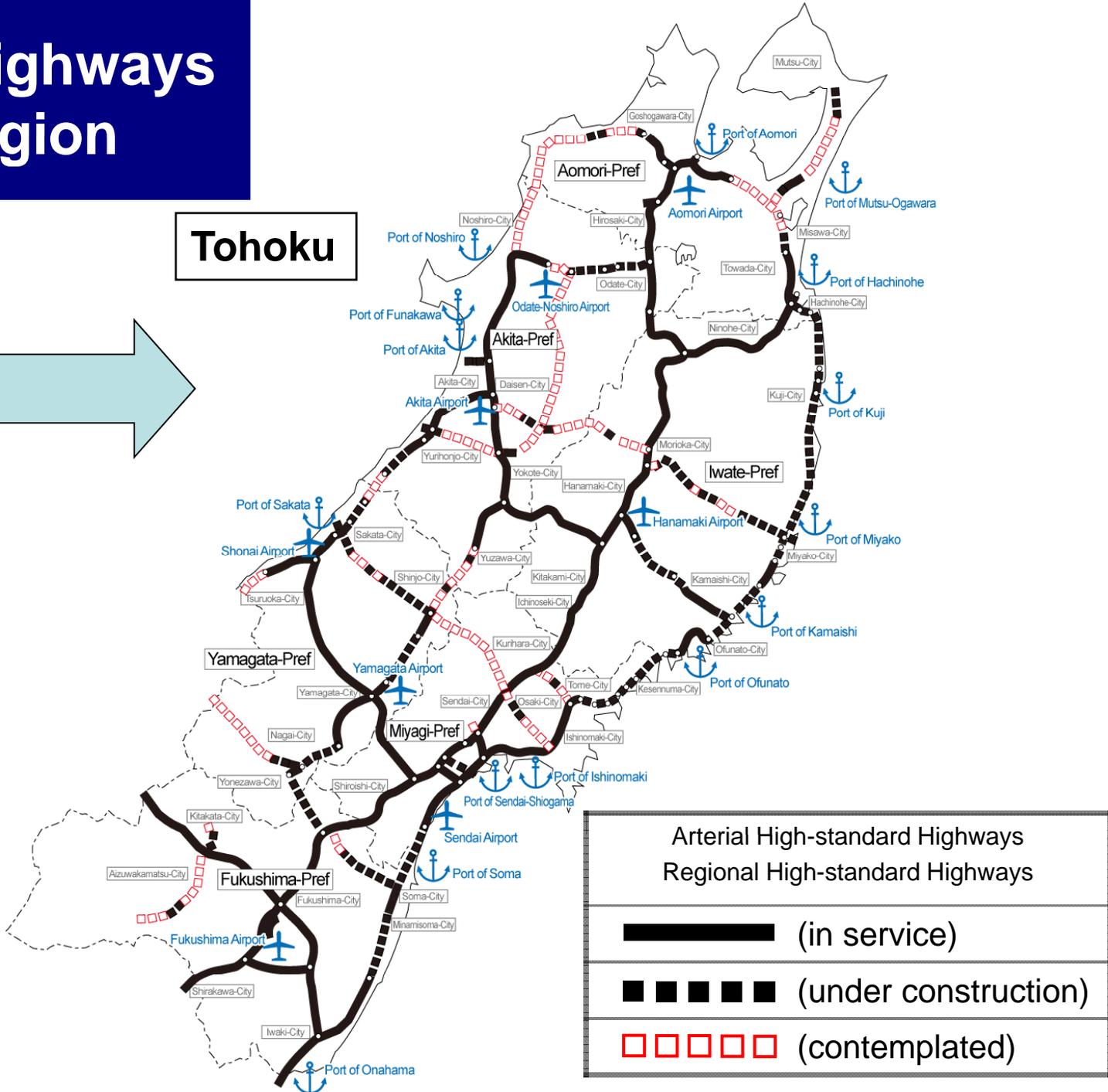
# Lessons Learned

1. Deploying field personnel on the “front lines”, whether or not an emergency has occurred
2. Communication on a routine basis among NEXCO, SDF, Prefectural and municipal governments, Coastal Guard and related organizations
3. A sense of responsibility and attachment to a region, and empathy with victims
4. Having a field staff capable of taking the initiative and working on their own

# High-Standard Highways in the Tohoku Region



**Tohoku**



Arterial High-standard Highways	
Regional High-standard Highways	
	(in service)
	(under construction)
	(contemplated)

**Tohoku region has many missing links**

# Lessons Learned

What the national government needs to improve:

- Secure “energy resources” and “communication systems” that will function in the event of a catastrophic disaster covering wide regions.
- Development of a transportation system providing alternative modes in the event of a disaster, including multilayered road networks covering wide regions (redundant road networks).