



Recovery Planning Process & Related Case Studies of the Great East Japan Earthquake

2011.12.16

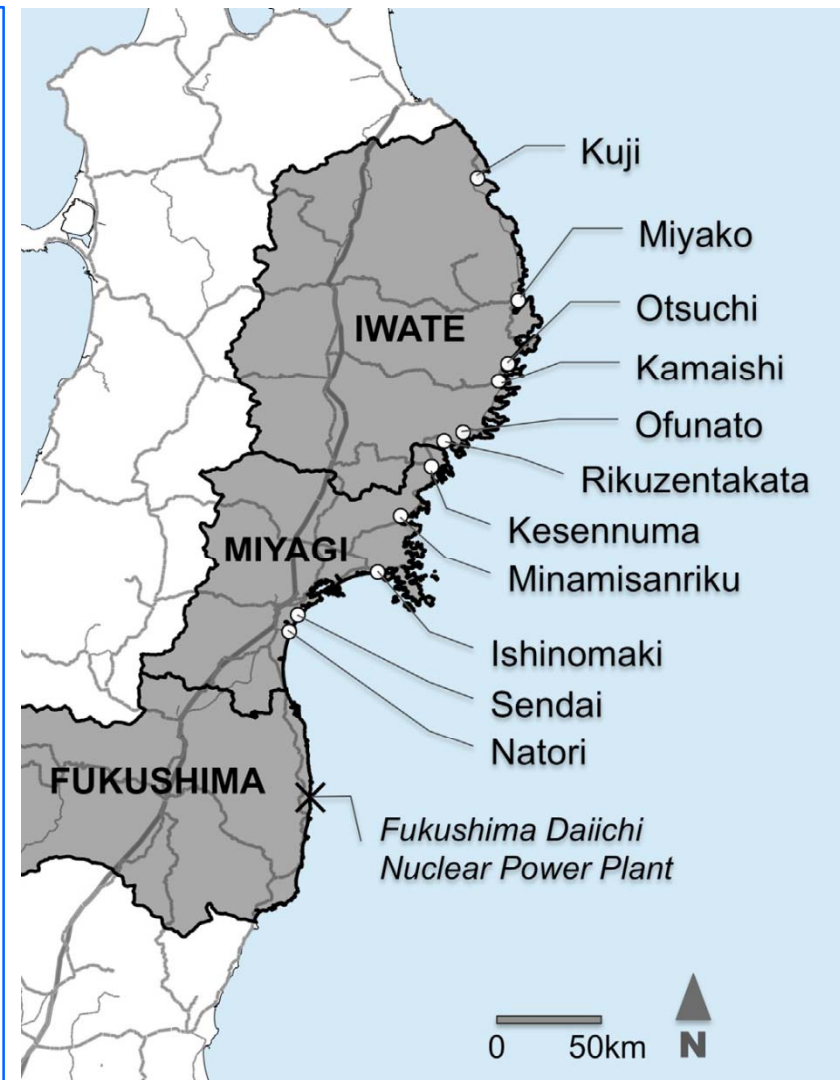
Yasuo Kawawaki

International Recovery Platform

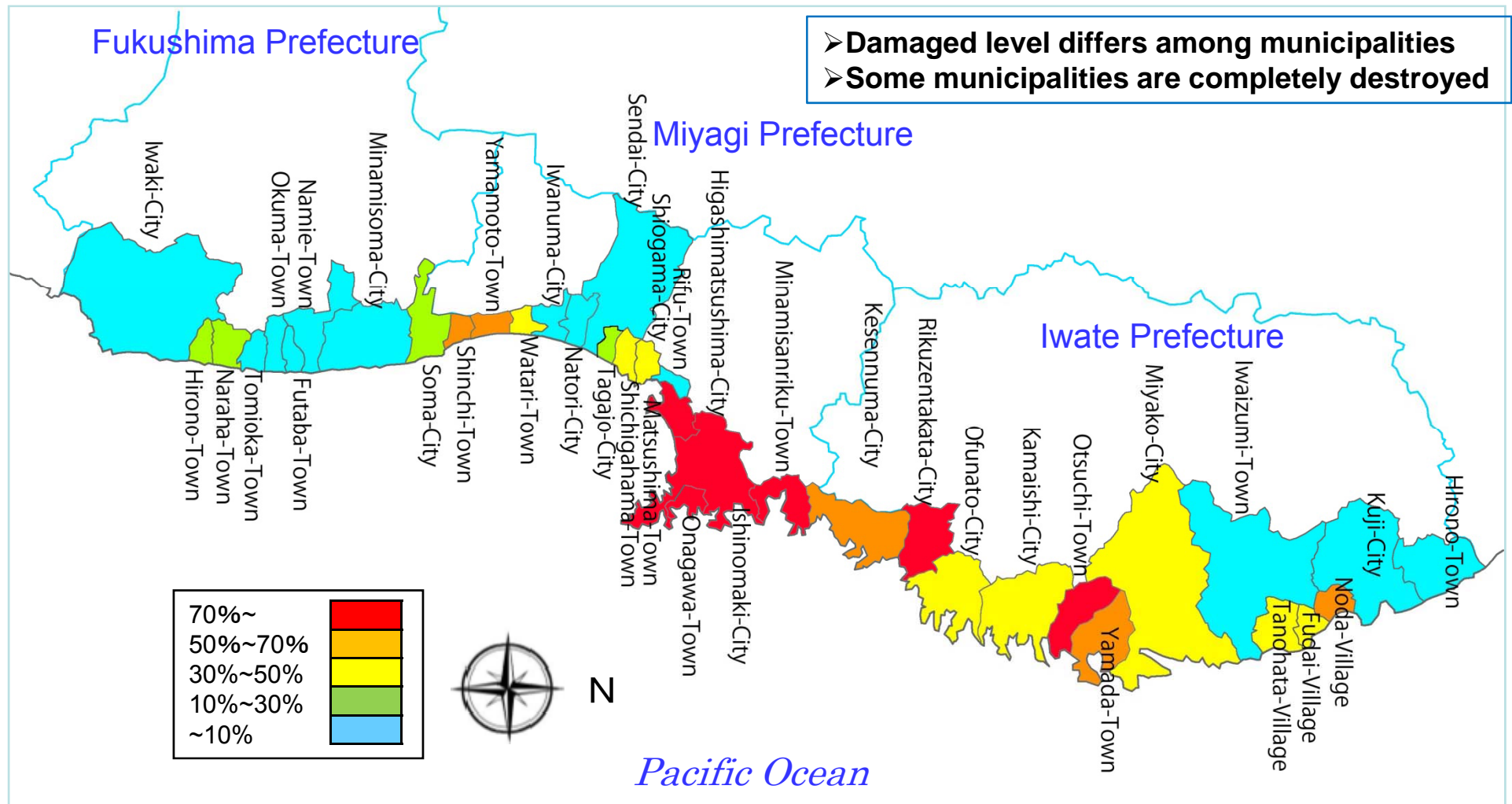
1. Casualties and Damages

As of 12 December 2011

- 15,841 people confirmed dead and 3,490 people missing
 - 126,315 buildings completely destroyed, approx. 228 thousand buildings half destroyed
 - 561 square kilometers inundated
 - Damages to stock in 7 prefectures estimated: 17 trillion JPY (211 billion US\$)
- c.f. Hurricane Katrina 125 billion US\$
Kobe earthquake 100 billion US\$

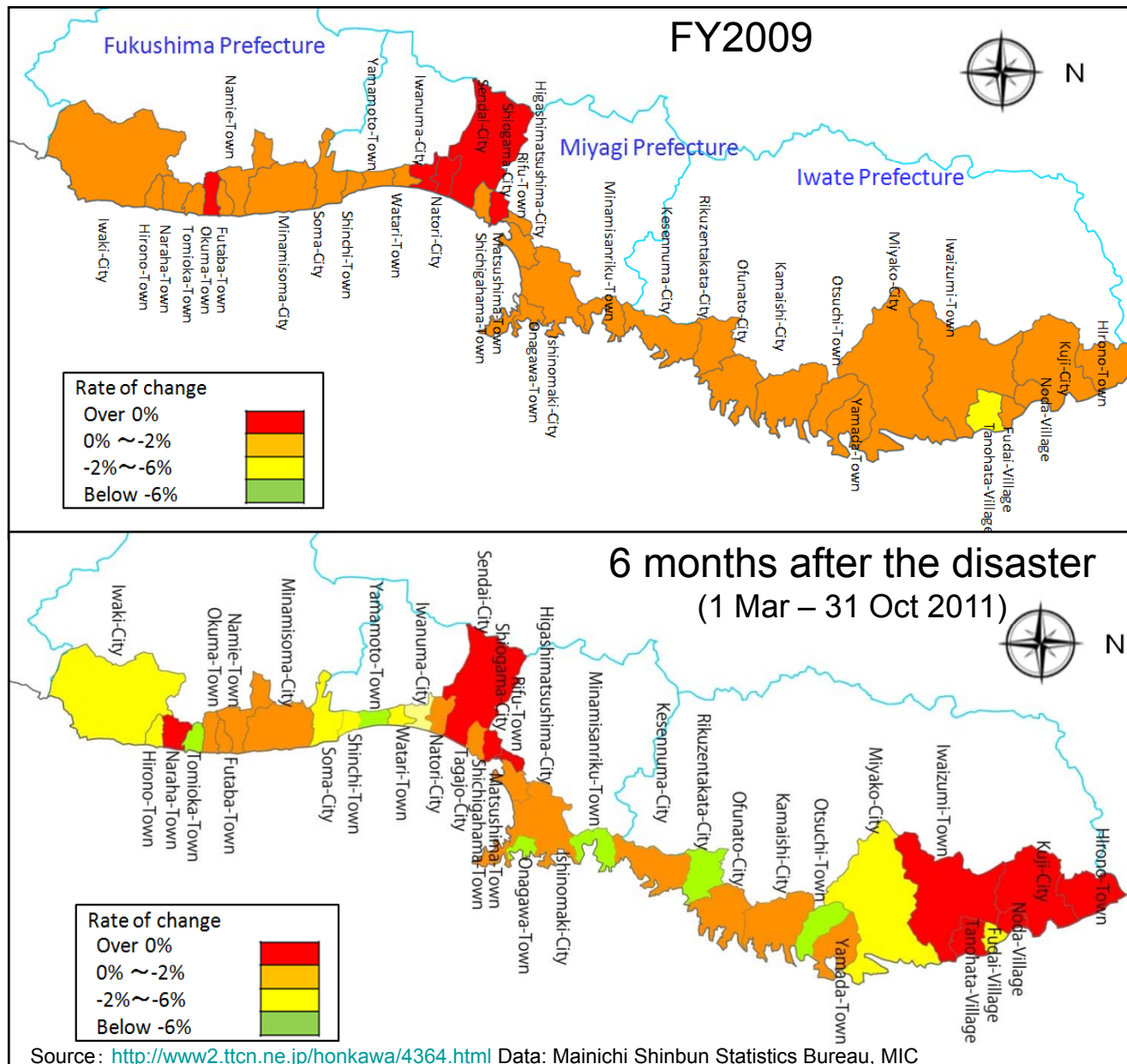


Flooded population/Municipal population



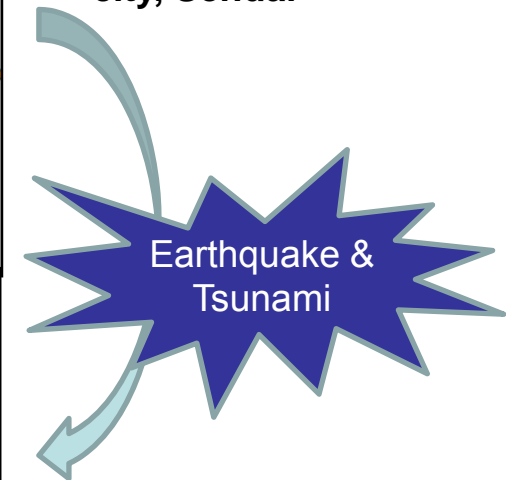
Source: Population in inundated area - Statistics Bureau, Ministry of Internal Affairs and Communications (25. April 2011)
Total population - Population Census(2010)

Population fluctuation by municipality



Before

- Decreasing and aging population
- Centralization to capital city, Sendai



After

- Rapid decrease in severely damaged town
- Increase in inland area

Number of City Office workers dead or missing

Many city leaders or managers of disaster response lost their lives, making disaster response impossible in their towns.

Disaster area municipalities	Dead/Missing workers	Workers total	Disaster area municipalities	Dead/Missing workers	Workers total
Iwate Prefecture			Miyagi Prefecture(cont.)		
Rikuzentakata-C	68	261	Osaki-C	2	700
Ofunato-C	1	357	Watari-T	1	161
Kamaishi-C	4	362	Yamamoto-T	4	97
Otsuchi-T	32	136	Shichigahama-T	1	110
Yamada-T	2	184	Onagawa-T	1	105
Miyagi Prefecture			Minamisanriku-T	39	158
Sendai-C	5	9,446	Fukushima Prefecture		
Ishinomaki-C	48	848	Soma-C	2	214
Kesennuma-C	2	529	Minamisoma-C	4	427
Natori-C	5	316	Namie-T	1	128
Iwanuma-C	4	193	Total of 19 cities	226	14,732

C: City, T: Town

Note: Numbers of dead/missing workers include temporary staff in some cities.
Numbers are based on hearings on 1 Aug 2011, not finalized.

Municipal office building damaged by the earthquake and tsunami

	Total number of municipalities	Main building damaged	relocated
Iwate Prefecture	34	22	2
Miyagi Prefecture	35	32	3
Fukushima Prefecture	59	36	9

(For reference) Municipal officers who died or were not found after Hanshin-Awaji Earthquake was 24 in the total
16,550 workers of the most severely damaged cities.

Source: Commemorative speech of the opening of Disaster Education Center, University of Hyogo

Onagawa Town Coastal Area 22 Mar



Onagawa Town Coastal Area 20 Sep



Minami-sanriku panorama 23 Mar



Minami-sanriku panorama 21 Sep





Temporary Onagawa Town Office 20 Sep



Temporary houses in athletic park 21 Sep



**Recovery market (once a month)
in Minami-sanriku town**



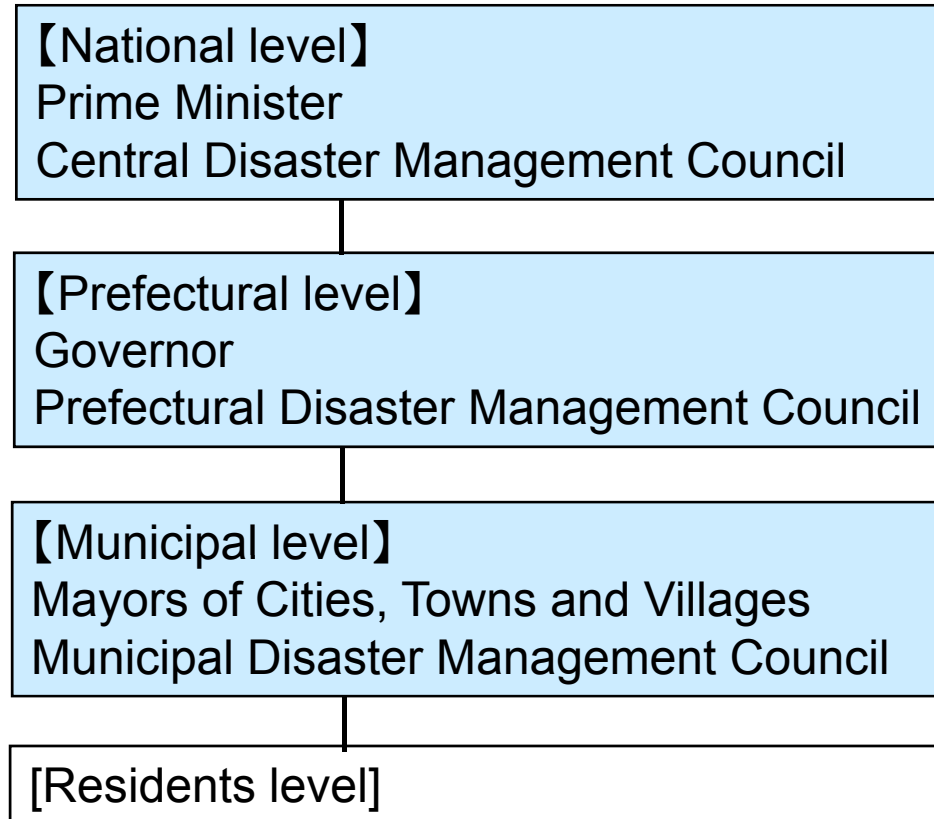
**Fish store, restaurant
in Minami-sanriku town**



Kesennuma Port

2. Recovery Planning Process

Disaster Counter Measures Basic Act



- Municipalities are responsible to first respond to disasters
- Prefectural or Central government support if the scale of the disaster is bigger than the capacities of the municipalities

<Recovery Planning>

Basic Act for Reconstruction
Basic Guidelines for Reconstruction **June - July**

Supplementary Budget

Iwate, Miyagi, Fukushima
Prefectural Recovery Plan

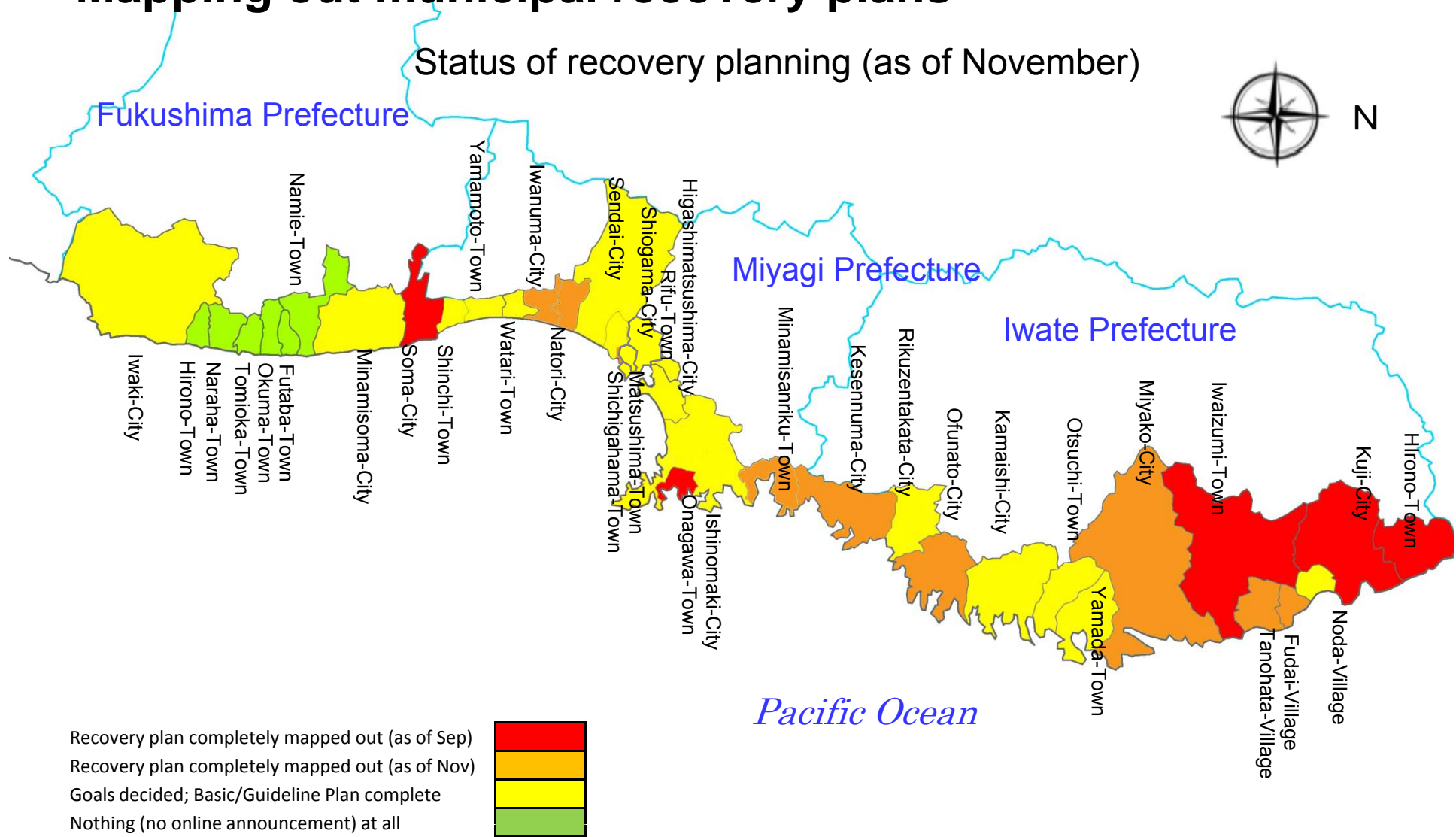
Aug - Sep

Municipal Recovery Plan

- ✓ Land use plan
(relocation, level of dikes)
- ✓ Reconstruction project
- ✓ Consensus building
among residents

Mapping out municipal recovery plans

Status of recovery planning (as of November)



Source : Documents on Web pages of municipalities

Minami-Sanriku Town Recovery Plan

Town Overview

- Pop. 17,431 (2010 National Census)
(Approx. 30% over 65 years old)
- Area 164km²
- Shizugawa Town and Utatsu Town were incorporated into Minami Sanriku Town
- 19% of people work related to fishing (2005 census)
- Economic strength index 0.31
(within Miyagi Pref, ranking 34 out of 35)

Planning Process

- 4 town hall meetings,
- 4 committee proposals,
- 30 residents explanation meetings,
- End of September decision to adopt the plan

Organizational Structure for Planning

- operate in temporary city office
- 7 people in recovery section
(support by 3 people from municipalities in Hyogo, Nagasaki Pref, 1 from Miyagi Pref)

Minami Sanriku Town Future Vision:
Connecting nature, people, work, safety and prosperity

Minami Sanriku Town Disaster Recovery Plan

1. Community Building for a place where people can continue to live and feel safety

- a. Developing landuse to protect life
- b. Town planning to protect properties
- c. Dev. of DRR and mitigation system
- d. Dev. of transportation network and community networking
- e. Stabilization of health, medical service welfare and education
- f. Centralization function and proper location of public facility

2. Community building for living together with nature

- a. Ecological sound town planning
- b. Creating water and greenery network
- c. Establishing sound material cycle society
- d. Building social capital
- e. Promoting a better life style

3. Community planning for a flourishing town and livelihood

- a. Quick recovery and strengthening the fundamental industries
- b. Revitalization fisheries and fish processing industry
- c. Recovery of agriculture and improvement of forestry
- d. Revitalization and creation of new commercial industry and tourism
- e. Job creation and improvement of the population exchange

POLICY 1:

Town government and community collaborate on town planning

POLICY 2:

Town takes initiative planning cooperating with central and prefectural government

Issue1: Relocation to higher area - land use plan

Less damage on higher ground



Minami Sanriku Town Shizugawa Area

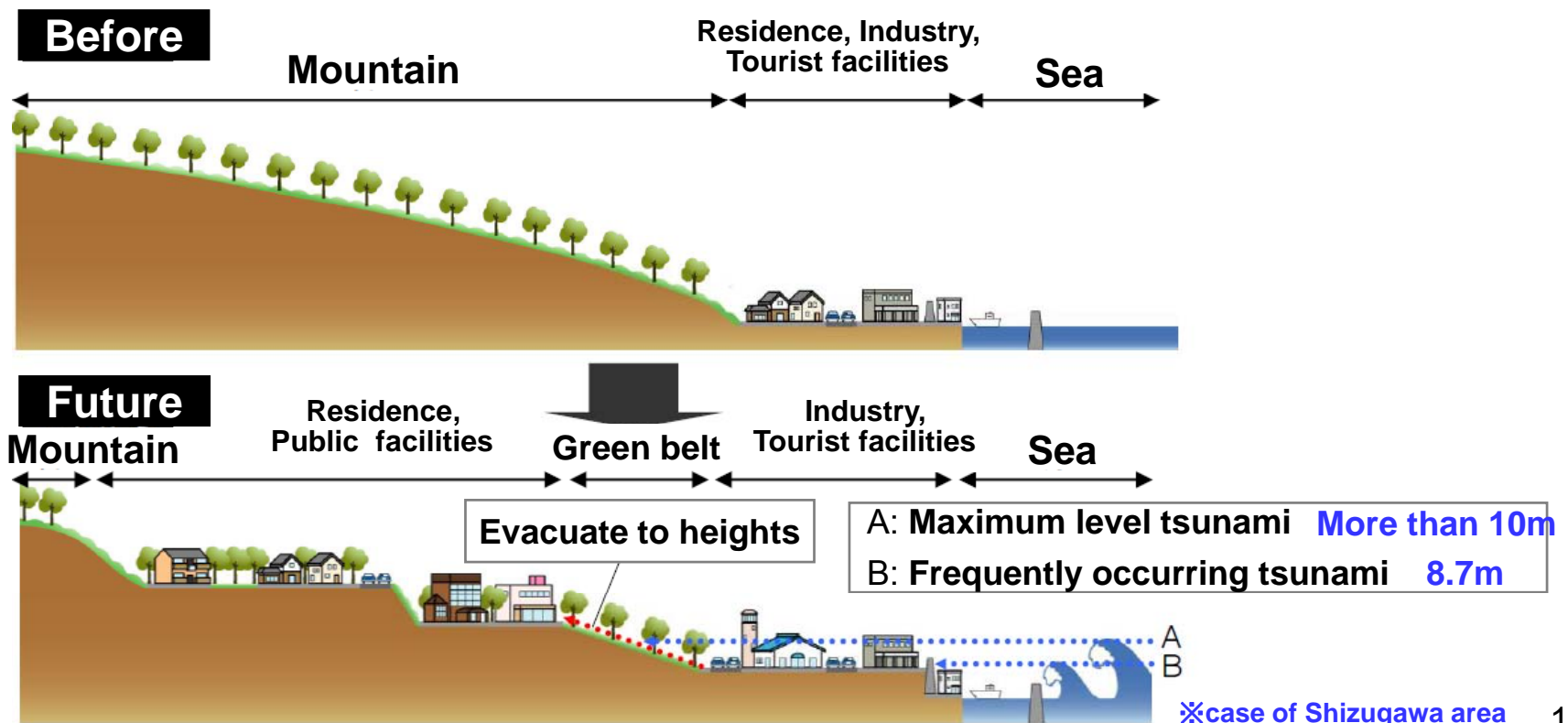
Minami-sanriku town relocation plan to higher ground

Counter measures against Maximum level tsunami

- Evacuation
- Houses and Public Facilities on high ground
(considering night time evacuation, personnel who needs support, . . .)

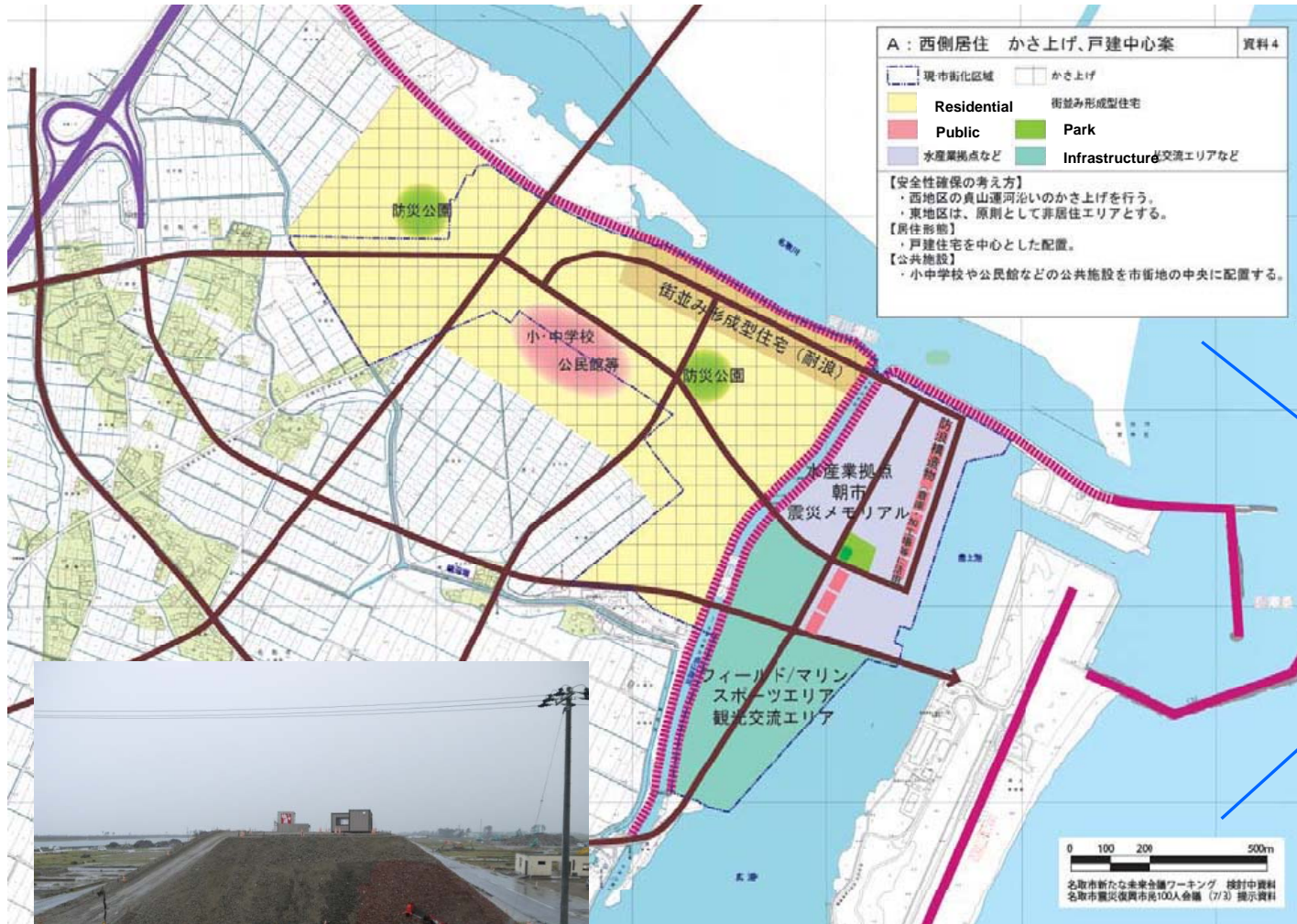
Counter measures against Frequently occurring tsunami

- Sea walls constructed based on the predictions of future tsunami

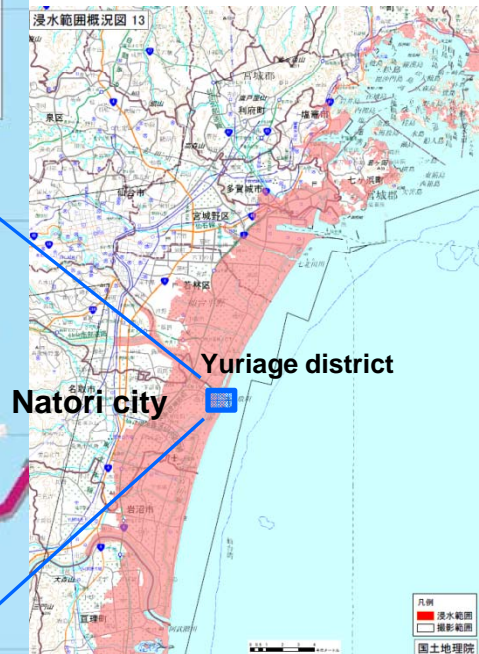


Yuriage district in Natori city Land Use Vision

Western residential area elevated



Inundation of flatland area

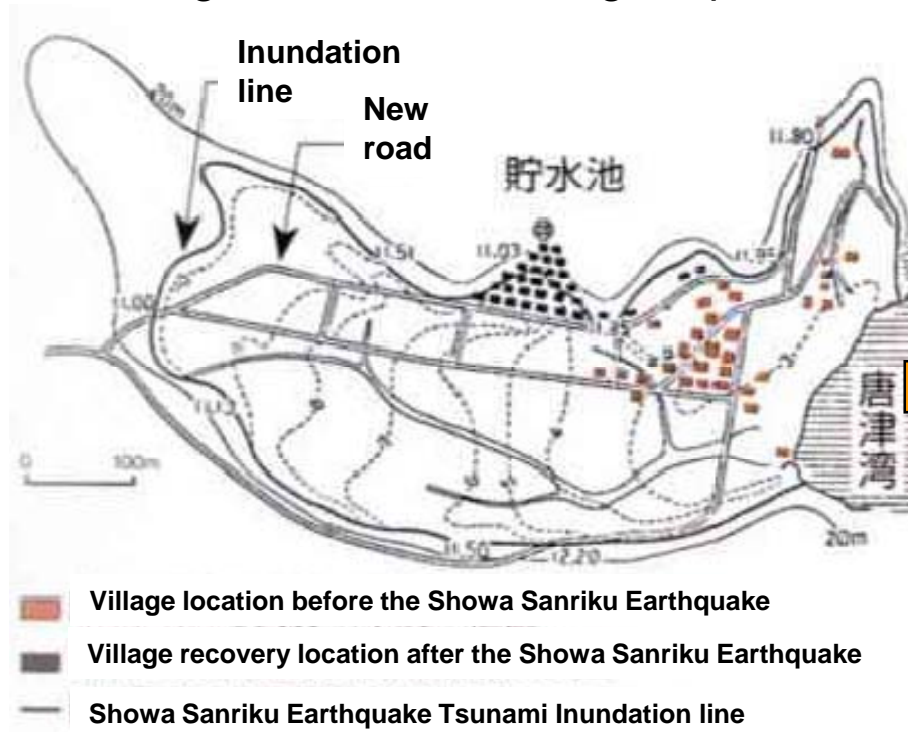


Piled up rubbles which will be used for embankment 20 Sep

Hongo district in Kamaishi city

- changes of land use

After 1933 Showa-sanriku tsunami
villagers relocated to higher places



After completion of a sea wall
villagers came back to lower places



Houses built before 1960
Houses built by 1974
Houses built by 1999
Houses built after 2000

In 1974, 5-meter
sea walls were
completed;
In 1999 raised to
11.8 meters.

Source : Map of Hongo district (Nikkei Architecture)

Issue2: Recovery projects

Minami-Sanriku town recovery projects

Main Projects

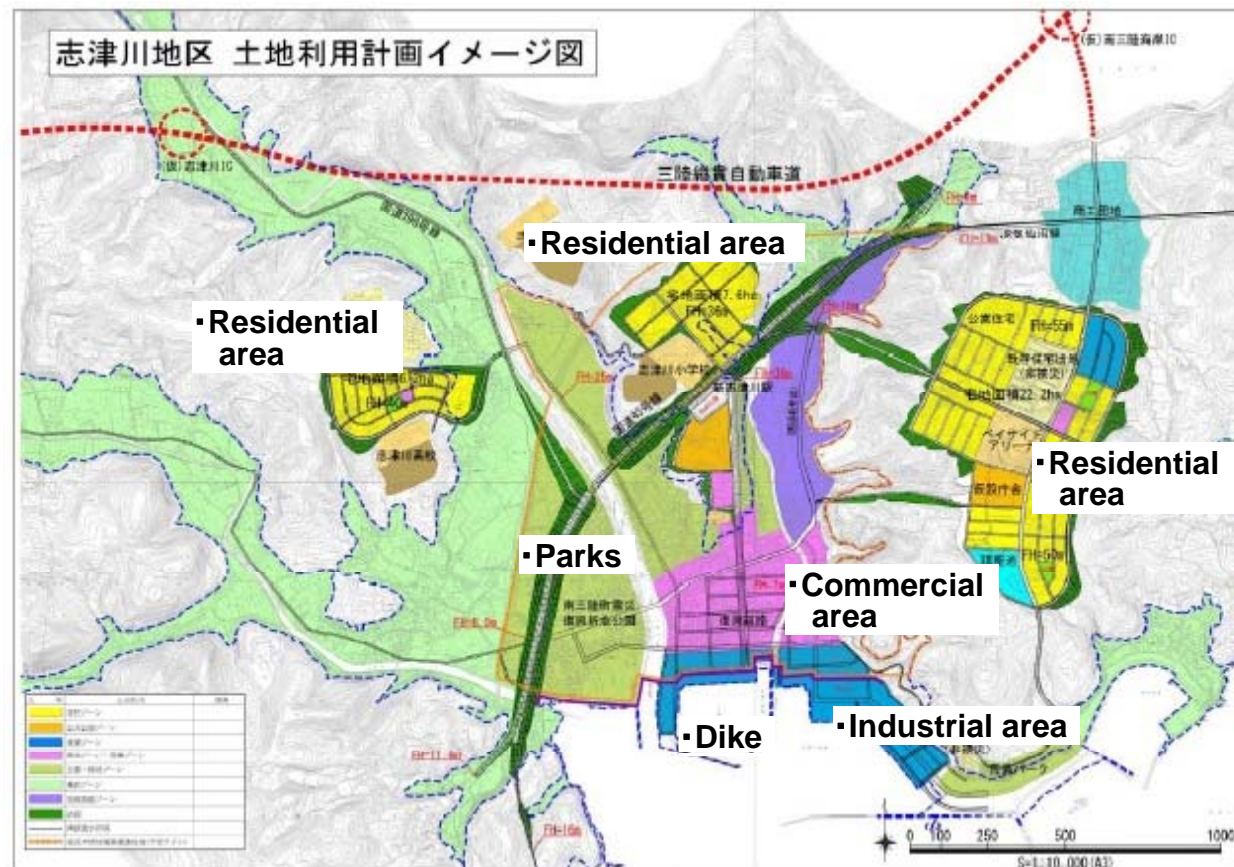
- Land readjustment project for recovery
- Group relocation project for disaster risk reduction
→ residential areas relocated to safer ground

Total project cost

- 160 billion yen

Budget scale of the town

- 8 billion yen /year



Source : Home page of Minami Sanriku Town

Onagawa town Recovery Projects

Main Projects

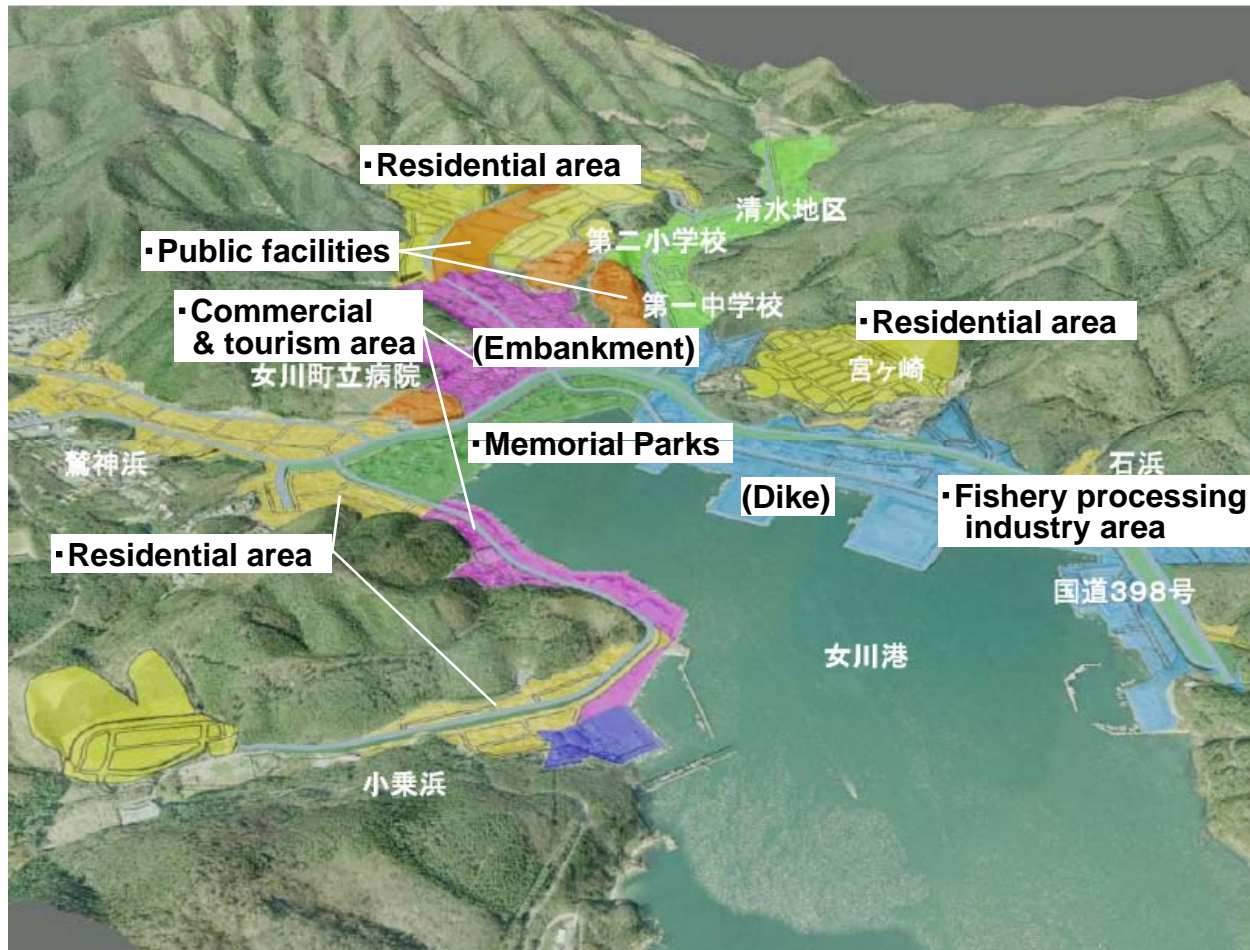
- Land readjustment project for recovery
 - Group relocation project for disaster risk reduction
 - Fishery community environmental improvement project
- residential area relocated to safer ground

Total project cost




- ~ 150 billion yen

Budget scale of the town

- 6 billion yen/ year



Minami-sanriku fishing villages recovery project

A. Separate Relocation Plan	B. Collective Relocation Plan	C. Combination Relocation Plan
集落(地区)ごとに近くの高台に移転する案	小学校区(旧小学校含む)単位で集落をまとめ、高台に移転する案	地域特性・住民意向などを踏まえて、個別移転・集約移転を図る案
		
<p>【 Features and challenges 】 (Viewpoint of Life) ○Live with the people who are familiar ○Close to the place where victims were living for a long time ○Close to the fishing port, and easy to go out fishing (Viewpoint of project feasibility) ●Required to secure new lands close to the original village ●Required to build meeting places, parks, and so on in each district</p>	<p>【 Features and challenges 】 (Viewpoint of Life) ○People from two or more villages live together ○Possibly far from a place where victims were living for a long time ○Possibly far from the fishing port ○Public service facilities and stores are expected to be built (Viewpoint of project feasibility) ●Required to secure larger new lands ●New facilities will be used more efficiently ●Development cost will be reduced</p>	<div data-bbox="1397 927 1998 1289" data-label="Image"> </div> <p>Source : Home page of Minami Sanriku Town</p>

Issue3: Residents Involvement in the Planning Process

Minami-sanriku town Recovery Plan



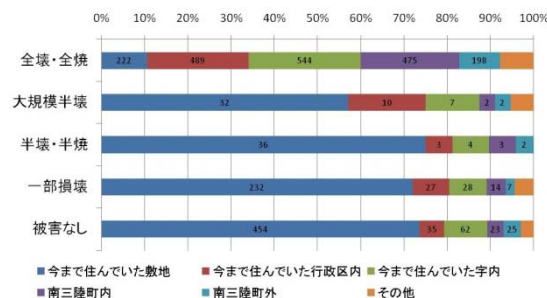
Disaster recovery planning committee engages academic experts (inputs into recovery plan)



Disaster recovery planning residents' committee (symbol project selection)

Support

Miyagi University



Survey of all residents



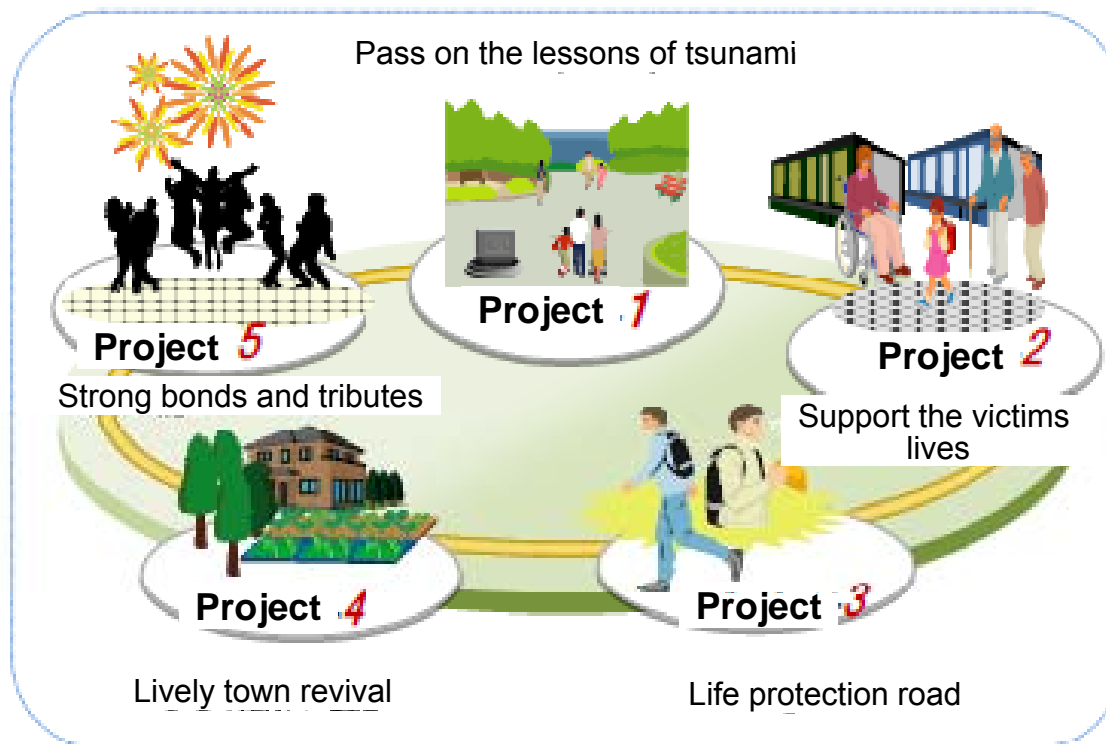
Town planning meetings at neighborhoods (detailed discussions on relocation and land compensation)



Community gathering (discussions on community level town planning)

Symbol Project

- Selected based on the opinions of residents, ideas and suggestions from results of “Disaster Recovery Planning Residents’ committee”



Minami Sanriku Town Earthquake Disaster Recovery Plan (draft)

Project scope and main activities

1. Pass on the lessons of tsunami Project

- Designate “Tsunami disaster preparedness day” (Victim memorial, disaster drills, etc.)
- Create “Disaster archive”
- Create “Earthquake memorial park and monument”
- Promote storytelling

2. Support the disaster victims lives Project

- Appoint “daily life support consultants”
- Psychological support
- Careful monitoring to prevent solitary death

3. Life Protection Road Project

- Maintain evacuation roads
- Establish tsunami evacuation guide flags

4. Lively town revival Project

- Support temporary fish market, temporary shared factory facilities
- Support local and handmade products
- Supply local public housing
- Establish facilities for tourism

5. Strong bonds and tributes Project

- Support volunteer and exchange activities
- Cooperation and exchange with supporting municipalities
- Issue recovery information

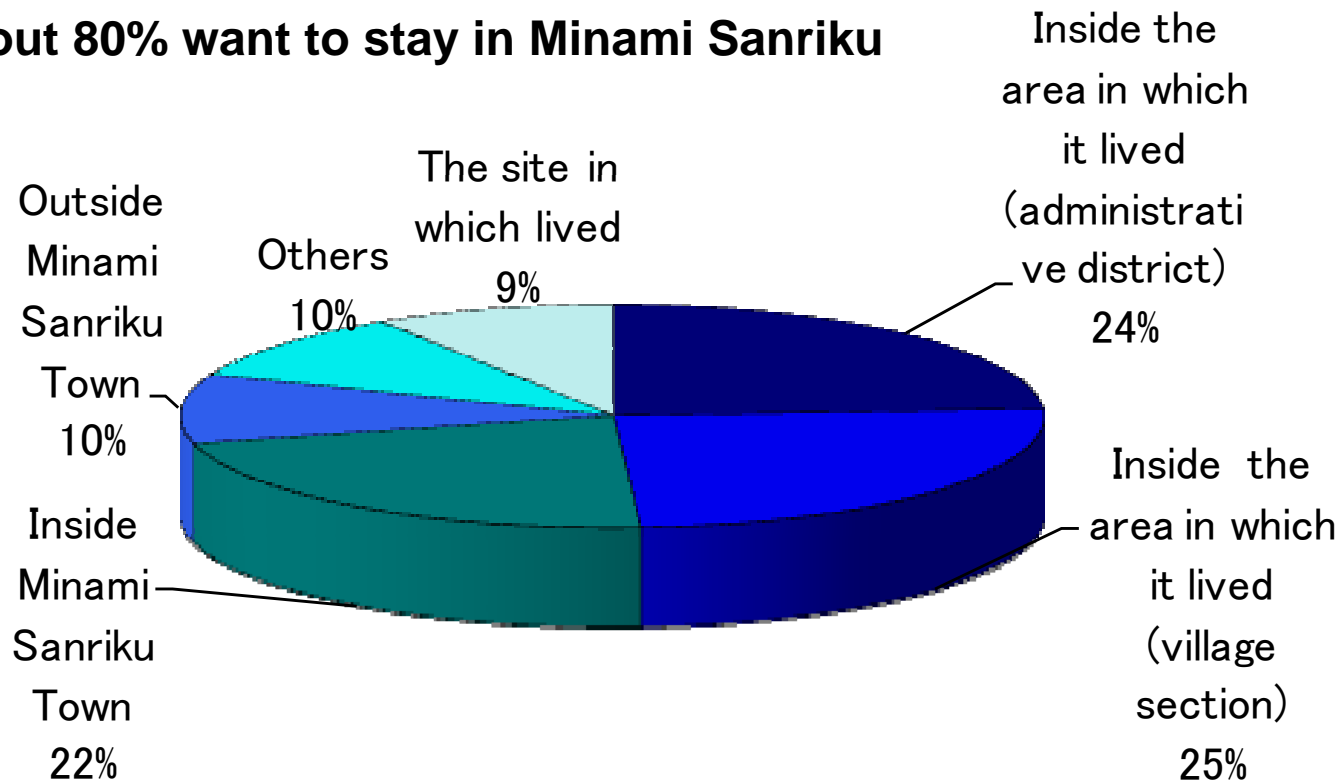
Minami-sanriku

- Views on housing relocation areas

Of the people who lost their houses in the tsunami

- 9% want to continue to live in the former location
- 24% in the same neighborhood
- 25% in the same district of Minami Sanriku
- 22% inside Minami Sanriku

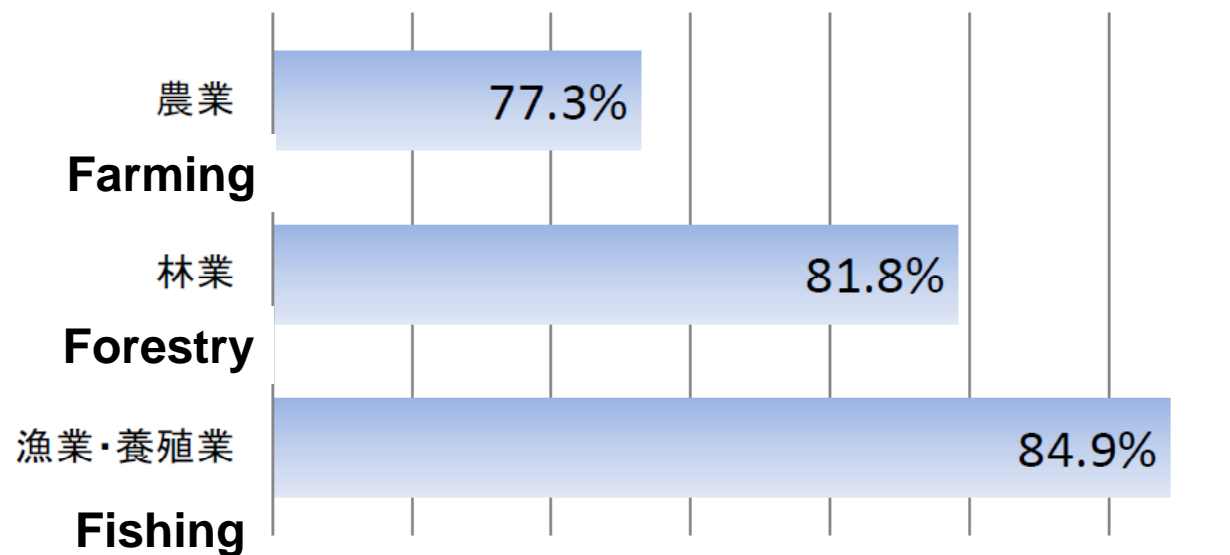
In total, about 80% want to stay in Minami Sanriku



Minami-sanriku

- Hopes for Employment

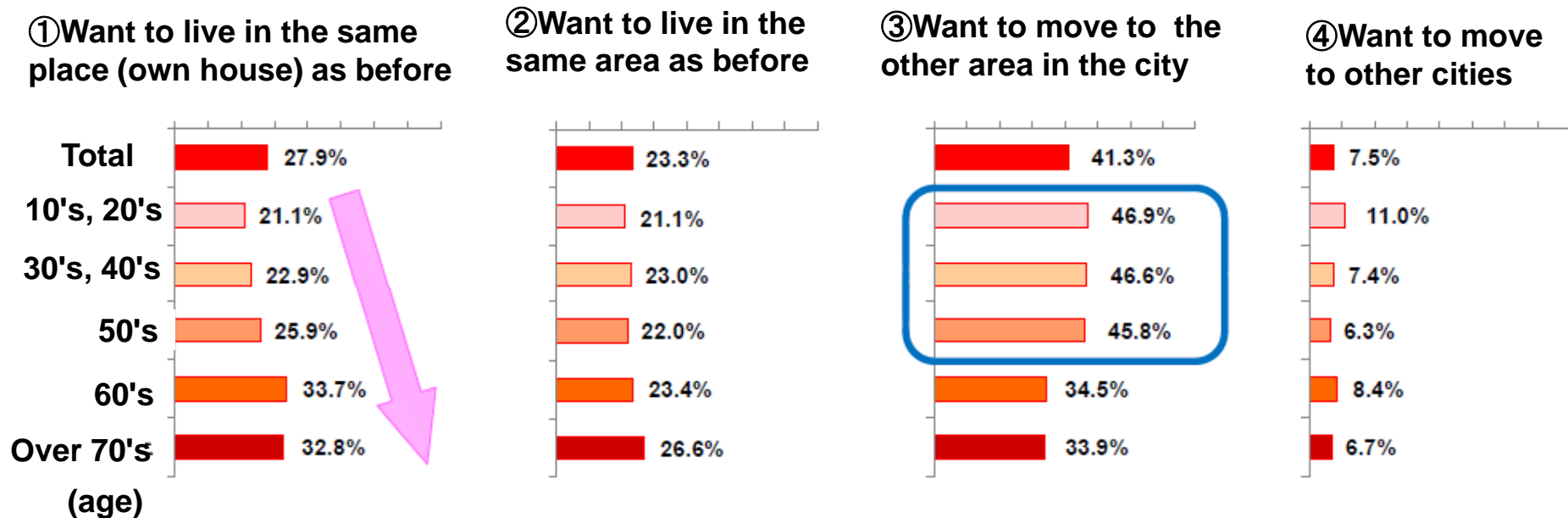
People who wanted to continue the same work as they had done before the tsunami, based on occupation



Ishinomaki City resident survey results

Way to live from now (houses completely destroyed or abandoned)

N=7580

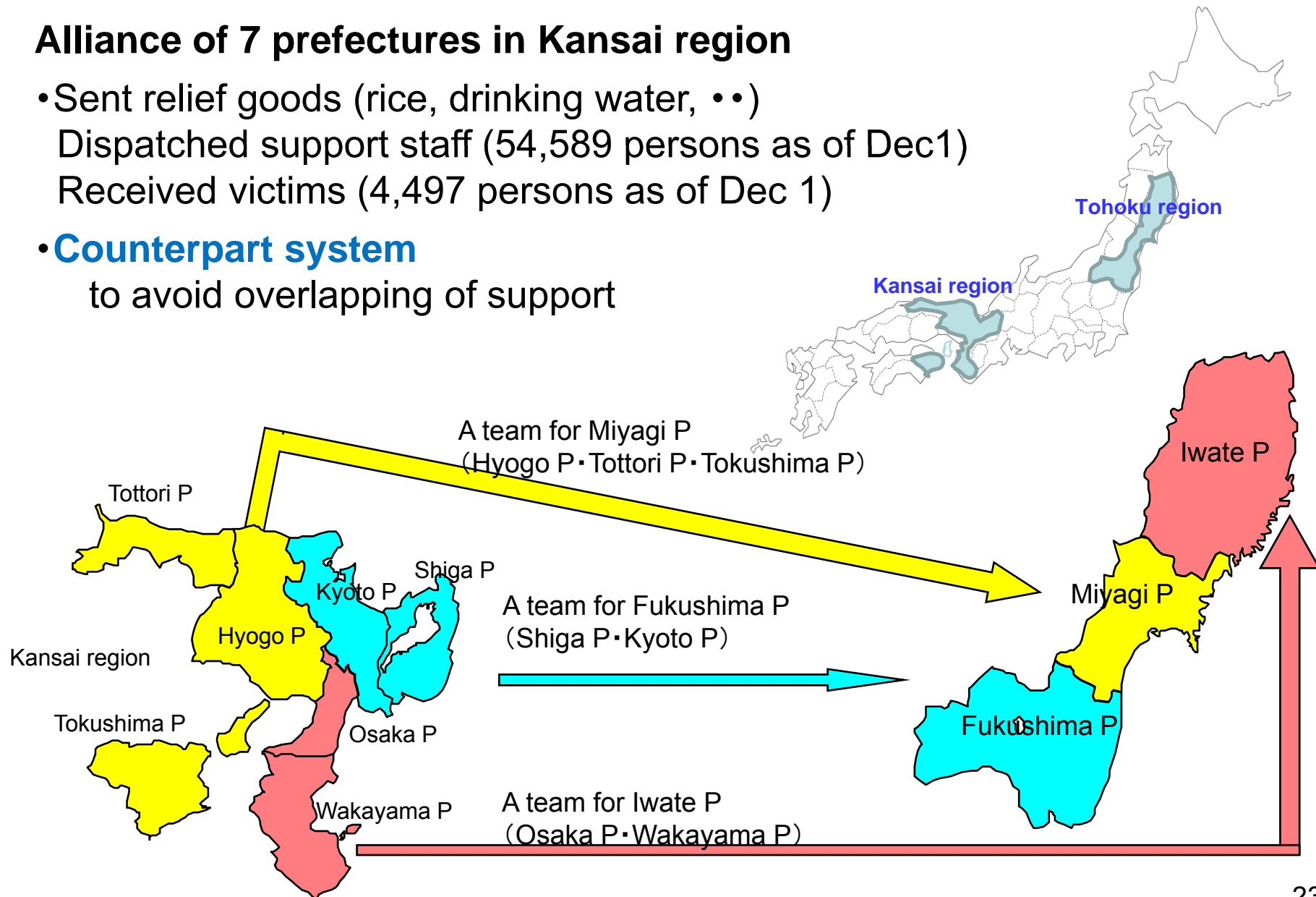


Source : The Ishinomaki urban infrastructure recovery public questionnaires (Ishinomaki city homepage) (investigation time 2011.5.1-5.15)

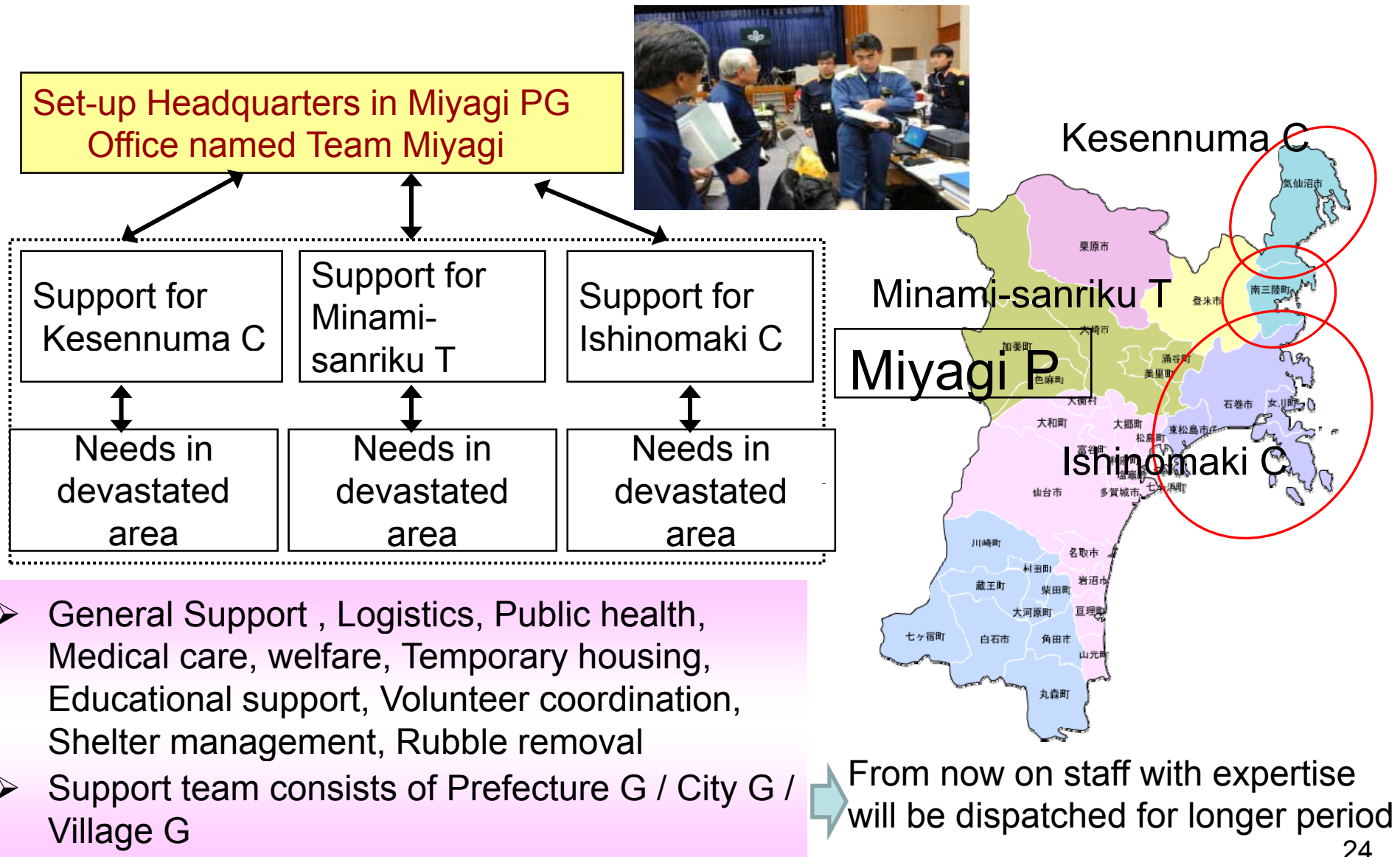
Issue4: Support among local governments

Alliance of 7 prefectures in Kansai region

- Sent relief goods (rice, drinking water, ••)
Dispatched support staff (54,589 persons as of Dec1)
Received victims (4,497 persons as of Dec 1)
- **Counterpart system**
to avoid overlapping of support



Support from Hyogo Prefectural Government





Thank you for your
attention!

Yasuo Kawawaki
International Recovery Platform (IRP)
kawawaki@recoveryplatform.org