The Process of Drawing up Reconstruction Plans in Extensive Disaster-hit Areas Including Community Relocation and Challenges in the Implementation of Plans (the Great East Japan Earthquake)

Submitted by: Disaster Reduction and Human Renovation Institute (DRI)
The Process of Drawing up Reconstruction Plans in Extensive Disaster-hit Areas Including Community Relocation and Challenges in the Implementation of Plans (the Great East Japan Earthquake)

Disaster Reduction and Human Renovation Institution (DRI)
Eiko Ishikawa, Chief Researcher,
Elizabeth Maly, Researcher
Introduction of DRI and activity related to response and recovery of the Great East Japan Earthquake

The Great Hanshin-Awaji Earthquake Memorial
Disaster Reduction and Human Renovation Institution (DRI)

Executive Director
Dr. Yoshiaki Kawata
Mission of the DRI

- Transferring the live experiences of the Disaster
- Applying lessons learned from the Disaster for a better future

- Cultivating a Disaster Resilient Culture, reducing social risk and vulnerability
- Developing Policies for Disaster Reduction

--- Realizing a safer and more secure civil society
Museum Exhibit

West Building

Remember “117” Learn from the Great Earthquake for a Sustainable Future

4F Re-experience the Earthquake

1.17 Theater (Screening, Video, Talk)

2. The Great Earthquake Hall

3. Memories of the Earthquake

4. Experience Protection and Reduction against Disaster

5. Disaster Information Station

East Building

3F Learn about Water and Disaster Reduction Floor

3. A Song in Praise of the Water Planet

4. The Threat of Wind and Water Disasters

5. For the Future Salon

Central Library

Guidance Room

Program 1

Anchors of the earthquake story by "Artists". They represent the spirits of the disaster zones.

Program 2

A disaster prevention message combined by "Artists". They convey the messages of disaster prevention.
DRI is also providing support directly to disaster-stricken governments.

DRI staff directly supported Miyagi Prefecture Disaster Response Headquarters and also planning support to municipalities.

▲ Supporting activities in the stricken areas  Disaster Response guidelines for municipalities ▲
Outline of our presentation

1. Introduction: the Great East Japan Earthquake and damage

1. Challenges and outline of policy for recovery by the Japanese Government

1. Process of drawing up reconstruction plans and challenges in the implementation of plans: Case study of Minamisanriku town in Miyagi Prefecture

1. Conclusion: Idea for Disaster Recovery Checklist
1. Introduction: the Great East Japan Earthquake, damage and current situation
2:46 pm, March 11, 2011

- 9.0 magnitude earthquake
- tsunami-40 meters run up
- fires, nuclear accident
Eiko ISHIKAWA & Maly ELIZABETH (DRI) Ⅱ

被害の状況

March 11, 2011
Shizugawa, Minamisanrikucho, Miyagi Prefecture
## Damage

### Human damage (as of June 2012, from the Japan National Police Agency)

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of dead</td>
<td>15,863</td>
</tr>
<tr>
<td>Number of missing</td>
<td>2,949</td>
</tr>
<tr>
<td>More than 340,000 people evacuated from their homes</td>
<td></td>
</tr>
</tbody>
</table>

### Building damage

#### House:

- Totally damaged: 130,435
- Half damaged: 262,917
- Partially damaged: 717,678

**Total: 1,111,030**

- Other building damage: 59,576

- Area of land damaged: 561 km² (total land area Japan 377,944 km²)

### Damage:

- $225 billion, 4% GDP
- **Great East Japan Earthquake = The Costliest Disaster of all time**
- -the World Bank
A wide area, multi-locational disaster

- 500 km by 200 km zone
- multiple towns/prefectures in tsunami-struck coastal area

Tohoku area: rias coast and Sendai plain

- different areas with different characteristics
- lack of buildable land (rias)
- land sinking (coast)
Disaster recovery and history in Tohoku, and Japan

- integrating DDR into Recovery
History of tsunami in Sanriku

- 1000 year tsunami
- 30/40 year tsunami
  - high awareness (social aspects)
    - evacuation
    - disaster prediction data
  - …but EXCEEDED expectation
- historical experience rebuilding (physical aspect)
  - relocation
  - disaster prevention infrastructure
History of tsunami

- 869 Jomon Era Tsunami -- similar to 2011 3.11 tsunami
- 1896 Meiji Tsunami
- 1933 Showa Tsunami
- 1960 Chile Tsunami
- 1993 Miyagi off-shore earthquake tsunami
- 2011 Great East Japan Earthquake

Japan Times "869 Tohoku tsunami parallels stun: Research team’s efforts set precedent to add history to other quake-study disciplines
By REIJI YOSHIDA, Sunday, March 11, 2012"
Preparation and Awareness

- culture of ‘tsunami tendenko’
- examples of successful evacuation on March 11, 2011
- but 3.11 exceeded all predictions
...but 3.11 was beyond expectations

– evacuation places were not safe
– loss of life of many people who evacuated, and many government officials

The disaster management center of Minami-sanriku town

Signs of evacuation buildings

Apartment building in Minami-sanriku town

Reinforced concrete building Onagawa town
Many City Office staff dead/missing

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

<table>
<thead>
<tr>
<th>Disaster area municipalities</th>
<th>Dead/Missing workers</th>
<th>Workers total</th>
<th>Disaster area municipalities</th>
<th>Dead/Missing workers</th>
<th>Workers total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Iwate Prefecture</strong></td>
<td></td>
<td></td>
<td><strong>Miyagi Prefecture</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rikuzentakata-C</td>
<td>68</td>
<td>261</td>
<td>Osaki-C</td>
<td>2</td>
<td>700</td>
</tr>
<tr>
<td>Ofunato-C</td>
<td>1</td>
<td>357</td>
<td>Watarai-T</td>
<td>1</td>
<td>161</td>
</tr>
<tr>
<td>Kamaishi-C</td>
<td>4</td>
<td>362</td>
<td>Yamamoto-T</td>
<td>4</td>
<td>97</td>
</tr>
<tr>
<td>Otsuchi-T</td>
<td>32</td>
<td>136</td>
<td>Shichigahama-T</td>
<td>1</td>
<td>110</td>
</tr>
<tr>
<td>Yamada-T</td>
<td>2</td>
<td>184</td>
<td>Onagawa-T</td>
<td>1</td>
<td>105</td>
</tr>
<tr>
<td><strong>Miyagi Prefecture</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sendai-C</td>
<td>5</td>
<td>9,446</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ishinomaki-C</td>
<td>48</td>
<td>848</td>
<td>Soma-C</td>
<td>2</td>
<td>214</td>
</tr>
<tr>
<td>Kesennuma-C</td>
<td>2</td>
<td>529</td>
<td>Mnamasima-C</td>
<td>4</td>
<td>427</td>
</tr>
<tr>
<td>Natori-C</td>
<td>5</td>
<td>316</td>
<td>Namie-T</td>
<td>1</td>
<td>128</td>
</tr>
<tr>
<td>Iwanuma-C</td>
<td>4</td>
<td>193</td>
<td></td>
<td></td>
<td></td>
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</table>

**Fukushima Prefecture**

<table>
<thead>
<tr>
<th>Disaster area municipalities</th>
<th>Dead/Missing workers</th>
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<tr>
<td>Kobe-C</td>
<td>15</td>
<td>10,677</td>
</tr>
<tr>
<td>Amagasaki-C</td>
<td>1</td>
<td>3,196</td>
</tr>
<tr>
<td>Nishinomiya-C</td>
<td>4</td>
<td>2,100</td>
</tr>
<tr>
<td>Ashiya-C</td>
<td>4</td>
<td>577</td>
</tr>
</tbody>
</table>

Total of 19 cities: 226, 14,732

**International Recovery Platform**

(for reference) Municipal officers who died or were not found after Hanshin-Awaji Earthquake

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<td>2,100</td>
</tr>
<tr>
<td>Ashiya-C</td>
<td>4</td>
<td>577</td>
</tr>
</tbody>
</table>

Total of 4 cities: 24, 16,550

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

**Note:** Numbers of dead/missing workers include temporary staff in some cities. Numbers are based on hearings on 1 Aug 2011, not finalized.
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 Dec 1)
- Received victims (4,497 persons as of Dec 1)

- Counterpart system
to avoid overlapping of support
2. Challenges and outline of policy for recovery by Japanese Government
Challenges for Life Recovery

- life recovery for victims
  - need support for livelihood recovery--including businesses, fishing and other local industry
  - continuity in housing
  - how to relocate population from hazardous area (relocation and zoning)
  - connected with the time scale of recovery/relocation

- some initiatives in for livelihood recovery
  - temporary shopping arcade
  - handicrafts for income
  - support for fishing industry
Livelihood
Livelihood: Temporary markets for rebuilding community and business
Housing recovery process in Japan

- **Evacuation Center**
  - Schools, gymnasiums, community centers, other municipal buildings
  - No privacy
  - Crowded

- **Temporary Housing**
  - Pre-fabricated temporary structures provided by the government
  - 2 years (by law, can be extended)
  - Distance/inconvenient locations
  - Entry randomized by lottery
  - Destroying communities
  - Solitary deaths
  - Solitary death continued in permanent housing
  - Residents stayed in them for up to 5 years

- **Permanent Housing**
  - Residents rebuild on their own
  - Public subsidized rental housing provided by the government
  - Tall buildings in distant locations
  - Entry by lottery with priority for elderly/vulnerable people
  - Little/no support for private homes

In Kobe, 1995
Number of people living in evacuation shelters, comparison of the Great East Japan Earthquake and Hanshin-Awaji Earthquake

- Evacuees (all Japan) Great East Japan earthquake 3/11/2011
- Evacuees from 3 prefectures: Iwate, Miyagi, Fukushima
- Staying in evacuation centers (Japan)

Chuetsu Earthquake 10/23/2004
- Great Hanshin-Awaji Earthquake 1/17/1995
Temporary housing construction

No. of houses started

No. of houses completed

1 month
2 months
3 months
4 months
5 months

112x104
537x160
518x341
501x395
485x448

2 months
3 months
4 months
5 months

No. of houses
Government role in temporary housing

**national government**
- funding (based on the (Disaster Relief Act)

**prefectural government**
- responsible for building temporary housing-can contract to private contractor of their choice

**municipality**
- find suitable land, select residents and provide maintainance

- **52,247 units built**, size is standard (less than 30m²)

Officially “2 years, 3 months” (already extended to 3 years) but up to 5 or longer is is likely

Construction and material quality, location, scale of housing area, and distance varies.

Some efforts at relocating residents collectively; many scattered.

**Rias coastal areas**: a lack of buildable land near the coast

**Coastal plains**: more available land, dominated by Sendai city

**Towns in Fukushima**: residents evacuated for an unknown period
Temporary housing in Tohoku-varies
Examples of Innovative housing
Various types of transitional housing

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of housing units in use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temporary housing</strong></td>
<td></td>
</tr>
<tr>
<td>(As of 1/10/2012, Source: MLIT)</td>
<td><strong>52,182</strong></td>
</tr>
<tr>
<td><strong>Gov.-owned accommodations</strong></td>
<td></td>
</tr>
<tr>
<td>(As of 1/9/2012, Source: MOF)</td>
<td><strong>9,832</strong></td>
</tr>
<tr>
<td><strong>Public housing</strong></td>
<td></td>
</tr>
<tr>
<td>(As of 1/9/2012, Source: MLIT and MOF)</td>
<td><strong>8,238</strong></td>
</tr>
<tr>
<td><strong>Private rental housing</strong></td>
<td></td>
</tr>
<tr>
<td>(As of 12/27/2011, Source: MHLW)</td>
<td><strong>65,692</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>135,944</strong></td>
</tr>
</tbody>
</table>

- newly-built temporary housing
- existing government-owned housing (dormitory, etc.)
- existing public housing
- private rental housing—actually this is the largest amount
Limits of physical infrastructure for disaster prevention

- **Level 1 tsunami** - 100 years
  - Protect lives and property

- **Level 2 tsunami** - 1000 years
  - Protect lives, by EVACUATION

<table>
<thead>
<tr>
<th>Design tsunami</th>
<th>Required performance</th>
</tr>
</thead>
</table>
| Level 1 Largest tsunami in modern times (return period: around 100 years) | • To protect human lives  
• To protect properties  
• To protect economic activities |
| Level 2 One of the largest tsunamis in history (return period: around 1000 years) | • To protect human lives  
• To reduce economic loss, especially by preventing the occurrence of severe secondary disasters and by enabling prompt recovery |
Land Elevation is key—for survival and recovery

Minami Sanriku Town Shizugawa Area

Yoshihama area, Ofunato—collective relocation carried out after Meiji Tsunami, low areas became rice fields, no casualties in Showa Tsunami

Hongo area of Kamaishi, relocated after 1933 tsunami, damaged again in 2011
Example guidelines provide by the Reconstruction Design Council

The case study, Minami Sanriku, is type 3.
Recovery & Reconstruction Process

- GEJET (Great East Japan Earthquake & Tsunami)
  Immediate rescue & temporally housing construction backed by supplementary budgets
- the Reconstruction Design Council (April.11)
- Basic Act on Reconstruction (June.24)
- Recommendation from RDC (June.25)
  “Towards Reconstruction – Hope beyond the Disaster”
- Basic Reconstruction Guidelines (July.29) from RH
- Reconstruction plans from prefectures (Aug.-Oct.)
- Reconstruction plans from municipalities (Oct.-Dec.)
- 3rd supplementary budget 9.2 trillion yen (Nov.21)
Recovery Agency

Reconstruction Agency organization

* Numbers indicate staff in each location

Aomori office (Hachinohe) 2
Miyako branch office 2
Kamaishi branch office 4
Kesennuma branch office 3
Ishinomaki branch office 3
Minami-Soma branch office 2
Iwaki branch office 2
Ibaraki office (Mito) 3

Bureaus and offices will hire more local staff as operations grow.

source: Reconstruction Agency faces urgent problems, Daily Yomiuri, 2/12/12
Special Zone for Reconstruction

Municipalities or Prefectures in this area can apply for Reconstruction Acceleration

Then can apply for individual recovery projects Grants

Funding by the National Government, Recovery projects can include tax incentives, zoning, medical, housing etc. projects.
Municipalities located in the “disaster afflicted zones” stipulated in the Act on Special Provisions of Article 3 of the Public Finance Act, can formulate plans on the Special Zone for Reconstruction to be submitted to the Government for the package of special arrangements.

**Basic Guidelines for the Special Zone for Reconstruction (To be decided by the Cabinet)**

- Significance of smooth and swift reconstruction in the Special Zone for Reconstruction
- Basic guideline for necessary assistance and other measures to be taken by the Government for afflicted municipalities for smooth and swift reconstruction in the Special Zones
- Basic elements of approval system of Reconstruction Acceleration Plans
- Special measures and arrangements to be taken in the Special Zones

**Consultative body of Central and Local Governments**

Established in each Prefecture, held in regions affected by the disaster and directed by the future Reconstruction Agency to discuss proposals from local authorities on special arrangements and other related elements (working groups can be set up by region)

**Reconstruction Acceleration Plan**

Plan to apply for special measures and arrangements involving deregulation, reduced procedures, tax incentives and other special measures.

- Formulated by Prefectures and municipalities separately or jointly. Private enterprises are entitled to make proposals.

**Land Restructuring Plan**

Plan to apply for special arrangements involving approval, procedures, etc. for land restructuring

- Formulated by municipalities alone or jointly with Prefecture.

**Reconstruction Grant Projects Plan**

Plan involving grant projects (projects for reconstruction in areas severely affected by the disaster)

- Formulated by municipalities alone or jointly with Prefecture.

**Approval by the Prime Minister**

- Special deregulation and reduced procedures covering housing, industry, town-building, medical services, nursing care and others.
- Tax incentives to promote employment and industrial activities
- Interest substitute for loan lenders

**Special arrangements for land use restructuring**

- Special arrangement of concession necessary for projects
- Integrated “one-stop” procedures
- Creation of new types of project system related to land use.

**Disclosure of Plans**

- Public hearings, announcement and inspection when necessary
- Consultation and agreement in the process of consultation on restructuring

**Submission to the Prime Minister**

**Reconstruction Grant to support regional reconstruction**

- Unified subsidy projects for municipalities (originally 40 projects at different ministries)
- Secure resources with flexible use for local governments
- Central government will finance all the local expenditures
- Flexible implementation and simplified procedures
Recovery & Reconstruction Process

Disaster Counter Measures Basic Act

- **National level**
  - Prime Minister
  - Central Disaster Management Council

- **Prefectural level**
  - Governor
  - Prefectural Disaster Management Council

- **Municipal level**
  - Mayors of Cities, Towns, and Villages
  - Municipal Disaster Management Council

- **Residents level**

- 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 plans (as of September)

Fukushima Prefecture
Miyagi Prefecture
Iwate Prefecture

Fukushima Prefecture
Miyagi Prefecture
Iwate Prefecture

Source: Documents on Web pages of municipalities

Recovery plan completely mapped out
Goals decided; Basic/Guideline Plan complete
Nothing (no online announcement at all)

Pacific Ocean
3. Process of drawing up reconstruction plans and challenges in the implementation of plans

- Case study of Minamisaniriku town, Miyagi Prefecture -
DRI Support in Minamisanriku town Office
(April 2011 ~ October 2011)

- Advice to draw up reconstruction plans
- Advice to land use planning
- Assistance to residents’ consensus building
  (Town meeting workshop, Questionnaire to residents etc.)
Location of Minamisanrikucho
Central Town (Before 3.11)
Central Town (After 3.11)
Damage

☐ Human damage

**Number of dead:** 511 (Ratio of dead 2.89%)

**Number of missing:** 268 (Ratio of missing 1.51%)

※ population 17666

☐ Damage of houses etc.

**Houses** 3311 Family (Ratio of damage houses 6.2%)

**Farmland** 452 ha

**Forest** 12 ha
Minami Sanriku Town - entire city destroyed and government paralyzed

- Entire urban area destroyed; one of the most heavily damaged places in the disaster area
- Half of the population sent to evacuation centers; town hall destroyed/government paralyzed.
## Evacuation Centers & Temporally Houses

<table>
<thead>
<tr>
<th>Event</th>
<th>Number</th>
<th>Location</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Evacuation</strong></td>
<td>9,500</td>
<td>Bayside Arena gymnasium (inner town)</td>
<td>April 2011</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Hot spring inn&amp; gym)</td>
<td>July 2011</td>
</tr>
<tr>
<td><strong>Second Evacuation</strong></td>
<td>1,800</td>
<td>Elementary School (inner town)</td>
<td>March 2011</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Temporally house 2,195 units &amp; Many Private rental housing</td>
<td></td>
</tr>
</tbody>
</table>

Many residents live outside of Minamisanriku town still now (about 200 units of temporary houses, most of private rental housing)
Process of Drawing up Reconstruction Plans and Challenges in the Implementation of Plans
Reconstruction Planning Process

Academics’ plan formulation meeting (to compile a rehabilitation plan)

Citizens’ plan formulation meeting (to select projects of highest priorities)

Survey on opinions from all the town people

Discussion on town development by district (to talk about specific relocation site candidates and land deals)

Citizens’ round-table conference held by district (to examine town development principles by district)
Local Round-Table Conference Held at 23 Places
(at various facilities within the town, evacuation centers outside of town etc.)

(gymnasium outside of town in July 2011)

(Temporary houses outside of town in July 2011)
Vision for the Town’s Future
A town with peace and vitality created through intertwining nature, people and works

Minamisanrikucho Earthquake Disaster Rehabilitation Plan (Target Year: March 2021)

Goal 1 Development of a town where people can continue to live at ease
(1) Shift to the land use to protect people’s lives
(2) Promotion of town development for disaster management and mitigation to protect property
(3) Maintenance, improvement and enhancement of disaster management and mitigation systems
(4) Maintenance and improvement of transport networks to protect people’s lives and livelihoods
(5) Establishment of information and telecommunications networks and promotion of regional informatization
(6) Stable supply of health, medical care, welfare and educational services
(7) Function consolidation and proper placement of public facilities and the like

Goal 2 Development of a town coexisting with nature
(1) Challenges to eco-town development
(2) Construction of a water and green network
(3) Creation of a recycling society system
(4) Nurturing people who love their hometowns and support rehabilitation
(5) Creation of new lifestyles

Goal 3 Development of a town full of works and vitality
(1) Early rehabilitation and enhancement of industrial infrastructure
(2) Regeneration and revitalization of the fishery and marine products industries
(3) Farmland re-creation, forest industry promotion and reestablishment of management bases
(4) Revitalization of commerce, industry and tourism and creation of new industries
(5) Creation of employment and expansion of exchange population

Measures 1
A town to be developed in collaboration of the town and the region

Measures 2
A town to be developed in collaboration with the nation and the prefecture with the town taking the initiative
Issues for recovery of the Great East Japan Earthquake for Community & Victims

Disaster risk reduction (DDR) in recovery planning including community relocation
- Disaster risk reduction
- People based recovery
- Housing

Livelihood Recovery
- Long term assistance for victims
- Recovery of industry, Employment
- Assistanes for evacuees living wide area

Movement of population, aging society
- Recovery of village
- Smart shrinking
### Essentials for Disaster-Resistant Town

What they think is a key to the development of a natural disaster-resistant town.

- The largest number of respondents (60%) think “to locate homes at higher ground” is essential, while the second largest (58%) choose “to locate schools, hospitals, town hall, etc. at higher ground” and the third largest (35%) choose “to enhance lifelines such as water, gas, etc.”

<table>
<thead>
<tr>
<th>Essential</th>
<th>Percentage</th>
</tr>
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<tr>
<td>To locate homes at higher ground</td>
<td>68%</td>
</tr>
<tr>
<td>To locate schools, hospitals, town hall, etc. at higher ground</td>
<td>58%</td>
</tr>
<tr>
<td>To enhance lifelines such as water, gas, etc.</td>
<td>35%</td>
</tr>
<tr>
<td>To enhance tide prevention functions</td>
<td>24%</td>
</tr>
<tr>
<td>To enhance transport networks</td>
<td>24%</td>
</tr>
<tr>
<td>To enhance evacuation routes and facilities</td>
<td>20%</td>
</tr>
<tr>
<td>To enhance information and telecommunications networks</td>
<td>16%</td>
</tr>
<tr>
<td>To enhance functions of disaster management center facilities</td>
<td>14%</td>
</tr>
<tr>
<td>To enhance disaster self-management organizations</td>
<td>5%</td>
</tr>
<tr>
<td>To store disaster records and implement disaster management education</td>
<td>3%</td>
</tr>
<tr>
<td>Other</td>
<td>2%</td>
</tr>
</tbody>
</table>
Rehabilitation of Fishing Villages

Community Relocation
(Disaster risk reduction)
- Workplaces and marine products processing factories to be located at lower ground.
- Residential area to be relocated to higher ground.
- Building regulation of lower ground (prohibit building house).
- Road planning not to be isolated by Tsunami damage.

Points of discussion
- Priority depends upon where people stand. “To live at ease by fast building a house”, “to resume fishing operations is the first consideration as residence has been secured by temporary housing”...
- Villager prefer “Individual community relocation” (but...Many aged people, Decrease number of families especially young families go out of the town).
- Land use plan of low land have not be arranged.

Plan to choose individual or collective relocation case-by-case taking local characteristics and residents’ intentions into account.
Village Discussion

- Meeting with local land owners (Contracting Societies, etc.)
- Transfer to common land at higher ground
- Explanation on project method institutions
- Road maintenance and re-planning
Harvest from the sea and industrial circle
Future work

- 81% of respondents desire to have jobs within the town.
- As long as primary industries are concerned, 93% of workers in “the agricultural industry” desire to continue their jobs, while 90% of workers in “the fishery and fish culture industry” desire to continue their jobs.

Desire to work outside Minamisanrikucho 18%

Desire to work within Minamisanrikucho 81%

Unable to work or not want to work 1%

- Agriculture: 93% desire to work within the town, 5% desire to work outside.
- Forestry: 76% desire to work within the town, 24% desire to work outside.
- Fishery and fish culture: 90% desire to work within the town, 10% desire to work outside.
- Secondary industries: 81% desire to work within the town, 19% desire to work outside.
- Tertiary industries: 74% desire to work within the town, 25% desire to work outside.
Reconstruction of Central Town area

land use; Sharp distinction between residential area and industrial area (Disaster risk reduction)

Move of Town central zone to highland; New town office, hospital...
(Land adjustment projects, Nodal urban improvement projects)

Residential committee to plan recovery project central area

Evacuation road from industrial area to residential area, highland

Points of discussion & problems

- Long time project; because of large lot, many landowners
- Bustle of commercial zone, Invite manufacturing companies, Employment
- Many victims live outside the town, Residents hard to discuss about recovery plan
- Rubble (560 thousands ton) → dispose only 2% (2012.6)

Cross Section of Central town area

Residential area (housing and commerce) Green space Industrial and tourism area Sea

Housing complexes Single-family houses Cultural facilities Stores
Proposed Land Use in Central Town Area
Housing issue

Permanent Public Housing for Victims

Plan of Permanent Public Housing for Victims 2012.3
- Construct 1000 units (-2015.3)

Assistance for family build house by themselves

2 million yen (aid) per family
+ Community relocation assistance (prepare housing site etc.)

Points of discussion

- Many victims live outside the town (Temporary public houses, rented apartment (rent assistance)
- Young families tend to move urban city → Number of residents decline after earthquake

Wisdom enabling to live in prosperity with only necessary development.

Residents over 65 years old are over 30%

Town office have to manage many permanent houses for long time…
Issues for recovery of the Great East Japan Earthquake

for Public Office

Public Service Reconstruction for recovery
- Organization of reconstruction
  (Roles of National, Prefectural, and Municipal governments)
- Human Recourses

Implementation of projects for recovery
- Budget
- New system for recovery
The town hall was hit by the tsunami, facilities were badly damaged and workers (39 persons) dead or missing.

Basic data of residents and maps flowed to the sea.
Public Service Reconstruction & Implementation of projects

• **How to build a system to receive assistance**

  **Pairing assistance system** (対口支援等)

  **Human Resources support**
  - Activity of “Union of Kansai Governments”
  - National Government coordinate visiting public
  - Long-term-visit technical officers
  - Many officers support public service reconstruction

  **Dispatched specialized nonofficial consultants to each city and town (2011.5 -2012.3)**
  - Support to draw up reconstruction plan in city planning and civil engineering
  - In city planning and civil engineering
  - National government’s budget

  - Volunteer Center 2011.6
  - Temporary office of “Union of Kansai Governments” 2011.4
  - Visiting technical public officer help to draw up reconstruction plan 2011.6
  - Nurses advice about health care to victims 2011.8
Government (the Ministry of Land, Infrastructure, Transport and Tourism, etc.)
- Tasks by MLIT
  - Damage situation examination
  - Survey of reconstruction patterns
  - Detailed planning for developed areas
  - Examination of housing reconstruction plans

Miyagi Prefecture (Civil engineering division, etc.)
- Formulation of prefectoral reconstruction plans
  - Providing proposals on land use to municipalities as a reference

Minamisanriku town office
- Reconstruction promotion department
- Academics’ reconstruction plan formulation committee
- Industrial infrastructure task force (Industrial promotion department, Construction department)
- Lifeline task force (Construction department, Water and sewerage department)
- Disaster prevention and administrative foundation task force (General affairs department, Crisis management department)
- Welfare and education foundation task force (Health and human services department, Education affairs department, Lifelong learning department)
- Living environment foundation task force (Revenue department, Environmental department)

Minamisanriku town Organization Chart of Reconstruction Planning

Dispached specialized nonofficial consultants by National Government to each city and town

Coordination
- Approval
- Consultation
- Coordination meetings

Citizens’ plan formulation meeting
- Earthquake disaster reconstruction town meetings
- Discussing reconstruction plans
- Conveying a vision from the citizens’ perspectives
- Gathering a variety of opinions

Academic Institution University
- Support Cooperation Project Promotion Support
- Proposing ideas based on expertise and experience
- Advising on the planning

Proposal
- Directions
- Consultation
- Assistance

Headquarters for Reconstruction from the Great East Japan Earthquake
- Director-General (the mayor)
- Deputy Director-General (the deputy mayor of TownA)
Public Service Reconstruction & Implementation of projects

Issues of Implementation of projects are;

The affected Towns and cities had no choice but to draw up a reconstruction plan for their recovery on their own before the support systems from national government were made clear.

Small coastal towns need a lot of visiting staff, but now, some former small towns that have been incorporated into larger towns are left behind in the implementation of relocation projects.

Coast town population outflow to surrounding inland cities;
Smart shrinking recovery planning and only necessary development is important for “Sustainable recovery”

Need to balance “value of regional characteristics” and “importance of quick recovery”

What should be the use of the vacant land in low laying area where residential use is forbidden. (To keep people from rebuilding in dangerous areas in the future for long term Disaster risk reduction)
4. Conclusion;
   Idea for Disaster Recovery Checklist
   lessons from the Great East Japan Earthquake
issues in Tohoku related to the disaster recovery checklist

- Smart shrinking recovery planning
  - 4.3 Resettlement of scatter households into compact communities may be considered if original sites are no longer suitable for inhabitation and production due to high disaster risks and high costs for reduction

- Land Elevation planning and DRR
  - 4.2 The rebuilding planning must be based on reassessment of local disaster risks

- Residents consensus building
  - 4.2 The resettlement plan will be discussed and agreed by majority of local residents and with full support from the government.
  - Community layouts will be prepared by professionals in close consultations with community residents.
  - Land re-allocations for residents housing and agriculture production must be discussed with all residents.

- Pre-disaster recovery planning and training
  - 1.2 As part of disaster preparedness activities, a disaster recovery framework may be prepared.
Training program for public officers

1. Building damage assessment training
2. Training of setting up the area of building regulations and land use planning based on prediction of the damage
3. Training of drawing up district recovery plan
4. Training of announce the plan at town meeting

Program of Pre-disaster recovery planning training program
Pre-Disaster Recovery Planning (Tokyo)

- Training program for community residents
issues in Tohoku related to the disaster recovery checklist

- DRR and Universal design
  - In an aging society, universal design must be included along with DDR in recovery
- Long term land regulation and DRR
  - To ensure future safety, land use regulations must be created to prevent people from re occupying hazardous areas in the future.
- Industrial circle and recovery
  - The recovery process must consider the relationship between different parts of the industrial circle, and support these connection.
  - Temporary support needed for businesses during the recovery process (like temporary shopping arcade)
- Timing of announcement of national government support systems and recovery budget
- Pairing assistance system
  - It is important to create a system to coordinate support from outside the disaster region (twinning, etc.)
- Partnerships of public office to private experts and NGOs
  - NGOS, the private sector, and public sector all are important to recovery
- Assistances for evacuees living wide area
  - It is important to support all disaster victims, also those who evacuate from their hometown after disaster
- Continuous housing recovery
  - Housing recovery must be considered holistically as a continuous process, with smooth transitions between phases