

Promotion of Disaster Prevention and Reconstruction from the Great East Japan Earthquake

Safety, Fire Prevention: Core Areas



Respond to changes and new vulnerabilities in urban structures

- More skyscrapers and basement spaces in metropolitan cities.
- High density continues in the vicinity of core railway stations as space is used for various functions such as commercial and business facilities, and train stations.

Extensive Use of Space in Core Station Vicinities

Shinjuku Station: Six railway companies and 11 routes
 Everyday 890,000 persons use the station (people and one way)
 During peak hours 410,000 persons per hour



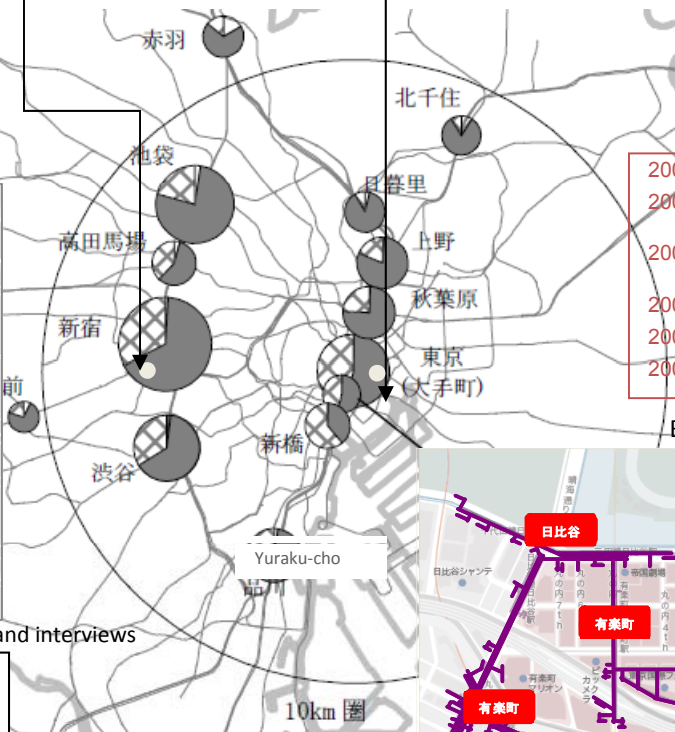
Source: PANA Aero Asahi

Tokyo Station: Four railway companies with 15 routes
 Everyday 540,000 persons use the station (people and one way)
 During peak hours 280,000 persons per hour

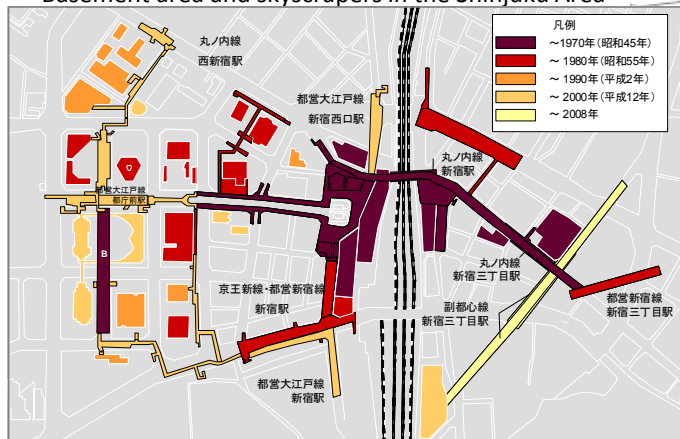


Source: PANA Aero Asahi

Staff used at railway terminals



Basement area and skyscrapers in the Shinjuku Area



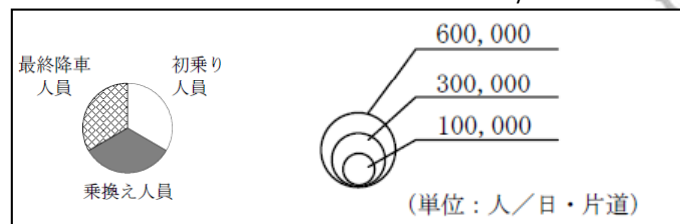
Source: Created from reference materials from Tokyo Government and interviews

- 2002: Marunouchi Building (approx. 60,000 m²)
- 2003: Industry Club of Japan and Mitsubishi UFJ Trust and Banking Headquarters (approx. 110,000m²)
- 2004: Meiji Yasuda Life Insurance Building (approx. 180,000 m²)
- 2004: Marunouchi Oazo (total area is approx. 330,000 m²)
- 2005: Tokyo Building (approx. 150,000 m²)
- 2007: Shin-Marunouchi Building (approx. 200,000 m²)

Basement map of Marunouchi Area



Source: Created from marunouchi.com



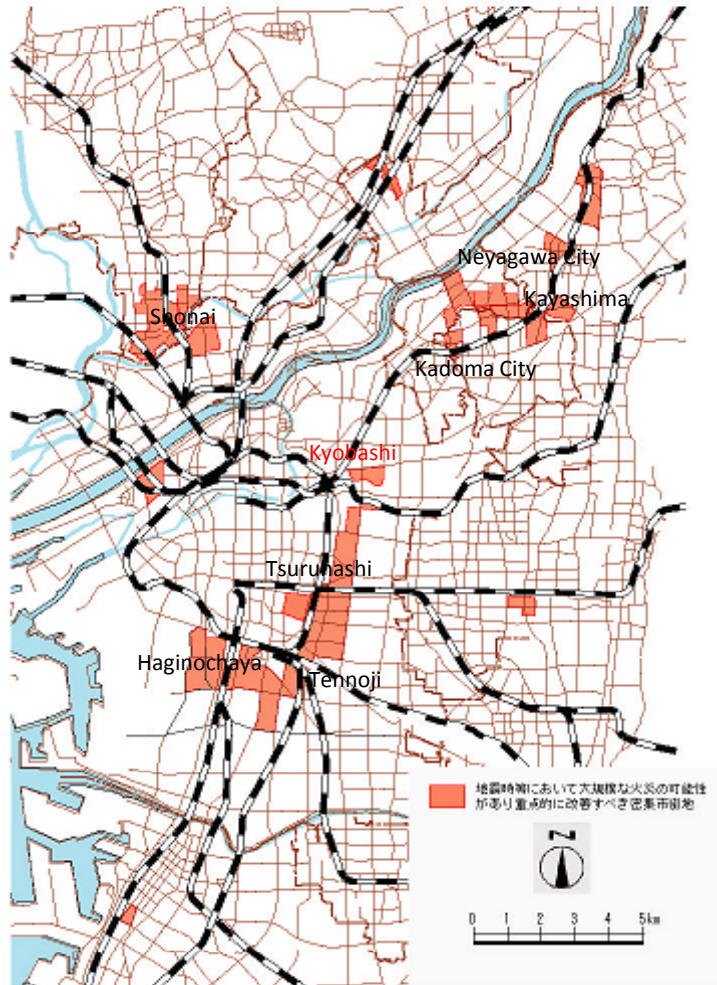
Source: Report on Metropolitan City Transportation Consensus 2005

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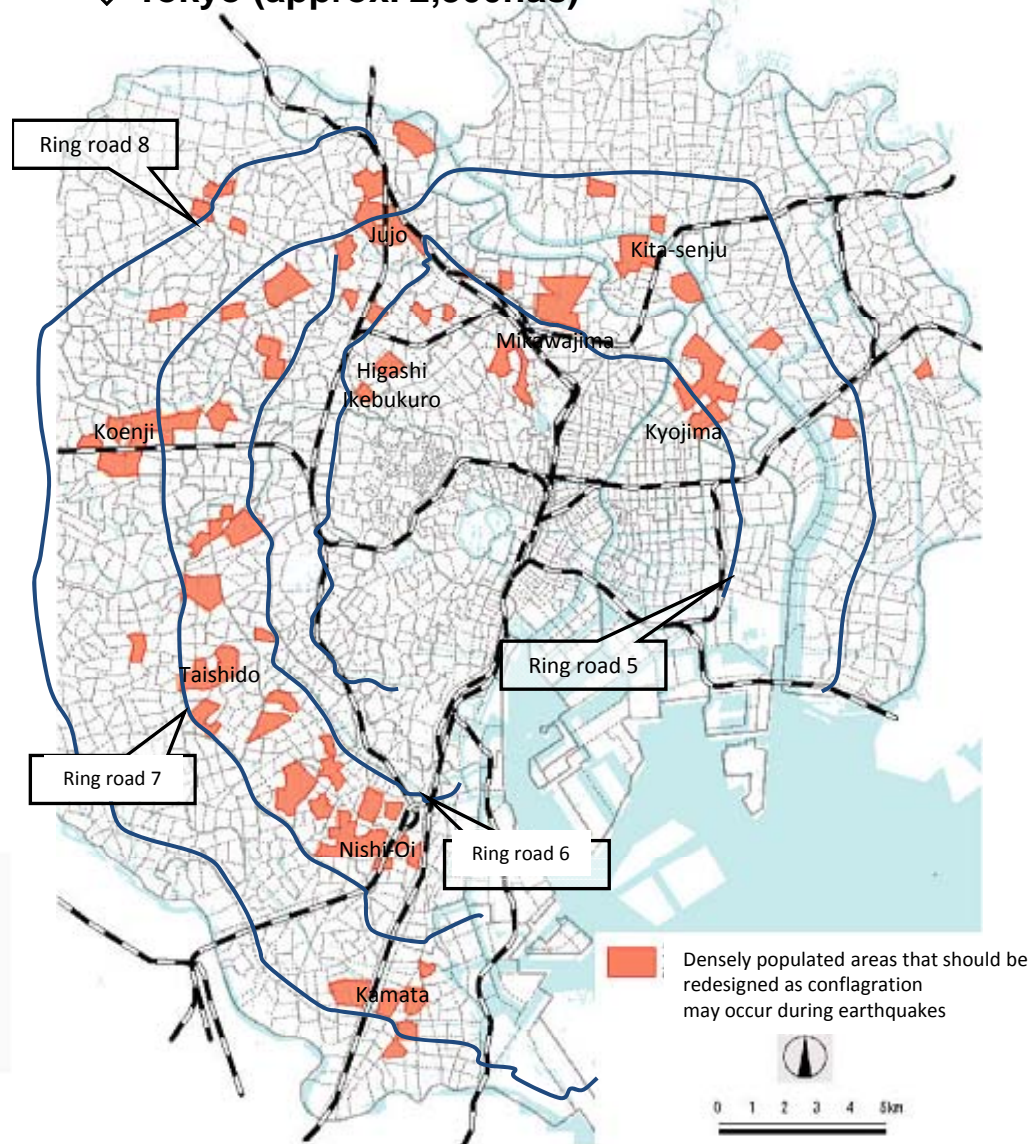
Safety, Fire Prevention: Dense City Areas

Status Quo of Dense City Areas

◇ Osaka (approx. 2,300ha)



◇ Tokyo (approx. 2,300has)



(The above is a map of highly dense areas in the cities as of July 2003.)

Problems in Establishing Dense City Areas

Progress in securing safety and city features

Examples of relatively progressed cities

- Major dense city areas in Tokyo
- Progressing by applying financial and systematic measures, various know-how, and tenacious adjustments

Examples of cities not progressing

(Fishing villages)

- Mie Prefecture, Wakayama Prefecture, and Tokushima Prefecture



(Cities with historical scenery)

- Kyoto City and others



(Hilly areas)

- Yokohama City, Kobe City, Nagasaki City and others



Establishment Issues (Reasons for belated progress)

Characteristics of the city (such as location, history and geography)

Financial and organizational issues in local authorities

Delay in rebuilding due to deterioration of financial situation: Stagnation in vitality in rebuilding due to the aging society and depopulation

Gap between administration and residents in acknowledging crisis

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Safety, Fire Prevention: Commuters Having Difficulties Going Home

Expectation that commuters will have difficulties in going home when an earthquake of a bigger scale than the Great East Japan Earthquake will occur directly below Tokyo

Major Stations	Number of commuters having difficulty going home after the Great East Japan Earthquake	Expected number of commuters having difficulty going home during an earthquake in Tokyo
Shinjuku Station	Approx. 9,000 persons	Approx. 90,000 persons
Shibuya Station	Approx. 6,000 persons	Approx. 100,000 persons
Yokohama Station	Approx. 5,000 persons	Approx. 70,000 persons
Tokyo Station	Approx. 1,000 persons	Approx. 140,000 persons

*Police Agency Report (as of November 21, 2011)

*Based on *Expected Damages in Tokyo from an Earthquake Directly Below Tokyo* for Tokyo (2006).
 Figures from within Nishi-ku in the Yokohama Disaster Prevention Plan for Yokohama Station and its vicinities

Views of Various Areas After the Great East Japan Earthquake

● Vicinities of Shinjuku Station



● Vicinities of Tokyo Station



● Vicinities of Shibuya Station



● Vicinities of Yokohama Station



Promotion of Disaster Prevention and Reconstruction from the Great East Japan Earthquake

Safety, Fire Prevention: Securing Safety

Laws to revise part of Special Measures Urban Renaissance Law

(Law No. 26 April 6, 2012)

Background

◆ During the Great East Japan Earthquake, **major confusion occurred such as evacuees and commuters who had difficulty going home** in transportation hubs in metropolitan areas where various facilities have different administrators.

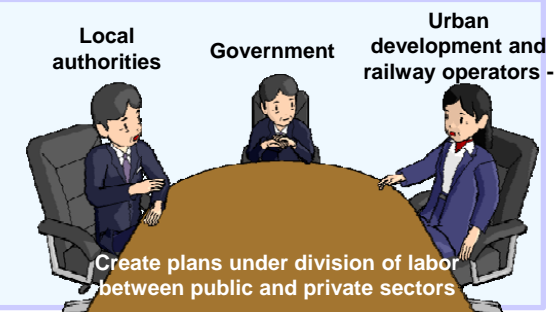
◆ When a large scale earthquake occurs directly below Tokyo, **considerable human and physical damages** is expected to occur due to buildings being destroyed and suspensions of public transportation.

⇒ **Must have an urban safety policy in both tangible and intangible aspects under the cooperation of private and public sectors**

Summary

Public and Private Conference (such as government, related local authorities, urban development entrepreneurs, public facility administrators, and add railway operators, owners and tenants of large scale buildings) discuss preparations for a large scale earthquake and create plans Urban Renaissance Safety Security Plan) with

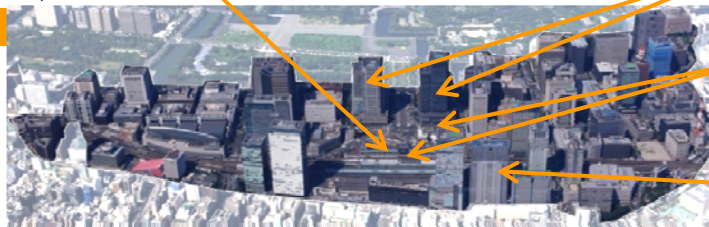
- Evacuation routes and facilities, prepare and manage warehouses (tangible)
- Lead to evacuation facilities, provide disaster and traffic information of when train will restart, provide goods and evacuation training (intangible)



Lead and secure routes for temporary evacuation

- Prepare information dispatching facilities to lead people smoothly from railway stations and buildings during earthquakes.
- Secure sustainable management of evacuation route agreements (with successions)

Evacuation Training
• Preparatory training



Secure evaluation facilities

- Secure evacuation facilities in railway stations and office buildings (stay for several days)
- Secure sustainable management of evacuation route agreements (with successions)

*Underlines are special legal measures



Provide information

- Provide disaster and traffic information



Promote earthquake prevention repairs

- Assimilate applications to check building and authorize earthquake prevention repairs



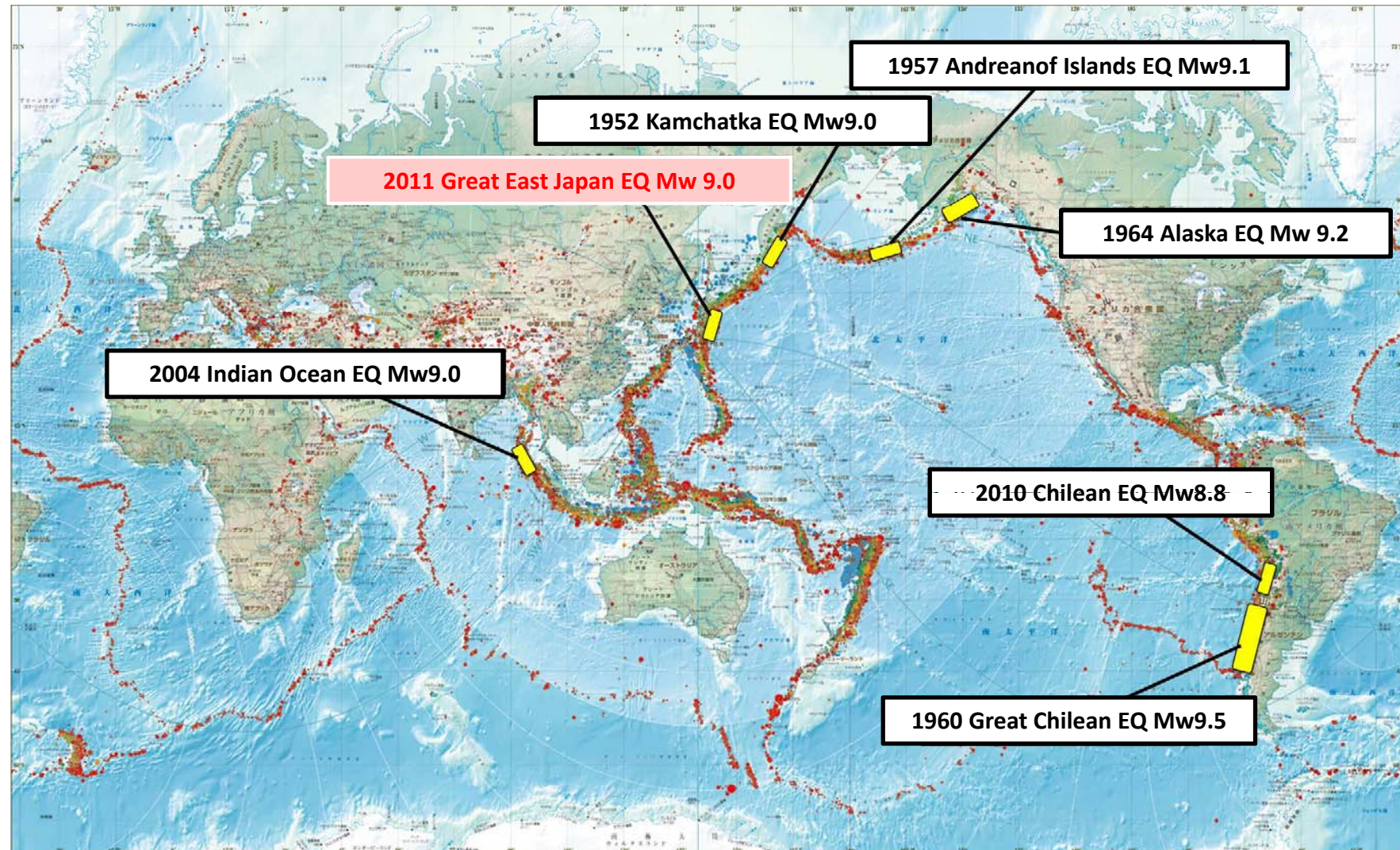
Secure warehouses for goods

- Exclusion of floor space area for warehouses planned to store goods



Secure safety during large scale earthquakes in cities

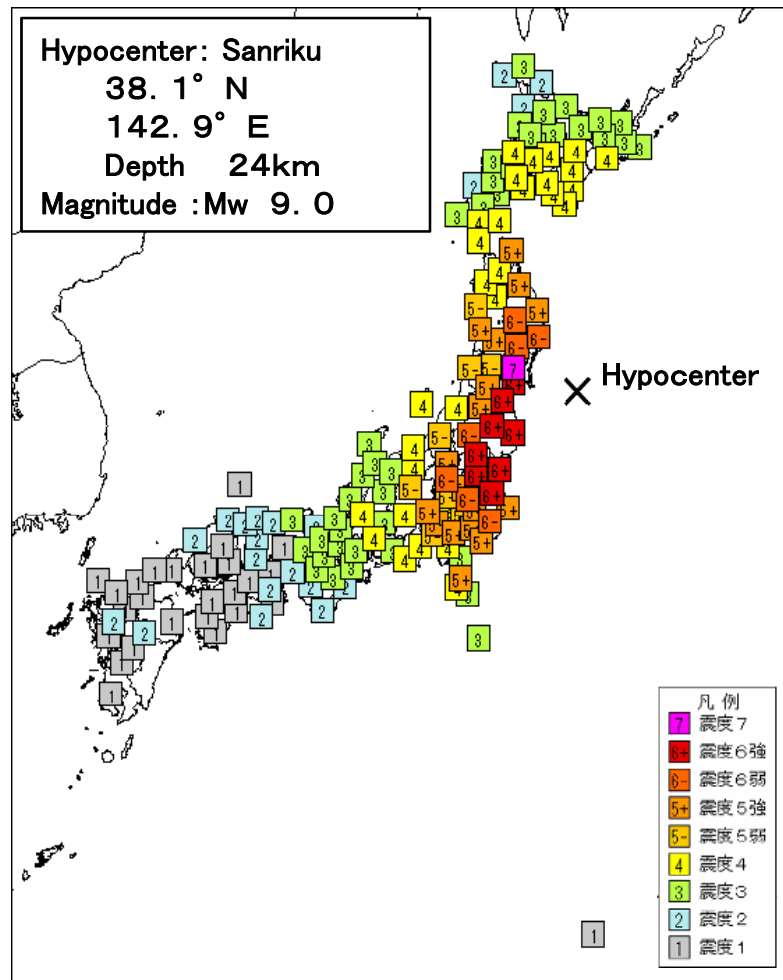
World's Mega Earthquakes in History



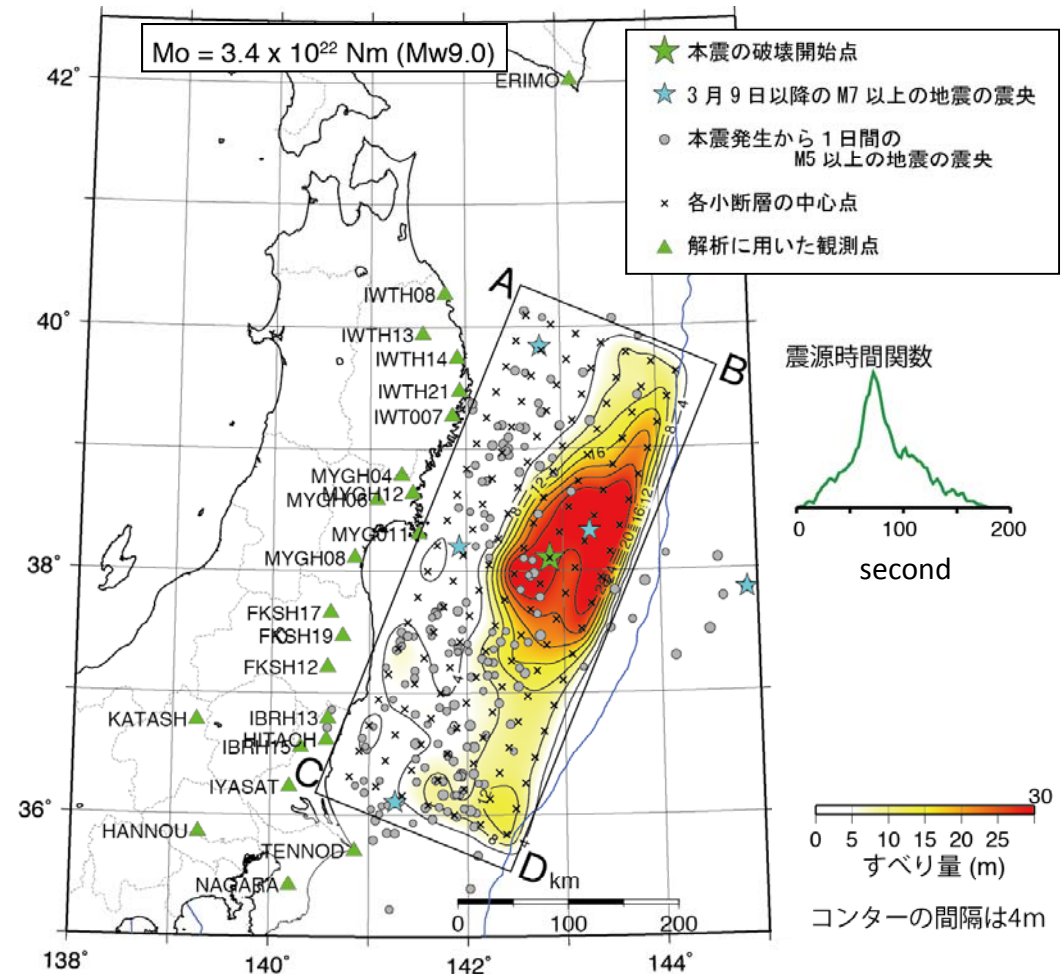
The Great East Japan Earthquake(2011) – Seismic Intensity and Fault –

date and time of occurrence : **March 11, 2011 14:46(JST)**

Seismic Intensity



Distribution of fault slip (Analysis by Meteorological Research Institute)



Tsunami Disaster (Miyako City, Iwate Prefecture)

Photo taken at Miyako City, Iwate Prefecture
Courtesy of Tarocho Fisheries Cooperative Association



Tsunami Disaster (Minamisanriku Town, Miyagi Prefecture)

Photo taken at Minamisanriku Town, Miyagi Prefecture

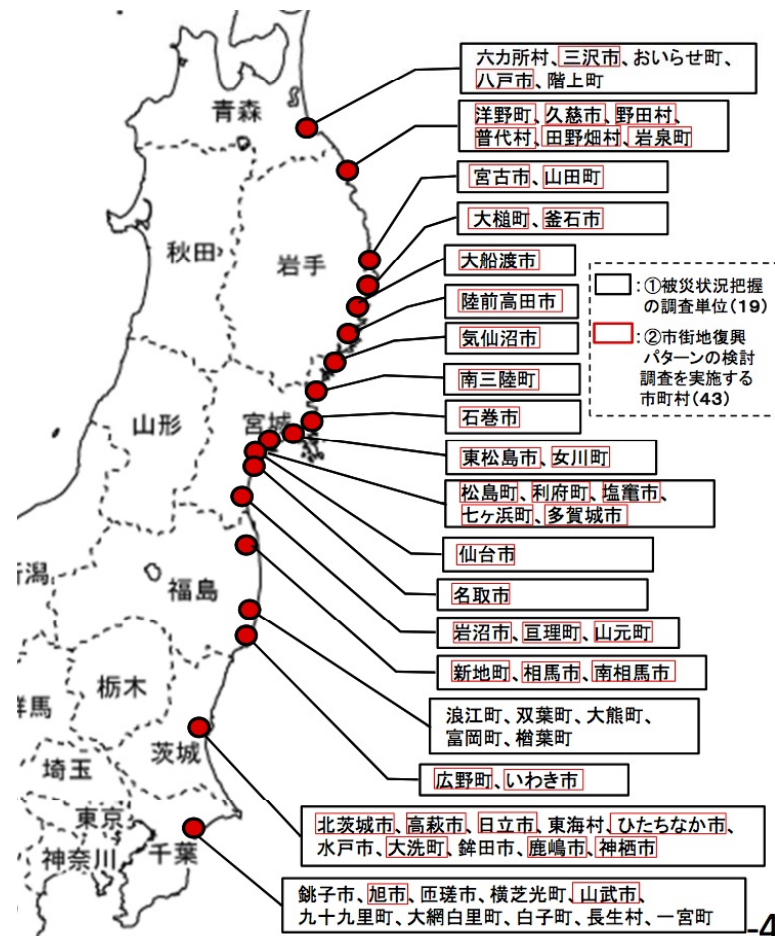


Support for the Reconstruction Plan (the status of aid)

- Staffs sent to each municipality to offer technical assistance to reconstruction planning.
- More than 80% of all (43) municipalities (38/43) establish reconstruction plan later this year .

According to disaster situations and specific feature of community, survey study for urban reconstruction in accordance with the needs of municipalities carried out in all 43 municipalities.

- Teams composed mainly from staffs of the MLIT are responsible for each municipality
- One-stop support for requests from municipalities
- Continuous visit to the field and implement indispensable adjustment
- Corresponding to the needs of each municipality, 10 government ministries set up a conference together to improve the system, to dispatch officials as needed, and to consider measures for the policy issues
- More than 80% of municipalities schedule establish each reconstruction Plan in this year.



※2011.12 Present Data

Law on Creating Tsunami Disaster Prevention Areas

Concepts on Future Tsunami Disaster Prevention and Reducing Damages

Basic Attitude

- Under the concept of saving all human lives whatever may be, speculate a similar major disaster, and aim at reducing damages by using all tangible and intangible measures .
- Furthermore, continue daily measures under this lesson and that there is no limit in disasters

Measures to Prevent Disasters and Reduce Damage Under a New Concept

- From a one line levee, switch to a multi levee by using all tangible and intangible measures
- There are many opinions on a town planning using the plains. Regarding the land use regulations, configure not a uniform regulation but a flexible system that reflects the diverse needs of the local community and the progress on the preparations on the needs and facilities considering the safety of the location and other factors

(Ref: Policy Image)

- Reconstruction and development of levees and seawalls
- Prepare city areas and relocate communities
 - Land use and building regulations
(Prepare evacuation buildings along the coast line and high raised living areas)
- Create a hazard map

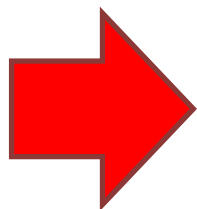
- Secure evacuation routes and areas



Evacuation route



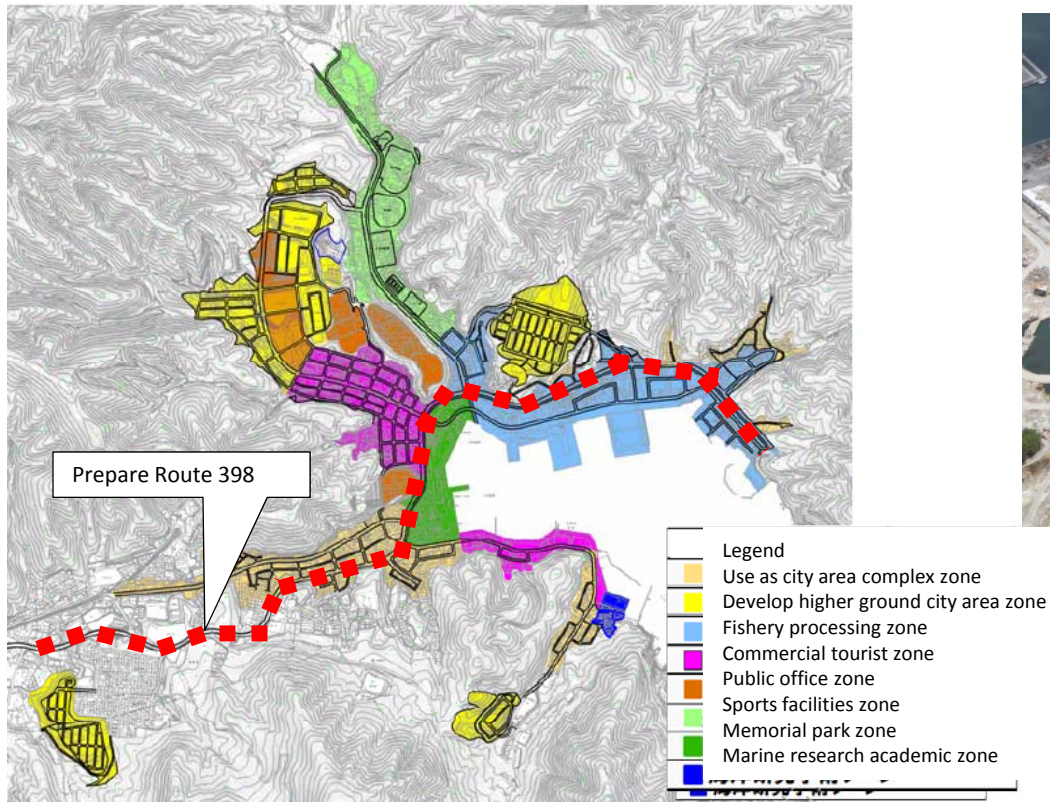
Evacuation tower



- Consider a new legal system such as building double tsunami levees (tentative name), and land use and building construction regulations under regional situation and safety
- Reflect to the Act on Priority Plan for Social Infrastructure Development that is currently being reviewed

Three Patterns the Reconstruction Plan (Rias Coastline: Devastating Damage)

< Image of land use zoning in the center of town >



Source: Onagawa Reconstruction Plan (Report of August 10)



《Period of Drawing the Reconstruction Plan》

- Report of August 10

《Direction of Review》

- Relocate public offices and housing to higher ground
- Areas that were damaged with water immersion is basically not habitable. Locate commercial tourist zones and parks. Develop evacuation areas, buildings, and route near the city.
- Tsunami measures are creating levees and seawalls, raising roads, raising land damaged with water immersion.