

Some Examples of Plan and Activity in Re-construction from the 2011 Great East Japan Earthquake

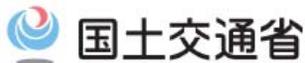
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Comprehensive countermeasure plan

MLIT Recovery and Rehabilitation Plan in response to the Great East Japan Earthquake

June 2011

Ministry of Land, Infrastructure, Transport and Tourism
(MLIT)



Ministry of Land, Infrastructure, Transport and Tourism

From Web-site of MLIT

MLIT Recovery and Rehabilitation Plan in response to the Great East Japan Earthquake

Steps from emergency response to recovery and rehabilitation

1 [Emergency Response]

- ① Rescue efforts and assistance for victims with priority on saving lives
- ② Clearing emergency air, land and sea transport routes

2 [Immediate Rehabilitation]

<FY2011 1st supplementary budget>

- ① Immediate rehabilitation of damaged infrastructures
- ② Securing housing for disaster victims
- ③ Preliminary surveys for developing community recovery plan

3 [Recovery and Rehabilitation Plan]

- ① Support for livelihood recovery of disaster victims
- ② Rebuilding communities under new concept
- ③ Revival of regional industries and economies and urban and transportation infrastructure
- ④ Reconstruction of disaster-resilient national structure

<Earthquake and tsunami damage by type of area>

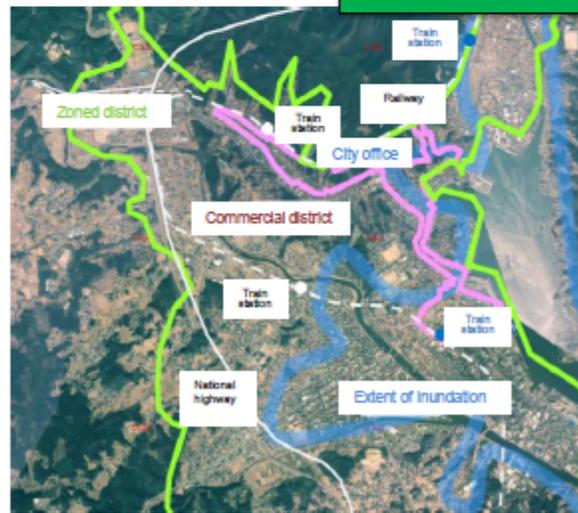
Ria (coastal inlet) areas

Municipalities completely devastated



Ria (coastal inlet) areas

Some municipalities at high elevations unaffected by tsunami



Flat, low-lying areas

Majority of damage incurred by farmland, coastal areas and rural villages



Inland areas

Damage to developed land built up the ground level with fill



Step-1 Emergency Responses

Step-2 Immediate Rehabilitation

In addition to rescue people and recovery activities,

in Structural design aspect,

-Temporary Risk and Safety Evaluation of Damaged Buildings

had been done.

Step-3 Recovery and Rehabilitation Plan

3-1 Support for livelihood recovery of desaster victims

3-2 Rebuilding communities under new concept

3-3 Revival of regional industries and economies, and urban and transportation infrastructure

3-4 Reconstruction of disaster-resilient national structure

1. Support for livelihood recovery of disaster victims

3-1

Harmonization of livelihood recovery and rebuilding communities

Basic Principles

- Prioritize securing housing for disaster victims, particularly in coastal regions that suffered the heaviest tsunami damage
 - In addition to the immediate supply of temporary housing, secure permanent housing for disaster victims.
 - in this process, special consideration must be given to the needs of the elderly and to preservation of community units.
- Ensure the viability of transportation networks which serve as the backbone of regional society



Policy Directions

(1) Securing safe, stable housing

Provide comprehensive support for housing land development, supply of affordable rent housing, and development of public facilities. Also, implement disaster prevention measures for affected developed residential areas

MLIT will work;

- to provide disaster-recovery public housing to secure housing for disaster victims
- to promote residential and community development through the disaster-recovery public housing, community relocation project for disaster prevention, and residential areas improvement
- to promote disaster mitigation measures such as project for preventing a landslide in a large scale developed land built up the ground level with fill

(2) Consideration for needs of elderly and preservation of community units, support for self recovery of housing

Taking into account the preponderance of elderly in the disaster-stricken areas, MLIT will work to ensure a supply of housing and development of communities that meet the needs of the elderly, and take steps to preserve community units. Also, MLIT will provide support aimed at self recovery of housing .

MLIT will work;

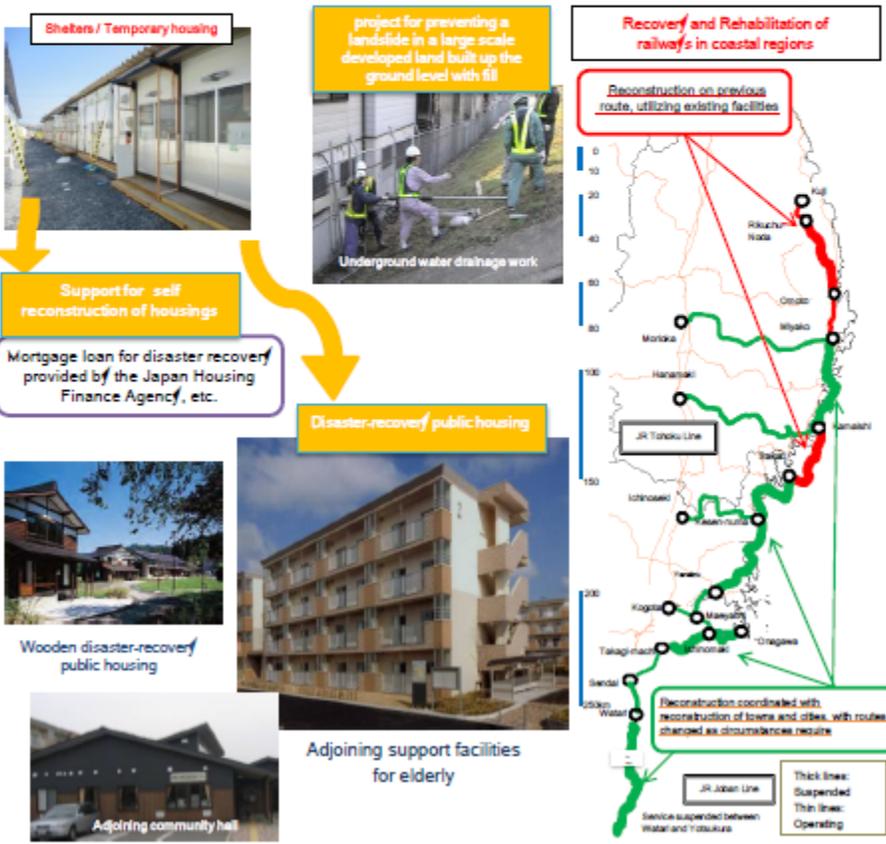
- to construct lifestyle support facilities and community halls adjoining housing, in consideration of the needs of elderly and regional communities
- to reduce interest rates on disaster recovery mortgage loans and provide support to mitigate the burden of existing mortgage loans

(3) Sustaining public transportation

Take steps to sustain public transportation, so as to promote restoration of daily and social lives of victims before.

MLIT will work;

- to provide support for reconstruction of damaged railway networks in accordance with the status of damaged areas
- to provide support to sustain regional public transportation, such as buses and remote-island routes.



(As of June 14, 2011)

2. Rebuilding communities under new concept

Safe and secure community development through integrated "hard" and "soft" measures

3-2

Basic Principles

- ✓ Taking into account various extent of damage and geographic features, make appropriate use of low-lying areas and relocate people to higher areas as needed, in accordance with regional situation.
- ✓ Taking into account the need for special measure for those regions that cannot be protected from large-scale tsunami using conventional "hard" measures, promote integrated "hard" and "soft" measures tailored to regional characteristics and tsunami protection targets.
- ✓ Employ all available measures to support recovery efforts taken by affected residents and local authorities

Policy Directions

(1) "Tsunami-resistant community development" integrating "hard" and "soft" measures

Establish a system to promote "tsunami-resistant community development through multiple defence lines" employing a combination of "hard" and "soft" measures tailored to specific regional characteristics.

MLIT will work;

- to promote measures to mitigate tsunami damage such as; rehabilitation and reconstruction of coastal embankments, improvement or relocation of urban areas or communities, establishment of effective evacuation measures, imposition of building restrictions or other necessary regulations in appropriate areas.
- to promote coordinated "hard" and "soft" initiatives through revision of the Priority Plan for Infrastructure Development

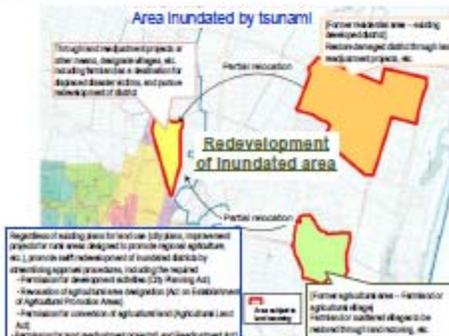
(2) Integrated urban and rural land use coordination and project execution

Consider establishment of streamlined fast-track mechanisms for land use coordination, in order to promote the smooth execution of recovery and rehabilitation projects.

MLIT will consider;

- establishing fast-track mechanism for land use coordination including halting existing land use plans (city plans, plan on establishment of agricultural promotion areas), and streamlining permission procedures for new land use plans.
- new approaches for managing land whose owners are unknown (example: a system in which local governments assume temporary responsibility for administration of land)
- the feasibility of land readjustment projects entailing comprehensive reorganization of residential and agricultural land

Integrated redevelopment of residential and agricultural areas:
Streamlining of administrative procedures



(3) Support for recovery and reconstruction of tsunami affected local governments and communities

Provide tsunami affected local governments and communities with support on the personnel, technology and information fronts, and promote public-private partnerships (PPP) and other initiatives.

MLIT will work;

- to provide support for the formulation of recovery plans by local authorities through providing personnel for survey and analysis of disaster-affected areas, etc.
- to provide support for programs led by such organization as NPOs (such as management of temporary-housing communities, community development, etc.)
- to provide support for reconstruction of disaster-stricken areas through public-private partnerships (PPP), formulation of regional development plans (local community planning, promotion of local businesses, etc.)
- to provide technical information for use in reconstruction and restoration

○From “a single line defense” to “multiple defense”

Establish new system to promote “tsunami-resistant community development” through “multiple defense” tailored to specific regional characteristics

(Examples of specific measures)

- Rehabilitation and reconstruction of coastal embankments, improvement or relocation of urban areas or communities
- Promotion of evacuation measures such as improvement of evacuation routes and evacuation areas, formulation of effective evacuation plans, and production of hazard maps
- Effective use of facilities capable of preventing the spread of flooding went over coastal embankments
- Imposition of land use and zoning regulations in line with geographic conditions, evacuation routes and areas and other evacuation considerations

Examples of specific measures;

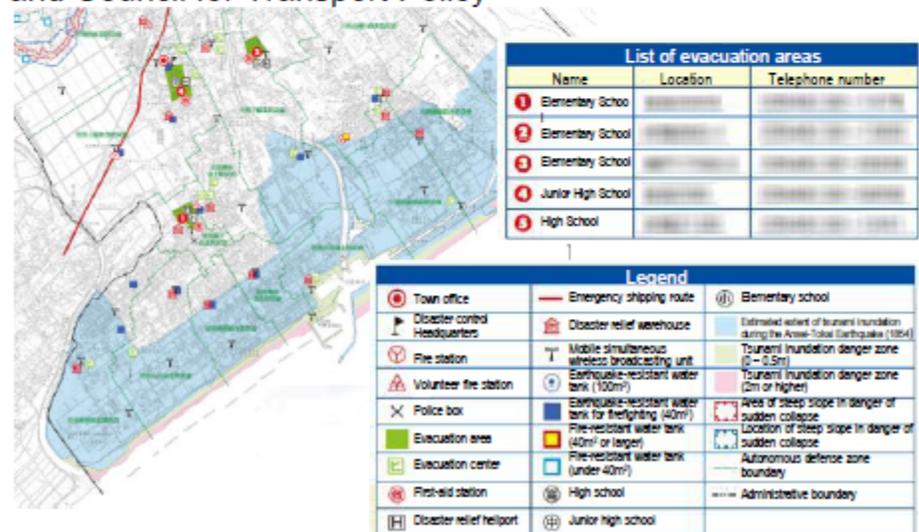
→Currently under examination in the context of the Council for Social Infrastructure and Council for Transport Policy



Evacuation route



Evacuation tower



Hazard map

3. Revival of regional industries and economies, along with the accompanying urban and transportation infrastructure

Revival of Tohoku regional industries directly leads to revival of the Japanese economy and Japan's international competitiveness

Basic Principles

- Manufactures in inland areas, and the business locations of major corporations in port and harbor districts, will be the driving force for recovery
- Take measures to vitalize the regional economies and industries that will be the driving force behind reconstruction
- Rebuilding infrastructure and logistic networks, and ensuring immediate recovery of ports, which play a vital role in core industries
- Take aggressive measures to promote the Japanese tourist industry both at home and abroad, and provide support by restoring transportation infrastructure, etc.

Policy Directions

(1) Immediate rehabilitation of transport infrastructures and businesses to support regional industries and economies

Aim for the speediest possible restoration of transportation infrastructure, which underpins the industrial and economic revival of the affected areas, and provide necessary support for the speedy revival of businesses under MLIT jurisdiction.

MLIT will work;

- to rebuild infrastructure and logistic networks that underpin industry, etc. in the affected region
- to provide support for the speedy recovery and rehabilitation of shipbuilding industry, which is indispensable for the revival of fisheries
- to provide support for the speedy recovery of affected businesses under MLIT jurisdiction, such as trucking, commercial warehouses, construction, and vehicle maintenance service
- to ensure maritime safety through reconstructing of aids to navigation, conducting hydrographic surveys and issuing nautical charts
- to promote rehabilitation of Sendai Airport

(2) Rebuild the urban and transportation infrastructure that underpins recovery of the region

In addition to implementing emergency measures to prevent secondary damage to disaster-stricken regions ahead of the rainy season and typhoon season, develop urgently "reconstruction roads" and "reconstruction supporting roads" necessary for revival of the affected areas, as well as the construction of strongly earthquake- and tsunami-resistant ports.

MLIT will work;

- to take emergency measures to prevent secondary damage to disaster-stricken regions ahead the rainy season and typhoon season
- to develop urgently "reconstruction roads" and "reconstruction supporting roads" necessary for revival of the affected areas, such as the Sanriku Jukan Expressway
- to adopt integrated "hard" and "soft" measures, including rapid rehabilitation of piers and formulation of evacuation plans, based on the Port and Harbor Industry and Logistics Network Recovery Plan

(3) Take aggressive tourism promotion measures aimed at recovery of both domestic and international travel demand

Aggressively implement tourism demand stimulus measures in coordination with the reconstruction and restoration of urban infrastructure and transportation networks, aiming at gaining immediate and large economic impact.

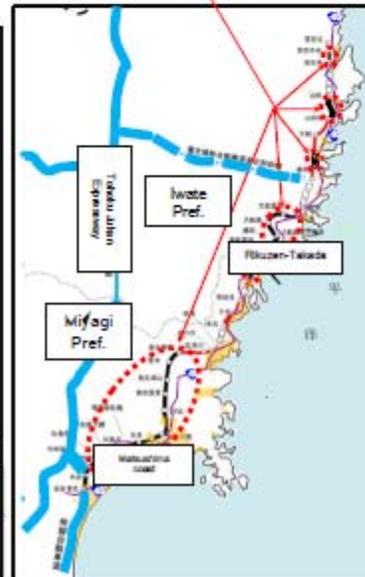
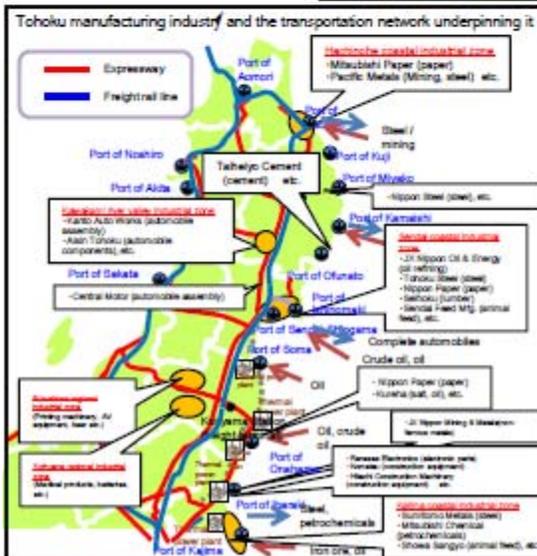
MLIT will ;

- launch a coordinated public-private domestic travel promotion campaign employing a uniform logo and slogan (Ganbaro! Nippon), so as to encourage domestic travel and thereby stimulate the entire tourist industry
- work toward the restoration and expansion of inbound travel demand (for example, by promoting MICE [Meetings, Incentives, Conferences, Exhibitions] in the affected areas, further reinforcing the framework for accommodating visitors from overseas, etc.)
- rebuild the tourist industry in affected areas (revive local industries, implement tourism initiatives in coordination with community development, etc.)

The Sanriku Jukan Expressway was spared from tsunami damage



The Sanriku Jukan Expressway was planned so as to circumvent tsunami damage and it actually served as a emergency transport route.



4. Reconstruction of Disaster resistant National Land Structure 3-4

Basic Principles

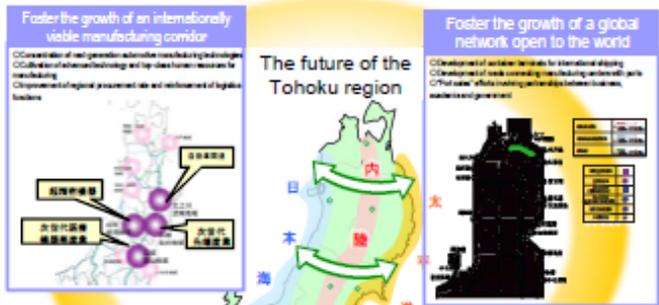
Reconstruction of Disaster resistant National Land Structure

Japan must address not only the recovery and rehabilitation of areas affected by the Great East Japan Earthquake, but also preparation for coming large scale earthquakes such as Metropolitan Earthquake, Tokai, Tonankai and Nankai Earthquake. In addition to implementing integrated "hard" and "soft" measures to enhance disaster preparedness of national infrastructure, Japan must reorganize the national land structure as a whole so as to evolve into a flexible and highly disaster-resistant nation.

Examination of national development policies from a broad-based regional perspective

Given the widespread and ruinous damage caused by the Great East Japan Earthquake, there is a need for review and revision of broad-based development policy from the perspective of rebuilding Japan as a more disaster-resistant country.

[Revision and promotion of Tohoku regional development plan]



Present a vision for the future of regional industry and international cooperation efforts in the Tohoku region, incorporating measures for maintenance of viable energy supply and substitutability of supply chain

Policy Directions

(1) Reorganization of national land structure aimed at boosting Japan's capacity to withstand natural disasters

① Strengthening of regional infrastructure and facilities: development of more disaster resistant national land structure

In addition to working toward the recovery and rehabilitation of affected areas, develop a national land structure that is efficient, effective and highly capable of withstanding natural disasters through both "hard" and "soft" measures, in order to minimize damage from future earthquakes expected to strike the Tokyo region or the Tokai, Tonankai and Nankai Pacific Coast regions.

- MLIT will;**
- overhaul infrastructure so as to prevent or mitigate damage from disasters
 - make public utilities and transportation networks more capable of withstanding disasters
 - strengthen the seismic resistance of housing and public facilities
 - improve the disaster mitigation performance of government buildings
 - promote research aimed at addressing soil liquefaction
 - establish information distribution networks that can stand up to large-scale disasters
 - reinforce broad-based rapid response and assistance networks in preparation for large-scale disasters
 - upgrade technology for prediction of large scale tsunami, coordinated with infrastructure development
 - promote development and introduction of technology contributing to the realization of a flexible and resilient Japan that can withstand disasters
 - consolidate basic information so as to improve disaster response capabilities

② Preparation through systems: Building a flexible and resilient Japan that can withstand disasters

Forge networks of nationwide and region-wide mutual support that are effective even after devastating large-scale disasters like the Great East Japan Earthquake, thereby realizing a flexible, resilient Japan equipped with safe, secure systems that can withstand disasters

- MLIT will;**
- examine means of facilitating widespread task-sharing and diffusion of functions throughout Japan
 - develop redundant and multi-layered regional transportation network providing for substitutions in case of disasters
 - provide for the viability of supply chains and public transportation networks during states of emergency by forging logistics systems that can withstand major disasters
 - examine means of redesigning national infrastructure so as to ensure a stable energy supply even during states of emergency
 - consider procedures for preparing for major disasters, building on the concept of "tsunami-resistant community development"
 - revitalize regional construction companies that provide support during states of emergency and play a vital role in maintaining local communities
 - provide support for diverse entities such as local companies, community organizations, NPOs and other groups that propel the recovery and reconstruction of disaster-hit areas and the development of disaster-resistant communities

(2) Rethinking national development policy from a broad-based regional perspective

In light of the widespread and ruinous damage caused by the Great East Japan Earthquake, review and revise broad-based regional policies from the perspective of rebuilding Japan as a more disaster-resistant nation.

More detailed activities

- MLIT will;**
- formulate policies with a nationwide scope aimed at building a strongly disaster-resistant nation – to be discussed in the National Land Council
 - formulate a vision for disaster-resistant community development – promote revision of Tohoku Regional Development Plan

3-4 Reconstruction of disaster-resilient national structure

Comprehensive targets for reconstruction are;

- Disaster resistant national land structure
- Strengthening regional infrastructure and facilities and obtain more disaster resistant structure
- Prepare the secure system for building flexible and resilient society
- Rethinking of national development policy
- Revision and promotion of Tohoku regional development plan

Actual activities

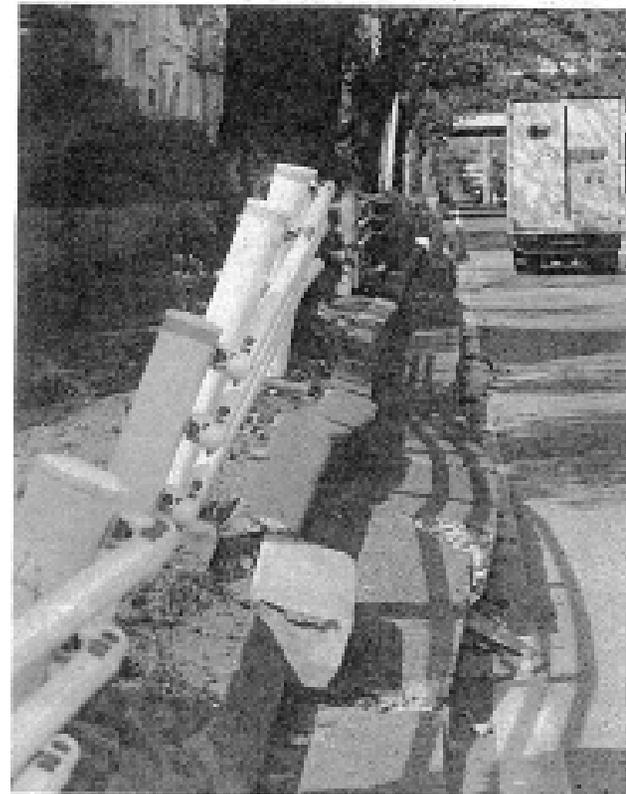
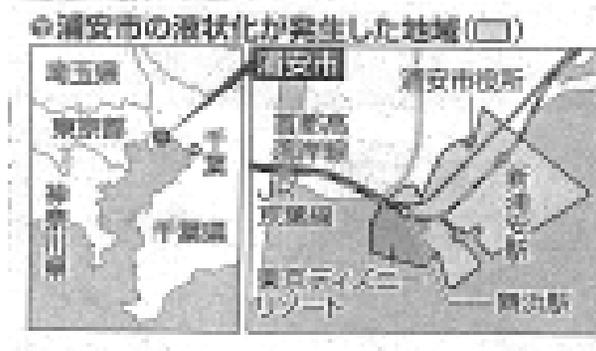
Publicly observed actual activities, concerning building engineering and which the Recovery Plan was reflected to;

- Evaluation of damages from the earthquake and tsunami (BRI, etc.)

Against earthquake

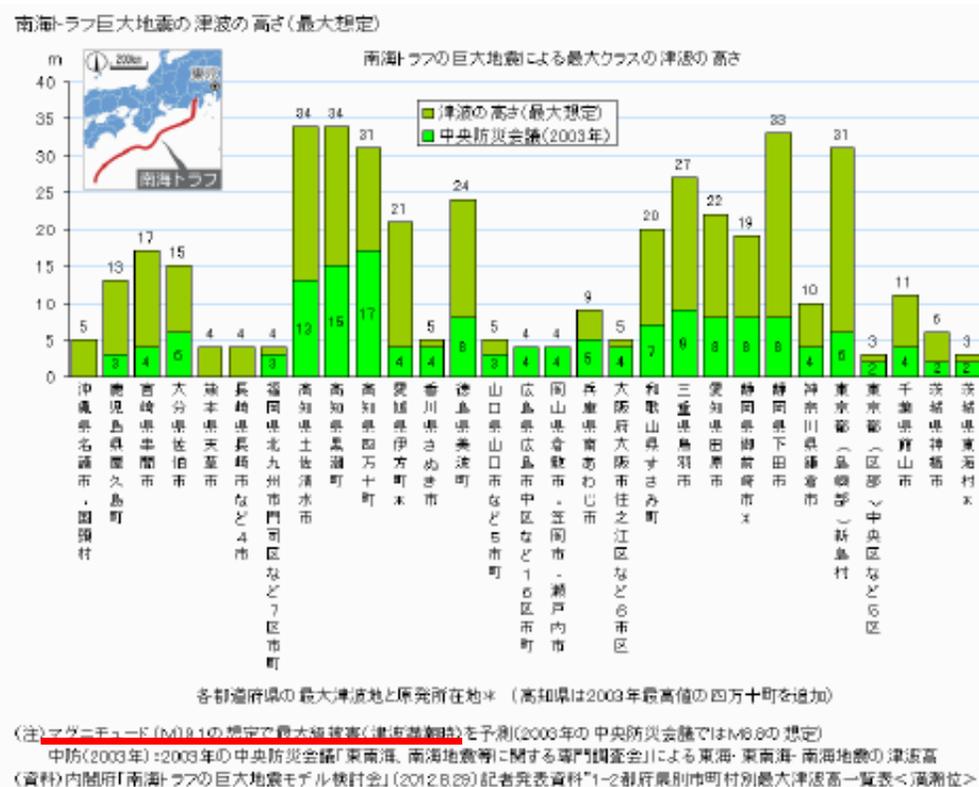
- Expected earthquake motions and Long period and duration earthquake motions (BRI etc.)

- **Liquifaction recoveries (NPO bodies)**



Against Tsunami

- Anti tsunami design (BRI, etc.)
- Expected tsunami high (Cabinet Office)



From News-published Information by Cabinet Office

Conclusion

Against Earthquake, (General understandings)

the results were mostly what we expected at least for structure. But Non-structure Elements Long-duration and Period Earthquake problem.

Against Tsunami,

It seems that we have the plan for recovery and already obtained the results in engineering or technical fields.

Although we need more time for rebuild the community with safe and workable town policy and city planning because there should be people's lives, communities and also the political and budget problem, etc. other than engineering problem.



図2-16 三陸大津波の教訓を伝える石碑(1).

大津波の教訓
 高き住居は
 児孫に和楽
 想へ惨禍の
 大津浪
 此処より下に
 家を建てるな



図2-17 三陸大津波の教訓を伝える石碑(2).

Stone Monument of Large Tsunami

**A house at the heights is well-being for your children and grand children.
 Remember the large Tsunami that caused a great terrible disaster.
 Don't build your house under this level.**

Stone monuments were build on the position which Sanriku tsunami run-upped in 1896