

# KNOWLEDGE NOTE 4-2

## CLUSTER 4: Recovery Planning

### Reconstruction Policy and Planning



**GFDRR**  
Global Facility for Disaster Reduction and Recovery



THE WORLD BANK



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**The unprecedented damage caused by the Great East Japan Earthquake (GEJE) affected multiple locations, posing severe challenges for local governments. Based on advice from an independent council, the government acted quickly and issued a basic policy and regulation framework within four months, laying the foundation for an inclusive process of recovery and reconstruction. This note documents the interactive process of reconstruction planning, as conducted by various levels of government with the active engagement of affected people, experts, volunteers, and the private sector.**

## FINDINGS

The GEJE was Japan's first major multilocation disaster in recent history. With over 200 municipalities affected, it required both a national-level response as well as inclusive and participatory local planning. By adopting early policy and regulatory guidance and releasing several budgetary supplements, the government supported the evolution of effective recovery and reconstruction plans, including coordination at the prefecture and municipal levels. Overall, the policy and planning process involved three stages:

- **Stage I (0 to 4 months):** The government established a disaster headquarters, chaired by the prime minister and an independent reconstruction design council (RDC). Basic guidelines and an act were issued within 4 months, based on the council's recommendations. The first supplementary budget was passed within 1.5 months of the disaster.
- **Stage II (4 to 11 months):** The provisional reconstruction headquarters was established. Prefectures and municipalities prepared basic recovery plans in close consultation with disaster-affected people. Two other supplementary budgets were adopted to fund the recovery.
- **Stage III (11 months to 10 years):** A reconstruction agency and special zone for reconstruction were formed, and a fourth supplementary budget was passed. The

reconstruction was envisaged to last 10 years, and to be implemented through flexible grants and policies in support of the municipalities.

Although challenges remain—particularly with respect to the role of the new reconstruction agency—the GEJE reconstruction planning process can be seen as a model for other megadisasters. Prior to the GEJE, Japan already had a sound institutional and policy framework for disaster response and mitigation, based on lessons learned from past disasters. Building on this foundation, Japan acted rapidly to establish a reconstruction planning framework based on mutual trust, respect, and collaboration among stakeholders. At the same time, the fact that the GEJE required a new agency and reconstruction act shows that megadisasters, by their very nature, tend to overwhelm existing institutional arrangements. The chronology of policy and planning followed during the GEJE is summarized in figure 1 and explained in further detail below.

### **BASIC PRINCIPLES, GUIDELINES, AND LEGAL FRAMEWORK FOR RECONSTRUCTION (MARCH TO JUNE 2011)**

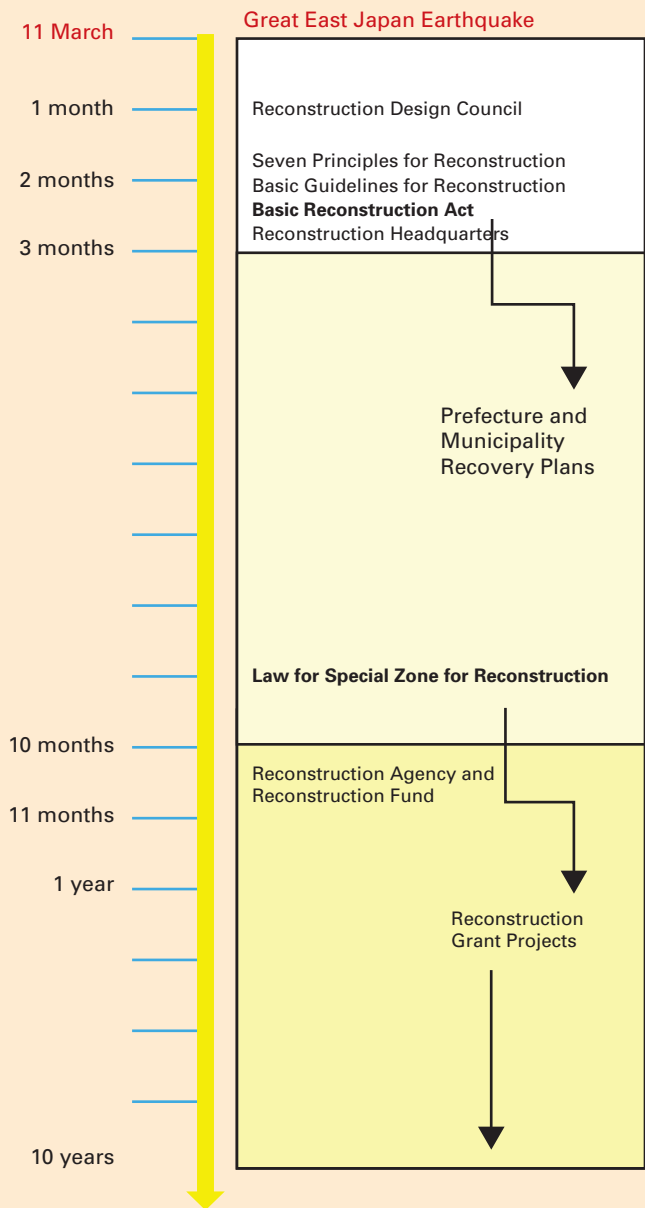
The government set up a headquarters for emergency disaster control less than an hour after the disaster. At the same time, building on lessons learned from the Great Hanshin-Awaji Earthquake in 1995, the government sought to broaden the recovery strategy by setting up an RDC. This advisory panel was composed of a team of highly respected intellectuals, academics, religious figures, and elected officials. Within two months of the disaster, the council issued “Seven Principles for the Reconstruction Framework,” a consultative vision for the reconstruction. By the end of June 2011, a final report was given to the prime minister, which in turn became the basis for the government’s *Basic Guidelines and Basic Act on Reconstruction* (GOJ 2011a and 2011b), issued 3.5 months after the disaster. Thus, the initial process of national consultation set the stage for the entire recovery and reconstruction effort.

The *Basic Guidelines* set in place several innovative policies (box 1). It placed municipalities and residents at the center of the reconstruction; it promoted the concept of multiple defenses and people-oriented measures in disaster reduction (departing from past reliance on defensive structures); and it encouraged land-use planning as a way to balance safety considerations with the need to preserve links between communities and infrastructure.

The recovery and reconstruction period was estimated to last 10 years and cost ¥23 trillion (\$290 billion), with the bulk of the effort focused on the first 5 years. The financial resources were to be secured through reconstruction bonds, reduction of public expenditures, increase in nontax revenues, and temporary taxation. As of early February 2012, the government had passed four supplementary budgets, worth a total of ¥21.9 trillion (\$274 billion). The budgets were issued over a period of several months, and served to support different stages of recovery and reconstruction.

The *Basic Guidelines* also provided for the establishment of a special zone for reconstruction containing financial and regulatory incentives, and a central one-stop reconstruction agency to respond to, and help coordinate, the needs of local governments (see section on Reconstruction).

FIGURE 1: **Chronology of key policy and planning measures after the GEJE**



## BOX 1: **Basic guidelines for reconstruction after the GEJE**

### **Key policies**

- Recognize the challenges of an aging and declining population by promoting adequate public transportation and support services.
- Promote a strategy of multiple defenses through both soft and hard (structural) measures, putting people at the center of disaster reduction.
- Promote a “new public commons” through social inclusion of a wide range of stakeholders in the reconstruction.
- Make municipalities in disaster areas the main actors accountable for reconstruction, aided by financial and technical support from the central government and prefectures.
- Promote rapid reorganization of land use, to stimulate investment and prevent speculation.
- Prioritize providing stable residences for the affected, through favorable housing loans and low-rent public housing.
- Assist municipalities with reconstruction planning through external experts.
- Promote employment of affected people through recovery and reconstruction investments under the “Japan as One” project.
- Prioritize rehabilitation of key transport and logistics infrastructure and revival of local economic activities.
- Open reconstruction to the world through active international cooperation and lesson sharing.
- Create a special zone for reconstruction to support local projects through flexible procedures and financing.

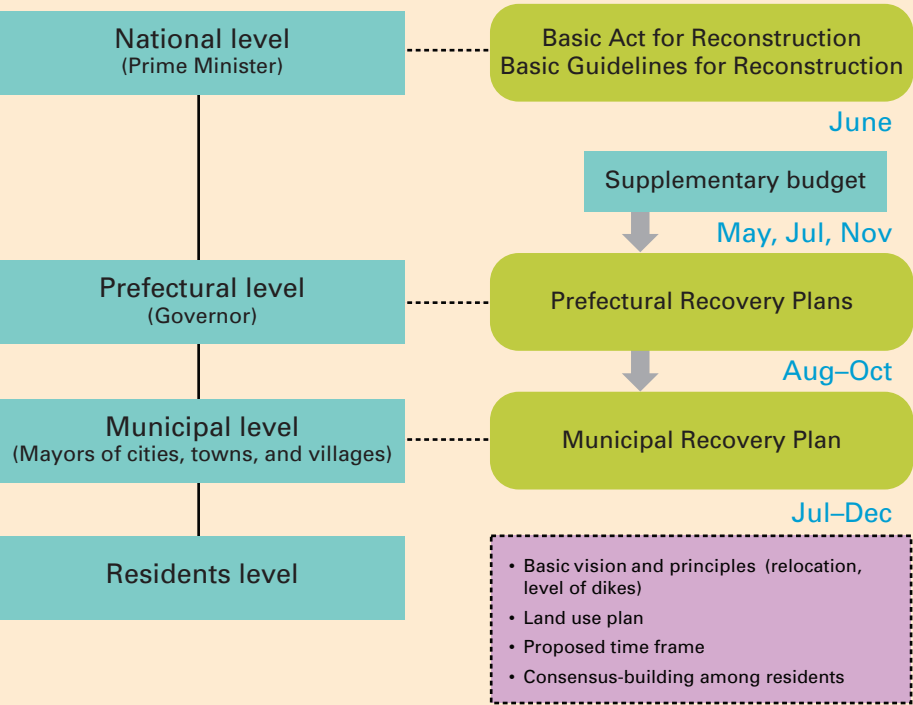
*Source:* GOJ 2011a.

## **RECOVERY PLANNING PROCESS (JULY 2011 TO MARCH 2012)**

### **PREFECTURE-LEVEL PLANNING**

Based on the national guidelines, the most affected prefectures and municipalities—Iwate, Miyagi, and Fukushima, with more than 120 affected municipalities among them—developed their own recovery plans. These plans were not intended to be comprehensive, but rather to reach consensus among residents on the vision and key principles to be followed,

FIGURE 2: **Recovery plans after GEJE**



the proposed land-use planning (including potential relocation of communities), and the implementation program (figure 2). It was understood that the plans would evolve over time through further consultations with ministries and elected officials, and eventually result in more detailed (and costed) reconstruction plans.

The three most affected prefectures benefited substantially from a partnership arrangement supported by the Union of Kansai Governments (a grouping of prefectural governments in Western Japan), which provided expert personnel to assist with the emergency and relief efforts. This twinning experience, which also proved beneficial after the 2008 Sichuan earthquake, is outlined further in KN 3-4.

To formulate the prefecture recovery plans, task force meetings were held with experts and citizens to collect public comments. In general, prefectural-level plans allowed local stakeholders to make decisions on infrastructure and other issues (such as debris disposal) that required intermunicipal coordination.

Fukushima, for example, faced a special problem due to the nuclear plant accident, which restricted access to contaminated areas and led to the evacuation of large numbers of residents. The Miyagi Prefecture recovery plan, in turn, developed a detailed tsunami

protection plan, including structures resistant to a 100-year tsunami, elevated structures, population relocation to higher altitudes, an accessible evacuation plan, and the promotion of a culture of disaster prevention.

### MUNICIPAL-LEVEL PLANNING

Planning processes at the municipal level tackled such issues as risk assessment, financing, land tenure and land use, transportation infrastructure, and the role of the government in building consensus and providing relevant information to communities. Recovery plans had a positive tone, reflecting the municipalities’ confidence in the nation’s ability to assist affected people in improving their lives.

Similar to the prefectural recovery planning process, municipalities established recovery planning committees involving experts, residents, and community representatives. Generally, they used surveys and workshops to incorporate residents’ opinions into the plans. For instance, in Minami-sanriku (in Miyagi), a resident’s committee played a key role in proposing “symbolic projects” that were then integrated into the municipal plan (figure 3).

FIGURE 3: **Community involvement in recovery planning in Minami-Sanriku Town (Miyagi Prefecture)**



Source: IRP.

Similarly, Ofunato Municipality (in Iwate), held residents' workshops and students' reconstruction meetings involving more than 3,000 residents. In Sendai (in Miyagi), the largest city in the Tohoku region, the mayor herself visited residents' workshops and talked directly with victims. About 80 workshops were held to share information between residents and the city government, and residents submitted more than 2,000 comments on the draft recovery plan.

The central government supported municipal efforts by deploying two professional private sector consultants per municipality to provide technical services linked to damage assessment and engineering analysis. Experts such as university faculty members, architects, engineers, lawyers, and members of nongovernmental organizations (NGOs) also participated actively and voluntarily in the municipal planning process, according to their field of expertise. Thus, the process of participatory planning was widely supported by governmental and nongovernmental actors across all administrative levels in Japan.

Two issues were particularly challenging in recovery planning: land-use planning and demographic trends.

### LAND-USE PLANNING

Municipalities used land-use planning as a tool to reach consensus on the strategy for reconstruction. This was based on a tsunami simulation conducted by the prefectural governments.

The simulation assumed two different levels of a tsunami (figure 4): a maximum-level tsunami such as the GEJE (a 1,000-year event) and a frequently occurring tsunami (a 100-year event). The height of the coastal seawall is usually planned to protect from a frequently occurring tsunami. If a maximum-level tsunami hit the area, water may overtop the seawall and inundate the town. However, because of land-use planning—such as relocation of residential areas, land elevation, and multifaceted protection using forests and/or roads—the water level is projected to be less than 2 meters high in residential areas (making it unlikely for houses to be washed away). Low-lying areas would be reserved for parks, commerce, and industry (figure 5). In case of a maximum-level tsunami, people would have to evacuate, and early warning systems and evacuation routes would become crucial.

In the ria coastal areas of Iwate and the northern part of Miyagi, there was not enough land space available for relocation since steep mountains line the coast. In Minami-sanriku Municipality, for example, many fishing villages that were located adjacent to the coast were severely affected by the tsunami and had to be relocated. However, residents wanted to live close to their original location and to the fishing port to maintain their livelihoods. A policy of separate relocation was therefore proposed, whereby each village would move to a small hillside space close to its original location (see box 2). Residents plan to establish community development associations to facilitate relocation planning.

### POPULATION MOVEMENTS

According to government statistics, a large number of people moved out of the affected municipalities following the disaster. The gap between out-migrants and in-migrants relative to the total population in 2011 was particularly high for coastal municipalities—9.4

BOX 2: Land use and population relocation strategies

There are generally three land-use strategies to address tsunami events (see upper figure): (i) avoiding risk, (ii) separating risk, and (iii) controlling risk. In the risk avoidance strategy, residential uses are prohibited or restricted in high-risk areas, although nonresidential purposes (for example, recreational) may be allowed. This strategy is being considered in several municipalities in Tohoku, and has been adopted within 20 kilometers (km) of the nuclear power facility in Fukushima. It requires a relocation plan, and identification and planning for the relocated infrastructure and population at the new site.

In a *risk separation strategy*, some areas are restricted, some are elevated, and others used to divert the tsunami to controlled directions. The *controlling risk strategy* uses multiple defenses (such as elevated areas/infrastructure, sea walls, and levees). This type of strategy was adopted in the Otsuchi Municipality in Iwate and is proposed for parts of Sendai. It requires knowing the optimal height and location of multiple defenses.

Population relocation can also follow different strategies (lower figure). In a *separate relocation plan*, each community is relocated separately to a higher location. In a *collective relocation*, separate (original) communities are relocated to a common (safer) area. A third *combination* strategy uses variants of the above.

In the wide coastal plains, such as near Sendai, the city government adopted a *controlled risk strategy*, whereby house rebuilding would be restricted in areas where water levels could rise above 2 meters. The government also intends to raise the height of the roads to act as breakwaters, as well as use vegetative defenses

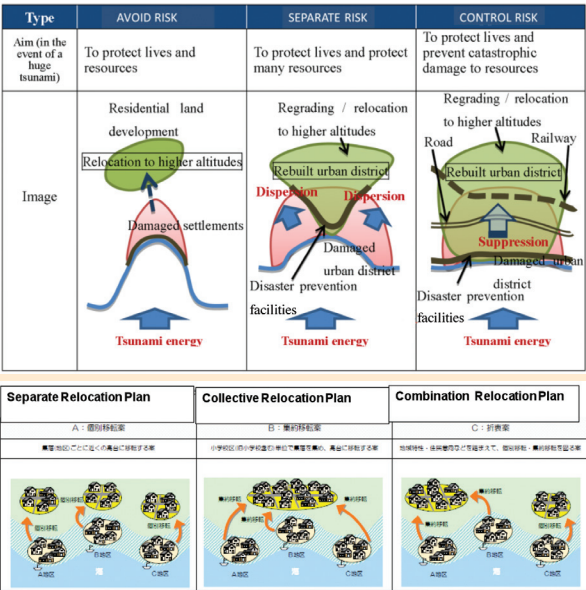
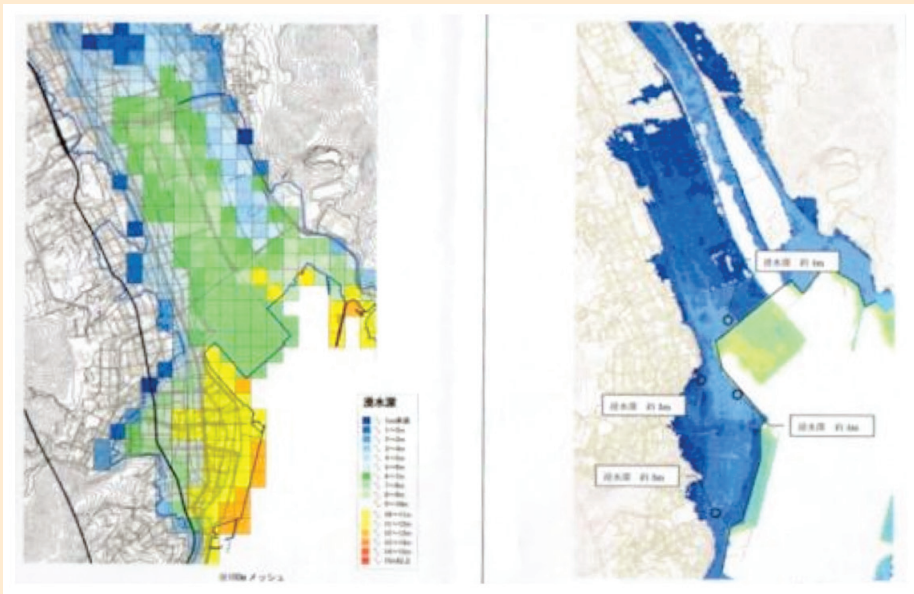


FIGURE 4: Tsunami simulations



Source: Ofunato City.

FIGURE 5: Recovery concept of Minami-Sanriku Town

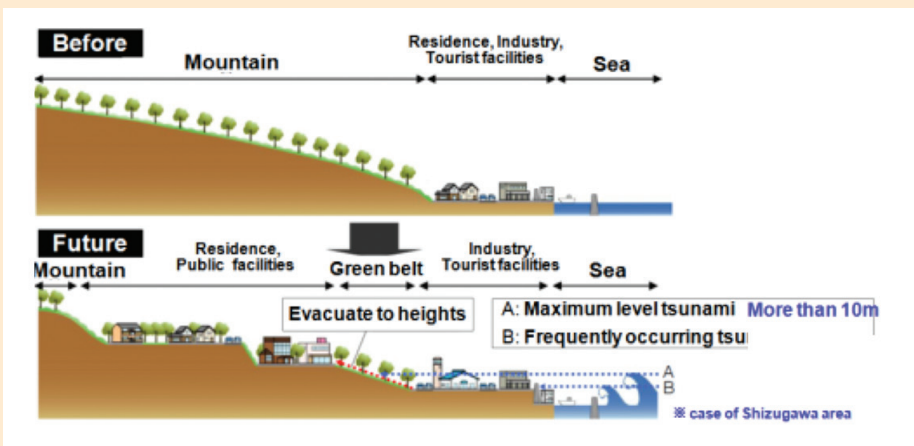


FIGURE 6: **Population decrease in disaster areas, and survey of population and businesses in Minami-sanriku (December 2011)**

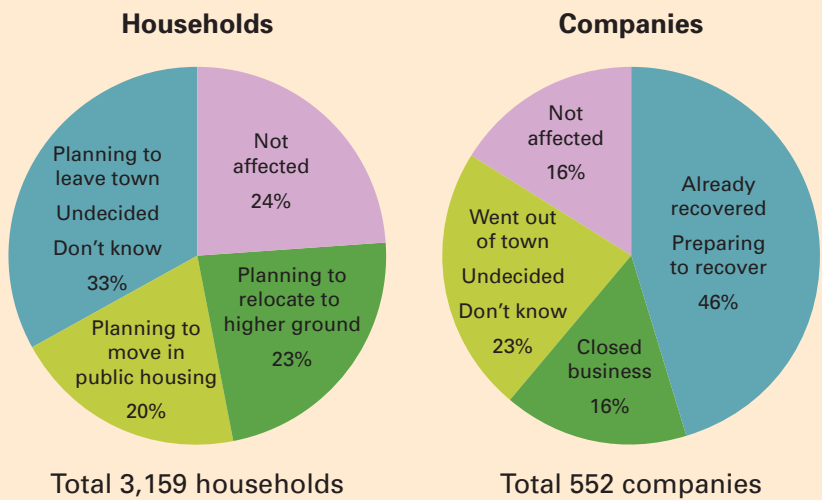
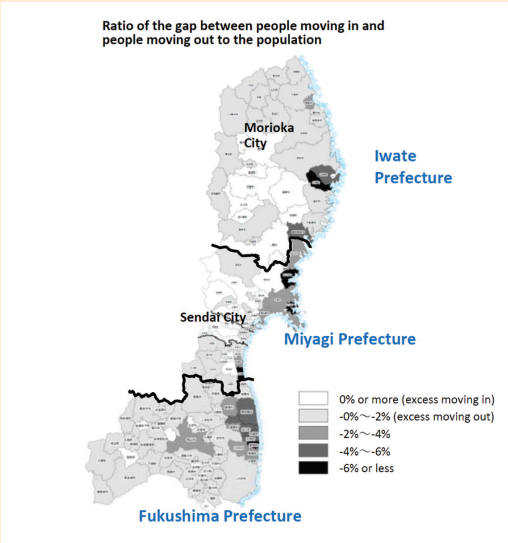


FIGURE 7: **Gap between people moving in and people moving out as a share of population**



Source: Statistics Bureau, Ministry of Internal Affairs and Communications, and Minami-sanriku Town

percent in Minami-sanriku, 8.9 percent in Yamamoto, and 8.5 percent in Ostuchi. That gap was also large among young people (less than 15 years old) —up to 14.6 percent in Minami-sanriku and 13.2 percent in Onagawa, further raising concerns about the aging population. In Minami-sanriku, some residents gave up rebuilding altogether due to lack of funds, and planned to either leave town or move to public housing (figure 7).

By contrast, Sendai City experienced a net population inflow (6,633 in 2011). Urbanization in Sendai has therefore accelerated and the population gaps between urban and rural areas are widening. Thus, preexisting trends of aging and declining populations in rural areas and small towns have been exacerbated since the disaster, and must be taken into account in the reconstruction planning.

**RECONSTRUCTION (2012 –2020)**

On February 10, 2012, 11 months after the tsunami, the Japanese cabinet established a national reconstruction agency for a period of 10 years. The agency—headed by the prime minister—aims to promote and coordinate reconstruction policies and measures, and support affected local governments in the Tohoku region (figure 8). It will serve as a “one-stop shop” for local authorities. Although it is based in Tokyo, it includes three regional branches in the most-affected prefectures (Iwate, Miyagi, and Fukushima).

As envisaged under the Basic Guidelines, the government also created a Special Zone for Reconstruction, benefiting 222 municipalities in the disaster-afflicted zones. These municipi-

FIGURE 8: **Coordination framework for the reconstruction agency in Japan**

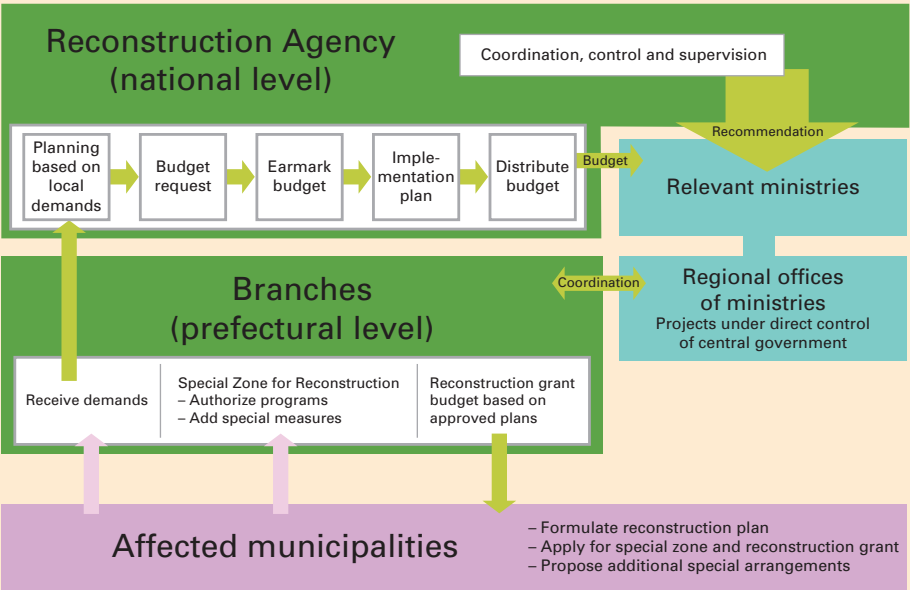
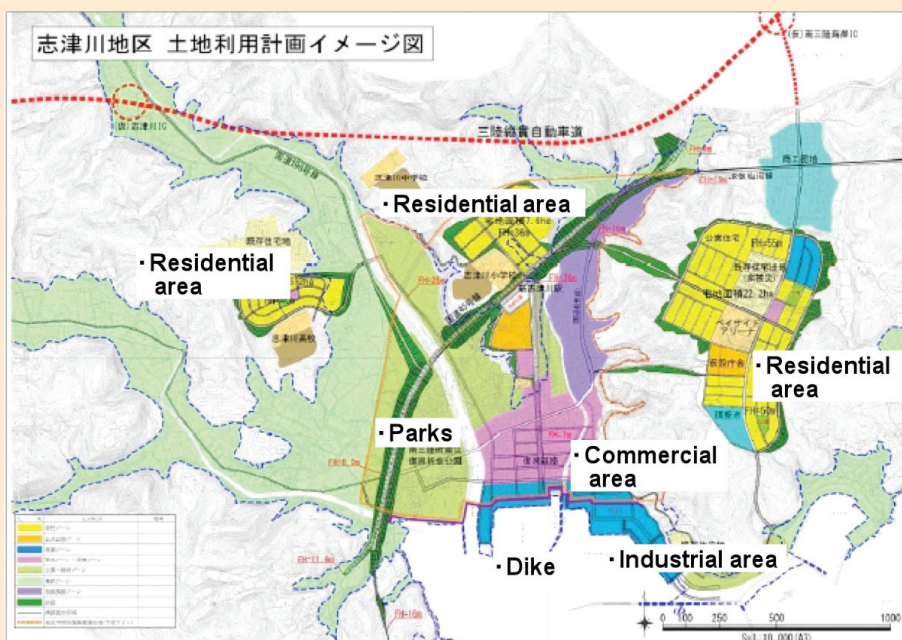


FIGURE 9: Land use planning and projects in Minami-Sanriku



Source: Minami-Sanriku Town.

palities were allowed to submit specific reconstruction plans and apply to the government for funding, as well as a package of special arrangements—such as concessions for land-use planning, creation of new systems related to land use, tax incentives, and special deregulation and facilitated procedures for housing, industry, and services. This strategy supports flexible implementation over time. Reconstruction grants and plans for special measures are submitted to the prime minister, whereas special arrangements for land use are subject to public hearings and inspections.

The process of reaching an agreement on detailed project plans has just begun in most municipalities. In Minami-sanriku, for example, total reconstruction costs are estimated at a few hundred billion yen, a vast sum compared to the annual budget of the town (¥8 billion a year). Two projects are being proposed: a land readjustment project for recovery and a group relocation project (figure 9). An application for a special zone for reconstruction will also be submitted to the central government to relax regulations and attract businesses. Implementation capacity remains a worry, however, as 40 out of the 170 town officials (administrative posts) died or went missing during the disaster.

The creation of the reconstruction agency and the special zone for reconstruction are designed to respond to reconstruction timelines and facilitate a high number of reconstruction projects at increased speed. They represent a major step forward compared to

the Great Hanshin-Awaji Earthquake in 1995, where Reconstruction Agency and Special Zone were not put in place, but it remains to be seen how these new systems will be able to coordinate the various recovery plans, turn them into effective projects, and—significantly—overcome a highly sectoral government structure. Already, there are indications that prefectures and municipalities are finding ways to bypass the structures and access funds directly. To succeed, the system must be able to adapt and adjust.

Similarly, it remains to be seen whether the innovative policy of the special zones for reconstruction will be able to help slow or reverse preexisting economic and demographic trends, such as struggling industries and declining and aging rural populations in the affected areas.

## LESSONS

- To be effective, recovery planning and policies must be based upon local conditions and culture. As such, the highly participatory recovery-planning process followed in Tohoku has proven to be a solid model for megadisaster recovery.
- In disasters of this magnitude, a well-respected and independent advisory council can play a key role in setting the blueprint for the recovery.
- Even though municipalities were responsible for disaster response, they became effectively dysfunctional in the aftermath of the disaster due to the destruction of their offices and the large numbers of dead or missing (a situation that also happened in Haiti). Such destruction is one of the main factors slowing recovery. Furthermore, the implementation of a large number of projects and the outpouring of volunteer support posed a significant burden for smaller municipalities, where financial and human resources are constrained, even at the best of times. This has been one of the principal justifications for the establishment of the reconstruction agency.
- The large scale and diversity of the recovery make information and communication management more challenging and more critical to a successful recovery. Systematic information on victims, for example, was a challenge for many smaller municipalities who lost both records and staff. As a result, prefectures have begun to centralize such information for use by local governments.
- The affected municipalities also benefited from the support of expert consultants contracted by the central government, who had the expertise to quickly carry out damage and needs assessments and provide logistical support. Damage assessments were completed quickly, as the central government relied on private engineering companies who had readily available information on infrastructure replacement costs.
- Similar to the provincial pairing system employed in China after the Great Sichuan Earthquake, and to staff secondments following the Nargis cyclone in Myanmar, twinning arrangements with local governments outside the disaster-affected areas proved very effective for prefectures and municipalities facing a shortage of expertise and manpower.

- While recovery projects may secure the safety of residents' lives, they will be costly. The population of most disaster-affected areas is sharply decreasing, and it will be a challenge to balance the needs of aging survivors with long-term financial efficiency.
- The design of new residential areas could have been facilitated had a predisaster recovery plan been in place to preselect suitable areas. Taking into consideration the likelihood of large-scale disasters in Japan, enactment of new legislation should be considered to not only facilitate postdisaster response, but also predisaster recovery planning.

## RECOMMENDATIONS FOR DEVELOPING COUNTRIES

- Megadisasters in developing countries often involve a multiplicity of humanitarian agencies, donors, and NGOs. As such, it is even more critical to develop, early on, a shared vision for recovery and reconstruction that recognizes local cultural and life values and is perceived as legitimate by key stakeholders. Failure to do so can result in a proliferation of external-driven plans and strategies, as seen recently in Haiti.
- Predisaster planning can help promote a more resilient recovery. This was the case following the 1995 Bangladesh floods, where the response benefited considerably from the level of disaster preparedness introduced after the 1985 floods. In Gujarat, by contrast, a lack of proactive planning despite past disasters hampered recovery efforts following the 2001 earthquake.
- Every megadisaster is different, and the necessity for a dedicated reconstruction agency depends on postdisaster governance and coordination capacity. The Agency for the Rehabilitation and Reconstruction of Aceh and Nias (BRR), established 3.5 months after the tsunami, was generally effective largely due to a strong mandate, national commitment, and external financial support. Concerns about slow recovery, however, led the BRR to take over implementation responsibilities, posing a potential conflict of interest with its oversight function. In later years, the BRR progressively devolved implementation to local governments. Another example of an agency with both coordination and operational functions (albeit not in a developing country) was the Victorian Bushfire Recovery and Reconstruction Authority established after the 2009 bushfires in Australia. Using a successful model based on people, economy, environment, and reconstruction, the authority completed its mandate in 30 months. In other disaster contexts, however, a hybrid model may be more appropriate, where a centralized agency coordinates reconstruction, but implementation capacity continues to be delegated to government agencies.
- In general, recovery planning is most effective when it uses participatory methods and directly integrates the views of experts with those of affected people. Response to numerous megadisasters (for example, the GEJE, 2006 Yogyakarta earthquake, and 2010 Pakistan floods) attest to the merits of this approach. Community members' participation in planning workshops should be arranged. Also, community leaders should be assigned as members of planning committees. The 2008 Wenchuan earthquake provides an alternative model, where centralized, top-down

planning led to rapid reconstruction. At the same time, there was a weak focus on local capacity building and community preparedness, issues that could hamper future disaster response.

- Governments in developing countries have a very narrow window of opportunity to decide whether to rebuild *in situ* or relocate populations to safer areas. The government of Thailand, for example, considered seriously whether to relocate parts of the capital to higher grounds following the 2011 floods, but this opportunity was quickly lost due to social and political pressures. While moving entire cities has proven historically difficult to achieve, megadisasters can still provide opportunities to improve spatial planning—as demonstrated after the 2011 tsunami in Samoa, when affected coastal communities agreed to relocate further inland.
- Relocation may be needed to preserve public safety, but it often removes people from their sources of livelihood. In a disaster response, both *safety* and *livelihood* have to be well balanced, and nowhere is this delicate balance more difficult than in developing countries. In such countries, affected people are often poor and marginalized, having settled in unsafe areas often because they offer the only land available. When disaster strikes, land speculation and security problems are often rampant; residents quickly rebuild in their original neighborhoods out of fear someone else may move in. As house insurance markets tend to be nonexistent, governments are left with very few instruments to promote relocation: they can resettle people involuntarily (which is seldom successful), or they can promote voluntary relocation by investing in alternative “growth centers” (for example, by building social infrastructure in safer areas). Often, relocating people as close as possible to their original homes and livelihood sources proves to be the most sustainable solution.
- Open and transparent information sharing is a key prerequisite to successful planning. This can be a major constraint in developing countries, where information on key issues such as land tenure and historical exposure tends to be scarce or inaccessible. Since Haiti, development partners working in megadisasters have promoted the use of crowdsourcing and other open data platforms, often with great success. The challenge now is to mainstream such processes effectively into local planning, so that they can provide vulnerable people with a greater voice in mitigating future disasters. The processes should be formulated considering local conditions, since relationships between governments and civil societies vary from country to country.

## KEY REFERENCES

- Beck, T. 2005. “Lessons learned from Disaster Recovery: The Case of Bangladesh.” Disaster Risk Management Working Paper Series 11, World Bank, Washington, DC.
- Ge, Yue, Yogtao Gu, and Wugong Deng 2010. “Evaluating China’s National Post-Disaster Plans: The 2008 Wenchuan Earthquake’s Recovery and Reconstruction Planning.” *Int. J. Disaster Risk Sci.* 1 (2): 17–27.

GFDRR (Global Facility for Disaster Reduction and Recovery). 2010. “Haiti Earthquake

Reconstruction—Knowledge Notes from the DRM Global Expert Team for the Government of Haiti.”

GOJ (Government of Japan). 2011a. “Basic Guidelines for Reconstruction, June 2011.” Reconstruction Headquarters in Response to the GEJE. <http://www.reconstruction.go.jp/english/topics/documents.html> .

———. 2011b. *Basic Act on Reconstruction in Response to the Great East Japan Earthquake*. June 24 . <http://www.reconstruction.go.jp/english/topics/Basic%20Act%20on%20Reconstruction.pdf>

IRP (International Recovery Platform) Web site. <http://www.recoveryplatform.org/>.

Ramalingam, B., and S. Pavanelio. 2008 “Cyclone Nargis: Lessons for Operational Agencies.” Active Learning Network for Accountability and Performance in Humanitarian Action. <http://www.alnap.org/>

Reconstruction Agency Web site. <http://www.reconstruction.go.jp/english/>.

RDC (Reconstruction Design Council). 2011a. “Seven Principles for the Reconstruction Framework.” Resolution of the Reconstruction Design Council in Response to the Great East Japan Earthquake, May 10, 2011.

———. 2011b. *Towards Reconstruction ‘Hope Beyond the Disaster.’* Report to the Prime Minister of the Reconstruction Design Council in response to the Great East Japan Earthquake, June 25, 2011.

Siembieda, W., H. Chen, and N. Maki. 2011. *Multi-Location Disaster: Shaping Recovery in the Great East Japan Earthquake and Tsunami of March*.

Silva, J. 2010. *Lessons from Aceh—Key Considerations in Post Disaster Reconstruction*. Practical Action Publishing.

Shiozaki, Y., Y. Tanaka, and A. Hokugo. 2012. “Reconstruction Policy and Planning.” Presentation.

Tokyo Metropolitan Government Disaster Prevention Web site. <http://www.bousai.metro.tokyo.jp/english/index.html>.

World Bank. 2012. “Current State of Reconstruction and the Way Forward.” Presentation at the Workshop on Reconstruction, January 18. Kobe, Japan.