



Recovery from The Great East  
Japan Earthquake

Reconstruction Stage  
Second Half

(FY2016-2017)

Summary Report





# Introduction

It has been eight years since the Great East Japan Earthquake struck, causing catastrophic damage that claimed a heavy toll on human life. Over these years, we in Miyagi Prefecture have worked at full strength to recover from the massive disaster, receiving support from many individuals and organizations in and outside of Japan.

In Miyagi, recovery plans have been steadily implemented to achieve a number of milestone results. Those include new communities established and commercial streets reopened in newly-developed permanent locations, completion of all projects to construct public housing for disaster survivors and relocate communities to safer locations, and improved transportation infrastructure, such as extension of the Sanriku Expressway and completion of the Kesennuma Oshima Bridge. Also, a range of public-private collaboration plans aimed at "creative reconstruction" have borne fruit, represented by the privatization of Sendai Airport, the first such project in Japan to be executed for a state-owned airport, and the opening of a new faculty of medicine at a regional university, the first such event in Japan in 37 years.

On the other side of the coin, while progressing with recovery projects, we have begun to see new issues emerging from various areas related to mental health, typically associated with the discomfort of living in temporary housing for a prolonged period of time, formation of new communities for relocated residents, economic revitalization in coastal areas, and other challenges to be addressed from

a long-term viewpoint.

Going forward, we will continue making the utmost efforts to ensure that all those affected can live a secure life, in cooperation with affected municipalities and in consideration of the many different needs and issues of individual citizens. We would like to ask for your continued understanding and cooperation.

Upon completing the Reconstruction Stage of the Miyagi Prefecture Earthquake Disaster Recovery Plan (announced in October 2011), we will publish this report that has compiled records on activities conducted by the prefecture during the second half the stage (fiscal 2016 and 2017).

This publication aims to maintain the collective memory and pass on the lessons learned from the disaster, which are otherwise likely to fade away in time. We believe that it can help guide effective responses in the event of a large-scale disaster, aid recovery and rebuilding efforts in disaster-affected areas, and be a blueprint for community planning for a safe and secure environment in any location. We hope this report will serve those important purposes in many regions.

Yoshihiro Murai  
Governor of Miyagi Prefecture  
March 2019

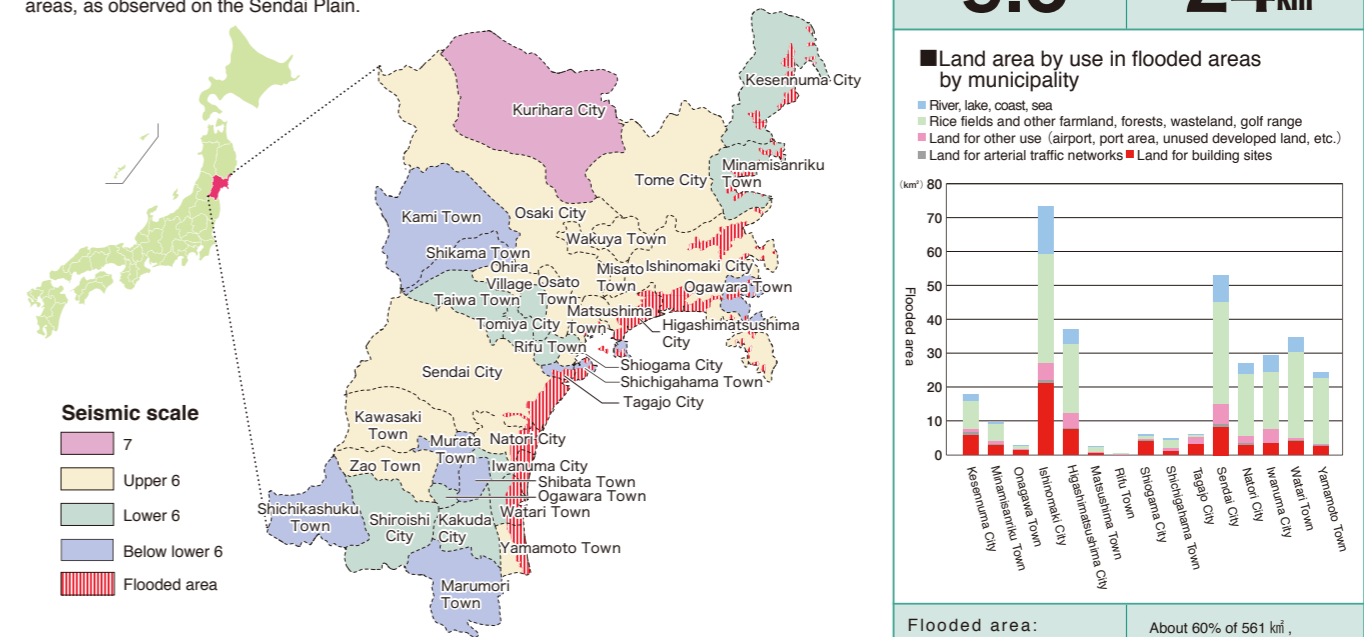
宮城県知事  
村井嘉浩



# Overview of the Great East Japan Earthquake and Disaster

A magnitude 9.0 earthquake occurred at 14:46 JST on March 11, 2011. Its epicenter was located off the Sanriku coast, 130 km east-southeast of the Oshika Peninsula, and at a depth of 24 km below sea level. The earthquake caused strong tremors across Miyagi Prefecture, with registration on the 7-level (10-grade) Japanese seismic intensity scale ranging from an upper 5 to upper 6, and the maximum intensity reaching 7, recorded in Kurihara City.

The earthquake triggered a massive tsunami that hit a wide area along the Pacific coast spanning multiple prefectures including Miyagi. The huge waves not only inundated communities in coastal areas, but also ran up the rivers several kilometers inland to flood extensive lowland areas, as observed on the Sendai Plain.



Time/Date  
March 11, 2011, 14:46 JST

Epicenter  
38.1°N 142.5°E (off Sanriku coast)  
130 km east-southeast of the Oshika Peninsula

Maximum intensity  
**7 (Kurihara City)**

Magnitude  
**9.0**

Depth  
**24km**

■ Land area by use in flooded areas by municipality

Flooded area:  
**327 km<sup>2</sup>**

About 60% of 561 km<sup>2</sup> total flooded area associated with the Great East Japan Earthquake

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Major Initiatives		<b>Captions for cover photos</b>	
01 Environment, lifestyle, sanitation, waste .....	15	1 Minamisanriku San San Shopping Village relocated to permanent site	
02 Healthcare, medical care, welfare .....	16	2 Reborn-Art Festival 2017	
03 Economy, commerce, tourism, employment .....	17	3 JR Joban Line section between Soma and Hamayoshida reopens	
04 Agriculture, forestry, fishery .....	18	4 Sendai Arahama Elementary School as disaster ruin opened to the public	
05 Public works facilities .....	19	5 Exclusive bus lanes being built for the BRT system to improve transportation convenience	
06 Education .....	20	6 Demonstration project for resuming agricultural operations in Okumatsushima area: first peach picking.	
07 Disaster prevention, safety, comfort .....	21	7 Kesennuma City Hospital reopens	
		8 Forest thinning	
		9 Tsubamenomori district and Sakamoto Station Neighborhood district celebrate start of new community	
		10 Shiogama City Fish Market fully restored	
		11 Ocean-fresh saury displayed in restored Onagawa Fish Market	
		12 Tohoku Medical and Pharmaceutical University Education and Research building	
		13 Kesennuma Oshima Bridge completed	
		14 11th Japan Wagyu Olympics held in Miyagi	
		15 Sendai Airport privatized	
		16 Tohoku Miyagi Revive Marathon 2017	

## Disaster photographed by location



Photo: Shishiori district engulfed by fire induced by tsunami (Kesennuma City)



Photo: Tsunami waves swamping the tourist boat deck (Shiogama City)



Photo: Arahama Elementary School isolated in a flood surge (Sendai City)



Photo: Kennan sewage treatment center inundated by the tsunami (Iwanuma City)



Photo: Farmland around Sakamoto Station swamped by the tsunami (Yamamoto Town)



Photo: Wrecked fire department building surrounded by debris (Minamisanriku Town)

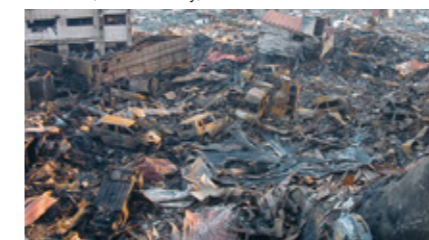


Photo: Charred remains of vehicles and other debris covering the ground near Kadowaki Elementary School



Photo: Tsunami sweeping away the industrial park (Tagajo City)



Photo: Train cars on the Senseki Line derailed and carried away by the tsunami (Higashimatsushima City)



# Outline of Miyagi Prefecture Earthquake Disaster Recovery Plan (created October 2011)

## Basic Principles

- 1 Developing a disaster-resistant and secure community
- 2 Each citizen is a key player in recovery efforts; using all available resources
- 3 Not only restoration, but also reconstruction
- 4 Progressive community development that will solve issues in modern society
- 5 Building a model outlining steps from catastrophic damage to recovery

## Basic Concept

### 1 Period of plan

The period to achieve full recovery of the disaster-affected region is set as 10 years, with 2020 being the target year. The recovery period is broken down into three stages for Restoration, Reconstruction and Development. Goals are set for each stage as follows: restore living infrastructure and public service systems primarily to support people directly affected by the disaster (Restoration); increase support to those suffering from difficulties in livelihood and business recovery as a result of the disaster, and accelerate social infrastructure improvement to rebuild the regional economy (Reconstruction); and promote strategic initiatives aimed at future development of Miyagi Prefecture (Development).

### 2 Key players in recovery efforts

Each prefectural citizen will play an important role in the planned recovery efforts. It is important for parties from various sectors to work together, fostering a sense of connectedness. The government will build systems to fully support efforts to be carried out by various parties, including the private sector.

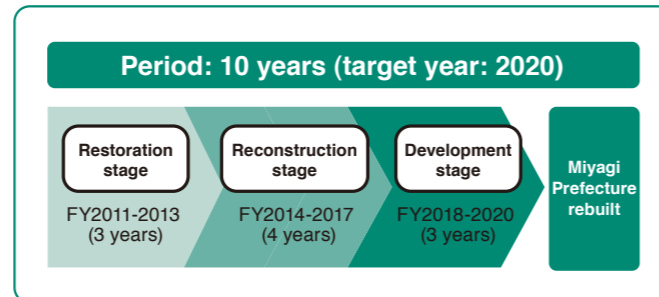
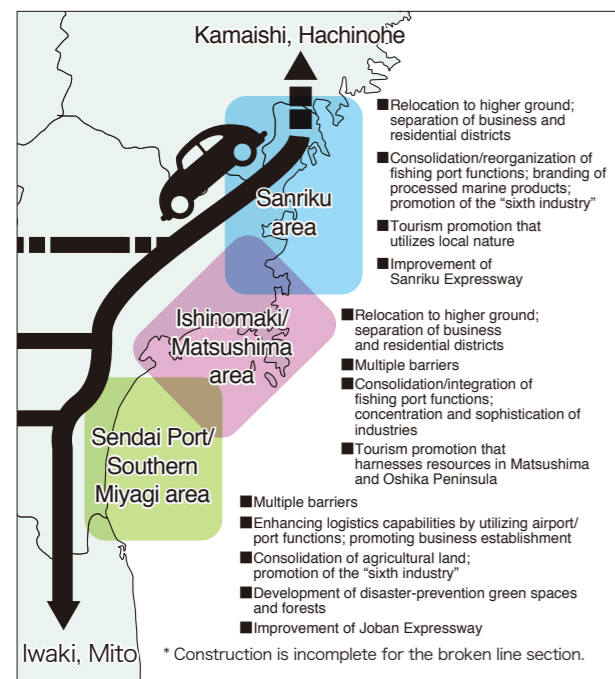
### 3 Target area

The plan will target the entire prefecture, giving particular priority to the severely damaged coastal areas.

### 4 Progress management

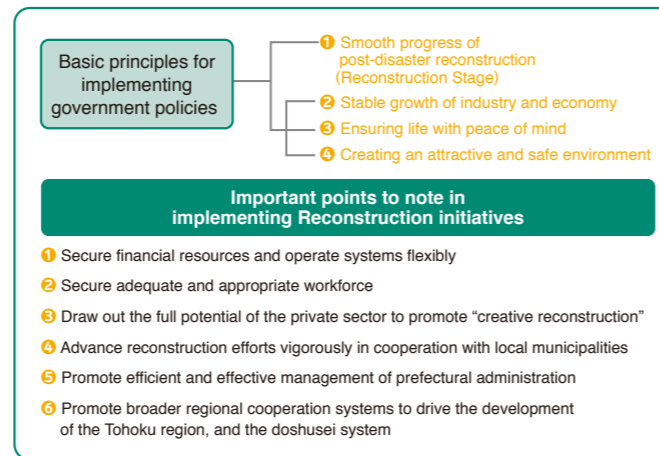
Progress of the plan will be controlled using the PDCA cycle method, evaluating the achievement status of each project and reflecting the relevant results in the ongoing efforts. Also, in order to effectively respond to changes in the social and other situation, the plan may be reviewed as necessary.

## Overall picture for recovery of coastal areas and the entire prefecture



## Initiatives for the Reconstruction Stage

In the four-year Reconstruction Stage, recovery efforts will focus on materializing plans aimed at full-scale reconstruction building on achievements from the Restoration Stage, as described in the Miyagi Prefecture Earthquake Disaster Recovery Plan (Miyagi Recovery Plan). To implement government policies for this purpose, four basic principles have been established, as summarized below, based on the three principles for implementing policies set under the Miyagi's Future Vision in addition to those directed at early restoration and reconstruction.



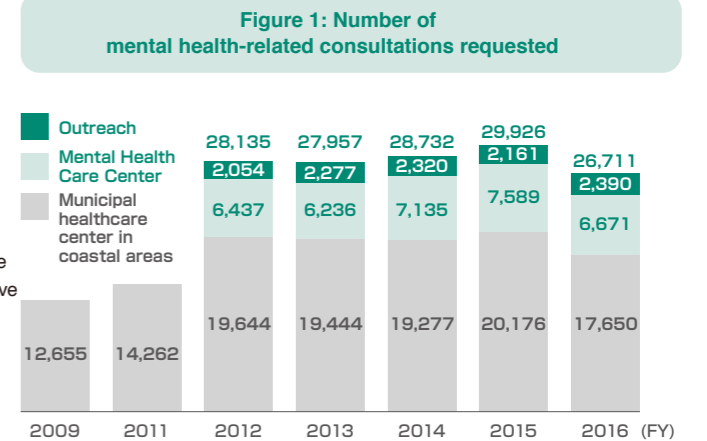
## Special Report

# Issues emerging with progress in the Reconstruction Stage

While infrastructure restoration and residential development plans have advanced steadily, new issues are emerging in relation to mental health care, community formation, business revitalization among others.

### Mental health care for disaster survivors

The number of requests for consultation received from disaster survivors for mental stress has been increasing, which are largely associated with changes in the living environment due to relocation to public housing for displaced survivors. The number of requests has remained at a high level in recent years (Figure 1). To address this issue, the prefectural government has established the Miyagi Disaster Mental Health Care Center and organizes outreach programs to provide necessary services. The government will develop systems to provide these services over the long term, anticipating that demand will increase from survivors who have settled their most urgent issues related to housing and business and begun to have time to talk about their disaster experiences and related problems as well as a rising number of people suffering from mental disorders, including alcohol-related and mood disorders.



### Attentive care for disaster-affected children

The mental health issue of children affected by the disaster is gradually surfacing, as evidenced by a continuously increasing number of reported cases of truancy in the wake of the disaster. Behind this are many students suffering from traumatic memories and having a hard time at school and children born after the disaster and brought up in an inadequate living environment. In order to tackle this problem, which is likely to become a long-standing challenge, the government will continue promoting necessary measures, such as dispatching psychological counselors and assigning an additional number of teachers to schools in accordance with the actual conditions at each, so that individual students in need of help will receive greater, and more appropriate attention (Figure 2).

Figure 2: Additional teachers assigned under recovery-related education support programs



### Community formation

All public housing plans for disaster survivors in Miyagi Prefecture will be completed by the end of fiscal 2018. In order to help those moving into the new housing complexes to live with peace of mind, it is vitally important to build or rebuild a cooperative residential community. For this purpose, neighborhood associations, resident organizations, NPOs and other groups play a key role, particularly by assisting disaster-affected residents with problems, and organizing group work activities to provide opportunities for them to feel a sense of fulfillment (Figure 3). It will take some time before appropriate systems are established to continue these activities in a sustainable manner. Progress in this area differs by district, with some lagging behind due to delayed completion of residential redevelopment projects, an essential foundation to community formation. The government will continue providing support to accelerate efforts in this area.

Figure 3: Activities to support community formation



### Industrial revitalization in coastal areas

Miyagi Prefecture recorded an all-time high of 4.1 trillion yen in total shipment value of manufactured products for fiscal 2016, due to the success of prefectural economic prosperity strategies centering on concentrated manufacturing industries, which were pursued from before the disaster, in addition to the national economy continuing to trend strongly after the disaster. However, the value for the portion of the coastal areas remained below the pre-disaster level. The Miyagi prefectural government is working to attract businesses to the coastal areas using national programs to support local business establishment, such as subsidies for creating employment opportunities in areas affected by the tsunami and nuclear accident, and the special economic zone system for reconstruction after the Great East Japan Earthquake. Development of the relevant industrial sites is delayed due to time-consuming work for removing temporary housing and land readjustment, and projects for more than 80 percent of the entire planned land area are expected to be completed and delivered from fiscal 2018 to 2020. These sites are largely located in flooded areas where local communities have been relocated for the purpose of disaster prevention, and companies should be aware of the risks of starting up businesses in the locations. To address such circumstances, the prefectural government will require extension of national programs for supporting local industrial revitalization.