

# **Proposal from Iwate Prefecture about Disaster Risk Reduction and Reconstruction**

**based on the lessons learned from  
the Great East Japan Earthquake & Tsunami**

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**Iwate Prefecture  
January 2015**

### Location of Iwate Prefecture



### Map of Iwate



# Foreword



On March 11, 2011, a great many precious lives and property were stolen from us by the Great East Japan Earthquake and the massive tsunami and aftershocks that followed.

In Iwate Prefecture, 4,672 people along the southern coast were killed, and there are still 1,130 people missing. The most extensive damage occurred mainly in the coastal areas.

On April 11, 2011, one month after this great disaster, turning toward reconstruction, we formulated the “Basic Policy for Reconstruction after the Great East Japan Earthquake and Tsunami.” This policy puts in place two principles: first, to ensure the survivors’ livelihood, education, and work, as well as to protect the pursuit of happiness for each individual; and second, to keep the love the victims had for their hometown.

Based on this policy, we established the “Iwate Prefecture Great East Japan Earthquake and Tsunami Reconstruction Plan” in August 2011. The entire plan runs from 2011 until 2018, for a total of 8 years. As a prefecture, we are determined in saying that this is the last tsunami that will steal lives. We aspire to protect lives, live together with the sea and land, and rebuild our hometowns of Iwate and Sanriku. We will use all of our power to promote reconstruction on the principles of “ensuring safety,” “rebuilding lives,” and “reclaiming livelihoods.”

In the aftermath of this earthquake, we have received support from many different people. From within Japan and also from abroad, people have sent a vast amount of supplies and donations. Many have also visited the disaster-affected areas to serve in rescue operations and help victims. I would like to once again express my gratitude for this global goodwill and support.

In March 2015, Sendai will hold the 2015 UN World Conference on Disaster Risk Reduction. This conference is very important for Iwate, as it puts us in the position to not only express our gratitude for the assistance we have received, but also to show the world the advanced case studies of Iwate’s reconstruction and disaster risk reduction efforts, and to ask for continued support from the international community.

In an effort to contribute to the improvement of disaster risk reduction around the world, we have compiled in this booklet lessons learned in light of the earthquake and tsunami, as well as proposals for disaster risk reduction and cases of reconstruction in Iwate Prefecture, which has been so badly affected by the disaster.

In Iwate, we hope to contribute to the improvement of disaster risk reduction at home and abroad, and we turn toward realizing our dreams of rebuilding to catch up to the future, while placing importance on the underlying strength of our hometowns and the power of connections. We ask for your ongoing support and cooperation as we continue to work together, united.

Takuya Tasso, Governor of Iwate Prefecture

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## Chapter 1 Outline of Iwate Prefecture

### ■ Area and Geography

Iwate Prefecture is located in the northeast of Honshu, running 189 kilometers north to south in a long oval-like shape. The land area is 15,279 km<sup>2</sup> and is the second largest prefecture after Hokkaido, comprising 4% of Japan's 377,955 km<sup>2</sup>.

Most of inland Iwate Prefecture is made up of mountainous hills. It shares a border with Akita Prefecture to the west, in which the Ou Mountains lie. Running parallel to this in the east are the Kitakamikochi Mountains. Between these two mountain ranges, the Kitakami River flows to the south, through plains that spread to the river valley.

The coastal areas to the north of Miyako are a typical raised coast with sea cliffs and coastal terraces. Areas further south of Miyako, on the other hand, show a contrasting landscape of a typical rias coastline formed by its submergence with the foot of the Kitakamikochi Mountains. In addition, the offshore area of Sanriku, blessed with excellent fishing and natural harbors, has become one of the world's leading fishing grounds.

### ■ Population

Population 1,284,384 (on October 1, 2014)

The population, which had remained steady since 1978, suffered a decline in 2004 from 1.4 million people, and decreased even further after that to 1.3 million in 2013.

Number of households 518,191 (on October 1, 2014)

The number of households is continually increasing, adding up to over 500,000 in 2008, and has continued to its present statistics. The number of persons per household has decreased, and household size continues to shrink.

### ■ Economy

Gross Prefectural Production (Nominal) 4.3812 trillion yen (National share 0.93%) (Real) 4.6928 trillion yen

Economic growth rate (Nominal) 4.8% (Real) 4.7% (both from the 2014 fiscal year)

The construction and transportation industry have grown both in nominal and real gross product terms through increased public investment, private-sector recovery, and demand for reconstruction.

Prefectural per capita income 2,547,000yen (rate compared to national income per capita(=100) : 92.5)

(Note) Prefectural per capita income is calculated by dividing the total income of residents and businesses in the prefecture by the total number of residents.

Breakdown of (nominal) gross prefectural product by industry: primary industries (agriculture, forestry and fishing) 3.6%, secondary industries (mining, manufacturing, construction) 23.8%, and tertiary industries 71.8%

Breakdown of employment by industry: primary industry 13.8%, secondary industry 24.1%, tertiary industry 62.1%. (from the 2011 fiscal year)

## ■ Agriculture

In 2013, agricultural production was 243,300,000,000 yen, placing Iwate 11th out of the 47 prefectures in Japan. Iwate plays an important role as a food supply base for Japan, as it is blessed with agricultural resources such as vast farmland and richly varying weather conditions, and a variety of farming techniques are being developed by utilizing the special characteristics of each region.

## ■ Forestry

In 2012, forestry production totaled roughly 18,300,000,000 yen, placing Iwate 5th in the nation.

Forested area accounted for 77% of prefectural land in 2011.

## ■ Fishing

In 2012, fishing production was about 28,900,000,000 yen, placing it 16th in the nation. Blessed with a reef that suits the growth of marine life as well as the quiet waters of the rias, Iwate has become a leading prefecture in “foster fishery”; for example, it is ranked number 1 in the country for abalone and number 2, after Hokkaido, for salmon.

In order to support this kind of fishing industry, the development of coastal fisheries, ports, and the production and livelihood of fishing villages along with distribution and processing systems are being promoted, as well as seed release for salmon, abalone, and so on.

## ■ Manufacturing

Manufacturing shipments in Iwate Prefecture totaled 2.295 trillion yen, due in part to promoting the relocation of businesses, including advanced technology industries, automotive industries, and the rebuilding of local businesses.

Among these shipments, transportation equipment at 30.8% and food manufacturing at 13.7% make up the highest proportion.

## ■ Tourism

The number of tourists exceeded 28,930,000 (as of 2013).

Iwate, the prefecture with the largest land area next to Hokkaido, is blessed with a wide variety of tourism resources such as rich nature, a deep history and culture, colorful local festivals, traditional arts, and food. Tours that take full advantage of the features of the region are under development as Iwate works to attract more tourists.

We are promoting tours that cover the inlands and the coast, using places such as Hiraizumi, which was registered as a UNESCO World Cultural Heritage site in 2011, as a way of disseminating information.



## [Overview of the Disaster-Stricken Coast of Iwate Prefecture]

### ■ Overview

The coast of Iwate Prefecture is located in easternmost Honshu and is comprised of 5 cities, 4 towns, and 3 villages, from the town of Hirono in the north to Rikuzentakata City in the south. The total area of the region is about 4,946 km<sup>2</sup>. The area is surrounded by a rich natural environment, such as the scenic Rikuchu coast, natural harbors, and even global fisheries.

In addition to a geographically advantageous water industry, Iwate boasts a share in the global market for precision machinery, steel industry, and cement manufacturing, along with its transportation network from land to sea, as the area is an industrial products shipping port.

However, the area has problems, including a weak economic base compared to the nation and inland areas of Iwate. As such, in Iwate, the thought that “Without development in the coastal areas, there is no development in the prefecture” has become the most important issue of the prefectural government, and thus the prefecture has focused on the promotion of the region.

### ■ Natural Characteristics

The coastline extends over 708 km, and consists of a beautiful seascape of cliffs eroded by the sea, a rich and varied view that can rarely be seen elsewhere in the country. Most of the area has been designated as part of the Sanriku Fukko National Park.



### ■ Population and Economy

In 2010, prior to the Great East Japan Earthquake Tsunami, there were around 274,000 people living in the coastal areas, making up 2% of the total population of Iwate Prefecture. As for age demographics, Iwate Prefecture has a high proportion of elderly people as compared to the nation as a whole, and on top of that, the elderly people have progressed toward the coastal areas.

Furthermore, the net production value of the coastal areas, at about 568.9 billion yen, accounted for around 2% of the production of the prefecture. Per capita income and job offer rates were slightly lower than the prefectural average.

## Chapter 2 Outline of the Damage from the 2011 Disaster

### 1 Overview of the Disaster

On March 11, 2011, a mega-earthquake occurred off the coast of Sanriku, and at magnitude 9.0 it was the largest observed in Japanese history.

All over Iwate Prefecture, aftershocks of over magnitude 4 were observed, with some as high as lower 6 in Ichinoseki, Ofunato, Takizawa, Fujisawa, Hanamaki, and Oshu.

The tsunami following the earthquake reached recorded heights of over 8 meters in Ofunato and over 8.5 meters in Miyako. The waves exceeded the breakwaters and levees along the coast, bringing devastating damage to Rikuzentakata City and elsewhere in the prefecture.



Rikuzentakata City (before the disaster)



Rikuzentakata City (after the disaster)



Noda Village (before the disaster)



Noda Village (after the disaster)

### Overview of the Earthquake

Name	The 2011 Great East Japan Earthquake (The 2011 off the Pacific coast of Tohoku Earthquake)
Time	2:24 P.M., Friday, March 11, 2011
Epicenter	Off Sanriku, 38.062°N, 142.516°E
Magnitude	9.0 (moment magnitude)
Aftershocks in the Prefecture	Low 6 (Ichinoseki, Kamaishi, Ofunato, Takizawa, Fujisawa, Hanamaki, Oshu)
Height of Tsunami	Miyako: over 8.5 m Ofunato: over 8.0 m Kamaishi: over 4.2 m Kuji Port: 8.6m (estimate)

(From the Japan Meteorological Agency)

## 2 Overview of Damage

4,672 people died in the earthquake and tsunami, mostly along the coast, and 1,132 people remain missing. 23,872 houses along the coast were partially or completely destroyed, as well as 1,844 houses inland, totaling 25,716.

In addition, damage to industry in the prefecture came to 608.7 billion yen. The fishing industry and fishing ports in particular suffered extensive damage. Damage to public works facilities totaled 257.3 billion yen.

Damage to lifelines, including power, gas, and water outages and interruptions to telephone services, were seen throughout the entire prefecture. This, coupled with disruptions to transportation networks and a lack of gasoline, brought about delays to recovery efforts and confusion in daily lives.



Kamaishi city center, which suffered heavy damage



Many fishing boats were destroyed in the disaster

### ■ Casualties/Damage to Homes

	Deaths	Missing	Houses Destroyed
Hirono	0	0	26
Kuji	2	2	278
Noda	38	0	479
Fudai	0	1	0
Tanohata	14	15	270
Iwaizumi	7	0	200
Miyako	420	94	4,098
Yamada	604	148	3,167
Otsuchi	803	427	3,717
Kamaishi	888	152	3,655
Ohunato	340	79	3,937
Rikuzentakata	1,556	207	4,045
Inland	0	5	1,844
Prefecture Total	4,672	1,130	25,716

(As of December 31, 2014)

\*Deaths based only on those directly killed. Iwate police investigation.

\*Houses destroyed includes complete or partial destruction.

### ■ Damage to Industry

	Damages (yen)
Agriculture and forestry	98.4 b
Fishing and ports	564.9 b
Commerce and industry	133.5 b
Tourism (accommodations)	32.6 b
Total	829.4 b

(As of November 25, 2011)

### ■ Damage to Public Works

	Damages (yen)
Rivers, banks, roads	172.3 b
Parks	40.5 b
Harbors	44.5 b
Total	275.3 b

(As of July 25, 2011)

# Chapter 3 Great East Japan Earthquake and Tsunami Recovery Status

## Ensuring Safety

### ■ Surface maintenance projects (157 areas)

Completed 22%	In progress 63%	Not started 15%
------------------	-----------------	--------------------

\* Includes re-zoning projects, project to promote group relocation for disaster mitigation and project to strengthen functionality of fishing villages. The goal is to supply more homes.

### ■ Restoration/Establishment of coastal protection facilities (134 areas planned)

Completed 17%	In progress 71%	Not started 12%
------------------	-----------------	--------------------

### ■ Reconstruction of roads in kilometers (Planned length: 393km)

Completed 31%	In progress 60%	Not started 9%
------------------	-----------------	----------------

(As of November 2014)



(Okanyo Road, March 2014)



Sanriku Railway opens (March 2014)

## Rebuilding Lives

### ■ Public housing for disaster victims (5,946 units planned)

Completed 15%	In progress 39%	Not started 46%
------------------	-----------------	-----------------

(As of November 2014)

### ■ Medical Facilities (coastal areas) (217 facilities)

Reestablished or Newly Built 90%	Not open 10%
----------------------------------	--------------

\* Practicing private or temporary medical facilities (hospitals, medical check sites, dental check sites)

(As of March 2014)

### ■ Restoration of schools (coastal areas) (94 schools affected by disaster)

Completed 80%	Incomplete 20%
---------------	----------------

(As of November 2014)



Public housing for disaster victims (Kamaishi)



Public housing for disaster victims (Noda)

## Reclaiming Livelihoods

### ■ Catch from local fish markets (Average 169,250 tons from the 3 years before the earthquake)

2013: 64%

### ■ Farmland restoration (Target area 450ha)

Incomplete 4%

Restored 96%

(As of November 2014)

### ■ Reopening of destroyed businesses (Target: 1,778 businesses)

Fully/ partially reopened: 76%

Unopened  
24%

(As of February 1, 2014)

### ■ Sales of businesses destroyed in disaster (Target: 1,778 businesses)

Same as or more than  
before disaster 38%

Less than before disaster or  
unopened 62%

(As of February 1, 2014)



Rebuilt fish processing plant



Reopened shopping facilities



Posters that represent the connection between Iwate, which was newly born with all the reconstruction support, and supporters from within and outside the country. They express appreciation for the support and thoughts toward Iwate's recovery, and were made so that people wouldn't forget the earthquake.

## Chapter 4 Cases studies of Iwate's efforts for disaster risk reduction and reconstruction

In this chapter, we introduce concrete examples of efforts related to disaster prevention and reconstruction efforts in Iwate Prefecture.

### Section 1: Disaster Risk Reduction

#### 1. Construction of a Disaster Risk Reduction System in Correspondence to Large-Scale Disasters

Initiative 1: Establishment of widespread disaster risk reduction facilities effective in supporting damaged areas during large-scale disasters

Initiative 2: Construction of the acceptance and support system due to the widespread coordination between local public bodies

Initiative 3: Construction of Iwate's unique medical and welfare network

Initiative 4: Standardization and sharing of disaster response operations in preparation for future disaster

#### 2. Preparation through Education and Culture

Initiative 5: Promoting disaster risk reduction education, and establishing disaster risk reduction systems in schools

Initiative 6: Passing on lessons learned from the tsunami, and cultivating disaster risk reduction culture

### Section 2: Reconstruction

#### 3. "Town Construction to Withstand Disasters" and "Ensuring Safety"

Initiative 7: Promoting town development based on a multi-layered disaster risk reduction system

Initiative 8: Promoting radiation countermeasures with a focus on children's health and food safety/quality assurance

Initiative 9: Quick and efficient disposal of disaster debris

#### 4. Support for Rebuilding Survivors' Lives

Initiative 10: Promotion of emotional care

Initiative 11: Ensuring medical care in the affected areas

Initiative 12: Improving administrative functions of municipalities

Initiative 13: Maintenance and operation of survivors' ledger system

#### 5. "Open Reconstruction" and "Reconstruction Deeply Rooted in the Region"

Initiative 14: Revitalizing the local community through cooperation between residents and various entities

Initiative 15: Construction of sustainable local communities by promotion and utilization of local resources

#### 6. Protection of Cultural Properties and Protecting/Passing on Traditional Arts

Initiative 16: Promotion of reconstruction projects that respect cultural properties

Initiative 17: Rebuilding local communities who have been active in preserving cultural properties

[Example]

Initiative Title: Disaster Prevention (No. 1-6), Reconstruction (No. 7-17)

<b>Section 1: Disaster Risk Reduction</b>	1. Construction of a Disaster Risk Reduction System in Correspondence to Large-Scale Disasters
Initiative 1: Establishment of widespread disaster risk reduction facilities effective in supporting damaged areas during large-scale disasters	

**Initiative 1 Establishment of widespread disaster risk reduction facilities effective in supporting damaged areas during large-scale disasters**

[Outline of Approach]

- In preparation for future large-scale tsunami damage, Tono City in Iwate Prefecture has drawn up a logistical support base facilities development plan for earthquake and tsunami damage, constructed a cooperation system with surrounding municipalities, and performed large-scale disaster risk reduction drills.
- Immediately after the Great East Japan Earthquake and Tsunami, Tono City quickly formed logistical support base facilities so that support units, including the Self-Defense Forces, could assemble, and its effectiveness was confirmed by the support provided to the coastal municipalities that had suffered extensive damage in the tsunami. Besides this, with the mayors of Iwate Prefecture as the center of the activities, inland municipalities performed other activities to support the coastal municipalities affected by the disaster.
- As there were many evacuees in the badly damaged coastal municipalities, a large amount of vital goods was needed, so an integrated supplies office was created in Iwate Industry Cultural Center (aka Apio), and relief supplies from home and abroad were accepted there and then transported to the disaster-affected areas.
- In addition, because there was a large number of critical patients and the medical institutions on the coast couldn't accept many patients, the prefectural government created a widespread medical transport facility in Hanamaki Airport and the Disaster Medical Assistance Team (DMAT) performed widespread medical transfers there.
- Based on these lessons, the government has developed several widespread disaster risk reduction bases at multiple locations in the prefecture in order to deal with expected inland and coastal large-scale disasters.

Outline

**Approach 1: The logistical support activities of the disaster prevention bases of Tono City**

Title of example

As an inland city, Tono City quickly created logistical support bases to support the coastal municipalities whose administrative functions had been paralyzed by the tsunami; the city also undertook systematic preparations to support the disaster-affected areas.

Explanation



Rescue forces gathered in Tono Sports Park (sky photo)



Ground Self-Defense Forces, which joined in the rescue operations, were based in the Tono Sports Park

Pictures, graphs, maps, etc., with

Rescue forces, including the Self-Defense Forces and emergency fire rescue forces, gathered in the logistic support bases established in Tono immediately after the disaster. Rescue activities in the coastal areas affected by the disaster were launched from these bases, including Tono Sports Park.



Osaka Emergency Fire Rescue Team gathered in Tono Sports Park

**Initiative 1****Establishment of widespread disaster risk reduction facilities effective in supporting damaged areas during large-scale disasters****[Outline of Approach]**

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**Approach 1: The logistical support activities of the disaster prevention bases of Tono City**

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Rescue forces gathered in Tono Sports Park (sky photo)



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Osaka Emergency Fire Rescue Team gathered in Tono Sports Park

**Approach 2: The logistical support activities by inland municipalities, etc.**

In the Iwate Prefecture mayors' meeting, in order to deliver the goods to the affected municipalities on the coast, four inland cities (Kuji, Morioka, Tono, and Ichinoseki) were selected to perform integrated delivery of relief goods, transportation, and other logistical support activities.

In addition, as for the unique effort of the inland town of Sumita, besides providing relief goods, the fire brigade performed search activities and made meals to supply the soup kitchen. They also accepted support staff, such as those in the police force, into the town facilities to help with support activities in the adjacent Ofunato and Rikuzentakata cities.



Sumita fire brigade performing search activities for missing people



A widespread emergency assistance police team gathered in Sumita's facilities

**Approach 3: Establishment of the integrated supplies office**

For the disaster risk reduction relief goods accepted and stored mainly in Iwate Industry Cultural Center (aka Apio), Iwate Prefecture cooperated with Iwate Trucking Association and transported the goods 24 hours a day.

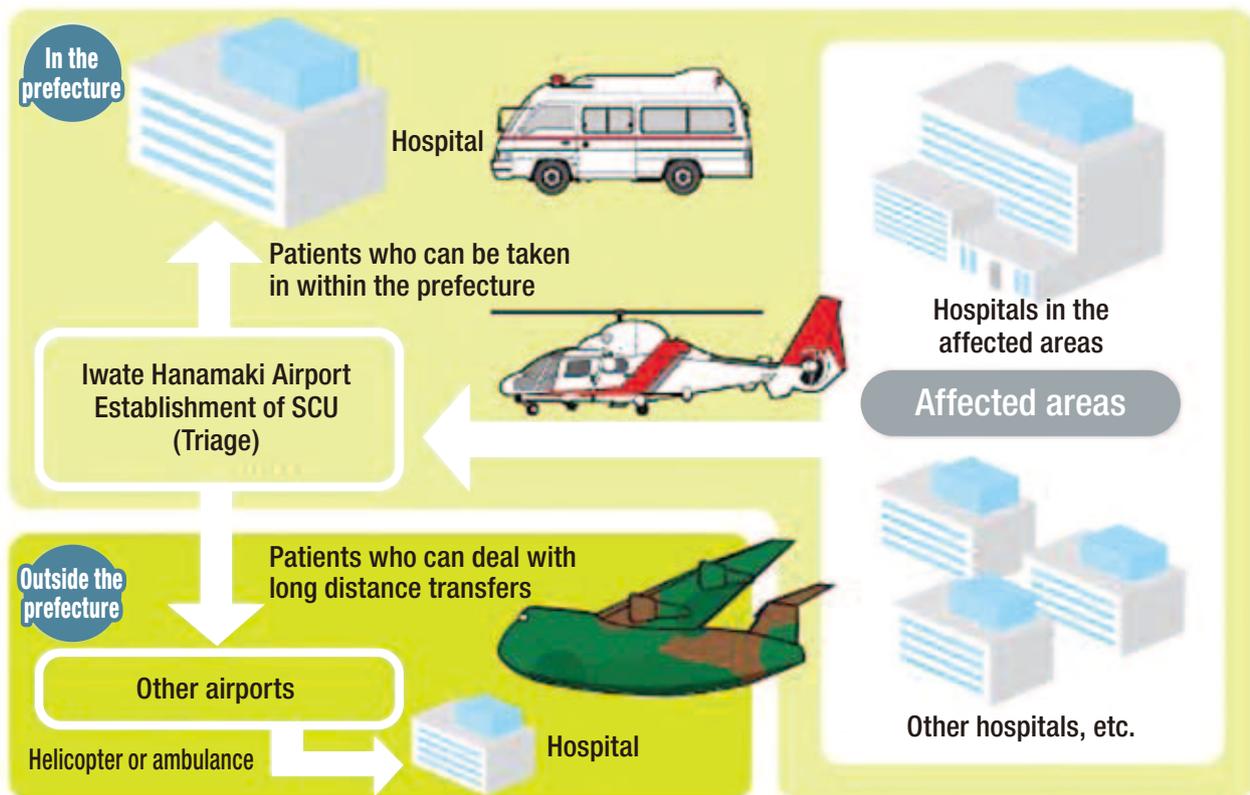
This relief goods logistics system run by the cooperative efforts of prefectures and trucking associations was later called the "Iwate method", and became a model case for Japan.



Storing operation of relief goods in Iwate Industry Cultural Center (aka Apio), which worked as the integrated supplies office

**Approach 4: About the establishment of a widespread medical transportation hub**

In the Staging Care Unit (SCU) of a widespread medical transportation hub set up in Hanamaki Airport, DMAT teams gathered from all over the country to perform triage of the patients transferred by helicopter. After emergency treatment, they were then transferred to hospitals in the inland part of the prefecture and other hospitals outside the prefecture.

**[Iwate Prefecture's widespread medical transfer system]**

The DMAT activity was Japan's first undertaking of widespread medical transportation outside of the prefecture at the SCU base, and became a model for SCU operations.



The DMAT performing triage and emergency treatment on patients transferred by SCU (Hanamaki Airport)

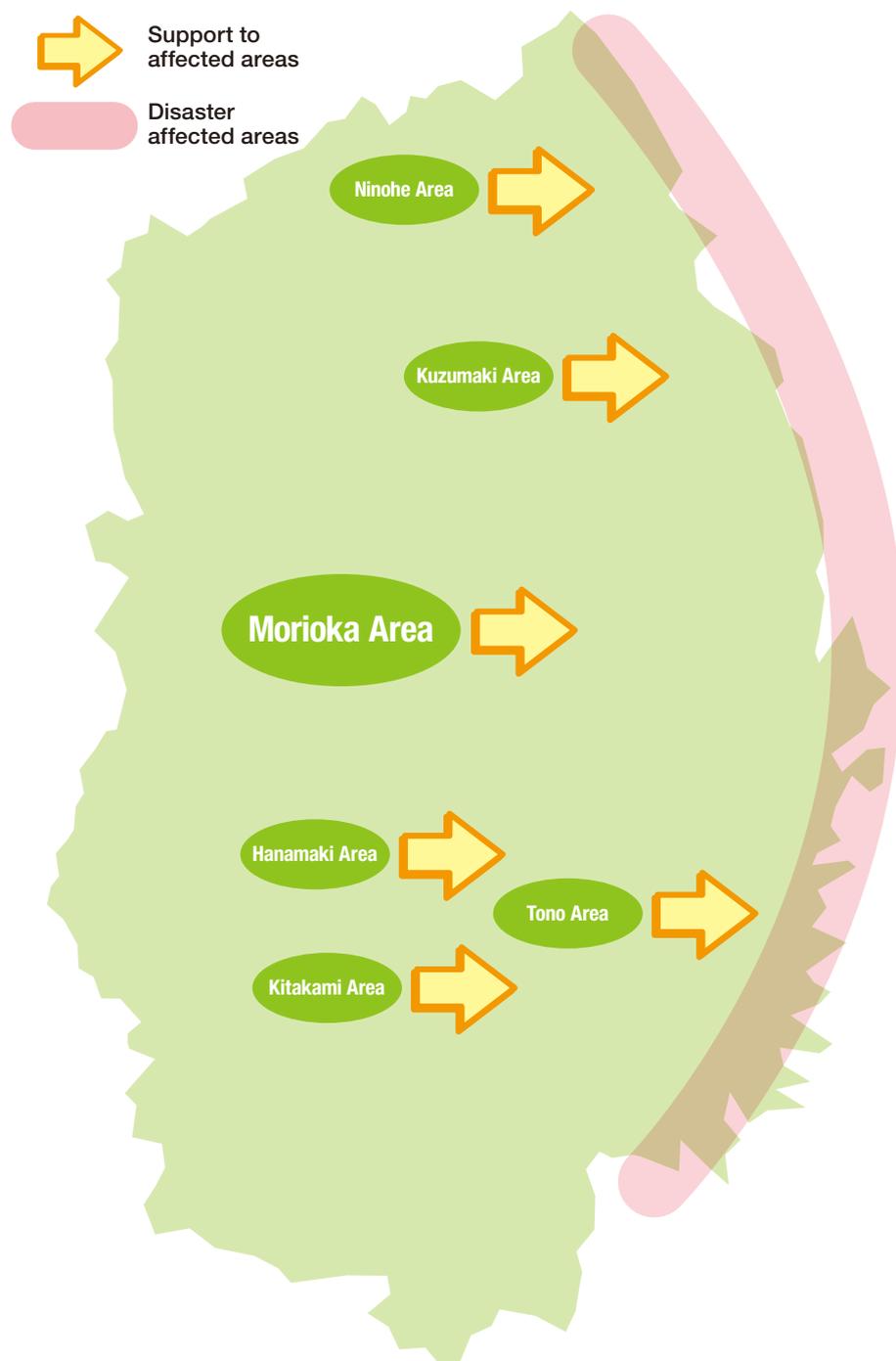


The DMAT performing widespread medical transport to the medical institutions outside the prefecture by a transporting aircraft from the Self-Defense Forces (Hanamaki Airport)

**Approach 5: Widespread disaster risk reduction bases established in Iwate Prefecture**

Based on the validation of disaster response related to the Great East Japan Earthquake and Tsunami, Iwate Prefecture repeatedly discussed developing a plan for widespread disaster risk reduction bases to deal with large-scale disasters including earthquakes, tsunami, volcanic eruptions, etc. The “development concept” which was based off of effectively using the existing facilities was drawn up in February 2013.

In order to realize the “development concept,” the prefecture drew up the “deployment plan” in March 2014 and decided upon the deployment area, target facilities and so on; the preparation for actual operation has now begun for 2015.

**Layout Image** (when the tsunami occurred)

## Initiative 2

**Development of the acceptance and support system due to widespread cooperation between local public bodies****[Outline of Approach]**

- The support activities due to local level horizontal supplementation including emergency fire rescue teams, widespread emergency rescue teams (police), Disaster Medical Assistance Teams (DMAT), etc., were all coordinated by the national government during the Great East Japan Earthquake and Tsunami. These support activities played a major role in the search and rescue of injured people and others.
- In addition, due to the support and assistance framework through widespread collaboration between prefectures, local government administrative staff from all over the country came to support the administrative affairs of the disaster-affected coastal municipalities.
- As a supplement to the systemized framework of support activities organized throughout the country, after the Great East Japan Earthquake and Tsunami, Iwate Prefecture drew up a support acceptance and provision plan for disasters. This plan comprises the “support acceptance plan” and “support provision plan”, and was established as the procedure for support acceptance, support provision, etc. when large-scale disasters happen inside or outside the prefecture.
- In this way, Japan will have a systemized framework for performing widespread coordination between local governments and sending support staff required in emergency disaster response activities. However, in considering the scale and length of the reconstruction period, this support system is still not sufficient.
- In particular, securing the supply of technical staff during the reconstruction period is a big challenge. In preparation for future disasters, our country should promote the rule to send staff during the time of disasters through consultation with local communities in advance; it is also necessary to try to develop a mechanism ensuring the supply of technical and professional staff, as their numbers are expected to be insufficient.

**Approach 1: Search and rescue activities by firefighters and police from all over the country**

Immediately after the disaster, emergency firefighting rescue teams sent by firefighting organizations all over the country gathered in Iwate Prefecture according to a request by the National Fire Defense Agency. While cooperating with disaster-related agencies inside and outside of the prefecture, the emergency firefighting rescue teams undertook rescue activities and the search for missing people.



Cooperating with self-defense forces and firefighting teams in the search for missing people and collecting bodies



Fire Fighting Disaster Prevention Air Corps of Kochi transferring a rescued person



Tokyo Fire Department Air Corps transferring goods

Widespread emergency rescue teams dispatched from nationwide police agencies gathered in Iwate Prefecture. Along with the widespread emergency rescue teams, the prefectural police undertook rescue activities, the search for missing persons, insurance and management of mortuaries, autopsies, disaster security activities, and maintained security.



Search for missing people and collection of bodies through cooperation with self-defense forces and police



Widespread police emergency rescue teams and self-defense forces working together during search activities

### Approach 2: Emergency medical activities undertaken by nationwide DMAT teams

DMAT dispatched from medical institutions nationwide came to support Iwate Prefecture. Based in disaster prevention hospitals and SCU in the prefecture, DMAT performed a variety of emergency medical activities including triage and first aid, regional medical transport, and hospital support.



DMAT gathered in Iwate Prefectural Miyako Hospital for a meeting



DMAT conducting a meeting at an SCU established in Hanamaki Airport



DMAT transporting patients by medical helicopter to the SCU from a hospital in the affected areas (Hanamaki Airport)

**Approach 3: Support activities by local governments outside the prefecture**

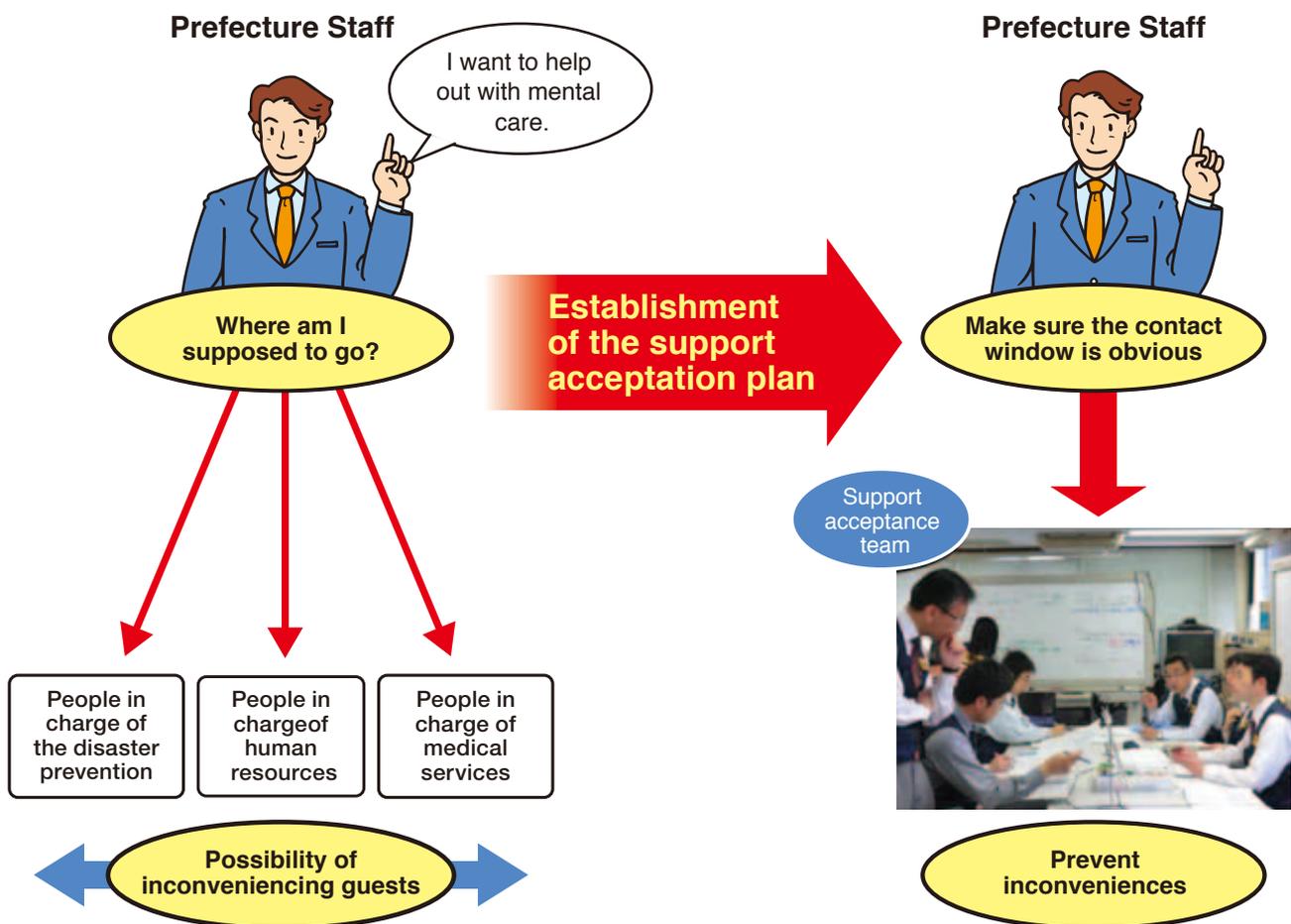
The National Governors Association undertook the dispatch and regulation of assistants and support staff from each prefecture. The support teams, which consisted of administrative staff from various local governments, could gather in Iwate Prefecture and support the administrative affairs of the disaster-affected coastal municipalities because of this regulation.



Shizuoka Prefecture staff engaged in temporary housing-related services in Yamada Construction Division

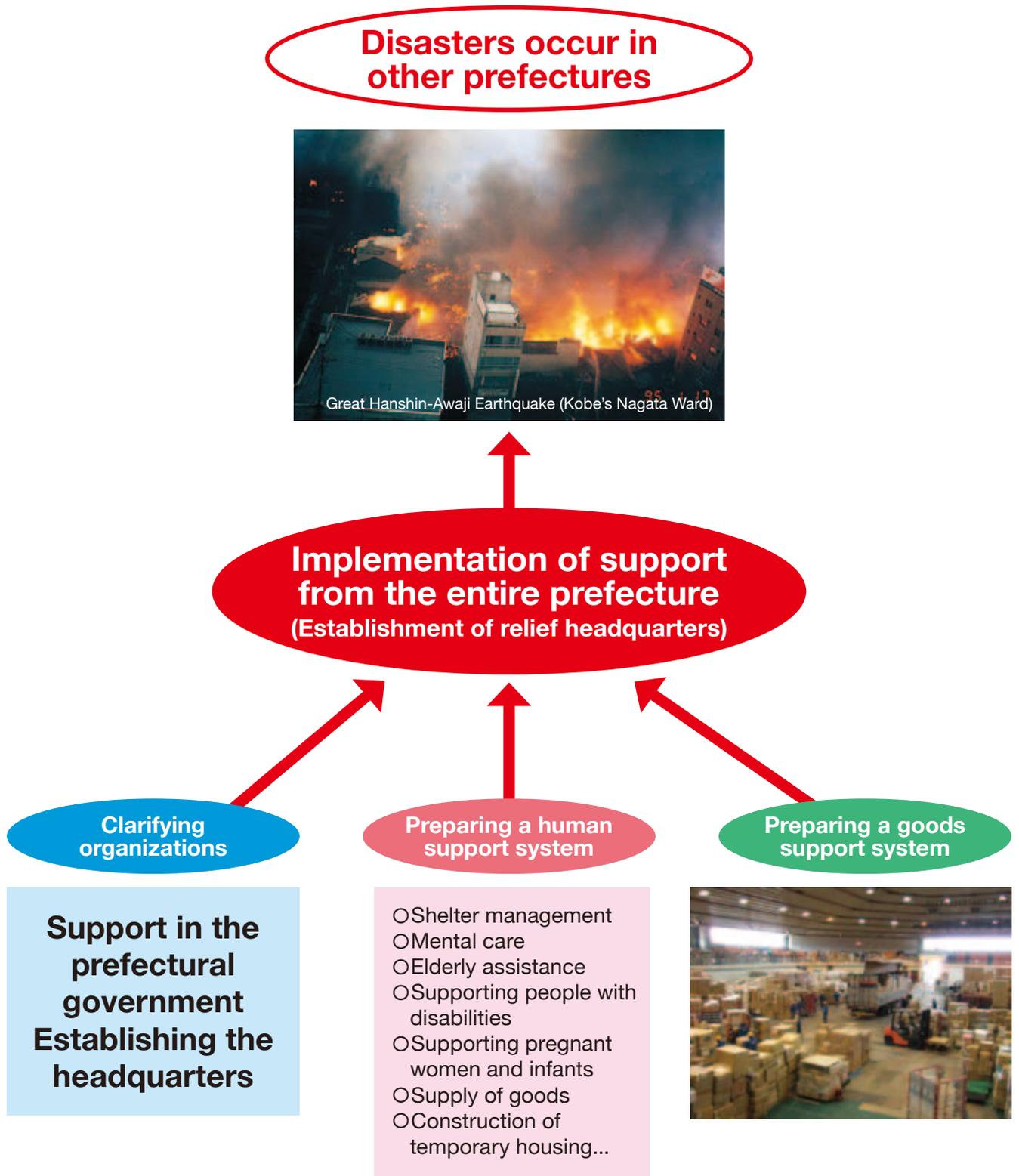
**Approach 4: The Iwate Prefecture Support Acceptance and Provision Plan - "Support Acceptance Plan Section" -**

After the Great East Japan Earthquake and Tsunami, Iwate drew up the support acceptance plan in the event that a large-scale disaster occurs in the prefecture. The support acceptance plan was conceived to receive and coordinate support from various fields.



**Approach 5: The Iwate Prefecture Support Acceptance and Provision Plan - "Support Provision Section" -**

After the Great East Japan Earthquake Tsunami, Iwate Prefecture drew up the disaster support plan to deal with possible large-scale disasters such as the anticipated Great Nankai Trough Earthquake. This plan is a systematic preparation to accurately perform support activities in disaster-affected areas outside the prefecture.



### Initiative 3 Construction of Iwate's unique medical and welfare network

#### [Outline of Approach]

- Iwate Prefecture set up the Iwate Disaster Medical Support Network by using Iwate Medical University's unique medical and welfare provisioning; Iwate Prefecture also cooperated with related institutions that had human resources, and continuously worked towards building a support system.
- In addition, thanks to the cooperation of the government, citizens, and schools, the prefecture also set up a Disaster Welfare Widespread Support Institution in Iwate Prefecture, promoted the understanding of welfare and nursing needs of people needing care such as the elderly and those with disabilities, and developed the dispatch system of the Disaster Relief Welfare Team of Iwate for emergency and other support.
- The Iwate Infection Control Assistance Team (ICAT) was set up to prevent any large-scale outbreaks of influenza, norovirus, and hand-foot-and-mouth disease, etc., in the shelters of the coastal disaster-affected areas after the Great East Japan Earthquake Tsunami, and it became a permanent organization of the prefecture from June 2012.

#### Approach 1: Establishment of "Iwate disaster medical support network"

This network consisted of 6 institutions: Iwate Medical University, Prefectural Medical Association, Red Cross of Japan, National Hospital Organization, Prefectural Medical Station, and Iwate Prefecture government. It gathered at the disaster response headquarters and performed medical team delivery and medical institution support according to the requests of local areas.

In addition, as external people could access the shelters of the disaster affected areas freely, it was possible to pretend to be medical staff and make damage, in order to eliminate this worry; all the medical teams at the local areas of this network were equipped with licenses.



The network during one of their regular meetings



Licenses issued to the medical team

Regarding activities in the disaster-affected areas, the dispatched medical teams, the local government and health centers of each area, etc. gathered together every morning and evening to hold meetings, to coordinate patrolling of the shelters, and to share patient information.



Dispatched medical teams holding meetings

**Approach 2: Establishment of "Iwate Prefecture Disaster Welfare Widespread Support Promotion Organization"**

As the main dispatch body for disaster relief welfare teams, the prefecture created the "Iwate Prefecture Disaster Welfare Widespread Support Promotion Organization" as a united organization of the government, citizens, and schools in September 2013.

This organization has integrated welfare, medical care, and health management, and is working to enhance the support system for people who need help in the time of a disaster.

There are 4 to 6 people in welfare positions on the disaster relief welfare team, and they will support the welfare of the people in need of shelter in the early stage of a disaster (about 5 days).

The team members consist of social workers, care workers, psychiatric social workers and others with certain years of experience. They have to attend team member training courses before registering as members. During the team member training courses, they can acquire the necessary knowledge and skills required in the activities through lectures and drills.



Establishment of the promotion organization



Team members training course

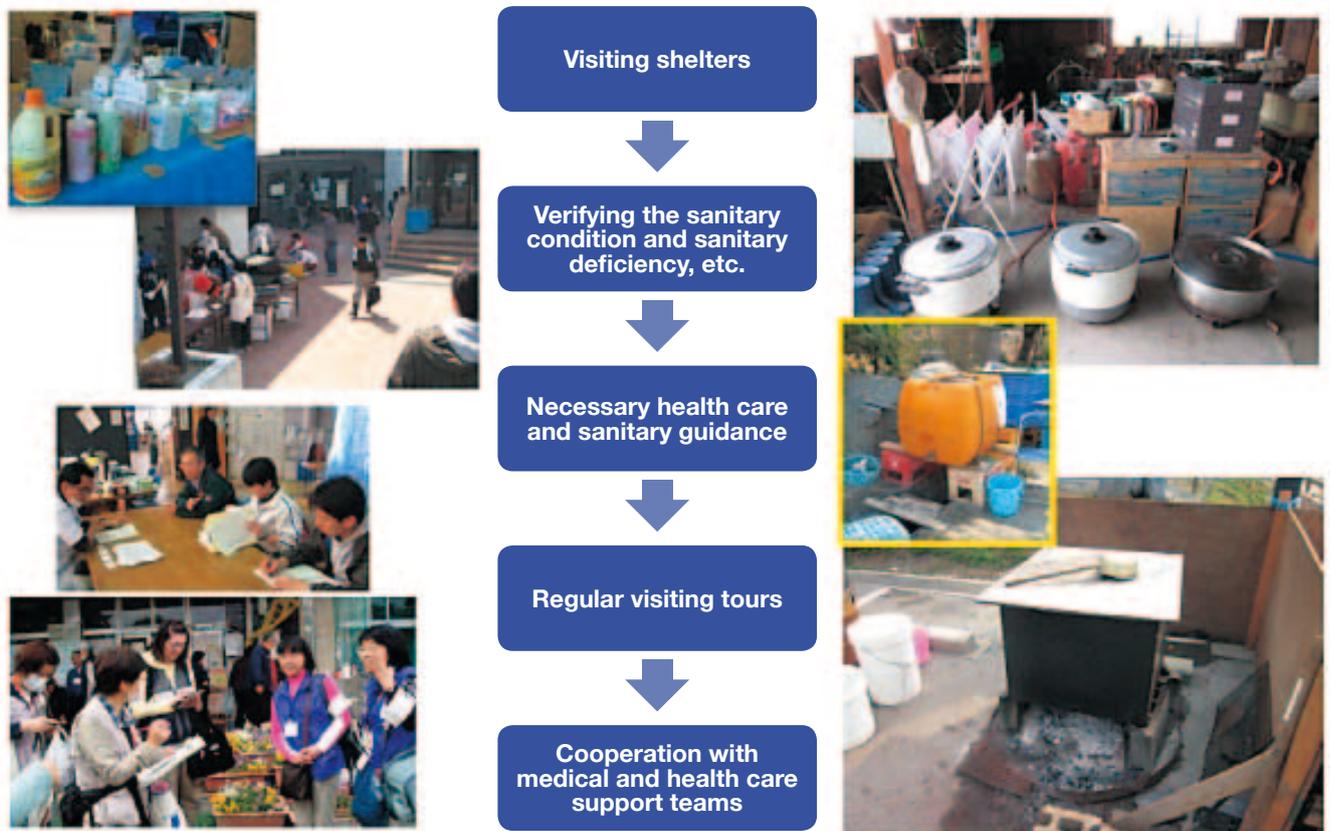


Team members practicing their training

**Approach 3: Establishment of Iwate Infection Control Assistance Team (ICAT)**

This team consists of Iwate Medical University Hospital, Iwate Prefectural Hospital, Morioka Red Cross Hospital, and the infection control expert staff of the Independent Administrative Institution, National Hospital Organization, and Iwate Hospital.

Besides ensuring the safety of affiliated hospitals, the team members also perform training and exercises dealing with infectious diseases and preparing for new types of influenza and disasters.

**Activities of Iwate Infection Control Assistant Team (ICAT)**

## Initiative 4

## Standardization and sharing of disaster response operations in preparation for future disasters

## [Outline of Approach]

- During the Great East Japan Earthquake and Tsunami, the coastal municipalities of Iwate Prefecture suffered serious damage and had to face the situation of undertaking huge, highly complex operations such as supporting the survivors and working towards reconstruction.
- The prefecture promoted the standardization and sharing of various operations requiring cooperation with widespread communities from both inside and outside the prefecture, as well as supported disaster response operations requiring common management of the municipalities by utilizing the universality and expertise the operations.
- The prefecture made a “reference model” for drawing up the shelter management manual for the standardization of operations in the municipalities. In addition, the prefecture drew up a plan that includes usual preparations for sharing the operations, and created a dietary and nutrition manual for registered dieticians for dealing with and supporting people with disabilities.
- In order to achieve deployment of active and efficient disaster risk reduction volunteer activities, the prefecture also drew up guidelines for disaster prevention risk reduction volunteer activities and worked together with citizens on various activities including environmental improvement.
- While emphasizing the effort for standardization and sharing disaster response operations, the prefecture also worked to improve the disaster response abilities of the prefecture, municipalities, and communities and steadily prepared for future disasters.

## Approach 1: “Guideline for disaster response to people with disabilities”

The prefecture created a “guideline for disaster response to people with disabilities,” which considers life in shelters and daily preparations, to protect the lives of people with disabilities. They were distributed to people with disabilities, municipalities, social welfare associations of municipalities, related offices, etc.

This new consideration for supporting people with disabilities includes writing information about their disabilities, their contacts, and necessary support on a “Please Card” bound in the “guideline”, so they can ask for help during an emergency.



Cover of the Guideline

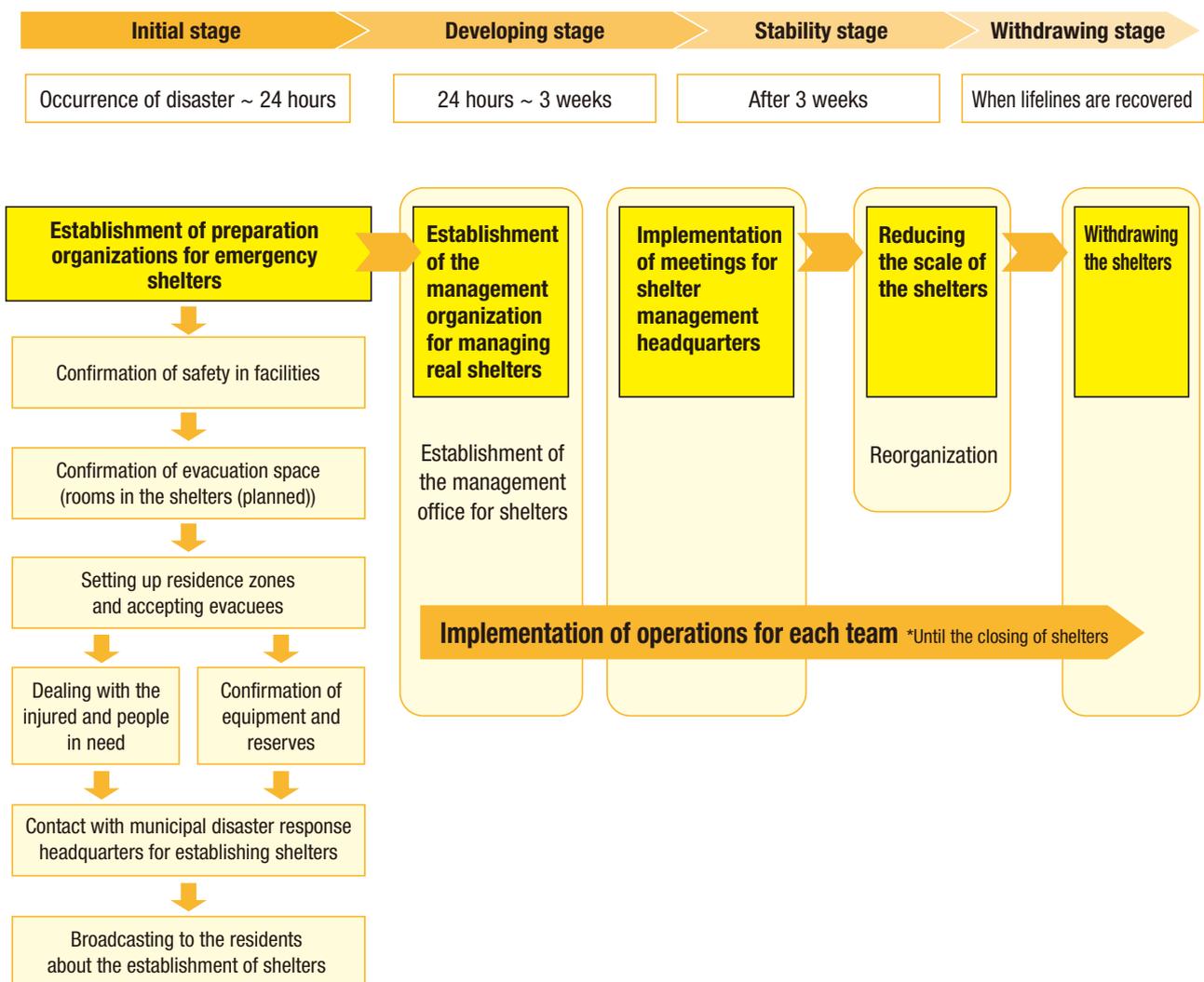
Request Card

**Approach 2: “Model for creating a shelter management manual”**

In order to help municipalities smoothly establish and manage shelters during large-scale disasters, the prefecture created the “reference manual” for drawing up shelter management manuals matching the actual conditions of each municipality to realize the standardization of operations.

During the making of the model, while reflecting opinions about the Great East Japan Earthquake and Tsunami, the initial stage, deployment stage, and withdrawing stage were all prepared in time order. All the operations included were also divided on the basis of different operation teams, so that people related to shelter management could easily get the information needed. In addition, reference materials and reference design styles required in the management of shelters were included as well.

**Main procedures from the initial stage to the withdrawing stage**



**Approach 3: Manual of nutrition and diet support during disaster**

In the case that a large-scale disaster occurs, in order to perform smooth diet and nutrition support by registered dietitians from the beginning, a manual including preparations in a 'normal' period was drawn up.

This manual summarized the operations needed for each phase and determined the flow for creating health management activity teams if the scale of the disaster occurring in the prefecture is big enough to trigger "health management activities".



Nutrition counseling in temporary meeting place, etc.

**Related URL**

<http://www.pref.iwate.jp/iryoku/kenkou/eiyo/027502.html>

**Approach 4: “Iwate Prefecture Disaster Risk Reduction Volunteer Activities Support Guidelines”**

In order to perform more active and efficient disaster-prevention volunteer activities, the prefecture drew up the “Iwate Prefecture Disaster Risk Reduction Volunteer Activity Support Guidelines” in March 2014 based on the problems experienced in the Great East Japan Earthquake and Tsunami.

Based on this guideline, the liaison meeting of “Iwate Prefecture Disaster Risk Reduction Volunteer Support Network” was established, and research sponsored by the same meeting was also performed actively through opinion exchanges in addition to building relationships with related institutions and organizations.



Volunteers removing rubble in areas affected by the Great East Japan Earthquake and Tsunami



Training meeting of disaster volunteer support network

## Initiative 5

**Promoting disaster risk reduction education, and establishing disaster risk reduction systems in schools****[Outline of Approach]**

- Based on the lessons learned from the earthquake and tsunami, Iwate Prefecture drew up the “School Disaster Risk Reduction and Disaster Response Guideline” and “Board of Education Crisis Management Manual (revision)” to establish a disaster risk reduction systems for schools. Each school reviewed its manuals according to these conditions, and performed unique disaster risk reduction education matching the actual conditions of each school and place.
- In order to foster human resources who can appreciate and support the reconstruction and development of their hometowns, the prefecture is promoting “Iwate reconstruction education” throughout the prefecture to foster the three values of education that were highlighted in the earthquake tsunami: “living”, “being involved” and “being prepared”. In addition, the supplementary booklet for reconstruction education was also drawn up and distributed. In each elementary and junior high school, educational activities using the supplementary booklet have been made.
- In addition, by holding training courses about disaster risk reduction education for the whole prefecture and performing disaster risk reduction training with schools and local citizens together, the prefecture has been enhancing disaster risk reduction education and disaster management by cooperating with schools, families, regions, and related institutions.

**Approach 1: Drawing up the Guideline and Manual revision**

The Guidelines and Manual made by the prefecture outline the responses during a disaster in order and contents to ensure the safety of students when a tsunami warning is issued or there is concern about secondary disasters.

Base on the manual of each school, safety confirmation after the all-clear has been given and transferring training are conducted through cooperation with families, immediately sending emails to guardians, use of transferring cards, etc.



Transferring training to the parents  
(Yono Municipal Taneichi Elementary School)

**Approach 2: Promotion of disaster risk reduction education based on “Iwate reconstruction education”**

The revised edition of the “Iwate reconstruction education” program consists of 3 educational values and 21 specific items.

Based on this program, educational activities in accordance with the situations of the schools and regions have been deployed in each school.

For example, for “being involved”, volunteer activities in the disaster affected areas are conducted; for “being prepared”, study and training for students to judge and act proactively and participate in evacuation drills have been conducted.



Discussion of evacuation routes  
(Okirai Elementary School, Ofunato)



Volunteer activities in the affected areas  
(Morioka Technical High School)

**Approach 3: Disaster risk reduction education cooperating with families, schools, and regions**

The prefecture has conducted training sessions and drills to promote the disaster education system and disaster education in cooperation with schools, families, regions, and related institutions. Not only the school-related people, but also the municipal education committee and persons in charge of municipal disaster prevention have attended the prefecture disaster risk reduction education training session, and they have studied the ways for actual regional cooperation including simulating the situation when a disaster occurs.

In addition, during the prefectural comprehensive disaster prevention training, junior high students learned about setting up and managing shelters, etc., and received training about staying safe and doing what they can to help.



Training to register people at an evacuation shelter  
(Takizawa Daini Junior High School)

**Approach 4: Creation and utilization of supplementary booklet and disaster risk reduction education DVD**

Lessons utilizing the supplementary reader  
(Kawai Elementary School, Miyako)

To keep the earthquake and tsunami from fading from memory and help young students learn the three educational values, the prefecture has drawn up a supplementary booklet, “Living, Being Involved and Being Prepared”.

This supplementary booklet is linked to the revised edition of the reconstruction education program, and is divided into three types: lower grades and higher grades of elementary schools, and junior high schools.

In addition, as learning materials for disaster risk reduction, the “disaster risk reduction education” DVD also linked to the programs was created and distributed to each school and training sessions for teachers using these materials, were also conducted.

**Approach 5: Disaster risk reduction education and psychological support**

For young students who were psychologically damaged during the disaster, some of them will feel both mentally and physically ill upon hearing the sound of sirens for evacuation drills and advisories or warnings.

From this fact, the prefecture has equipped each school with counselors to realize the dynamic integration of “mental support” and “disaster risk reduction education”, and performed evacuation training and study of disaster prevention.



Class with the school counselor  
(Otsuchi Elementary School)



“Supplementary booklet”  
for lower grades at  
elementary school



“Supplementary booklet”  
for higher grades at  
elementary school



“Supplementary booklet” for  
junior high school



Disaster prevention  
educational materials DVD

## Initiative 6 Passing on lessons learned from the tsunami, and cultivating disaster risk reduction culture

### [Outline of Approach]

- Iwate Prefecture has a history of being hit by, and taking significant damage from, tsunami. Lessons learned from the tsunami of 1896 and 1933 have been handed down, and have become established in the region's disaster prevention culture.
- There are also cases where these lessons were utilized to keep the damage to a minimum during the Great East Japan Earthquake and Tsunami.
- The city of Kamaishi has a tradition of tsunami risk reduction education, and the Sanriku area has a saying, *tsunami tendenko*, which means “look after yourself during a tsunami”, and this embodies the regional spirit of preparedness for disasters. This is how a great many lives were saved in the 2011 tsunami.
- In addition, as the Yoshihama area of Sanriku-cho in Ofunato had suffered considerable damage during the tsunami that occurred in 1896 and 1933, the damage prevention policy of managing agriculture and fisheries in the lowlands and moving the houses to higher ground to guard against tsunami. This allowed the damage from the 2011 tsunami to be minimized.
- In order to prepare for future disasters, the prefecture has been working to further foster the disaster prevention culture by promoting efforts on Sanriku Geopark and organizing education trips focusing on earthquake study, etc.

### Approach 1: Great achievements in tsunami disaster prevention education

Sanriku's traditional saying, *tsunami tendenko*, which means “look after yourself during a tsunami”, forms a basic part of tsunami disaster prevention education. This is an ancient saying meaning that everyone should evacuate to high land by him/herself as soon as possible if a tsunami comes.

By learning this rule, the children there had improved their disaster prevention awareness by making shelter maps and doing evacuation training.



Evacuating to higher ground during the Great East Japan Earthquake and Tsunami  
Young students (March 11, 2011)

## Look after yourself during a tsunami

The actions of students from Unosumai Elementary School and Kamaishi East Junior High School was a typical example of Iwate's tsunami disaster reduction education.

After the earthquake, junior high school students began to evacuate after everyone had gathered in the schoolyard. After seeing this, third grade students in the elementary school taking refuge on the third floor of their school followed them, and they got to the designated shelter after helping the kindergarten children they met on the way. However, after judging that the cliff to the back of the shelter might crumble, they evacuated to a care facility on higher ground. Then, after seeing the huge tsunami moving beyond the school and coming close to them, they evacuated further to a stonemason's shop along Route 45, so everyone escaped the disaster. The tsunami had almost reached the care facility.

Although the Unosumai Elementary and Kamaishi East Junior High schools were outside the flood forecast area, disaster prevention education and various training were performed repeatedly and ultimately saved the lives of the students, who concluded they were too close to the coast and there was a risk the designated site would be engulfed by the tsunami.

### Approach 2: Yoshihama area of Sanriku, Ofunato where moving to higher ground saved lives

Ever since the Meiji Sanriku Tsunami in 1896 and the Showa Sanriku Tsunami in 1933, a policy of living on higher ground and managing agriculture and fisheries in the lower land has been implemented consistently in the Yoshihama area of Sanriku-cho in Ofunato City to prepare for future tsunami.



The higher ground in the Yoshihama area damaged by the Great East Japan Earthquake and Tsunami



Yoshihama coast can be seen from the hills

Life on the hills might not be convenient for the fishermen as there could be a travelling distance from homes on the hill to the beach, but preparation for tsunami in the Yoshihama area had the highest priority even though the convenience of daily life might be affected.

The case of minimizing the damage in this earthquake in Yoshihama area is a good example of town planning taking advantage of lessons learned from the damage of tsunami in the past.

### Approach 3: Promotion of efforts in Sanriku Geopark

Sanriku Geopark was designated as a Japan Geopark in September 2013, there are many places where you can experience the connection between nature and culture on a magnificent scale, not to mention the remains of buildings damaged in the disaster, etc.



Disaster Site  
(Takata Matsubara Road Station, which took extensive damage in the tsunami)



Geopark lesson

We are seeking to promote geopark courses in Sanriku Geopark for elementary schools and junior high schools, in order to tell future generations about living together with nature, seismic history, and the memory of earthquakes, disaster prevention education and school education.

In addition, as the biggest geopark in Japan, stretching across three prefectures (Aomori, Iwate, Miyagi), efforts have also been made to attract educational trips and information dissemination related to promoting wide-area sightseeing.

**Initiative 7 Promoting town development based on a multi-layered disaster risk reduction system**

**[Outline of Approach]**

- During the Great East Japan Earthquake and Tsunami, Fudai Village was one of the places which suffered from minimal injuries and damage due to countermeasures against tsunami, which consisted of floodgates, seawalls and relocation to mountainous areas of the village.
- Tsunami countermeasures in the coastal municipalities of Iwate Prefecture did not rely solely on seawalls and the relocation of public facilities to higher ground, but also 'soft measures' that emphasize evacuation. Even though the waves rose above the seawalls during the Great East Japan Earthquake and Tsunami, residents were able to evacuate rapidly due to the 'soft measures', thus minimizing injuries.
- Based on actual cases in affected areas, the "Great East Japan Earthquake and Tsunami Town Planning Guidelines" have been drawn up, promoting urban development that is effective against disasters yet is still pleasing to the eye.

**Approach 1: Fudai Floodgate: The floodgate and seawalls that protected the local people**

The Great East Japan Earthquake hit Fudai with a seismic intensity of 5 and the tsunami hit with a maximum height of T.P. +24m. The waves rose up against the seawalls and floodgates and into the village center, but damage was kept to a minimum through the preventive measures.



Fudai Floodgate after the disaster  
Source: *Koho Fudai* (March 2011 edition)

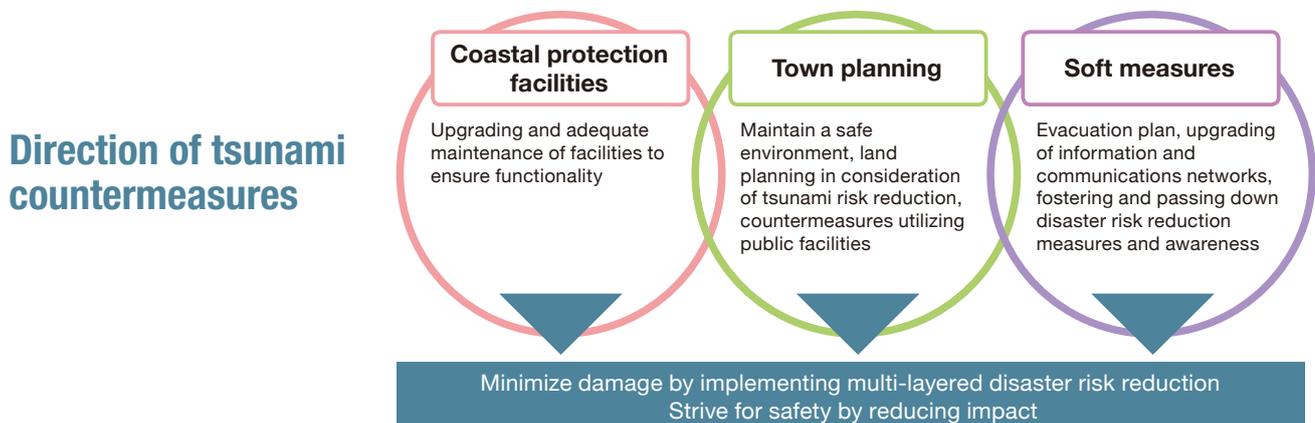


View of Fudai Floodgate

Fudai Coast (district coast name: Belforte Monferrato Coast specifications]

- Extension 205m (floodgates 105m, embankment 100m)
- Planned dam height TP + 15.5m (Meiji Sanriku Tsunami)  
\*highest in the prefecture

**Approach 2: Promotion of "multi-layered disaster risk reduction" -based town development**



### Approach 3: Town planning guidelines based on tsunami information

Following much revision and study by the Tsunami Information Town Planning Committee comprising academics with experience in town planning of the affected areas, we have outlined the following town planning proposals:

1. Proposal on general town planning
2. Proposal on tsunami countermeasures
3. Proposal on desirable urban development
4. Proposal on urban development promotion and regional management

#### Outline of town planning guidelines based on tsunami information

### Town planning based on tsunami information – key points

#### To continue living in Sanriku



Plan an attractive town the next generation will take pride in  
Protect the region's culture, which provides emotional support  
Create a town more conducive for living than before

#### to accomplish this...

- |                                  |                                       |
|----------------------------------|---------------------------------------|
| Compact towns                    | ▶ Not too big                         |
|                                  | ▶ Built up gradually                  |
| Convenient towns                 | ▶ Incorporating new technologies      |
|                                  | ▶ Having spaces available to everyone |
| Towns in which people can gather | ▶ Having gathering spaces             |
|                                  | ▶ Takes advantage of unique character |

#### Inherit the memories



Strive to build a town from lessons learnt  
Pass on the memories to the next generation

#### to accomplish this...

- |                          |  |
|--------------------------|--|
| Never forget to evacuate | ▶ Create evacuation spots              |
|                          | ▶ Create evacuation routes             |
| Never forget the tsunami | ▶ Keep memories and records            |
|                          | ▶ Pass on the experiences and thoughts |

#### To protect and nurture the natural appeal



Reaffirm the beauty of Sanriku's seas, mountains and rivers  
Create a new appeal

#### to accomplish this...

- |                                   |                                  |
|-----------------------------------|----------------------------------|
| Recognize the region's uniqueness | ▶ Protect Sanriku's scenery      |
|                                   | ▶ Create lively towns            |
|                                   | ▶ Connect water and green spaces |

#### Moving forward together



Everyone works to share information and news  
Consider better approaches to reconstruction

#### to accomplish this...

- |                       |                                |
|-----------------------|--------------------------------|
| Strengthen the system | ▶ Share information            |
|                       | ▶ Define goals/accomplishments |
|                       | ▶ Formulate a structure        |

#### Related URL

<http://www.pref.iwate.jp/anzen/machizukuri/18201/001813.html> (JPN only)

### Approach 4: Efforts to accelerate reconstruction projects

The land re-zoning projects in Rikuzentakata City transport soil needed for relocation to higher ground using conveyor belts.

At 3km long and 1.8m wide, the conveyor belt can transport 20,000m<sup>3</sup> (4,000 10-ton dump trucks) of soil, shortening the construction period (using normal dump trucks) by 6 years.



tA pine tree, still miraculously standing, and the "Bridge of Hope" conveyor belt (Iwate Prefecture Rikuzentakata)

## Initiative 8

## Promoting radiation countermeasures with a focus on children's health and food safety/quality assurance

**[Outline of Approach]**

- Even though Iwate Prefecture is more than 150 km away from Tokyo Electric Power Company's troubled Fukushima Daiichi Nuclear Power Plant, it has been confirmed there is a relatively high radiation dosage, particularly in the southern part of the prefecture.
- Iwate Prefecture has cooperated with municipalities to measure radiation, initiate countermeasures against decontamination and reputational damage, with a focus on ensuring safety for children, who are more susceptible to radiation contamination than adults, and food safety/quality assurance.
- In regard to the health effects on children of radiation caused by the nuclear accident, research into radiation health effects (inspection of radioactive material in urine samples) is being undertaken mainly in southern Iwate, in order to ensure that there are no adverse health effects due to the accident.
- As a major producer of agricultural, forestry and fishery products, Iwate Prefecture is working to continue to provide safe products by working towards radiation measurement in distributed food and school lunches, and promptly releasing the test results to ensure food quality and safety for consumers.
- To protect prefectural land, residents' lives, health and property from the nuclear disaster, Iwate is cooperating with municipal governments, various disaster risk reduction organizations and nuclear power-related corporations to formulate a new "Iwate Prefecture Regional Disaster Risk Reduction Plan (Nuclear Emergency Countermeasures Guide)".

**Approach 1: Radiation health effects research (inspection of radioactive material in urine samples)**

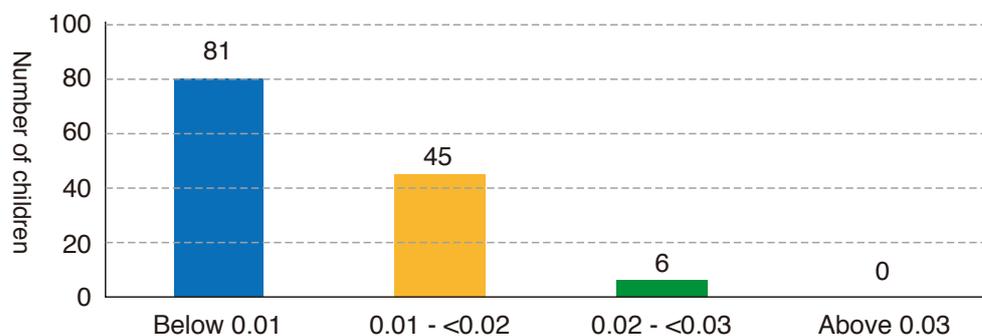
Research on extraction of radioactive substances in the urine of children between 3 and 15 years old is being conducted in southern Iwate.

The committed effective dose due to radioactive cesium (cumulative exposure in one's lifetime)\* in every test subject was far below the annual 1mSv as stated by the International Commission on Radiological Protection (ICRP) in 2007.

The medical experts on emergent radiation contamination, radiation protection and public health have concluded that the "health effects of radiation are considered to be extremely small."

Research is ongoing for children tested in fiscal 2011.

\* The committed effective dose (mSv), is the cumulative dose of internal exposure over a commitment period of 50 years for adults, and up to age 70 years for children.

**Situation of committed effective dose due to radioactive cesium (mSv)**

Iwate Prefecture radiation internal exposure health effects survey results  
(fiscal 2011)

**Approach 2: Measurement of radioactive concentration in prefectural produce**

Together with planned inspection of agricultural, forestry and fishery products, distributed food and school lunches, Iwate Prefecture is also promptly publishing the test results as well as the progress on efforts undertaken.

In addition, to aid the understanding of basic radiation countermeasures and prevent damage to its credibility, we are working to disseminate information to people both within and outside Iwate at every opportunity through the prefecture's official website, by both publishing the Iwate Prefecture Radiation Countermeasures Report and holding risk communication assemblies.

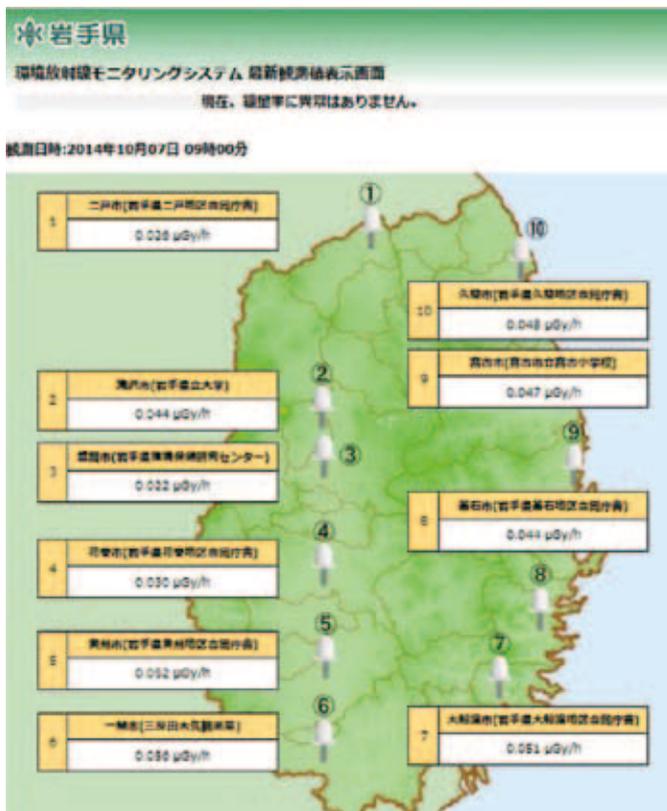
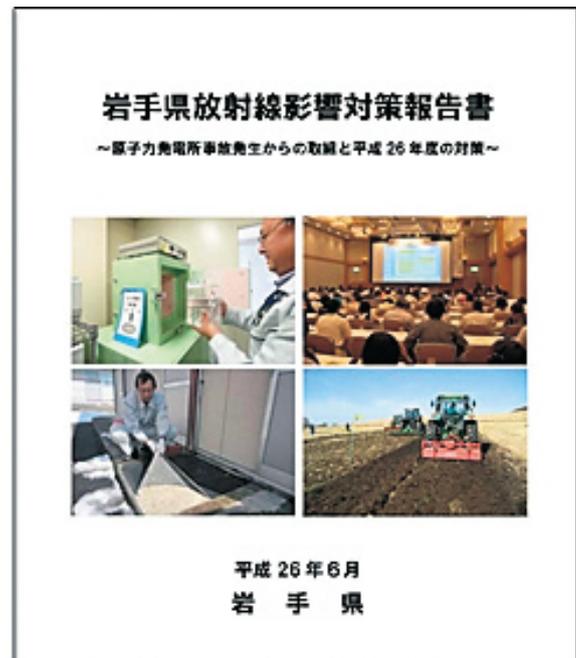
Reference value of radioactive cesium (starting from fiscal 2012)	
Food groups	Reference value (Unit: Bq / kg)
general food	100
baby food	50
dairy	50
drinking water	10



Preparation of materials for analysis



Measurements taken in equipment

Environmental radiation monitoring system HP  
(Monitoring post-measurement results map)Iwate Prefecture Radiation Countermeasures Report,  
2014 edition

**Approach 3: Atmospheric radiation measurement**

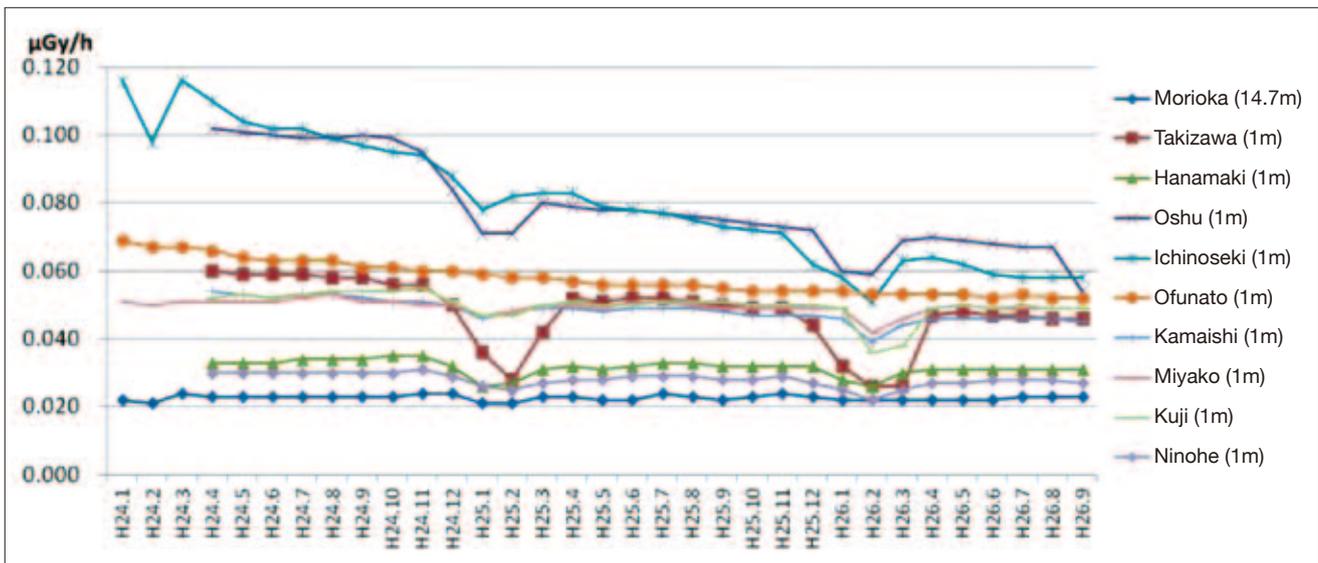
In order to understand the impact of the nuclear accident on the living environment, Iwate Prefecture has allocated monitoring posts to 10 locations within the prefecture, to measure the atmospheric radiation dose rate around the clock, and published them in real time on the Iwate Prefecture official website.

In addition to the other 55 locations measured monthly by the survey meter, prefectural schools, hospitals and other facilities are also periodically measured, and the results published on the prefecture's official website.

Since June 2013, the measurements of the 55 locations are well below 0.23 $\mu$ Sv / h, which is the decontamination national standard.

Also, artificial radioactive material has not been detected in rainwater or tap water.

We will continue with the measurements to fully understand the nuclear accident-induced impact on the living environment and to protect the health and safety of our residents.



Changes in air dose rate at monitoring posts (monthly average)



**Approach 4: Formulation of Iwate Prefecture's local disaster management plan and nuclear emergency countermeasures**

Realizing that there was a need to revise the methods in coping with the nuclear disaster, Iwate Prefecture formulated a new "Iwate Prefecture Regional Disaster Risk Reduction Plan (Nuclear Emergency Countermeasures Guide)".

Information gathered from nuclear power-related corporations, residents' evacuation plans, environmental monitoring and other applicable actions are prescribed in the Plan.

In order to implement the necessary measures as prescribed in the Plan in a swift manner, Iwate Prefecture has agreements with Tohoku Electric Power Co., Ltd. and Japan Nuclear Fuel Ltd to form an information contact system in the event of a nuclear disaster.



"Iwate Prefecture Regional Disaster Risk Reduction Plan (Nuclear Emergency Countermeasures Guide)" established at Iwate Prefecture Disaster Risk Reduction Council in March 2013



**Initiative 9 Quick and efficient disposal of disaster debris**

**[Outline of Approach]**

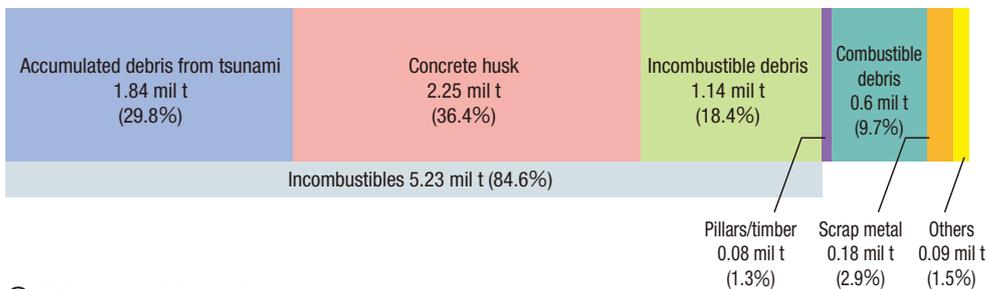
- The amount of disaster debris generated by the Great East Japan Earthquake and Tsunami in the prefecture reached approximately 6.18 million metric tons, which is equivalent to 14 years of household garbage for the whole prefecture. Therefore, as a first step towards recovery and reconstruction, the prefecture laid out a plan to complete the disposal of debris, which is a hindrance to the living environment, within 3 years of the disaster.
- With the cooperation of the national government and related organizations, and with the support of inland municipalities, the prefecture was able to work with the affected municipalities to dispose of the disaster debris. Debris that could not be handled within the prefecture was examined by national authorities and disposed of with the help of local governments and private companies outside of Iwate. (Approaches 1, 2)
- Disaster debris included collapsed buildings, home furnishings, soil and dirt, among various other types of material. The debris was processed by private companies using cutting-edge technology to crush and sort the debris. (Approach 3)
- Recycling was implemented (recycling rate: roughly 90%) by using disaster debris as raw materials for cement and reconstruction materials. (Approach 3)
- As a result, the goal of completing the disposal of disaster debris by the end of March 2014 was achieved.



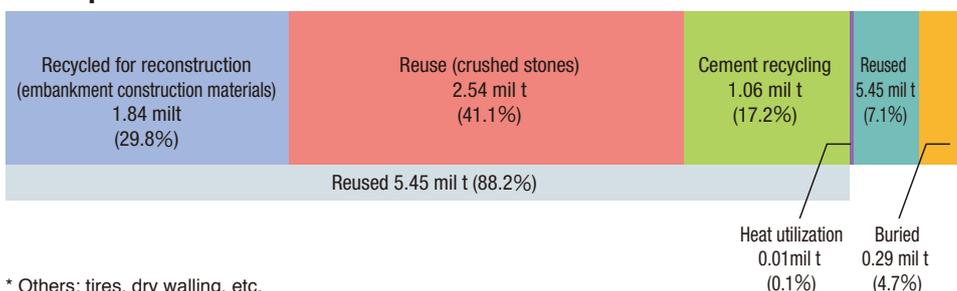
Otsuchi immediately after the disaster

**[Disposal outcome of disaster debris]**

○ **Breakdown of debris (6.18 million metric tons generated)**



○ **Disposal breakdown**

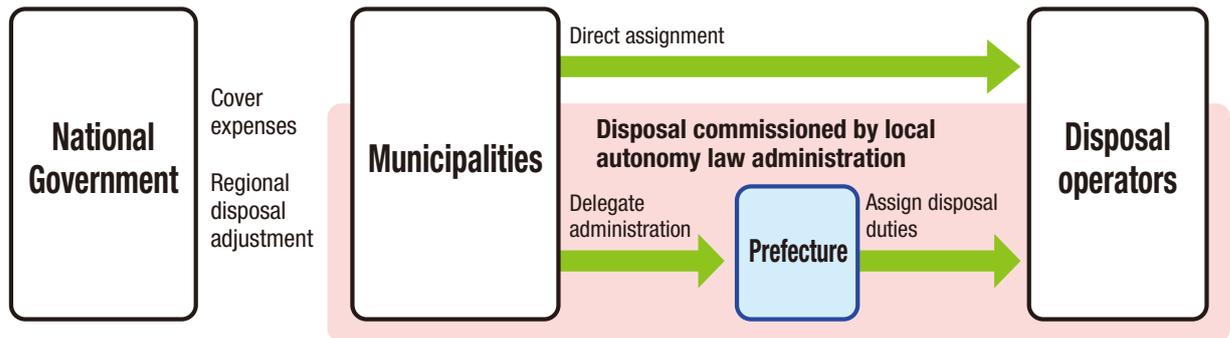


\* Others: tires, dry walling, etc.

**Approach 1: Prefecture entrusted with the administration of disaster debris disposal**

The disposal of disaster debris had been the responsibility of the municipalities, but as the staff and offices of coastal municipalities were affected by the tsunami, debris disposal administration of the 12 coastal municipalities is now the responsibility of the prefecture after a nationwide agreement based on local autonomy laws. Disposal is carried out under the guidelines of the municipalities

**[Administration Flow]**



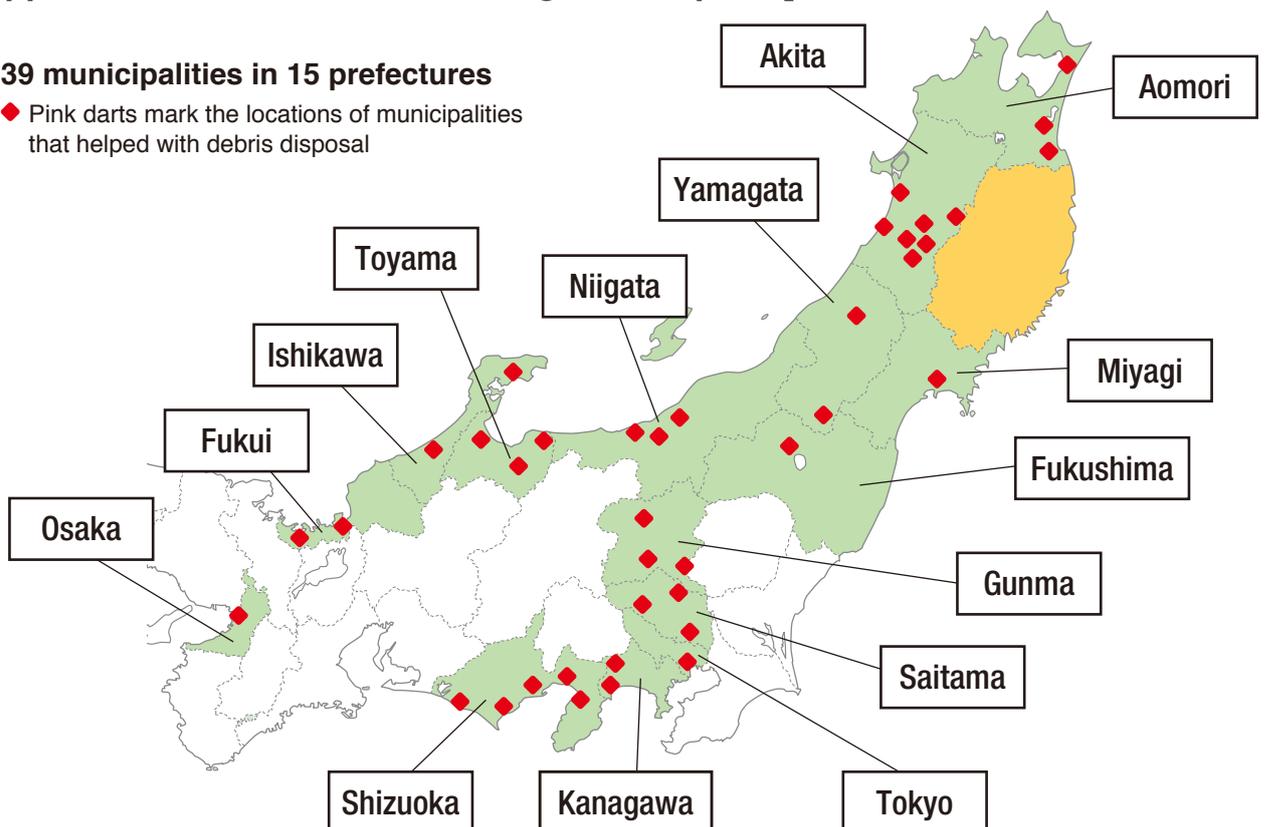
**Approach 2: Regional waste treatment with support from national and local authorities outside Iwate**

In order to complete the disposal of disaster debris by the end of March 2014, our prefecture sought support from the national government and from local authorities to dispose of debris that couldn't be processed inside the prefecture. Doing this allowed us to complete the disposal process within the planned deadline.

**[Support from local authorities in regional disposal]**

**39 municipalities in 15 prefectures**

◆ Pink darts mark the locations of municipalities that helped with debris disposal



**Approach 3: Innovation by private business operators and high degree of recycling**

**(3) – 1 Crushing/Sorting**

The amount of debris was not only huge but also varied due to the tsunami; hence, it could not be disposed of by the processing facilities. We assigned the crushing and sorting work to private firms possessing cutting-edge technology and knowledge, and they performed the task of disposal.

Incorporating automobile makers' "Kaizen" (production management techniques that eliminate waste), the processing of concrete debris in the town of Yamada proved to be more efficient and the planned amount of disposal was completed without extra costs for upgrading of facilities and human resources.

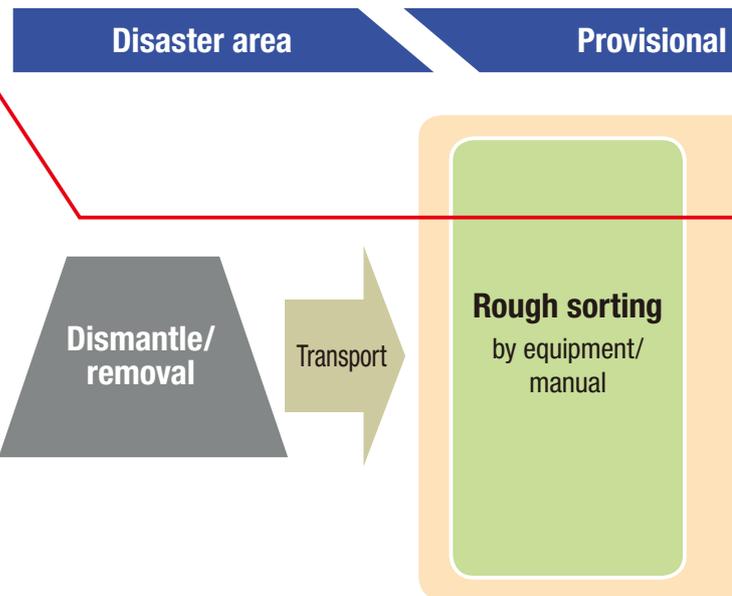


Crushing and sorting line established in Miyako (Kashima JV)

**[Crushing/sorting facilities allocated]**



**[Disposal flow]**



**[Mixed debris before crushing/sorting]**



Combustible debris



Incombustible debris

**(3) - 2 Cement Plants**

As the debris can be processed as fuel and raw materials for cement, does not leave ash, and does not require other disposal sites, the cement plants in Iwate and Aomori prefectures became key areas for debris disposal.

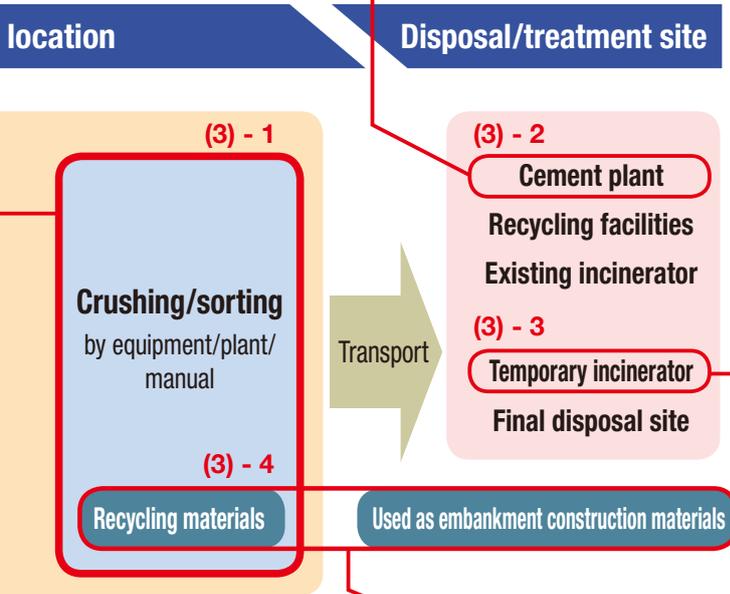
The cement products standards set a maximum limit on salt content, so technology had to be incorporated to wash and remove the salt in disaster debris that was filled with seawater.



Taiheiyo Cement Corporation's Ofunato factory



Salt removal facility



**(3) - 3 Temporary incinerators**

The existing facilities for thermal treatment were lacking hence temporary incinerators were set up in Miyako and Kamaishi cities. These facilities were utilized with the cooperation of the officials and residents in the area.



Temporary incinerator (Miyako)

**(3) - 4 Recycling as reconstruction materials**

Concrete remains from dismantling the disaster-affected buildings and accumulated debris from the seabed after the tsunami accounted for 70% of the total debris. These were then sorted and foreign materials were removed as much as possible and reused as embankment construction materials.



Soil classification treatment facilities at Rikuzentakata (Joint venture with Rematec. Ltd.)

## Initiative 10 Promotion of emotional care

### [Outline of Approach]

- The Iwate Prefecture Emotional Care Center and regional emotional care centers in four coastal locations were established to reduce the mental burden on survivors of the disaster by promoting intensive emotional care for each and every survivor.
- Many children have experienced losses due to the disaster and are living under a great deal of stress. The Iwate Children's Care Center is working hand in hand with health, medical care, welfare, and education institutions to provide emotional and mental care for the children.

### Approach 1: Establishment of the Emotional Care Center

To address emotional care over the mid- to long-term, the Iwate Prefecture Emotional Care Center was established in Morioka in February 2012 and another four centers in Kuji, Miyako, Kamaishi and Ofunato cities the following month.

The regional emotional care centers are collaborating with the disaster survivor counselling centers (in seven coastal municipalities) on house visits, checkups, health education and other health activities in the region, and developing human resources by training personnel to act as suicide counselors.



Opening of Iwate Prefecture Emotional Care Center



Training seminar for suicide counsellors

Iwate Prefecture Emotional Care Center HP <http://www.i-mcc.jp/>

### Approach 2: Establishment of Iwate Children's Care Center

From June 2011, a Children's Emotional Care Center was established in Miyako, Kamaishi and Ofunato cities, where children and their families were able to have consultations with nurses and teachers.

In May 2013, in order to continue this operation over the mid- to long-term, we established the Iwate Children's Care Center with aid from the State of Kuwait and the Japanese Red Cross Society.



Multidisciplinary case conference



Multidisciplinary care team

The Iwate Children's Care Center is operated via Iwate Medical University, where they conduct visits to child psychiatry clinics and disaster-affected areas to provide consultations, engage and train professional staff such as child psychiatrists and clinical psychologists, and also implement comprehensive training for counselors, teachers and supporters of the region.

Iwate Children's Support Center website [http://www.iwate-med.ac.jp/hospital/iwate\\_children/](http://www.iwate-med.ac.jp/hospital/iwate_children/)

## Initiative 11 Ensuring medical care in the affected areas

### [Outline of Approach]

- In order to ensure the availability of health care providers in the especially the badly hit southeastern city of Rikuzentakata, the Iwate Medical Association opened a clinic in August 2011 where doctors from inland areas provide consultations in shifts.
- Medical equipment maintenance costs and clinic operating costs are paid for with assistance from both the national and prefectural governments. It is important to build a relationship of mutual trust and collaboration between governmental and medical bodies from before disaster strikes.

### Approach 1: Establishment of clinics by Iwate Medical Association

Iwate Medical Association was established in August 2011 to ensure continuous medical support in the affected areas. It was the first prefectural medical association in Japan to open a clinic in the disaster-affected areas.

With support from related organizations, consultations are ongoing with nearby temporary housing within the same premises.



Rikuzentakata clinics

There is a lack of dermatology, pediatrics and otorhinolaryngology among other clinical departments in the affected areas, so a total of 11 clinics have been working in shifts. They are operated by local medical institutions and remain open even on Saturdays, Sundays, national holidays and year-end holidays.

Currently, with the cooperation of Iwate Pharmaceutical Association, the clinics are working to improve the convenience of facilities and to provide in-house prescriptions.



Interior of clinic



Consultation 1



Consultation 2

## Initiative 12 Improving administrative functions of municipalities

### [Outline of Approach]

- The greatest responsibility in protecting residents' lives and property after the Great East Japan Earthquake and Tsunami fell on the coastal municipalities, but as the government buildings and staff were severely affected, administrative functionality suffered significantly. There was therefore a need to provide significant support to these municipal governments in various areas.
- The Iwate Prefectural Government, being the broader regional administrative body in the area, dispatched workers and provided technical advice to the affected municipalities so they could provide adequate administrative services as soon as possible.
- For personnel support, there was a call for dispatch staff from local governments all over the country, and by the end of March 2014, over 1,000 staff had been dispatched.
- In addition, as the municipality services on the system of servers and data were damaged by the tsunami, the prefecture provided a municipal administrative information backup system.

### Approach 1: Dispatch of personnel to the affected municipalities

The Great East Japan Earthquake and Tsunami had a severe impact on the municipal governments, with a total of 108 staff members in 5 municipalities being killed.

In particular, 33 out of 137 staff members, including the mayor, were killed in Otsuchi, and in Rikuzentakata, 68 staff members, almost a quarter of the total of 293, lost their lives.

Under these circumstances, Iwate Prefecture dispatched human resources and technical advice to the affected municipalities so they could provide adequate administrative services as soon as possible.



Otsuchi Town Hall was destroyed by the tsunami



Current Rikuzentakata temporary government building

In terms of personnel support, local authorities across the country provided support for urgent countermeasures immediately after the disaster, but there was also a need to ensure the availability of employees to gradually restore the affected administrative functions.

In Iwate Prefecture, the dispatch of staff from inland municipalities started around mid-March 2011. At the end of March, Nagoya in central Japan responded to Rikuzentakata's call for dispatch staff, and we now have more than 1,000 staff from numerous local authorities around Japan.

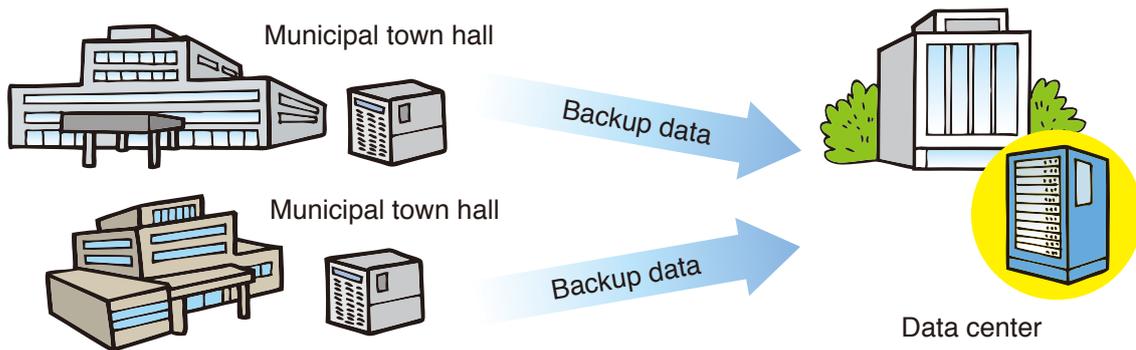
With the gradual recovery of administrative functions and progress in restoration operations, the dispatch number is increasing every year, and is expected to continue to do so until the end of the reconstruction.

**Approach 2: "Municipal administrative information backup system" run by the prefecture**

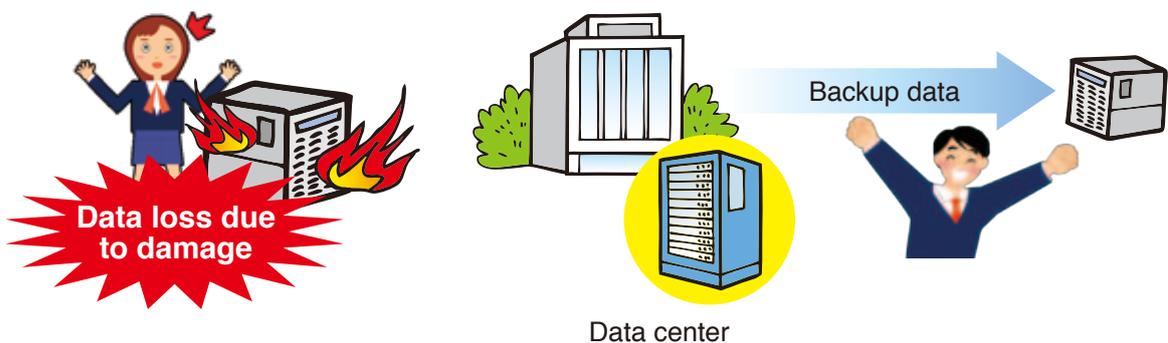
The prefecture set up a municipal administrative information backup system in a safe and appropriate location as the servers and data on the systems that coastal municipalities use to provide services to residents were damaged in the tsunami.

**[Example of Operation]**

Normal times: Daily backup of municipal administrative information



During disaster: Prompt restoration of backup data during data loss.  
(Hardware may also be replaced when damaged)



**Securing human resources in the fiscal years 2011 – 2013 (by profession)**

	Required staff	Dispatched staff	Administration		Public works	Architecture	Health nurses	Other
				Housing sites related				
Fiscal 2011 (As of 31/3/2012)	—	<b>171</b>	97	—	42	10	12	10
Fiscal 2012 (As of 31/3/2013)	<b>366</b>	<b>321</b>	145	21	127	21	16	12
Fiscal 2013 (As of 31/3/2014)	<b>628</b>	<b>596</b>	294	68	204	38	21	39

Others: Mechanical engineers, electrical engineers, nurses, social workers, nursery school teachers, physiotherapists, judicial scriveners, etc.

## Initiative 13 Maintenance and operation of survivors' ledger system

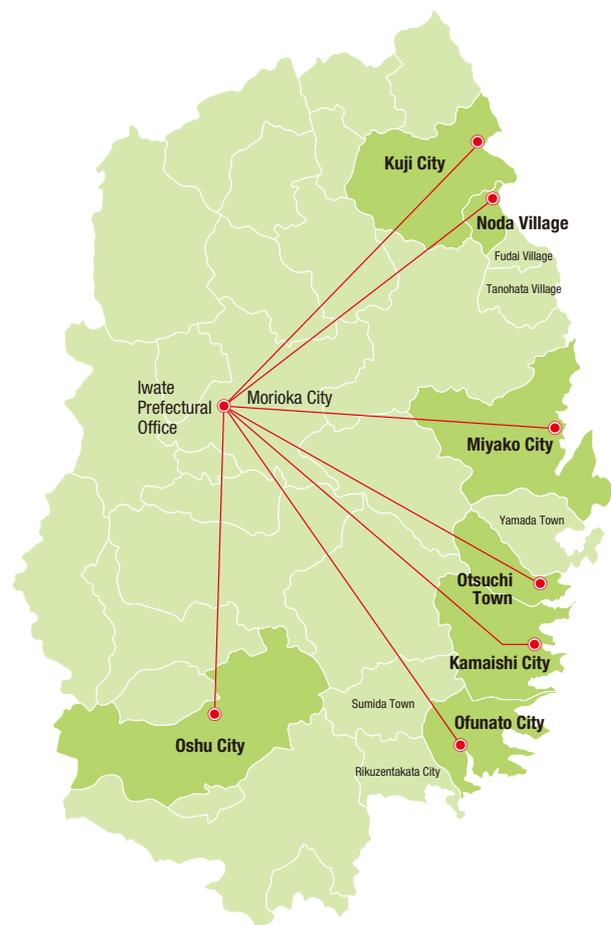
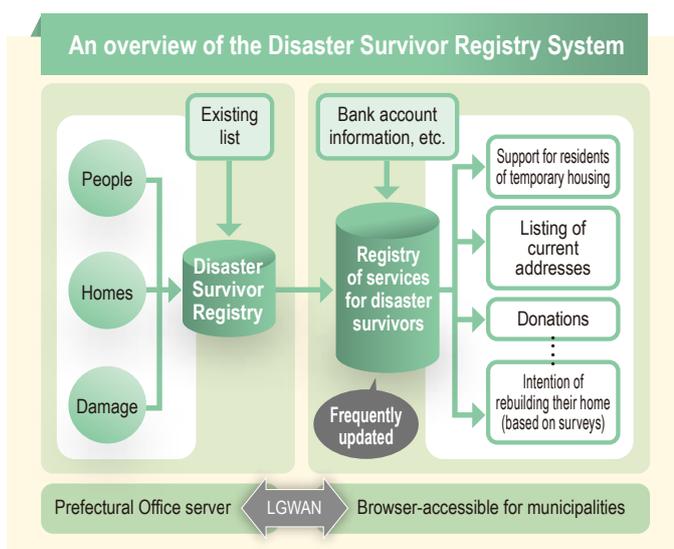
### [Outline of Approach]

- In the aftermath of the disaster, the coastal municipalities' government buildings and staff were severely affected, causing a significant falloff in their abilities to perform administrative functions. With emergency calls for recovery and operating shelters, etc., the inability to adequately manage survivors' information proved to be a concern in rebuilding the lives of these people.
- Under these circumstances, as the wider regional government body, the prefecture strives to support the reestablishment of administrative functions of the affected municipalities. To offer direct assistance to the victims, the prefecture also cooperated with a support project team centered in Kyoto University and Niigata University and incorporated the previously utilized and proven "survivors' ledger system".
- In the municipalities in which the survivors' ledger system has been introduced, work efficiency is measured, as are the affected situation of each household, support received and future rebuilding of housing. In this way, it is possible to identify the necessary support required, and provide more detailed support for rebuilding the lives of survivors.
- On the other hand, as the system was only introduced after the disaster, the data entry of survivors' information (basic resident registry, taxation ledger, etc.), issuance of disaster-survivor certificates, and donations into the system, took much more time than was previously anticipated.
- Based on the efforts undertaken by Iwate Prefecture, results proved that it would be practical to maintain the survivors' ledger system in advance of a disaster, so as to be prepared when disaster strikes.

### Approach 1: Introducing the survivors' ledger system into the affected municipalities

Iwate Prefectural representatives and the support project team visited the affected municipalities and proposed the introduction of the survivors' ledger system.

Operation of the system began in April 2012 in seven municipalities, and is effectively utilized in rebuilding the lives of survivors.



**Approach 2: Reflection of information on affected municipalities in the survivors' ledger system**

Besides regular visits to the municipalities by Iwate Prefectural workers and the support project team, we also carry out operational support for the system and utilize opinion exchange (both as meetings and via websites) to collect users' opinions, so as to improve the system.



Exchange of opinions on the system implemented

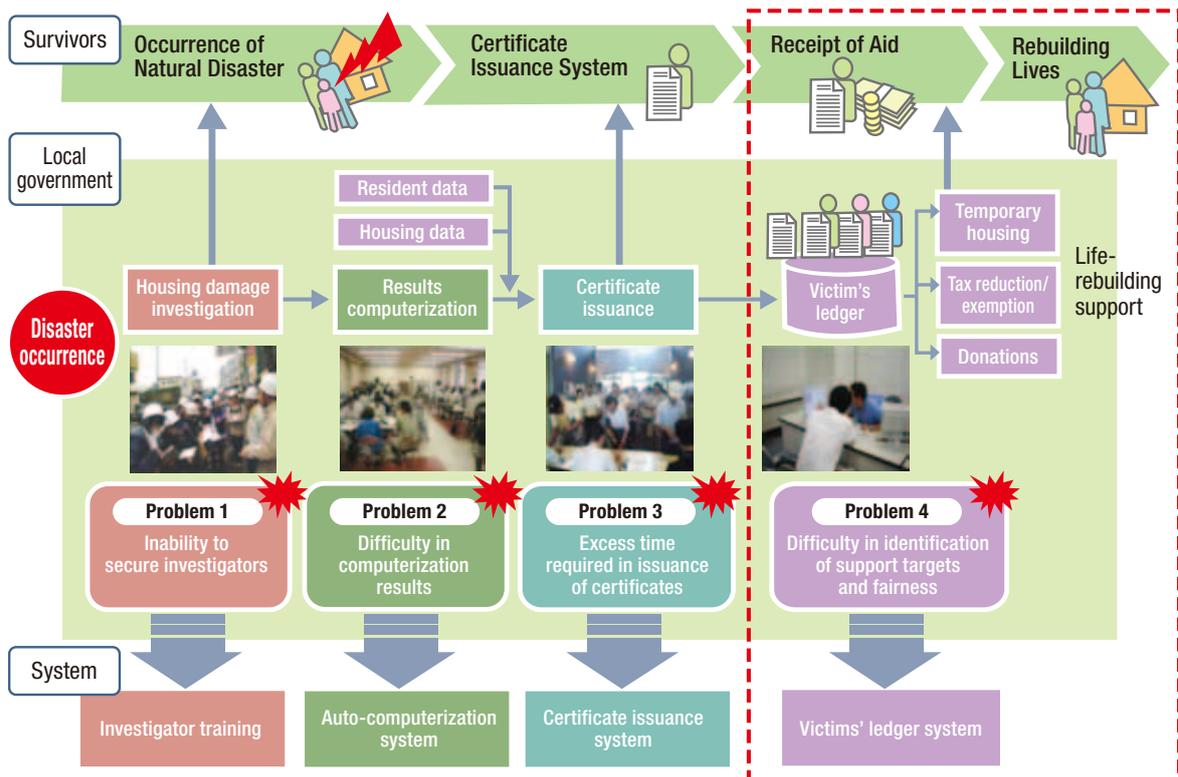
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**Approach 3: Implementation of new survivors' ledger system construction**

We are considering updates to further improve the efficiency of the current system used in Iwate, and to better prepare for future disasters.

Based on the lessons learned from the Great East Japan Earthquake and Tsunami, a comprehensive system that can better handle the issuance of disaster-survivor certificates, support for rebuilding lives, etc., is scheduled to be implemented starting in fiscal 2015.

**[Overall image of the new survivors' ledger system improved by Iwate Prefecture]**



\* This is the system being implemented by Iwate Prefecture currently

## Initiative 14 Revitalizing the local community through cooperation between residents and various entities

### [Outline of Approach]

- In the affected areas of Iwate Prefecture, a mutual support system to provide individual house-visits and safety-monitoring services in temporary housing is being developed. NPOs and social welfare councils have also created meeting grounds for people to get together. Such support provided to each and every survivor is only possible when local residents, including young people, women, companies, NPOs and other entities all join hands and work together to regenerate the local community.
- Many young people such as high school students, college students and working adults both inside and outside the prefecture resolved to contribute immediately after the Great East Japan Earthquake and Tsunami and the subsequent reconstruction, by actively participating in town planning activities and volunteering. Seeing these young people actively contributing and encouraging survivors on the road to recovery makes us feel hopeful about the future.
- In response to the enthusiasm of these young people, Iwate is working towards establishing a system to financially support their outstanding reconstruction proposals, and to develop a region where the youth can fulfill their potential.
- The female workforce is also essential in enriching the community and restoring the region. We established a "Women's Participation Promotion Committee" within the "Iwate Great East Japan Earthquake and Tsunami Reconstruction Committee" and are working toward an environment where women can take on a more central role in social activities. We are working to raise awareness on gender equality, as the perspectives of both genders are equally important in the reconstruction.

### Approach 1: Construction of a mutual support system in emergency temporary housing, etc.

To construct a mutual support system in emergency temporary housing areas, the municipalities, in cooperation with NPOs, provide lifestyle counseling and individual house visits by counselors and members of the temporary housing complex to watch over the survivors and ensure their safety.

Community associations were established to create and distribute manuals such as "Guidelines for Temporary Housing Management" and "How to Effectively Watch Over Residents of Public Temporary Housing". These are distributed at local government offices, etc.



Watch activities by lifestyle support counselors (Miyako)

### Approach 2: Creating meeting grounds for exchanges by NPO, etc.

In the emergency temporary housing, NPOs and social welfare councils held "Tea Party Meetings", where residents can feel free to get together and chat, helping to prevent loneliness and promote togetherness in the community.



Yamagishi Idobada Cafe  
(Ofunato)



"Sunshine School"  
(Otsuchi)

**Approach 3: Life support for elderly people in emergency temporary housing**

We have established a support center to monitor residents' safety, engage in general consultation, meal deliveries, and other day services for those who especially require assistance such as the elderly and people with disabilities.

In addition, the elderly can attend exercise classes and health consultations on a casual basis, and we are making efforts to promote engagement between local residents and temporary housing residents, and support health maintenance to prevent inactive lifestyles.



Exercise activities (Rikuzentakata)

**Approach 4: Establishing meeting places in the public housing for disaster survivors**

To promote exchanges among the public housing residents and with the other local residents, more spacious meeting grounds are being established.



Prefectural Toyamane Apartment Meeting Space

**Approach 5: Inviting people to move into the public housing for disaster survivors in groups**

To maintain a feeling of togetherness in the community, the public housing for disaster survivors is calling for new residents to move in in groups.

**Approach 6: Supporting participation of young people the reconstruction**

Iwate is working towards establishing a system to financially support young people's outstanding proposals for the reconstruction, and towards developing a region where the young people can play more active roles in the future.

In Noda Village, as part of the recovery from the Great East Japan Earthquake and Tsunami, and to help bring peace to the souls of the victims, the Tohoku Pacific coastal regions have come together to organize annual firework displays. The youth organization "LIGHT UP NIPPON Noda Executive Committee", has also devised plans for a special event-train services, special classes to discuss the reconstruction and the future of the region at Noda Junior High School, and more, all subsidized by Iwate prefecture.



Subsidized event in Noda Village

**Approach 7: Moving towards a reconstruction that is based on the mutual opinion exchange between both genders**

To include women's perspectives in the planning and execution of reconstruction plans, the prefecture has organized all-women exchange meetings of experts from all specialized professions since 2011.

From fiscal 2014, this initiative is being further developed to incorporate female perspectives by establishing a "Women's Participation Promotion Committee" within the Iwate Great East Japan Earthquake and Tsunami Reconstruction Committee, which investigates matters related to the reconstruction following the Great East Japan Earthquake and Tsunami.



Women's participation promotion committee (Morioka City)



The prefecture has been holding lectures and workshops on "Thinking about Disaster Risk Reduction and Reconstruction from the Perspectives of Both Genders" since fiscal 2013, to promote gender equality in the participation of disaster risk reduction and the reconstruction.

Disaster risk reduction and reconstruction from the perspectives of both genders workshop in Miyako

### Approach 8: Central role of the youth and women in recovery efforts



Considering that the temporary housing spaces are cramped, NPOs have set up learning facilities with teaching support from local cram school teachers and college students for junior high and high school students in the affected areas who are studying for exams.

After-school learning in Rikuzentakaka

From August 2011, a group of women decided to contribute to the reconstruction efforts and opened a temporary cafeteria, "Yottettannsee," in Kirikiri, Otsuchi Town to not only provide meals, but to also create a gathering place for the local residents.



Helpers from "Yottettannsee Cafeteria" (Otsuchi)

## Column

### Disaster Relief by the Sanriku Fund

- Sanriku Fund: Established in 1994 to facilitate research exchanges between academics and entities of the municipalities in a bid to promote the Sanriku region and its surrounding areas
- In fiscal 2013, the foundation provided support for regenerating the local community and strengthening coastal businesses involved in the reconstruction.
- Example of support provided: Youth development work in affected areas
  - Objective: Subsidize costs of activities to solve problems facing youth development work
  - Content: Subsidize part of the activities' expenses, fixtures and equipment purchase costs
  - Example of subsidy: Unosumai Youth Baseball Club (Kamaishi)



The Youth Baseball Club has been practicing at schoolyards and other borrowed grounds after losing its grounds in the tsunami. However, with the availability of overgrown land, ground leveling work is conducted so they can be used as practice grounds. The idea to decorate the grounds with carp streamers succeeded in appealing to the locals and attracted children to the association.

## Initiative 15 Construction of sustainable local communities by promotion and utilization of local resources

### [Outline of Approach]

- Before achieving full-fledged reconstruction, it is necessary to rebuild a sustainable and stable socio-economic infrastructure. As a result, it is necessary to promote multi-layered industrial development. This includes fostering human resources and utilizing local resources such as agricultural and marine products, tourism, production technologies, and so on.
- Aquaculture, one of the prefecture's key industries, suffered considerable damage along with land-based industries in the affected areas of Iwate Prefecture. However, even though they had to face the devastation of losing about half of the local social capital, Iwate Prefecture, the coastal municipalities and related organizations have worked towards rebuilding the delivery and processing system of the local fishing markets to quickly revive the local fishery industry, reorganize the market street together with town planning organizations, and further promote local tourism by utilizing local characteristics.
- By unearthing a variety of resources in the region, polishing them, and adding additional values, we are promoting the development of the region while connecting with the outside world.

### Approach 1: Promotion of reconstruction support matching by industrial, academic, and governmental organizations

"Iwate Future Creating Organization," the industry-academia-government network organization, is undertaking a project to promote business as a bridge for the reconstruction of Iwate Sanriku. This matches the support for reconstruction to the affected areas from inside and outside the prefecture.

By placing coordinators in the coastal areas and in Morioka City, it has also been working to deliver reconstruction-related information and strengthen the reconstruction support network with organizations and companies within and outside the prefecture.

From past matching, there are also cases of increasing the use of products from the prefecture such as utilization support of the companies' own sales channels, implementation of internal sales events, making menus for employees' canteens, and so on.



Due to matching, the market for cosmetics produced in the prefecture has expanded throughout the country

### Approach 2: Introduction of "improvement" for productivity in fish processing industry

In order to support early reconstruction and management stabilization of the key industry in the coastal region, the fish processing industry, the guidance of "Improvement" (a Toyota production system) by experts from the fiscal year of 2011 was introduced. Because of the "improvement" efforts, the goal that we are aiming for is expansion towards the building of Iwate's unique fish processing system with high efficiency, high productivity, and high added value.

#### [Improvement Example]

Previously, a worker had to lift a container with more than 30kg of goods to transfer it from a truck to the weighing machine. By adjusting the height of the weighing machine to eliminate the difference in height with the truck, heavier work can be eliminated and workers are now safer, more reliable, and can work at an even faster pace.



Before



After

### Approach 3: Building distribution and processing systems focused on local fish markets

In order to promote the integral regeneration of the fishing, distribution, and processing system, efforts were made to realize the early resumption of local fish markets, and operations such as maintenance toward a more hygienic fish market facility than that of before the earthquake, functional recovery of the nearby ice making, ice storage facilities, and refrigeration facilities, etc., were promoted.

Through utilization of the rich aquatic resources of Sanriku, by helping 80% of the marine product processing industries affected by the disaster to recover and improving the additional value of the harvested seafood in the region, efforts were made to revive the local aquaculture industry as a key industry.



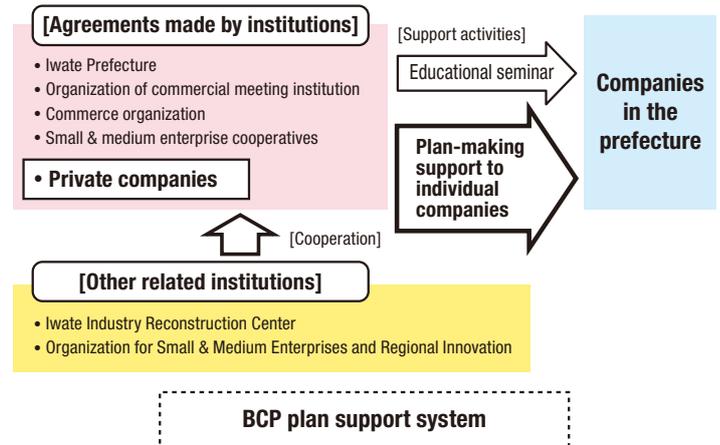
Fish market after improved sanitation  
(Ofunato fish market)

**Approach 4: Designed support for shaping the business continuity plans of private companies**

After the earthquake, people were very concerned about how they would keep their businesses going in an event that a large-scale disaster occurred.

With the cooperation from the Organization for Small & Medium Enterprises and Regional Innovation, Iwate Prefecture has held seminars for shaping BCP (business continuity plans) oriented to SMEs to give them inspiration.

Together with this, the prefecture has also signed agreements with private companies and commerce organizations that had experience in promoting detailed plans, and asked them to support the plan-making operations of companies in the prefecture.



**Approach 5: Reopening of Sanriku Railway**

Sanriku Railway, the infrastructure for coastal life and transportation, suffered from devastating damage and received a lot of financial and non-financial support from companies, organizations, and individuals; it was also shown in the morning television drama "Amachan" on NHK in 2013 and received attention from all over the nation.

Three years after the disaster, all the lines opened up again and they had been used as a tourism resource (such as an event train). They are established as a precious, invaluable asset in the local area.



Ceremony for the resumption of all the lines on the South Rias Line (April 5, 2014)

**Approach 6: Promotion of work in Sanriku Geopark**

In order to formulate a field for telling future generations about coexistence with nature, the history of the movement of earth, and memories of the earthquakes, we are promoting the utilization of geopark lessons through disaster risk reduction education and school education at elementary schools and junior high schools.

In addition, as the biggest geo-park in Japan stretching across 3 prefectures (Aomori, Iwate, Miyagi), efforts are also being made to attract school trips and disseminate information related to promoting widespread tourism.



Geopark class

**Approach 7: Construction of Sanriku tourism platform**

In order to make educational trips the pillar of tourism in coastal areas focusing on earthquake studies, Iwate Prefecture has been working to improve our level of knowledge, start up a network of earthquake storyteller associations, and to build the platform for undertaking centralized information distribution of all the information about the disaster-affected areas.



Skills training of the earthquake storytellers organizations (local training)

Accepted earthquake storyteller guides	Year	Number of groups	Number of people
	2013	5,131 groups	10,5351 people
	2012	4,050 groups	79,045 people

## Initiative 16

## Promotion of reconstruction projects while paying attention to the protection of cultural properties

**[Outline of Approach]**

- In order to actively promote cultural activities, Iwate Prefecture has used the arts fund promotion services provided by the Iwate Cultural Promotion Institute to provide support and encouragement to the activities of cultural groups.
- As there are a lot of traditional art groups and folk art groups whose activities were greatly affected in the Great East Japan Earthquake Tsunami, the prefecture has helped with the reconstruction of practice and other facilities; in addition, the Great East Japan Earthquake support service for the Art Fund Promotion Services has also sponsored the purchase of folk art equipment lost or damaged as well as the public performance expenses incurred by the groups themselves.
- In order to expand the tradition-related preservation activities while providing a place for announcing the daily activities of folk arts groups and promoting the activities of each group, folk art tournaments have been held to deepen the recognition and understanding of citizens toward general folk arts.

**Approach 1: Grants provided to traditional arts groups affected by the tsunami**

With the cooperation of municipalities, Iwate Prefecture has assisted the preparation of practice facilities and vaults for storing the equipment of traditional performing arts groups affected by the disaster through folk art reconstruction support projects. It assisted three groups in fiscal 2012, and another four in fiscal 2013.

The Iwate Cultural Promotion Agency has provided grants to traditional arts groups with their headquarters in the 12 municipalities affected by the disaster, for the purchase of equipment.



Shiroyama Tora-mai Dance (Otsuchi)  
Practice facility: Assisted in 2012

Cultural Fund Program [equipment maintenance operation]		
Year	# of cases	Grant content
2011	32	“Akazawa Armor and Sword Dance” equipment maintenance and other
2012	24	“Hirota Celebration” equipment maintenance and other
2013	20	“Akedo Armor Avatar Dance” equipment maintenance and other

Monnakagumi Tiger Dance (Ofunato): Assisted in 2011  
(Prefecturally Designated Intangible Folk Cultural Property)

**Approach 2: Provision of venues to showcase regular activities**

With the titles “Reviving Traditional Culture and not being Beaten by the Disaster!” for fiscal 2012 and “Revival by Prayer to Heaven and Harth” for 2013, folk arts tournaments were held to provide opportunities to showcase the results of daily activities, to help citizens deepen their understanding and recognition of general folk arts, as well as to contribute to local society.



2012 folk arts tournament



2013 folk arts tournament

**Initiative 17 Rebuilding local communities who have been active in preserving cultural properties****[Outline of Approach]**

- In accordance with the progress of various projects based on the Reconstruction Plan, the excavation of ruins has also expanded, but because of the increase in staff from within and outside Iwate, according to the Japanese Agency for Cultural Affairs, speedy excavation was performed without hindering reconstruction.
- Local seminars were held in the fields of reconstruction to explain the historical value to residents.
- While cooperating with the Tohoku-Pacific Earthquake Cultural Assets Relief Committee of the Agency for Cultural Affairs, Iwate Prefectural Museum has worked on rescue activities for valuable academic materials, stabilizing the treatment of seawater-damaged materials, and other restoration work.

**Approach 1: Making protection of cultural properties (archaeological research) and disaster reconstruction projects mutually compatible**

While undertaking the investigation of buried cultural assets related to the reconstruction effort after the disaster, the Iwate Board of Education also conducted supporting investigations for the boards of education of other coastal cities and towns.



Excavating a site

**Approach 2: Promoting awareness of historical value**

Local seminars were held in reconstruction areas to explain the historical value of excavation sites to residents.



Local seminar in Otsuchi

**Approach 3: Restoration work of cultural assets affected by the disaster**

In order to restore items that had been immersed in seawater, sand and mud so they could be stored for a long period of time, restoration work is being carried out.



Restoration work

## Chapter 5 Proposals from Iwate Prefecture

As we have seen, Iwate Prefecture has worked on a variety of disaster risk reduction measures since before the Great East Japan Earthquake and Tsunami, and in its aftermath has worked toward reconstruction in a variety of ways.

In this chapter, we at Iwate Prefecture would like to make proposals based on lessons learned and wisdom gained in light of the Great East Japan Earthquake and Tsunami, and offer this knowledge to the countries of the world with the hope that it can be used hereafter in disaster risk reduction, mitigation of damage, and reconstruction.

Number	Proposal	Initiatives related to the proposal
1	<b>Establishment of institutional framework of disaster response support activities due to “horizontal supplement” from cooperation of local governments</b>	Initiative 1: Establishment of widespread disaster risk reduction facilities effective in supporting damaged areas during large-scale disasters Initiative 2: Construction of the acceptance and support system due to the widespread coordination between local public bodies
2	<b>Construction of collaboration and cooperation system between local governments and medical and welfare institutions</b>	Initiative 3: Construction of Iwate’s unique medical and welfare network Initiative 10: Promotion of emotional care Initiative 11: Ensuring medical care in the affected areas
3	<b>Completion, standardization, and sharing of disaster prevention business by the prefecture (regional autonomous body) for the promotion of disaster corresponding to the capacity of municipalities (basic autonomous body)</b>	Initiative 4: Standardization and sharing of disaster response operations in preparation for future disaster Initiative 12: Improving administrative functions of municipalities
4	<b>Promotion of regional collaboration-type disaster prevention education</b>	Initiative 5: Promoting disaster risk reduction education, and establishing disaster risk reduction systems in schools Initiative 6: Passing on lessons learned from the tsunami, and cultivating disaster risk reduction culture
5	<b>Promotion of multiple disaster prevention-type town planning incorporating the concept of resilience (resilience, recovery)</b>	Initiative 7: Promoting town development based on a multi-layered disaster risk reduction system
6	<b>Promotion of radiation impact measures focusing on ensuring the safety and security of children’s health and food</b>	Initiative 8: Promoting radiation countermeasures with a focus on children’s health and food safety/ quality assurance
7	<b>Quick and smooth processing of disaster waste</b>	Initiative 9: Quick and efficient disposal of disaster debris
8	<b>Construction of a basic disaster victim information sharing system for quick and smooth life reconstruction assistance for victims of disasters</b>	Initiative 13: Maintenance and operation of survivors’ ledger system
9	<b>Revival of local communities through cooperation with local residents and various organizational bodies</b>	Initiative 14: Revitalizing the local community through cooperation between residents and various entities
10	<b>Construction of sustainable local communities through the utilization and development of local resources</b>	Initiative 15: Construction of sustainable local communities by promotion and utilization of local resources
11	<b>Revival of local communities utilizing cultural assets, promotion of reconstruction projects paying attention to the protection of cultural assets, and promotion of protection of cultural assets during disasters</b>	Initiative 16: Promotion of reconstruction projects that respect cultural properties Initiative 17: Rebuilding local communities who have been active in preserving cultural properties

**[Example]**

Proposal      Keywords      Entities in charge

Proposal 1	Cooperation between local governments	National and local governments
<p><b>Establish a systematic framework for disaster response based on "horizontal" complementary cooperation between local governments</b></p>		
➤ Refer to initiatives 1 and 2	Post-2015 Framework for Disaster Risk Reduction priority action 2 (strengthening governance and institutions to manage disaster risk)	

- In the aftermath of the Great East Japan Earthquake and Tsunami, Tono, a town in the mountains of central Iwate (about 40 km from the tsunami-affected coast) was set up as a logistic support base for the reconstruction effort, and as such worked quickly to more effectively support the coastal municipalities that suffered extensive damage from the tsunami. This is because Tono had independently formulated support plans, performed practical training, and developed support systems before the disaster even occurred.
- Iwate has also created the "Iwate Prefecture Disaster Support Plan", a system for giving and receiving support based on lessons learned from the Great East Japan Earthquake and Tsunami. This allows Iwate to make effective use of the human and material support systems available to aid in disaster relief in the event of a large scale disaster in the prefecture, and to provide aid accurately and effectively in the event of a large-scale disaster elsewhere.
- In order to improve disaster relief, it would be effective to create a systematic framework for disaster relief based on "horizontal" complementary cooperation between local governments that incorporates the implementation of special training for professionals dispatched at the time of the disaster and appoints a support base beforehand that can begin activities promptly in the event of a disaster.

Contents

Initiatives related to the proposal

International Framework for Disaster Risk Reduction priority action (not yet determined, as will be decided at the 3<sup>rd</sup> UN World Conference on Disaster Risk Reduction)



Japan Ground Self Defense Forces deployed to Tono Sports Park, used as a support base after the disaster



Tokyo Fire Department Aviation Unit bringing in supplies

<b>Proposal 1</b>	Cooperation between local governments	National and local governments
<b>Establish a systematic framework for disaster response based on “horizontal” complementary cooperation between local governments</b>		
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Japan Ground Self Defense Forces deployed to Tono Sports Park, used as a support base after the disaster



Tokyo Fire Department Aviation Unit bringing in supplies

Proposal 2	Medicine and welfare	Local governments, institutions concerned
<b>Construction of networking and cooperation systems between local governments and medical and welfare institutions</b>		
➤ Refer to initiatives 3, 10, 11	Post-2015 Framework for Disaster Risk Reduction priority action 3 (investing in economic, social, cultural, and environmental resilience)	

- Prior to the disaster in Iwate Prefecture, medical and welfare institutions, such as Iwate Medical University, Iwate Medical Association, and the Iwate Prefectural Council of Social Welfare, had already been building networking and cooperation systems as part of their regular business. After the disaster, these systems proved effective in the carrying out of medical support on the ground, and saw the establishment of the Iwate Disaster Medical Support Network, which dispatched medical teams based on local demand, as well as supporting medical institutions and establishing temporary clinics in Rikuzentakata.
- Iwate Prefecture has also promoted, through cooperation between public, private, and academic institutions, the Disaster Relief Welfare Team, which provides welfare support to the elderly, disabled, or other persons in need of support, and has made steady progress in various fields regarding emergency response preparedness.
- Cooperation and partnerships related to emergency response operations between local governments, medical/welfare institutions and groups need to be built before disaster strikes in order to give support to survivors; in particular, specialist support or support for a wide range of survivor needs that, in the event of a disaster such as a major earthquake, local governments would not be able to handle alone.



A medical team dispatched to affected areas



Disaster Relief Welfare Team training

<b>Proposal 3</b>	Standardization and coordination of disaster operations	Local governments
<b>Completion, standardization, and sharing of disaster prevention business by the prefecture (broad self-governing body) for the improvement of disaster response capabilities of municipalities (basic self-governing bodies)</b>		
➤ Refer to initiatives 4, 12	Post-2015 Framework for Disaster Risk Reduction priority action 2 (strengthening governance and institutions to manage disaster risk)	

- Basic self-governing bodies (cities, towns, and villages) are devoted to protecting residents' lives and property from disasters; however, in the Great East Japan Earthquake and Tsunami, these municipal governments suffered extensive damage both to facilities and staff. This significantly reduced administrative capabilities, creating massive hindrance to operations that required expertise, and at the same time hindering emergency measures.
- Based on this situation, the government of Iwate Prefecture is striving to improve administrative functions in the municipalities, which play a vital role in reconstruction efforts, through coordination with governing bodies across the nation as well as personnel support, such as the dispatch of professionals.
- In addition, in order to respond to the common challenge of emergency disaster countermeasures, the prefecture is actively involved in the creation of a template for municipal disaster response operations in preparation for the next disaster, and other such efforts that take advantage of the breadth and expertise of prefectural operations.
- In this way, the prefectural government and the municipal governments can work together to create standardized disaster operations (standardization), with the prefecture using its size and access to expertise to complement and coordinate with the municipal governments (coordination). In addition to contributing to swift survivor support and emergency measures, this will make for effective preparedness, and improve the ability of prefectural and municipal governments to respond in the event of a disaster.



Otsuchi Town Hall, destroyed in the tsunami



Manual created by Iwate Prefecture for use by disabled individuals in the event of a disaster

<b>Proposal 4</b>	Disaster risk reduction education	Schools, homes, local area, institutions concerned
<b>Promotion of regional collaboration-type disaster risk reduction education</b>		
➤ Refer to initiatives 5, 6	Post-2015 Framework for Disaster Risk Reduction priority action 1 (understanding disaster risk)	

- Iwate has a long history of tsunami damage and has lost many lives to tsunami in the past, but in both individual households and the region as a whole, memory of these disasters had faded over time, and so people were not fully aware of the need for disaster risk reduction. However, in schools in Iwate, continued disaster risk reduction training and evacuation drills resulted in a great many children, under the supervision of schools, being unharmed during the Great East Japan Earthquake and Tsunami.
- In light of this, Iwate has once again realized the importance of disaster risk reduction education, and through disaster risk reduction education in schools, homes, local areas, and institutions concerned – in other words, regionally collaborative disaster risk reduction – we are working to promote attitudes to proactively protect one’s own and others’ lives.
- The promotion of regionally cooperative disaster risk reduction, in combination with these improvements in regional disaster risk reduction, will be effective in cultivating a culture of disaster risk reduction.



Child pick-up drill for guardians



Children and students evacuating to higher ground during the Great East Japan Earthquake and Tsunami

<b>Proposal 5</b>	Combining hard and soft countermeasures	Local governments, residents, regional communities
<b>Promotion of multiple disaster prevention-type town planning incorporating the concept of resilience (resilience, recovery)</b>		
➤ Refer to initiative 7	Post-2015 Framework for Disaster Risk Reduction priority action 3 (investing in economic, social, cultural, and environmental resilience)	

- Along the coast of Iwate Prefecture, Fudai Village in the north serves as an example of “hard” countermeasures. These measures include such things as the construction of seawalls and floodgates and relocation inland of houses and facilities, minimizing casualties and material damage to the towns.
- At the same time, in the coastal municipalities of Iwate, tsunami countermeasures that, along with hard measures like seawalls and moving public facilities to higher ground, are enhanced by the establishment of “soft” measures, which focus on such things as evacuation and allow us not to rely solely on hard measures. In cases such as the 2011 tsunami, which greatly exceeded the seawalls, these soft measures would lead to rapid evacuation of many residents, preventing further damage.
- Taking into account the concept of resilience, it would be effective to develop hazard-resistant towns through the combination of hard measures, such as construction of disaster risk reduction facilities and moving to higher ground, and soft measures, such as developing evacuation plans together with residents and the local community, in the event that a natural disaster occurs on a scale larger than imagined or in a way that is more complicated than imagined.



Floodgates that helped to mitigate damage from the tsunami in Fudai

### Floodgates of Fudai

The Fudai floodgates (total length: 205 m) were completed in 1984. The floodgates of Fudai are noteworthy in that they are 15.5 meters high. The floodgates were originally planned to be around 10 m high, the usual height, but through the demands of the mayor at the time, the late Kotaku Wamura, the gates were made the height they are today. There was criticism about the excessive height, but the mayor vowed that Fudai would never again see a repeat of the tragedy suffered in the two past tsunamis he had experienced in his lifetime. Against objections, he worked to build what are said to be the largest floodgates in Tohoku. (Source: Written Record of Iwate Prefecture and the Great East Japan Earthquake)

<b>Proposal 6</b>	Countermeasures against radiation	Local governments
<b>Promotion of radiation impact measures focusing on ensuring the safety and security of children's health and food</b>		
➤ Refer to initiative 8	Post-2015 Framework for Disaster Risk Reduction priority action 4 (enhancing preparedness for effective response, and rebounding stronger than ever before)	

- Due to the Tokyo Electric Power Company nuclear power plant accident caused by the Great East Japan Earthquake Tsunami, a relatively high regional radiation dose was found around the southern region of Iwate Prefecture, despite being more than 150 kilometers from the plant.
- Because of this, Iwate Prefecture is striving to create countermeasures against radiation, with a focus on ensuring the stability and safety of food and children's health while working closely with municipal governments. These countermeasures include activities such as measuring and reducing radioactivity within the prefecture, examining effects on children's health, and carrying out meticulous inspection of foodstuffs starting with agricultural and marine products, as well as working to prevent damage to the reputation of Iwate's food produce.
- There is the need to investigate proactively in order to protect the safety and stability of food and children's health, relieve residents' anxiety, and control damage to the area's reputation through dissemination of accurate information. Furthermore, it is necessary to determine plans for countermeasures against radiation in advance.



Measurement of radioactivity in food grown in the prefecture (chemical analysis)

Proposal 7	Disaster waste treatment	National and local governments, private corporations
<b>Quick and smooth processing of disaster waste</b>		
➤ Refer to initiative 9	Post-2015 Framework for Disaster Risk Reduction priority action 4 (enhancing preparedness for effective response, and rebounding stronger than ever before)	

- The Great East Japan Earthquake and Tsunami generated over 6.18 million metric tons of waste in Iwate Prefecture, the equivalent of 14 years' worth of household garbage from the entire prefecture. In cooperation with the Japanese national government and relevant organizations, and while receiving support from inland municipalities, the affected municipalities along with the entire prefecture have started processing the waste, and have sought help for waste that cannot be processed within the prefecture from local governments outside Iwate as well as private enterprises.
- Waste treatment has advanced through repeated ingenuity, making use of the advanced techniques of private enterprises, including speedy demolition, sorting, desalinization, and recycling with low environmental burden.
- In Japan, processing of disaster waste is traditionally a municipal affair, but in the case of large-scale disasters, it is vital to clarify in advance the roles of the country, prefecture and municipalities in respect to waste treatment responsibility, and to create institutions that allow these roles to be carried out. Furthermore, in regard to treatment of waste from the disaster, it is necessary to try to avoid anxiety and misunderstanding among residents by actively disseminating accurate information and giving proper explanations.



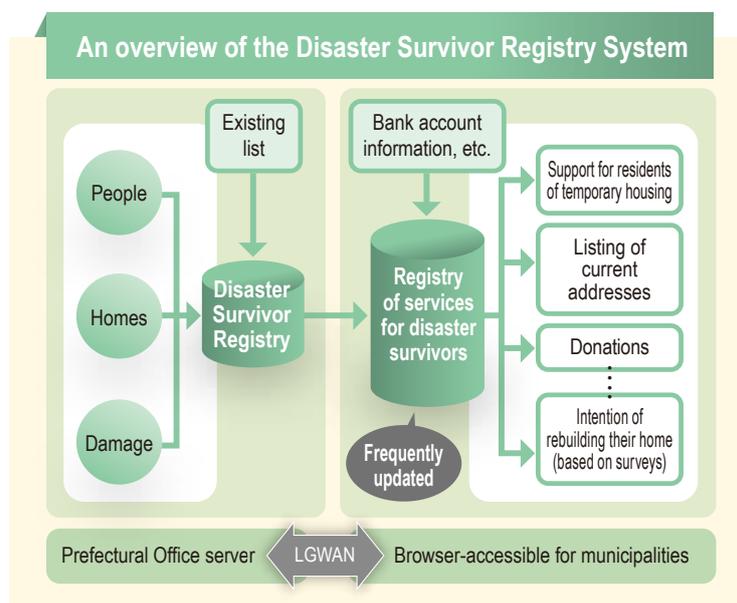
Disaster waste treatment demolition and sorting line established in Miyako



Tsunami sludge treatment facility in Rikuzentakata

<b>Proposal 8</b>	Establishing information sharing systems for survivors	Local governments
<b>Construction of a basic disaster survivor information sharing system for quick and smooth rebuilding of lives for survivors</b>		
➤ Refer to initiative 13	Post-2015 Framework for Disaster Risk Reduction priority action 1 (understanding disaster risk)	

- Iwate Prefecture, in cooperation with Kyoto University, Niigata University, and others, has invested in a ledger system for survivors, so that we can provide support towards rebuilding survivors' lives in a way that leaves no one behind, as well as rebuilding lives according to diverse needs.
- This system was installed in the Iwate Prefectural Office through a special administrative line. It provides a system that understands the aims of rebuilding, the status of destroyed homes and implementation of support, and, by making it possible to provide support specifically to households that need it, it has become possible to give meticulous support toward rebuilding the lives of survivors.
- We have started this survivor ledger system based on Iwate Prefecture's track record. It is necessary to assume a disaster will happen and prepare a survivor ledger system that can be implemented in a speedy, certain, and effective manner, before disaster strikes.



Disaster survivor ledger system

<b>Proposal 9</b>	Reviving regional communities	Residents, local governments, enterprises, NPOs, etc.
<b>Revival of local communities through cooperation with local residents and various organizational bodies</b>		
➤ Refer to initiative 14	Post-2015 Framework for Disaster Risk Reduction priority action 4 (enhancing preparedness for effective response, and returning stronger after recovery and reconstruction)	

- In the damaged areas of Iwate Prefecture, we have established mutual support systems in emergency housing, such as individual visits and community watches. This kind of individualized support for each and every survivor, in cooperation with various entities including young people, women, businesses, NPOs, and governmental bodies, has been a major force in rebuilding local communities.
- In particular, young people inside and outside the prefecture, including high school and third-level students as well as working people, have played active roles in town development and volunteer work directly after the earthquake and over the whole reconstruction process, thinking “Is there anything we can do to help?” Iwate has been advancing the support of young people and encouraging them to work toward town development activities themselves. This includes things like the establishment of systems to aid proposals created by young people themselves related to planning and actualization of reconstruction efforts.
- Women’s contributions to reconstruction and creating a more affluent region have been indispensable. So as to reflect women’s perspectives in the reconstruction process, Iwate Prefecture has established (within the Iwate Prefecture Great East Japan Earthquake and Tsunami Reconstruction Committee) a “Promotion of Women’s Participation Committee”, and is striving to increase public awareness about the importance to the reconstruction of integrating gender equality perspectives.
- In this way, along with advancing full-scale recovery, it is necessary that the main actors in reviving the regional community are the residents, regardless of age and gender, and it is vital to support the activities of these young people and women.



Community watch activities by life support counsellors



An event in Noda organized by young people

<b>Proposal 10</b>	Development and use of local resources	Local governments, private corporations, institutions concerned, etc.
<b>Construction of sustainable local communities through the utilization and development of local resources</b>		
➤ Refer to initiative 15	Post-2015 Framework for Disaster Risk Reduction priority action 4 (enhancing preparedness for effective response, and returning stronger after recovery and reconstruction)	

- The disaster in Iwate Prefecture brought about massive damage not only to people's livelihoods, but also to the fishing industry, which serves as the backbone of commerce. The prefecture was faced with the loss of nearly half its social capital. In order to overcome this situation, Iwate Prefecture as one with municipalities and other organizations concerned, is promoting industrial development that makes use of area resources, such as the establishment of a distribution processing system that puts the rapid revival of the fishing industry and fish markets at its core, as well as building shopping districts and promoting tourism that take advantage of the features of the region even more so than before.
- In the popular 2013 NHK morning TV drama Ama-chan, which is set primarily in Iwate Prefecture, the main character, Aki, is a diver (ama) who catches sea urchins, which are then sold in lunch boxes on local trains (which were modelled on Iwate's real-life Sanriku Railway). There was a scene in which news of this spread across the country through the Internet, causing young people to flock to the train.
- This kind of regional promotion, which unearths the various resources of the region, such as fishing and tourism, and adds value by polishing them up, is called "Amanomics" in Iwate. ("Amanomics" is a pun on the aforementioned Ama-chan and Prime Minister Shinzo Abe's economic policy, "Abenomics".) To promote a sustainable reconstruction, we need to rebuild durable socio-economic foundations, and for that, efforts such as "Amanomics" are needed.



Sanriku Railway, part of the infrastructure of the coastal area and a resource for tourism



Skills training for earthquake storytellers

<b>Proposal 11</b>	Use, conservation, and disaster prevention of cultural assets	Local governments, residents, institutions concerned
<b>Revival of local communities utilizing cultural assets, promotion of reconstruction projects paying attention to the protection of cultural assets, and promotion of protection of cultural assets during disasters</b>		
➤ Refer to initiatives 16, 17	Post-2015 Framework for Disaster Risk Reduction priority action 3 (investing in economic, social, cultural, and environmental resilience)	

- There are many kinds of traditional folk arts in Iwate, and the rebuilding of facilities, costumes, and equipment destroyed in the tsunami and restarting activities has given hope to many residents, among them the many arts groups heavily impacted by the disaster.
- Furthermore, recovery efforts such as group resettlement and road construction in the coastal areas of Iwate are being advanced while maintaining compatibility with conservation of cultural assets. Through the excavation of ruins, a new history of our ancestors is being revealed.
- Along with promoting a revival of the arts, which is at the core of rebuilding society, and actively returning artifacts unearthed by excavation to their original status, using cultural assets as bonds that link the people and pride of the region is effective in advancing town development, and so it is necessary to promote disaster countermeasures that protect cultural assets before disaster strikes.



An Ofunato traditional performance art organization that received a grant for purchase of equipment (Monnakagumi Tiger Dance)



Excavation of a site containing cultural heritage artifacts

# Ganbaro Iwate!

It has now been one month since the Great East Japan Earthquake and Tsunami of March 11.

In Iwate, a great number of people have lost their lives, and many are missing. A great many people have lost their homes and are now forced to live their daily lives in temporary housing.

In Iwate, we have suffered the Sanriku tsunamis of the Meiji and Showa period, the Kathleen and Ione typhoons, the Chilean Earthquake and Tsunami, and the 2008 Iwate-Miyagi Nairiku Earthquake among other numerous and terrible natural disasters. However, our predecessors never let this crush them, and they overcame these hardships. With our independent spirits and sense of union borne from Iwate's bountiful nature, we are sure that we can overcome this catastrophe.

It was Kenji Miyazawa who said, "As long as the world cannot be completely happy in itself, the happiness of the individual is impossible."

We, the people of Iwate, all share in this pain, and with our hearts joined together as one, we guarantee that the many people who have been affected by this disaster will have clothing, food, shelter, the opportunity to learn, and the opportunity to work. We will work toward helping them lead a happy life once again. From here on, we will take the hopes and dreams the victims had for their hometowns that were lost in this tragedy and carry them with us.

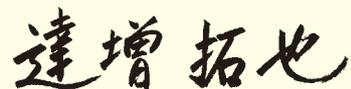
However long the harsh winter continues, a warm spring will surely come.

We live on the sympathy and encouragement we have received from all of Japan, as well as the whole world. Together we will gather our strength, and with hope, we can strive step by step towards reconstruction. To this I say, "Ganbaro Iwate!"

April 11, 2011

Representing the people of Iwate,

Takuya Tasso, Governor of Iwate Prefecture



On April 11 (Mon.), a month after the Great East Japan Earthquake and Tsunami, the governor went to Iwate Prefectural Kamaishi High School to give consolation. While there, he widely appealed to the people of Iwate and to the rest of Japan as he sent a message about the reconstruction and the determination to bounce back even stronger with the declaration of "Ganbaro Iwate!"

