

September 8, 2023

International Conference on Science and Technology for a Sustainable Society
2023

Session 2: Pathways to Overcoming Catastrophic Disasters

2-2 Transformation of Society to Overcome Catastrophic Disasters

～What to protect and how to recover and reconstruct～

Impact of the Great East Japan Earthquake on Society and Livelihoods and the Recovery Process

Mayor of Miyako City
Masanori Yamamoto

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Jodogahama Eternal Green

Mayor of Miyako City

Masanori Yamamoto

Born on August 3, 1955



☆ Profile ☆

Born on August 3, 1955 in the former Taro Town

1974 Graduated from Morioka First High School

1981 Graduated from Iwate Medical University School of Dentistry

1984 Opened a dental clinic in the former Taro Town.

2000 Vice President of Miyako Dental Association,

2001. Member of the Board of Education, Taro Town Board of Education

2004 Member of the Miyako City-Taro Town-Niasato Village Merger Council

2005 Member of the Board of Education, Miyako City Board of Education

2008 Chairman of the Board of Education, Miyako City Board of Education

July 3, 2009: Appointed as the 2nd Mayor of Miyako City
(R3.7 - 4th period)

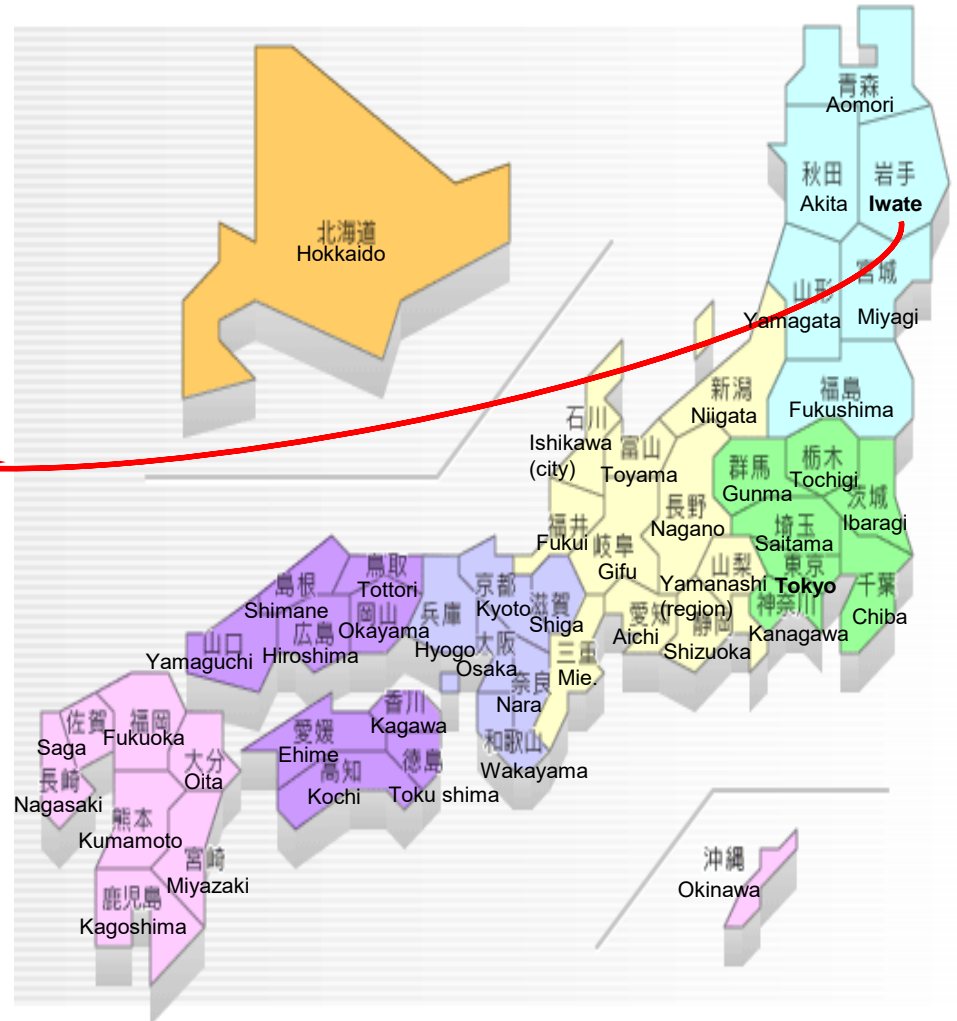
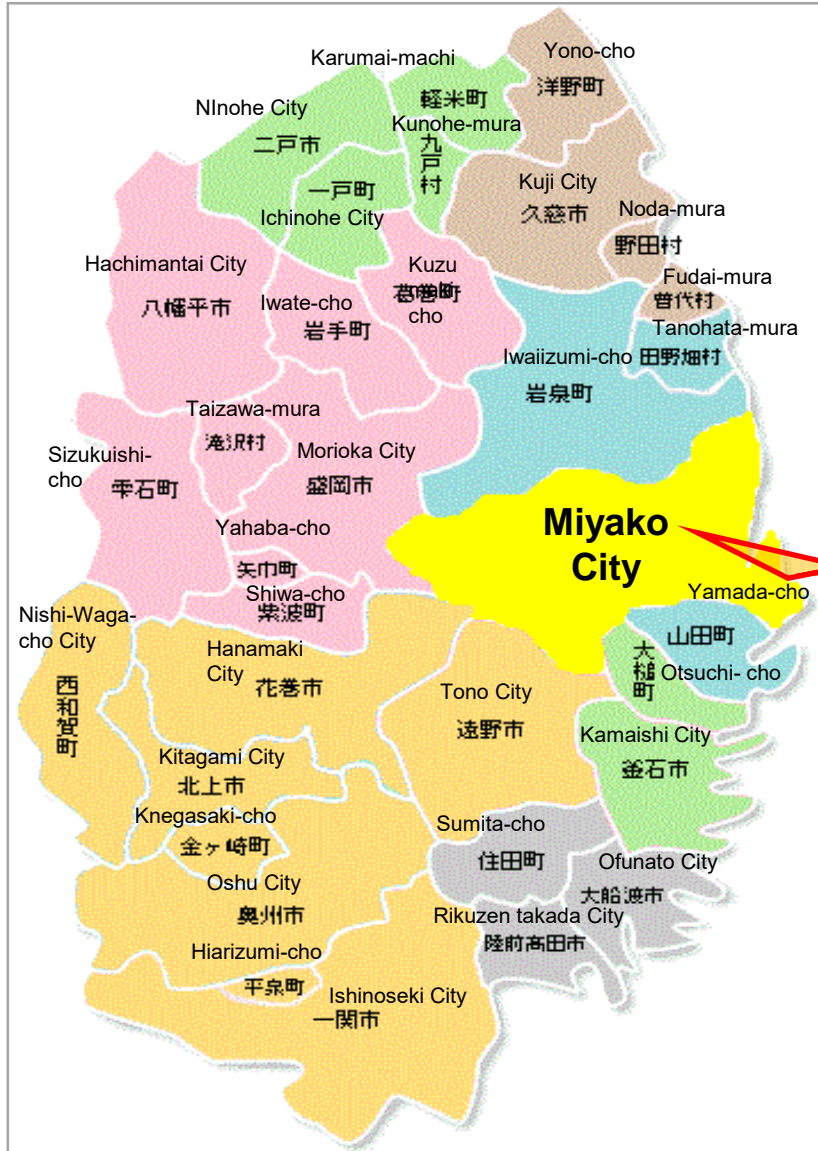
My motto

**Devote myself to
contribution and peace**

To maintain peace of mind and to
give of oneself for the sake of the
world and others.

From the Confucian teaching "Sho
Ching".

The Town, Eastern Tip of the Main Island of Japan

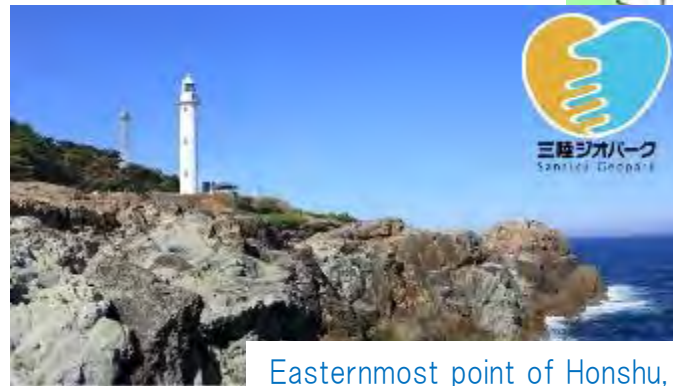


Introduction of Miyako

- June 6, 2005: Miyako City, Taro-cho, and Niisato Village merge.
- January 1, 2010...Kawai Village is incorporated.
- Easternmost point of Honshu
- Area...1,259 km² (8th largest city in Japan)
64 km from east to west, 50 km from north to south
- Altitude...0m to 1,917m
- Population...47,171 (as of 2023.8.1)
※60,124(as of 2011.3.1)
- Center of "Sanriku Fukko National Park"



Jodogahama, a scenic spot



Easternmost point of Honshu,
Steller's SEA lion



City fish "salmon"

Damage

Black tsunami surmounting the levee
in front of the old city hall



Devastated urban area of Taro district



Maximum seismic intensity in the city: 5 upper on the Japanese scale

Maximum wave: 8.5m or more in height

Maximum run-up height ... 39.7m

(Shigemochi and Aneyoshi area)

Total estimated damage: 245.7 billion yen

*FY2011 City General Account Initial

This is about 8 times the budgeted amount (about 30.3 billion yen)!

Largest number in the prefecture

Disaster Classification	Miyako City	Iwate prefecture (Tohoku area)
deceased	517 persons	4,674 persons
catastrophe-related death	55 persons	469 persons
casualty	33 people	210 persons
affected household	4,948 households	27,583 households
Number of houses destroyed	9,088 Buildings	54,496 buildings

Flooding of the Government Buildings

The main building of City Hall was damaged and isolated. The staff could only leave the government building the following morning, and the initial response was delayed.

- Main government building
→ Flooded to the ceiling on the 1st floor
- Human casualties of general staff → None
- **Official vehicles that were lost → 70 vehicles**



Restoring lifelines, including electricity, water, and telecommunications, took a month.

Early stage of the disaster

■ What was needed at the time of the disaster

- Water, food, stove/fuel → provided by residents
- Blankets → Stockpile warehouse, voluntary defense deployment
- Toilets → Self-protection deployments

■ Early administrative management of evacuation centers was difficult.

→ Teachers' voluntary disaster prevention organizations and neighborhood residents respond

□ Reason

- **The city hall was damaged and isolated. The initial response was delayed because employees were unable to leave the building until the next morning.**
- 70 official vehicles were damaged, and information gathering and dissemination was limited due to power outages and other problems, limiting the delivery of supplies and the volume of deliveries.

Stabilization period

■ Restoration of roads and lifelines

- As roads, transportation, lifelines, etc. are restored, the movement of people and goods will begin.
- The operation of the supply distribution base is stabilized. A system is in place to respond to needs from evacuation centers.

■ Evacuees act on their own

- Evacuees themselves formed an organization and shared information inside and outside the evacuation centers on a daily basis. The speed of information exchange between the government and evacuation centers will be accelerated.
- Volunteer support will be in full swing as disaster prevention associations and local governments become accustomed to the operation of evacuation shelters, and the scope of support will be expanded.

Community from everyday life was helpful and supportive

Evacuation shelters → Temporary housing → Reconstructed housing and rebuilding lives

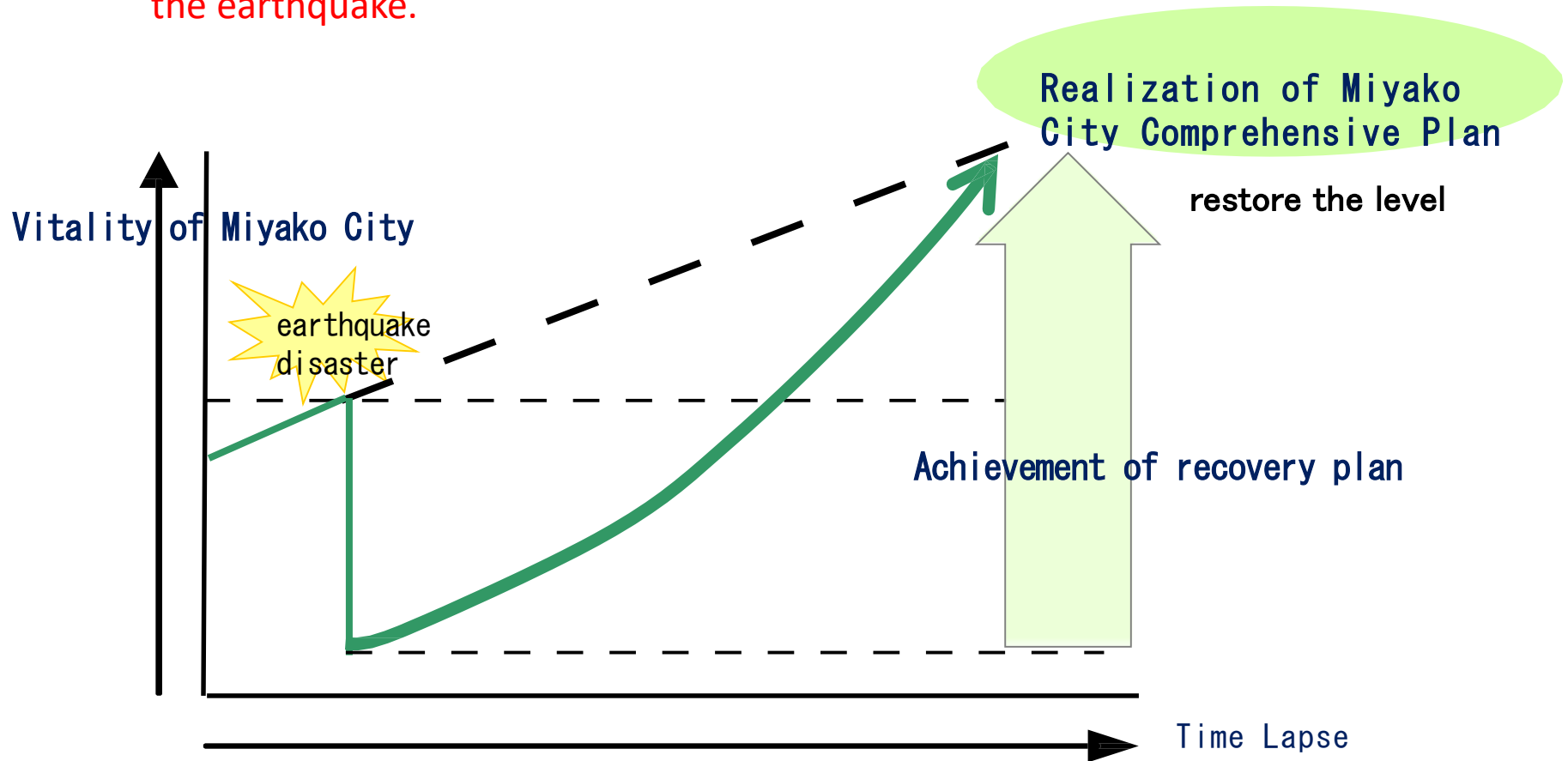
Community retention considerations

Challenges in shelter management

- Based on the reality that the community took the lead in managing the evacuation center, measures should be taken to support voluntary disaster prevention activities.

Miyako City Comprehensive Plan and Miyako City Great East Japan Earthquake Reconstruction Plan

The Miyako City Great East Japan Earthquake Reconstruction Plan promotes the implementation of the Miyako City Comprehensive Plan established before the earthquake.



Miyako City Comprehensive Plan

Future vision: "A peaceful town where people live in harmony with forests, rivers, and the sea"

basic direction

Creating a town where people live in harmony with nature

Creating a town that nurtures healthy and spiritually rich people

Creating a town where diverse industries are connected and strongly active

Seven sectoral measures

1 Formation of infrastructure as a base city in the Sanriku coastal area

2 Creating a city with vibrant industrial development

3 Creating a safe and comfortable living environment

4 Creating healthy and communicative communities

5 Community development through exchange and cooperation

6 Developing people who make the most of their individuality and open up the future

7 Promotion of administrative and financial management appropriate for a new city

Administrative approach

Dialogue with citizens for a caring city government

Fair, impartial and open city government

Reforming and challenging city government

A town where people can have stable jobs and raise their children happily

Industrial promotion

Two Major Priority Policies

Promotion of education



Miyako City Great East Japan Earthquake Reconstruction Plan

Recovery Plan [Basic Plan]

Plan period FY 2011-31

- 1. Introduction
- 2. No. 2 Urban Infrastructure Development Policies
- 3. Initiatives for Reconstruction

Rebuilding Homes and Lives

Industrial and Economic Recovery

Creating Safe Communities

- 4. Priority Projects for Reconstruction
 - Housing Rebuilding Support Project
 - Minatomachi Industrial Promotion Project
 - Renewable Energy from Forests, Rivers, and Oceans Project
 - Disaster Prevention Town Collaborative Project
 - Disaster Memory Transfer Project

Promote self-help, mutual aid, and public assistance initiatives

- 5. Direction of Reconstruction Town Planning by Region

Taro area, Miyako area, Shigemo area

- 6. To promote reconstruction
- Documentation section

Recovery Plan [Promotion Plan]

- No.1 Promotion of Reconstruction Projects
- No. 2 Promotion of Reconstruction Town Planning by Region



District Reconstruction Town Development Plan

Districts affected: 33

- Creation and presentation of reconstruction town planning patterns
- Developing a community recovery plan by residents
- Establishment of a study group of local residents
 - Determination of project method, legal procedures
- ※ Study group start-up type 10 districts
Plenary 23 districts



Maximum respect for residents' opinions

12 years after the earthquake, the current state of reconstruction

■ Development of recovery plan

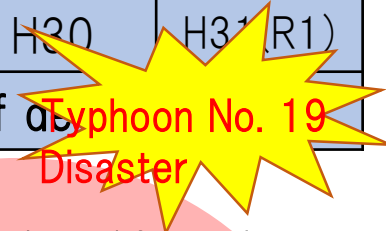
- (1) Miyako City Great East Japan Earthquake Reconstruction Plan [Basic Plan] Formulated October 31, 2011
- (2) [Promotion Plan] Formulated on March 30, 2012
- (3) District Reconstruction and Community Development Plan: Formulated on March 30, 2012 (*1)

[Three Pillars for Reconstruction].

Rebuilding Homes and Livelihoods, Industrial and Economic Reconstruction, and Creating Safe Communities

[Plan period] FY 2011 to FY 2019...9 years

FY 2011	H24	H25	H26	H27	H28	H29	H30	H31(R1)
restoration period			rebirth period			period of development		



Status of Recovery Plan Projects
 Plan period ends in 2028.
 Number of Businesses 403 Businesses
 Project cost 210 billion yen

Estimated total amount of damage
 245.7 billion yen

■ Project progress rate based on project cost
 ■ Housing reconstruction rate among disaster victims

Both achieved 100%!

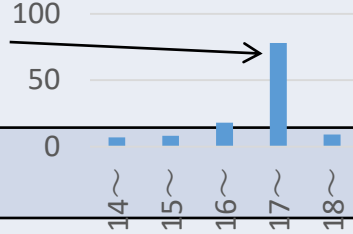
(*1) District Reconstruction and Community Development Plan
 Target = Districts affected: 33
 Study group start-up type / 10 districts
 Plenary Session / 23 districts
→By district residents
Reconstruction town planning
 → District residents set up a study group.

Two Typhoon Disasters Amid Earthquake Reconstruction

**August 2016
Typhoon No. 10**

**October 2019
Typhoon No. 19**

	Typhoon No. 10 in 2016 (+ 1 heavy rainfall warning, etc.)	Typhoon No. 19 in 2019 (+ 2 heavy rain warnings, etc.)
date	August 30, 2008 - September 12, 2008	R1.10.12-10.28
Precipitation (Miyako) “Record”	10-minute precipitation: 24.5 mm 1-hour precipitation 80.0 mm	1 hour precipitation 84.5mm 24-hour precipitation 393.5 mm Monthly precipitation 675.0 mm
Precipitation (maximum)	Mt. Toge-no-kami 357.0 mm	Miyako 417.0 mm
deceased	0 person	1 (landslide)
house	Totally destroyed 91 houses Large-scale partial destruction 249 houses Half destroyed 1355 houses	Totally destroyed 66 houses Large-scale partial destruction 64 houses Half destroyed 1119 houses
amount of damage	22.7 billion yen	9.2 billion yen
shelter	42 locations 1079 persons 43 places 1310 persons	51 locations 1516 persons 51 locations 314 persons 31 locations 133 persons
Loss of official vehicles	73vehicles	0



Two Typhoon Disasters Amid Earthquake Reconstruction

2016 Typhoon No. 10



Intensive damage to mountainous areas due to heavy rains

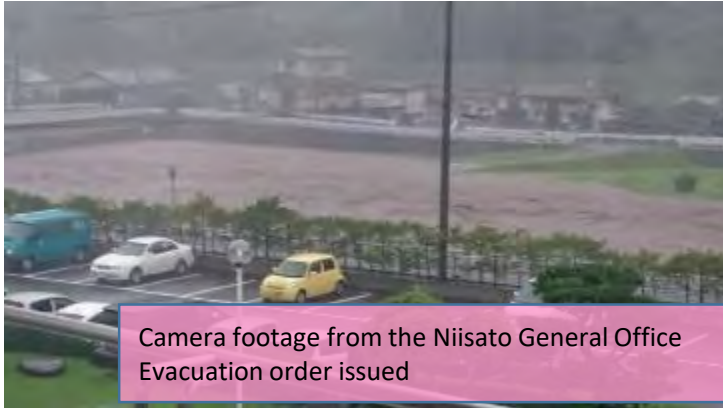
Intensive damage to the coast due to heavy rains

2019 Typhoon No. 19

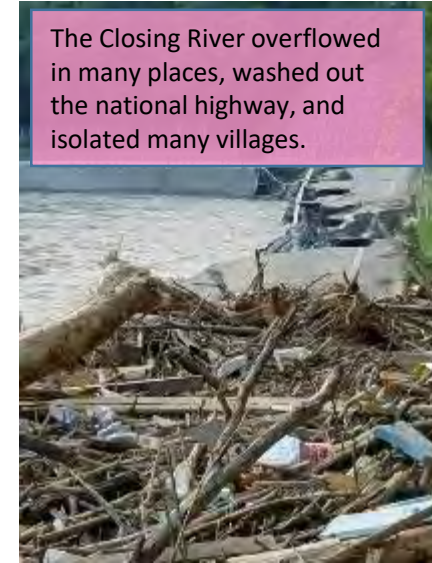


Two typhoon disasters in the midst of earthquake recovery

Typhoon No. 10 in 2008



Camera footage from the Niisato General Office
Evacuation order issued



The Closing River overflowed in many places, washed out the national highway, and isolated many villages.

73 official vehicles were submerged.

Inland flooding due to 80mm of precipitation per hour
Impossible to grasp what was happening.



City Hall Parking Lot
Inland flooding with 80 mm precipitation in the evening hours
Furthermore, the rain that fell in the mountains caused the water level near the mouth of the river to rise during the night, and the water level did not fall.

Two typhoon disasters in the midst of earthquake recovery

Typhoon No. 19 in 2028



Collapse of a city road on the Shigemo Peninsula, isolated village
Helicopter transport of supplies



Sediment inflow into R45 tunnel,
Emergency vehicles temporarily use
Sanriku Coastal Highway under
construction

Catastrophic damage to coastal settlements



The Shirahama area was miraculously free of casualties due to the occurrence of a large mudslide and cooperation between residents (an old rule).

Two Typhoon Disasters Amid Earthquake Reconstruction

- Although locally devastating, the local community demonstrated at the time of the earthquake survived and kept human suffering to a minimum.
- The post-disaster efforts to strengthen the development of voluntary disaster prevention organizations (subsidies for activities and training of disaster prevention specialists) have been put to good use.
- While disasters caused by earthquakes cannot be predicted when they will occur, heavy rainfall disasters caused by typhoons can be expected.
- By issuing evacuation information at the appropriate time, it is possible to eliminate human casualties.
- Cooperation among “self-help, mutual aid, and public assistance” will continue to be indispensable to support each individual’s evacuation activities.

Completed at the time of Typhoon No. 19 in 2028, and issued appropriate evacuation information.

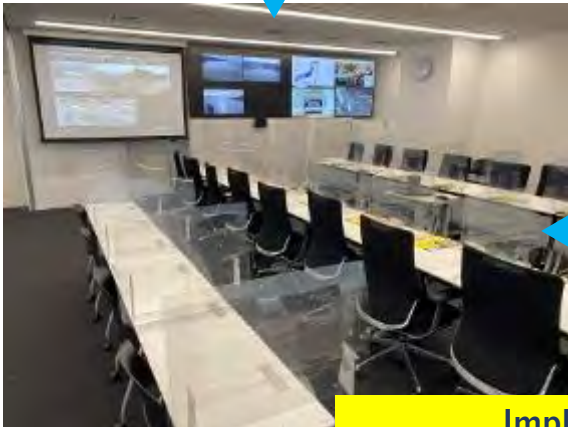
Permanent Disaster Response Headquarters Office

Permanent disaster headquarters room in new government building (4th floor)
Installed generators, servers, etc. on the 4th floor and above to operate even in the event of flooding

Quick and centralized collection, analysis, and dissemination of information
Information can be disseminated through a variety of means



information gathering
Quick Decision

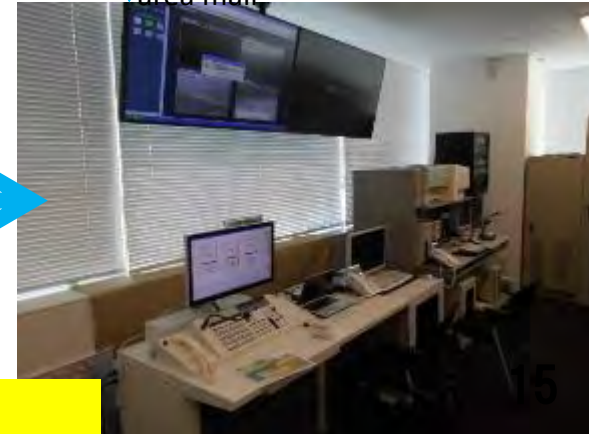


Information analysis and organization

Cooperation with Self-Defense Forces,
Police, Fire Department, Coast Guard



information transmission
Disaster prevention radio, disaster
prevention radio, elementary and
junior high school broadcasts,
area mail



Implementing the Incident Command System

■ Central City Center Facility Improvement Project (In service since Oct. 1, 2008)



Facility Overview

Location ... Miyamachi 1-chome, Miyako City, etc.

Site area - Approximately 15,697.46 m²

Main use ... Civic exchange center, main city office building
health center

Building area - approx. 4,857.10 m²

Total floor area - approx. 13,817.20 m²

Type of Structure ... **Steel construction** / **Earthquake-resistant structure**

Number of floors, height: 6 above ground, approx. 27 m

Parking lot ... 187 cars (136 for visitors, 51 for official cars)

Bicycle parking lot

Auxiliary facilities ... Evacuation passage (free passage), entrance

Gate (Miyako Station side entrance), official garage building

Facility Nickname

Base facility "Eastopia Miyako"

Free passageway "Crossdeck"

(H29.10 General election of citizens was held)