Community Development for Reconstruction in HigashiMatsushima City

Never forgetting that day and together for the future
– United HigashiMatsushima

HigashiMatsushima City

Community development for reconstruction in HigashiMatsushima City

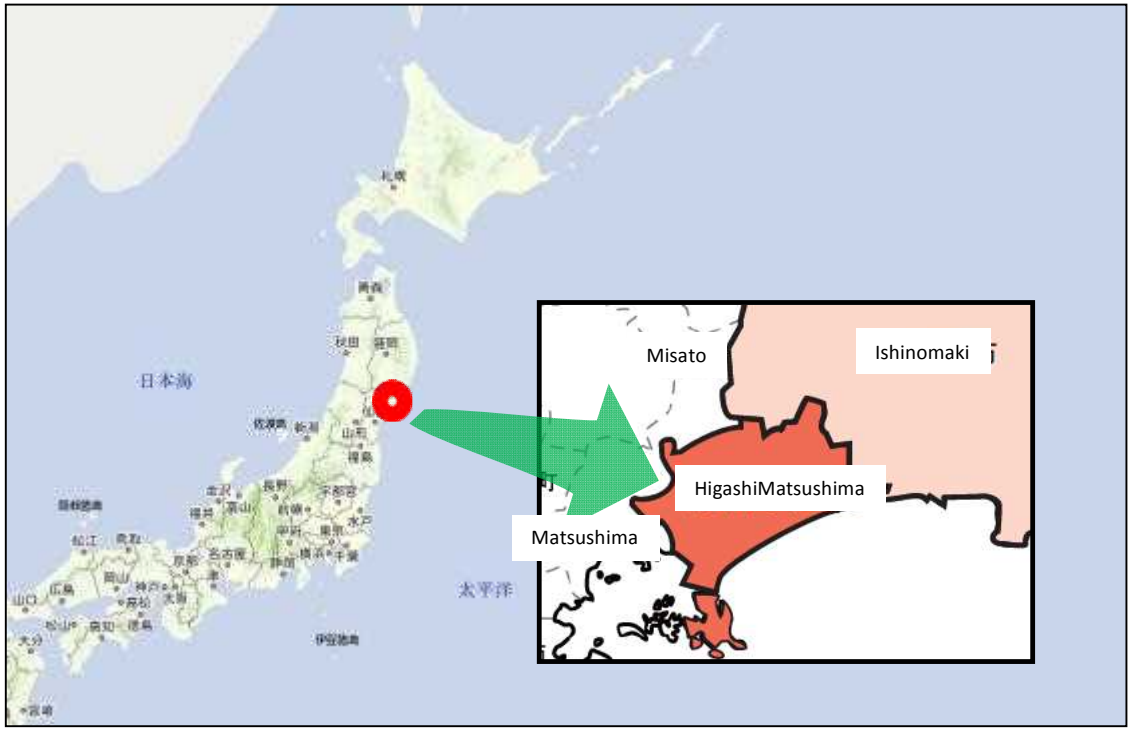
(1) Outline of damage and reconstruction

(2) Earthquake and civic collaborative efforts – consensus-building among residents

(3) Reconstruction of industries and schools

(4) Efforts unique to HigashiMatsushima City

Outline of HigashiMatsushima



■ Population: 40,228 (as of April 1, 2018)
(Population before the disaster: 43,142)

【Location and climate】
HigashiMatsushima is located in the center of Miyagi Prefecture and next to Ishinomaki and Matsushima. It is about 30 minutes from Sendai, with JR Senishi Line and Sanriku Expressway across the city center. It is a warm area with little snow compared to other parts of Tohoku Region.

【City flower: Sakura (cherry blossoms)】

【City tree: Matsu (pine)】

【Experience and exchange】
HigashiMatsushima is blessed with nature with a spectacular view of the sea, mountains and rivers. It is particularly rich in marine leisure opportunities such as swimming, clam digging, sightseeing boat and fishing. About 1.1 million tourists used to visit the city annually before the disaster. At Matsushima Base of the Air Self-Defense Force, the air show is held every summer and fans of airplanes from around the country used to gather to see the Blue Impulse fly.


Air show (Blue Impulse)


Sagakei sightseeing boat


Nobiru Coast


Seaweed (Nori)


Oyster

The catastrophic damage caused by the giant tsunami






Casualties in whole Japan : 19,667 dead 2,556 missing

HigashiMatsushima citizens: 1,109 dead 24 missing

As of November 2018

Damage in HigashiMatsushima

●Size of the earthquake

Date and time of occurrence: March 11 (Fri.), 2011 at 14:46:18.1

Epicenter: Off Sanriku, approx. 130 km east of Oshika Peninsula

Depth of hypocenter: approx. 24 km

Size: magnitude of 9.0 (on the Richter Scale)

Seismic intensity in the city: 6 upper (maximum intensity: 7 in northern Miyagi)

Tsunami: amplitude at Nobiru Coast: 10.35 m

(First wave) amplitude at Omagarihama: 5.77 m

Wetted surface area: 37 km², which is 36% of the total area of HigashiMatsushima (102 km²), was flooded including 8 km² residential area, which is 65% of the total residential area (12 km²).

●Human casualties (city residents)

Dead: 1,109

Missing: 24

Total: 1,133 (3% of the population)

●Housing damage

Totally destroyed: 5,513 (washed away: 1,264)

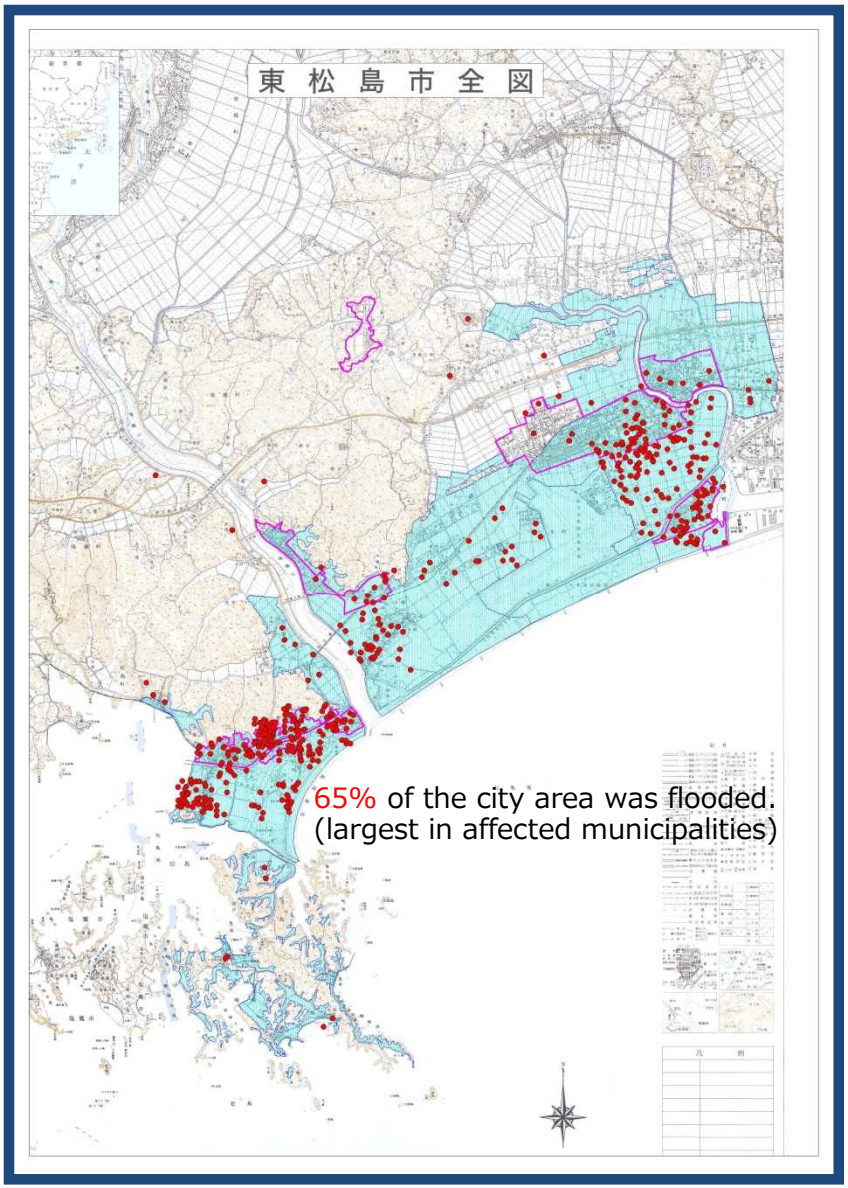
Largely destroyed: 3,060

Partially destroyed: 2,500

Total: 11,073 (73% of all houses)

●Evacuees (maximum): 15,185

●Shelters (maximum):106 (all closed as of August 31, 2011)



The situation immediately after the disaster

[1] On March 11th, in extremely cold weather conditions due to snowfall, a massive tsunami of over 10 m struck the area.
[2] There were many hyperacute patients, including hypothermia caused by the tsunami. There was a 5-hour wait for ambulances.
[3] Gasoline was transferred to the vehicles remaining at the City Office and city employees transported patients.
[4] There was a flood of requests for blankets, water and food from the shelters, which numbered more than 300 immediately after the disaster. As much as possible was transported by around 250 administration employees.
[5] The response continued without sleep or rest.
[6] There was also an extreme shortage of coffins and fresh flowers. Temporary burials were carried out during a time that cremation was not possible.
[7] There was a flood of inquiries to confirm the safety of people and from the national government, the prefecture and the mass media. It became impossible to use the small number of wireless and satellite telephones there was.
[8] Goods slowly started to arrive from the fourth day, but there was a deviation to the goods required. There was a shortage of warehouse space, a shortage of people to unload goods and no way to distribute goods.
[9] The electricity and water supplies were cut off.

Recovery and reconstruction guidelines issued 1 month after the disaster

April 11, 2011

Guidelines for the recovery and reconstruction of HigashiMatsushima City from the Great East Japan Earthquake

Mayor of HigashiMatsushima City

On March 11th, HigashiMatsushima City lost a great many precious lives due to the Great East Japan Earthquake. Many of the basic parts of our lives were also lost in the massive tsunami, including the houses and towns where we led our daily lives, facilities for the fishing industry and agriculture and public facilities.

Being located on the coast and containing many rivers and canals, the regional characteristics of HigashiMatsushima City meant that about 65% of the city area was submerged. The proportion of the area that was submerged by the tsunami was greatest among all the municipalities throughout Japan that suffered damage in the earthquake disaster.

From this massive damage, suffered in a way unprecedented throughout history, we are currently putting all our efforts into the search for those persons still missing and the restoration of the lives of our citizens.

However, in order for measures for the recovery and restoration of the city to be implemented efficiently and effectively from now on, we will clarify the parties responsible and the dates for implementation and we will present a specific plan of action and accelerate the promotional structures to create an environment that citizens can feel secure living in at the earliest possible time.

1. Guidelines for the recovery and restoration of civic life

For the time being, we will use all our resources to tackle the following measures in order to speed up the restoration of an environment that the victims and other citizens can feel secure living in at the earliest possible time. (omitted)

(1) The provision of safe and hygienic housing and support for livelihood rehabilitation

(Timing of implementation: mid-April, Department responsible: Disaster recovery measures office)

[1] Acceptance of applications for temporary housing, its early provision and the securing of land for it
(omitted)

[4] Early recovery of essential utilities, securing of roads, drainage measures, etc.

(To be implemented continuously. Department responsible: Headquarters for disaster control, Construction Department)

[1] Demands for the early restoration of electric power, the water supply and telephones
[2] Securing a traffic route for the recovery
[3] Restoration of sewer facilities
[4] Drainage measures

(5) Removal of debris, earthquake garbage related issues, outflow items

(To be implemented continuously. Department responsible: Headquarters for disaster control, Citizens' Affairs Department)

[1] The promotion of environmental improvement through the early removal of debris
[2] The smooth reception and thorough sorting of earthquake related garbage
[3] The removal, handing over and disposal of vehicles and ships that were swept away
[4] The laying of bodies to rest, burial and cremation

New plans for reconstruction

The two plans of ”Reconstruction Plan” and “FutureCity Initiative” are simultaneously implemented.

Reconstruction Plan

"Build Back Better"

"FutureCity" Initiative

環境未来都市　東松島
HigashiMatsushima the “FutureCity”

Realization of sustainable development of HigashiMatsushima City

Restoration

There are still various issues, such as those related to energy, aging population with fewer children, and disaster control.

“Bond” of the community played an important role in devastated HigashiMatsushima

Self-governing civil power of HigashiMatsushima functioned at the time of disaster

Self-assistance

Mutual assistance

Public assistance

Soup kitchen

Identification of missing persons

Meeting for reconstruction plan

Meeting at shelters

Community development through cooperation of regionally decentralized self-governing bodies

Creation of Reconstruction Plan

Exchange of opinions with over 2000 citizens

Farmers

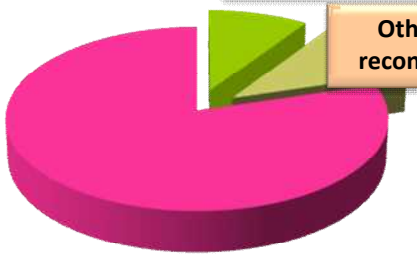
Fishermen

Community Center

Shelters

Junior high school students

Creation of **HigashiMatsushima Reconstruction Plan** with guidance and advice from committees of experts



Agreed to collective relocation 80.5%

* At the time of creation of Reconstruction Plan

Problem-solving methods

- Collective relocation
- Energy
- Community
- Population aging

Reconstruction projects

"Future City" Initiative

HigashiMatsushima Reconstruction Plan (FY 2011 – 2020)

With the participation of more than 2,000 residents, this plan was developed in December 2011 as a 10-year plan that describes the future vision of the city, basic policies for its realization and specific efforts by field or area.

Reconstruction Plan - Never forgetting that day and together for the future - United HigashiMatsushima

◆Basic policy (1)

Development of a disaster-resilient city by disaster prevention/mitigation measures
Creation of a disaster-preventive self-governing city

(1) Construction of a disaster-preventive/mitigating urban structure
(2) Formation of a disaster-preventive self-governing city

◆Basic policy (2)

Development of a city where people can live without anxiety while supporting each other

(1) Development of a livable environment
(2) Improvement of an environment where people can live without fear
(3) Creation of the self-governing ability of the local community

◆Basic policy (3)

Development of a city with restored businesses and various jobs

(1) Infrastructure development and restoration of businesses
(2) Attraction of enterprises and securement of employment
(3) Reconstruction of tourism resources and creation of attractions
(4) Creation of new jobs and promotion of new businesses

◆Basic policy (4)

Development of a city with an economically sustainable society

(1) Construction of an economically sustainable society
(2) Introduction of private resources

Future vision of the city

(1) Disaster-resistant safe city
Disaster-resistant city that protects precious lives

(2) Safe city where people can live with smile
Safe city where people can live peacefully while cherishing bonds and supporting each other

(3) City where industries thrive to create job opportunities
Vibrant city where various industries thrive and people can work with a purpose and a sense of worth

Guidance and advice from the expert committee

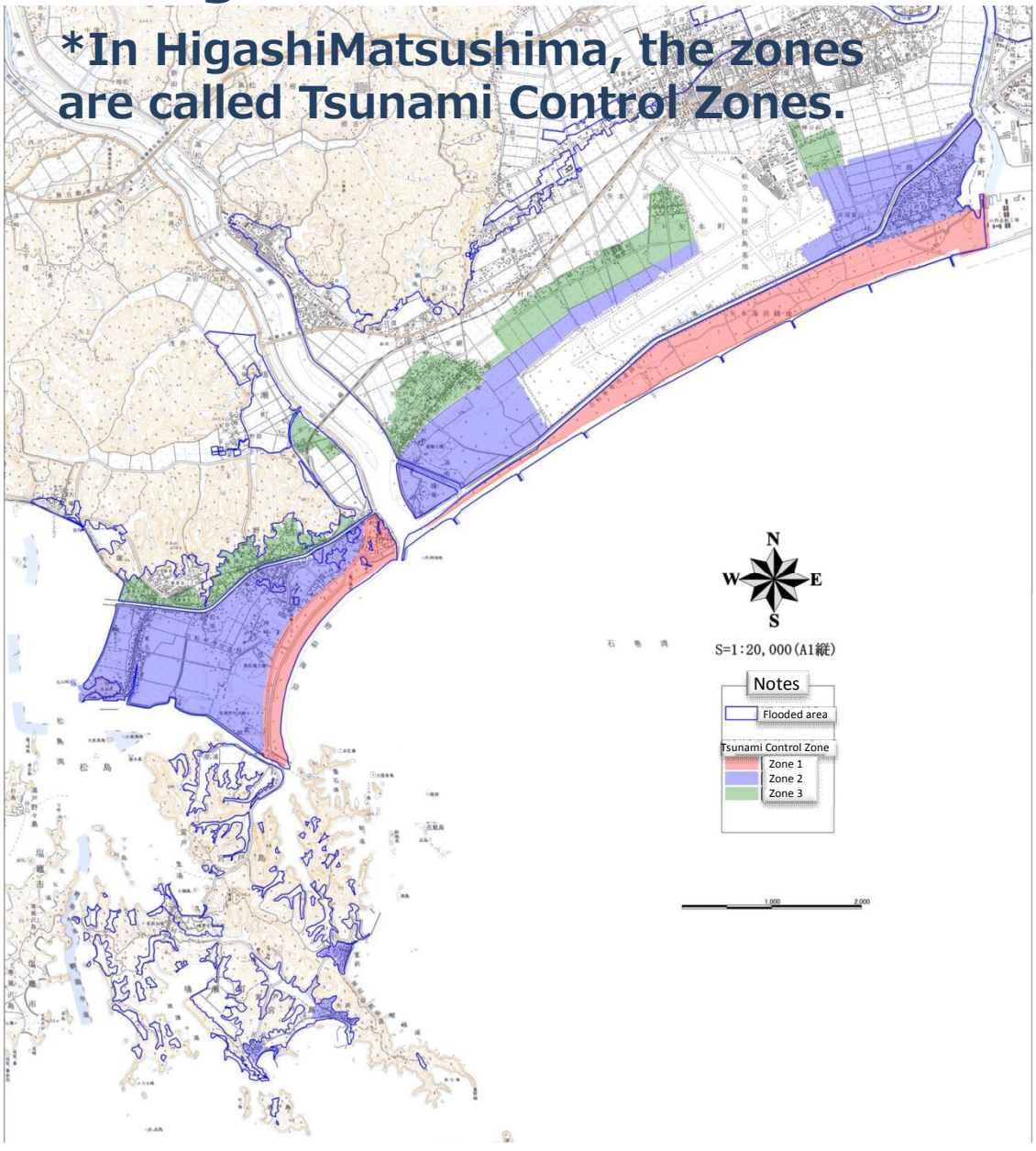
Community Center

Shelters

Junior high school students

FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Reconstruction period (5 years)									
Planning period					Developing period (5 years)				

Setting of disaster risk zones



Enforcement of the Ordinance for Tsunami Control Zones in HigashiMatsushima June 1, 2012

Zone 1
There are limitations on the construction of residential buildings, medical facilities and child welfare facilities here.

Zone 2
There are restrictions on the construction of residential buildings, medical facilities and child welfare facilities here. However, if such buildings meet certain requirements, such as a reinforced concrete structure, presence of two or more stories and the absence of basement floors, they may be approved for construction.

Zone 3
Residential buildings, medical facilities and child welfare faculties can be constructed here if the buildings meet certain requirements: their first-floor level must be 1.5 m higher than the road in front of the building lot, and the foundation must be made of reinforced concrete.

Collective Relocation Project (urban development ensuring future safety)

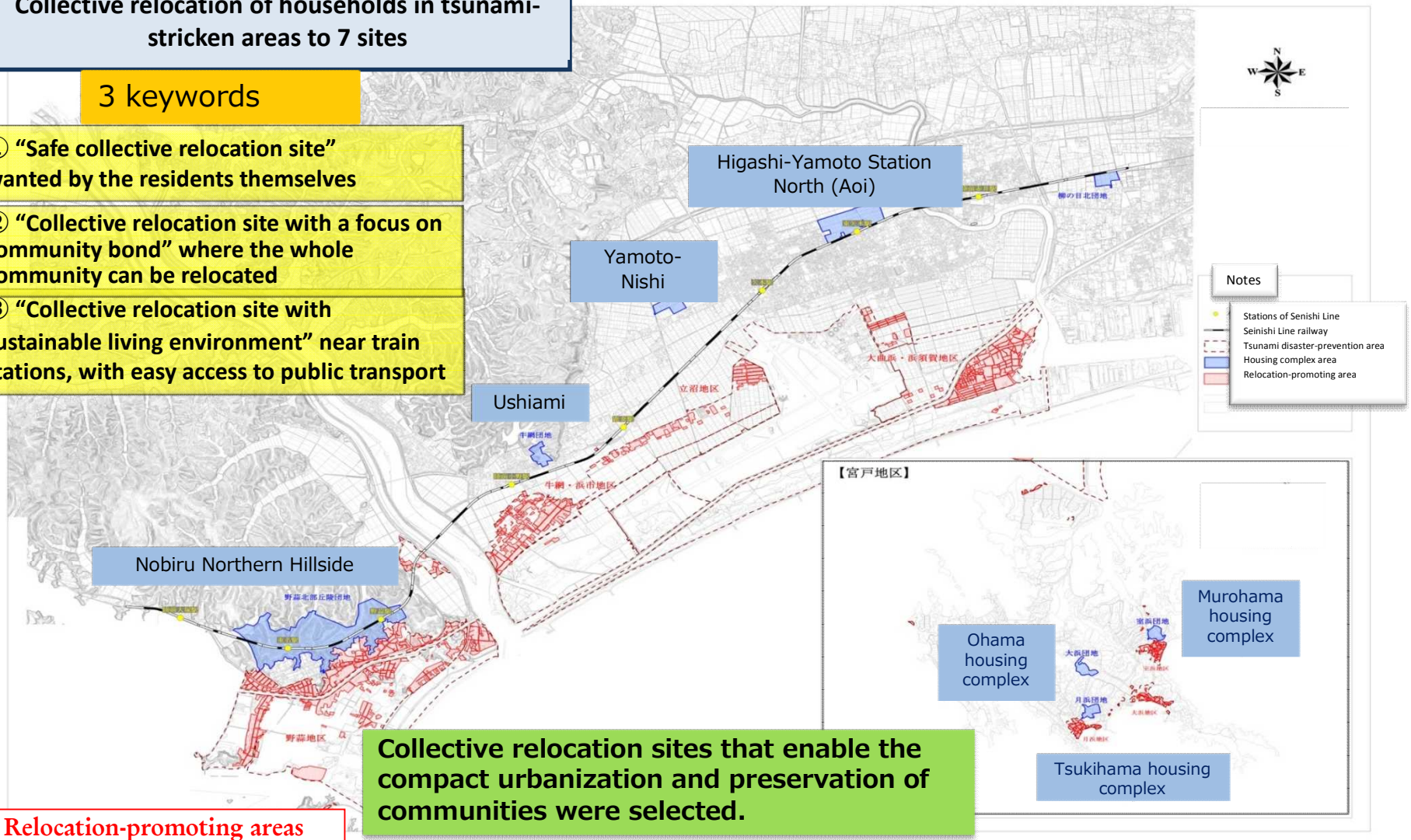
Collective relocation of households in tsunami-stricken areas to 7 sites

3 keywords

① "Safe collective relocation site" wanted by the residents themselves

② "Collective relocation site with a focus on community bond" where the whole community can be relocated

③ "Collective relocation site with sustainable living environment" near train stations, with easy access to public transport

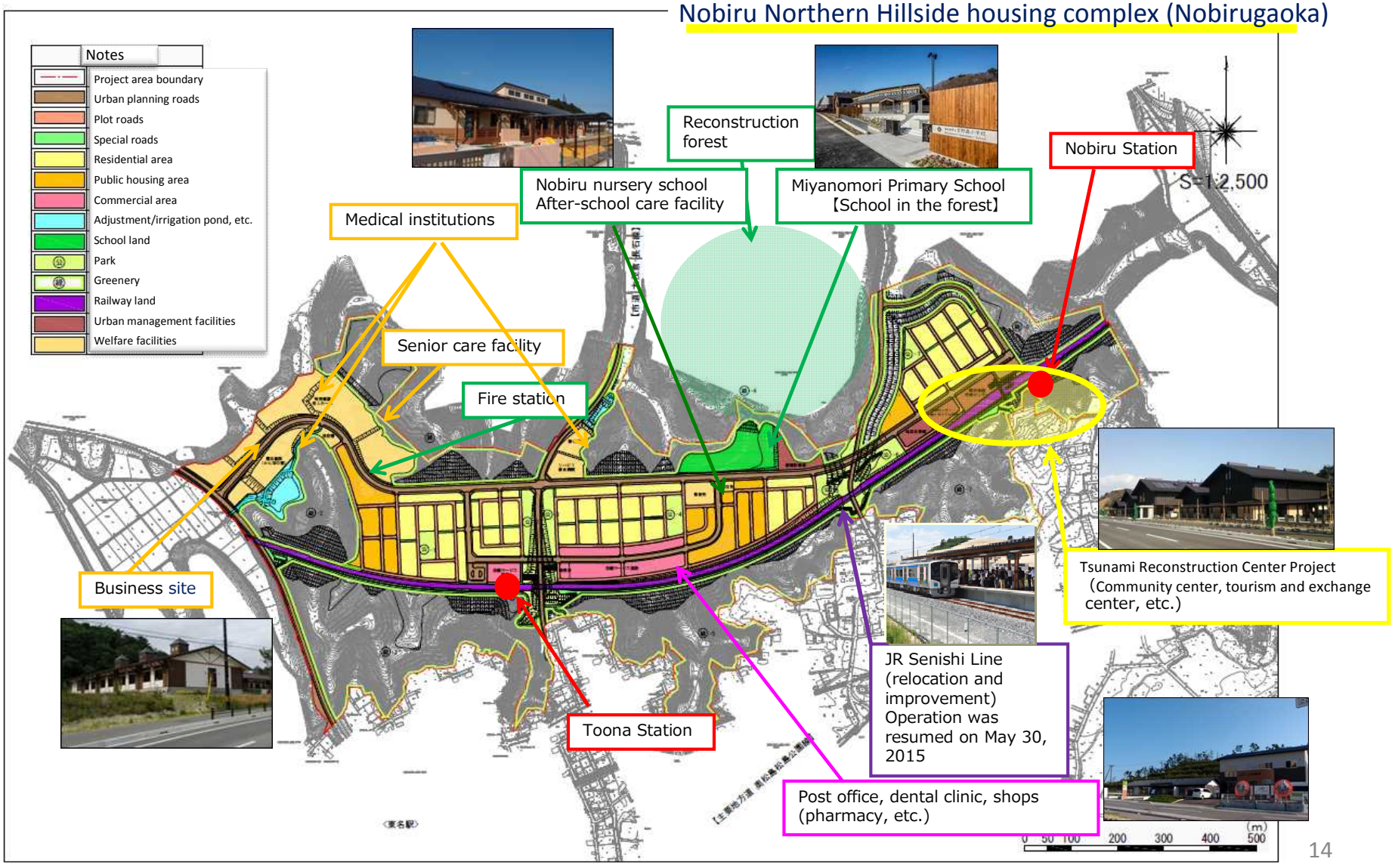


Collective relocation sites that enable the compact urbanization and preservation of communities were selected.

Relocation-promoting areas
Land to be purchased:
approx. 176 ha in total

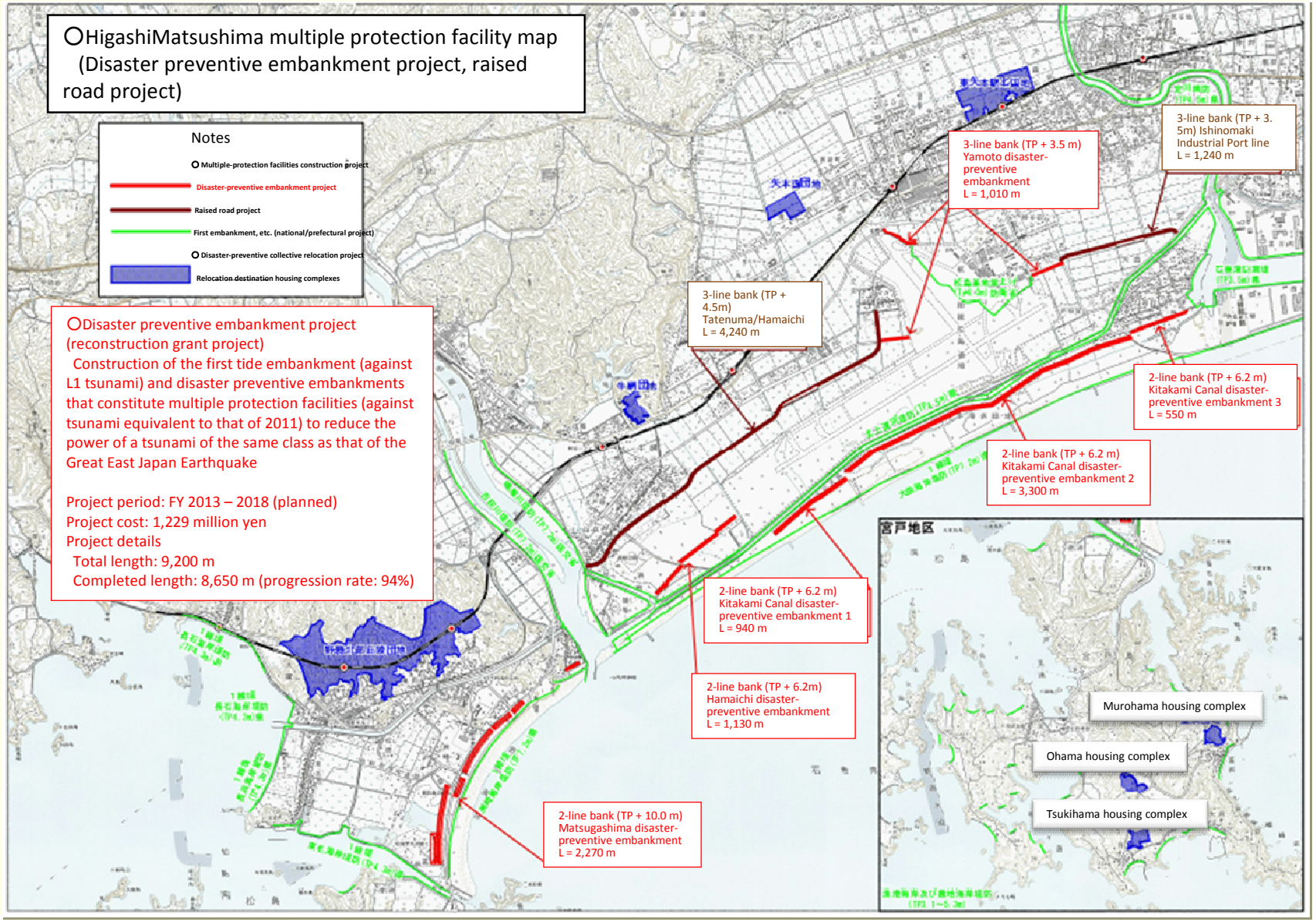
Collective Relocation Project (Example of relocation to higher areas)

Nobiru Northern Hillside housing complex (Nobirugaoka)



Multiple protection facilities (disaster prevention embankments/raised roads)

As of March 31, 2018)



Changes in the dwelling places of affected people

After the disaster (Mar. 11 – Aug. 2011)

To shelters

Operation of shelters by local self-governing bodies and residents

Primary and junior high schools, community centers and district centers were used as shelters.

Shelter

Five months after the disaster (Aug. 2011)

To emergency temporary housing

A total of 1,727 prefabricated temporary housing units were built in 29 places in the city.

Private apartment buildings were rented and used as temporary housing.

Construction of temporary housing

To public housing (since Apr. 2014)

People have moved into housing units constructed and managed by the city.

The rent varies according to the household income.

People have moved into the housing units since April 1, 2014 in a phased manner.

It is planned to build a total of 1,101 housing units in the city (of which 1,001 units have been completed as of April 1, 2018)

Independent reconstruction at collective relocation sites (since Jun. 2014)

Housing lots were developed at seven collective relocation sites in the city for independent reconstruction.

The city leases land for 30 years free of charge to people wishing to participate in reconstruction. They build their homes using their own money. All 717 plots for reconstruction have been prepared.

Temporary housing situation

Emergency temporary housing and private rental housing (as of Nov. 30, 2018)

◆Emergency temporary housing (prefabricated temporary housing, existing public housing, private rental housing (deemed temporary housing), temporary welfare facilities)

Classification	Construction or rental (diversion) *at the peak		Dismantled housing		Empty housing units	Tenants (affected people)	
	Housing complexes	Housing units	Housing complexes	Housing units		Housing units	Number of people
(1) Prefabricated temporary housing *construction	29	1,727	24	1,537	1,109	4	7
(2) Employment promotion housing *rental	2	53	—	—	—	0	0
(3) Existing municipal housing *diversion	4	42	—	—	—	3	8
(4) Temporary welfare home *rental	3	26	3	26	—	0	0
(5) Private rental housing (HigashiMatsushima supports the project for affected people, as of Mar. 31, 2018)	—	950	—	—	—	5	8
Total		2,798				12	23

◆Establishment of the Support Center for Affected People

The HigashiMatsushima Support Center for Affected People was established to provide necessary support for the health of affected people and the stabilization of their lives, and to promote their welfare and mutual support.

As facilities to partly complement the work of the support center, local centers were also established in three temporary housing complexes in the city (Yamoto Athletic Park, Oshio Green Town, Hibiki Industrial Complex) to provide physical and mental care of affected people, help them live a worthwhile life, and provide consultations and independence support.

Housing reconstruction

as of June 1, 2018

1. Development of disaster-preventive collective relocation site (individual housing plot)

Disaster-preventive collective relocation for 7 housing complexes, 1,285 households in total (717 individual housing plots)
In 2016, the last 278 housing units in Nobiru Northern Hillside were delivered in a phased manner until November.

Yamoto-Nishi 127 plots (87 for individual housing)

Ushiami 74 plots (45 for individual housing)

Murohama 19 plots (6 for individual housing)

Tsukihama 22 plots (18 for individual housing)

Ohama 15 plots (10 for individual housing)

Yamoto-Higashi 580 plots (273 for individual housing)

Nobiru 448 plots (278 for individual housing)

2. Construction of public housings for disaster victims

① **Public housings for disaster victims (1,101 households in total) under construction.**

② **1,001 out of 1,101 households already completed and delivered. Completion rate: 90.9%**

③ **Consultation with residents' organizations (Relocation Committee, etc.) Occupation rate: 99.4%**

Apartment buildings

Individual houses

Community development for reconstruction in HigashiMatsushima City

(1) Outline of damage and reconstruction

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(3) Reconstruction of industries and schools

(4) Efforts unique to HigashiMatsushima City

Collaborative community development in HigashiMatsushima

Local revitalization = New autonomy

(Realization of decentralization)　（Regional decentralization)

Causes of collaborative community development in HigashiMatsushima

- Progressive decentralization of society
- Fewer children and difficulties facing child-raising
  Super-aging society
  Financial difficulties
  Anxiety about disasters and crime
- Changes due to a merger (Yamoto Town and Naruse Town merged in April 2005)

Can people live without anxiety in the city 10 years later?

How to protect the safety of the area

New direction of community development

City residents, administration, and communities

Collaborative community development

◆ Abolishment of eight community halls (2008), establishment of the Community Development Ordinance (2008)
◆ Establishment of eight community centers and district centers operated by local self-governing bodies (2009)

System of regional self-governing bodies in HigashiMatsushima (example of Oshio area)

Oshio Municipal Council

Operation

Oshio Community Center

Regional Employment Community Center employees
1 representative
1 chief of secretariat
7 secretary generals
*Serves as the secretariat of the council

Executive Committee

1 president, 3 vice-presidents
1 accountant, 20 secretaries

Monthly regular meeting
Temporary committee meeting

Regional Environment Committee: 27 members

General Affairs Exchange Committee: 37 members

- Omote Municipal Asso
- Naka Municipal Asso.
- Oshima Municipal Asso.
- Shioiri Municipal Asso.
- Urasawa Municipal Asso.
- Kobungi Municipal Asso.
- Komatsudai Municipal Asso.

All municipal associations found in the Oshio area

78 regional promotion members

2017 Budget of Community Development Council (example of Oshio Municipal Council)
Related to community development (estimate): approx. 7.45 million yen
Related to designated administrative tasks (community center): approx. 21 million yen

Total: approx. 28.45 million yen

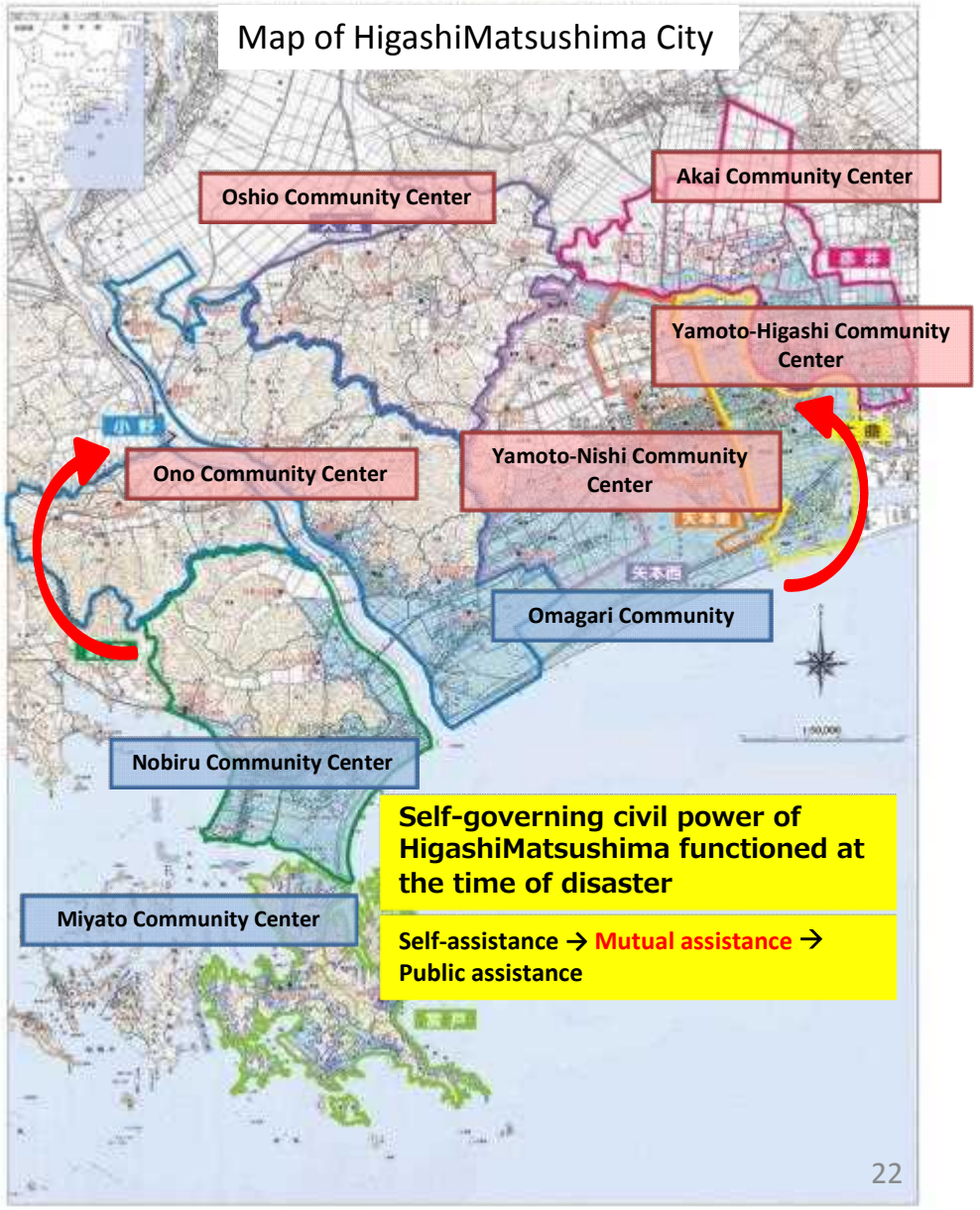
Activities of local self-governing bodies at the time of a disaster

System of regional governance in HigashiMatsushima: 8 self-governing bodies

Shelters managed by self-governing bodies

Mutual assistance agreement by the city's self-governing bodies

Inland self-governing bodies assisted coastal areas



Community development at collective relocation sites

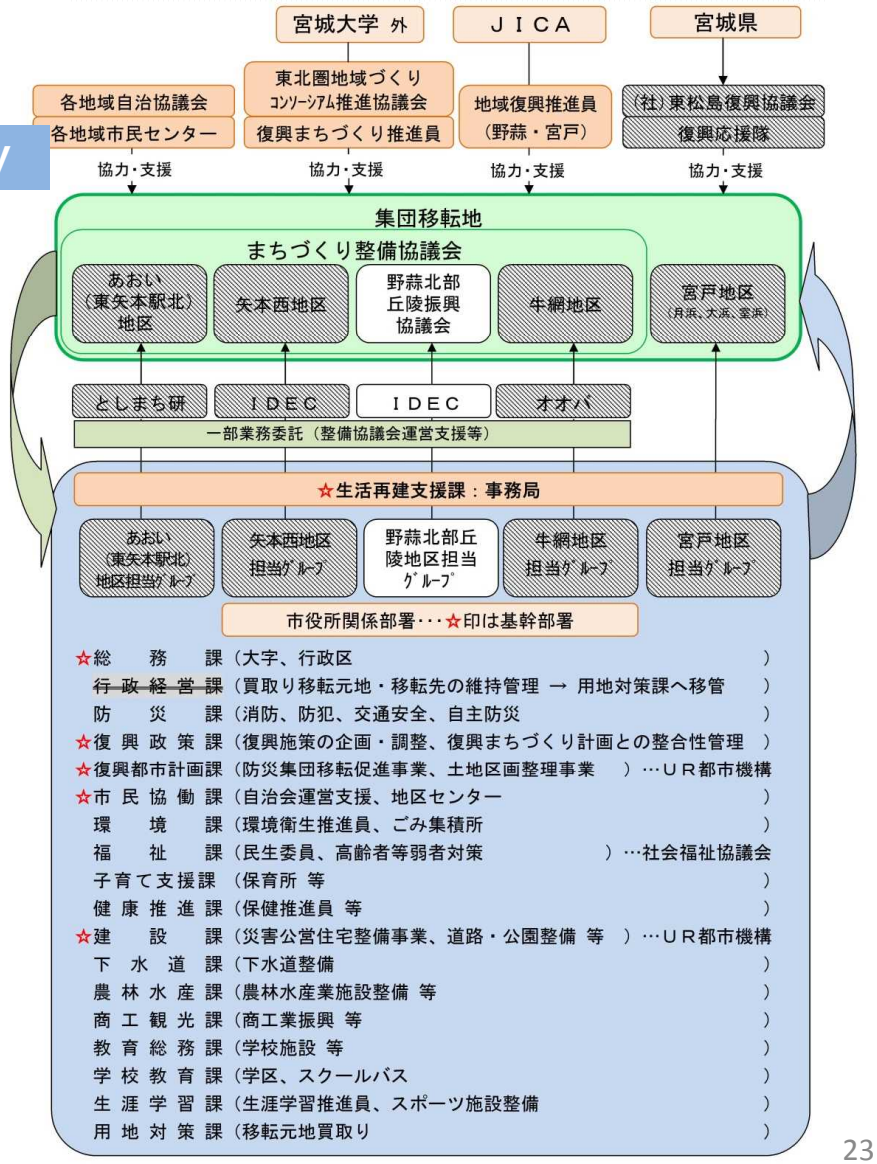
To promote permanent settlement, a system was established that allowed people to select an area to live from seven collective relocation sites regardless of the area where they used to live.

Formation of a new community

A Community Development Council was established at each collective relocation site.

- Resident-led decision-making organization. It organizes meetings and workshops to collect many opinions and study community development at the relocation site
- The City Hall provides support through cross-sectoral groups at individual relocation sites.
- Each council used its own plotting way to zone the land.
- Each council established its own guidelines and a district plan to maintain the scenery.
- Community development newsletters and other information magazines were published to inform people about the progress of the discussions.
- Multiple exchange parties and meetings were held from before relocation to promote the formation of the community.

Community Development Council relationship diagram



Community Development Councils

Relocation site	Higashi-Yamoto Station North housing complex	Yamoto-Nishi housing complex	Ushiami housing complex	Nobiru Northern Hillside housing complex	Murohama/Ohama /Tsukihama housing complex
Council	Aoi Community Development Council	Yamoto-Nishi Community Development Council	Ushiami Community Development Council	Nobiru Northern Hillside Promotion Council	Miyato Community Development Council
Date of establishment	Nov. 21, 2012	Dec. 19, 2012	Dec. 20, 2012	Nov. 25, 2012	Feb. 20, 2012
Number of planned housing units	Collective relocation: 273 Public housing: 307	Collective relocation: 87 Public housing: 40	Collective relocation: 45 Public housing: 29	Collective relocation: 278 Public housing: 170	Collective relocation: 34 Public housing: 22
Time of delivery of housing lot	Apr., Jul., Sep. 2015	Jun. 2014	Jun. 2014	May, Sep., Nov. 2016	Jun. 2014
Scheduled date of relocation to public housing	Nov. 2014, Nov. 2015, May, Jul. 2016	Jul. 2015	Jul. 2015	Jun., Aug. 2017	Jul. 2015
Project-promoting body	Expert subcommittees 1. Public Facility Planning Subcommittee 2. Public Housing Subcommittee 3. Streetscape Study Subcommittee 4. Public Relations Subcommittee 5. Training Event Subcommittee 6. Community Promotion Subcommittee 7. Other subcommittees deemed necessary by the executive committee	Executive committee	Executive committee	Expert subcommittees 1. Higher Place Relocation Subcommittee 2. Public Housing Subcommittee	Conference for each relocation site

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Reconstruction state of industries ①

1. Reconstruction of agriculture

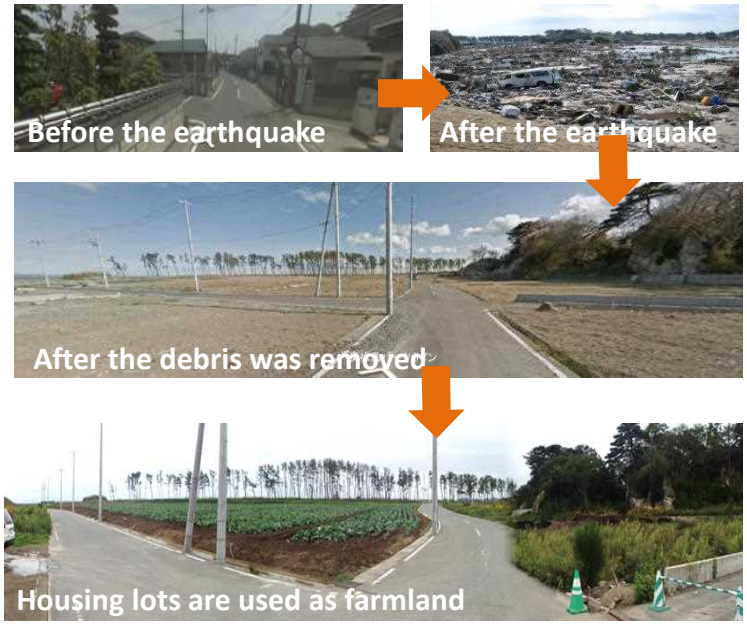
Tsunami-affected farmland area: 1,460 ha

① **Restored farms: approx. 94% (as of the end of 2017)**

② **Grouping of agricultural land is in rapid progress.**
18 new organization started farming after the disaster.

2. Conversion of disaster-stricken residential land to agricultural land

① **Residential land, purchased for disaster-preventive collective relocation project, is rented to agricultural organizations as agricultural land (farmland) (approx. 28 ha)**



	Agricultural corporation	Est. year	Main produce	Note
1	Miyato Kantaku Nobiru Producers' Union	1971	Rice, soy beans	
2	Miyato Kantaku Miyato Producers' Union	1975	Rice	
3	Nobiru Rice Producers' Union	1984	Rice	
4	Tsuno Farm Ltd.	1989	Pork	
5	Ogata Engei Ltd.	1989	Flower	
6	Marufuku Farm Ltd.	1996	Rice, vegetables	
7	Sun Farm OkuMatsushima Ltd.	1998	Vegetables	
8	Aglead Naruse Ltd.	2006	Rice, soy beans, vegetables	
9	Miyagi Mizuho-kai Ltd.	2006	Rice	
10	Sun Eight Co. Ltd.	2006	Rice, soy beans, vegetables	
11	Mizuho Farming Agricultural Cooperative Corporation	2007	Rice, soy beans. vegetables	
12	**Igunal Farm Co. Ltd.**	2011	Vegetables, processing, direct sales	**Created after the disaster**
13	**Yotsuba Farm Co. Ltd.**	2012	Rice, vegetables	
14	**Pal Farm Omagari Co. Ltd.**	2012	Rice, vegetables	
15	**Kimura Noen Co. Ltd.**	2012	Rice, processing	
16	**Tsutsumi Co. Ltd.**	2013	Rice, soy beans, processing	
17	**Takahashi Nosan Co. Ltd.**	2013	Rice, soy beans	
18	**Kibou no Izumi Co. Ltd.**	2013	Vegetables	
19	**Megu Eat Co. Ltd.**	2013	Rice, vegetables	
20	**Pasca Farm Tatenuma Co. Ltd.**	2013	Rice, vegetables	
21	**Lawson Farm Co. Ltd.**	2014	Vegetables	
22	**Oshio Hokubu**	**2015**	**Rice, rotation crops**	
23	**OkuMatsushima Green Farm**	**2015**	**Rice, vegetables**	
24	**MR Farm Co., Ltd.**	**2015**	**Rice, vegetables**	
25	**OkuMatsushima Farm Co., Ltd.**	**2016**	**Vegetables grown in greenhouses**	
26	**Nobiru Hachimaru Farm Co., Ltd.**	**2016**	**Stockbreeding (horses)**	
27	**Miura Nosan Co., Ltd.**	**2016**	**Vegetables grown outdoors**	
28	**Komatsu**	**2017**	**Soybeans, grass, rice**	
29	**Kawamoto Farm Co., Ltd.**	**2017**	**Vegetables grown in greenhouses, rice**	

Reconstruction state of industries ②

3. Reconstruction of fishery

① ① Fishermen are very motivated for reconstruction, and number of Fishery Union members decreased very little after the disaster, from 307 to 292.

② Reconstruction state of main fishing produce
(Not the amount but production base-related)
- Recovery rate of dried seaweed facilities approx. 100%
- Recovery rate of oyster facilities approx. 90%
- Recovery rate of fixed net fishingapprox. 90%
(decrease for gillnetting, etc.)

Seedlings of dried seaweed (nori) grown on land

4. Reconstruction state of non-resident population (tourism)

① Annual non-resident population decreased from 1.1 million to 190,000 after the disaster.
The population was approximately 680,000 as of FY 2017.

② Despite of restart of sightseeing boat and opening of 1 of 6 beaches, true reconstruction still needs time.

③ There are many requests for disaster education and study tours and preparations are in progress.

OkuMatsushima Sagakei sightseeing boat

School Facility Restoration (Relocation) Project

Merger of affected primary and junior high schools and their relocation to inland areas (at higher heights)

Miyanomori Primary School (merger of Nobiru and Miyato primary schools)

Completed in January 2017

Classification	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	Apr.	Jul.	Oct.	Jan.	Apr.	Jul.	Oct.	Jan.	Apr.	Jul.	Oct.	Jan.	Apr.	Jul.	Oct.	Jan.	Apr.	Jul.	Oct.	Jan.
Planning/design/surve																				
Site acquisition	Site acquisition in a collaborative relocation site																			
Site preparation																				
Construction																				

Naruse Oka Primary School (merger of Ono and Hamaichi primary schools)

To be completed in December 2020

Classification	2015	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020		
	Jan.	Apr.	Jul.	Oct.	Jan.	Apr.	Jul.	Oct.	Jan.	Apr.	Jul.	Oct.	Jan.	Apr.	Jul.	Oct.	Jan.	Apr.	Jul.	Oct.
Planning/design/survey																				
Site acquisition																				
Site preparation (planned)																				
Construction (planned)																				

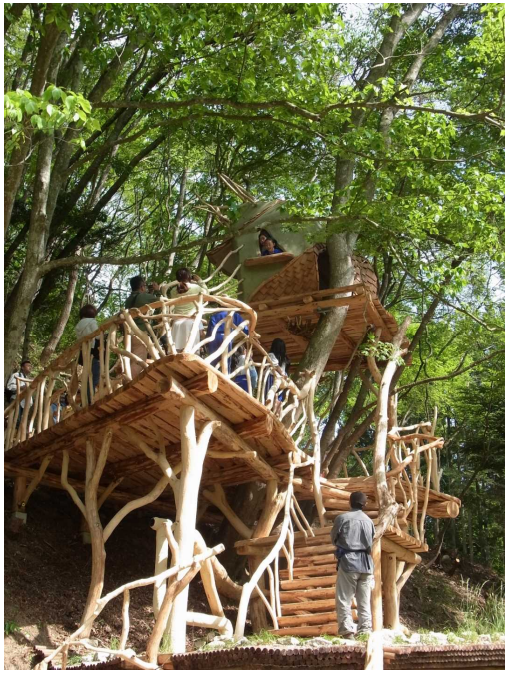
Naruse Mira Junior High School (merger of Naruse Daiichi and Naruse Daini junior high schools)

Completed in October 2017

Classification	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	Apr.	Jul.	Oct.	Jan.	Apr.	Jul.	Oct.	Jan.	Apr.	Jul.	Oct.	Jan.	Apr.	Jul.	Oct.	Jan.	Apr.	Jul.	Oct.	Jan.
Planning/design/survey																				
Site acquisition																				
Site preparation																				
Construction																				

Built under the concept of “school in the forest”

Miyanomori Primary School



Public primary school made of domestic lumber, which is rare in Japan. Development of an educational environment with a “Reconstruction Woodland” in the background

Community development for reconstruction in HigashiMatsushima City

(1) Outline of damage and reconstruction

(2) Earthquake and civic collaborative efforts – consensus-building among residents

(3) Reconstruction of industries and schools

(4) Efforts unique to HigashiMatsushima City

“HigashiMatsushima Method”: Recycling of rubbles caused by the disaster

■ Rubbles caused by the disaster: 1.098 million tons
99% of the total amount to be recycled
(110 times of general waste generated annually in HigashiMatsushima)

Amount of rubbles caused by the disaster

Wood/wood scraps	371,000t
Mixed waste	79,000t
Concrete pieces	404,000t
Asphalt pieces	34,000t
Metals	25,000t
Incombustible mixed waste	185,000t
Total	1,098,000t
(Recycled amount	1,073,000t)
(Incinerated amount: fishing nets, plastics	28,000t)

(Difficult-to-process objects: asbestos, PCB, etc. 3,115t)



① Rubbles from disaster-stricken houses etc. are divided on site into 14 categories

② Primary treatment using mobile construction machines

③ Final treatment to divide rubbles into 19 categories through strict manual sorting

“Waste” if mixed, “resources” if sorted

This initiative through industrial-administrative-public cooperation (local construction association + HigashiMatsushima + citizens) can be implemented in any community with preparation in advance.

Total recycling rate of the disaster waste: 99.22%

including 2,160,800 tons of tsunami deposits which were entirely recycled

Unit price for treatment of the disaster waste conducted by Miyagi Prefecture

	Project cost (million yen)	Treated amount (thousand tons)			Treatment unit price (10 thousands yen per ton)
		Rubbles	Sand	Total	
Kesennuma	113,893	1,138	893	1,977	5.8
MinamiSanriku	32,982	556	167	723	4.6
Ishinomaki	194,230	3,589	736	4,326	4.5
Onagawa	17,297	577	0	577	3.0
HigashiMatsushima	58,067	1,098	2,161	3,259	1.8
Shiogama	15,863	239	10	249	6.4
Shichigahama	16,588	228	304	532	3.1
Takashiro	15,222	242	108	350	4.3
Natori	31,799	741	222	963	3.3
Iwanuma	25,860	473	154	627	4.1
Watari	47,876	495	361	856	5.6
Yamamoto	43,888	784	856	1,641	2.7
Total	613,665	10,160	5,919	16,079	3.8

Note: Treated amount was rounded off to one decimal point. Total is thus approximate.
Source: Kahoku Shinpo (July 6, 2014)

Disaster-prevention plan (promotion of regional disaster-prevention)

1. Strengthening of independent disaster-prevention organizations

82 independent disaster-prevention organizations which cover all the citizens and communities

- 矢本東地区自主防災組織連絡協議会
  - 1 上町二区自主防災会
  - 2 上町三区自主防災会
  - 3 上河戸二・若葉区自主防災会
  - 4 下町一区自主防災会
  - 5 下町自主防災会
  - 6 大溜区自主防災会
  - 7 東大溜自主防災会
  - 8 関の内一区自主防災会
  - 9 関の内二区自主防災会
  - 10 関の内三区自主防災会
  - 11 作田浦区自主防災会
  - 12 下小松自主防災会
  - 13 谷地自主防災会
  - 14 下浦区自主防災会
  - 15 南浦宿舎自主防災会
- 矢本西市民センター自主防災連絡協議会
  - 1 上町一区自主防災会
  - 2 駅前区自主防災会
  - 3 矢本西地区自主防災会
  - 4 立沼地区自主防災会
  - 5 鹿妻地区自主防災会
  - 6 道地区自主防災会
  - 7 上小松自主防災会
  - 8 沢田区自主防災会
  - 9 前里区自主防災会
  - 10 手招区自主防災会
  - 11 前柳地区自主防災会
  - 12 北区官舎自主防災会
- 大曲地区自主防災連絡協議会
  - 1 五味倉地区自主防災会
  - 2 上納区自主防災会
  - 3 横沼東区自主防災会
  - 4 横沼西行政区自主防災会
  - 5 横沼一区自主防災会
  - 6 横沼二区自主防災会
  - 7 貝殻塚一区自主防災会
  - 8 貝殻塚二区自主防災会
  - 9 貝田区自主防災会
  - 10 筒場区自主防災会
- 赤井地区自主防災組織連絡協議会
  - 1 照井区自主防災会
  - 2 御下区自主防災会
  - 3 寺・中東区自主防災会
  - 4 赤井六槌地区自主防災会
  - 5 赤井下区自主防災会
  - 6 南一行政区自主防災組織
  - 7 南二区自主防災会
  - 8 南三区自主防災会
  - 9 新川前区自主防災会
  - 10 南四区自主防災会
  - 11 南五行政区自主防災組織
  - 12 南六区自主防災会
  - 13 南緑行政区自主防災会
  - 14 南区新町地区自主防災会
  - 15 柳北行政区自主防犯防災会
  - 16 柳上下区自主防災会
  - 17 柳西区自主防災会
- 大塩地区自主防災連絡協議会
  - 1 塩入区防災会
  - 2 中区自主防災会
  - 3 表区防災会
  - 4 大島自主防災会
  - 5 小分木自主防災会
  - 6 裏沢自主防災会
  - 7 小松台区自主防災会
- 小野地域自主防災組織連絡協議会
  - 1 小野上区自主防災会
  - 2 新道町内会自主防災会
  - 3 根古区自主防災会
  - 4 高松区自主防災会
  - 5 新田自主防災会
  - 6 西福田上区自主防災会
  - 7 西福田下区自主防災会
  - 8 肘曲区自主防災会
  - 9 上下堤区自主防災会
  - 10 川下自主防災会
  - 11 牛網町内会自主防災会
- 野蒜地区自主防災組織連絡協議会
  - 1 新町区自主防災会
  - 2 亀岡町内会自主防災会
  - 3 東名地区自主防災会
  - 4 大塚区会自主防災会
  - 5 中下区自主防災会
  - 6 浅井区自主防災会
- 宮戸地区自主防災連絡協議会
  - 1 里区自主防災会
  - 2 月浜区自主防災会
  - 3 大浜区自主防災会
  - 4 室浜区自主防災会

2. Tsunami surveillance camera

Installment of 7 surveillance cameras that can transmit independently with renewable energy and wireless cable even in case of the break-down of power source or internet connection at the time of disaster

Functions

- Remote control camera with zoom function
- High tide measuring equipment
- Solar power generation device
- Wind power generation device
- Storage battery
- Wireless transmission system

Price

10 million yen/camera

3. Redistribution of disaster-prevention radio receptors to every household

Emergency Stockpile Project

Establishment of stockpile warehouses at Takagi Woods Athletic Park and in separate areas

Project cost: approx. 270 million yen

A three-day stockpile (water, food, blankets, generators, etc.) for two-thirds of the city residents is stored in the Central Emergency Warehouse in Takagi Woods Athletic Park in preparation for a disaster. The stockpile is stored, periodically renewed and managed for delivery by a consigned private company.

In addition, 24 local emergency warehouses have also been established in separate areas and are managed by local self-governing bodies.

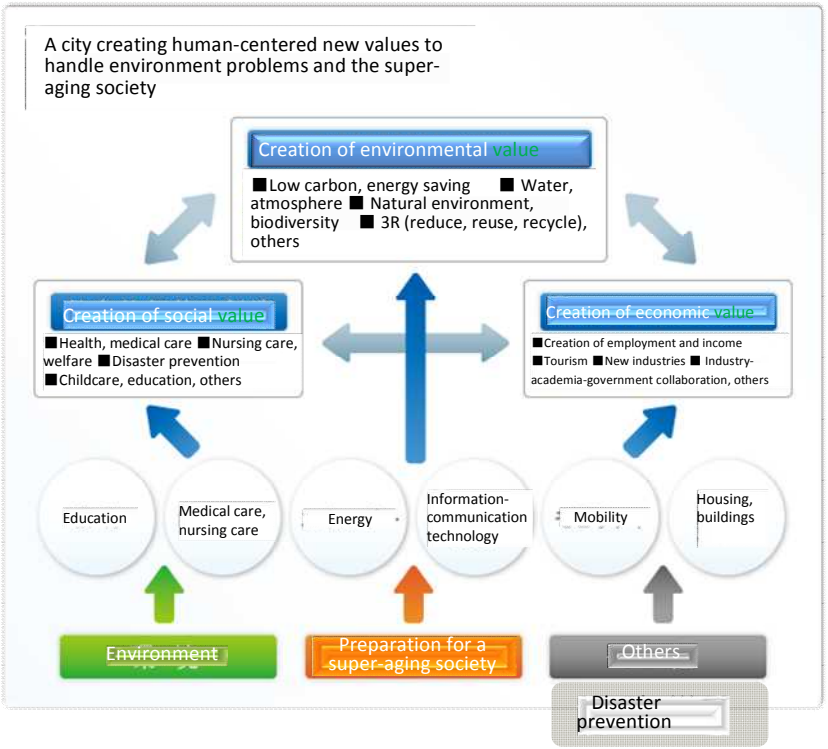
Emergency warehouses have also been established in separate areas.

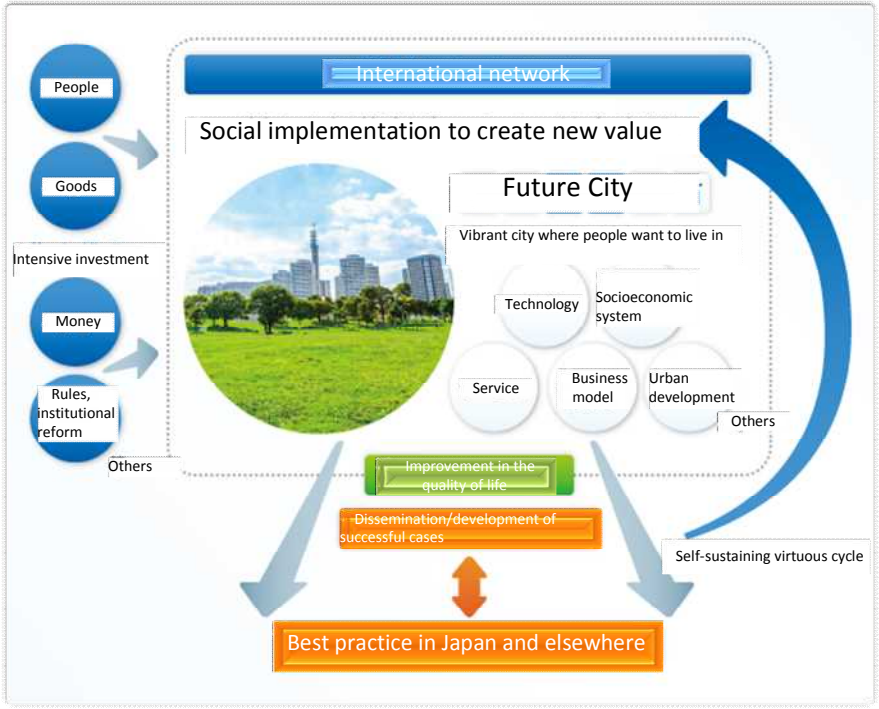
Build Back Better

▼ Promotion of the Major Project, a community development plan for reconstruction in HigashiMatsushima

▼ Promotion of the sustainable Future City Initiative (selected by the Cabinet Office)

HigashiMatsushima was selected as one of 11 cities/regions in December 2011.





Concept of the Future City Initiative
Source: Future City website (http://future-city.jp)

International collaborative efforts after the earthquake

To share the experiences of earthquakes and reconstruction with people around the world for sustainable city development

Mutual reconstruction program with Banda Aceh City (Indonesia)

Mayors and chairpersons of the cities

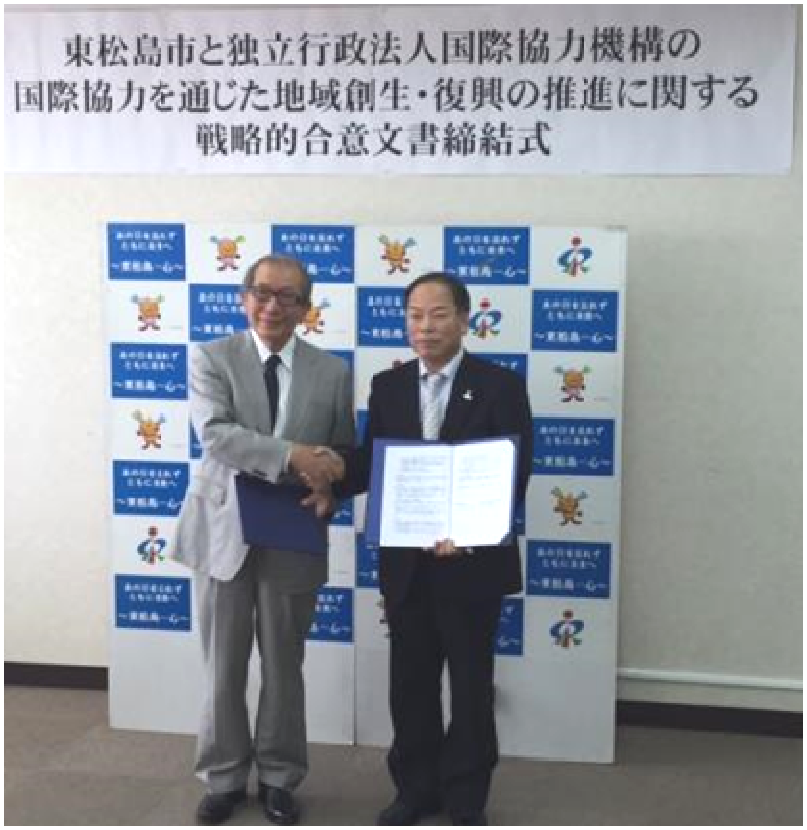
Human exchanges between the cities
(as of June 2018)

From Banda Aceh to HigashiMatsushima:
71 people

From HigashiMatsushima to Banda Aceh:
40 people

The two cities that have both suffered the effects of massive tsunami are working on effective model projects at the community level for mutual reconstruction and development.

Disaster-prevention workshop by HigashiMatsushima residents in Banda Aceh



17 PARTNERSHIPS FOR THE GOALS

HigashiMatsushima and JICA agreed on regional revitalization and promotion of reconstruction through international cooperation on 31 July 2015.

SDGs Aiming at a city where no one is left behind

Selected as a SDGs Future City, which is promoted by the Cabinet Office, to achieve the SDGs

In line with the Future City Initiative, HigashiMatsushima is promoting community development while solving issues.

The experience of HigashiMatsushima that can be shared with the world

The most important factors are **precautions and preparation** before a disaster occurs.

From a reactive approach after the disaster
⇒ to a proactive approach to mitigate the disaster