Community Development for Reconstruction in HigashiMatsushima City

Never forgetting that day and together for the future
—United HigashiMatsushima
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.
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.

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

Reconstruction Plan

"Build Back Better"

"FutureCity" Initiative

Restoration

Realization of sustainable development of HigashiMatsushima City

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

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

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

- Agreed to collective relocation 80.5%
- Undetermined 9.5%
- Other methods of reconstruction 10.0%

- Collective relocation
  - Energy
  - Community
  - Population aging

- Problem-solving methods
- Reconstruction projects
  - “Future City” Initiative

- Farmers
- Fishermen
- Shelters
- Junior high school students

* At the time of creation of Reconstruction Plan
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

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<tbody>
<tr>
<td>Reconstruction period (5 years)</td>
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<tr>
<td>Planning period</td>
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<tr>
<td>Developing period (5 years)</td>
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</tbody>
</table>
Setting of disaster risk zones

*In HigashiMatsushima, the zones are called Tsunami Control 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 facilities 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)
- Nobiru Station
- JR Senishi Line (relocation and improvement) Operation was resumed on May 30, 2015
- Toona Station
- Nobiru nursery school After-school care facility
- Miyanomori Primary School (School in the forest)
- Senior care facility
- Business site
- Medical institutions
- Fire station
- Tsunami Reconstruction Center Project (Community center, tourism and exchange center, etc.)
- Post office, dental clinic, shops (pharmacy, etc.)
- Notes:
  - Project area boundary
  - Urban planning roads
  - Plot roads
  - Special roads
  - Public housing area
  - Commercial area
  - Adjustment/irrigation pond, etc.
  - School land
  - Park
  - Greenery
  - Railway land
  - Urban management facilities
  - Welfare facilities
Multiple protection facilities (disaster prevention embankments/raised roads)

As of March 31, 2018

Disaster preventive embankment project (reconstruction grant project)
Construction of the first tide embankment (against L1 tsunami) and disaster preventive embankments that constitute multiple protection facilities (against tsunami equivalent to that of 2011) to reduce the power of a tsunami of the same class as that of the Great East Japan Earthquake

Project period: FY 2013 – 2018 (planned)
Project cost: 1,229 million yen
Project details
Total length: 9,200 m
Completed length: 8,650 m (progression rate: 94%)

Notes
- Multiple-protection facilities construction project
- Disaster-preventive embankment project
- Raised road project
- First embankment, etc. (national/prefectural project)
- Disaster-preventive collective relocation project
- Relocation destination/housing complexes

HigashiMatsushima multiple protection facility map
(Disaster preventive embankment project, raised road project)

Disaster prevention collective relocation project
Relocation destination/housing complexes

Multiple protection facilities (disaster prevention embankments/raised roads)

Disaster protective embankment project
Raised road project
First embankment, etc. (national/prefectural project)
Disaster protective collective relocation project
Relocation destination/housing complexes

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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.

**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.

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**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)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Construction or rental (diversion) *at the peak</th>
<th>Dismantled housing</th>
<th>Empty housing units</th>
<th>Tenants (affected people)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Housing complexes</td>
<td>Housing units</td>
<td>Housing complexes</td>
<td>Housing units</td>
</tr>
<tr>
<td>(1) Prefabricated temporary housing *construction</td>
<td>29</td>
<td>1,727</td>
<td>24</td>
<td>1,537</td>
</tr>
<tr>
<td>(2) Employment promotion housing *rental</td>
<td>2</td>
<td>53</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(3) Existing municipal housing *diversion</td>
<td>4</td>
<td>42</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(4) Temporary welfare home *rental</td>
<td>3</td>
<td>26</td>
<td>3</td>
<td>26</td>
</tr>
<tr>
<td>(5) Private rental housing (HigashiMatsushima supports the project for affected people, as of Mar. 31, 2018)</td>
<td>-</td>
<td>950</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>2,798</td>
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</tbody>
</table>

### 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)
Yamato-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%
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
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)

**Executive Committee**
- 1 president, 3 vice-presidents
- 1 accountant, 20 secretaries
- Monthly regular meeting
- Temporary committee meeting

**Regional Environment Committee:** 27 members
- Omote Municipal Asso.
- Naka Municipal Asso.
- Oshima Municipal Asso.
- Shioiri Municipal Asso.
- Urasawa Municipal Asso.
- Kobungi Municipal Asso.
- Komatsudai Municipal Asso.

**General Affairs Exchange Committee:** 37 members

**All municipal associations found in the Oshio area**

**78 regional promotion members**

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**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

Map of HigashiMatsushima City

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

Self-assistance ➔ Mutual assistance ➔ Public assistance
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.

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 at collective relocation sites
# Community Development Councils

<table>
<thead>
<tr>
<th>Relocation site</th>
<th>Aoi Community Development Council</th>
<th>Yamato-Nishi Community Development Council</th>
<th>Ushiami Community Development Council</th>
<th>Nobiru Northern Hillside Promotion Council</th>
<th>Miyato Community Development Council</th>
</tr>
</thead>
<tbody>
<tr>
<td>Council</td>
<td></td>
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(1) Outline of damage and reconstruction

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(4) Efforts unique to HigashiMatsushima City
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)

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

Created after the disaster

Before the earthquake

After the debris was removed

Housing lots are used as farmland
3. Reconstruction of fishery

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 fishing approx. 90% (decrease for gillnetting, etc.)

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.
**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**

<table>
<thead>
<tr>
<th>Classification</th>
<th>FY 2013</th>
<th>FY 2014</th>
<th>FY 2015</th>
<th>FY 2016</th>
<th>FY 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning/design/survey</td>
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<tr>
<td>Site acquisition</td>
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<tr>
<td>Site preparation</td>
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<tr>
<td>Construction</td>
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### Naruse Oka Primary School (merger of Ono and Hamaichi primary schools)
- **To be completed in December 2020**

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<thead>
<tr>
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</thead>
<tbody>
<tr>
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<tr>
<td>Site acquisition</td>
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<tr>
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</tr>
<tr>
<td>Construction (planned)</td>
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</tr>
</tbody>
</table>

### Naruse Mira Junior High School (merger of Naruse Daiichi and Naruse Daini junior high schools)
- **Completed in October 2017**

<table>
<thead>
<tr>
<th>Classification</th>
<th>FY 2013</th>
<th>FY 2014</th>
<th>FY 2015</th>
<th>FY 2016</th>
<th>FY 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning/design/survey</td>
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<tr>
<td>Site acquisition</td>
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<tr>
<td>Site preparation</td>
<td></td>
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</tr>
<tr>
<td>Construction</td>
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</tbody>
</table>
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)

- **Total recycling rate of the disaster waste:** 99.22%
  - Including 2,160,800 tons of tsunami deposits which were entirely recycled

- **“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.

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

<table>
<thead>
<tr>
<th>City</th>
<th>Project cost (million yen)</th>
<th>Treated amount (thousand tons)</th>
<th>Treatment unit price (10 thousands yen per ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kesennuma</td>
<td>113,893</td>
<td>1,138</td>
<td>893</td>
</tr>
<tr>
<td>MinamiSanriku</td>
<td>32,982</td>
<td>556</td>
<td>167</td>
</tr>
<tr>
<td>Ishinomaki</td>
<td>194,230</td>
<td>3,589</td>
<td>736</td>
</tr>
<tr>
<td>Onagawa</td>
<td>17,297</td>
<td>577</td>
<td>0</td>
</tr>
<tr>
<td>HigashiMatsushima</td>
<td>58,067</td>
<td>1,098</td>
<td>2,161</td>
</tr>
<tr>
<td>Shirokuma</td>
<td>15,863</td>
<td>228</td>
<td>10</td>
</tr>
<tr>
<td>Shiogama</td>
<td>16,588</td>
<td>228</td>
<td>304</td>
</tr>
<tr>
<td>Takahashi</td>
<td>15,222</td>
<td>242</td>
<td>108</td>
</tr>
<tr>
<td>Natori</td>
<td>31,799</td>
<td>741</td>
<td>222</td>
</tr>
<tr>
<td>Iwamizuma</td>
<td>25,860</td>
<td>473</td>
<td>154</td>
</tr>
<tr>
<td>Watari</td>
<td>47,876</td>
<td>495</td>
<td>361</td>
</tr>
<tr>
<td>Yamamoto</td>
<td>43,888</td>
<td>784</td>
<td>856</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>613,665</strong></td>
<td><strong>10,160</strong></td>
<td><strong>5,919</strong></td>
</tr>
</tbody>
</table>

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

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

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.

Central Emergency Warehouse

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.

A city creating human-centered new values to handle environment problems and the super-aging society

- Creation of environmental value
  - Low carbon, energy saving
  - Water, atmosphere
  - Natural environment, biodiversity
  - 3R (reduce, reuse, recycle), others

- Creation of social value
  - Health, medical care
  - Nursing care, welfare
  - Disaster prevention
  - Childcare, education, others

- Creation of economic value
  - Creation of employment and income
  - Tourism, New industries, Industry-academia-government collaboration, others

Social implementation to create new value

Future City
- Vibrant city where people want to live in
  - Technology
  - Socioeconomic system

Intensive investment
- People
- Goods
- Money
- Rules, institutional reform
- Others

Intensive investment
- Preparation for a super-aging society

Others
- Education
- Medical care, nursing care
- Energy
- Information-communication technology
- Mobility
- Housing, buildings

Environment

Education

Disaster prevention

 Disaster prevention

Intensive investment

Social implementation to create new value

Concept of the Future City Initiative
Source: Future City website (http://future-city.jp)
International collaborative efforts after the earthquake

Mutual reconstruction program with Banda Aceh City (Indonesia)

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.

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