



Never Forgetting, Striding Together into the Future City, JAPAN



Higashimatsushima

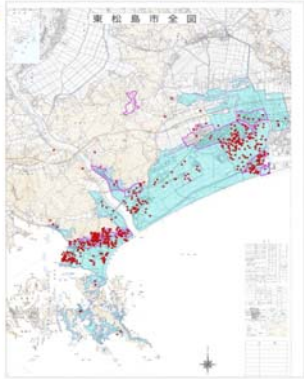
Community Development for Recovery after the Great East Japan Earthquake



65% of the city's urban area was inundated by the tsunami (more than any other municipality in Japan)

Higashimatsushima damage conditions (as of end of August 2015)

- Human damages (city residents)
 - Deaths: 1,110
 - Missing persons: 24
 - Total: 1,134 (approx. 3% of the city's residents)
- Home damage
 - Completely destroyed: 5,513 homes
 - Partial but extensive destruction: 3,060 homes
 - Partially destroyed: 2,500 homes
 - Total: 11,073 homes
 - (Approx. 73% of all households)
- Evacuees (peak): 15,185
- Shelters (peak): 106
- Flooded agricultural area: 1,465 ha / Total agricultural area: 3,349 ha



Overview of Higashimatsushima



[Location]
Higashimatsushima City is located in the northeast of Japan, bordering the Pacific Ocean. It is a scenic city that includes Matsushima, one of Japan's three great views. The JR Senseki Line and Sanriku Expressway run through the center of the city, and at only around 30 minutes from Sendai City, Higashimatsushima features convenient public transportation as a regional city.

City flower: Cherry blossom [City tree: Pine]



[Experiences and Exchange]
Higashimatsushima City is blessed with nature, with spectacular views of the sea, mountains, and rivers. It is particularly rich in marine leisure opportunities, such as coastal swimming, clam digging, pleasure boat trips, and fishing. Prior to the earthquake disaster, it was visited by roughly 1.1 million people each year. The Japan Air Self-Defense Force Matsushima Base holds an air show every summer, and airplane fans gather from around the country to see Blue Impulse fly.

■ Population: 40,183 (as of December 1, 2015)
(Population before earthquake: 43,142)



10 m 50 cm giant tsunami caused by the Great East Japan Earthquake on March 11, 2011



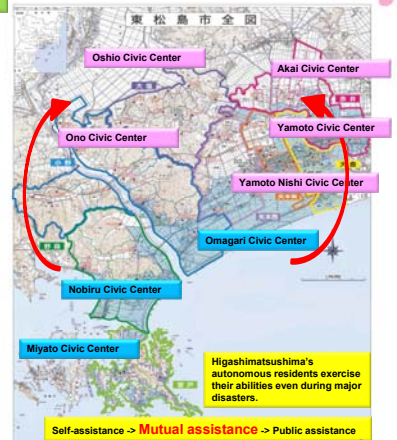
Deaths/missing persons nationwide: 18,460
In Higashimatsushima: 1,134



Promoting regional mutual assistance

Higashimatsushima's unique regional autonomy framework

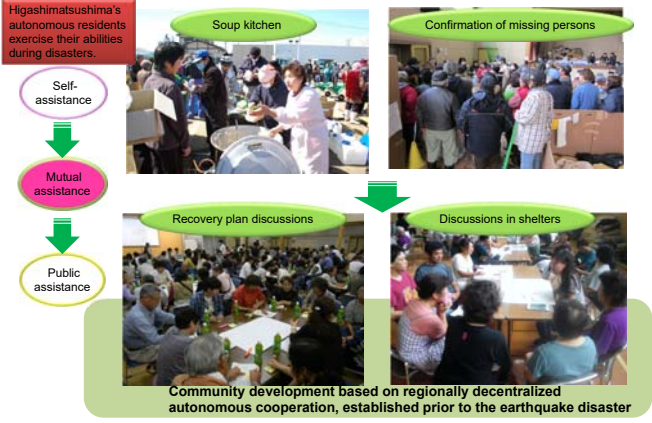
8 autonomous organizations, based on basic autonomous regulations



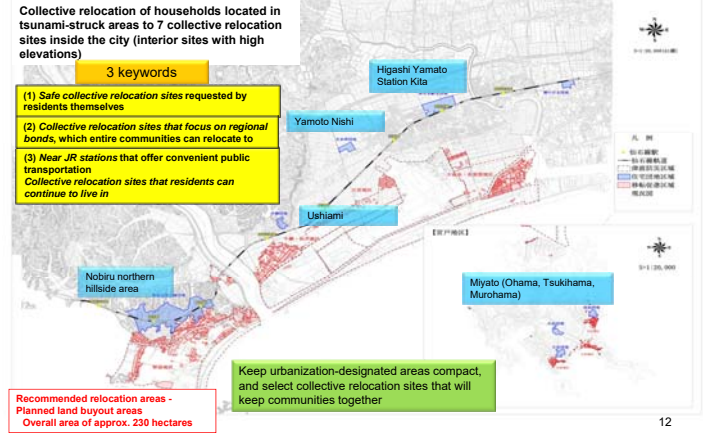
Higashimatsushima's autonomous residents exercise their abilities even during major disasters.

Self-assistance -> Mutual assistance -> Public assistance

Bonds between people played an important role after Higashimatsushima suffered devastating damage.



A city that will be safe in the future (disaster prevention collective relocation diagram)



Making progress on building homes with residents

1. Establishment of disaster prevention collective relocation sites (planned single-family housing zones)

7 collective relocation sites: During the disaster prevention collective relocation project for a total of 1,285 units (including 717 planned single-family housing zones), 528 planned single-family housing zones have been completed, for a completion rate of 100%.



2. Establishment of disaster public housing

- (1) Currently developing a total of 1,010 public housing units.
- (2) 831 have been completed, and families have already moved in. Completion rate: 82.3%
- (3) Careful adjustment of intentions with resident organizations such as the Relocation Committee resulted in an occupancy rate of 99%.



Higashimatsushima style recycling of disaster waste

Disaster rubble volume: 1,098,000 tons

Approx. 99% of all rubble was recycled.

(110 times the annual waste production of Higashimatsushima)



"Mixed, it's garbage, but separated, it's a resource" Industry, government, and residents (a local construction contractors association, the city of Higashimatsushima, and residents) worked together, preparing in advance to ensure that every region could achieve the project's goals.

Including a total of 2,160,800 tons of recycled tsunami sediment, the recycle ratio of all disaster waste materials was 99.22%.

Disaster rubble volume

Wood / wood scrap:	371,000 tons
Mixed garbage:	79,000 tons
Concrete:	404,000 tons
Asphalt:	34,000 tons
Metal:	25,000 tons
Unburnable mixed garbage:	185,000 tons
Total:	1,098,000 tons
(Recycled amt: 1,073,000 tons)	
(Incorporated amt (fishing nets/waste plastic): 28,000 tons)	
(Amt difficult to process (asbestos, PCB, etc.): 3,155 tons)	

Unit cost of disaster waste processing contracted by Miyagi Prefecture

	Project cost (million ¥)	Processed amount (1,000 tons)	Rubble	Det.	Total	Processing unit cost (¥/100m³)
Arakawa	113,893	1,138	830	307	1,137	99.6
Minamimutsu	32,982	556	307	249	556	58.6
Minamimutsu	194,230	3,580	236	4,326	4,556	113.2
Shiogama	11,297	577	0	577	577	19.7
Total	58,002	1,098,210	3,252	1,095	4,347	100.0
Shiogama	15,863	220	10	249	249	64.4
Shiogama	16,688	220	304	532	532	31.1
Tsuno	15,222	242	108	350	433	43.3
Natori	31,799	741	222	963	963	33.3
Isahaya	25,890	873	154	627	627	41.1
Itayan	47,876	495	361	856	856	51.6
Yamagata	43,888	794	856	1,650	1,650	102.7
Total	613,665	10,160.5	919.8	9,240.7	10,160.5	100.0

[Note] Processed amounts are rounded to whole numbers, so totals may not match.
Source: Kahoku Shimpo (July 6, 2014)

New plans for recovery

Two plans are being implemented simultaneously: a recovery plan and the FutureCity Initiative



Made from trees in the area Natural and Healthy Elementary School





SUSTAINABLE DEVELOPMENT GOALS
17 GOALS TO TRANSFORM OUR WORLD



International exchange after the disaster

**Indonesia
Tsunami Affected Area**

**Philippines Leyte Typhoon
Afflicted Area**

Memorandum on agreement on cooperation for reconstruction (example of Aceh City)



JICA



◀◀Main fields of cooperation▶▶

- ① Urban planning, disaster-prevention planning
- ② Education, health, culture
- ③ Tourism, trade,
- ④ Technical development, communication system development

- Reception of trainees from Aceh (HigashiMatsushima)
2 trainees x 3 times,
6 trainees in total



- Training on 10-year reconstruction project as an advanced reconstruction site
- information sharing (Aceh)

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

**Higashimatsushima:
Toward becoming a FutureCity**



Shin Nobiru Station

Kizuna megasolar

Tsunami monitoring cameras

Nobiru northern hillside area
Collective relocation creation area

Medical institution, etc.

Forest school

Miyanomori Elementary School: the forest school