

Reconstruction in Response to the Great East Japan Earthquake

~With Concept of “Disaster Reduction”~

28.Jan.2020
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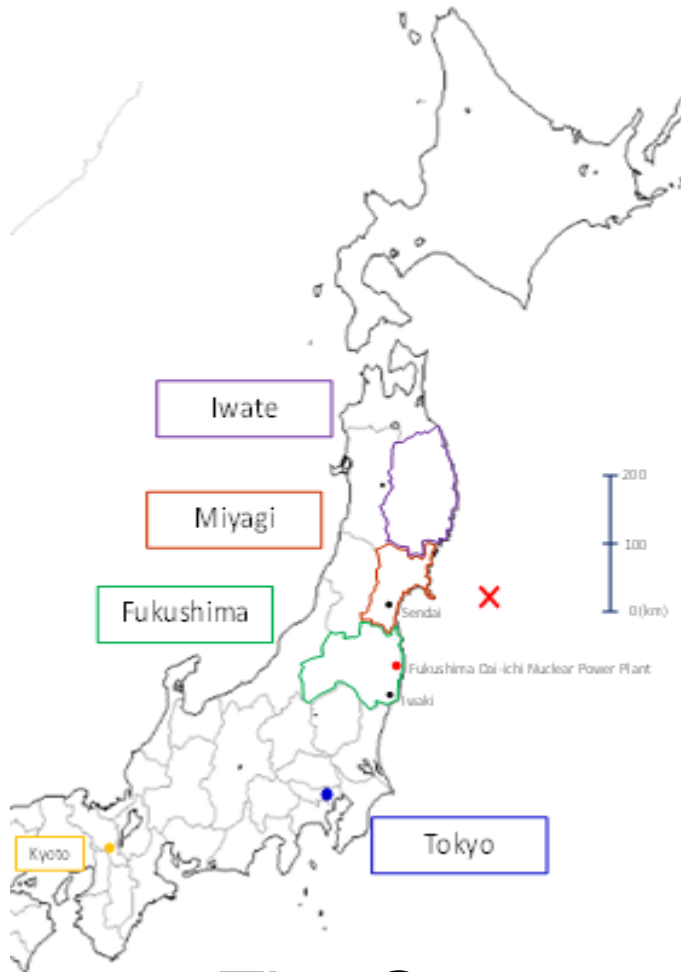
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Great East Japan Earthquake

Date: March 11, 2011 at 14:46 JST
Scale: Magnitude 9.0

(The largest earthquake ever recorded in Japan)

⇒ Wide-area and complexed disaster
of earthquake, **tsunami** and
nuclear accident



Damages (As of 1 March, 2019)

Human casualties

Deceased: 19,689

Missing: 2,563

Damaged buildings

Completely destroyed: 121,995

Half destroyed: 282,939

Partially destroyed: 748,109

Flooded areas: 560km²

⇒ The Government formulated budgets, modified laws and orders, and established “Reconstruction Agency”.

Lesson:

Exist tsunami that are physically impossible to defend against.

Concept:

“Disaster Reduction”

- Not loose human life.
- Minimize economic damage as much as possible.

Source of Reference: “Towards Reconstruction - Hope beyond the Disaster -”
25 June 2011,
the Reconstruction Design Council in response to the Great East
Japan Earthquake

2011 Great East Japan quake

L2 Tsunami

1896 Meiji Sanriku quake

1933 Showa Sanriku quake

1960 Chile quake

L1 Tsunami

Coastal
Dike

Level 2 Tsunami (the largest possible
with low frequency)



Reconstruction of housing on safe lands

+

Restriction of housing and utilization of lands for
industry or agriculture
in low-lying areas

+

Evacuation

Level 1 Tsunami (with more frequency)



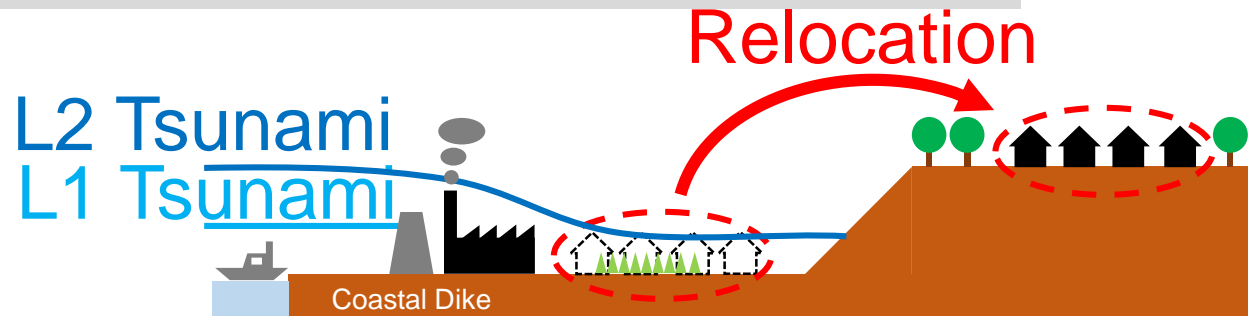
Construction of coastal dike
and other hard countermeasures

Types of Reconstruction Planning

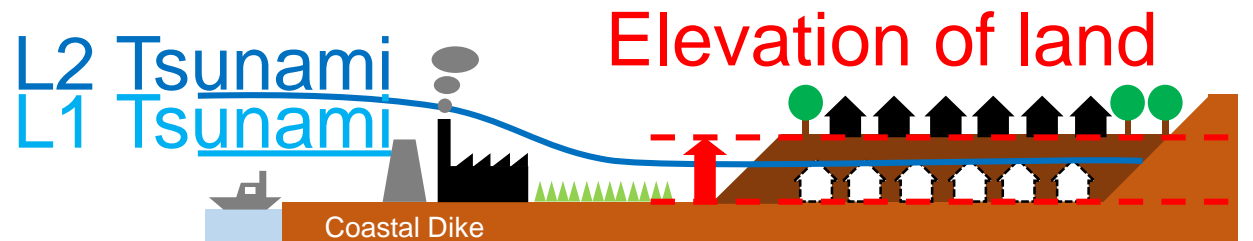
Various types in accordance with regional features

ex.

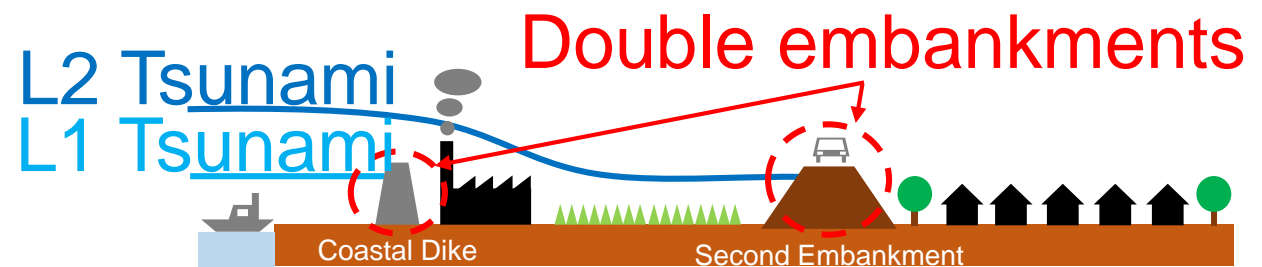
A Relocation of housing sites to higher lands



B Elevation of land level



C Multiple defense by double embankments



Example of Relocating Project

(Taro District, Miyako City, Iwate Pref.)



Before the disaster
(2003)



Houses are being built on
a new higher land area.
(November, 2016)

Private housing = 230

Public housing = 71

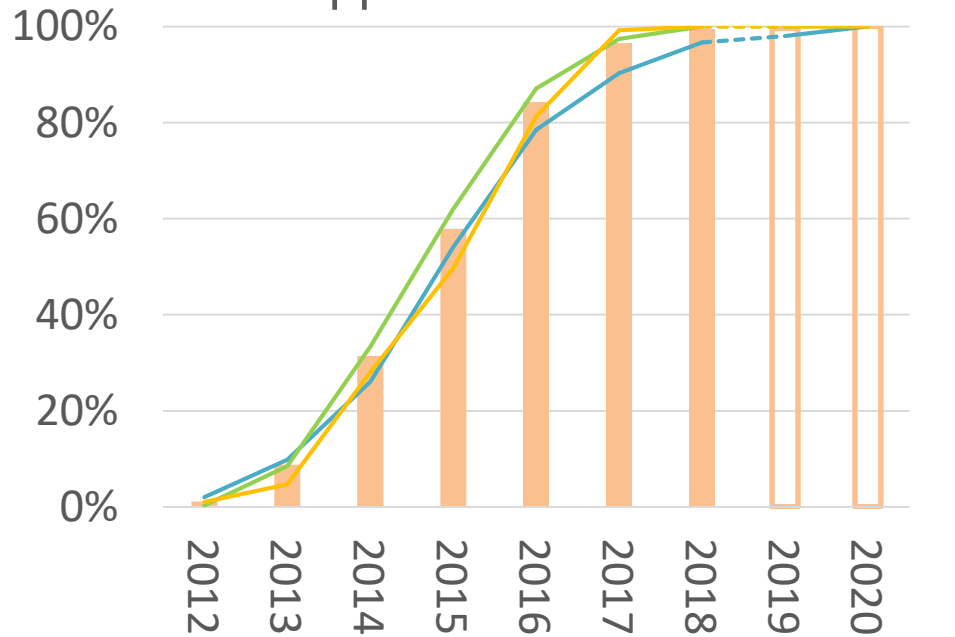
(Source: Miyako City)

Progress of Housing Reconstruction

(as of Sept. 2019)

Public Housing

Approx. 30 thousands units



■ Total (8 prefectures) (ends of FYs)

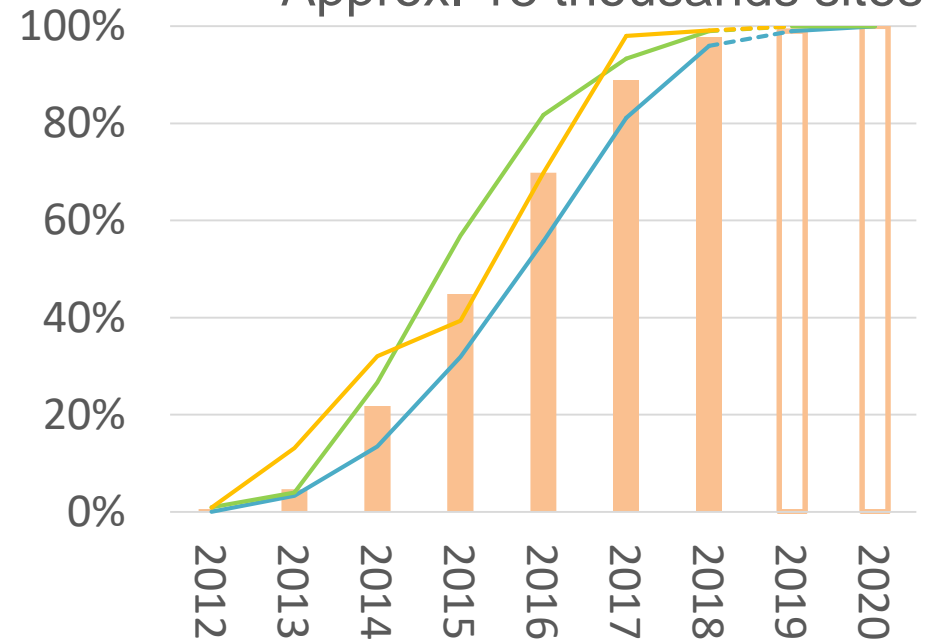
— Iwate

— Miyagi

— Fukushima

Private Housing Sites by Relocating Project

Approx. 18 thousands sites



■ Total (3 prefectures) (ends of FYs)

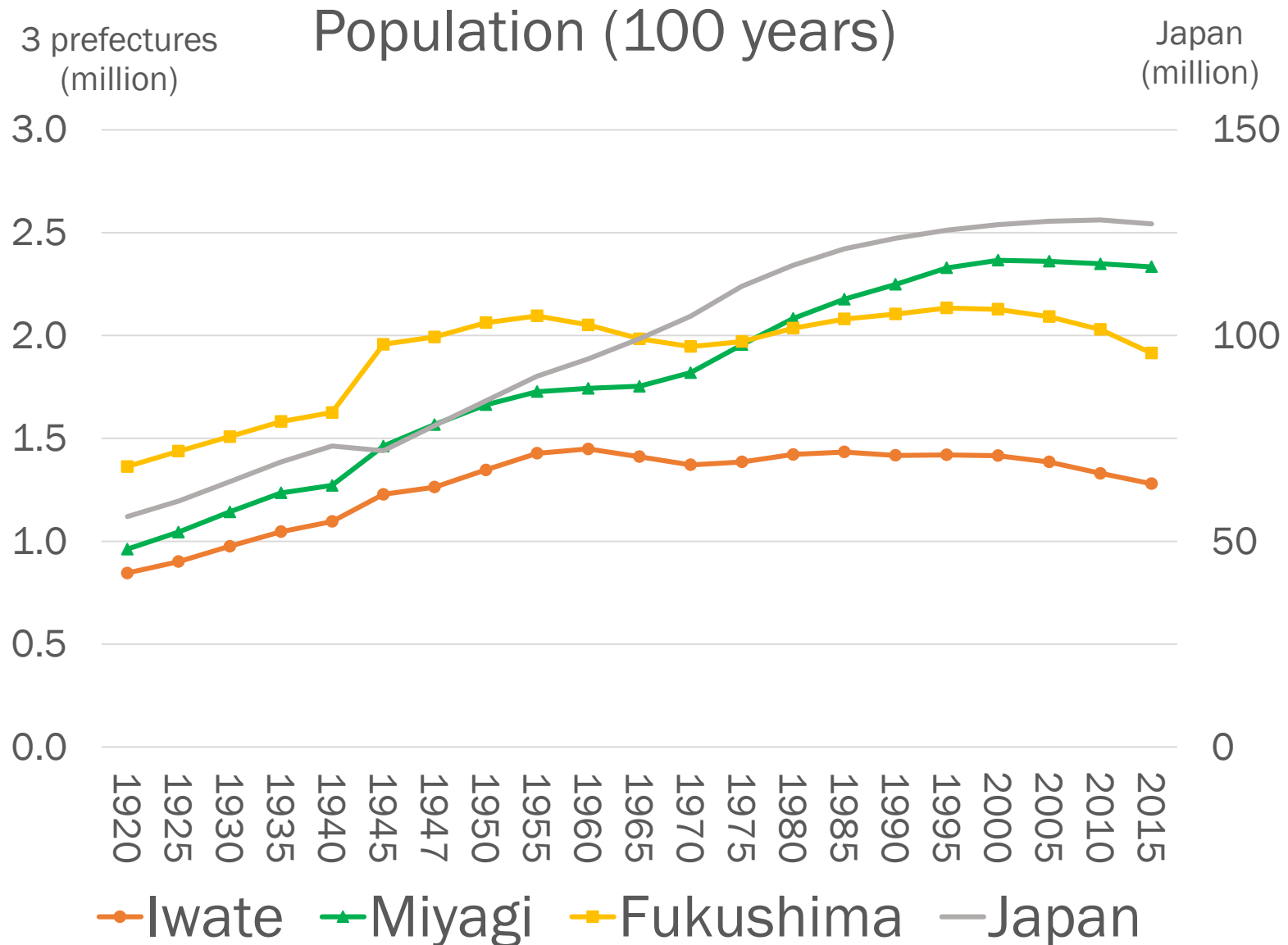
— Iwate

— Miyagi

— Fukushima

(Source: Reconstruction Agency)

Changes in Population

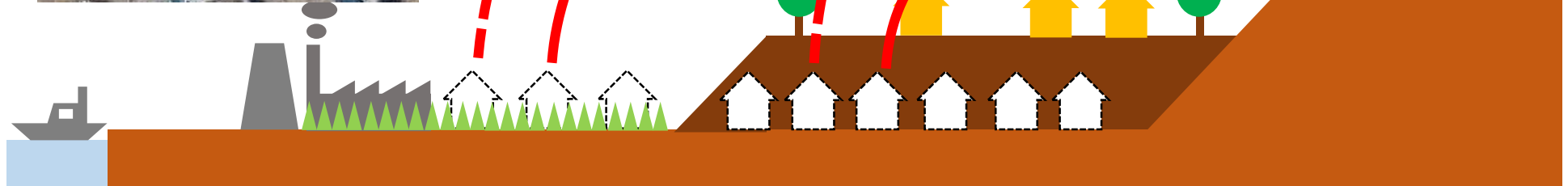


(Source: National Population Census)

Challenges at the Current Stage

Challenges:

- Sustainability
(Community, Economy,
Facility Management,
etc.)
- Land Use



Thank You !

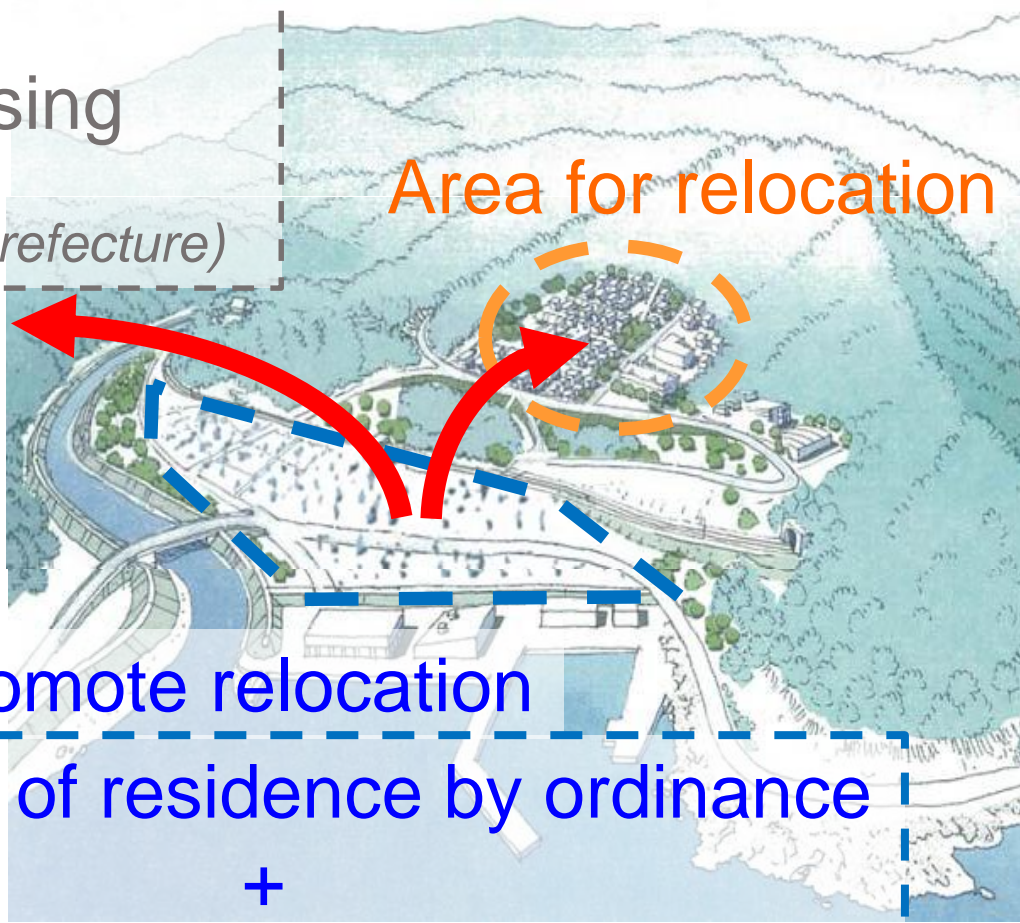
App. Scheme of Promoting Group Relocation

Private housing
Actor: Individual

or

Public housing
*Actor: Admin
(Municipality, Prefecture)*

Other area



Zone to promote relocation
Restriction of residence by ordinance

+
Acquisition of land by municipality
Actor: Admin (municipality)

Construction of housing sites on higher lands for relocation
*Actor: Admin
(Municipality)*

+

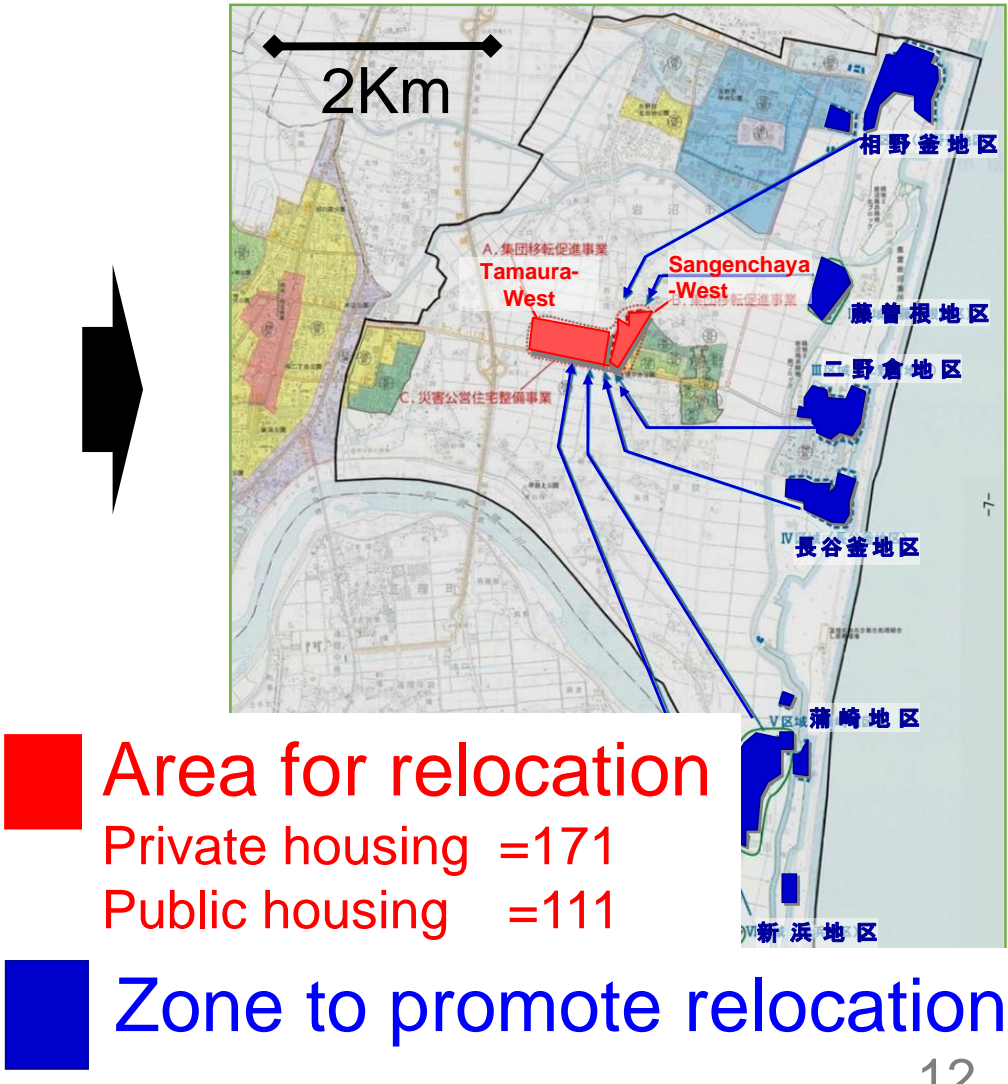
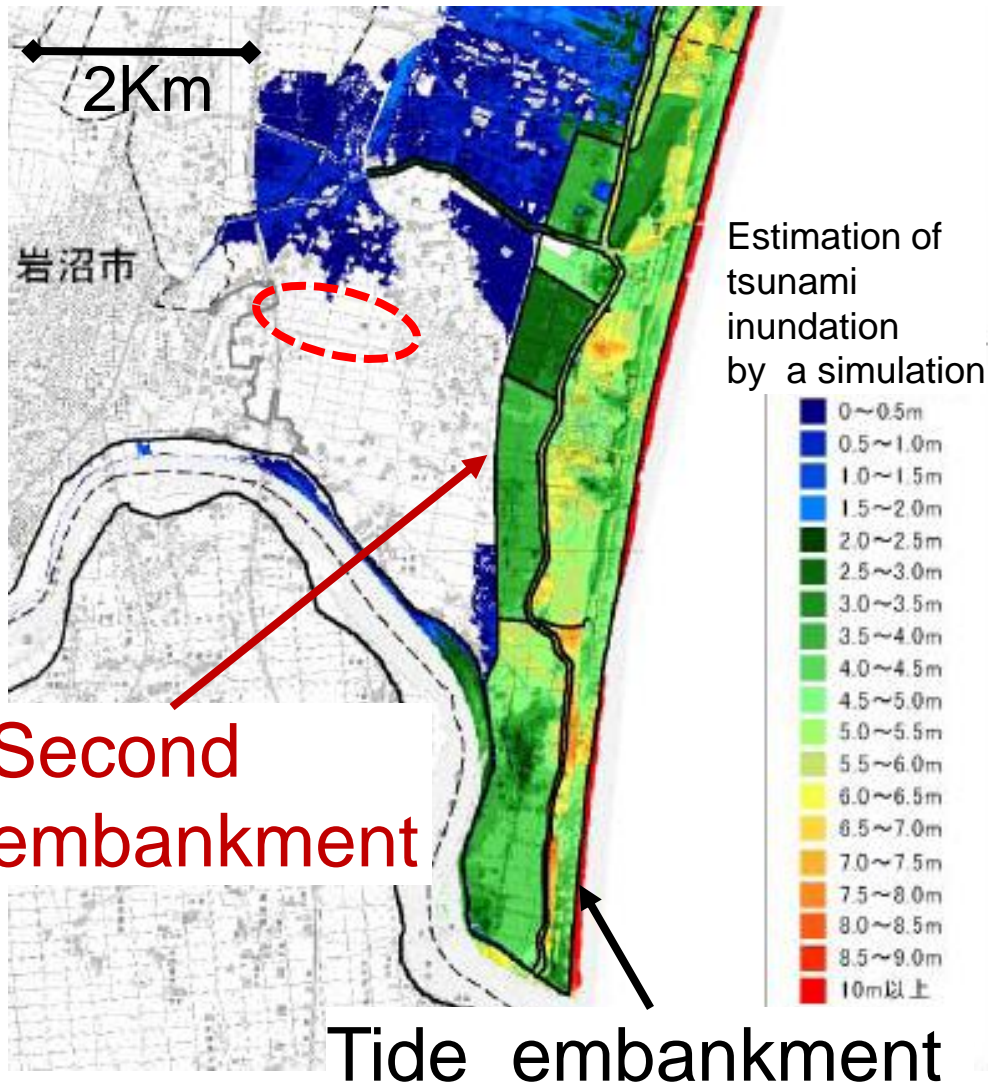
Private housing
actor: Individual

or

Public housing
*Actor: Admin
(Municipality, Prefecture)*

(Tamaura-West and Sangenchaya-West District, Iwanuma City, Miyagi Pref.)

Promote relocation and protect by double embankments.



App. Example of Reconstruction Project

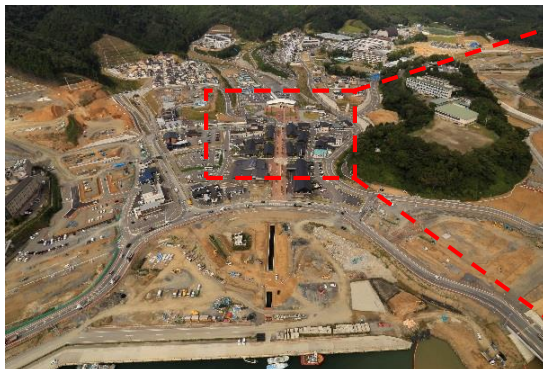
(Central District, Onagawa Town, Miyagi Pref.)

Elevate land level, 5 to 10 meters higher.



Before the disaster
(Feb. 2007)

Aftermath of the disaster (Mar. 2011)



(Oct. 2017)

Shopping mall

App. Example of Reconstruction Project

(Ofunato Station District, Ofunato City, Iwate Pref.)

Reconstruct commercial area earlier.



▲ Shopping mall



▲ Shopping mall



▲ Supermarket



▲ DIY shop

(Aug. 2018)

Develop various types of public housing in accordance with regional features.



Terraced houses

(Otsuchi Town,
Iwate Pref.)



Apartment houses

(Kesenuma City,
Miyagi Pref.)



Detached houses

(Iwaki City,
Fukushima Pref.)