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# 撓まず屈せず

Never give in, never give up

- Recovery and reconstruction  
from the Great East Japan  
Earthquake -

16 December 2011

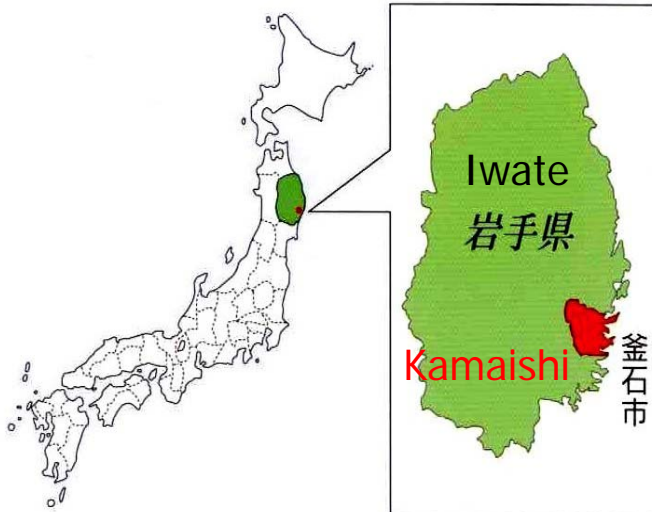
Mayor of Kamaishi City  
NODA Takenori

# Summary of Kamaishi City



Kamaishi City mascot "Kamarin"

- Population: approx 40,000 (peaked at 92,000)
- 11km<sup>2</sup> of urban area (2.4% of entire city of 443km<sup>2</sup>)
- Successfully tapped molted iron for the first time in Japan using western furnace 154 years ago.
- Warm climate and good fishing ground suitable for fishing industry
- Proud as the "City of iron, fish and rugby"
- Suffered damages from tsunami or war in the past



# Beautiful Kamaishi before the Disaster



Steep landscape and Kamaishi Tsunami Protection Breakwater, registered on the Guinness Book of World Records

Eastern region facing the sea (central city)

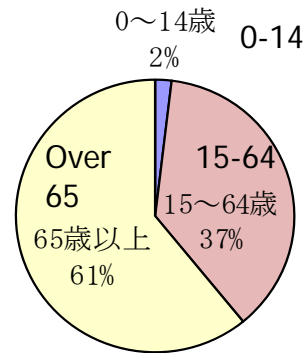


# Damages in Kamaishi City (1)

▼ Inundated area in Kamaishi City (7km<sup>2</sup>)

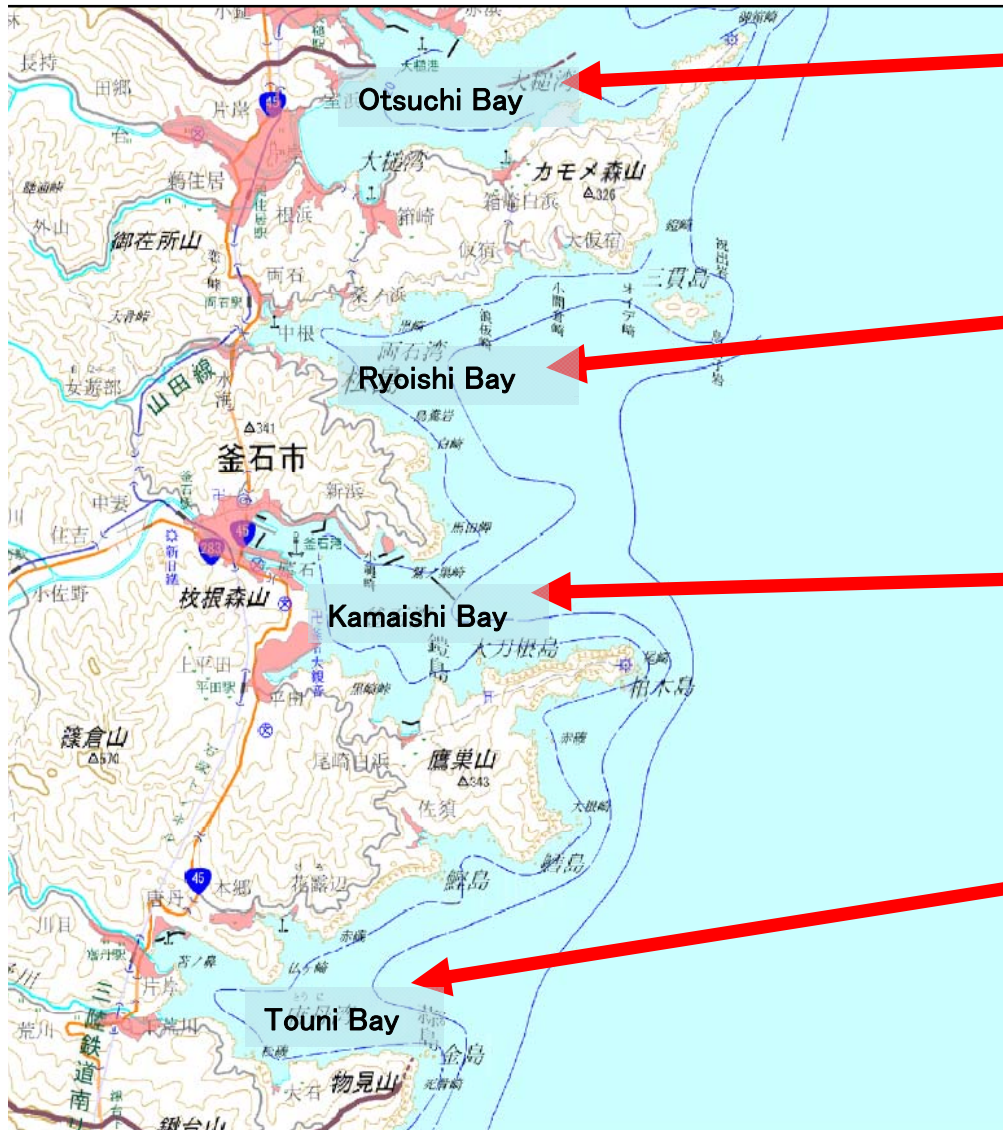
- Seismic Intensity: **6** -  
(Nakaduma District, Kamaishi City)
- Fatality: 885 persons (as of 17 Nov)
- Missing: 176 persons (as of 17 Nov)
- Damaged houses: 4,548  
(28% of all houses in the city (16,182))

▼ Age distribution of fatality



# Damages in Kamaishi City (2)

▼ Inundated area (7km<sup>2</sup>)



**Otsuchi Bay** (Unosumai & Katagishi Districts)

- inundation height **17.2m**,
- tsunami run-up height **19.2m**

**Ryoishi Bay** (Ryoishi, Unosumai District)

- inundation height **20.4m**,
- tsunami run-up height **28.4m**

**Kamaishi Bay** (Kamaishi & Heita District)

- There is Tsunami Protection Breakwater
- inundation height 11.2m,
- tsunami run-up height 11.8m

**Touni Bay** (Touni District)

- inundation height **19.7m**,
- tsunami run-up height **19.9m**

▪ tsunami heights differ by bay

# Evacuation & Emergency Response (1) Evacuation Centres

- 9,883 evacuees (at peak time), 88 evacuation centres
  - all were closed by 10 August (everybody has moved into temporary housing)



## Evacuation and Emergency Response (2) Local Government Support

- Appreciate the help provided by local governments by dispatching support staff. Especially thankful to the search and rescue teams organized by self-defense force, police, fire, and coastal protection departments, and medical support teams.



## Evacuation and Emergency Response (3) Volunteers

- Total number of volunteers worked in Kamaishi City : 33,436 (as of 15 Nov)
- Some issues became apparent, such as traffic congestion due to cars moving from the inland cities.





## Evacuation and Emergency Response (4) Temporary Housing

- Temporary Housing  
Constructed 3,164 houses in  
66 locations within the city
- Introduced “Care-type  
temporary housing”

Welfare-type temporary housing in attention (Heita Park)

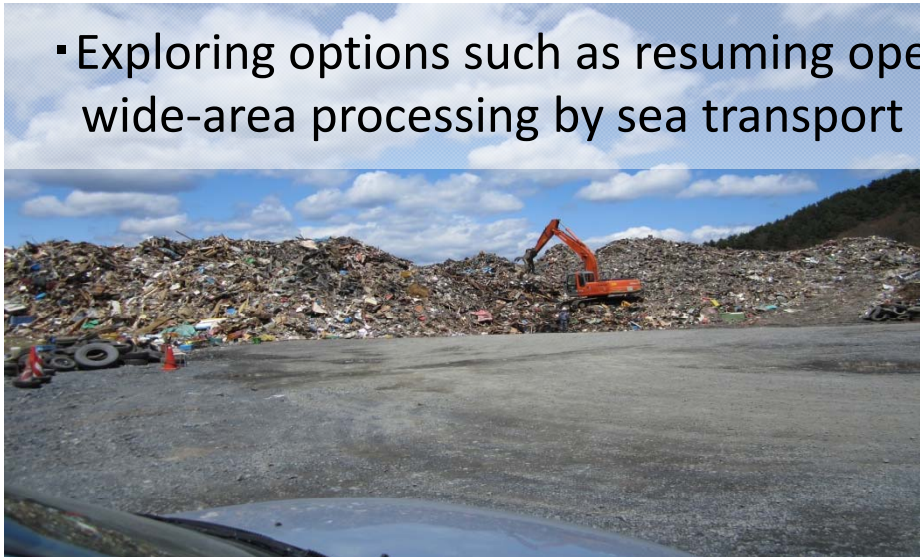


Temporary housing in Heita

# Evacuation and Emergency Response (5) Debris Management

- It is ideal to complete debris processing early and within the city
- Cost reduction utilizing recycling technologies is also a challenge (implementing model project by Ministry of Environment)

- Exploring options such as resuming operation of temporary incinerators, and wide-area processing by sea transport



# Points of Reflection and Lessons Learned for Disaster Management Measures (1) Over Confidence on Evacuation Drills

<Need further verification in the future>

- Possibilities of people being “used to” or being “over confident” with major tsunami warning in the past such as 2010 Chilean Earthquake.
- Due to aging of population, population requiring support for evacuation was increasing, which may have prevented evacuation actions with sense of urgency.



Never place too much confidence on tsunami protection facilities!

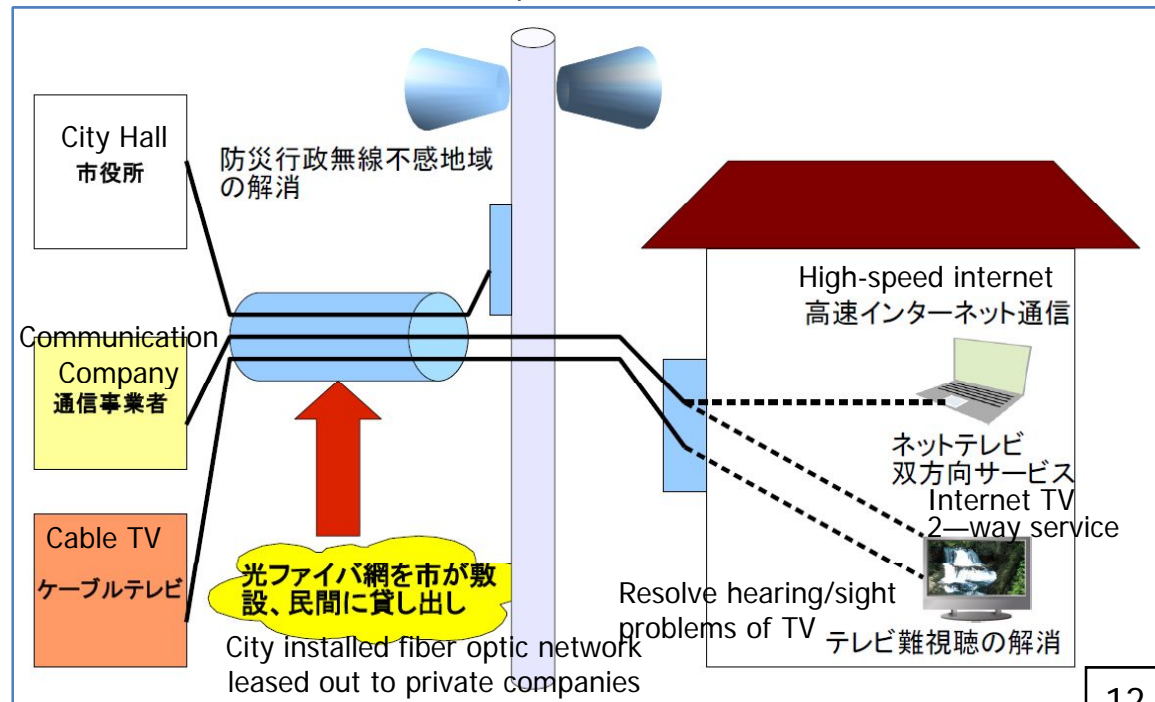
# Points of Reflection and Lessons Learned for Disaster Management Measures (2)

## Insufficient Electricity and Communication Functions

<Need further verification in the future>

- There were phased updates of major tsunami warning from “3m” to “6m” to “10m” but was not informed thoroughly to the public. It may have affected the initial response activities by fire fighters, etc.
- Communication with outside got disconnected due to power outage. Caused confusion in initial response at medical institutes, etc.

- There was a weakness in backup power for large-scale power outage. Stable power supply by smart-grid, etc is needed.
- Multi-functional high-speed communication network (right figure) was in preparation but was damaged by the disaster. Communication network resistant to tsunami disasters is required.



# Points of Reflection and Lessons Learned for Disaster Management Measures (3) Evacuation Buildings and Evacuation Routes

<Need further verification in the future>

- If there are only few “tsunami evacuation buildings” roads get congested by evacuees using cars.
- Enhancement of tsunami evacuation buildings, evacuation routes, high ground evacuation sites is required.



## Points of Reflection and Lessons Learned for Disaster Management Measures (3) “Disaster Education in Schools”

- “Disaster Education in Schools” which Kamaishi City Education Board had been continually making effort became widely known in this disaster.
- Proved that the abilities to survive can be cultivated by teaching “Tsunami Tendenko”, “Do the best you can” and “Do not believe in the assumptions”.



Unsumai Elementary School and Kamaishi East Junior High School became famous as “Miracle of Kamaishi”



# Example of “Disaster Education in Schools” by Kamaishi City Education Board

## 目次

### 1. はじめに

### 2. 各教科での地震・津波防災に関する知識の取り込み

### 3. 学年別・教育目的別津波防災教育カリキュラム

<b>3. 1 小学校 1・2年生</b>			
(1)	I. 地震・津波を知る	C. 避難の必要性を知る	学活 1時間
(2)	II. 地震・津波を知る	B. 津波の特徴を知る	体&学 1時間
(3)	I. 地震・津波を知る	B. 津波の特徴を知る	算数 10～15分
(4-1)	II. 対処行動を知る	C. 学校や自宅周辺の避難場所を知る	生活 1時間 (計2時間)
(4-2)	II. 対処行動を知る	C. 学校や自宅周辺の避難場所を知る (W&M)	生活 1時間
<b>3. 2 小学校 3・4年生</b>			
(1)	II. 対処行動を知る	A. 地震から身を守る方法を知る	学活 1時間
(2-1)	II. 対処行動を知る	B. 津波からの避難方法を知る	学活 1時間 (計7時間)
(2-2)	II. 対処行動を知る	C. 学校や自宅周辺の避難場所を知る (W)	社会 2時間
(2-3)	II. 対処行動を知る	D. 様々な避難方法を考える	社会 1時間
(2-4)	II. 対処行動を知る	D. 様々な避難方法を考える (M)	社会 3時間
(3-1)	III. 地域の津波被害を考える	A. 過去の津波被害を知る	学活 1時間 (計2時間)
(3-2)	III. 地域の津波被害を考える	B. 津波から地域を守る対策を知る	学活 1時間
(4)	IV. 先人の経験に学ぶ	A. 体験者から話を聞く	学活 1時間
(5)	I. 地震・津波を知る	A. 地震・津波のおき方を知る	学活 1時間
(6)	I. 地震・津波を知る	B. 津波の特徴を知る	学活 1時間
<b>3. 3 小学校 5・6年生</b>			
(1)	I. 地震・津波を知る	D. 津波の様々な特徴を理解する	学活 1時間
(2)	II. 対処行動を知る	C. 学校や自宅周辺の避難場所を知る (W&M)	総合 5時間
(3)	III. 地域の津波被害を考える	B. 津波から地域を守る対策を知る	総合 1時間
(4)	I. 地震・津波を知る	A. 地震・津波のおき方を知る	学活 1時間
(5)	I. 地震・津波を知る	D. 津波の様々な特徴を理解する	学活 1時間
(6)	II. 対処行動を知る	B. 津波からの避難方法を知る	学活 1時間
(7)	III. 地域の津波被害を考える	A. 過去の津波被害を知る	総合 1～3時間
<b>3. 4 中学校 1・2・3年生</b>			
(1)	I. 地震・津波を知る	II. 対処行動を知る	総合 1時間
(2-1)	I. 地震・津波を知る	A. 地震・津波のおき方を知る	理科 1時間 (計2時間)
(2-2)	I. 地震・津波を知る	E. 地震の揺れの特徴を理解する	理科 1時間
(3)	II. 対処行動を知る	E. 避難後の行動を考える	学活 2時間
(4)	II. 対処行動を知る	E. 避難後の行動を考える	学活 1時間
(5)	III. 地域の津波被害を考える	B. 津波から地域を守る対策を知る	社会 1時間
(6)	II. 対処行動を知る	F. 避難できない人間の心理を知る	総合or学 1時間
(7)	IV. 先人の経験に学ぶ	C. 語り継ぐ責任	道徳 1時間

### 4. 津波防災教育のための資料一覧

## 3. 2 小学校 3・4年生 (2-3) 指導の注意点

### 1. 導入

(1) 前時の学習を振り返り、本時はいろいろな生活の場面での避難場所についての理解を深めていくことを確認する。

### 2. 展開

(1) 自分の一日の生活を振り返りながら、同じ通学路の児童ごとにグループをつくる。

→ 放課後に学童や習い事のある子の場合は、帰り道が同じ方面になるグループに入れる

(2) 映像を見せ、津波が広がっていく様子、繰り返しやってくることをおさえる。

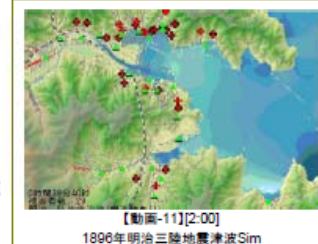
→ 津波は川沿いや低いところから、とても速いスピードで町中に広がっていくことをおさえる  
→ 津波は何度も繰り返し襲ってくることをおさえる

(3) 津波と普通の波の違いを知り、どうして津波は大きな破壊力があるのかを理解する。

→ 津波の速さは水深と関係があることをおさえる  
→ 津波は陸にあがっても、とても速いことをおさえる  
→ 津波は普通の波とは異なり、波長が長いので、数キロにも及ぶ長い水の塊がやってくることをおさえる

(4) それぞれの生活の場面ごとを想定し、その際の避難場所を白地図に記入する。

→ 自宅にいるときだけでなく、登下校の途中やよく行く場所にいるときなどを想定させて、どこに避難すればよいかを考えさせる



### 3. まとめ

(1) 学習して気付いたことをプリントに記入する。

(2) 感想等を発表し、今日の学習をまとめる。

→ 児童の発言から、津波と普通の波の違いについておさえ、復習する  
→ 同様に、生活の場面ごとに避難場所を考える必要があることもおさえる  
例: 津波から避難するとき、川や海に近づくのは危険なので、〇〇橋を渡る前と後では避難場所が違う など

(3) 次時は、避難場所を地図にまとめていくことを伝える。

Can be downloaded from HP.  
Please refer to movable hazard maps.

## Points of Reflection and Lessons Learned for Disaster Management Measures (5) Structural and Non-Structural Measures

### <Lessons Learned>

- Radical strengthening of disaster management functions is required in order to ensure that lives will never be lost by large tsunamis again.
- While constructing structural facilities such as coastal protection facilities, revision of framework for evacuation guidance and measures for land use in tsunami inundation areas are required.



- Disaster management and reconstruction plans be considered in details for each settlement.
- Reconstruction plan drafted with the opinions of residents, citizens and experts as much as possible.



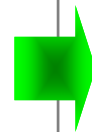
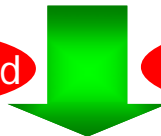
# Scrum Kamaishi Reconstruction Plan

11 March 2011  
Great East Japan  
Earthquake

From Damaged To Recovery

## Issues to be considered on the road from rehabilitation to recovery

1. Establish new tsunami disaster measures
2. Respond to population decrease and aging population
3. Respond to expansion of nonresident population
4. Creation of safe livelihood
5. Development of new efforts to be handed to the next generation
6. Promote cultivation of human capacities
7. Community development utilizing local resources



## Basic Principle

### Future Vision

Kamaishi, a shining city in the land of Sanriku filled with hope and smiles

### Basic Position

“Never give in, never give up”

### 4 Basic Principles

## Promotion of the Plan

## 7 Basic Objectives

(Policy Sector)  
Challenge for creating  
new light

12 Scrum Plan

(Community Sector)  
Community development to  
overcome the disaster

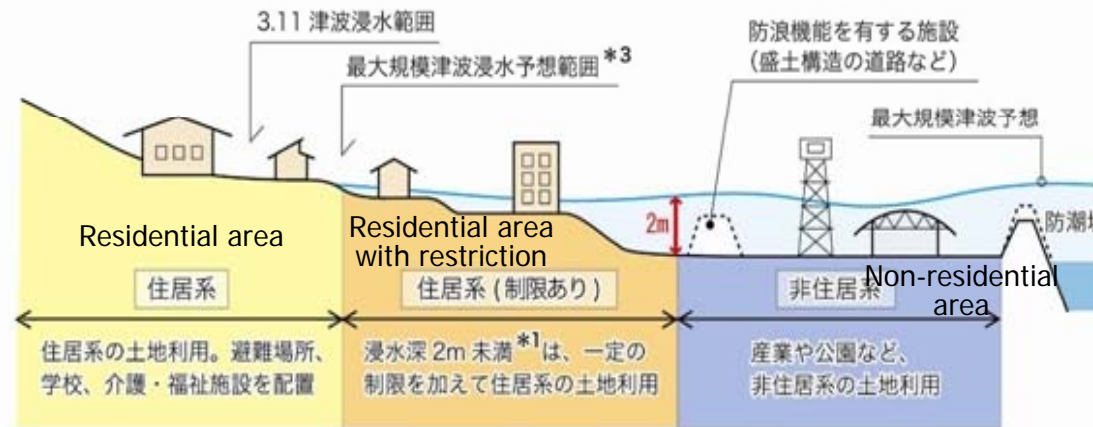
Reconstruction of  
affected areas

Revitalization of areas  
receiving reconstruction  
assistance

## Implementation Plan

# Land Use Concept (1)

## Land use concept



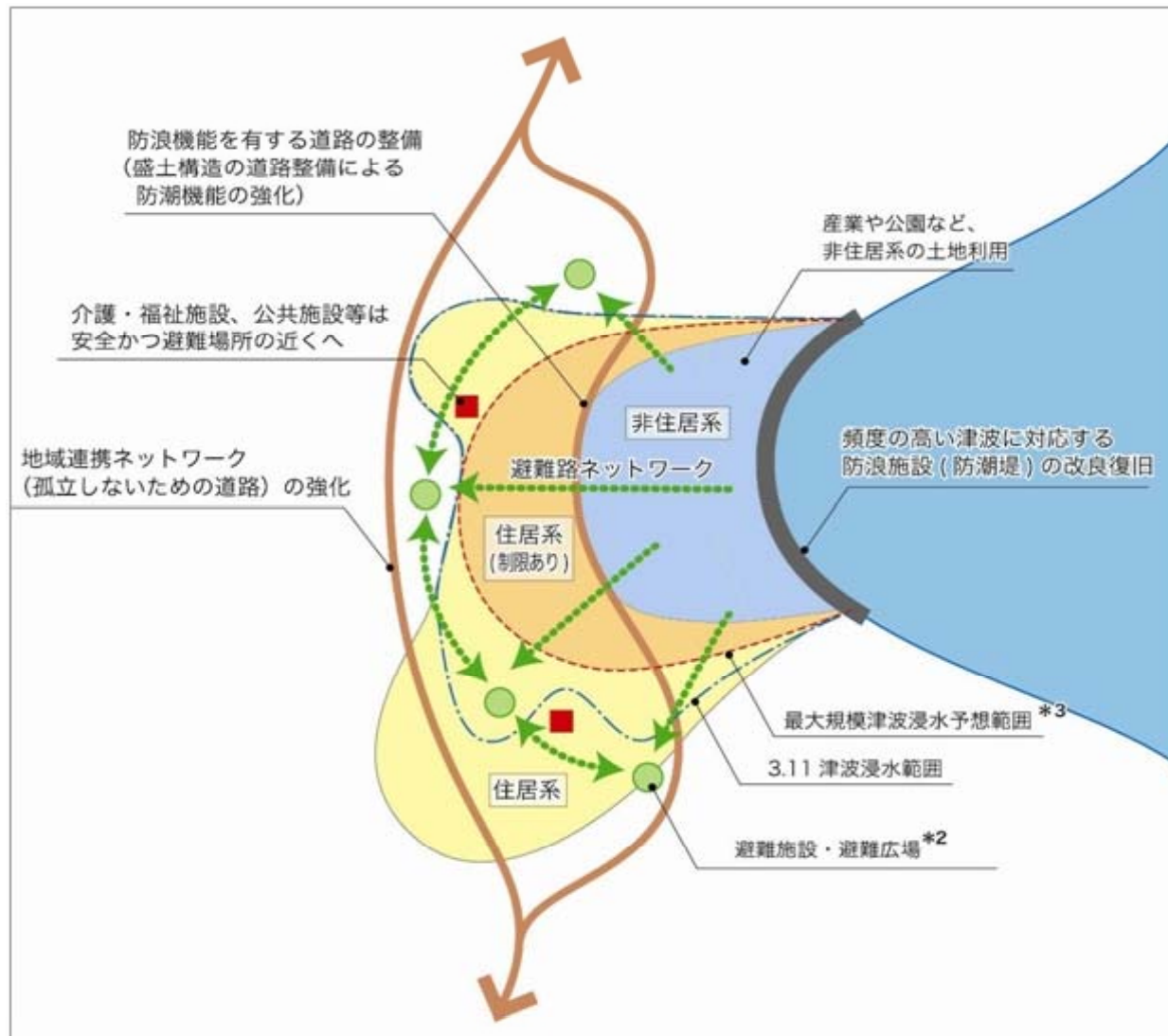
### Tsunami Protection Level 1

Prevent inundation as much as possible by coastal protection facilities for tsunamis that occur with relatively high frequency.

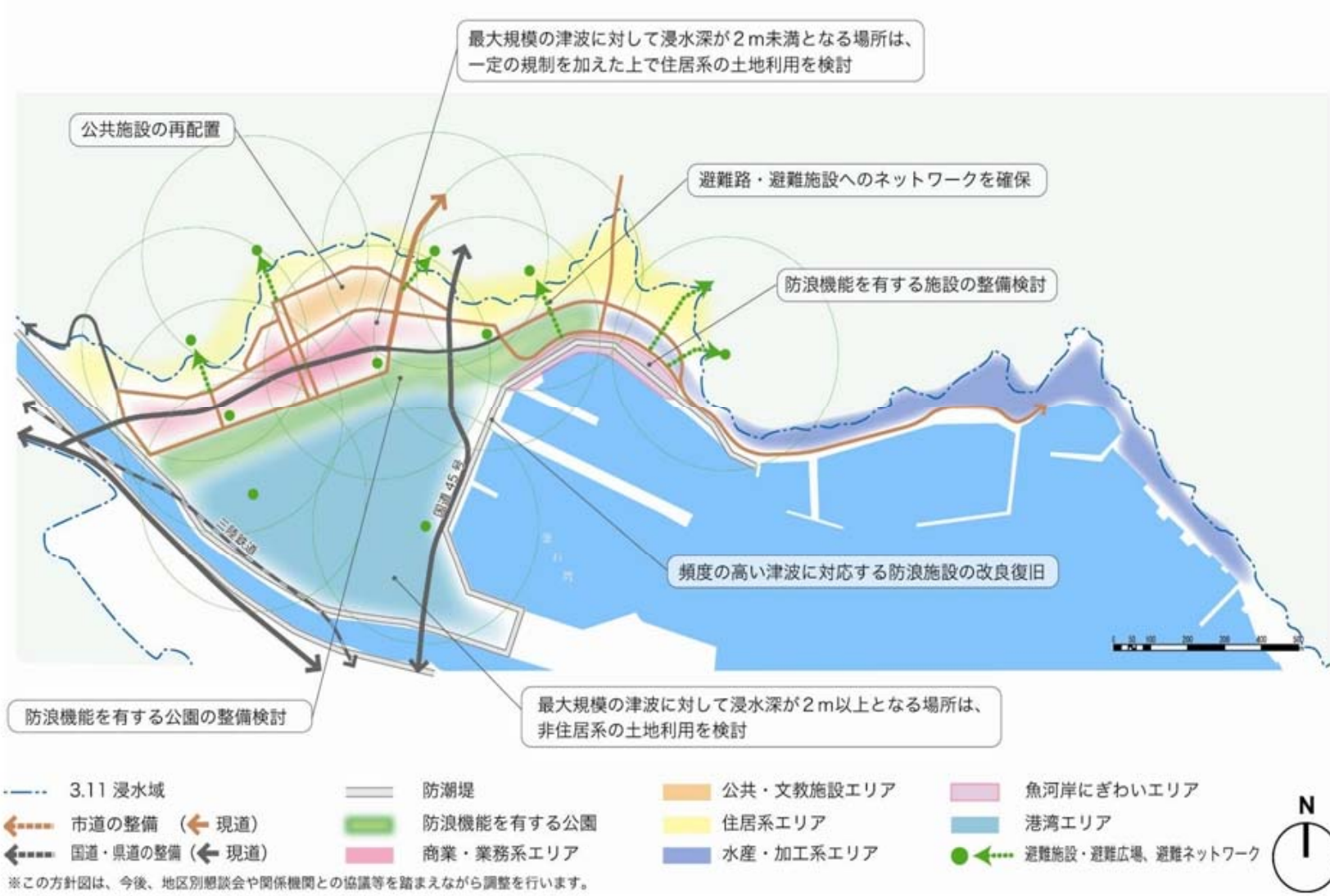
### Tsunami Protection Level 2

Ensure protection of lives by combining structural and non-structural measures against largest possible tsunami.

# Land Use Concept (2)

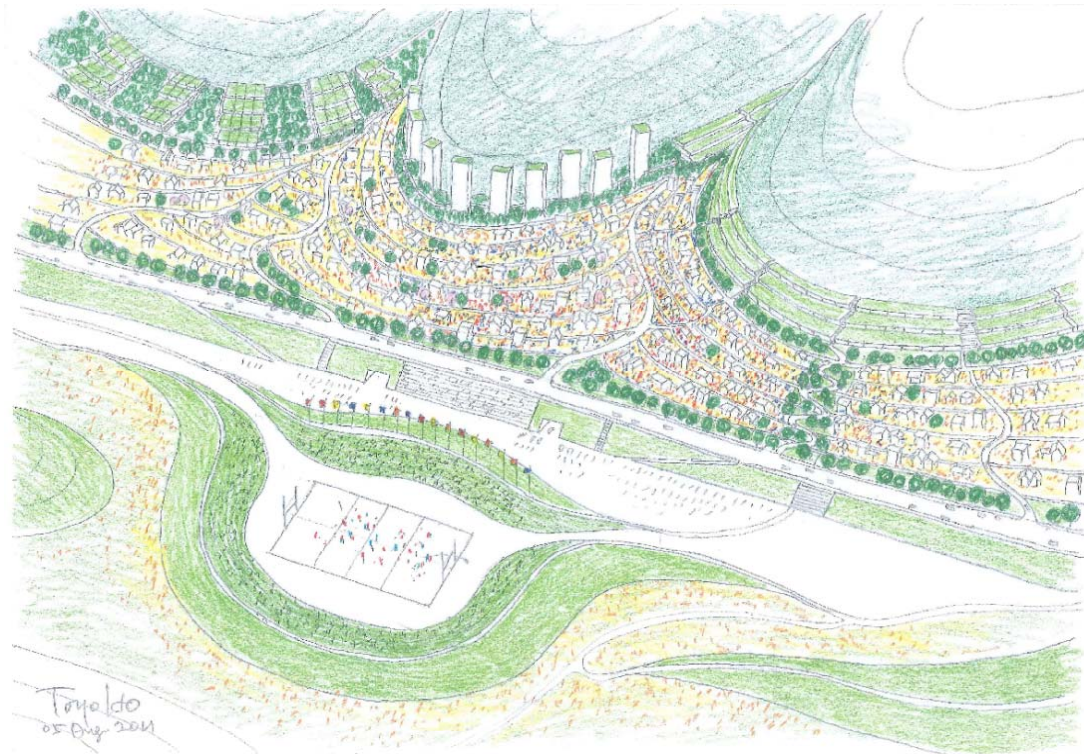


# Example in Tobu District, Kamaishi City (central city)



# "Dream" of the City of Rugby

- Japan will be hosting Rugby World Cup in 2019 for the first time. We will appreciate the support of people from the world for inviting one of the matches in Kamaishi City.



“Kamaishi, a shining city in the land of Sanriku filled with hope and smiles“



A photograph of the Hashino Blast Furnace ruins, a national designated historic site in Kamaishi City, Iwate Prefecture, Japan. The ruins consist of several large, rectangular stone blocks stacked together, forming a structure that appears to be a blast furnace. The site is surrounded by a dense forest of green trees under a clear blue sky. A low, reddish-brown metal fence with wooden posts runs around the perimeter of the stone structure, protecting it from visitors. The ground is a mix of grass and dirt.

Thank you for your attention

“Hashino Blast Furnace” aiming to be  
listed on the World Heritage  
(National designated historic site, Kamaishi City, Iwate Prefecture)