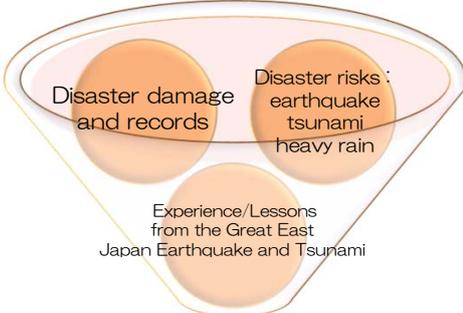


## Towards disaster risk reduction city





Disaster damage and records

Disaster risks : earthquake tsunami heavy rain

Experience/Lessons from the Great East Japan Earthquake and Tsunami

Minimizing damage : disaster risk reduction (DRR) !

Tagajo DRR city strategy

**Declaration of DRR City**

Tagajo city, which has a long history and tradition, was suffered from many natural disasters such as Jogan Earthquake in ancient times and 8.5 / 9.22 Heavy Rains in recent years.

The Great East Japan Earthquake caused devastating damage to the northeast region of Japan, making us feel how powerless we are in the face of Nature.

We cannot rule out the possibility of suffering from terrible disasters again like flood, typhoon, landslide, earthquake, tsunami and so on.

Therefore, in order to prepare for future disasters, we have to pass on to the next generation our experience and lessons obtained by surviving natural disasters.

We need to understand that each of us is an agent of town/city development, and to learn from the history based on the roles of self-help, mutual assistance, and support by public bodies, and the mutual collaboration. From such point of view, we will promote "Disaster Risk Reduction" to minimize damage not only as responsible individuals but also as cooperative citizens.

We will also make efforts to protect human lives as top priority, to prepare for disasters, to minimize damage, and to recover rapidly. Aiming to realize such city, we hereby declare "DRR city - Tagajo."

Nov. 28, 2013



減災シンポジウム

Disaster-resilient City

「Disaster risk reduction city - Tagajo」

## Tagajo DRR city strategy ①



Strategy for DRR city Mechanism

Strategy for DRR city Future plan

Developing disaster-resilient city	1	Building multiple barriers for tsunami
	2	Developing earthquake-resilient city
	3	Minimizing flood damage
	4	Developing disaster response system
Increasing DRR capacity based on self and mutual help	5	Enhancing self-help ability
	6	Strengthening community DRR capacity
Sharing disaster experience	7	Sharing disaster experience
DRR technology	8	DRR Research Park Program



DRR city - Tagajo

To save lives: prepare for disaster minimize damage restore rapidly!

## Tagajo DRR city strategy ②

**1** Building multiple barriers for tsunami

**Aim** Facilities & systems have been built as the foundation of local recovery

[multiple defenses image]



[Project]

- Multiple barriers
- Evacuation roads
- Escape towers
- Dissemination of evacuation announcement

**2** Developing earthquake-resilient city

**Aim** Buildings have earthquake resistant structure

[Project]

- Earthquake resistant roads and bridges
- Earthquake resistant wooden buildings

**3** Minimizing flood damage

**Aim** Flood damage by heavy rain is reduced

[Project]

- Rainwater draining system
- Rainwater draining pump
- Side ditches

**4** Developing disaster response system

**Aim** Disaster response system including rescue, evacuation and recovery is established

[Project]

- Evacuation site management manual
- Stockpile facility
- Distribution base for relief supplies

## Tagajo DRR city strategy ③

**5** Enhancing self help ability

**Aim** Disaster preparedness capacity of each citizen is fulfilled

[Handbook]



[Project]

- DRR education
- DRR handbook
- Tsunami hazard map

[DRR education]

**6** Strengthening community DRR capacity

**Aim** Local DRR capacity as assistance by public bodies is increased

[emergency drill]



[Project]

- Local emergency drill
- Voluntary disaster prevention organization

**7** Sharing disaster experience

**Aim** Disaster experience and records are disseminated

[Project]

- Sharing experience & lessons

**8** DRR Research Park Program

**Aim** Various DRR technology and products are developed

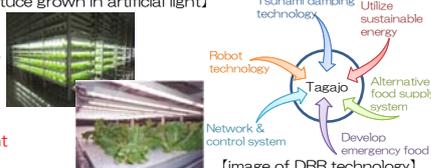
[Project]

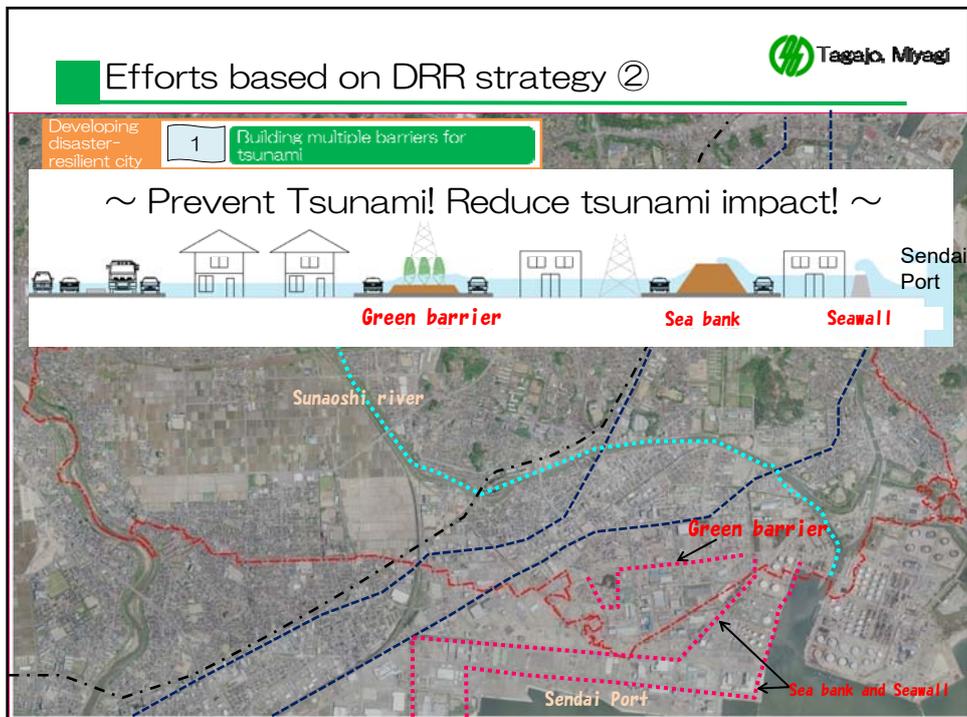
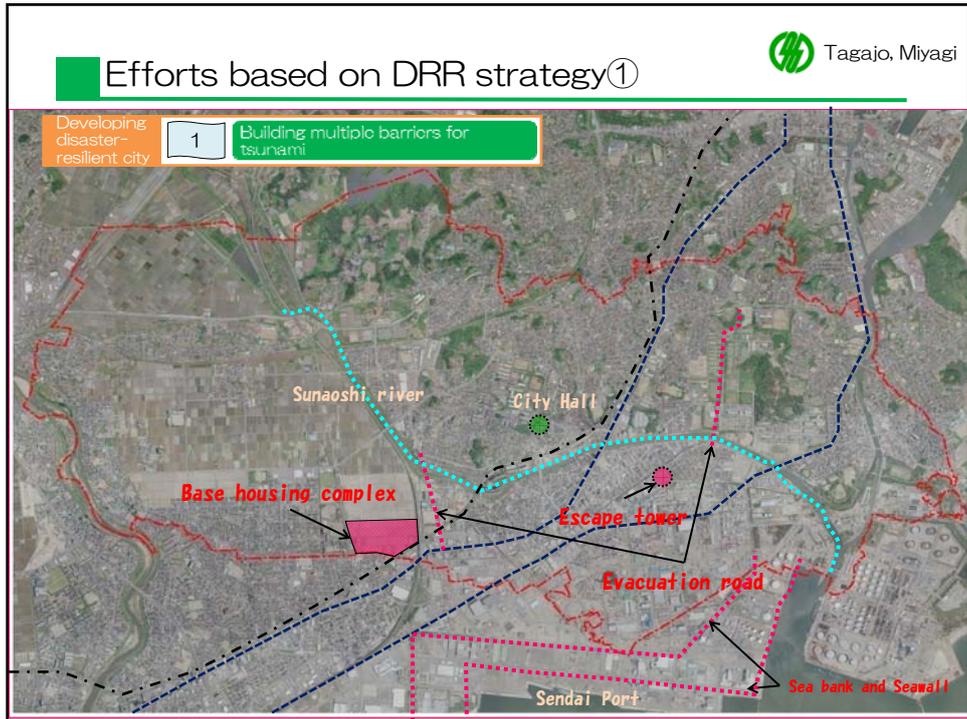
- Promotion of DRR technology development
- Joint meeting of industry, academia and government
- Joint research with private sector and university

[lettuce grown in artificial light]



[image of DRR technology]



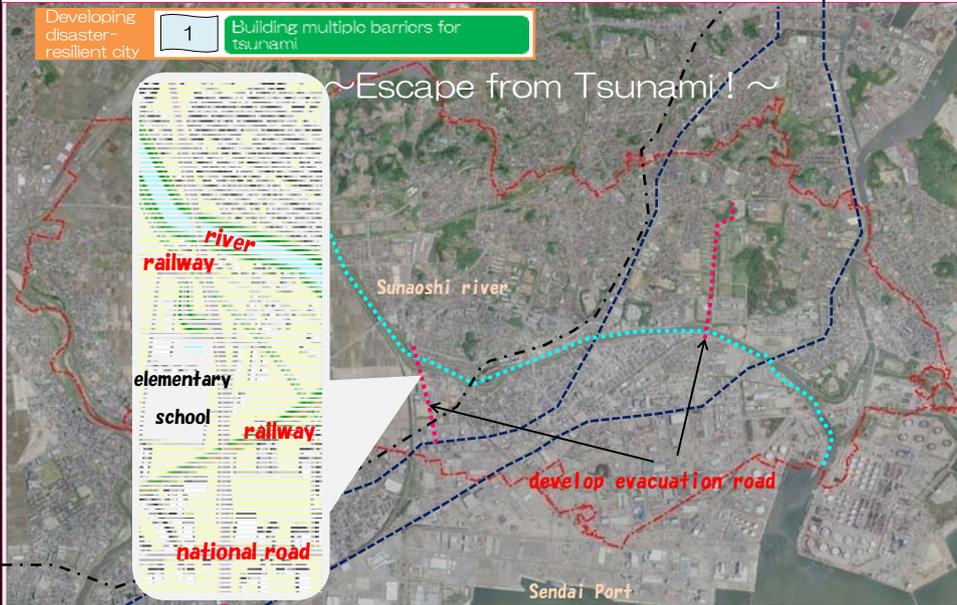


 Tagajo, Miyagi

### Efforts based on DRR strategy ③

Developing disaster-resilient city
1 Building multiple barriers for tsunami

~Escape from Tsunami!~



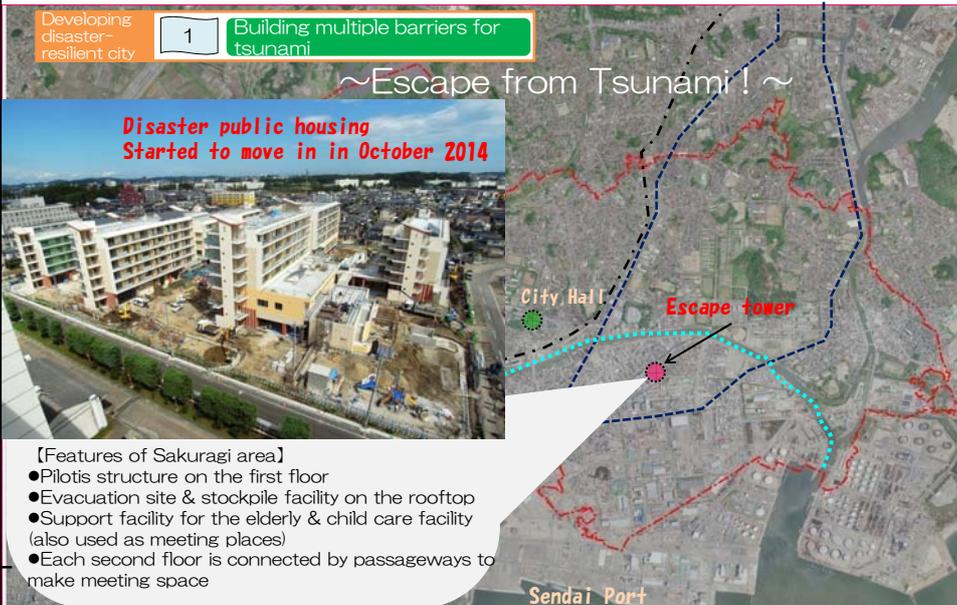
Labels on map: Sunaoshi river, elementary school, railway, national road, Sendai Port, develop evacuation road.

 Tagajo, Miyagi

### Efforts based on DRR strategy ④

Developing disaster-resilient city
1 Building multiple barriers for tsunami

~Escape from Tsunami!~



Labels on map: Sunaoshi river, elementary school, railway, national road, Sendai Port, develop evacuation road.

Disaster public housing  
Started to move in in October 2014



City Hall

Escape tower

【Features of Sakuragi area】

- Pilotis structure on the first floor
- Evacuation site & stockpile facility on the rooftop
- Support facility for the elderly & child care facility (also used as meeting places)
- Each second floor is connected by passageways to make meeting space



【Disaster public housing in Sakuragi area Before construction】



【Disaster public housing in Sakuragi area Oct. 20, 2014】



【Features of Sakuragi area】

- Pilotis structure on the first floor
- Evacuation site & stockpile facility on the rooftop
- Support facility for the elderly & child care facility (also used as meeting places)
- Each second floor is connected by passageways to make meeting space



【Facilities in disaster public housing in Sakuragi area】



Sakuragi childcare center

Facility for the elderly



【Facility in disaster public housing in Sakuragi area】



Meeting space

Meeting place



【Facility in disaster public housing in Sakuragi area】

Passageways to connect each second floor



Tsunami evacuation stairs(east and west end of each building)



 Tagajo, Miyagi

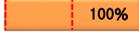
## Public Housing

① Areas:  
**4 districts** (Sakuragi, Tsurugaya, Niida, Miyauchi)

② Number of Houses:  
**532 houses**

district	houses	Operational Situation (expenses)
1. Sakuragi	160	Completed (5.2 billion yen)
2. Tsurugaya	274	Completed (8.5 billion yen)
3. Niida	48	Completed (2 billion yen)
4. Miyauchi	50	Completed (1.9 billion yen)
Total	532	

【The commencement of construction work】



100%

※rate:  $\frac{532 \text{ houses}}{532 \text{ houses}}$

【The completion of construction work】



100%

※rate:  $\frac{532 \text{ houses}}{532 \text{ houses}}$



【Tagajo City】



The Completion Ceremony  
(December, 2016)

 Tagajo, Miyagi

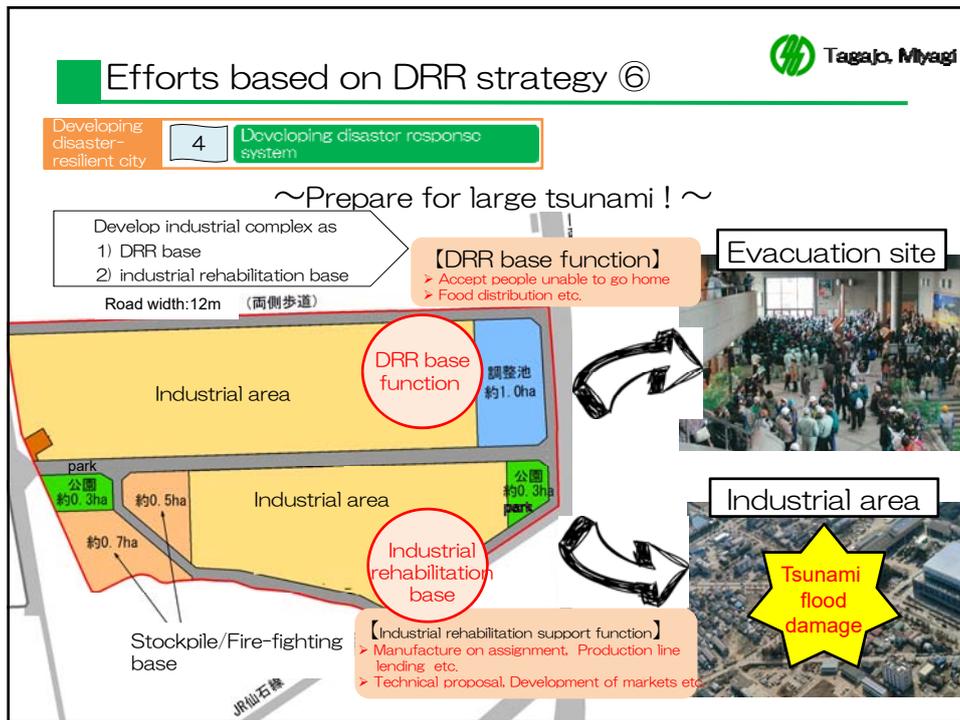
## Efforts based on DRR strategy ⑤

Developing disaster-resilient city

4 Developing disaster response system

~Prepare for large tsunami!~





 Tazako Miyagi

## Efforts based on DRR strategy ⑦

Increasing DRR capacity based on self and mutual help

5 Enhancing self-help ability

6 Strengthening community DRR capacity

~DRR Handbook : to prepare for disasters individually ! ~



 Tazako Miyagi

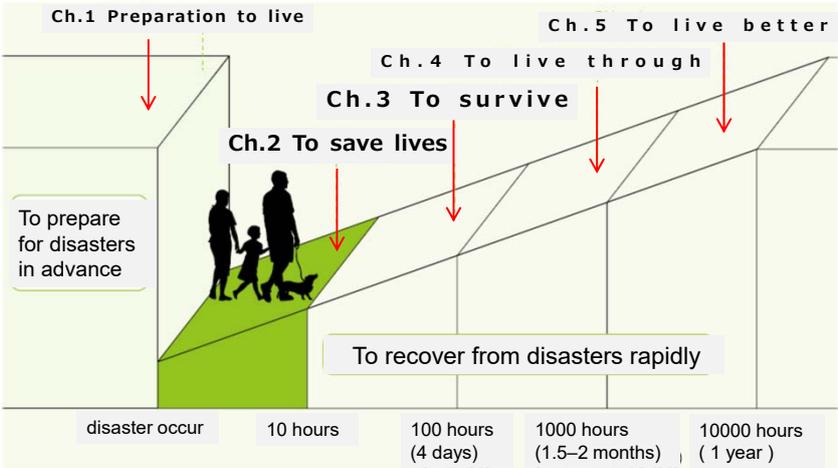
## Efforts based on DRR strategy ⑧

Increasing DRR capacity based on self and mutual help

5 Enhancing self-help ability

6 Strengthening community DRR capacity

~DRR Handbook : to prepare for disasters individually ! ~



disaster occur	10 hours	100 hours (4 days)	1000 hours (1.5-2 months)	10000 hours (1 year)
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## Efforts based on DRR strategy ⑨

Increasing DRR capacity based on self and mutual help

5 Enhancing self-help ability

6 Strengthening community DRR capacity

~DRR Handbook : to prepare for disasters individually ! ~

Learn natural disaster threats and disaster preparedness in advance

[Chapter 1. Preparation to live](#) DRR life manual for daily life

~Know disasters and prepare for disasters~

[Chapter 2. To save lives](#) from disaster occurrence to 10 hours

~Save lives from disasters~

[Chapter 3. To survive](#) from 10 hours to 100 hours

~Survive severe living condition after a disaster strikes~

[Chapter 4. To Live through](#) from 100 hours to 1000 hours

~Live through severe condition better~

[Chapter 5. To live better](#) from 1000 hours to 10,000 hours

~Livelihood rehabilitation~



## Efforts based on DRR strategy ⑩

Increasing DRR capacity based on self and mutual help

5 Enhancing self help ability

6 Strengthening community DRR capacity

~DRR Handbook : to prepare for disasters individually ! ~

**Residents meeting with the Handbook**






## Effort based on DRR strategy<sup>⑪</sup>

Increasing DRR capacity based on self and mutual help

5

Enhancing self-help ability

6

Strengthening community DRR capacity

Sharing disaster experience

7

Sharing disaster experience

Placing “tsunami indication board” by students of Tagajo High School



## Efforts based on DRR strategy <sup>⑫</sup>



Increasing DRR capacity based on self and mutual help

5

Enhancing self help ability

6

Strengthening community DRR capacity

Sharing disaster experience

7

Sharing disaster experience

Tagajo “ken-bun-oku” ~ utilize, disseminate and pass on ! ~

史都・多賀城 防災・減災アーカイブス

たがじょう 見聞 憶

えよう千年後の未来へ。

- Digital database: collect and reserve the records from the Tsunami and organize them systematically
- It is disclosed on the internet.
- Aiming to passing on records, experience and knowledge “to the next generation” without being forgotten.

 Tagajo, Miyagi

## Efforts based on DRR strategy ⑬

Increasing DRR capacity based on self and mutual help

Sharing disaster experience

5	Enhancing self-help ability
6	Strengthening community DRR capacity
7	Sharing disaster experience

Tagajo “ken-bun-oku” ~ utilize, disseminate and pass on ! ~

見

➤ *Ken*: What you saw and wrote down  
digital image, video, document

聞

➤ *Bun*: What you heard and want to talk  
experience story, opinion, knowledge

憶

➤ *Oku*: what you want to share and value  
pass lessons on to the next generation



Disaster risk reduction city - Tagajo

 Tagajo, Miyagi

## Efforts based on DRR strategy ⑭

Increasing DRR capacity based on self and mutual help

Sharing disaster experience

5	Enhancing self help ability
6	Strengthening community DRR capacity
7	Sharing disaster experience

Tagajo “ken-bun-oku” ~ utilize, disseminate and pass on ! ~



**【Contents】**

- Damage overview & emergency response
- Recovery and reconstruction from the disaster
- One story per person
- Damage caused by urban-type tsunami
- Reconstruction plan & project
- Efforts towards DRR city etc.

**【Features】**

- Video & photos over 20,000
- Experience stories, opinions & messages over 180
- Keywords, time information retrieval system

~ DRR measures ~ **Comprehensive**  
site with lots of **guidance, hints, and**  
**ideas** for DRR.

## Efforts based on DRR strategy ⑮



DRR technology
8
DRR Research Park Program

~ New technology introduced after the Tsunami disaster ~

Most distributed foods were those with lots of carbohydrates...  
→ concern about nutritional imbalance of children, pregnant women, etc



DRR measures

○ Develop & produce emergency foods with high nutrition value & stockpiles for emergency

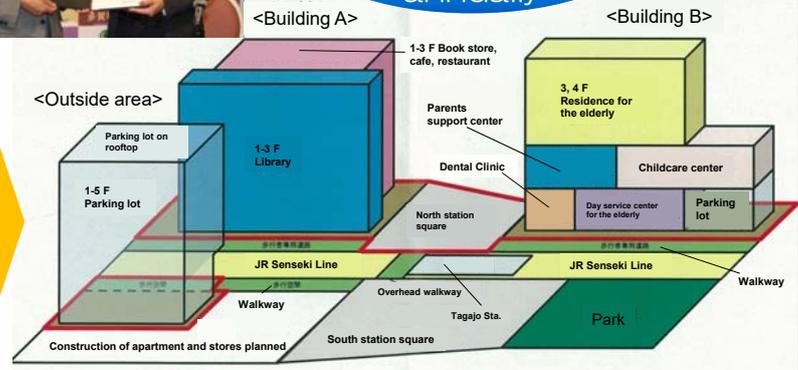
## Creation of the best cultural hub in the Tohoku region





Combination of public services and commercial facilities

Creation of a new cultural hub



Tagajo Station north urban redevelopment area

Creation of the best cultural hub in the  宮城県 多賀城市  
Tohoku region



Features of Building B (4 floors)

- (1<sup>st</sup> floor) Dental clinic  
Day service center for the elderly
- (2<sup>nd</sup> floor) Childcare center  
Parents support center
- (3<sup>rd</sup> and 4<sup>th</sup> floor) Residence for the elderly



Features of Building A (3 floors)

- City library
- Tsutaya Books
- Restaurant
- Cafe
- Convenience store



Thank you for your attention  
We are steadily moving forward thanks to your support and cooperation



**We will be built back better as "DRR City-Tagajo"!**

We appreciate your continuous support