

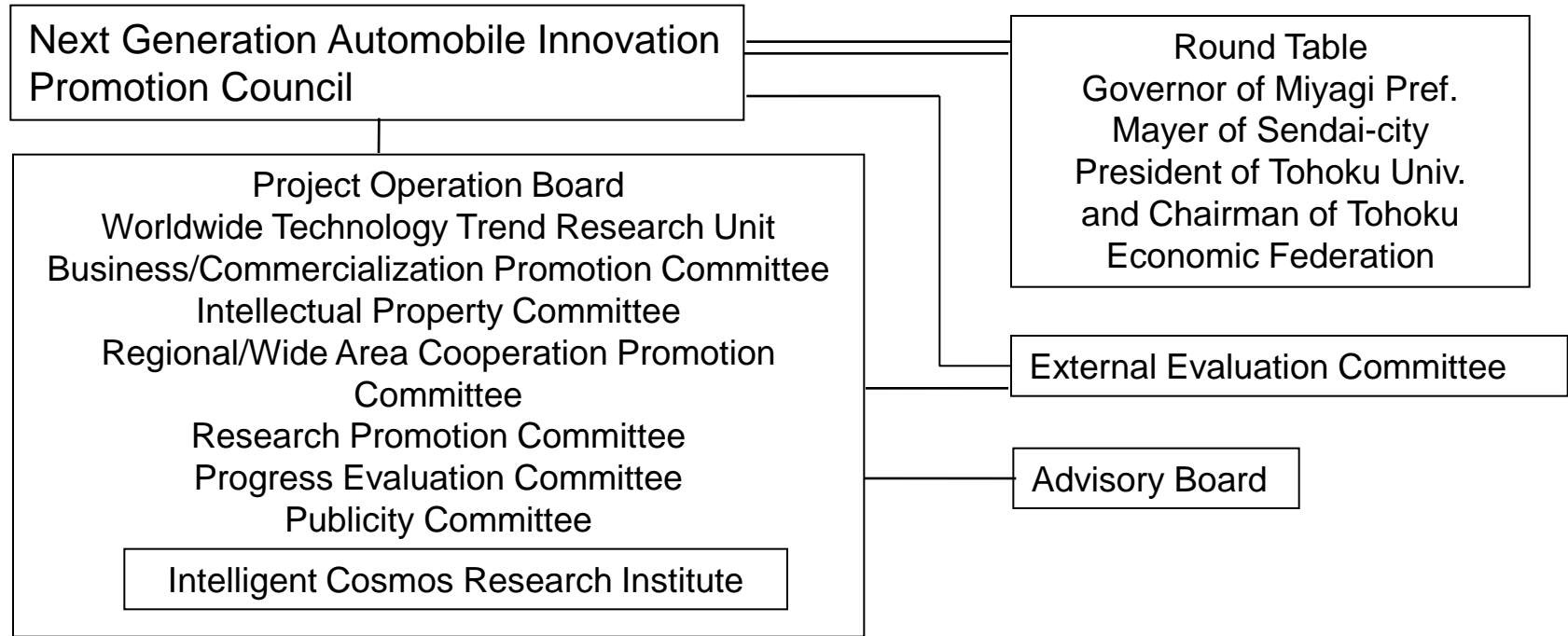
Regional Innovation Strategy Support Program Initiated by
MEXT
Next Generation Automobiles / Miyagi Area

**Realizing new automobile system and related
products based on university studies**

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Industry–Academia–Government Innovation for Next Generation Automobile – Overall Mechanism of Regional Innovation Strategy –



(International Research Institute of Disaster Science at Tohoku University)

Organization for promoting Industry-Academia-Government Cooperation

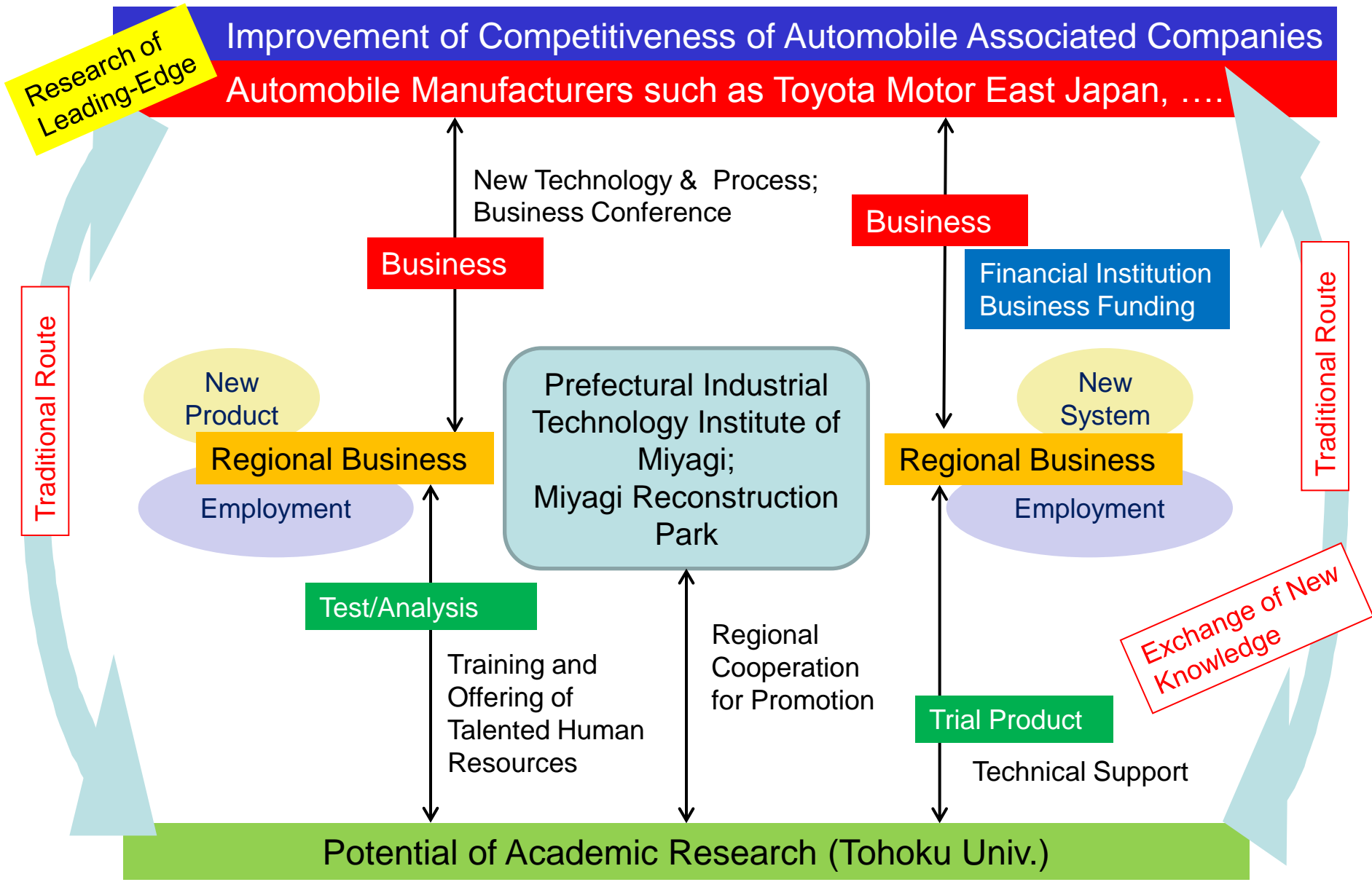
The 77 Bank; Sendai-city; Tohoku Bureau of Economy, Trade and Industry; Business Center of Tohoku Economic Federation;
Miyagi Organization For Industry Promotion (Miyagi Reconstruction Park); Miyagi Industrial Association; Automotive Industry Development Division of Miyagi Pref.; Sendai City Industrial Promotion Organization, etc.;
Tohoku Innovation Capital;
Universities & Colleges; and Tohoku Center of National Institute of Advanced Industrial Science and Technology, etc.

**Cooperation with other regions
in Tohoku District headed by
Iwate Pref.**

Industry–Academia–Government Innovation for Next Generation Automobile

– Overall Mechanism of Regional Innovation Strategy –

Improvement of Competitiveness of Automobile Associated Companies
Automobile Manufacturers such as Toyota Motor East Japan,



Next generation automobile

Automobile is a complex integration of machineries and equipment, basically 10 functions provided. Those are; generator, transmission, drive units, direction convertor, braking, wheeling, body structure, windows, meters and lamp light. Every equipment has been state-of-art product in its era, and improvement of them is still continuing..

On the other hand, the change of global subject in human society has recently actualized. Those are:

1. **Population.** The world population is rapidly increasing in growing country, and developed country is facing aging society. Japan is already 「ultra-aging society」, where the number over 65 year old exceed 21% of national population. The number of automobile driver is decreasing in Japan.
2. **Energy resources.** Supply-demand balance for oil seems tilting toward the oil shortage. Is there a need that the present automobile divides its role to electric car , if possible ?
3. **Appearance of aging society.** Japan already belongs to “ultra-aging society”. In order to alleviate the stagnation by aged people, the use of personal electric car which makes aged people be possible to move free will be useful . They will join to some social activities they hope, and this will be effective, because their long experience and knowledge is still important.

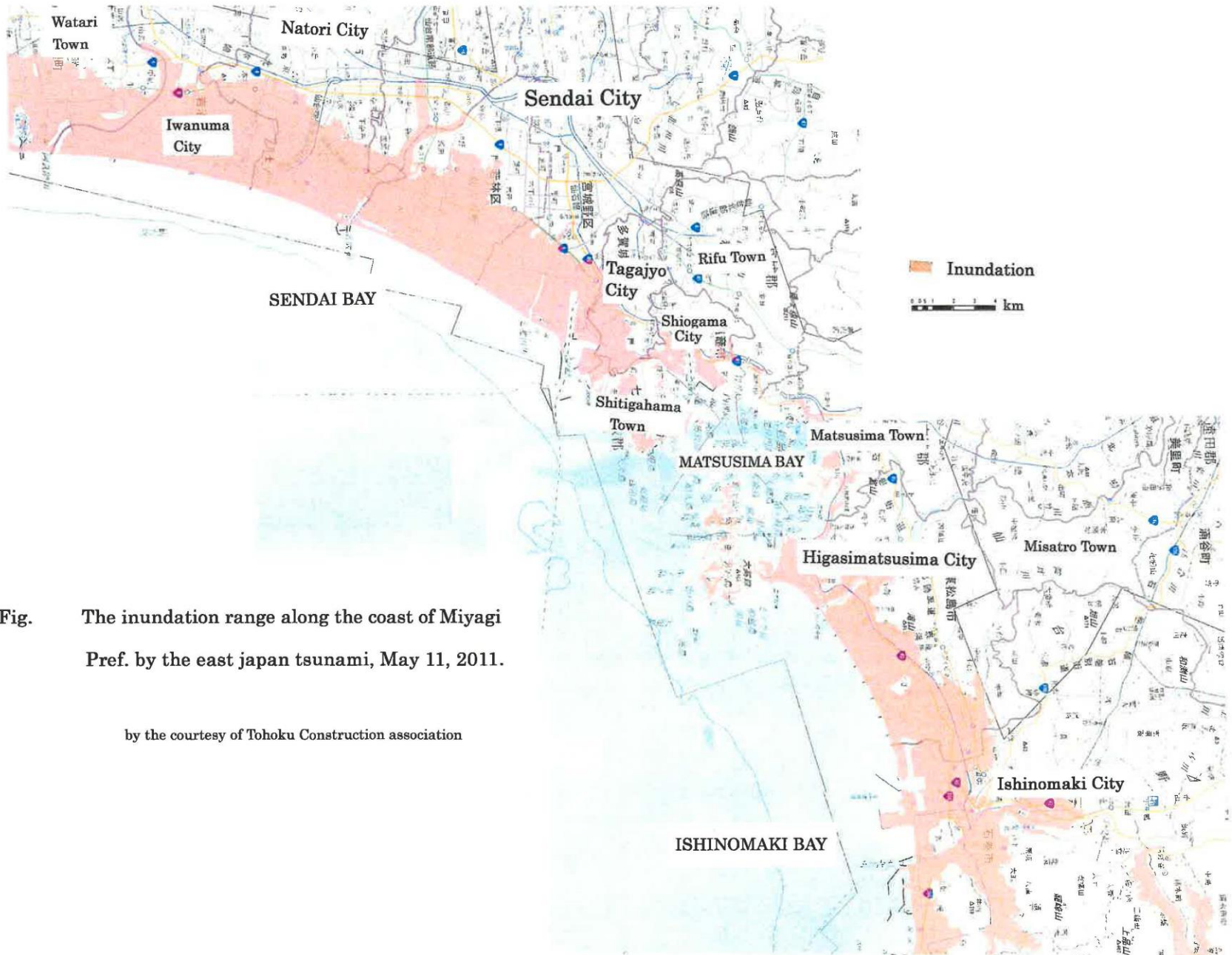


Fig. The inundation range along the coast of Miyagi Pref. by the east japan tsunami, May 11, 2011.

by the courtesy of Tohoku Construction association

ISHINOMAKI HARBOR

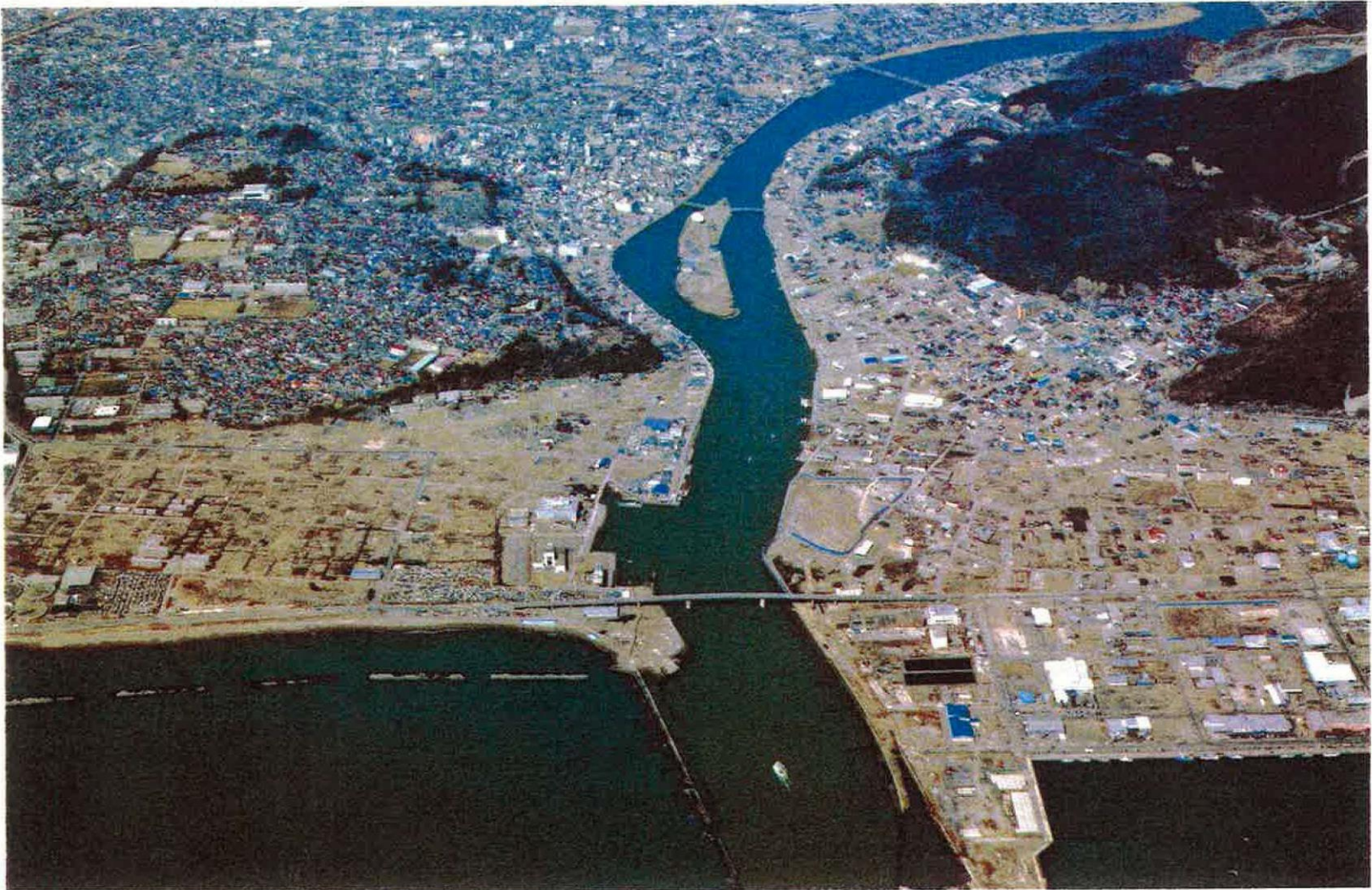


Photo. Sept., 2001

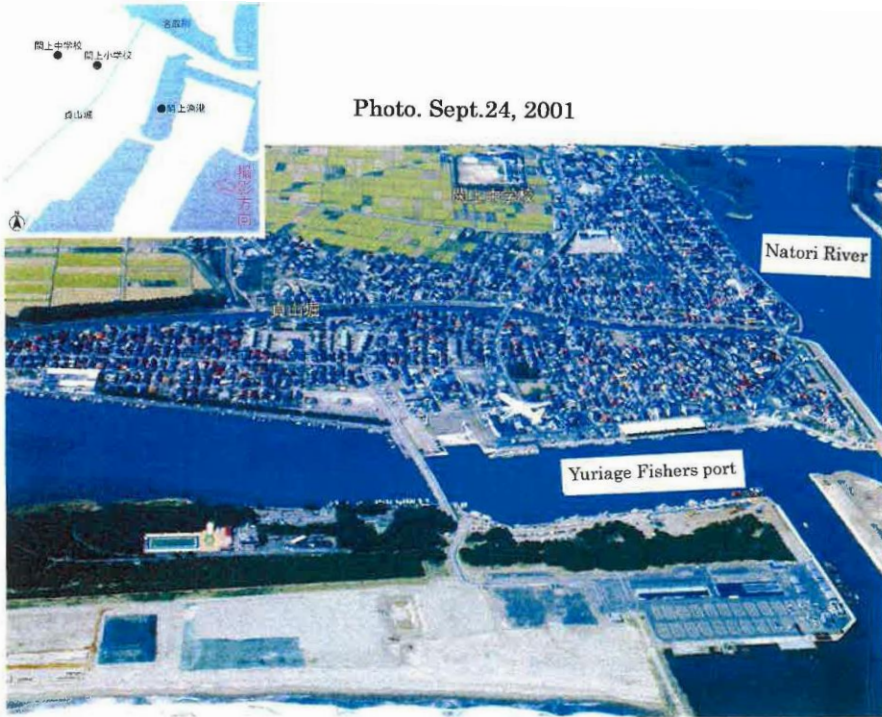


ISHINOMAKI HARBOR

Photo. March 29, 2012



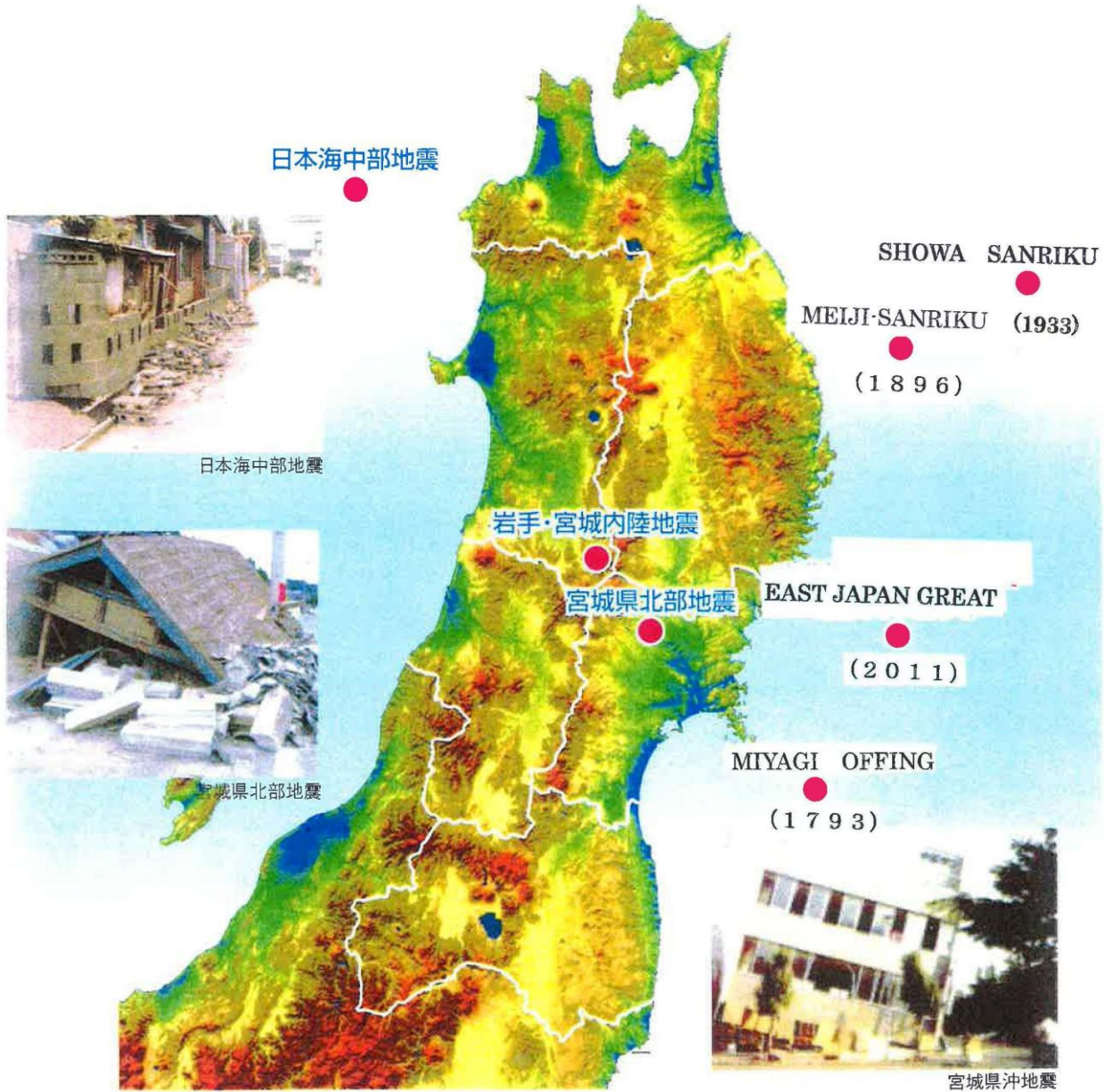
YURIAGE PORT



Record of Tsunami by earthquake in north-east Japan along Pacific Ocean (Magnitude >8.0)

Date	Name of Tsunami	Energy (Magnitude)	Interval (Years)
July. 13,869(AC)	Jyogan	M8.3	
Dec. 2 , 1611	Keichou –Sanriku	M8.1	742
Feb. 17, 1793	Miyagi offing	M8.0~8.4	182
June. 15, 1896	Meiji-Sanriku	M8.25	103
March. 3, 1933	Sanriku	M8.1	37
March. 11, 2011	East Japan	M9.0	78

BIG EARTHQUAKE (INDUCED TSUNAMI) in TOHOKU AREA, JAPAN



Basic principle of restoration from tsunami damage suggested by Prefectural governor

- 1. The industries which must inevitably operate seaside are rebuilt at the former place.**
- 2. General residence, Areal commercial facilities, Educational facilities for children, Hospital, Resort facilities for aged people should be arranged on the hill or hillside.**
- 3. For corresponding to the unpredictable tsunami, the system to escape from seaside to the hill or hillside should be designed.**
- 4. The concrete measures and methods are decided by municipalities.**

Electric car for personal mobility

Feature

- Small size ,**
- Light weight(less than 300Kg)**
- Simple operation control**
- Small driving cost(less than 1/3 of gasoline)**

Weakness

- Limited continuous distance(~50 km)**
- Long charging time(being improved)**

Significance in application

- Supplementary function for helping public transport, such as bus, subway, and trains.(Efficiency improvement of social infrastructure)**
- New system to reinforce the reconstruction at tsunami affected areas.
Offer of new transportation to support the industry activities at seaboard.**
- Ensuring elderly activities and health by offering new personal mobility.**

The impact of this project

Applicable to many cases at worldwide regions, especially for alleviating stagnation by aging in coming extremely- aging society.