

January 26, 2016

**Resilient Strategy
for Next Japanese National Crisis**

Yoshiaki KAWATA, PhD

Funding Director, DRI, Kobe

Professor

Faculty of Societal Safety Sciences

Kansai University

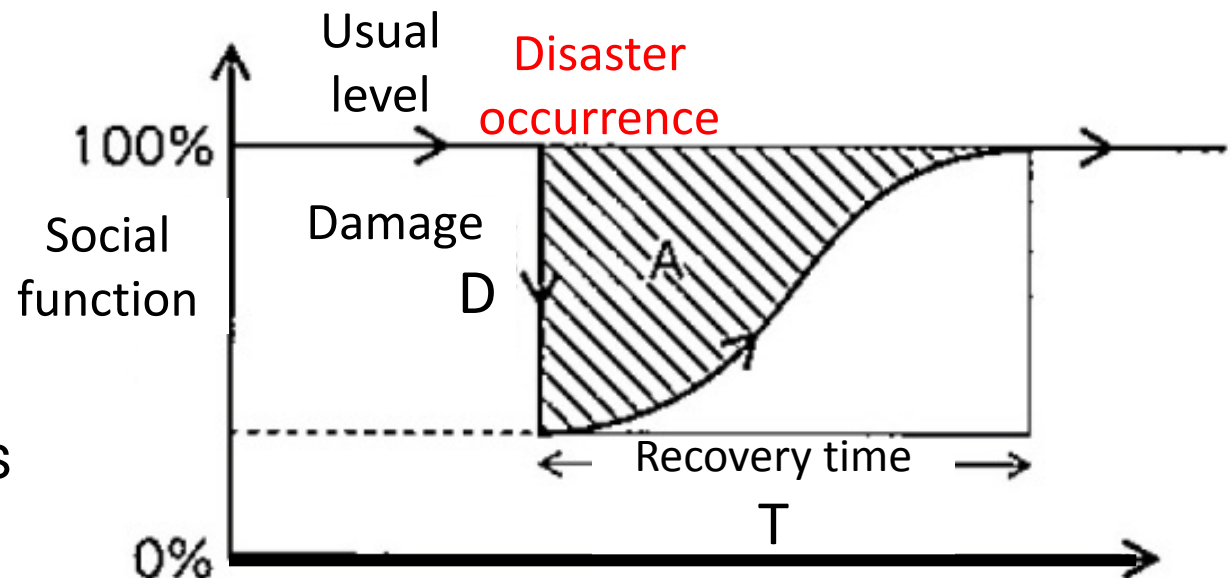
Japanese society has become vulnerable against large scale natural disasters.

1. Marked lowering of disaster resilience in elderly people society with weak mutual communication
2. Diversification of damage in highly complicated society in urban area
3. Increased scale of natural hazard such as earthquake and tsunami and intensified damage such as river flooding and debris flow

What is “Disaster Resilience”

Resilience includes following meanings.

- ① Flexibility,
- ② Adaptability
- ③ Innovation
- ④ Robustness
- ⑤ Responsiveness
- ⑥ Redundancy
- ⑦ Resourcefulness
- ⑧ Rapidity



Disaster Reduction and Disaster Resilience

- Disaster Reduction

$$D = \text{Fn}(H, V, C)$$

H : hazard

V : vulnerability

C : countermeasure

- Disaster Resilience)

$$R = \text{Fn} (D, A, T) \dots\dots$$

A : human community activities for reduce damage

(National (Community) Resilience)

T : recovery time

$$R (t) = \text{Fn} (\text{community power, recovery power})$$

Japanese
Government
mistranslated as
National Land
Robustness



Why Disaster Resilient Works Delay (1)

- Poor ability of social leader for politics, economics and decision making— he/she can not believe that social security in living level has top priority in any government.
- Responsible person in charge of disasters has over/unfair evaluation for scientific and engineering technology.
- Disaster reduction is forgotten, and remains unsolved under rapid changes of modern society.

Why Disaster Resilient Works Delay (2)

- Political leaders can not believe that destruction due to disaster enlarges recession of economics.
- Society is immature because people can not understand that democracy depends on principle of self-responsibility.
- Simple apply of cost benefit analysis for public works
- No disaster resilient strategy or misunderstanding of strategy goal setting

How to get resilient society ?

1. Disaster reduction such as mitigation and preparedness at the moment of unexpected gigantic disasters
2. Control of damage enlargement and shortening of recovery process after disasters
3. Intensification and maintenance of social infrastructures such as lifelines and ICT and activation of local community

We are much anxious about next “National Catastrophe (Crisis)”.

- **Tokyo Metropolitan Earthquake**

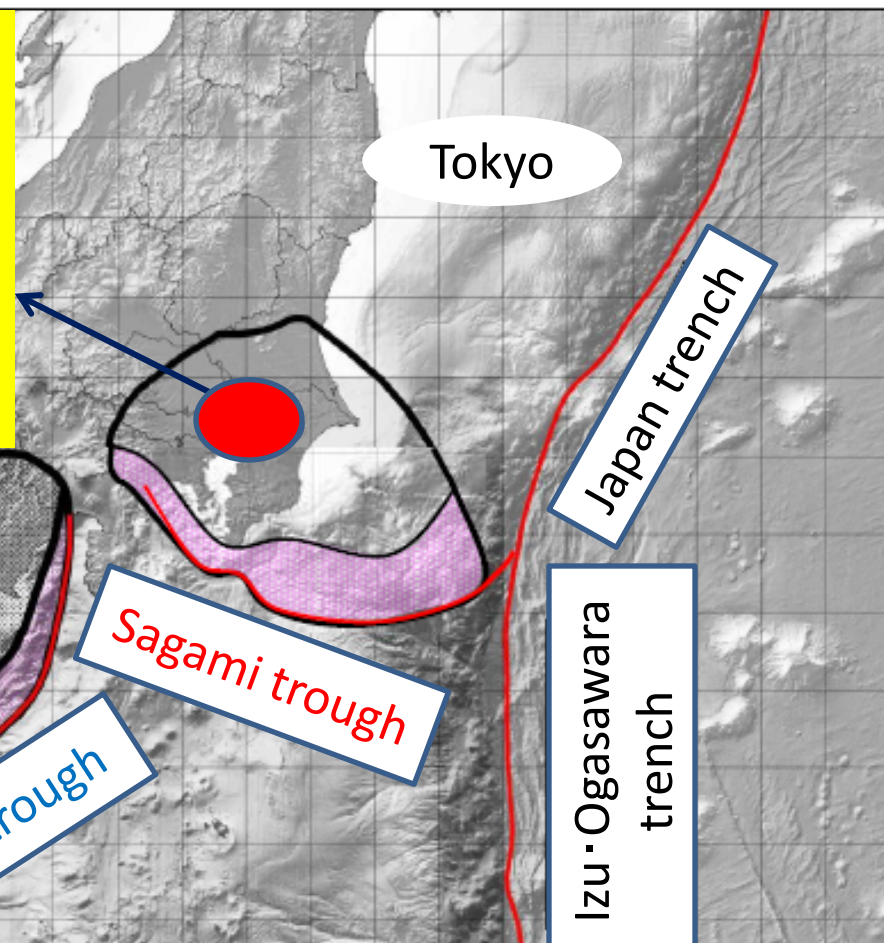
(M7.3, Occurrence probability within 30 years:70%, Seismic Intensity: 7, Population in seismic intensity 6- or larger: 30million, The dead estimated: About 23,000 (more than 100,000 with city fire), Debris: 98million ton, Economic damage:\$790billion, **Super-Urban disaster**

- **Nankai Trough Gigantic Earthquake**

(M9.1 , Occurrence probability within 30 years:70%, Seismic Intensity: 7, Population in seismic intensity 6- or larger: 61million, The dead estimated: About 320,000, Debris: 310million ton, Economic loss : \$1,830billion, **Super-Extensive disaster**

\$1 ≙ ¥ 120

Tokyo Metropolitan Earth.
Mw7.3、30 million people in
damaged area, Economic
loss: About ¥ 95trillion



Mw9.1
Gigantic tsunami: 34.4m
Affected area people: 60 million
Economic loss: About ¥ 220
trillion

Historically, we had
9 earthquake
disasters since 684

Resilient Strategy on Tokyo Metropolitan earthquake (Mw7.3)

1. Survive from earthquake and city fire
2. Keep safety in densely urban area
3. Safe treatment for damaged people and evacuated people
4. Stop the second disaster and compound disaster after earthquake
5. Maintenance for capital functions such as political, economic, financial ,manufacturing and culture activities
6. Disaster resilience for quick recovery of capital functions
7. Sustainable and resilient reconstruction of Tokyo Metropolitan area

Resilient Strategy on Nankai Trough Earthquake (Mw9.1)

1. Support for quick tsunami evacuation
2. Establishment of lifeline systems and maintenance
3. Smooth management of ICT
4. Support for search and rescue activities in widely damaged area
5. Stop of damage enlargement
6. Support for damaged people and damaged local government with public sectors
7. Promoted disaster resilience

Basic Attitude Toward Disaster Countermeasures In Japan After 3.11

- To construct A Disaster-Resilient Society -

1. Protecting the people and the country from disasters is the ultimate responsibility of the government.
2. Awareness of large-scale disasters at the “national crises” level
3. Make every possible effort for preparation through “mainstreaming of disaster reduction”

Continued:

4. Mass/concentrated provision of resources upon disaster occurrence with the coordination of public and private sectors
5. Turning the disaster experience into hopes for suitable restructuring for the local community
6. Disaster management is the frontier of the revitalization of Japan
7. Presenting the "disaster management leader Japan" to the world