



International Trends in Disaster Risk Reduction and Sendai Framework for DRR

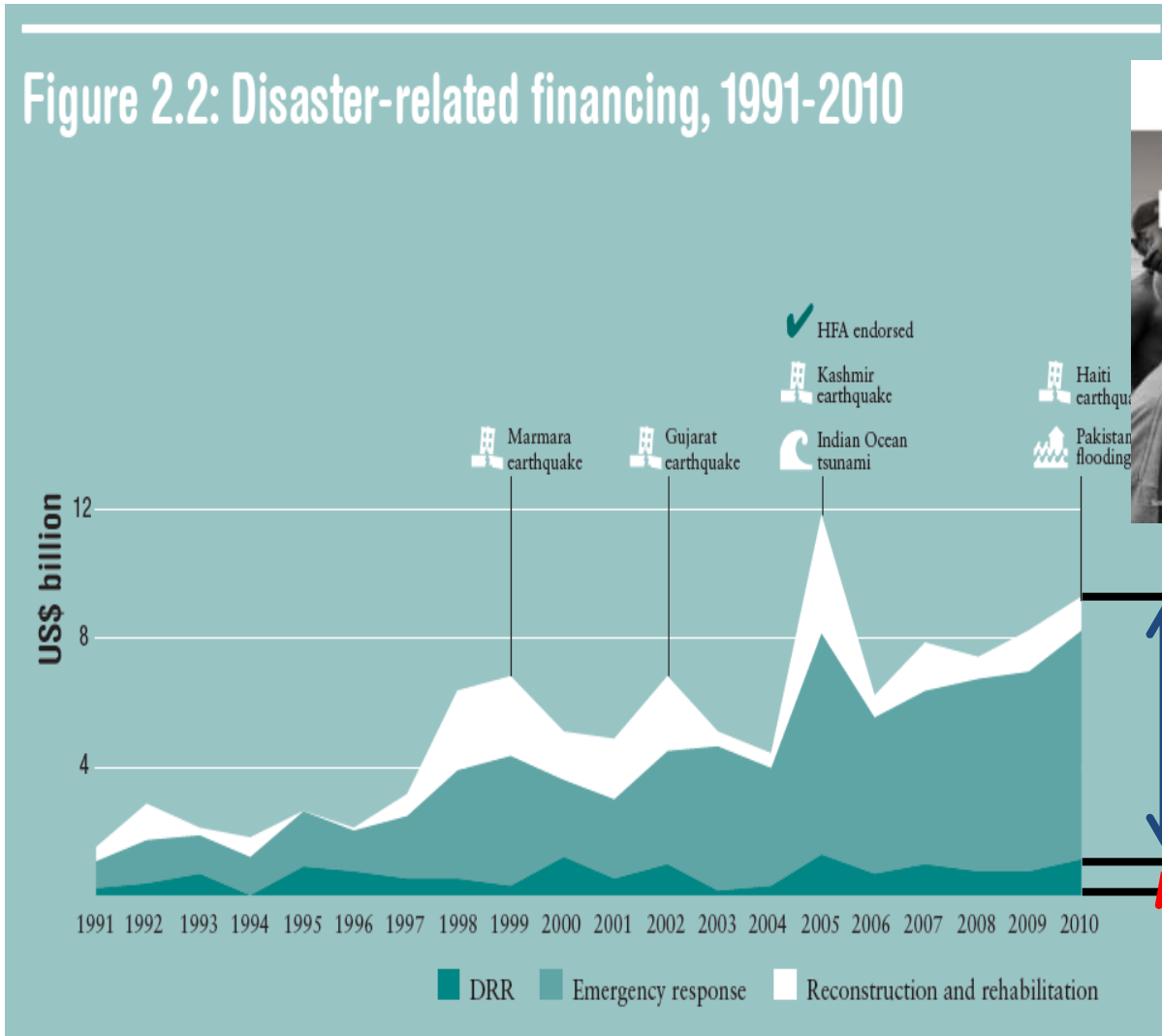
- Sharing Japan's Experience -

Japan International Cooperation Agency
Disaster Risk Reduction Group

Importance of Disaster Risk Reduction for Sustainable Development - Relation of Investing in DRR to Development –

One dollar investment saves \$4 response

Figure 2.2: Disaster-related financing, 1991-2010



Emergency response, recovery and reconstruction

87.3%

Prior investment in disaster risk reduction

12.7%

Source: Financing Disaster Risk Reduction A 20-year story of international aid (GFDRR, ODI)

Third UN World Conference on Disaster Risk Reduction and Adoption of the Sendai Framework



UN World Conference on
Disaster Risk Reduction
2015 Sendai Japan

“Sendai Framework for Disaster Risk Reduction 2015-2030” was adopted as the outcome document.



Source: Web site of the Ministry of Foreign Affairs of Japan

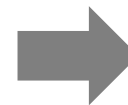
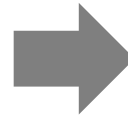
Paradigm Shift From Humanitarian Issue to Sustainable Development Issue

Hyogo Framework
for Action
(2005)

Humanitarian issue

Saving lives

No measurable target



Sendai Framework for
Disaster Risk Reduction
(2015)

Sustainable
development issue

Saving lives
and livelihood

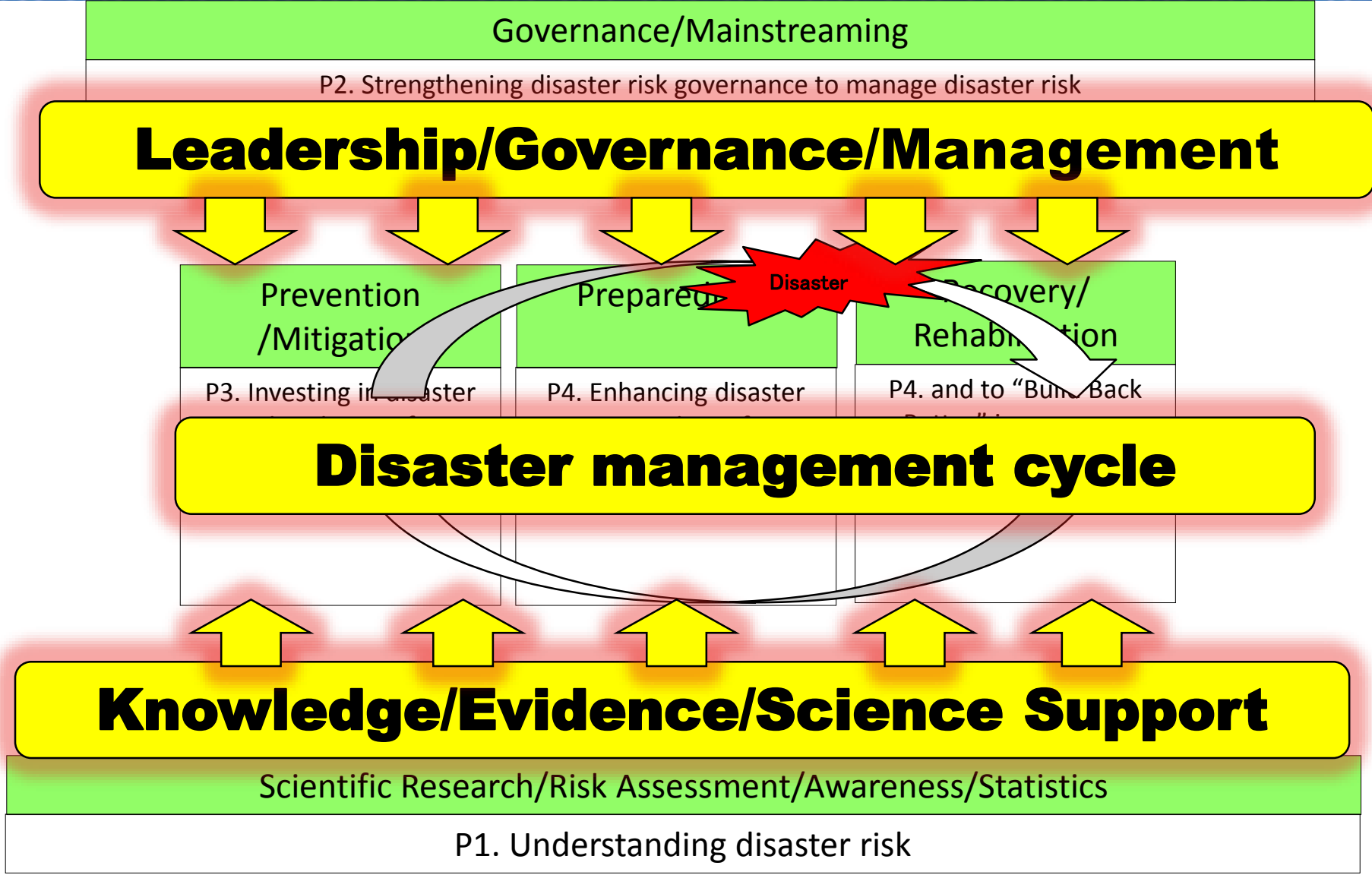
Measurable target

Sendai Framework for Disaster Risk Reduction 2015-2030

- Priority Actions –

1. Understanding disaster risk
2. Strengthening disaster risk governance to manage disaster risk
3. Investing in disaster risk reduction for resilience
4. Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation, and reconstruction

Four Priority Actions that Support Disaster Management Cycle



Relevance to Other International Frameworks (SDGs, COP)



11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation of and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels



COP21·CMP11
PARIS 2015
UN CLIMATE CHANGE CONFERENCE



Applicable to All

Comprehensive

Durable

Progressive

INDC (Intended Nationally Determined Contributions) is to be prepared by 2020.



1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social, and environmental shocks and disasters



2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices



9.1 Develop quality, reliable, sustainable, and resilient infrastructure, including regional and trans-border infrastructure

9.a Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological, and technical support to African countries, least developed countries, landlocked developing countries, and small island developing states



11.5 By 2030, significantly reduce the number of deaths and the number of people affected due to water-related or other disasters, and substantially decrease the direct economic losses, with a focus on protecting the poor and people in vulnerable situations



13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

2020

2030

Japan's experience reflected to the Sendai Framework



Prior investment in
disaster risk reduction

Strengthening capacity of
DRR administration

Build Back Better

Natural Disasters in Japan

Japan is one of the most exposed countries against natural disasters around the world

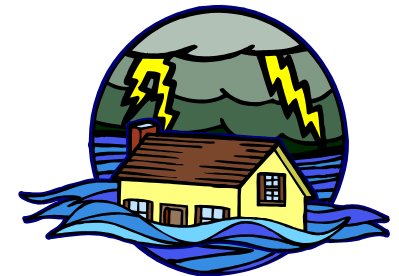


The 15 most exposed countries worldwide

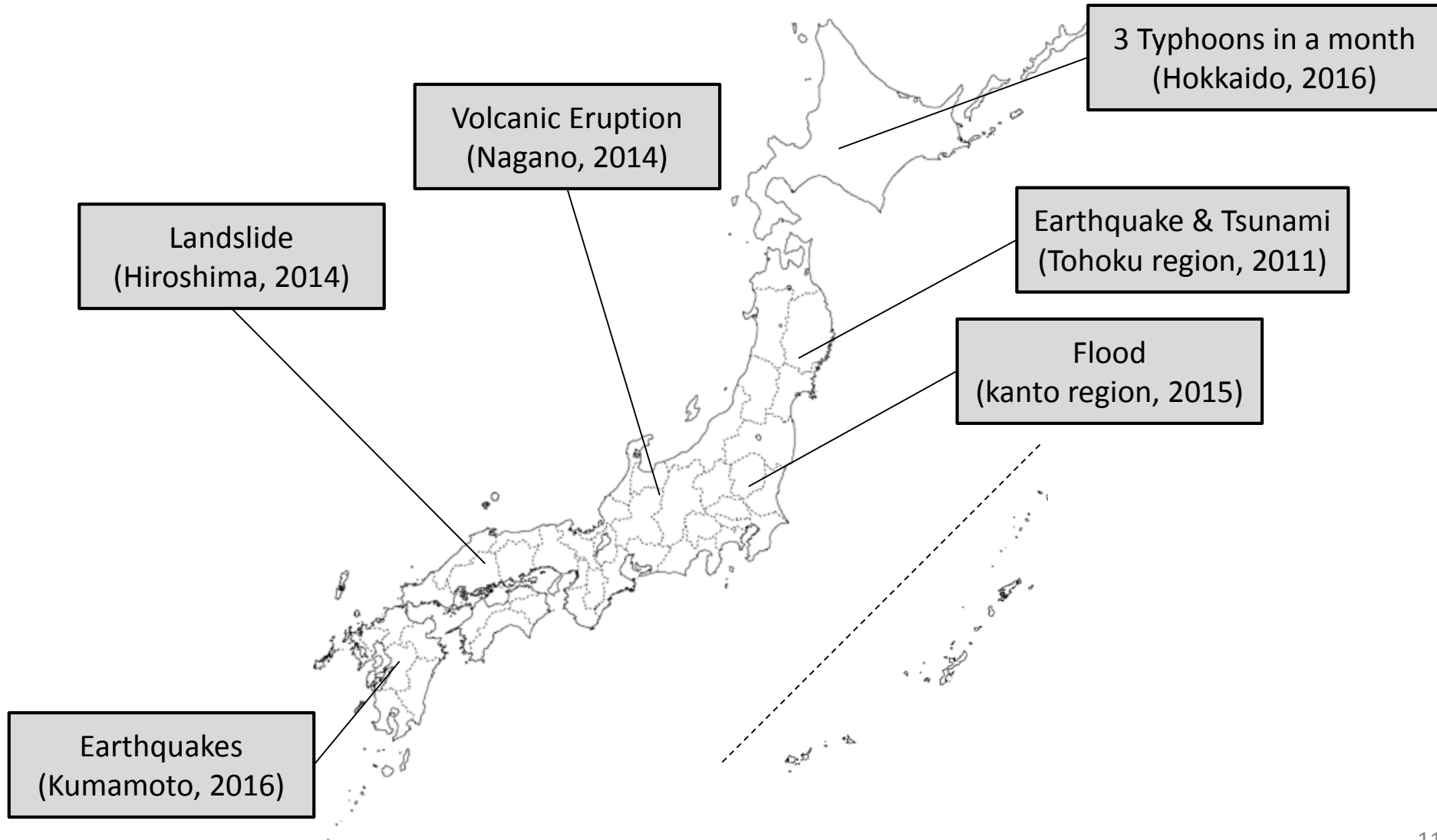
Country	Exp. (%)	Rank
Vanuatu	63.66	1.
Tonga	55.27	2.
Philippines	52.46	3.
Japan	45.91	4.
Costa Rica	42.61	5.
Brunei Darussalam	41.10	6.
Mauritius	37.35	7.
Guatemala	36.30	8.
El Salvador	32.60	9.
Bangladesh	31.70	10.

Natural Disasters in Japan

- Earthquakes
- Tsunamis
- Volcanic Eruptions
- Typhoons (July – October)
- Heavy Monsoon Rains (May – July)
- Floods
- Landslides
- Snow Avalanches



Major disasters in recent years



Natural Disasters in Japan

More than 4 million Japanese people are living under “Sea Level”

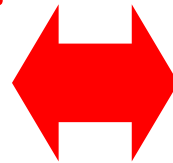


Natural Disaster Risk in Japan

Exposure \neq Risk (if you reduce Vulnerability)

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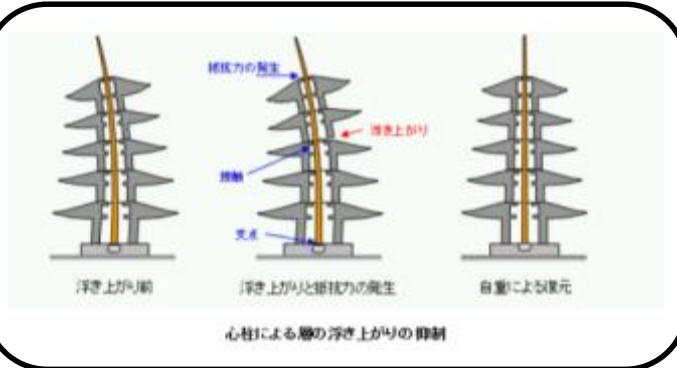


Rank	Country	WorldRiskIndex
1.	Vanuatu	36.28 %
2.	Tonga	29.33 %
3.	Philippines	26.70 %
4.	Guatemala	19.88 %
5.	Bangladesh	19.17 %
6.	Solomon Islands	19.14 %
7.	Brunei Darussalam	17.00 %
8.	Costa Rica	17.00 %
9.	Cambodia	16.58 %
10.	Papua New Guinea	16.43 %
11.	El Salvador	16.05 %
12.	Timor-Leste	15.69 %
13.	Mauritius	15.53 %
14.	Nicaragua	14.62 %
15.	Guinea-Bissau	13.56 %
16.	Fiji	13.15 %
17.	Japan	12.99 %
18.	Viet Nam	12.53 %
19.	Gambia	12.07 %
20.	Jamaica	11.83 %
21.	Haiti	11.68 %

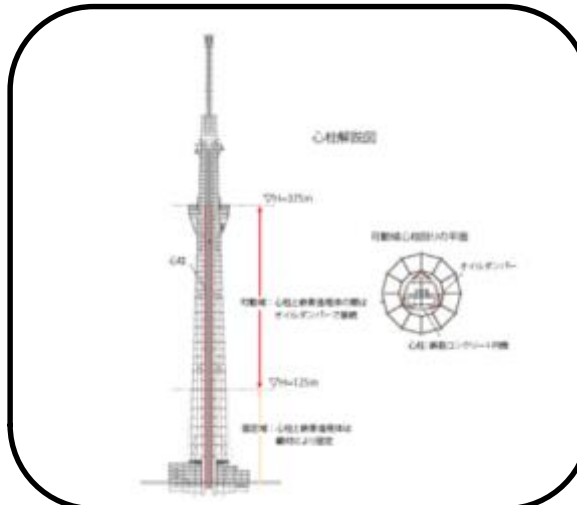
Japan's History of Coexistence with Disaster

The anti-seismic technology used in the world's oldest existing wooden building "Horyu-ji Temple", which was constructed in the year 607, was applied to the modern architecture.

7th Century



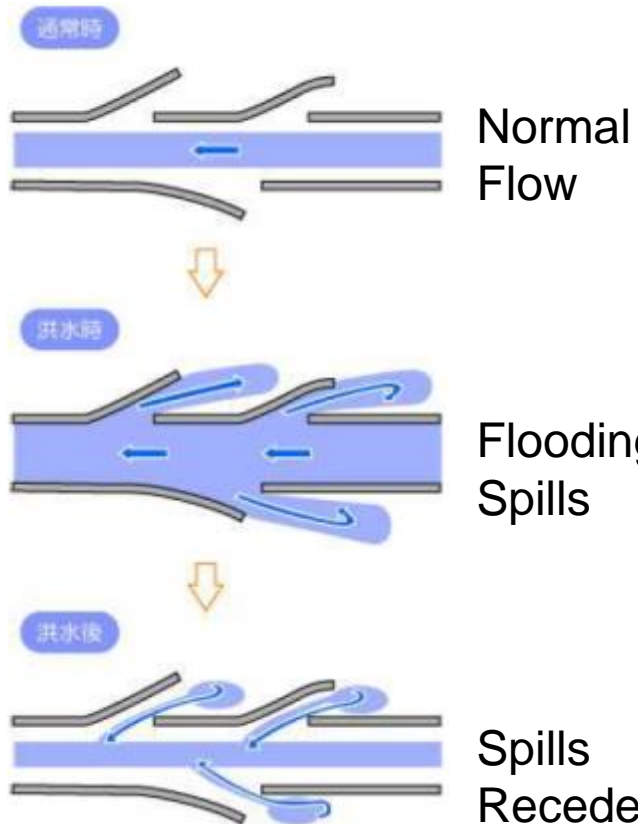
21st Century



Japan's History of Coexistence with Disaster

Shingen tsutsumi (river bank)

Innovative Civil Engineering Techniques by Warlord Takeda Shingen in 16th century



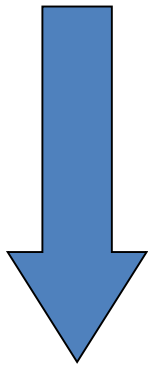
Sacred Cow (Triangular Lumber Pyramid) to ease flow of torrents



Japan's History of Coexistence with Disaster

Project for diversion of Tone River to the east (1600 ~)

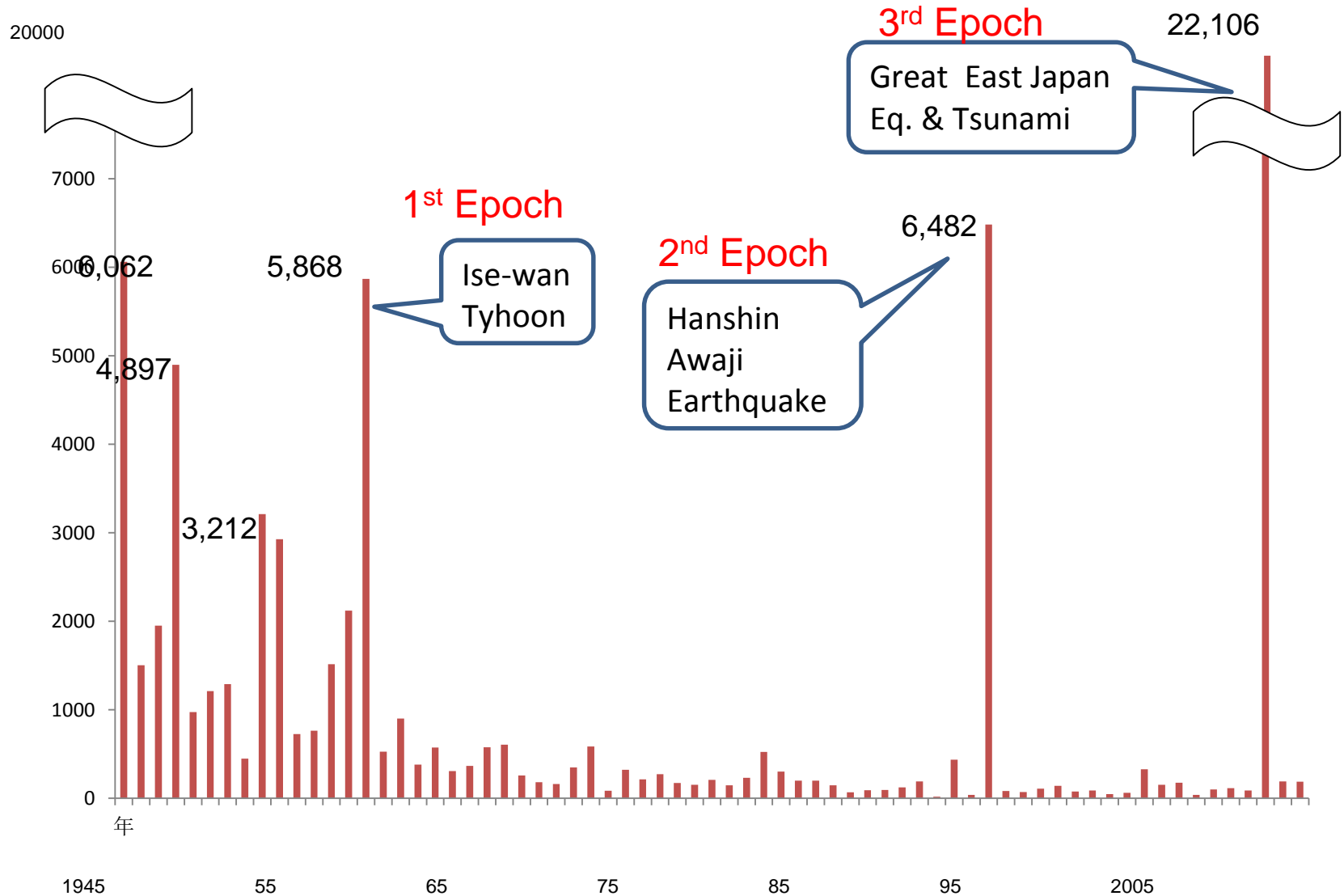
Until 17th Century, Tone River crossed the Kanto Plain from north to south flowing into Tokyo Bay and caused inundation Tokyo area quite a often



The Shogun decided to protect Tokyo by diverting Tone River to the east, directly flowing into the Pacific through the channel.



Statistics on Casualties by Natural Disasters in Japan



Major Disasters as Turning Points for Japan's DRR administration after WWII

1. Ise-wan Typhoon (1959)

→ Disaster Countermeasures Basic Act

2. Great Hanshin-Awaji Earthquake (1995)

→ Earthquake-resistant construction

→ Awareness of self-help and mutual-help

3. Great East Japan Earthquake (2011)

→ Revision of damage estimation for large scale disasters

→ “Disaster mitigation”

→ Community Disaster Management Plans

Turning Point 1 Ise-wan Typhoon (1959)

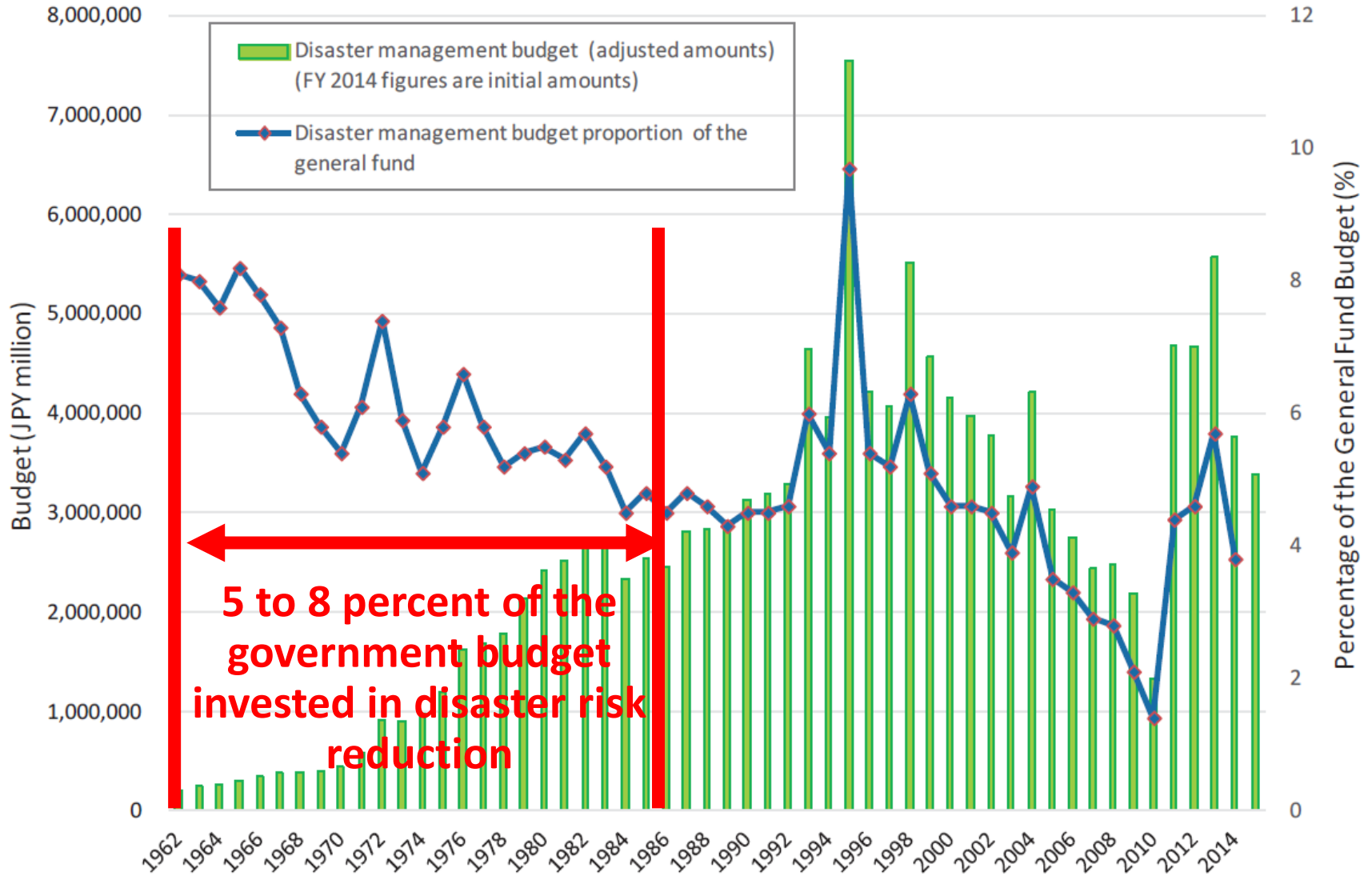


Max pressure 895 hPa
Max Wind Speed 75 m/s,
Casualties 5,238

Disaster Countermeasures Basic Act (1961)

1. Clarification of principle and responsibilities for disaster risk reduction
2. Development and promotion of comprehensive disaster risk reduction administration
 - Establishment of the Central Disaster Management Council
3. Development and promotion of strategic disaster risk reduction administration
4. Promotion of disaster response measures
 - Provisions on roles and authorities of related ministries
5. Measures for protection of disaster victims
6. Financial assistance measure
 - Provisions on the responsibility for ensuring budget
7. State of disaster emergency

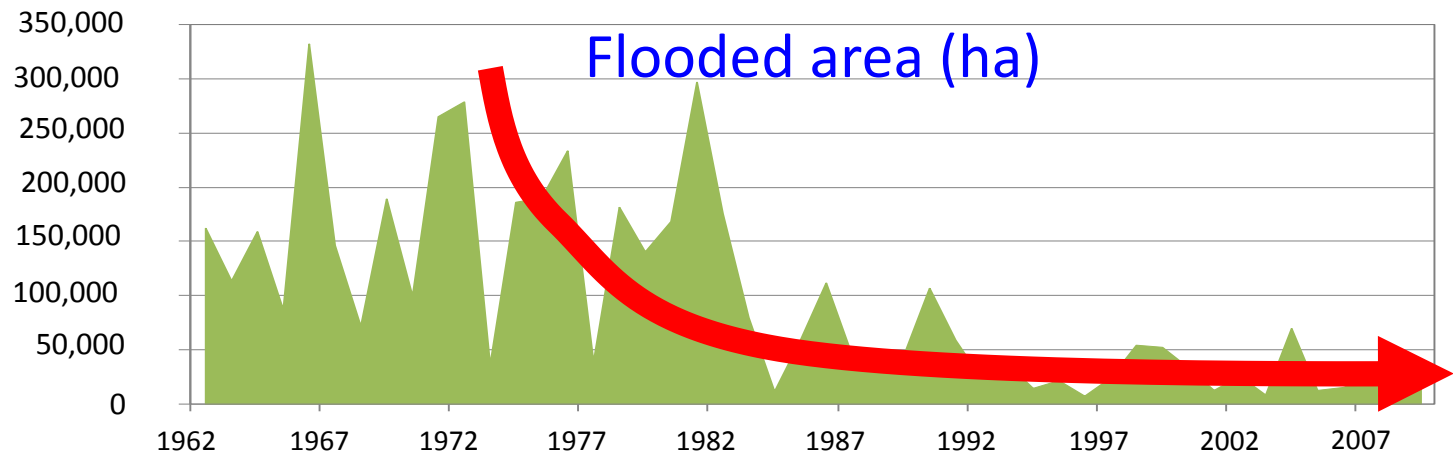
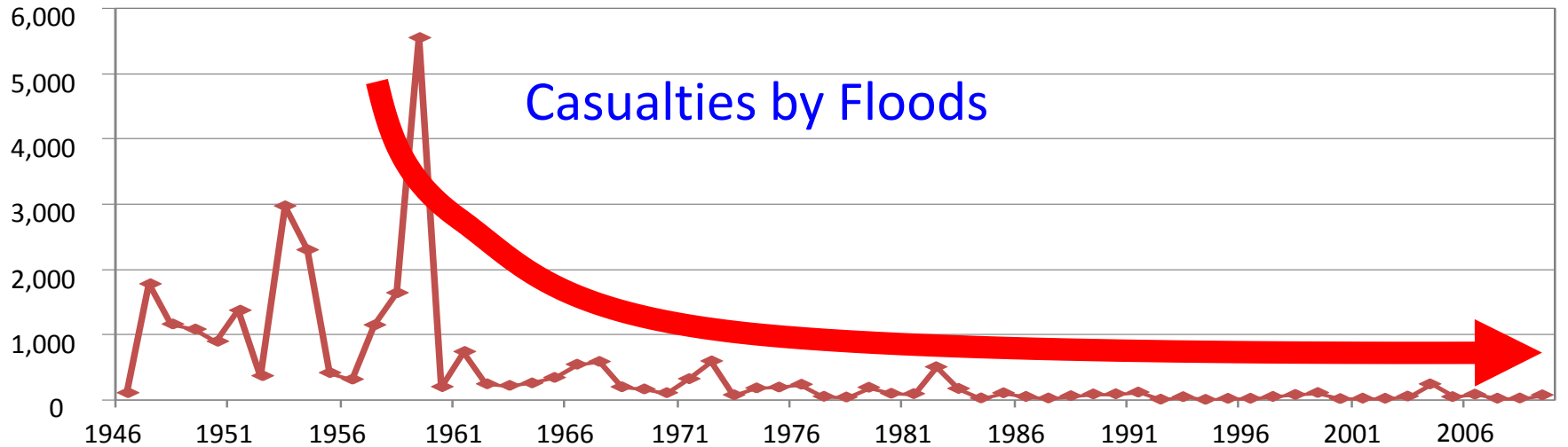
Investment in Disaster Risk Reduction has sustained Economic Development



Source: Created by the Cabinet Office using materials from various ministries and agencies.

Investment in Disaster Risk Reduction has sustained Economic Development

DRR investment contributed to reduce casualties and inundation area



extensive risk layers. In Japan, for example, continued investment in flood protection—together with regulation—has resulted in a dramatic reduction in the areas flooded and in mortality (Figure 6.3).

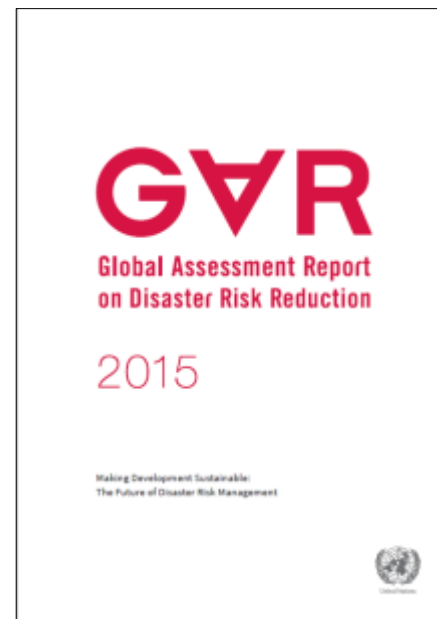
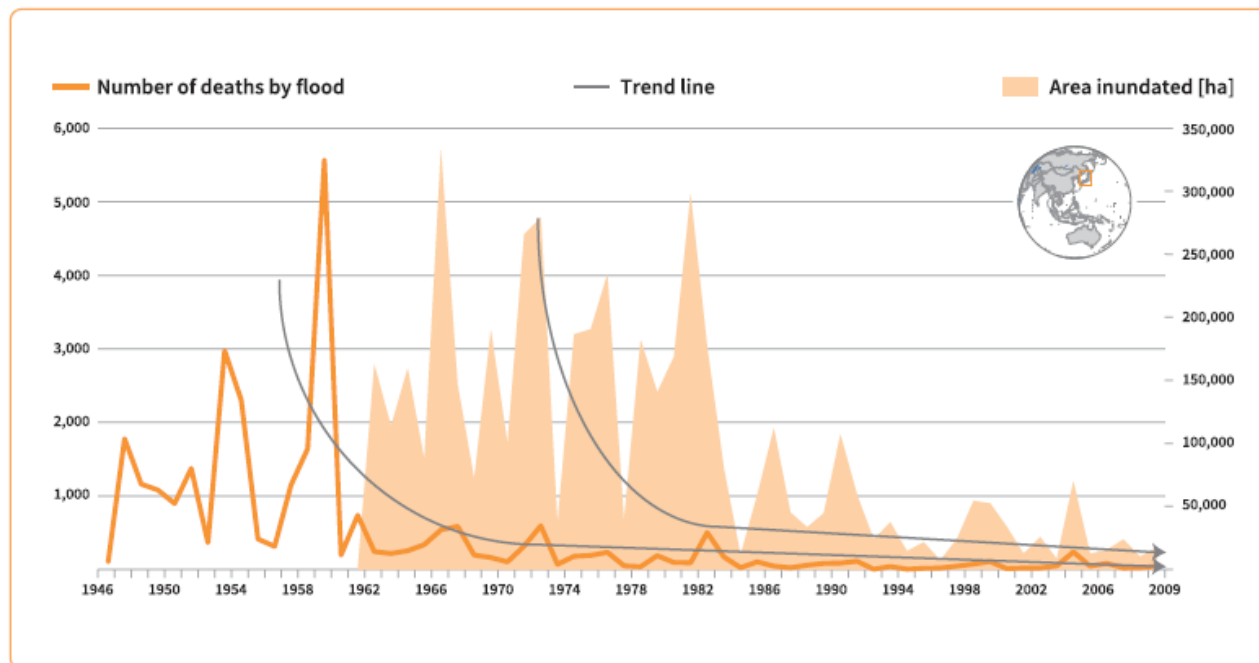


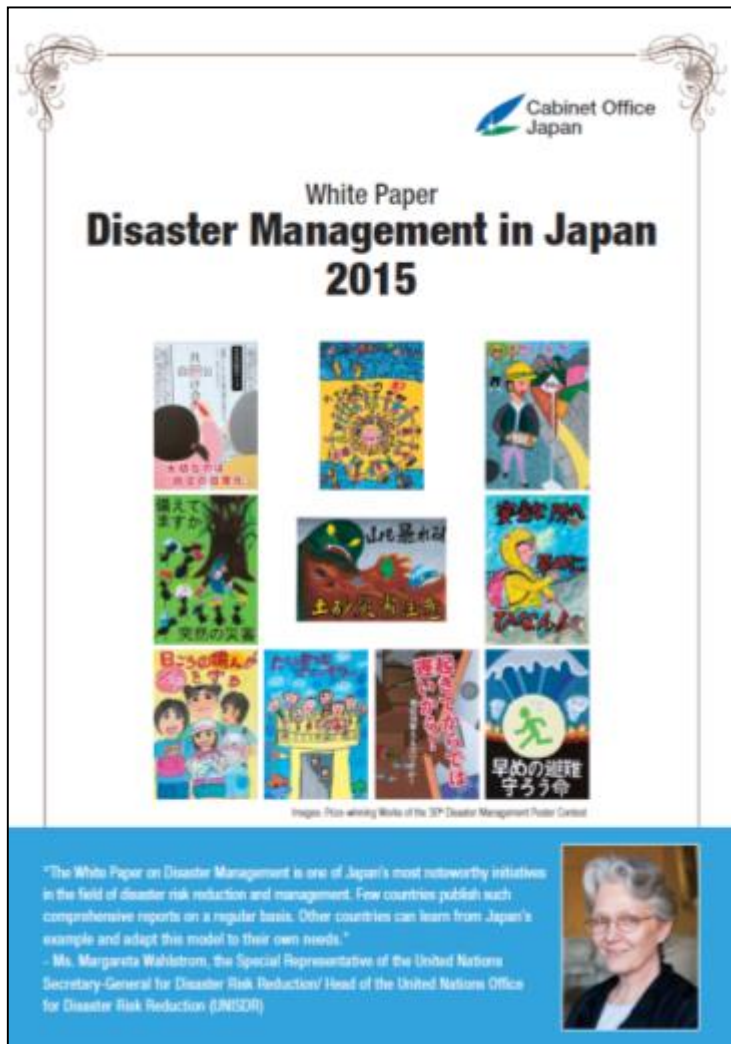
Figure 6.3 Successful flood reduction in Japan



(Source: UNISDR with data from Takyee Kimio, JICA.)



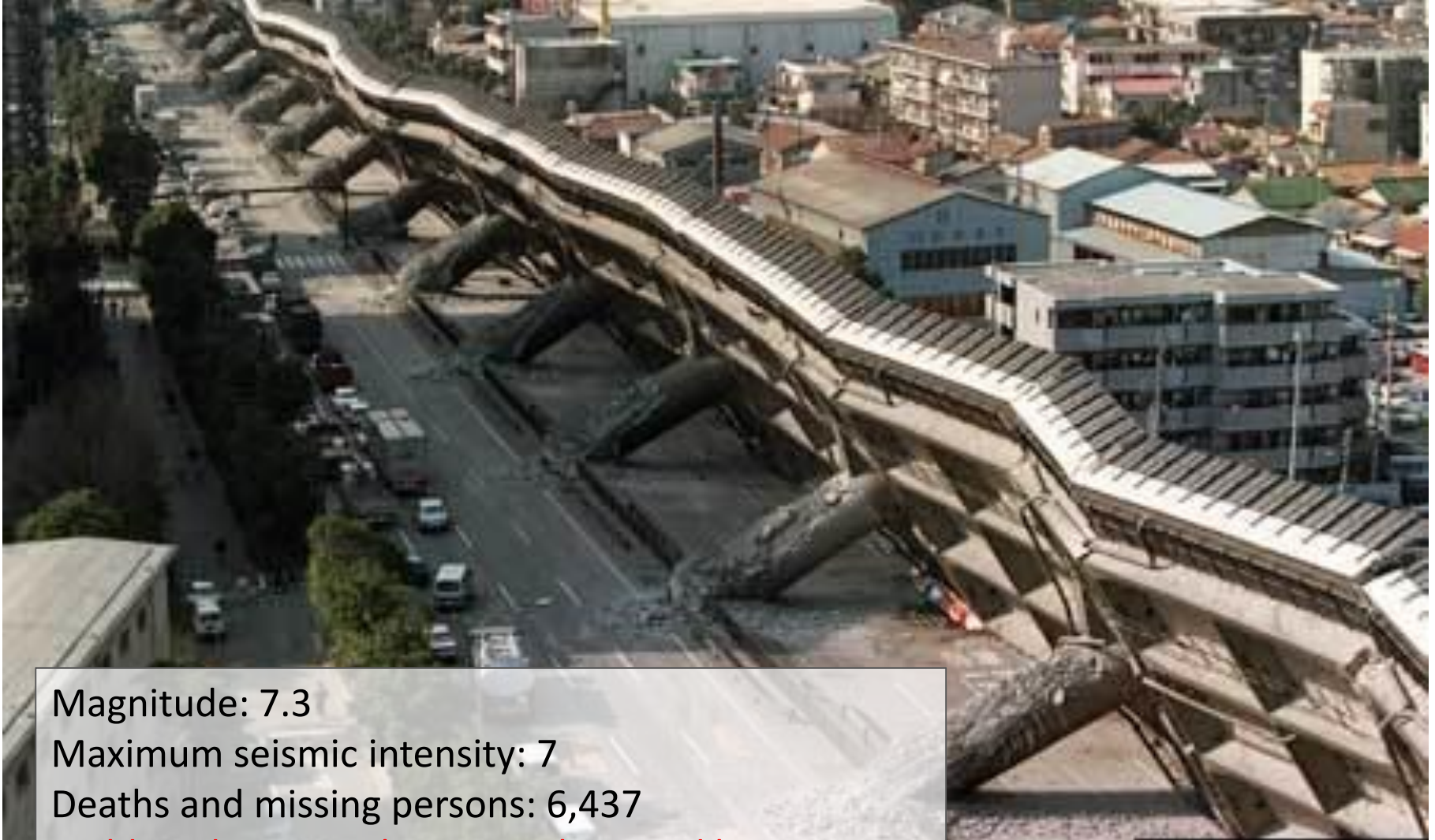
Disaster White Paper



- Accumulation of Disaster Data and Information
- Report to the Parliament
- Basis for the budget deliberations

Turning Point 2

Great Hanshin-Awaji Earthquake (1995)



Magnitude: 7.3

Maximum seismic intensity: 7

Deaths and missing persons: 6,437

Building damage: About 520 thousand houses

Promotion of Earthquake-resistant Construction

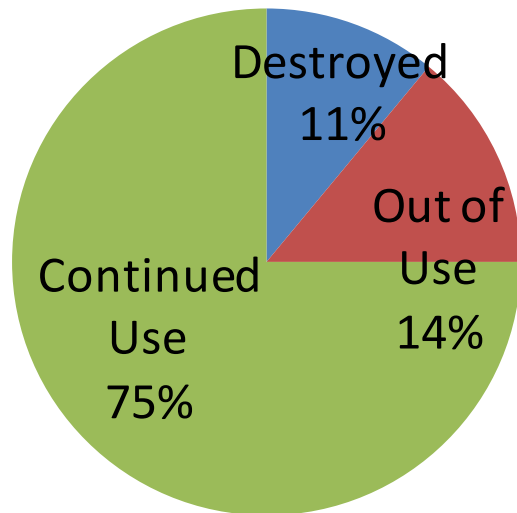
- Enforce New Building Code
- Retrofit for important social facilities



Promotion of Earthquake-resistant Construction

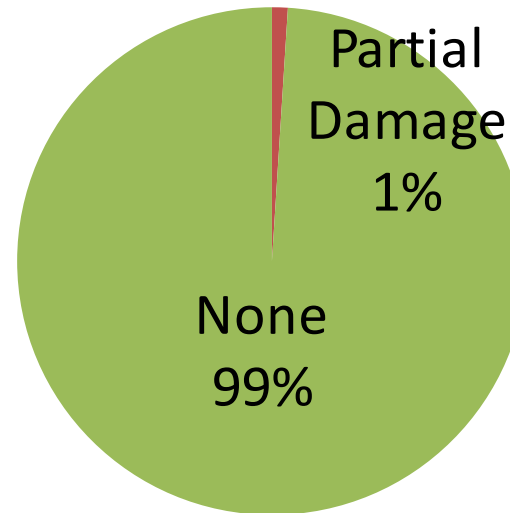
16 years after Hanshin-Awaji EQ, very few buildings were damaged by Great East Japan EQ

**Hanshin-awaji Earthquake
(1995)**



- Destroyed
- Out of Use
- Continued Use

**Great East Japan Earthquake
(2011)**

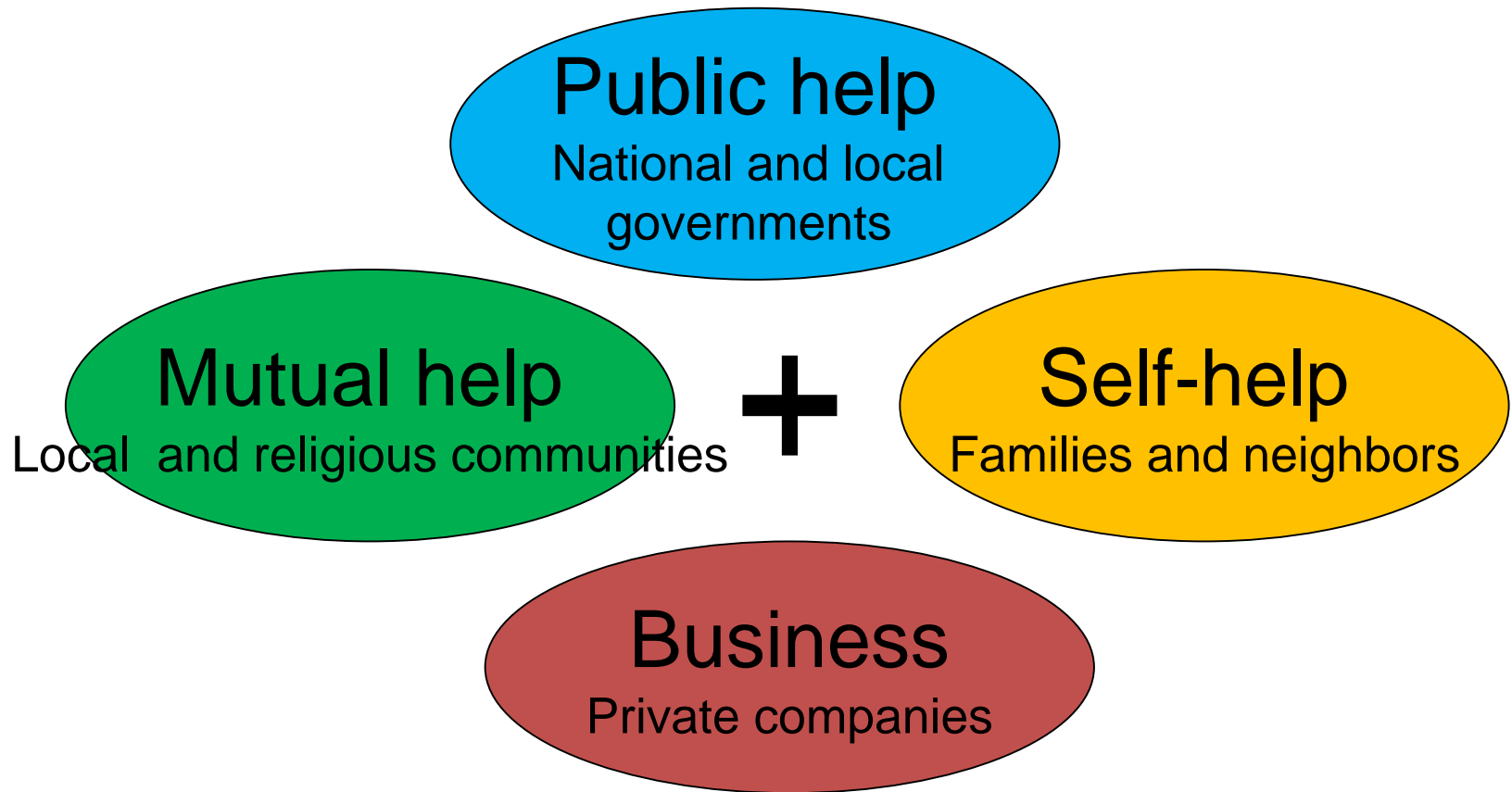


- Collapse
- Partial Damage
- None



Office building in Sendai,
photo by Satoru Nishikawa,
Apr 15 2011

Self-help, Mutual help, Public help



Collaborative work among the public sector, communities, stakeholders and business

– **the government plays the key role**

Turning Point 3

Great East Japan Earthquake (2011)



Magnitude: 9/0
Maximum seismic intensity: 7
Deaths and missing persons: 21,839

“Disaster Mitigation” as the Basic Principle

Structural measures could reduce damages, but could not prevent all from “once in a thousand year” scale disaster



Scale of Tsunami	Required measures
Largest in “a lifetime” (once in 100 years)	Disaster reduction <ul style="list-style-type: none">• Protect human life and properties mainly by structural measures
Largest in the history (once in 1,000 years)	Disaster mitigation <ul style="list-style-type: none">• Protect human life and mitigate economic loss by mixture of structural and non-structural measures <p style="text-align: center;">Seawalls and EWS + Evacuation</p>

Promotion of Community Disaster Risk Reduction Planning

- Formulation of “Community Disaster Management Plan,” is stipulated in the Disaster Countermeasures Basic Act (amended in 2013).



a workshop for formulating
Community Disaster Management Plan

World Tsunami Awareness Day

**WORLD
TSUNAMI
AWARENESS
DAY**
5 NOVEMBER
2016



“Inamura-no-hi”

- On the 5th of November 1854 in Wakayama Prefecture, a farmer guided his fellow villagers to evacuate to higher ground by setting fire to sheaves of rice, his whole year’s harvest, as a signal of warning, and saved the villagers. He further continued with his efforts to build the village back better than before.

DRR effort continues



April 2016 Kumamoto Earthquake



September 2015
Kinugawa Flood

