Principles on Investment and Financing for Water-related Disaster Risk Reduction

July 4, 2018

Special Parallel Event on Climate Change and Disaster Risk Reduction (DRR)
Session on Water and Disaster Risk Reduction in Asia

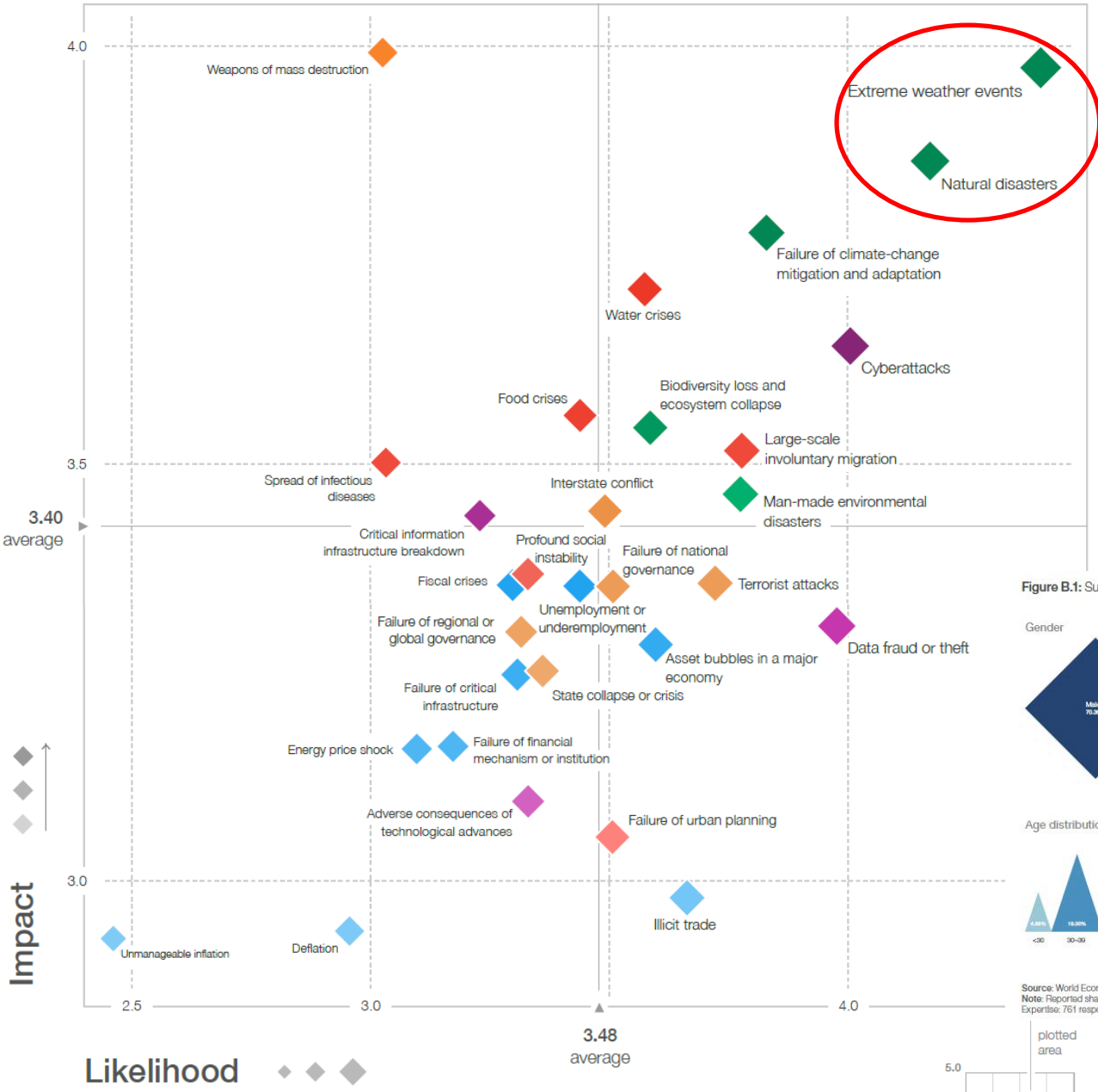
Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR) 2018

High-level Experts and Leaders Panel on Water and Disasters (HELP)

Key Messages of the Principles

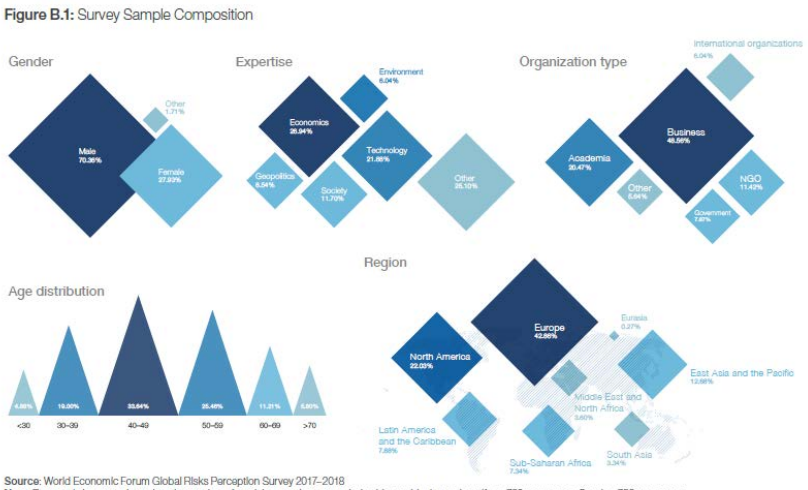
1. Water-related disaster risk reduction is indispensable for socio-economic development.
2. Pre-disaster prevention measures should be prioritized.
3. Governments should improve their fiscal systems and secure sufficient budget.
4. Various funding sources should be mobilized.
5. International community should expand financing for disaster risk reduction.
6. Science and technology should support decision making on better investment.

World Economic Forum Global Risks Perception Survey 2017–2018



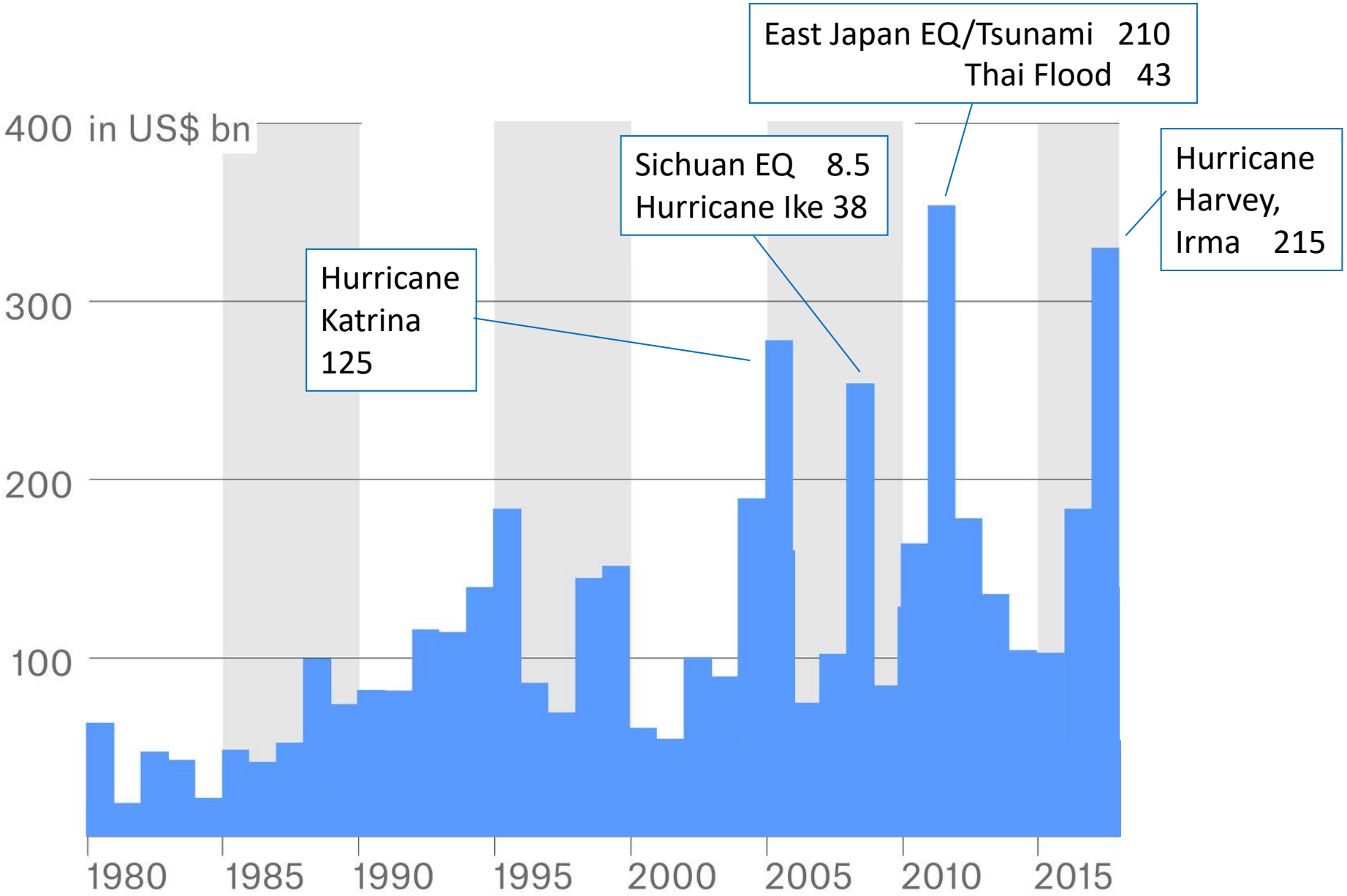
Extreme weather events

Natural Disaster



Source: World Economic Forum (2018) The Global Risks Report 2018

Annual Overall Losses（1980 - 2017）



Source: Munich Re website https://www.munichre.com/topics-online/en/2018/01/2017-year-in-figures#furtherinformation

10 Costliest Events ordered by overall losses（1980 - 2015）

NatCatSERVICE

Munich RE

Loss events worldwide 1980 – 2015

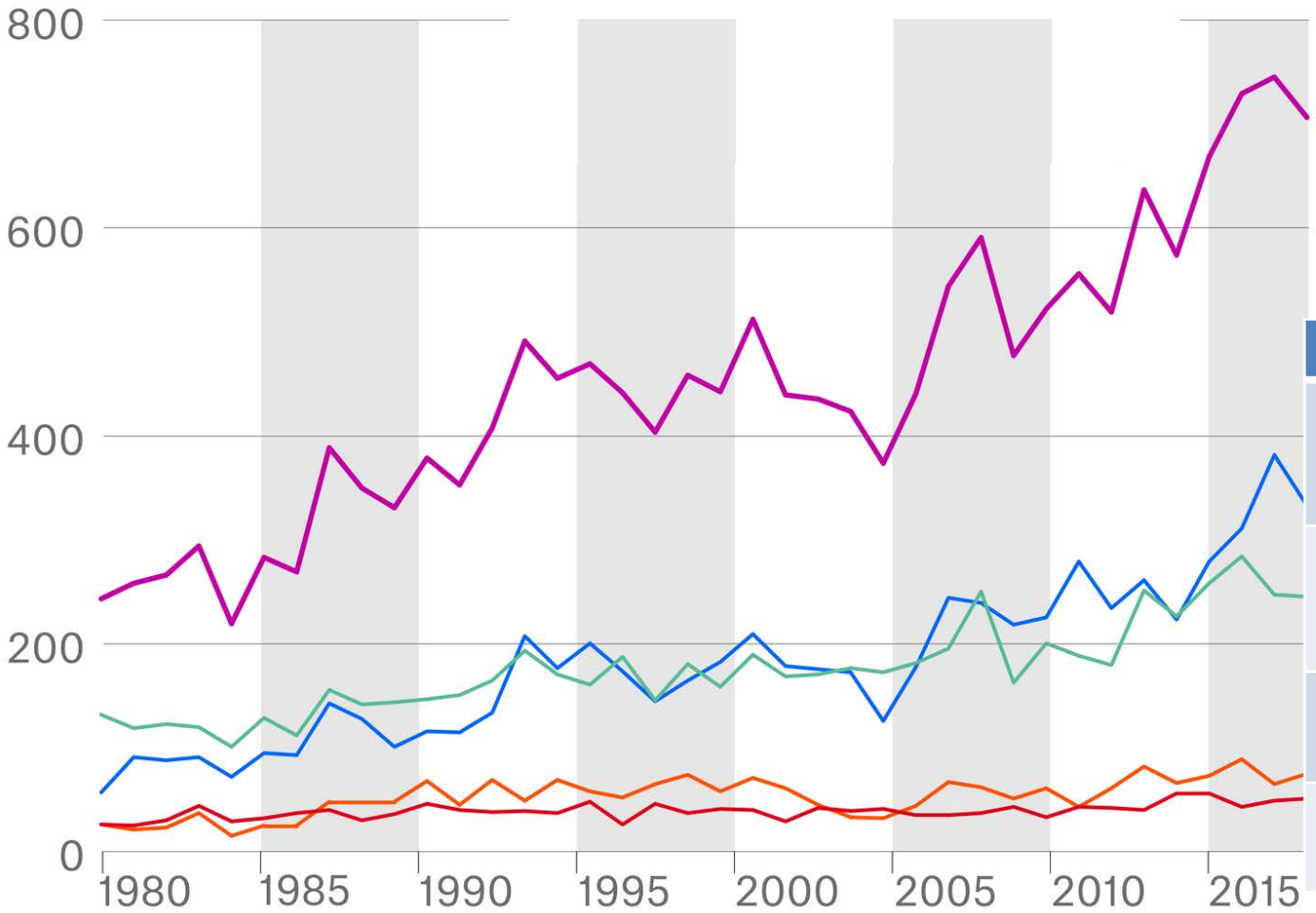
10 costliest events ordered by overall losses

Date	Event	Affected area	Overall losses in US$ m original values	Insured losses in US$ m original values	Fatalities
11.3.2011	Earthquake, tsunami	Japan: Aomori, Chiba, Fukushima, Ibaraki, Iwate, Miyagi, Tochigi, Tokyo, Yamagata	**210,000**	40,000	15,880
25-30.8.2005	Hurricane Katrina, storm surge	United States: LA, MS, AL, FL	**125,000**	60,500	1,720
17.1.1995	Earthquake	Japan: Hyogo, Kobe, Osaka, Kyoto	**100,000**	3,000	6,430
12.5.2008	Earthquake	China: Sichuan, Mianyang, Beichuan, Wenchuan, Shifang, Chengdu, Guangyuan, Ngawa, Ya'an	**85,000**	300	84,000
23-31.10.2012	Hurricane Sandy, storm surge	Bahamas, Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico, United States, Canada	**68,500**	29,500	210
17.1.1994	Earthquake	United States: Northridge, Los Angeles, San Fernando Valley, Ventura	**44,000**	15,300	61
1.8-15.11.2011	Floods, landslides	Thailand: Phichit, Nakhon Sawan, Phra Nakhon Si Ayuttaya, Phthumthani, Nonthaburi, Bangkok	**43,000**	16,000	813
6-14.9.2008	Hurricane Ike	United States, Cuba, Haiti, Dominican Republic, Turks and Caicos Islands, Bahamas	**38,000**	18,500	170
27.2.2010	Earthquake, tsunami	Chile: Concepción, Metropolitana, Rancagua, Talca, Temuco, Valparaiso	**30,000**	8,000	520
23./24./27.10.2004	Earthquake	Japan: Honshu, Niigata, Ojiya, Tokyo, Nagaoka, Yamakoshi	**28,000**	760	46

Source: Munich Re, NatCatSERVICE, 2016

As at: March 2016

The Number of Events（1980 - 2017）

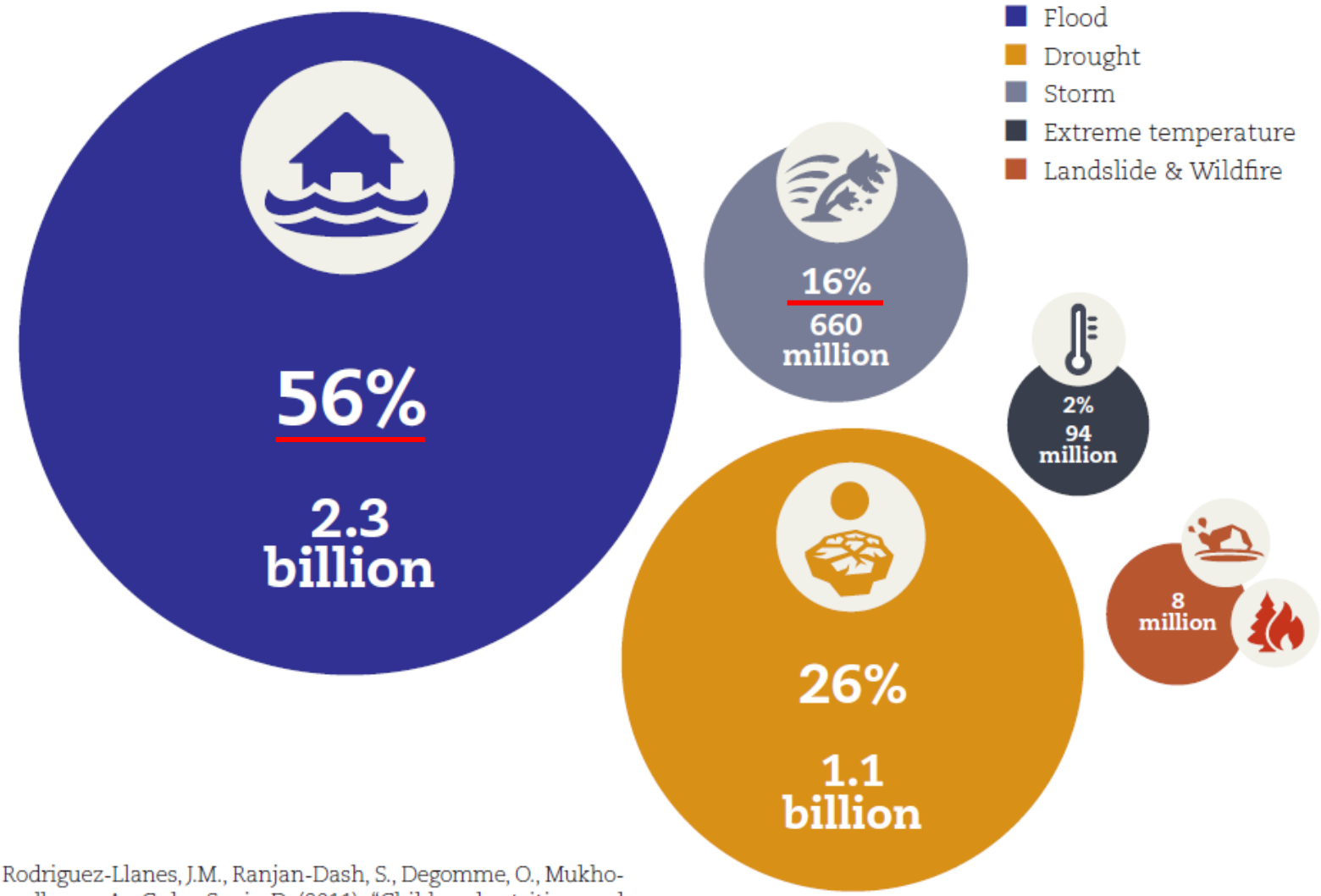


Family	Main Event
Hydrological (47%)	Riverine Flood, Landslide, Coastal Flood, Avalanche
Meteorological (35%)	Heat wave, Cold wave, Lightning, Tornado, Strom Sure
Climatological (11%)	Drought, Glacial Lake Outburst
Geophysical (7%)	Earthquake, Tsunami, Volcanic Activity

Source: Munich Re website https://www.munichre.com/topics-online/en/2018/01/2017-year-in-figures#furtherinformation

Numbers of people affected by weather-related disasters (1995-2015)

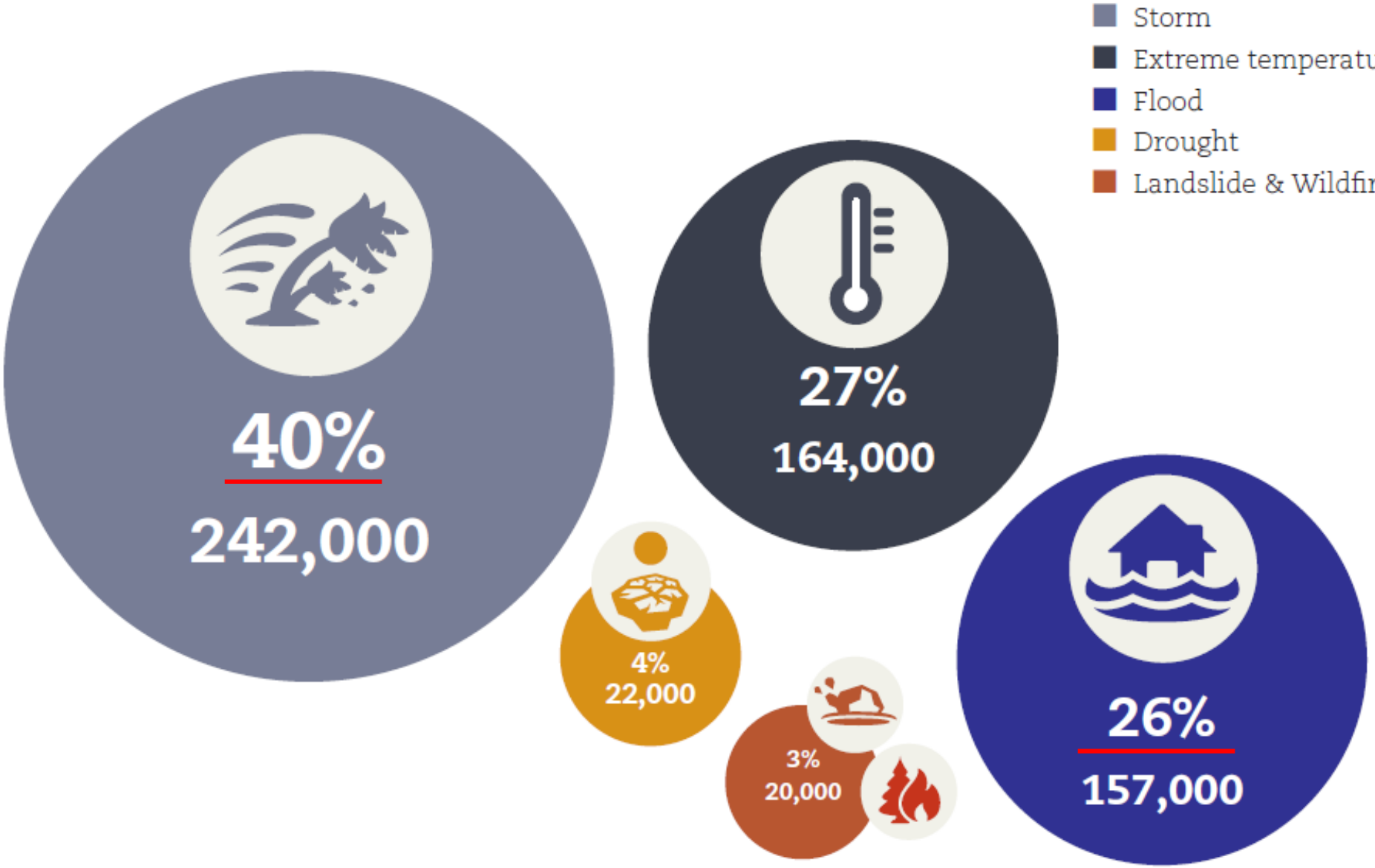
(NB: deaths are excluded from the total affected.)



[3] Rodriguez-Llanes, J.M., Ranjan-Dash, S., Degomme, O., Mukhopadhyay, A., Guha-Sapir, D. (2011). "Child malnutrition and recurrent flooding in rural eastern India: a community-based survey". BMJ Open 2001;1: e000109.

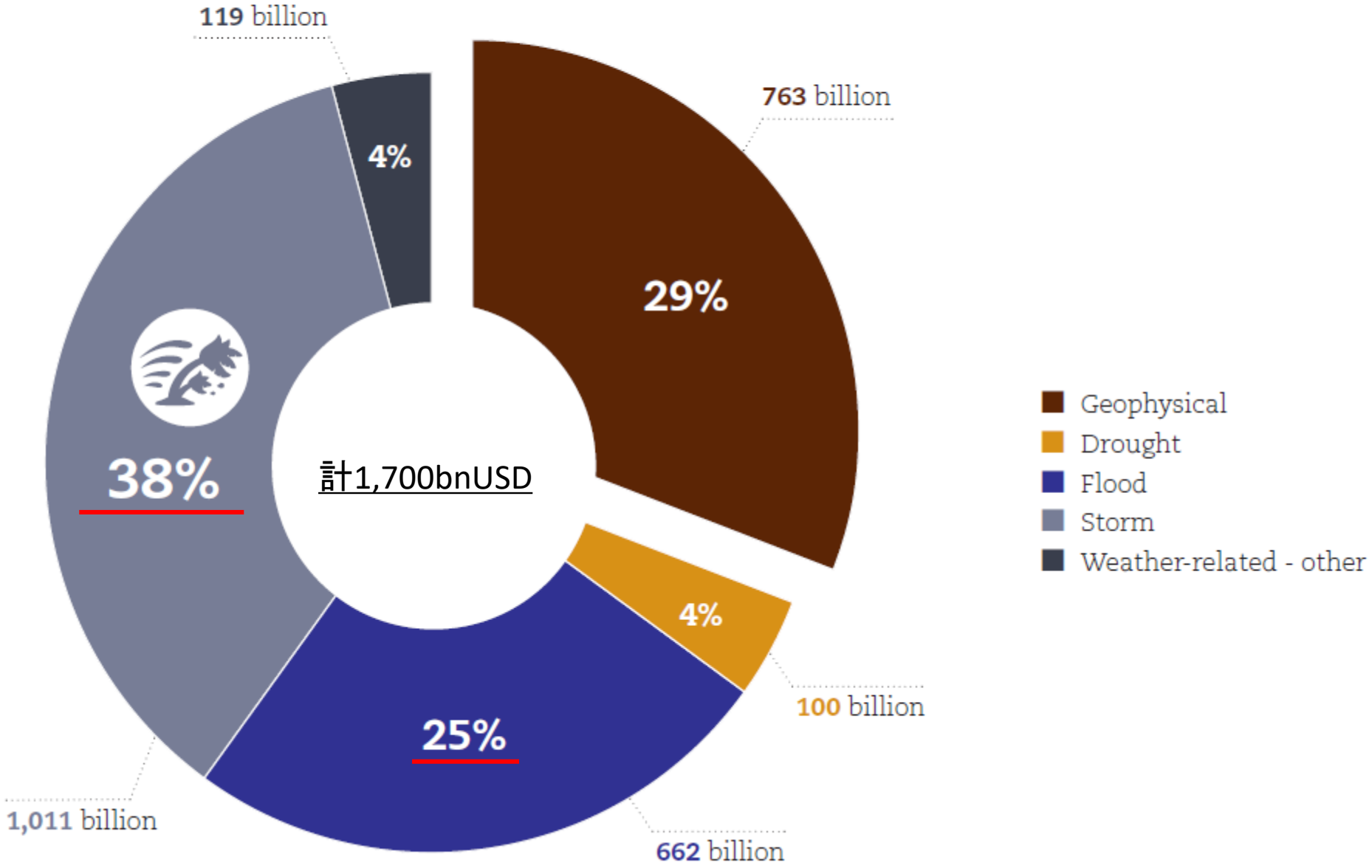
Source: UNISDR (2015) The Human Cost of Weather-related Disasters https://www.unisdr.org/files/46796_cop21weatherdisastersreport2015.pdf

Numbers of people killed by disaster type (1995-2015)



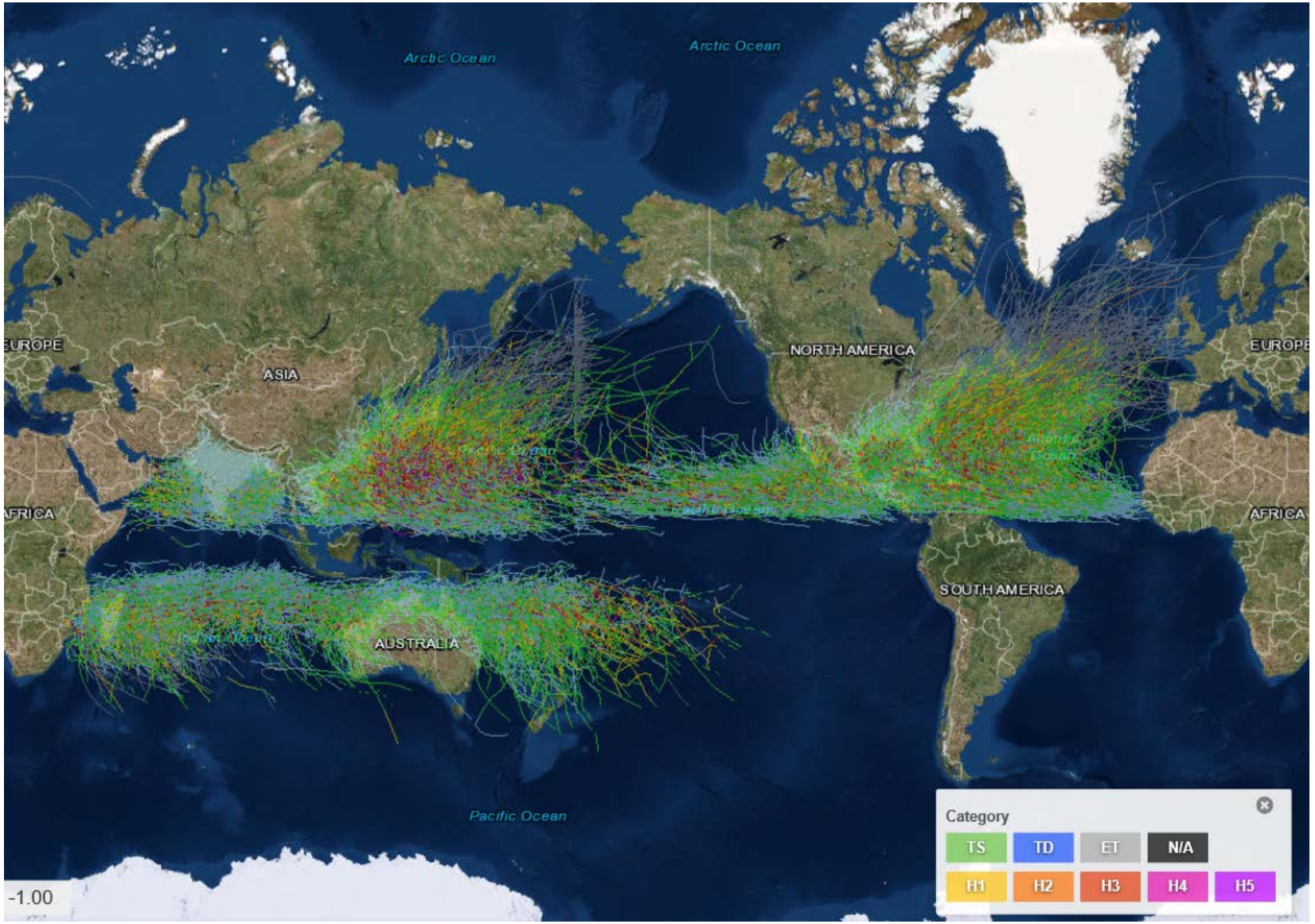
Source: UNISDR (2015) The Human Cost of Weather-related Disasters https://www.unisdr.org/files/46796_cop21weatherdisastersreport2015.pdf

Breakdown of recorded economic damage (US$) by disaster type (1995-2015)



Source: UNISDR (2015) The Human Cost of Weather-related Disasters https://www.unisdr.org/files/46796_cop21weatherdisastersreport2015.pdf

Hurricane/Typhoon/Cyclone Tracks（1851-2017）

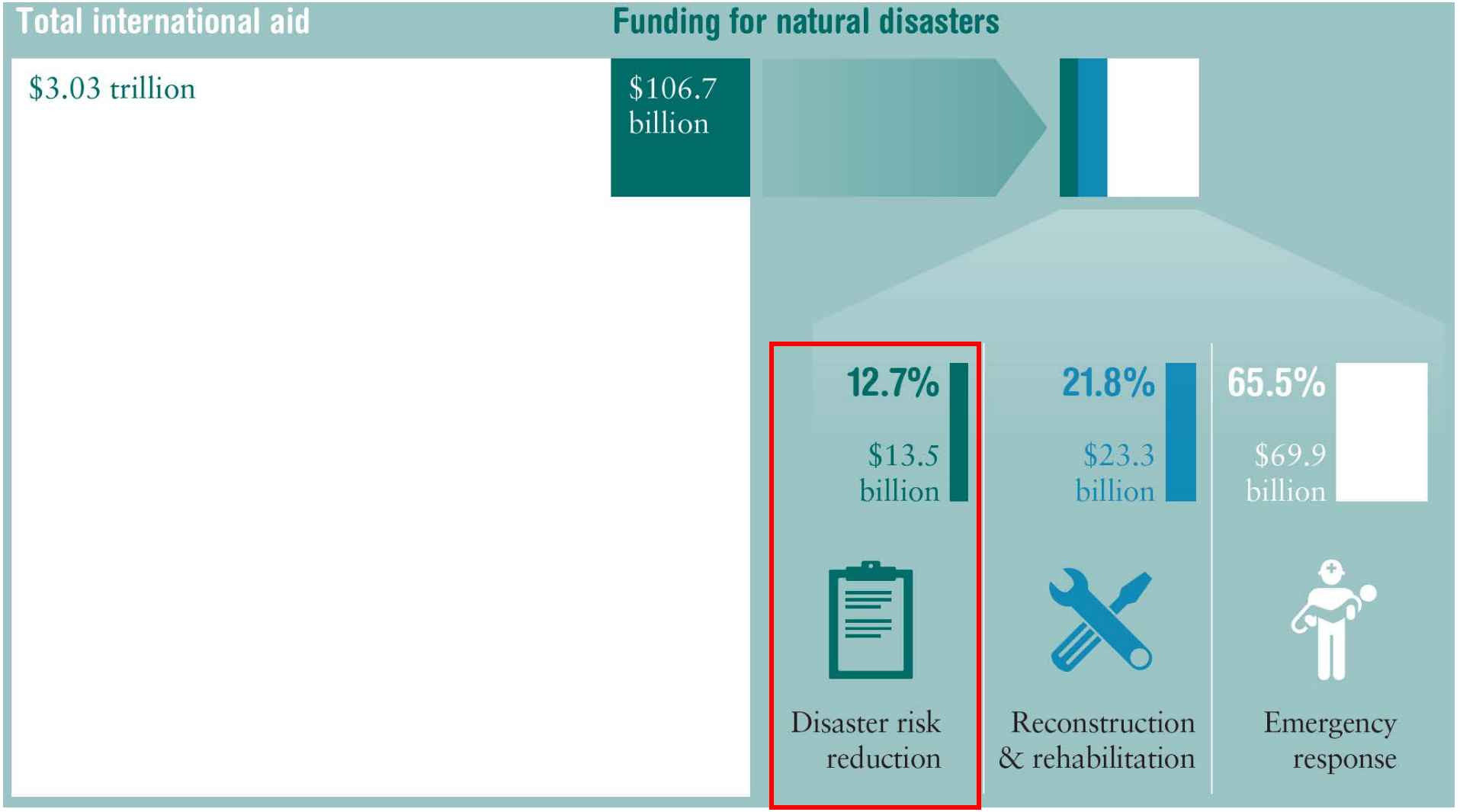


分類 (Simpson scale)	風速 m/s
ﾄﾛﾋﾟｶﾙﾃﾞｨﾌﾟﾚｯｼｮﾝ	- 17
ﾄﾛﾋﾟｶﾙｽﾄｰﾑ	18 - 32
カテゴリー1	33 - 42
カテゴリー2	43 - 49
カテゴリー3	50 - 58
カテゴリー4	58 - 70
カテゴリー5	>70

ET: Extratropical 温帯低気圧

Source: 右記サイトの初期表示　https://coast.noaa.gov/hurricanes/

Small Internatinal Aid for Disaster Financing 1991- 2010



Source: ODI & GFDRR

High-level Experts and Leaders Panel on Water and Disasters (HELP)

Objectives: Assist the international community, governments and stakeholders in mobilizing political will and resources, and take effective measures to address the issues of water and disasters.

Chair: Dr. Han, Seung-soo (Special Envoy of the UN Secretary-General for Disaster Risk Reduction and Water, Former Prime Minister of the Republic of Korea)

Members: France, Indonesia, Japan, Myanmar, Netherlands, South Korea, Thailand, US, ADB, AMCOW, ESCAP, EU, GWP, JICA, NARBO, OECD, UNESCO, UNISDR, WB, WMO, WWC, and Others.

I. Water-related disaster risk reduction is indispensable for socio-economic development.

1. Water-related disasters can be prevented or mitigated by disaster prevention infrastructure, including levees, reservoirs, resilient infrastructure, or green infrastructure.

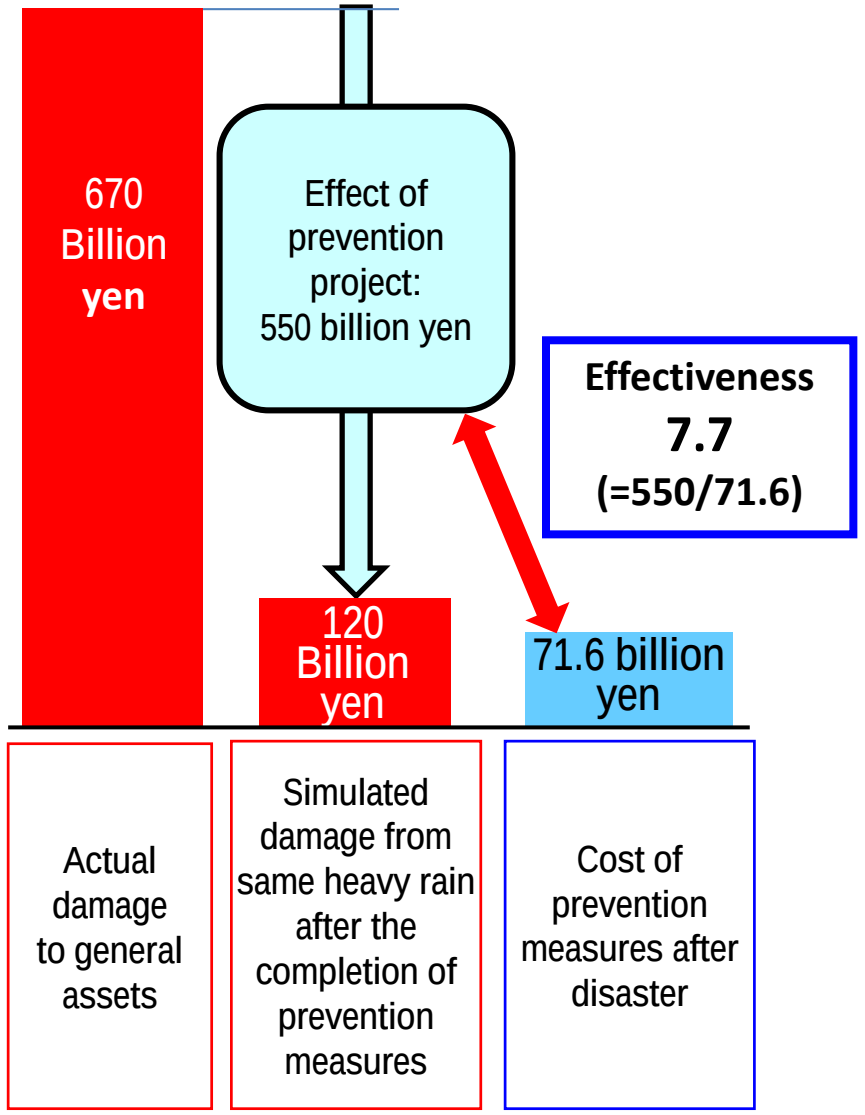
2. Countermeasures implemented in advance against water-related disasters are not a cost, but an investment for the future.

3. Water-related disaster risk reduction is a key component of Integrated Water Resources Management (IWRM), providing multi-faceted benefits, such as efficient water use and enhanced biodiversity.

Effect of Preventive Measures

Tokai Storm Flood (September, 2000)

Example of Countermeasure: Levee Reinforcement



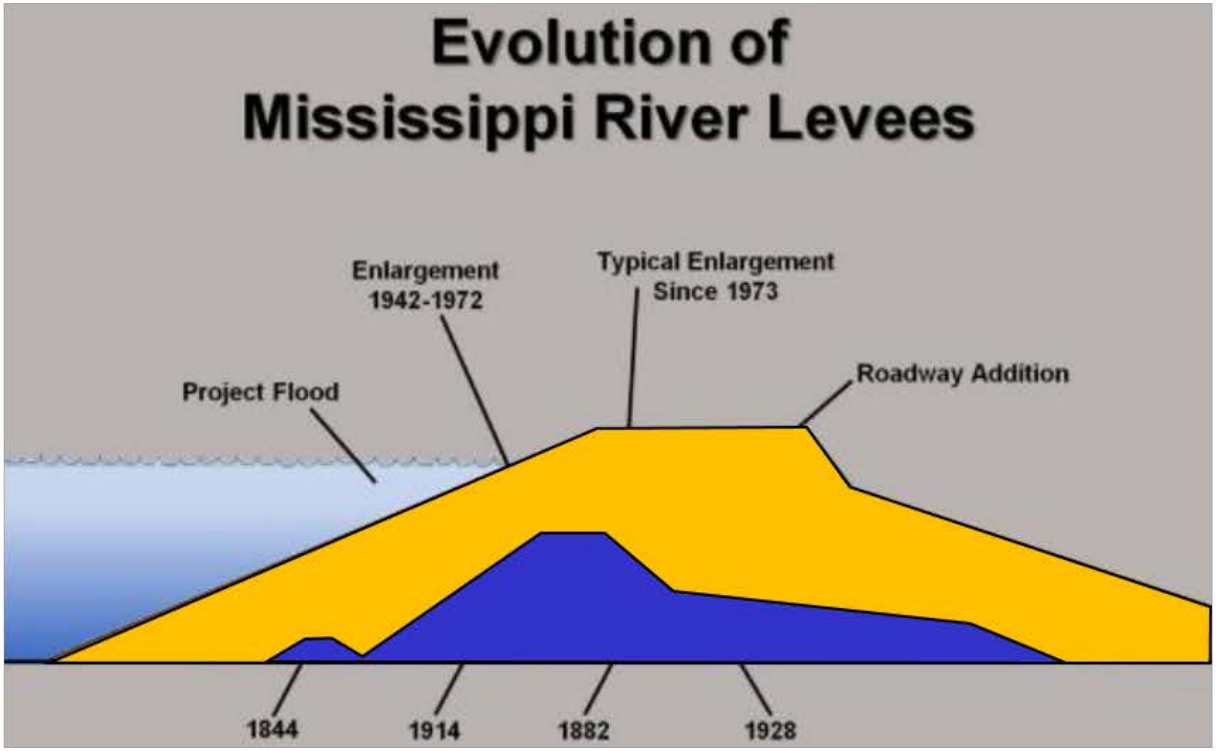
II. Pre-disaster prevention measures should be prioritized.

4. Frequent water-related disasters should be forestalled by preventive structural measures at lower cost than recovery.
5. Devastating damages to society and economy should be prevented, while prioritizing the protection of human lives.
6. "Build Back Better" approach should be incorporated into recovery and reconstruction.
7. Various sectors should support "mainstreaming disaster risk reduction."
8. Climate change is predicted to intensify disaster damages. Investment should be enhanced for adaptation measures.
9. Investment for the maintenance and management of infrastructure should be secured to cope with its aging issues.

Good Example of “Build Back Better”

- Casualty ：約500人
- Inundated area: 70,000 km^2
- Evacuee ：637,000人

- Casualty ：1人
- Inundated area: 26,000 km^2
- Evacuee ：24,500人



Source: USACE HELP 1st

Management of Aging Infrastructure

Ratio of River Facilities that Passed 40 Years in Japan

As the number of aging infrastructure is rapidly increasing, disaster risk is growing.

Problems of Aging Infrastructure

Aging Gate

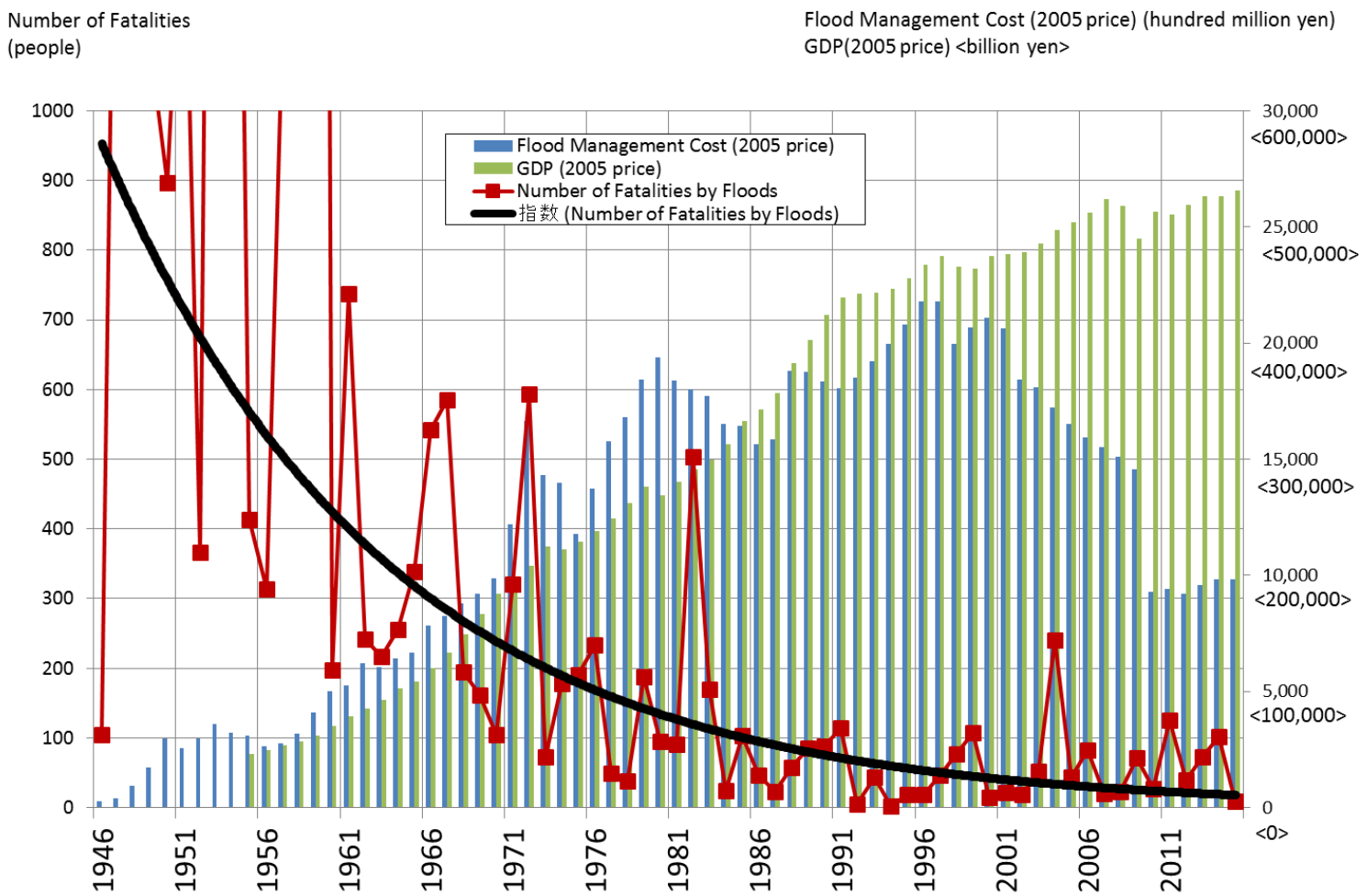
Aging Coastal Levee

III. Governments should improve their fiscal systems and secure sufficient budget.

10. Governments must prepare the legal, budgetary and administrative systems for disaster risk reduction. The central government should assist local governments whose capacities are overwhelmed by disasters.
11. Responsibilities of all stakeholders, including residents, local and central governments, should be defined, empowering local governments and communities.
12. Local and central governments should secure and record budget for pre-disaster risk reduction.
13. Emergency reserve fund can be swiftly disbursed after disasters.

Effect of Flood Management Investment

Fatalities by Floods , GDP, and Flood Management Budget in Japan



Note: Number of fatalities exclude tsunami disasters.

IV. Various funding sources should be mobilized.

14. Mobilization of private fund can support increasing demand for resilient infrastructure. Cooperation with other sectors, such as water resources management and urban planning, helps diversify funding.

15. Incentives for awareness raising and self prevention measures by private sectors should be explored with subsidies and tax exemptions.

16. Flood insurance is effective for the speedy recovery of daily life. However, it does not physically reduce flood risk.

High-Standard Levee Development with Private Sectors

Arakawa River and Shinden districts in Adachi City

Before project

After project

V. International community should expand financing for disaster risk reduction.

17. International cooperation in disaster prevention should be strengthened under the international frameworks. Even a single disaster in one country creates ripple effects to the world through supply chains, migration, etc.

18. Surplus fund in emergency assistance should be utilized for further disaster risk reduction.

VI. Science and technology should support decision making on better investment.

19. Data and knowledge on disaster losses and impacts should be improved to evaluate the effectiveness of investment.

20. Cooperation and alliances among science communities should be enhanced.

Key Messages of the Principles

1. Water-related disaster risk reduction is indispensable for socio-economic development.
2. Pre-disaster prevention measures should be prioritized.
3. Governments should improve their fiscal systems and secure sufficient budget.
4. Various funding sources should be mobilized.
5. International community should expand financing for disaster risk reduction.
6. Science and technology should support decision making on better investment.

Consultations on the Principles

Objectives

- Collect comments on the proposed Principles from various stakeholders
- Formulate the Implementation Plan of the Principles

Organizers

- High-level Experts and Leaders Panel on Water and Disasters
- Global Water Partnership

Participants

Governments, International organizations, Academia, NGOs, Private sectors, etc.

Consultations on the Principles

- Double the investment and financing for water-related disaster risk reduction.
- Shift international assistance from disaster response to preparedness.

	Current		Goal
Emergency Response/ Rehabilitation	90%	50%	10%
Disaster Risk Reduction/ Preparedness	10%	50%	90%

Consultations on the Principles

Consultation Schedule

Year 2018

July 3-6	Asian Ministerial Conference on DRR in Ulaanbaatar
August 26-31	World Water Week in Stockholm
October10	GWP Regional Meeting in Bucharest, Romania
November 4	GWP Regional Meeting in Livingstone, Zambia
November 26-27	12th HELP Meeting in Tokyo, Japan

Year 2019

March	GWP Regional Meeting in Maldonado, Uruguay
Spring	4th UN Special Session on Water and Disasters in NY
	Launch of the Principles & its Implementation Plan

Roadmap for Developing the Principles

Drafting & Discussion **Consultation & Launch** **Monitoring**

3rd UN Session
Jul. 2017

WWF8
Mar. 2018

Water Decade (2018–2028)

WWW
Aug. 2017

HELP11
May 2018

WWW
Aug. 2018

HELP12
Nov. 2018

HELP10
Sep. 2017

Dushanbe HLC
Jun. 2018

GWP S C/E Europe
Oct. 2018

GWP S Amerika
Mar. 2019

APWS3
Dec. 2017

AMCDRR
Jul. 2018

GWP S Africa
Nov. 2018

4th UN Session
2019

Thank you.

High-level Experts and Leaders Panel on Water and Disasters (HELP)
http://www.wateranddisaster.org/

Draft Principles on Investment and Financing
for Water-related Disaster Risk Reduction

by

High-level Experts and Leaders Panel on Water and Disasters (HELP)

Double the investments and financing for water-related disaster risk reduction with a focus on disaster risk reduction/preparedness, so that the proportion of financing in international assistance for disaster risk reduction/preparedness and that for emergency response/rehabilitation will shift from the current 10%:90% to 90%:10%.

- Globally, direct economic losses caused by disasters are significantly increasing, and the number of people affected by disasters is on the rise. The direct damages of disasters alone over the past 10 years amount to about 1.4 trillion US dollars. Water-related disasters account for almost 90% of the world's top 1,000 disasters.
- The importance of increasing investments and financing for disaster risk reduction is now widely recognized in international agreements, such as the Sendai Framework for Disaster Risk Reduction. However, about 90% of the international assistance is directed for emergency response and reconstruction/rehabilitation, while the amount disbursed for disaster prevention and preparedness is limited to only 10%.

I. Water-related disaster risk reduction is indispensable for socio-economic development

1. Water-related disasters caused by extreme water-related events can be prevented or mitigated by developing disaster prevention infrastructure ahead of the disaster events. These measures can include construction of levees and reservoirs, development of resilient infrastructure, utilization of innovative green infrastructure, or issuing timely early warnings.
2. Countermeasures implemented in advance to mitigate water-related disasters are not a cost, but an investment for the socioeconomic development of the future.
3. Water-related disaster risk reduction is a key component of Integrated Water Resources Management (IWRM), and should be promoted through participation of water users and to yield multi-faceted benefits, such as efficient water use and enhanced biodiversity. Unevenly distributed water, both temporally and spatially, can be effectively managed by an integrated systems approach.

II. Ex-ante measures of water-related disaster risk reduction should be prioritized

4. Relatively frequent water-related disasters should be forestalled mainly by implementing preventive structural measures at lower cost than the amount spent for recovery.
5. Countermeasures against large-scale and less frequent water-related disasters should also be implemented in order to avoid devastating damages to the society and economy, while putting the highest priority on protecting human lives.
6. A “Build Back Better” approach should be incorporated into the recovery and reconstruction process so as to improve the resilience of communities and prevent recurrent damages from similar disasters.
7. Various sectors support “mainstreaming disaster risk reduction,” including urban development. Land use management can effectively prevent the increase of runoff discharge and consequently contribute to water-related disaster risk reduction.
8. Investment needs to be enhanced for adaptation measures to climate change, which is projected to increase the frequency and scale of water-related disaster damage.
9. Investment for the maintenance and management of existing infrastructure should be secured to prevent malfunction of facilities and the devastating damages caused by deteriorated infrastructure.

III. Governments should improve their fiscal systems and allocate sufficient budget for water-related disaster risk reduction

10. Governments must prepare the legal, budgetary and administrative systems for water-related disaster risk reduction. The central government should prepare support and financial assistance systems for disaster-hit local governments in case a large-scale disaster exceeds local capacity.
11. It is crucial to define the roles and responsibilities of all stakeholders, including residents, local governments and the central government, and to empower the local governments and communities.
12. Budget for ex-ante disaster risk reduction should be secured at local level as well as at national level, considering the circumstances and frequency of natural disasters. That budget data should be recorded and made traceable.
13. An emergency reserve fund, if secured as a portion of the annual budget, can be swiftly disbursed after disasters in disaster-prone countries.

IV. Various funding sources for water-related risk reduction should be mobilized

14. Mobilization of private funds can support increasing demand for resilient infrastructure. Implementation of countermeasures for water-related disasters in conjunction with other sectors, such as water resources management and urban planning, helps diversify funding sources.
15. Incentives for awareness raising and self-prevention measures by the private sector should be explored, through subsidies and tax exemptions for instance.
16. Flood insurance is effective for the speedy recovery of daily life from disasters. However, it should be noted that the insurance does not physically reduce flood risks.

V. The international community should expand financing for water-related disaster risk reduction

17. International cooperation in disaster prevention should be strengthened under the international frameworks, because disaster damages in a single country have ripple effects to the world, for example through supply chain disruptions. Therefore, the international community should focus more on investments for disaster risk reduction over recovery and reconstruction.
18. Any surplus funds in the pledged assistance of emergency response should be effectively utilized for further disaster risk reduction to build more resilient societies.

VI. Financing for science and technology should be strengthened to support sound investment decisions

19. Data and knowledge on the losses and impacts of water-related disasters should be improved to evaluate the effectiveness of investment and facilitate better investment decisions.
20. Cooperation and alliances among science communities should be enhanced to develop and apply science and technology to disaster risk reduction.