

Bridging the gaps

Innovation and cooperation
for practical disaster risk
reduction



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Tohoku Forum for Creativity
International Workshop on Implementing Practical Disaster Risk Reduction
International Research Institute of Disaster Science (IRIDeS), Tohoku
University, Sendai Japan, 7 November 2014



Why bridge the gaps? Why cooperate?

- **Access to a bigger pool of knowledge and experience**
- **Standardised comparable methods**
- **Clearer mutual responsibilities, stronger commitments**
- **Faster introduction of new methodologies**
- **Reduced confusion and wasted efforts**
- **Lowered costs of implementation through the consent and participation of affected parties**





Many gaps ... we need many bridges

Three fundamental areas of need

- ❑ Bridging between different conceptual frameworks for disaster
- ❑ Bridging between actors in science, policy and practice, and between sectors
- ❑ Bridging between different countries and international perspectives and capacities





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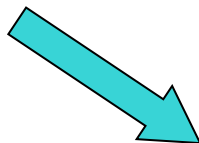


Historical changes in disaster concepts

(1) Pre-science view

Natural hazard

Unpredictable, immensely powerful, little one can do to prepare, Act of God? fatalism, punishment



DISASTER





(2) – Engineering view

Natural hazard

+

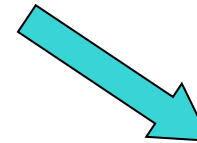
**Exposure and
Vulnerability**

**Understand the science,
do risk assessments,
monitor the hazards**



**Result: Lower risk
and lower impacts**

**Avoid risky situations;
build well; educate the
people; be prepared;
have early warnings
and evacuation**

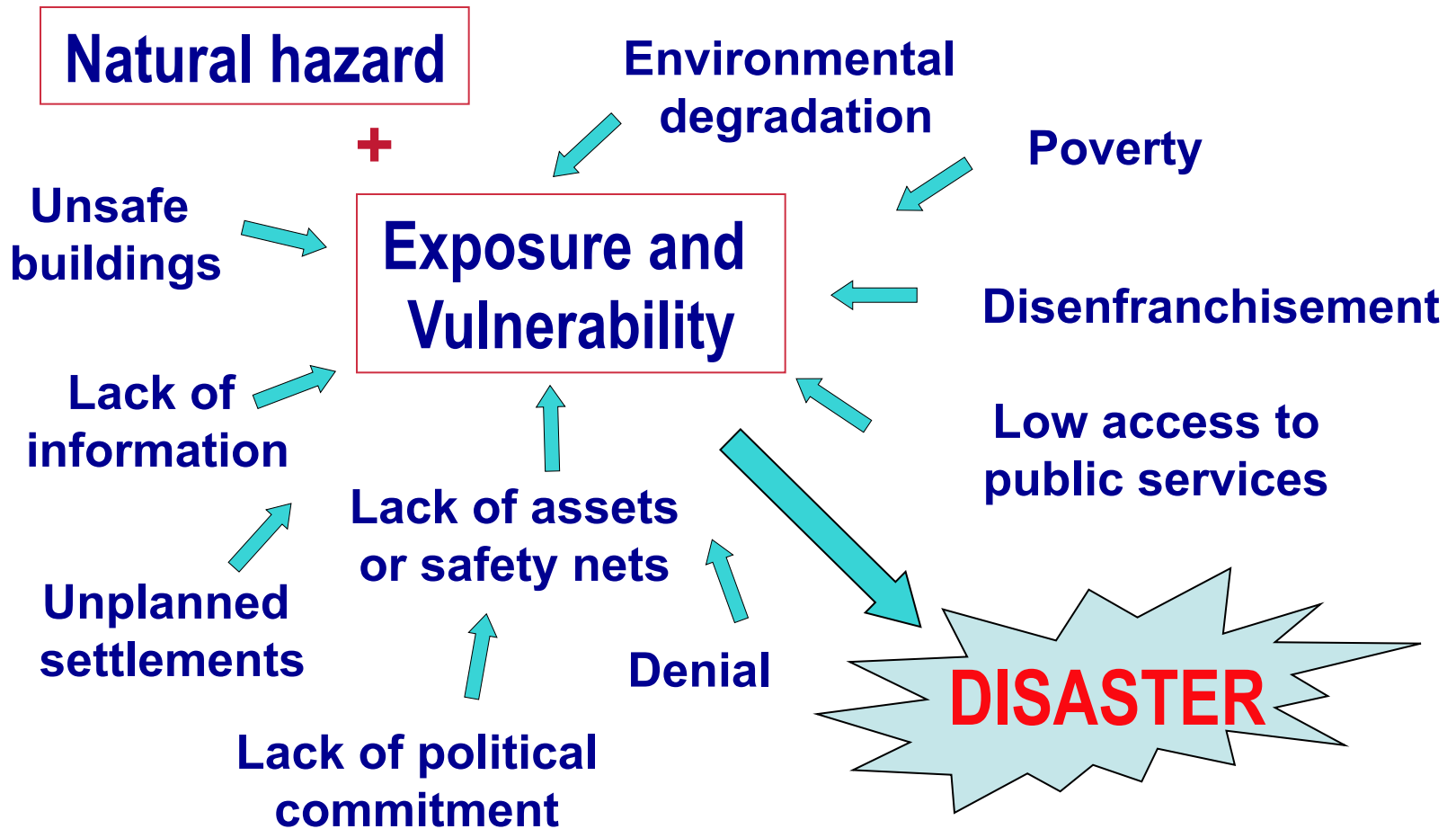


DISASTER





(3) - Social perspective





Two meanings of the term “risk”

1) The probability of a negative outcome

e.g. the % chance of an M8 earthquake occurring within 50 km of Tokyo next year

2) A spatial variable of potential negative consequence

e.g. the density of economic loss potential from landslides across Peru, in say \$/hectare





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Disasters viewed as discrete events, precipitated by a natural hazard

Disasters seen as outcome of system processes, involving human agency as well as hazards

Both are useful, but there is increasing recognition and use of the second meaning





Fences or ambulances?

The predominant perspective on disasters world wide is that of disaster management – being prepared and responding professionally to events.

Event management paradigm

- Humanitarian life-saving concern
- Emergency response skills
- Command and control methods
- Preparedness
- Step toward recovery process
- Key actors: civil defence, military, police, fire service



Ambulance

But another perspective is also needed ...



Namely risk management – the focus on root causes and the systematic reduction of risk factors

Risk management paradigm

- The risk process, socio-economic factors
- Risk management tools
- Integrated systematic approaches
- Long term policies and investments
- Trade-offs and politics critical
- Key actors: science, engineering, economics, government



Fence

In fact, we need both - fences and ambulances!





Another gap - DRR or DRM?

People argue about these – some countries use DRM, others use DRR. Does it matter?

Disaster Risk Reduction (DRR)

This is the policy objective – it is what we want to achieve, to avoid losses in future

Disaster Risk Management (DRM)

This is what you do to achieve the policy objective – the programme of necessary actions on disaster risk

Both are important – you cannot have one without the other





The components of the “disaster cycle”



The disaster cycle tries to link the key concepts on disaster action

But



Does the disaster cycle make sense?

No! It mixes up two different tasks!

1 Responding to and recovering from disaster events

This is done only for the specific locations and time frames of the events.



2 Reducing disaster risks including preparedness

This must be done everywhere and continually, and not just following events.



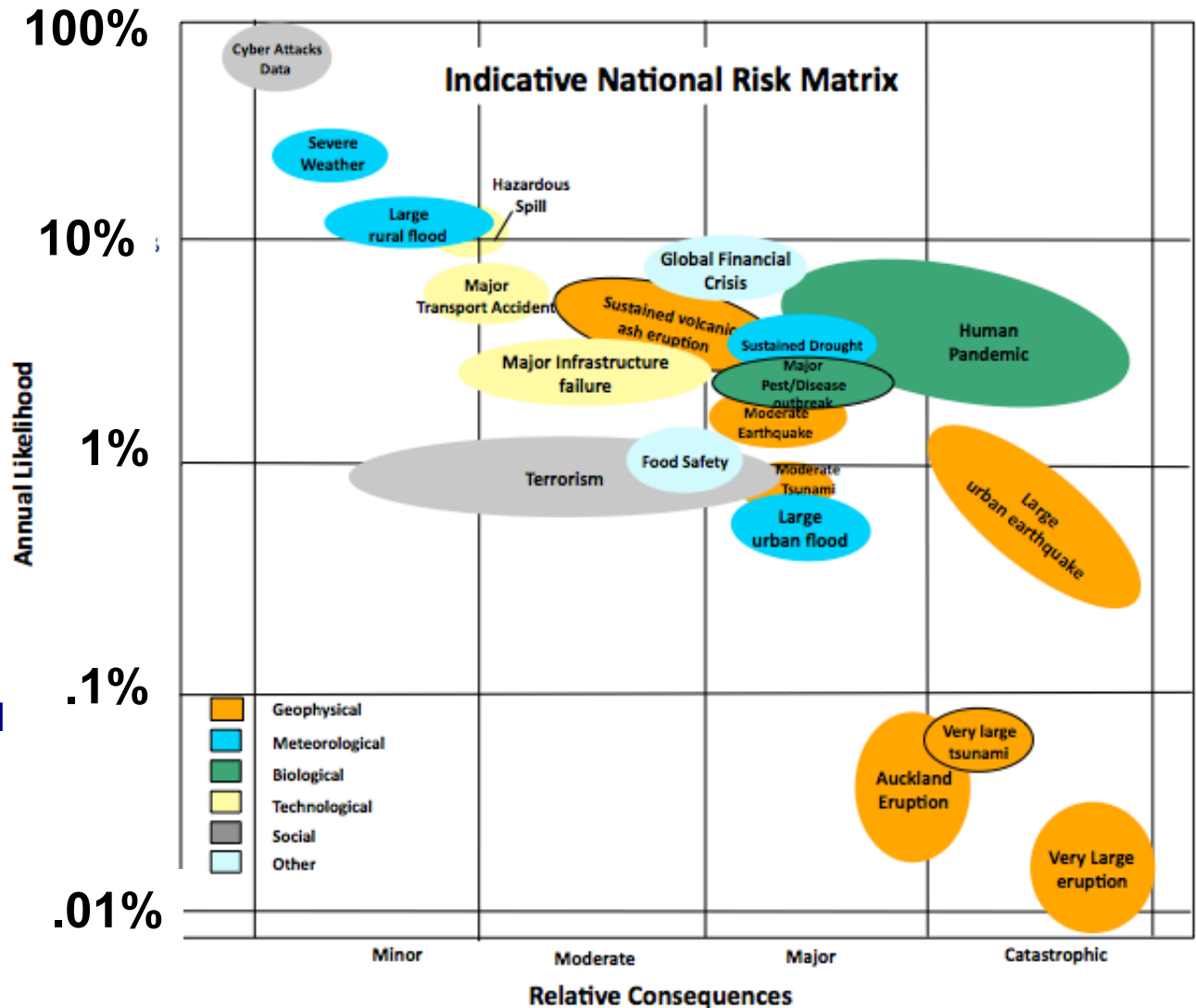
Disaster risk reduction requires ongoing policy and action and is not part of the disaster response lifecycle.



Natural hazards? Or national security?

Multi-risk national risk matrix

New Zealand's National Security System, May 2011



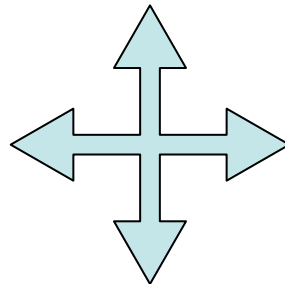
New Zealand National Security System May 2011 <http://www.dpmc.govt.nz/node/930>





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Bridges for the science sector itself

- DRR relies on a very wide range of established science
- By itself, “Disaster Risk Science” is an immature field
- Science linkages, integration and modelling are critical
- Interdisciplinary and cross-sector interaction needed
- Significant differences between natural and social sciences

Natural sciences

Universal laws

Experimental repeatability

Standardised variables

Mechanised data collection

Large data archives

Social sciences

Limited universality

Context and value dependent

Diverse definitions of variables

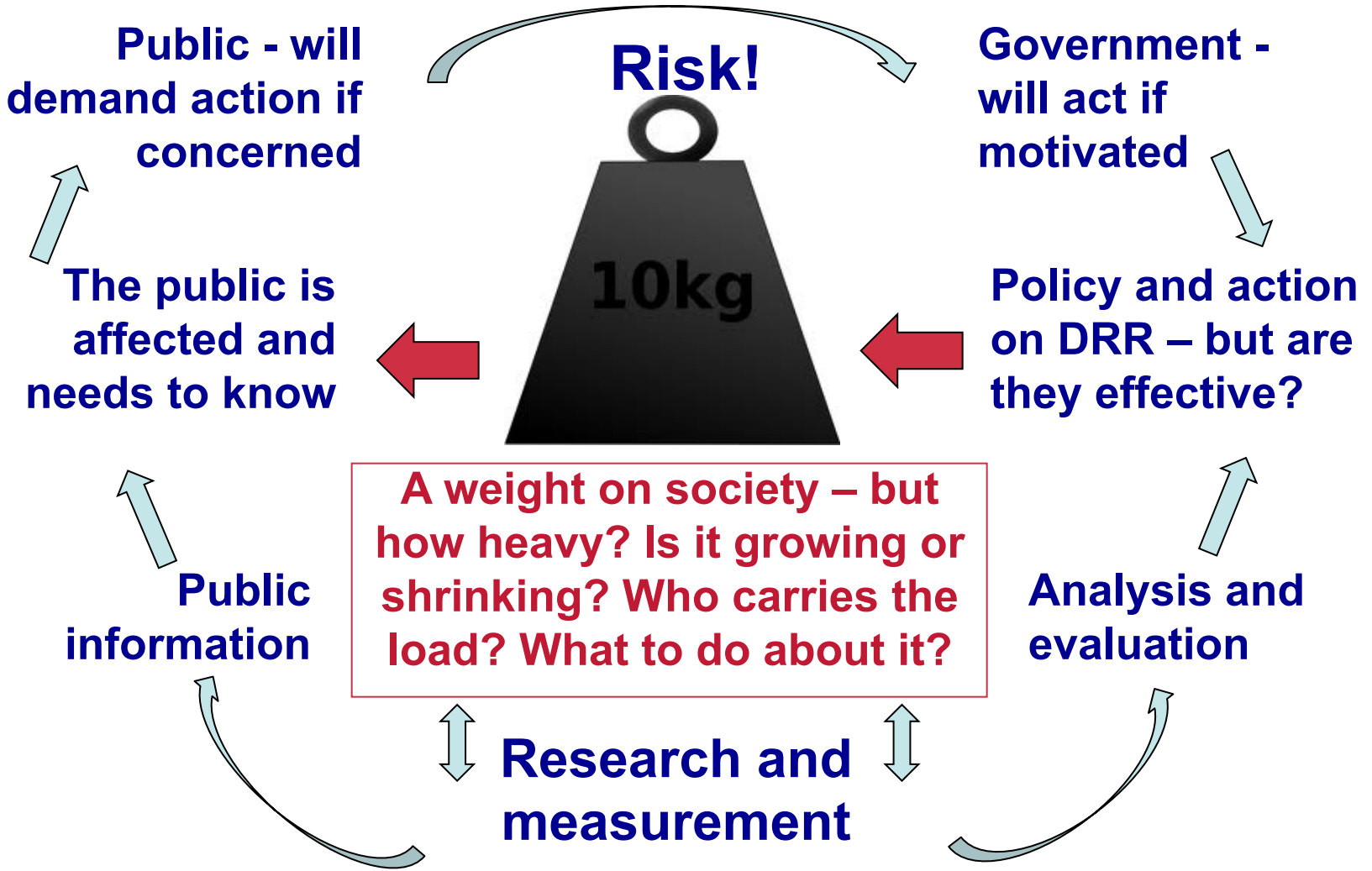
Mostly manual data collection

Limited data archives

*E.g., consider variables “**temperature**” and “**vulnerability**”*



Scientific information and data needs – motivating and evaluating public policy:





What makes policymakers pay attention to disaster risk science?

National experience of hazards and disasters

Public awareness & pressure; strong accountability mechanisms

Availability of specific cost-benefit evidence; and tradition of evidence-based policymaking

Active scientific and professional bodies, institutional mechanisms and intermediaries*

Recent disaster events – the big motivator!

Main constraints on use of science

Corruption, vocal self-interest groups, poor information; poor communication; weak institutions; lack of resources and expertise; fatalistic non-scientific attitudes

*** Intermediaries – bridge builders:** teachers, science communicators, journalists, extension workers, etc





National bridging mechanisms

Government cross-sectoral mechanisms

- Whole-of-government policies
- Annual budget processes
- Coordination roles of key ministries (Treasury, Department of Prime Minister, etc)
- Legislative tools, like Japan's Disaster White Paper
- National Platform on Disaster Risk Reduction

Note: Specific issues (like risk reduction) need strong departmental sponsors





Japanese experience on use of S&T

Long and costly history of natural hazards and disasters

High scientific and engineering capabilities

Successive advances undertaken after major disasters

Flood management, early warning systems, tsunami defences, seismic engineering, public education, and legislation

Disaster Countermeasures Basic Act, 1961

Enacted after >5000 died and heavy damage throughout Japan in 1959 Ise Bay Typhoon

Comprehensive approach

Budgetary allocation

Annual “White Paper” (Bosai Hakusho) that covers events, policies and evaluation

Annual review by parliament



This is a powerful tool for disaster risk reduction!





The gap in the application of S&T

Lonely scientist: “Why don’t they make use of the great knowledge we have here?”

... partial understanding of the risk process, often neglecting social and political elements

... technical language and concepts difficult to translate

... weak linkages to affected users/clients/communities

Busy manager: “Why don’t they give me good methods that I can really use?”

... lack of technical knowledge and lack of understanding of risk and its management

... low frequency events easy to ignore; economic payoffs unclear

... competition for the time and priorities of policy maker





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How to close the gap?

- **Promote better understanding of risk process**
- **Work on language and communication**
- **Build mechanisms for mutual engagement**
- **Develop underpinning institutional arrangements**





Scientific bridging organisations

Organisations that proactively link science production and application (like IRIDeS)

- Sometimes called “boundary organisations”
- Durable sponsorship and funding can be a problem
- Problem of internal conflicts of culture (e.g. academic publications vs useful applications)
- Potential competition with sponsor organisations
- Important to have strong feedback from those who benefit

Examples

International Research Institute for Climate and Society, NY

Global Fire Monitoring Center (GFMC), Freiburg

Asian Disaster Research Centre (ADRC), Kobe

Public Works Research Institute, Japan





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UN and other international institutions



**Elegant
bridging of
the gaps
between
countries?**





UN and other international institutions



.... or just
talking, going
around and
around,
getting
nowhere??





Why international leadership and action is needed

- Hazards span borders (e.g. typhoons, floods)
- International impacts (trade, insurance)
- Data exchange for EWS and risk management
- Common standards and terminology
- Solidarity with developing countries
- Better results by sharing knowledge and experience



Prince William and Prince Naruhito, World Water Forum, Istanbul, 2009

International action is built on national action!





International science cooperation examples of major benefits

Real-time exchange of global weather data,
coordinated by World Meteorological Organization (WMO)



Scientific consensus reports on climate change,
by Intergovernmental Panel on Climate Change (IPCC)



Global monitoring of food production & scarcity,
coordinated by Food and Agricultural Organization (FAO)



International research programmes, e.g. World
Climate Research Programme (WCRP), many others in
geophysics, . Integrated Research on Disaster Risk (IRDR),
International Human Dimensions Programme (IHDP),



***Note: almost all the activities are carried out in
countries, by national organisations and experts***





UNESCAP Expert Group on Statistics and Disasters

Innovation!

Joint effort of disasters and statistics offices

Bridging the gap between two fields

Mandate

Upgrade basis of disaster statistics for national and international programmes.
Report to ESCAP bodies.
Aim for results by 2016.



First EG Meeting, IRIDeS, Sendai, 27-29 Oct 2014

Wide membership

Armenia, Azerbaijan, Bhutan, Fiji, Indonesia, Iran, Japan, Mongolia, Myanmar, New Zealand, Philippines, Korea, Sri Lanka, Vanuatu, plus support from UN and others

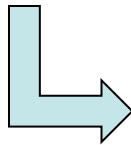




International policy making process



- ★ High stakes – trade, security, environment, etc
- ★ Governments are the actors and negotiators
- ★ Decisions mostly by consent
- ★ Secretariats play key supporting role

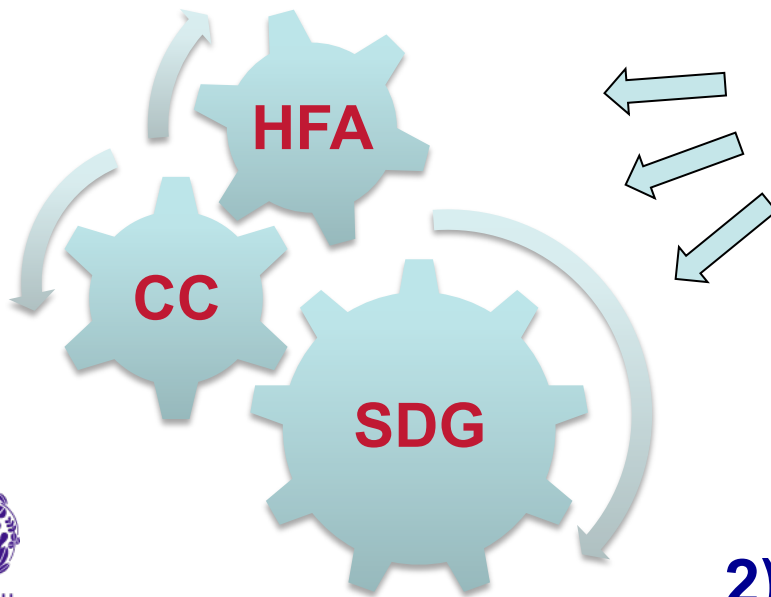


Outcome: International policies to guide and support national action on matters of common concern



Key interlinked processes for DRR

- ❑ Hyogo Framework for Action
- ❑ Framework Convention on Climate Change
- ❑ Sustainable Development Goals



Inputs and
lobbying on risk
reduction

The triple win!

- Disaster risk reduction:
- 1) cuts disaster losses;
 - 2) supports adaptation to CC; and
 - 3) improves development outcomes!



The Hyogo Framework for Action 2005-2015: *Building the resilience of nations and communities to disasters*

Agreed by 168 governments at the World Conference on Disaster Reduction, Kobe, Hyogo, Japan, 18 – 22 January, 2005

**Seeks to achieve a
“substantial reduction in losses”**



- ❑ Disaster reduction as part of sustainable development.
- ❑ Strengthen institutions (especially in communities) to build resilience.
- ❑ Build risk reduction into emergency management and recovery.

***For more information:
www.unisdr.org***





Main elements of the Hyogo Framework

Priorities for action

- 1) Disaster risk reduction as a priority with strong institutional basis for action.
- 2) Identify, assess and monitor disaster risks and enhance early warning.
- 3) Knowledge, innovation, education for culture of safety and resilience.
- 4) Reduce the underlying risk factors.
- 5) Strengthen disaster preparedness for effective response.

Implementation and follow-up

- ❑ Primary role of the State; supporting roles for international and regional organisations, ISDR secretariat.
- ❑ Monitoring and reporting, and indicators of progress in risk reduction.
- ❑ Resources needs.





Progress on the HFA and reducing risks

- Growing recognition of disaster risks and action by public, NGOs, communities, cities, businesses
- Some Governments making good progress, actively building their institutions
- Focus is still on preparedness, weak on underlying causes of risk in land use, environment, social policy
- Growing linkages with climate change: disaster risk reduction is now recognised a key part of the UNFCCC action.
- Developing countries still highly at risk, and lacking in capacities.





The WCDRR; new post-2015 framework

- ★ UN-sponsored World Conference on Disaster Risk Reduction (WCDRR), Sendai, 14-18 March 2015
- ★ Key aims: Review progress on the HFA; Agree on an updated framework for next decade 2015-2025; Share information and stimulate action
- ★ A big event – many heads of state and ministers, and thousands of participants, journalists, scientists, government staff
- ★ Preparatory process over 2013-2014 for Governments to debate and develop draft of a new agreement (Prof. Ono has participated)





What happens at the WCDRR

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- ★ UN agencies, NGOs and other groups run parallel technical sessions, e.g. on education and DRR, early warning systems.



Major international meetings like this focus the minds of Governments and other participants and are highly influential in setting future agendas





The new post-2015 framework

- ★ UN General Assembly has called for “a concise, focused, forward-looking and action-oriented outcome document”
- ★ The “Zero draft” was released on 21 October – 18 pages, its general approach is similar to that of the Hyogo Framework
- ★ Science and data issues appear to be well addressed
- ★ Five global numerical targets are proposed on: mortality; people affected; economic loss; protection of health and education facilities; and number of national strategies
- ★ But no numerical details have been provided yet – and there will be great methodological challenges to address
- ★ Appears to tackle the weak progress on HFA Priority for Action 4 (on core sources of risk) through indirect means – a strengthened focus on understanding risk generating processes, and more explicit monitoring and accountability

A work-in-progress until 18/3/15!





Conclusions

- Bridge building is an important task for disaster risk reduction
- Bridging organisations have a special role to play, both within countries and between countries
- International bridging is critical for standards setting and global advances
- May the little IRIDeS “bridge” grow and prosper!



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