



UNDERSTANDING RISK  
GLOBAL FORUM 2024

TRADITION • INNOVATION • RESILIENCE

# Breaking the Silos: Synergizing Disaster Risk Management and Climate Adaptation

## Chairs:

Philip Ward – VU Amsterdam and Deltares

Annegien Tijssen, Deltares

Sakiko Kanbara, Kobe City College of Nursing

Deltares

IWI Institute for  
Environmental Studies | VU



岐阜大学  
GIFU UNIVERSITY

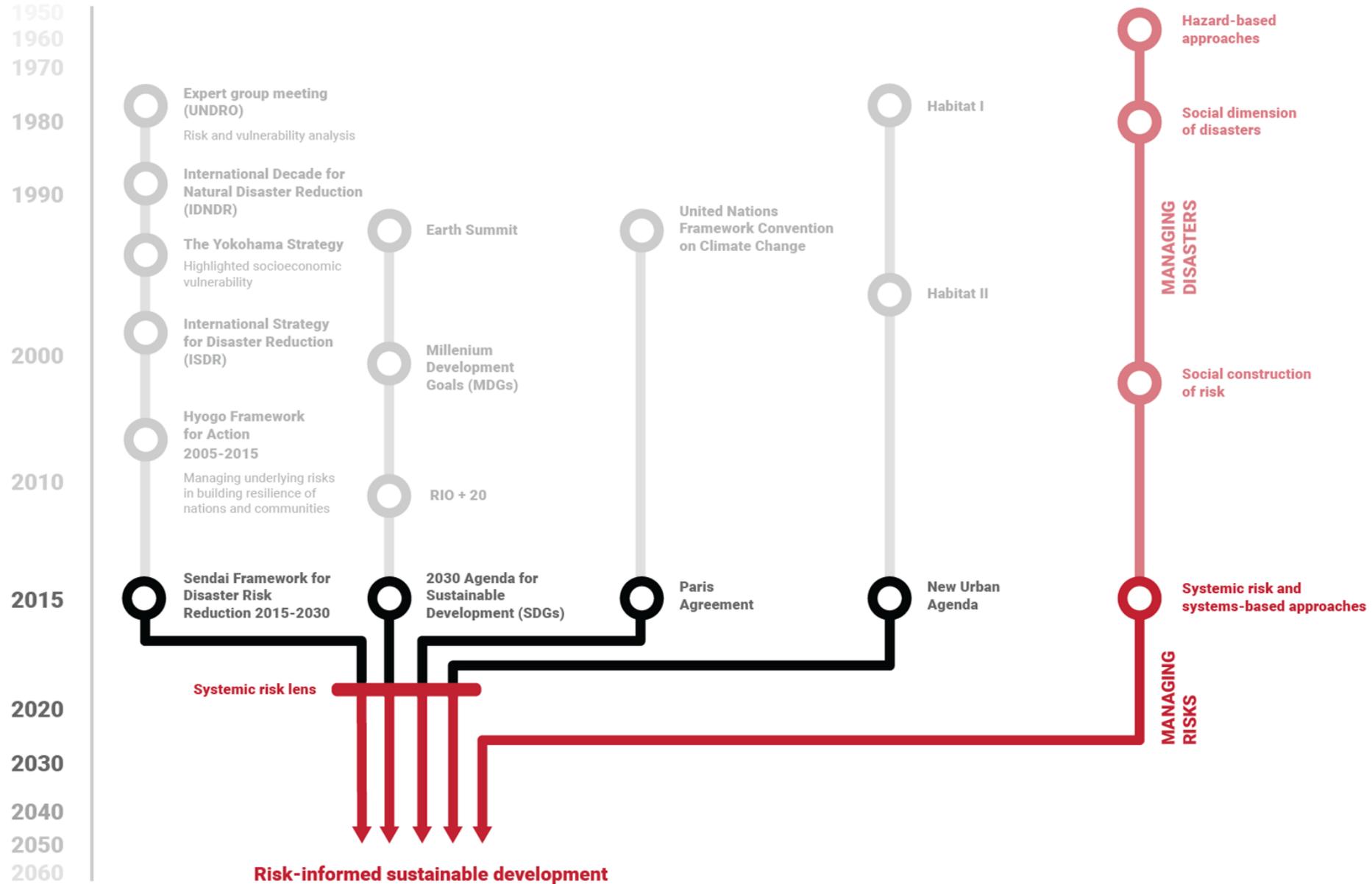
Research Center for  
Advanced Science and Technology  
The University of Tokyo

Risklayer

510 + An initiative of  
the Netherlands  
Red Cross

myriad.eu  
Reducing risks together

# 2015 was a big year...



# Key findings – science-policy



# Past events in this series

- 10<sup>th</sup> World Water Forum (May 2024, Bali)
- 8<sup>th</sup> European Civil Protection Forum (June 2024, Brussels)
- 3<sup>rd</sup> Conference on Natural Hazards and Risk in a Changing World (June 2024, Amsterdam)



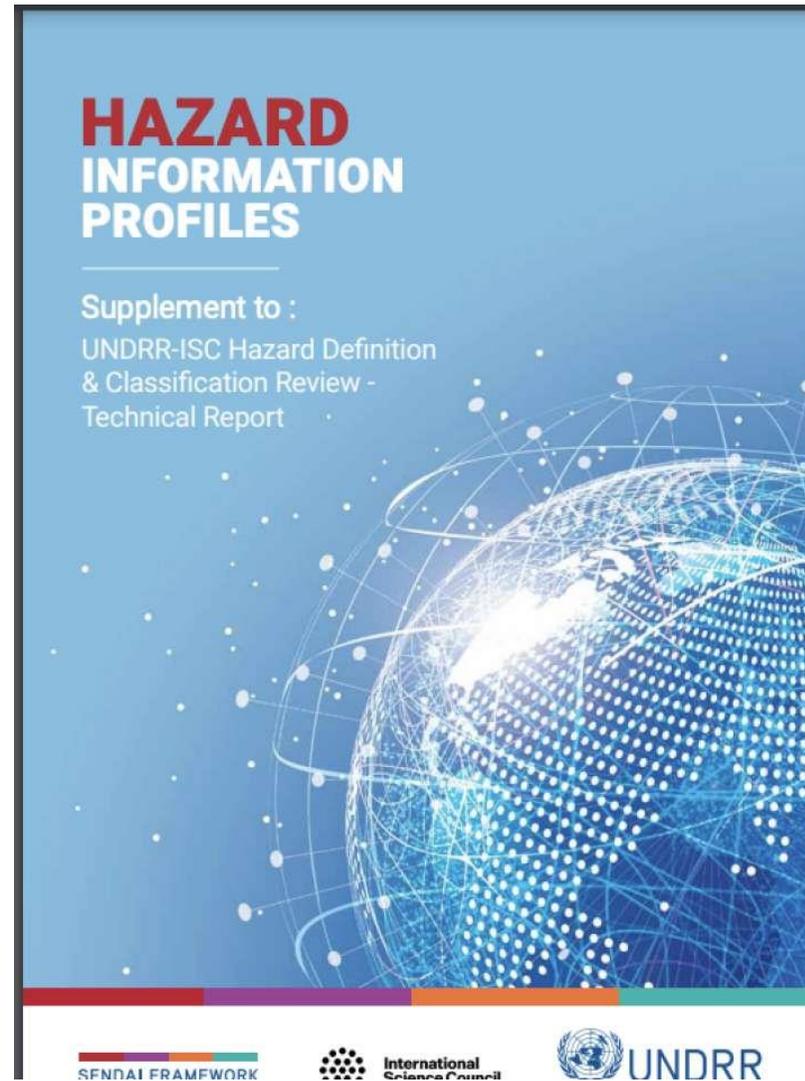
# Some key reflections from past events



- Need to show utility to decision-makers
- Need for (even more) participatory involvement
- System dynamics
- Vulnerability gap
- Science communication



# Key findings – Terminology matters



# Objective

- To share good practices, tools, and approaches that can be used for creating synergy between disaster risk management (DRM), climate change adaptation (CCA), and sustainable development.
- In doing so, we aim to bridge (not break) the silos between these policy domains

# Short overview

- ***Part 1: Setting the scene***
  - Keynote speakers
  - Interactive discussions
- ***Part 2: Marketplace***
  - 2 rounds
  - Lightning talks
  - Physical marketplaces
- ***Part 3: Enhancing uptake***
  - Open space group discussions
  - Plenary feedback and reflections

# Agenda

Time	Agenda Item	Presenter(s)
<b>Part 1: Setting the scene</b>		
09:00-09:15	Welcome & Opening Remarks	Philip Ward
09:15-09:35	Keynote presentation Title: The importance of linking global agendas on Disaster Risk Management (DRM) and Climate Change Adaptation (CCA)	Prof. Rajib Shaw (Keio University)
09:35-09:55	Keynote presentation Title: Health Aspects and Disaster Nursing for Bridging CCA-DRM from Japanese Experience	Prof. Sakiko Kanbara (Kobe City College of Nursing)
09:55-10:15	Keynote presentation Title: Ensuring local voices and community perspectives are heard	Marijke Panis (Red Cross 510)
10:15-11:00	Panel discussion	Moderator: Annegien Tijssen
11:00-11:30	Coffee break	
<b>Part 2: Marketplace</b>		
11:30-11:35	Introduction to the marketplace – round 1	Timothy Tiggeloven
11:35-12:00	Lightning talks by marketplace hosts	Moderator: Timothy Tiggeloven
12:00-13:00	Marketplace round A Stall A1: Machicare Stall A2: CLIMADA Stall A3: Impact based Forecasting Portal Stall A4: Hotel Resilient Stall A5: EPIC Rapid Assessment Methodology Stall A6: Flood and Health tool Stall A7: RA2CE	Takahiro Ando Evelyn Mülhofer Marijke Panis James Daniell Annegien Tijssen Nishchal Sardjoe Natalia Leon Barrios
13:00-14:00	Lunch break	

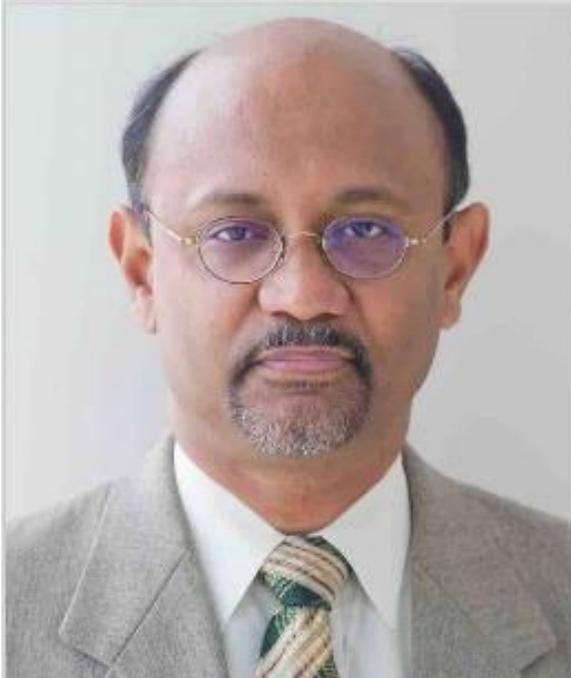
# Agenda

Time	Agenda Item	Presenter(s)
14:00-14:05	Introduction to the marketplace – round 2	Natalia Leon Barrios
14:05-14:30	Lightning talks by marketplace hosts	Moderator: Natalia Leon Barrios
14:30-15:30	Marketplace round B Stall B1: MYRIAD-EU Stall B2: HIPS Stall B3: National Government Tools Japan Stall B4: Micro Geodata for DRR Stall B5: Decisions for the Decade Stall B6: Flood Resilient Landscapes Stall B7: FloodAdapt Stall B8: RISE: Resilient Indonesian Slums Envisioned	Timothy Tiggeloven Virginia Murray Maki Koyama Yuki Akiyama Madhab Uprety Annegien Tijssen Tiaravanni Hermawan Nishchal Sjar DOE
15:30-16:00	Afternoon break	
<b>Part 3: Enhancing uptake</b>		
16:00-16:10	Introduction to session	Annegien Tijssen
16:10-16:55	Breakout discussions	Moderator: Annegien Tijssen
16:55-17:15	Plenary feedback	Moderator: Annegien Tijssen
17:15-17:30	Wrap-up <ul style="list-style-type: none"> <li>Closing remarks</li> </ul>	Reflections by Loretta Hieber Girardet (Chief of UNDRR's Risk Knowledge, Monitoring and Capacity-Development Branch)

# Code of conduct (adapted from EGU)

- Atmosphere of open discussion
  - Avoid jargon
  - If anything is unclear, don't be afraid to speak up
- Respectful behaviour
  - Professional and respectful conduct expected.
  - Bullying, harassment, intimidation, and discrimination of any kind not tolerated.
- Recording and screenshots
  - Only allowed if presenter explicitly authorises it
  - Never post images or videos of content online without authors' explicit permission.

# Keynote presentations



**Prof. Rajib Shaw**  
**Keio University**

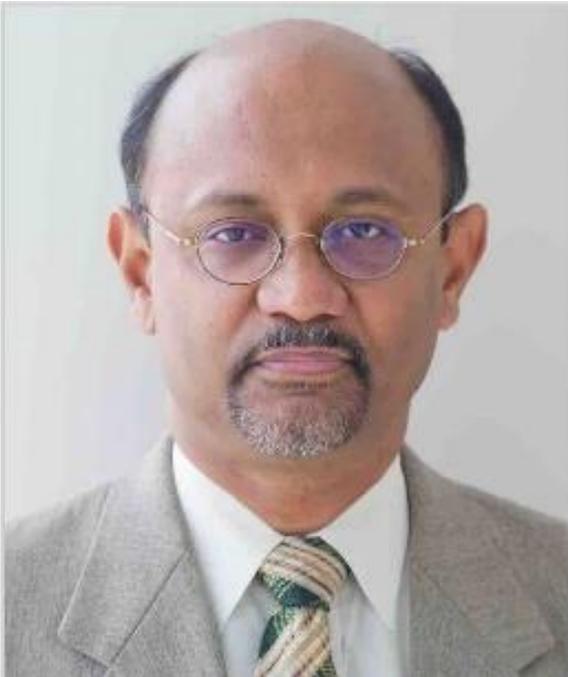


**Prof. Sakiko Kanbara**  
**Kobe City College of  
Nursing**



**Marijke Panis**  
**Red Cross 510**

# Keynote presentation: Prof. Rajib Shaw Keio University



*The importance of linking global agendas on Disaster Risk Management (DRM) and Climate Change Adaptation (CCA)*

# The importance of linking global agendas on Disaster Risk Management (DRM) and Climate Change Adaptation (CCA)

Rajib Shaw

Professor, Keio University, Japan

Distinguished Professor, Indian Institute of Technology (IIT), Guwahati, India

Distinguished Professor, IDMR, Sichuan University, China

Visiting Professor, Indian Institute of Science, India

Visiting Professor, Indian Institute of Management, Kozikode, India

Guest Professor, Beijing Normal University, China

Adjunct Professor, Indian Institute of Technology (IIT), Hyderabad, India

Co-Chair, United Nations Asia Pacific Science Technology Advisory Group (AP-STAG)

Coordinating Lead Author (CLA), Asia Chapter, IPCC 6<sup>th</sup> Assessment Report

Co-Founder, Resilience Innovation Knowledge Academy (RIKA) <https://rikaindia.com>

Co-Founder, RIKA Institute <https://www.rikainstitute.org>

Chair of Board, SEEDS Asia <https://www.seedsasia.org>

Chair of Board, CWS Japan <https://www.cwsjapan.org>

Website: [www.rajibshaw.org](http://www.rajibshaw.org) [www.indiajapanlab.org](http://www.indiajapanlab.org) AND [www.rikaindia.com](http://www.rikaindia.com)

Facebook: <https://www.facebook.com/rajibshawofficialpage/>

LinkedIn: <https://www.linkedin.com/in/rajib-shaw-6243791a5/>

Twitter: @rajibshaw

Academia

Science Policy interface

Start-up and innovation

NPO / NGO

# Context 1: Complex Global risk landscape (WEF)

Figure 1: The Evolving Risks Landscape, 2007-2020



Environmental risk

2020

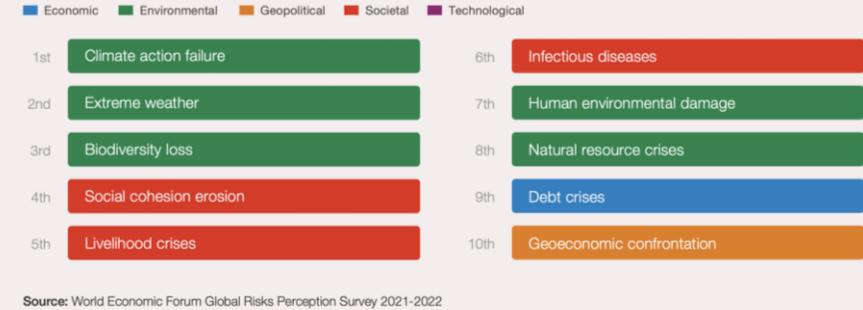
Infectious disease / Digital divide

2021



FIGURE 1.3

“Identify the most severe risks on a global scale over the next 10 years”



2022

Cyber security

2023

Energy crisis

FIGURE D

Currently manifesting risks

\*Please rank the top 5 currently manifesting risks in order of how severe you believe their impact will be on a global level in 2023\*



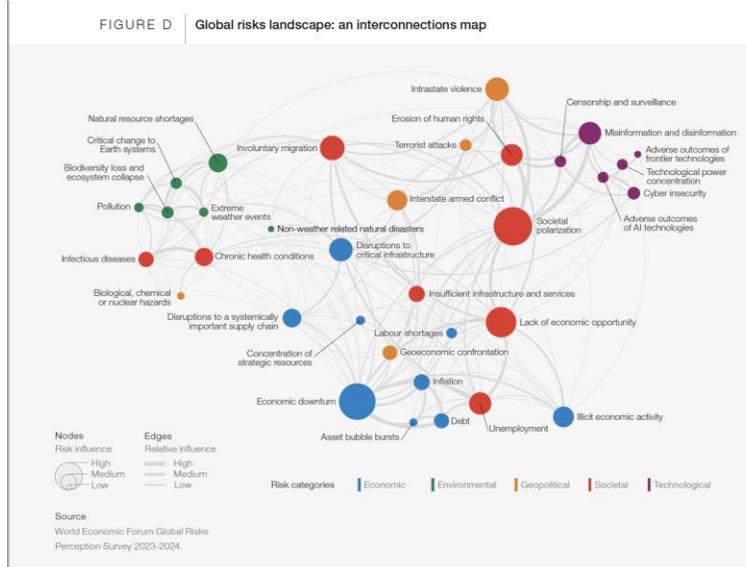
Global risks ranked by severity over the short and long term

\*Please estimate the likely impact (severity) of the following risks over a 2-year and 10-year period\*



# Global Risk Report 2024

- Environmental risk(disaster, climate change, Biodiversity loss) remains top
- From 2020 to 2024 reports, complex risk landscape with New risks
- *Infectious disease*
- *Digital divide*
- Digital power concentration
- Cyber security
- *Energy crisis*
- Food crisis and pricing
- *Mis and dis-information*
- *Societal polarization*
- Need for inclusive risk reduction
- Need for All Hazards Approach



## Global Risks Report 2024

### Top 10 risks



"Please estimate the likely impact (severity) of the following risks over a 2-year and 10-year period."

#### 2 years



#### 10 years



Risk categories: Economic, Environmental, Geopolitical, Societal, Technological

Source: World Economic Forum Global Risks Perception Survey 2023-2024.

# Context 2: Global and local

2015 to 2030 time horizon

**The Paris climate agreement: key points**  
The historic pact, approved by 195 countries, will take effect from 2020

**Temperatures 2100**  
• Keep warming "well below 2 degrees Celsius". Continue all efforts to limit the rise in temperatures to 1.5 degrees Celsius.

**Finance 2020-2025**  
• Rich countries must provide 100 billion dollars from 2020, as a "floor".  
• Amount to be updated by 2025.

**Differentiation**  
• Developed countries must continue to "take the lead" in the reduction of greenhouse gases.  
• Developing nations are encouraged to "enhance their efforts" and move over time to cuts.

**Emissions objectives 2050**  
• Aim for greenhouse gases emissions to peak "as soon as possible".  
• From 2050: rapid reductions to achieve a balance between emissions from human activity and the amount that can be captured by "sinks".

**Burden-sharing**  
• Developed countries must provide financial resources to help developing countries.  
• Other countries are invited to provide support on a voluntary basis.

**Review mechanism 2023**  
• A review every five years. First world review: 2023.  
• Each review will inform countries in "updating and enhancing" their pledges.

**Climate damage**  
• Vulnerable countries have won recognition of the need for "averting, minimising and addressing" losses suffered due to climate change.

**SFDRR**

Understanding disaster risk □ Strengthening risk governance □ Investing in risk reduction □ Build Back Better □

① Reduce mortality □ ② Reduce affected people □ ③ Reduce economic loss □ ④ Reduce damage to critical infrastructure □ ⑤ Enhance countries with DRR strategies □ ⑥ Enhance international cooperation □ ⑦ Multi-hazard EWS □

**SDGs**

## Inter-relationship of Global Framework

	SDG (UN 2015b)	SFDRR (UN 2015a)	Paris Agreement (UN 2015c)
Sustainable development		20	16
Disaster risk	12		1
Climate change	20	15	

	SDG	SFDRR	Paris Agreement
Use of term "LOCAL"	10	48	9
Number of Pages	35	25	32
Context	Authorities, communities, culture, materials and planning (Goal 6, 8, 11 and 13)	Government, community, knowledge, priority, DRR strategy	Communities and knowledge (in terms of Adaptation)

2015: A landmark year  
2020: The pandemic year  
2023: An evaluation year

- All of society approach (*inclusive*)
- All of State Institutions involvement
- *Local* implementation

The term LOCAL is used  
10 times in SDGs,  
48 times in SFDRR and  
9 times in Paris Agreement



### POLICY BRIEF

July 2016  
Number 34

#### SDGs, DRR and CCA: Potential for Strengthening Inter-linkages

##### Key Messages

- The world has arrived at a crucial turning point with the inception of three major global frameworks dedicated to sustainable development (SD), disaster risk reduction (DRR) and climate change adaptation (CCA). A coordinated response is now needed from all relevant stakeholders to maximise implementation on the ground.
- At the global level, while SD, DRR and CCA interlinkages are acknowledged, DRR is weakly linked to the Paris Agreement. Linking CCA with DRR by strengthening national and local level adaptation planning and implementation would assist here, and less and damage can provide ample opportunities for this to take place.
- At the national level, the economic aspect is key to sustainable development in many countries—DRR and CCA can assist in economic development objectives of most developing and least developed countries without compromising environmental integrity or increasing disaster risk.
- At the local level, strong convergence of SD, DRR and CCA calls for greater collaboration among relevant stakeholders with adaptive management—not just in drafting broad plans and policies but also actual implementation, monitoring and evaluation, via collaboration among local governments, local experts, non-government organisations and business sectors.
- This policy brief identifies approaches that could help achieve better synergies in implementation of these frameworks on the ground via programmatic integration, collaboration, capacity and innovation. Focal Points at national and sub-national levels could mainstream and monitor progress of indicators and targets in the three frameworks, as well as ensure convergence of these frameworks takes place on the ground.



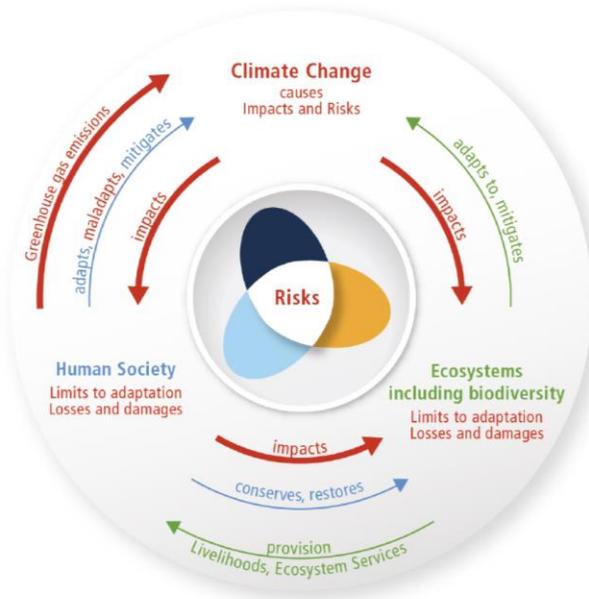
# Context 3: CCA and DRR synergy

## Climate Change Adaptation and Disaster Risk Reduction

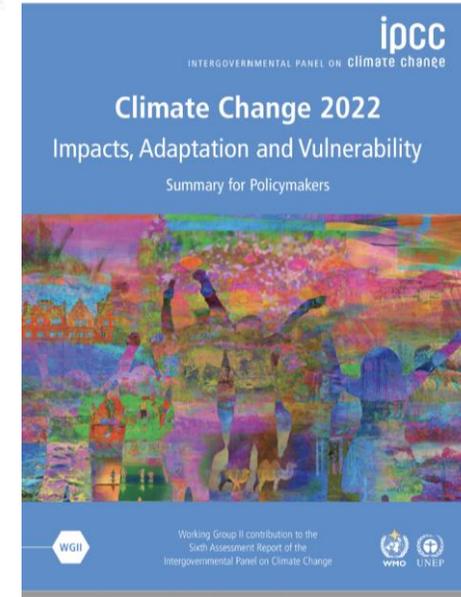
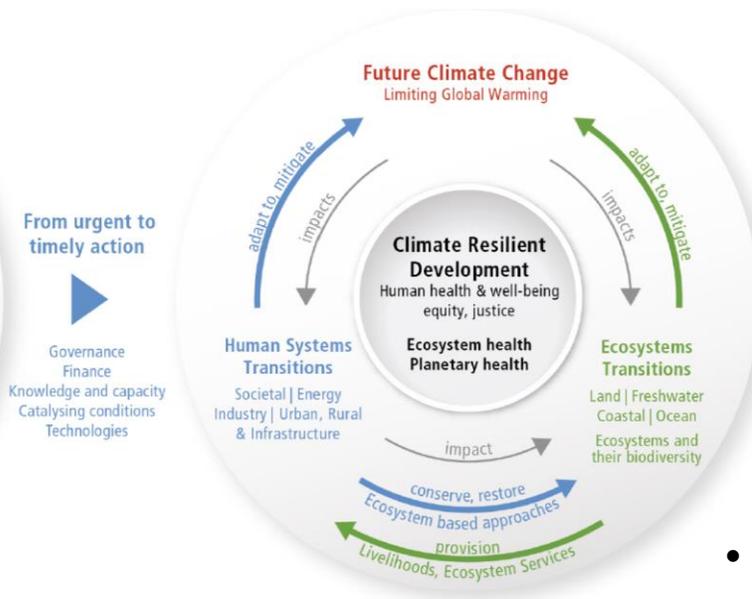


From climate risk to climate resilient development: climate, ecosystems (including biodiversity) and human society as coupled systems

(a) Main interactions and trends



(b) Options to reduce climate



The risk propeller shows that risk emerges from the overlap of:

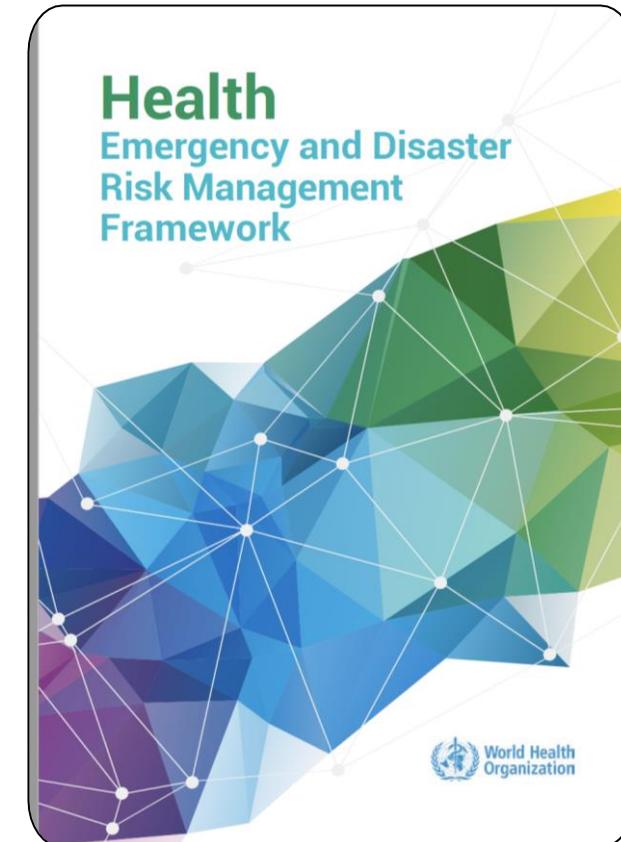
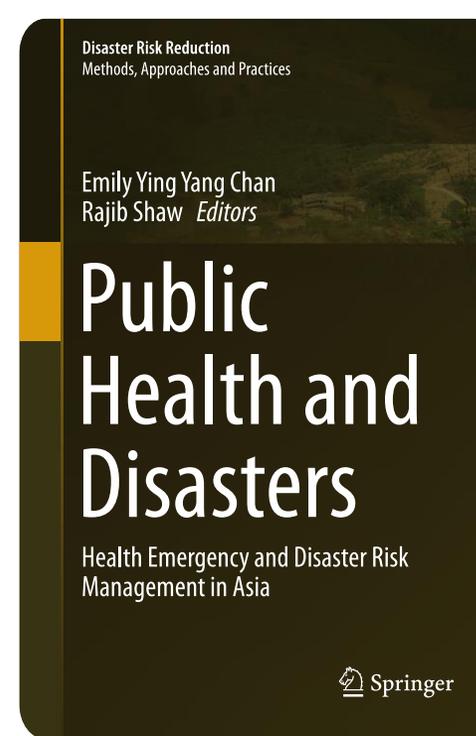


- Complex, cascading and compounded risk
- Climatic and non climatic stress
- Addressing systemic risk
- Adaptive governance
- Emerging technologies

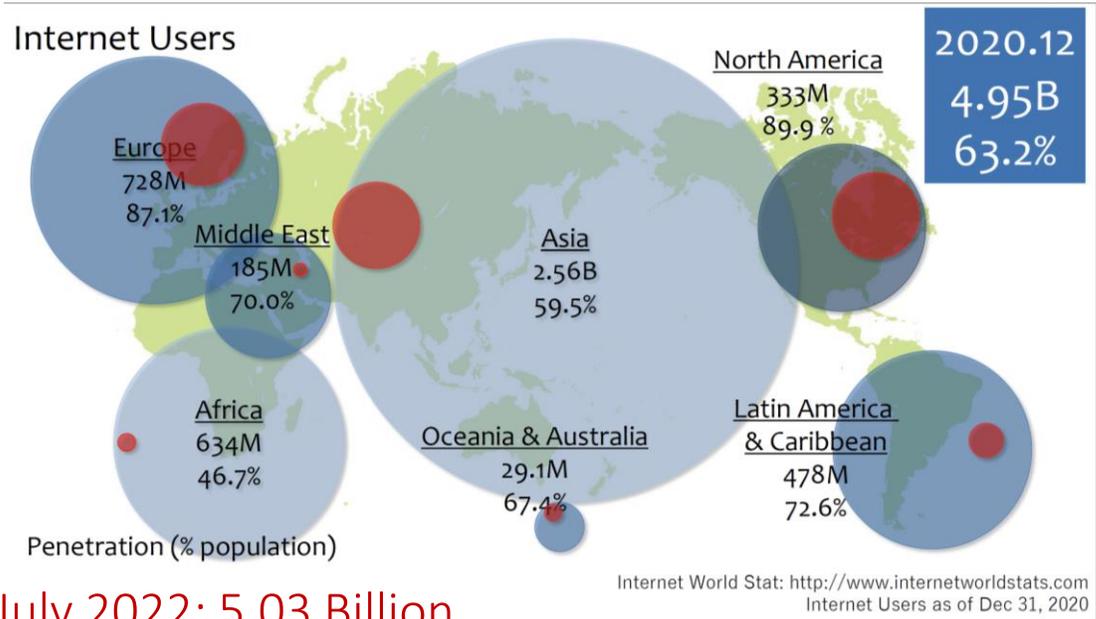
# Context 4: Public Health and Disaster Risk Reduction

- Health EDRM (Health Emergency Risk Management): WHO 2019
- Health Addendum to City Resilience Score Card: 2019
- Public Health and Disasters 2020
  - by Emily Chan and Rajib Shaw

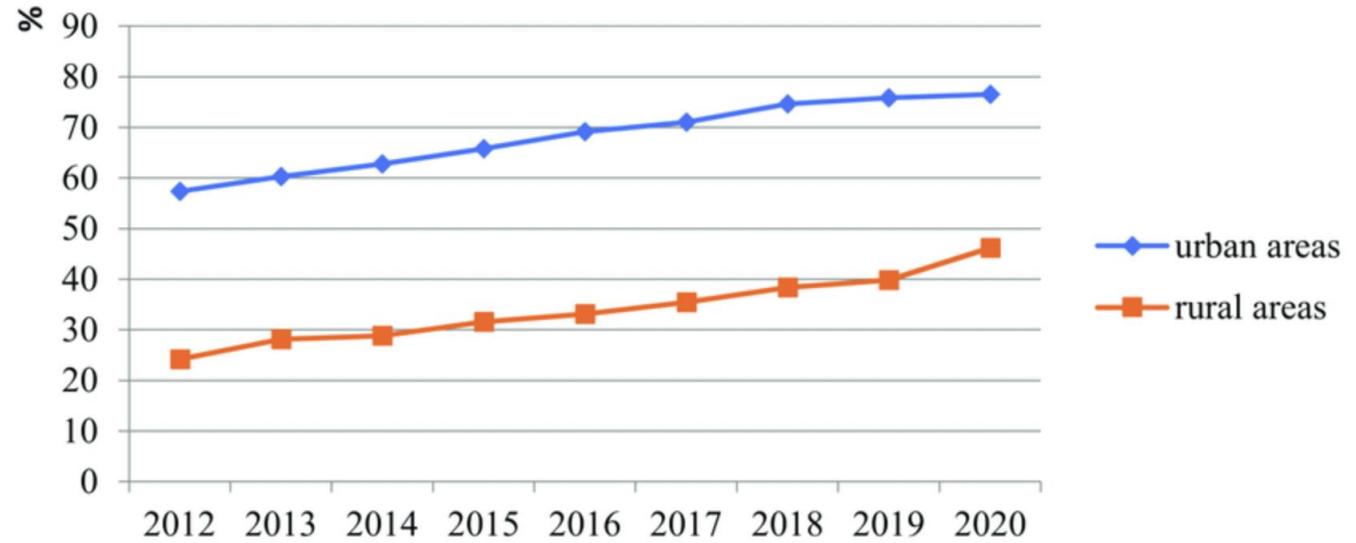
1. Financing and fiscal policy
2. Data management and scenario projection /risk assessment
3. Supply chain management
4. Transport planning
5. Resource mobilization, and
6. Early recovery planning: livelihoods



# Context 5: Digital inclusivity



July 2022: 5.03 Billion



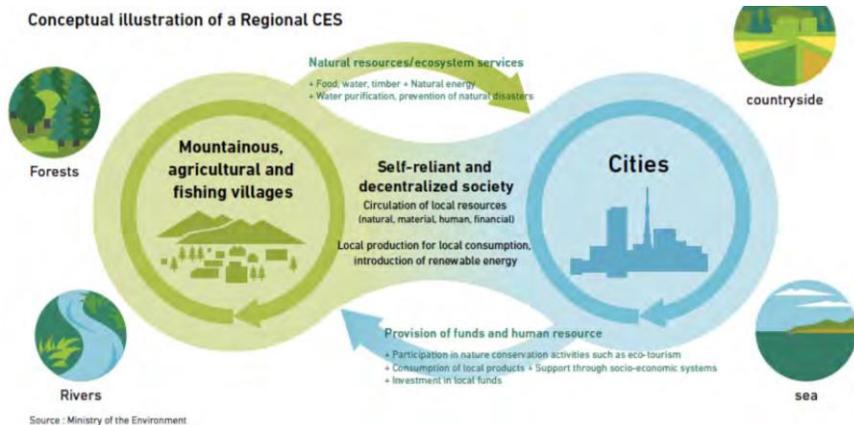
## Digital Den-en-toshi

The concept of the Kishida Cabinet, which is launched in 2022.

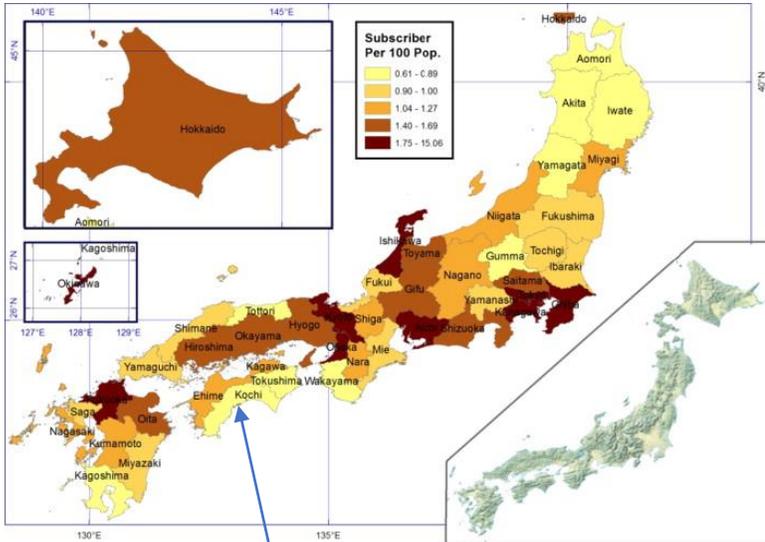
The objective is *"to promote regional revitalization through digitalization, and furthermore, to realize bottom-up growth from the regions to the entire country"*.

The following **digital human resource development** and securing are listed as important measures.

1. Develop and secure digital human resources in the public sector
2. Implementation of online courses etc.

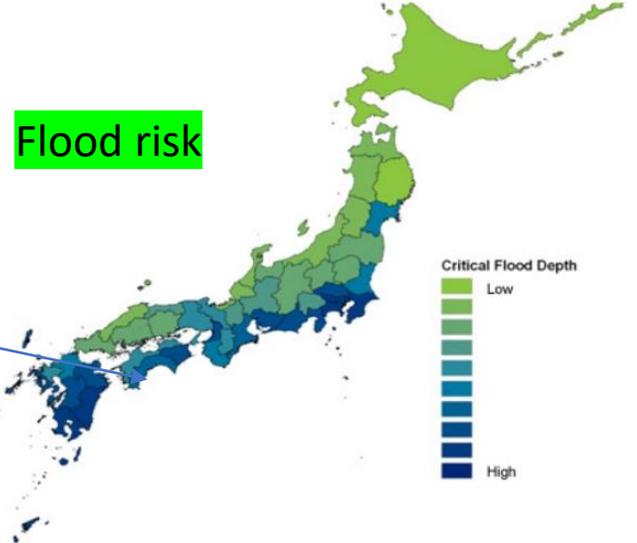
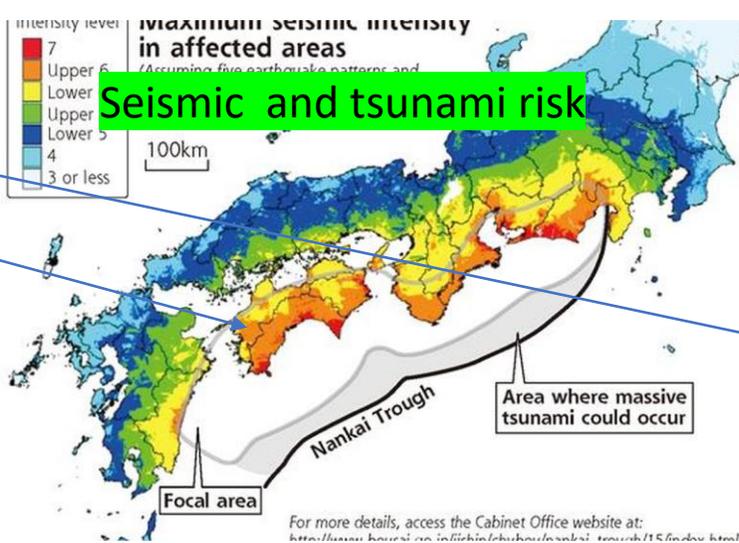
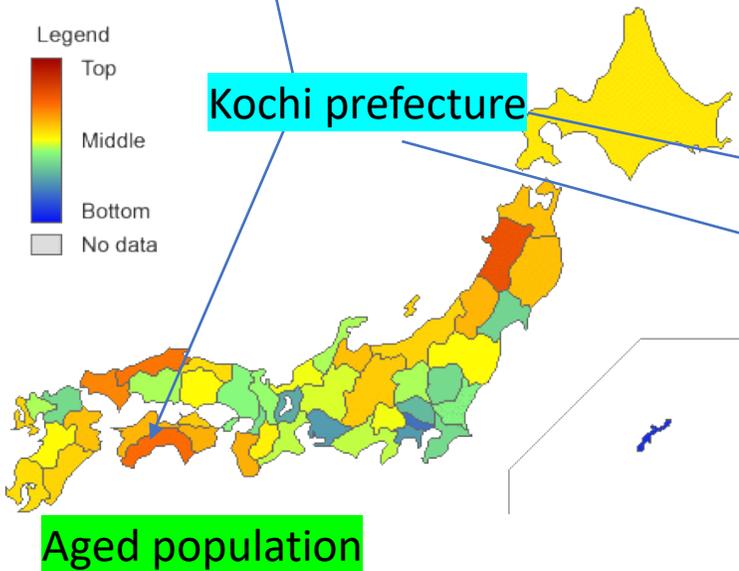


# Digital media penetration



- Countries and socio-economic clusters
  - Infrastructure based divide
  - Policy based divide
  - Urban rural divide
  - Age based divide
  - Gender based divide
  - Physical and mental challenge-based divide

Nishida et al. (2014)

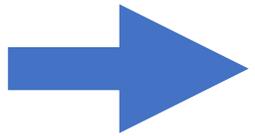


For more details, access the Cabinet Office website at:  
<http://www.bousai.go.jp/info/kekkai/kekkai/kekkai/15/indou.html>



# Context 6: Research Policy Action Gaps

Breaking this barrier is crucial



**Death toll versus publications**  
countries with the highest death tolls from natural disasters tend to have low volumes of disaster science scholarly output

**27,273**  
the number of recent scholarly output in disaster science

**9,571**  
the number of recent disaster science publications on geophysical disasters

**China**  
the most prolific country in disaster science scholarly output overall and disaster prevention scholarly output

**Japan**  
the most specialized prolific country in disaster science, overall and in research on each disaster management cycle stage

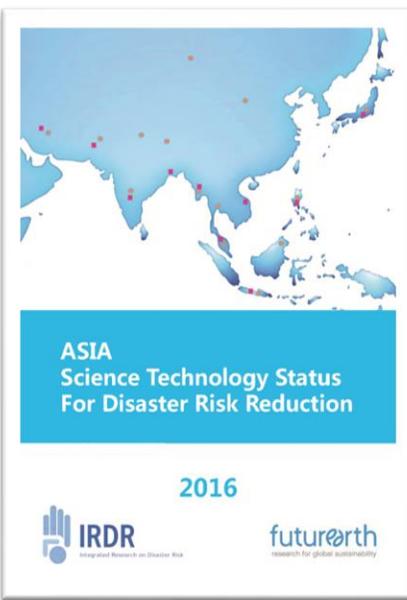
**Economic loss versus publications**  
countries with the highest economic losses from natural disasters tend to have the largest disaster science scholarly output

**0.22%**  
the share of recent global scholarly output belonging to disaster science

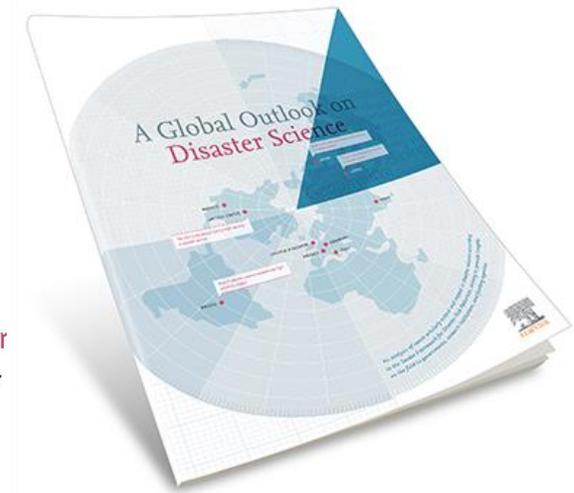
**>5,000**  
the number of recent disaster science publications on each of the following disaster types: geophysical, meteorological, chemical & radiological, and hydrological

**USA**  
the most prolific country in disaster preparedness, response, and recovery scholarly output

**Philippines, Indonesia, Bangladesh, Japan, New Zealand, Thailand, Taiwan**  
territories with 125+ recent papers in disaster science that are 50%+ more specialized in disaster science than the global average



- Science in decision making
- Science investment
- Link of science to people



# Context 7: Urban complexity and urban rural linkages for climate and disaster resilience

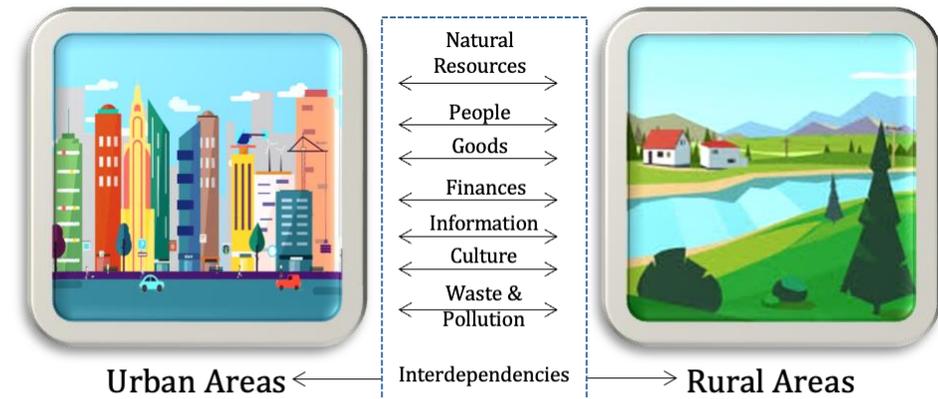
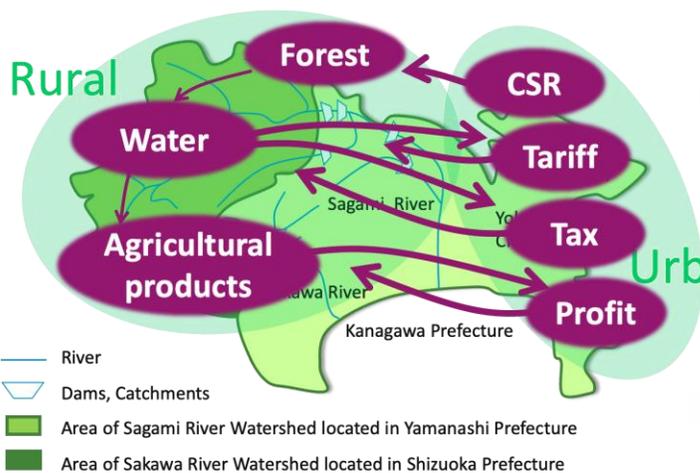
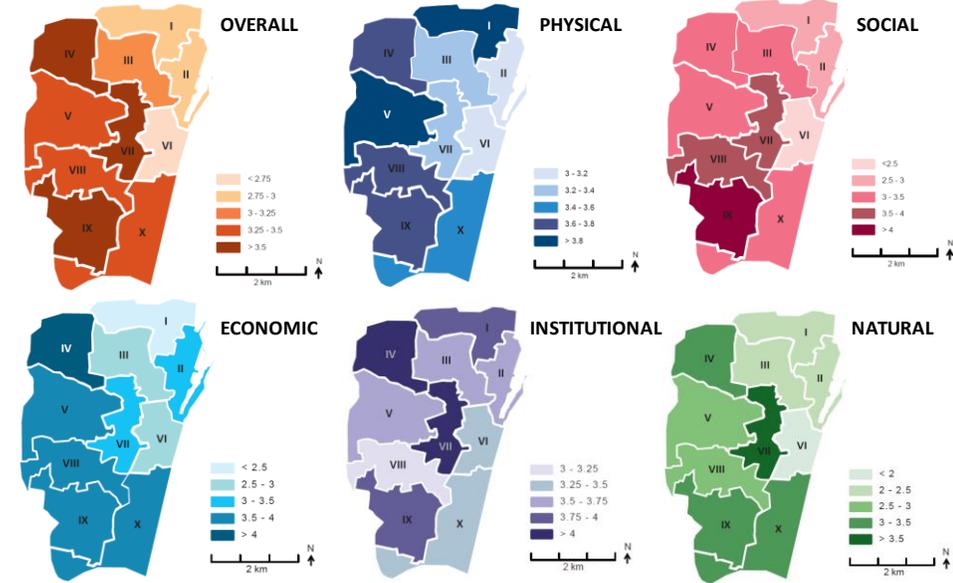


Figure: Underlining Urban-Rural linkages

# Context 8: Making innovation affordable

- AI based *water recycling*: *WOTA*
- For shower, hand wash, invented in 2018, and being used in different disaster situation in Japan

- *Heat resistant paint*: reduce the surface temperature by 13-15 deg: *Teijin*
- Enhances *energy savings* (around 22-23%) and cost effective
- Public buildings/ commercial buildings, schools, public transports (like buses etc.)



**Comparison with other materials**

Other companies	Adgreencoat.TF
<ul style="list-style-type: none"> <li>● Hollow ceramic materials/porous ceramic materials: It will reflect light but it is a material with low heat exhaustion effect. Any dirt will attach to the fine uneven surface, and the reflection function will decrease.</li> <li>● Carbon material: Instead of heat shielding, this is thermal insulating material which absorbs and stores the infrared radiation and heat, and then it will restrain the thermal conductivity into the building. During night, the stored heat may be released indoor and result in increasing the room temperature.</li> </ul>	<ul style="list-style-type: none"> <li>● Porous Ceramic: High heat shielding performance on the surface and low thermal conductivity.</li> <li>● Non-porous ceramics: High heat shielding performance on the surface and low thermal conductivity.</li> </ul>

**Functionality**  
With heat shielding, the temperature rise is restrained, and comfortable environment can be provided.

**1** Restrain the temperature rise on the roof (maximum of around 20°C)  
**2** Restrain the indoor temperature rise (Around 2 - 4°C)

**2 Aesthetic appearance**  
Smooth and beautiful coating film made possible by the nano-sized particles. Uneasily stained, and long lasting aesthetic appearance and heat shielding effects.

**3 Construction method**  
There is no need for preparing outdoor or mixing as it is water based, non-diluted coating material. It is a thin film type whose coating is easily done.

**4 Economic efficiency**  
By reducing the power consumption for air conditioning (10 - 30%), the electricity bill will be reduced!

**5 Environmental effect**  
It is an environmentally friendly water based heat shielding coating material with non-volatile organic chemicals (Non-VOC). It has been certified by environmental standards of each country such as an eco-mark.

**An example for the restraint of temperature rise and reduction in the electricity cost**  
Place: Saitama prefecture (2,000 m<sup>2</sup>) / Date of measurement: July 2011 around 11 am  
Roof construction: Concrete deck roof (Polyurethane waterproof layer on top)

Before	After
Outside air temperature: 35.2°C Surface temperature: 54°C	Outside air temperature: 35.2°C Surface temperature: 37°C

Very effective for heat shielding purpose on walls and roofs!  
Cooling down by coating only!

Photographic imaging of thermography

# Context 8: Enhancing community participation through Citizen science

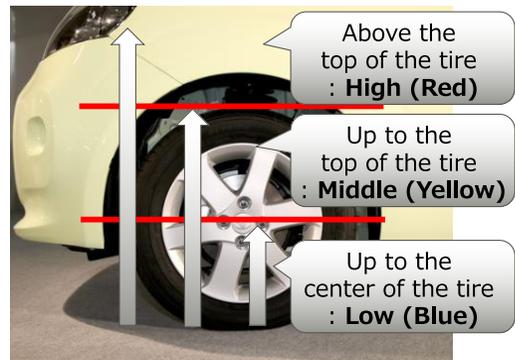


## Technological intervention for Inundation flooding:

Water Level Measurement

Challenges:

- Short duration heavy rainfall
- Non uniform inundation flooding



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## Simple smartphone technology

3 types of smartphone apps for measuring water levels.

1. Select Type for DDMA



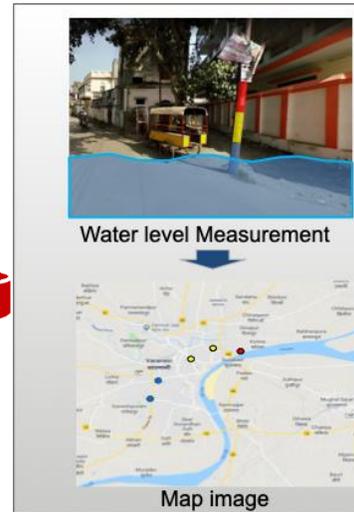
2. Input Type for Climate Schools



3. AR Type for Climate Schools



Processing





## Context 10: From *Community* based to *compassion* based



- Compassion based approach is the key to community-based disaster risk reduction: communities and change agents
- Is the building block of Human Security concept
- Links closely to: “Self-help”, “mutual help”, “public help” and “network help”
- Enhances the bases of volunteers in disaster risk reduction
- Strengthen Society 5.0 in Japan, which is a technology driven, people centric society

# Key message

- Any global framework needs **local implementation**
- **Risk landscape** is dynamic, evolving and complex
- **Digital inclusion** is one of key critical future challenge
- Focus on **climate resilient development** in the era of “**living with uncertainties**”
- Need to develop skills to **co-design, co-produce, co-deliver** solutions
- **Innovation** in the changing world in a must
- **Experiential learning / Field based / and case base learning**
- **Entrepreneurship mindset** is critical in generating innovation
- **Synergy** of development, disaster and climate regime
- **Compassion based** risk reduction

# Thank you very much

## Website:

[www.rajibshaw.org](http://www.rajibshaw.org)

[www.indiajapanlab.org](http://www.indiajapanlab.org)

[www.rikaindia.com](http://www.rikaindia.com)

## Facebook:

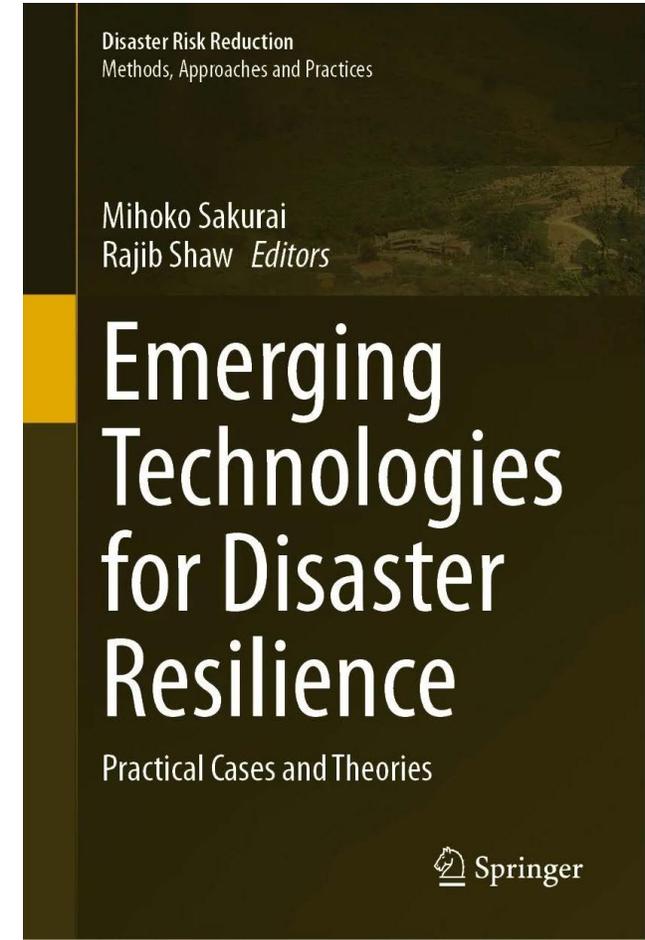
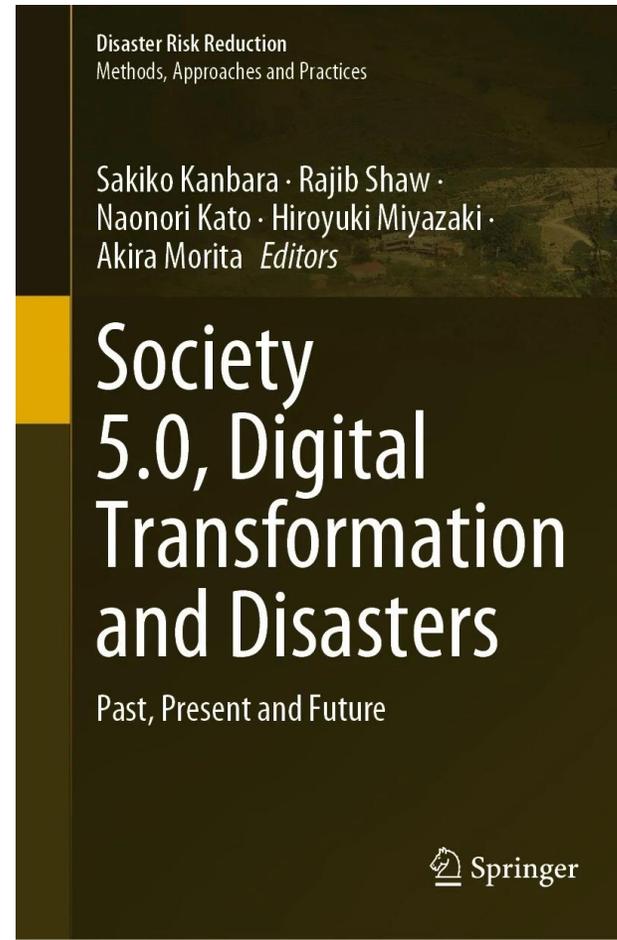
<https://www.facebook.com/rajibshawofficialpage/>

## LinkedIn:

<https://www.linkedin.com/in/rajib-shaw-6243791a5/>

## Twitter:

@rajibshaw



# Keynote presentation: Prof. Sakiko Kanbara Kobe City College of Nursing



*Health Aspects and Disaster Nursing for Bridging CCA-  
DRM from Japanese Experience*

# My Profile

1977: Born in Okayama

1996: Lived in Kobe  
Kobe University (B Sc. MHSc)

2007: Researcher of University of Hyogo and more  
-Disaster Nursing and Global Health

(16 years of experiences of academic research, education, and practice on implementation-oriented disaster nursing)

Founder; EpiNurse (UNDRR Risk Award 2017)

*Served as:*

- Committee Member, Japan Academic Network of Disaster Reduction, Japan Science Council (2014-)
- Board, Japan Society of Disaster Nursing (2019-)
- Member, Japan Science Council (2020-)



WSDN promotion @ WANS 2009 in Kobe



Sakiko Kanbara  
Shoko Miyagawa  
Hiroyuki Miyazaki *Editors*

# Disaster Nursing, Primary Health Care and Communication in Uncertainty

## Springer SDGs3 Series(2022/5)

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<https://link.springer.com/book/9783030982966>

- Included in the SDG3 subseries: Good Health and Well-being
- Offers a multi-professional connections into disaster nursing
- Describes the Japanese experience of evolving nurses' roles in changing social contexts

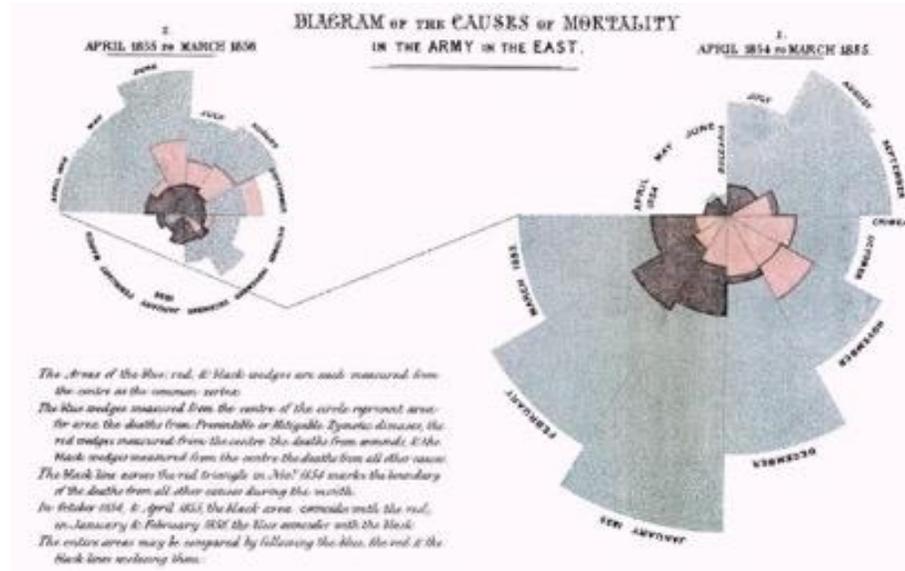
"Disaster nursing : involves the systematic and adaptable application of nursing's distinct knowledge and skills pertinent to disasters.

It encompasses the creation of initiatives aimed at reducing the harm to life and health resulting from disasters, in collaboration with various specialized fields."



10World History B in a minute! Modern Europe (8) - Russia and the Eastern Question

Florence Nightingale (1820-1890)



- With the aim of reducing health risks associated with climate change and natural disasters, we will implement and develop initiatives based on care science to create safe social mechanisms and environments in Japan and overseas.



# Agenda

We ingest the same amount of plastic as one credit card a week without even realizing it.

To our children and grandchildren who will live 30 and 50 years from now.

Is it possible to leave behind a society where the earth and humans coexist, and where biological systems, including humans, can repeat a virtuous cycle?

Nowadays, it is said that the Earth must not be exceeded for humanity to survive.

Limits are exceeded in 4 out of 9 areas.

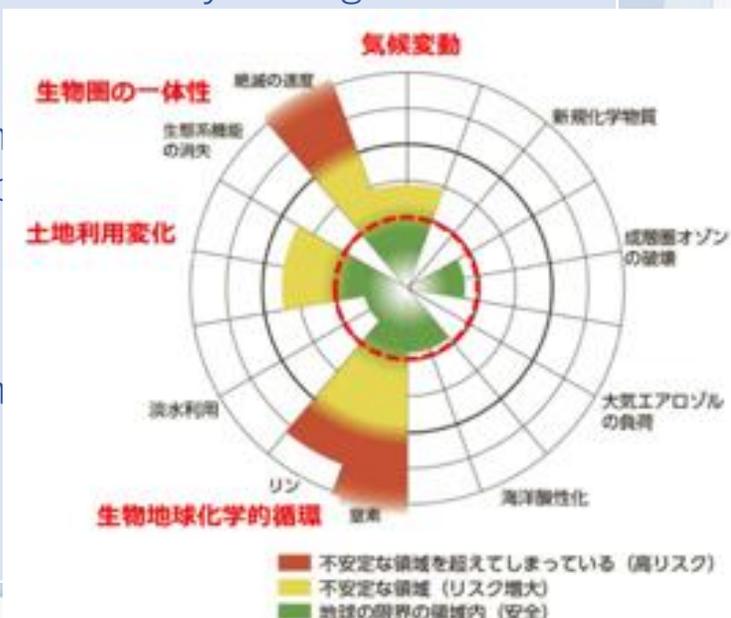
<Planetary Scope>

There is an impact on human health through disasters and abnormal weather, and indirectly through conflicts and poverty.

There is an interdependent relationship between the global environment and human health.

We are exposed to risks caused by the global environment and approaching our own health issues and global environmental issues can reduce and resolve the damages and impacts caused by disasters.

We want to leave behind a well-being society for the next generation where each can live their own lives. From a planetary health perspective, we can protect the health of people and the planet to realize sustainable coexistence.



資料: Will Steffen et al. [Planetary boundaries: Guiding human development on a changing planet]より環境省作成

# Purpose of the project

Protecting the health of the people and the earth for sustainable coexistence

Embody and implement the concept of Planetary Health

Incorporate global risk reduction into your lifestyle model

Consider the burden of human activities and the impact on global society

Reproduce social well-being lifestyle

# Approach/ Perspective

As an initiative for “disaster nursing”

Currently, we have developed our products in Japan and other countries in East Asia.

Building communities that reduce people's health risks even when disasters occur

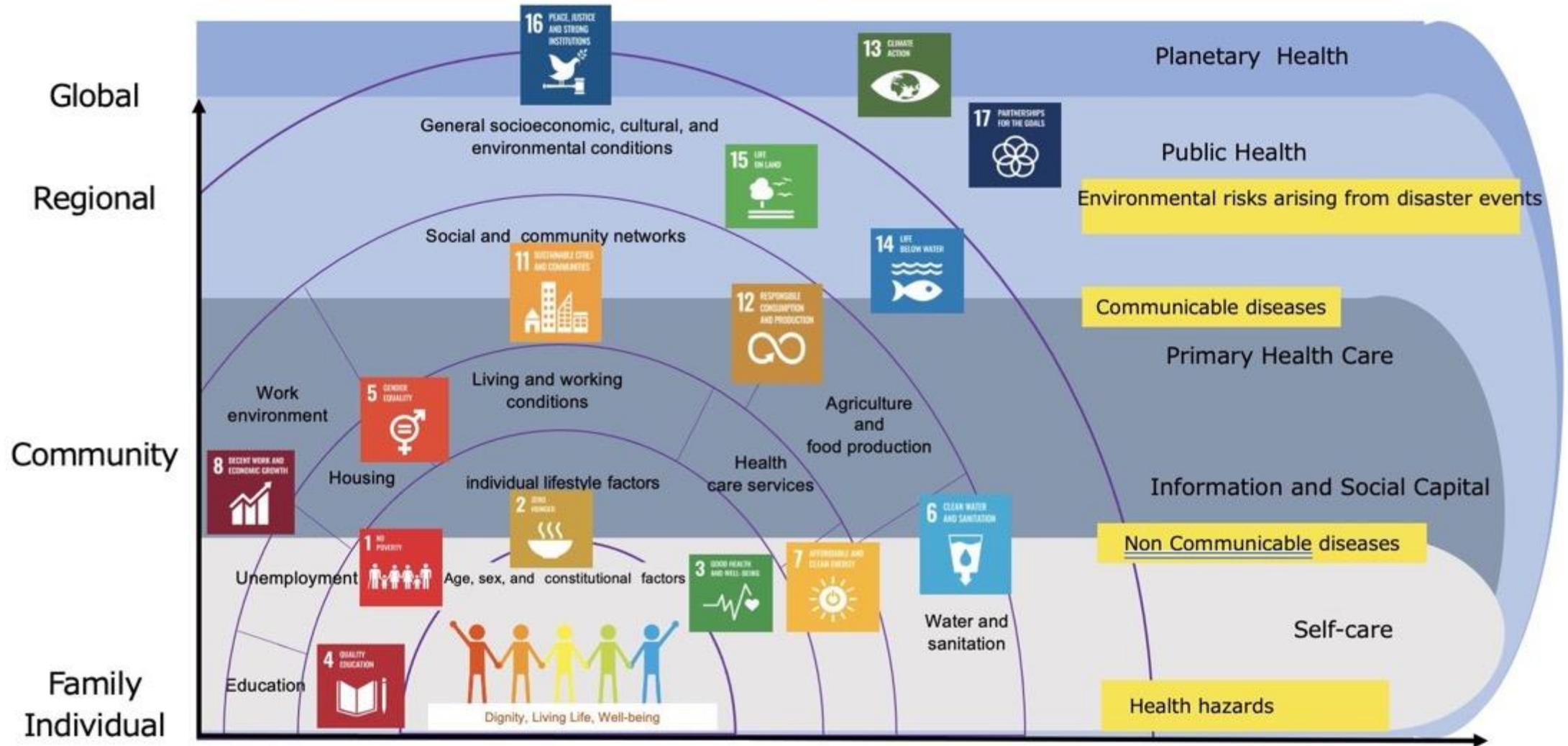
Training of leading human resources, mainly professionals

+ interdisciplinary network  
to strengthen existing connections

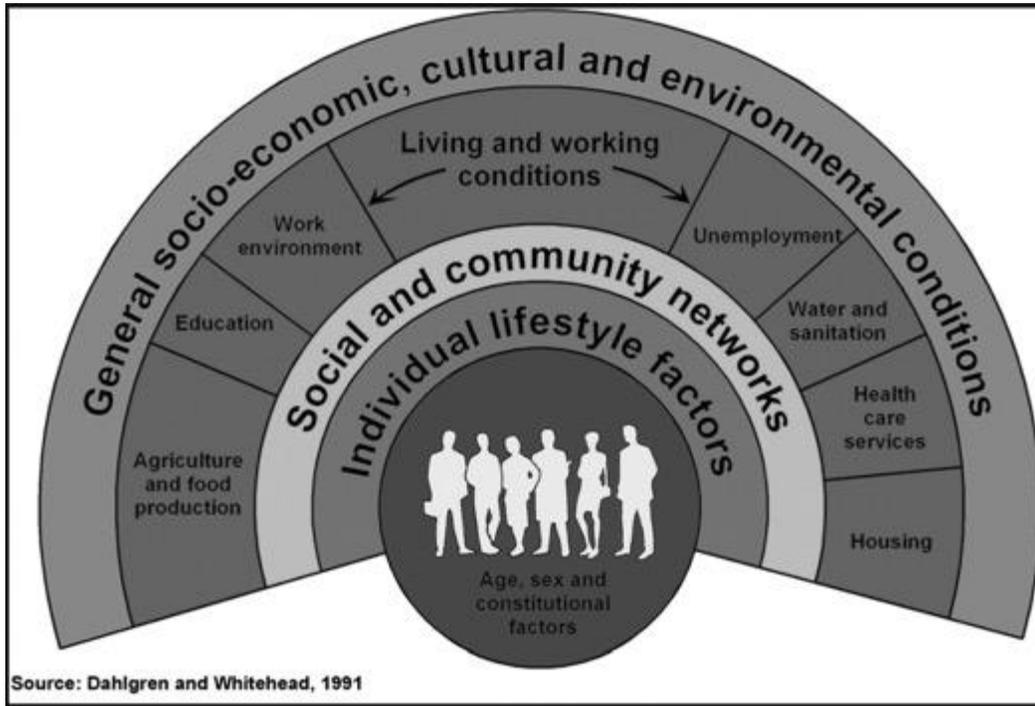
+ Connect emergency perspectives to regional issues

+ Personal Health and the planet  
Daily Life Data gives citizens the power to protect themselves

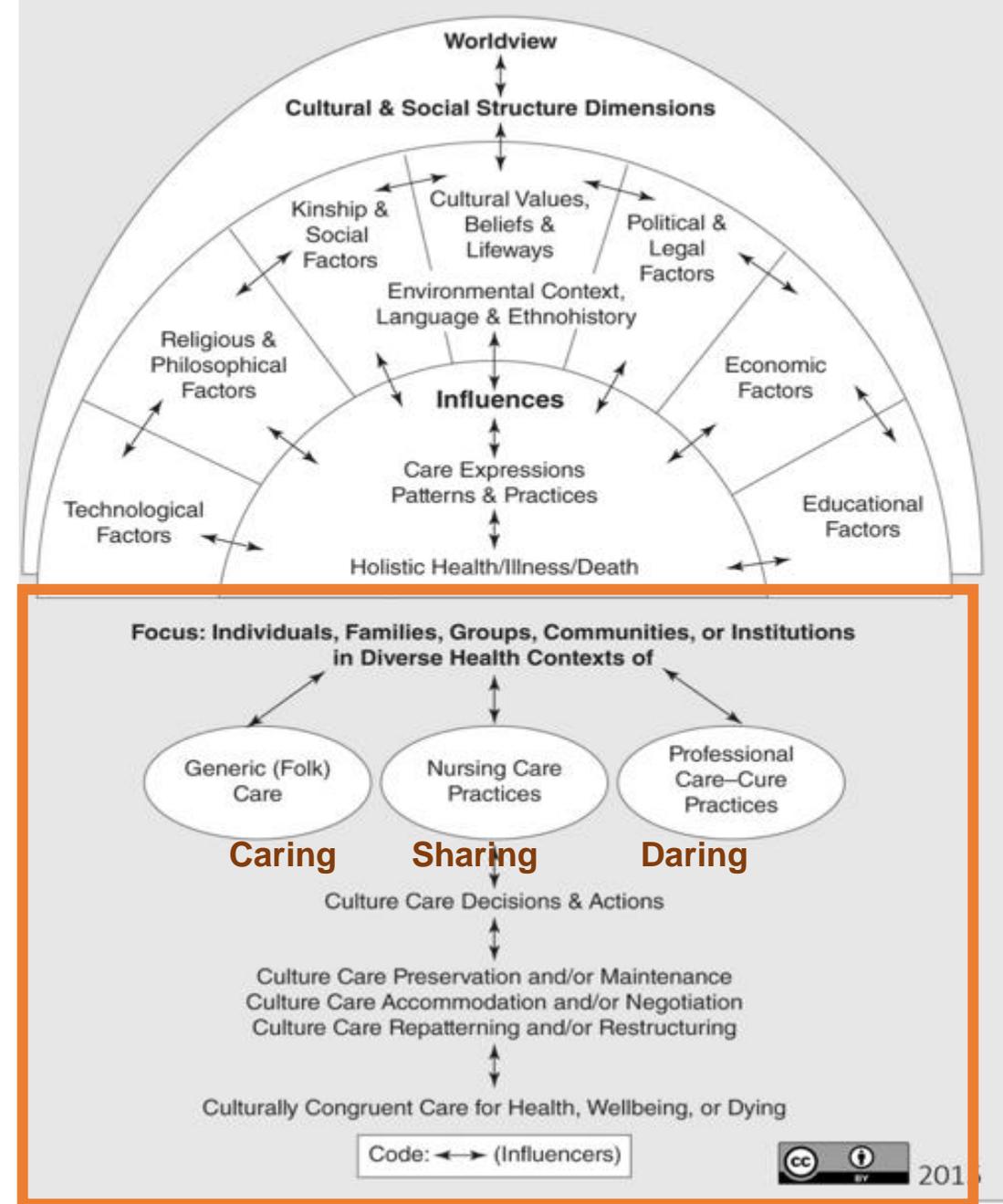
# Disaster Nursing and Planetary Health



# Social Determinant of Health ↓ and Nursing Insight →



Dahlgren, G., & Whitehead, M. Policies and strategies to promote social equity in health. Stockholm, . (1991).



# 3 step of Care for DRR



Risk is a function of the hazards to which a community is exposed and the vulnerabilities of that community. However, that risk is modified by the level of the local preparedness or capacity of the community at risk. It is expressed by the following notation:

$$\text{Risk is proportional } \frac{\text{Hazard} \times \text{Vulnerability}}{\text{Capacity}}$$



## Insight

1. Escape from the "Hazard"
2. Protect survivors' life and Maintain health (Vulnerability)
3. Rebuild your living environment (Capacity)



## Nursing Action

First Aid & Mental Health Care  
Mental health care  
Secure food, toilet, bath, etc.



# Pitfalls



In everyday life  
No matter how much information you have  
Even if you warn or send out an evacuation warning...

WHAT

WHY

**Data & Knowledge ≠  
Sense of urgency + Land Intuition**

# Insight of Local Care Giver

## EpiNurse as informant

Working experience on site: 16 years  
She can speak local language and know their culture



She said  
Emergency Drill Experience **No**  
Disaster experience **thunderstorm and accident in the hospital.**  
**WASH training by WHO** one year before Quake

### Aftermath of Disaster

Doctors, CMA and nurses were so busy.  
No foods to cook.  
**PHC knows about the disaster management but they are not prepared,** didn't know whom to coordinate  
We have very **less manpower**

Daily there are about 150 patients to bed.  
We have about 45 delivery cases  
**Other hospitals are difficult to** due to geographical reason.

## EpiNurse as monitor

Mapping  
Health and Environmental Assessment

Toilet 4  
Adequate number of toilets **Yes**  
Hand-washing **Yes**  
Soap **Yes**  
clean food **No**  
Kitchen **Yes**  
waste storage **No**  
Acceptable spacing **No**  
Acceptable cleanliness **No**  
Blanket **No**

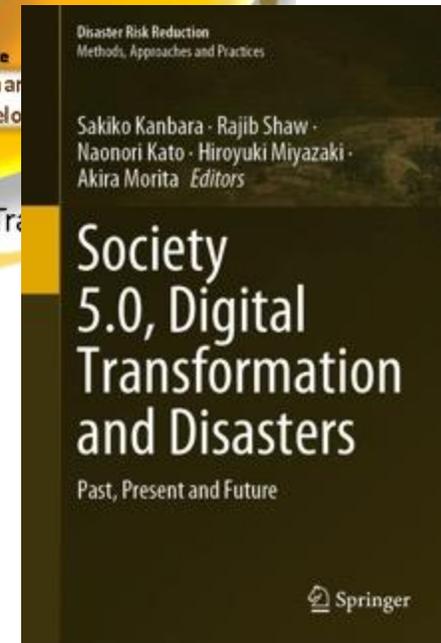
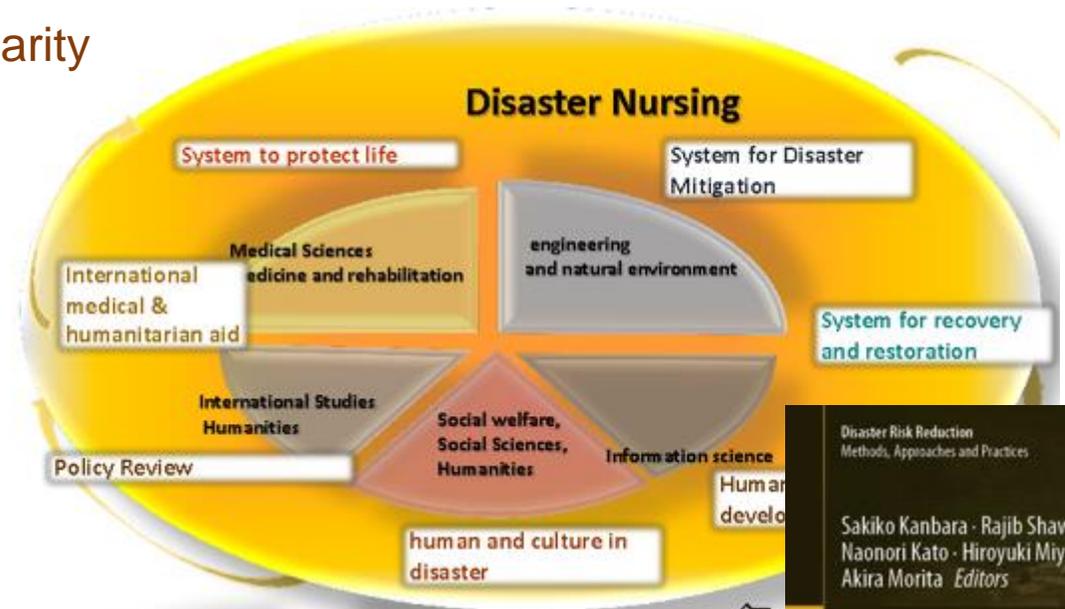
## EpiNurse works as care giver

Need not report up and in hospitalization but need direct care and common medication



# Work with the ISC to advance science as a global public good

1. From Interdisciplinary Collaboration to Transdisciplinarity
2. Knowledge Society Platform
3. Open Governance and Open Data
4. Grassroots Process Innovation and Citizen Science
5. Youth Leadership
6. Science Preneurship as a Newly Developing Field



# Circulation of Human Resource Development based on global crisis response experiences to EWS and AA

Developing knowledge, awareness, attitudes, and perspectives  
as a support leader through **On-Demand Materials**



Build up risk perception, knowledge and skills through  
**immersive and interactive exercises**

Building reliable relationships through  
**Sustained Offline Activities**



Improve skills in solving social issues through  
**Project-Based Learning**



C

CREATIVE

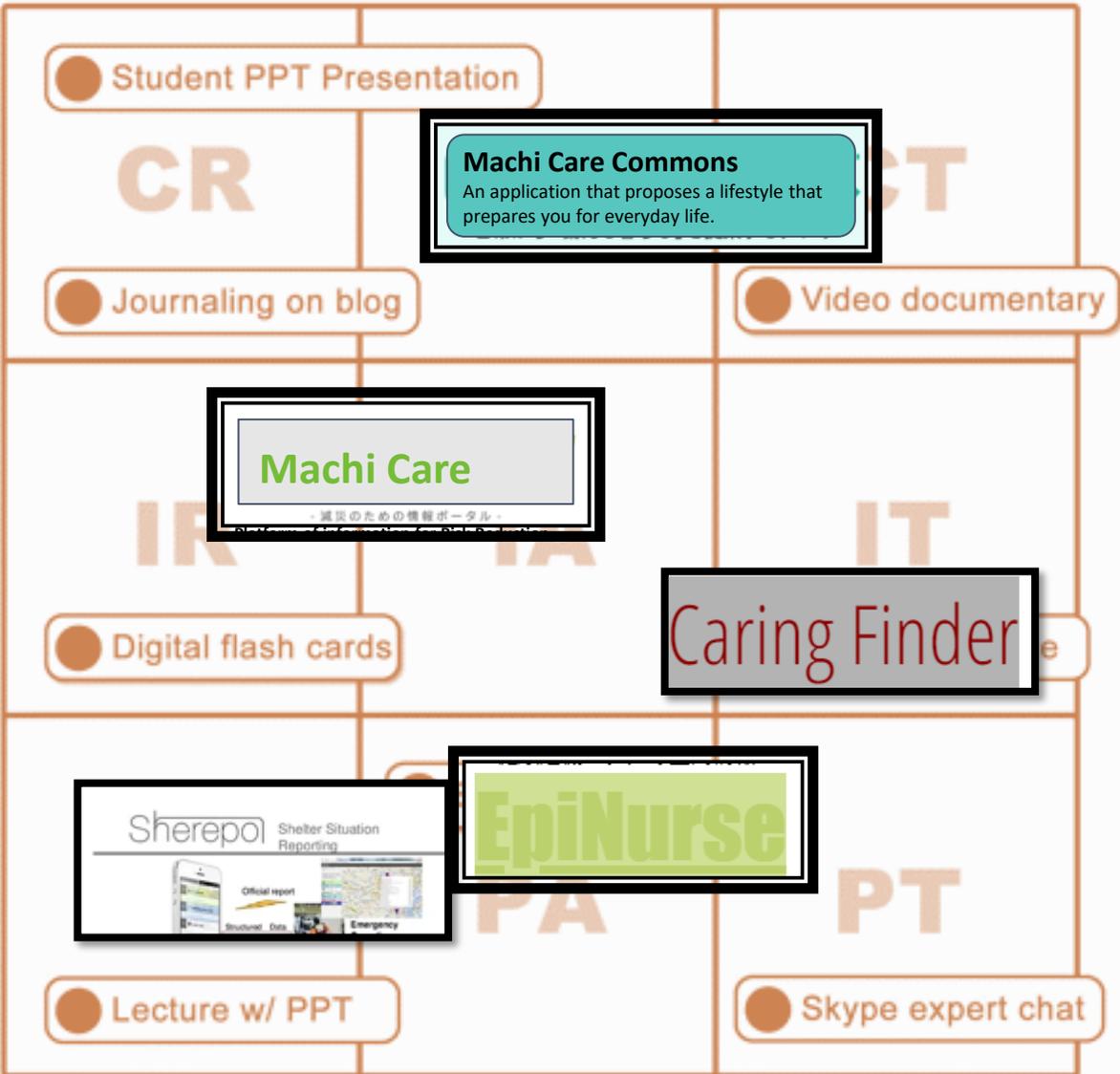
I

INTERACTIVE

P

PASSIVE

STUDENTS' RELATIONSHIP TO TECH IS \_\_\_\_\_



TEACHER'S USE OF TECH \_\_\_\_\_ TRADITIONAL PRACTICE

REPLACES      AMPLIFIES      TRANSFORMS

R

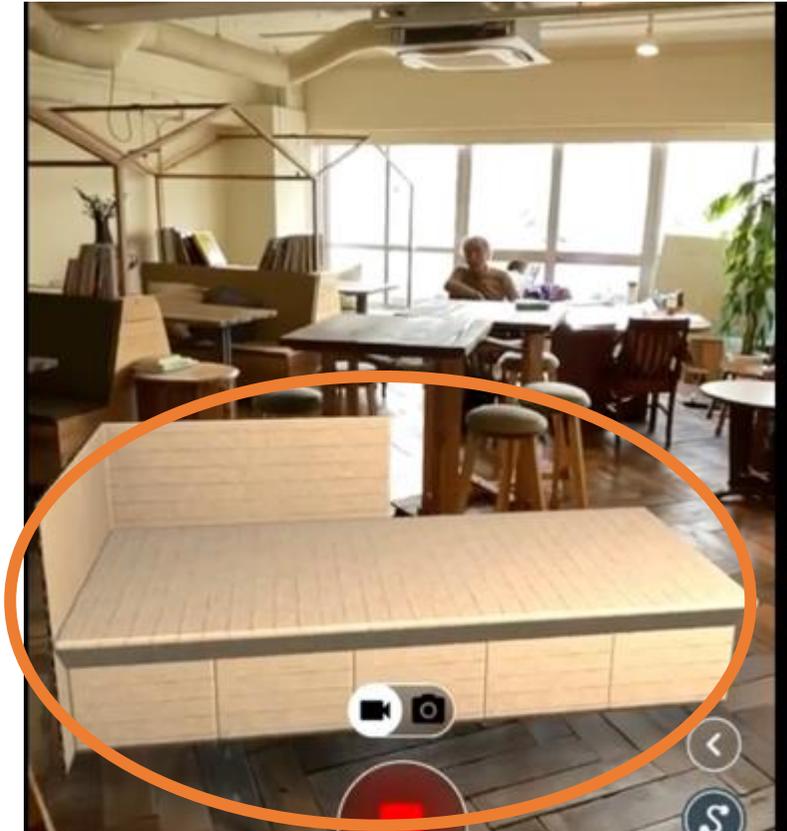
A

T

Creative and Transformative Development

Act with local

Co-create “Risk Perception” Among **MetaNurse** on Metaverse  
health post globally for locally with diversity for inclusion



Q. “How to do in a scene of people gathering and talking in the center of the disaster area?”  
Need (spiritual) care with water, food and shelter, by MetaNurse

Draft for early circulation to Pacific WASH Cluster

## Water security and the Hunga Volcano eruption

This question-and-answer brief was prepared on 21 January 2022 by the Pacific Community (SPC), UNICEF, WHO, ESR NZ and the International Volcanic Health Hazard Network (IVHN) for the information of Pacific WASH Cluster partners in order to provide further context on water resources in the Kingdom of Tonga and the likely water security risks posed by the 15 January 2022 Hunga volcanic eruption. This material is general in nature and should not be taken to displace the need for up-to-date, locally-sourced information and Government advice and direction, which should take primary at all times.

### 1. The Hunga Tonga - Hunga Ha'apai eruption event

#### What is the Hunga volcano?

The Hunga Tonga and Hunga Ha'apai Islands were the tip of a much larger underwater volcano called the Hunga volcano, around 1,800 metres high and 20 kilometres wide. The Hunga volcano is part of a chain of volcanoes stretching from New Zealand to Samoa and is located approximately 65 km north of Tonga's capital, Nukunono.

#### What was the nature of the eruption event?

In the four weeks from 20 December 2021, the Hunga Volcano erupted three times. The first two eruptions, on 20 December 2021 and 13 January 2022, were moderate in size. The third eruption on 15 January 2022 was one of the largest eruptions seen in the region in modern history and equivalent to a 1 in 1000-year event. This extraordinary eruption generated a 30 km high plume of ash and gas, triggered a tsunami which travelled across the Pacific Ocean and radically changed the top of the volcano.



80%

of all households have access to tap water

89%



# Data Utilization

The image of human resources to be developed

Protecting human and planetary health requires a universal and structured approach to risk

## Training Planetary Healthcare Facilitators (Planetary Healthcare Facilitator)

### Citizen Scientist

Collect, evaluate, and analyze people's perceptions from daily life data and use them as evidence.



### Citizen Practitioner

Promote lifestyle changes that account personal health management and the global environment of local areas and communities



- Risk prediction based on nurses' practice
- citizen insight

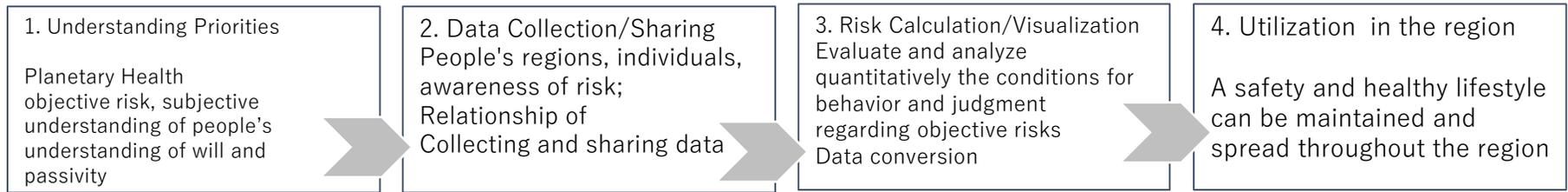
<Target participant for training>

Global nurses + citizens (including next generation citizens)



**“Transformation of individual consciousness ⇒ Total effort of the community”**

<Thoughts on data collection, analysis, and utilization>



\*Data refers to data that includes not only general numerical data but also episode-based narrative data from diaries, conversations, meetings, etc. By segmenting and reusing data, we can utilize it as a "prescription for making life difficult to making life easier" in the design of self-care and primary health care.

# Global Issues and Local Actions

- Global Challenges**
9. Climate change
  8. Blue-Green Infrastructure
  - 7 Food Energy Water (FEW) Nexus
  6. History and future of the city
  5. Disaster Management
  4. Sustainable Business
  3. Citizens and Communities
  2. Leadership and Human Capital
  1. Healthcare and Life Plan

## Planetary Global Healthcare

People are moving globally with various seeds and needs

"Human-Centered Challenges Unseen in Top-Down Monitoring"

Talent Drain and Unresolved Local Issues

Mismatch between Living and Working Environment Improvements and Community

**Co-creation of decision-making and consensus-building in a broad community**

The long-term health issues and challenges have been consistently overlooked or underestimated.

**Self-care, lifestyle change, Remote consultation, etc.**

Individual Leadership and Creation



## Public Healthcare

individuality  
gender  
disabled person  
Chronic diseases  
Roles are fixed

## Primary (Health) Care

**Aging and Changing Diverse Values, Abilities, and (Life Risks)**  
Individuality, complexity, and structurality

## Self-care

Core Issue

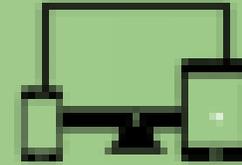
**Current situation in Japan**

**Achievable society**

**Expression in the global society.**

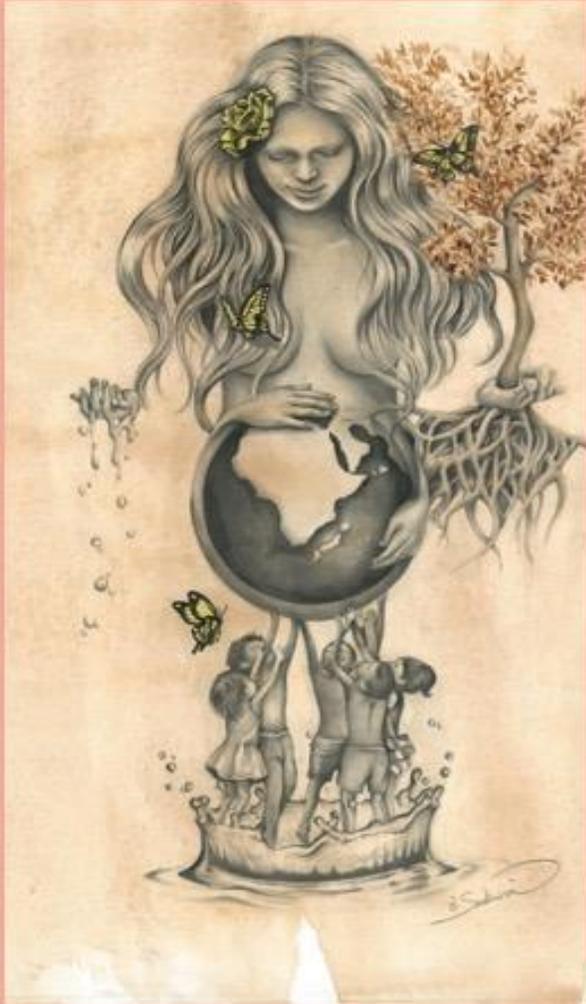


Open Government



# Transforming Global Learning International Exchange > Global Learning Commons

Save the date. Call for the proposal will start April.



## The 8th International Research Conference of **World Society of Disaster Nursing**

**Main Theme: Rethinking Disaster Nursing in the Changing Risk Landscape**  
-Primary Health Care to Social Innovation for planetary health

**Dates; November 29 (Fri.) December 1 (Sun.) 2024**

**Venue; Kobe City College of Nursing**

**Topics : Climate change / Blue-Green Infrastructure / Food Energy Water (FEW) Nexus / Urban Planning /  
Disaster Management/Sustainable Health Service and Care /Connect to Excursion Learning from Community/  
Citizens and Communities/Leadership and Human Capital/Healthcare and Life Plan**

**Chair: Prof. Sakiko Kanbara (Kobe City College of Nursing / Japan Society of Disaster Nursing)**

# From Closed Discussion to Open Science and Open Governance For Primary Health Care to Social Innovation for Planetary Health

**Sharing evidence for the future  
@Kobe City College of Nursing**



**Case Visualization  
@City Excursions**



**Diffusion of glocal society  
@online**



**Main Program (Paid)**

Researchers share local examples and practical methods

**Excursion (City Digital Passport)**

Visualization, guidance, and co-creation using community data, GIS, and X

Generalization by participants in each country



**Social Programs (Off-Campus Exhibitions)**

Exhibition & Dialogue  
Practical reports by young people and dialogue with citizens



**Open Governance**



Development into Social Innovation  
Supporting activities through data

# Keynote presentation: Marijke Panis Red Cross 510



*Ensuring local voices and community perspectives are heard*



UNDERSTANDING RISK  
GLOBAL FORUM 2024

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# Ensuring local voices and community perspectives are heard

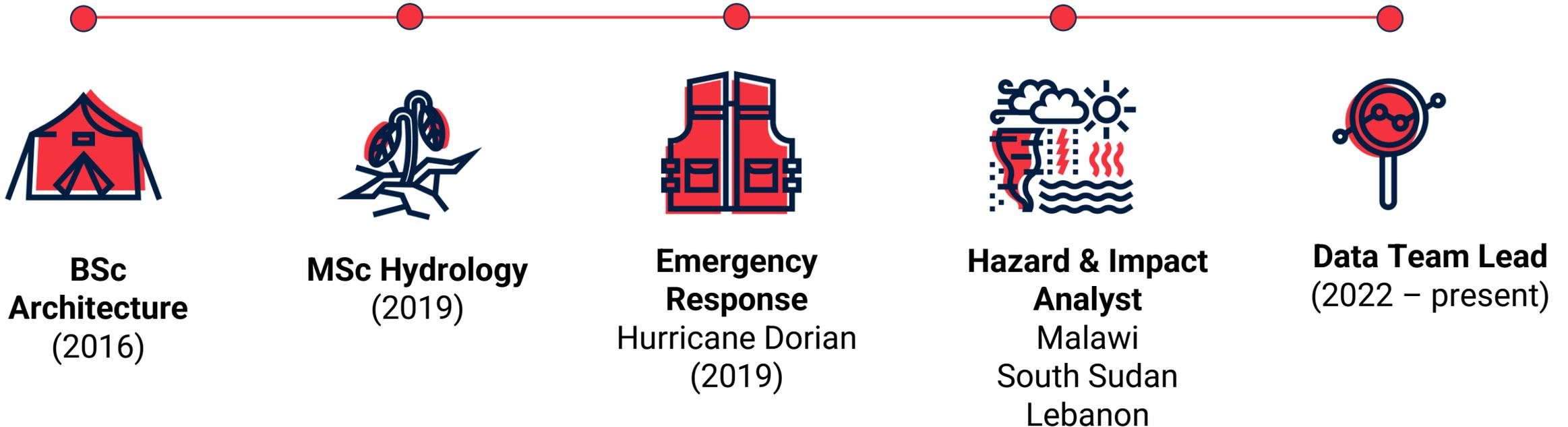
Speakers:

Marijke Panis (MSc)



An initiative of  
the Netherlands  
Red Cross

# Introduction



# Multi-Hazard Analysis in Conflict Settings

**Overall MHACS objective:** Improve the **timely decision-making** capacity of the ICRC in three countries (Burkina Faso, Myanmar, Lebanon) to allow the ICRC to better provide water and improve living conditions to Internally Displaced People (IDPs) in **multi hazards, including conflict contexts**.

## Myanmar Team:

How might we help **project managers and engineers** to understand the **climate and environmental risks** and associated **vulnerability indicators** of IDPs, host communities, and systems in an area of interest, so they can be **taken into consideration** when designing projects?

# Multi-Hazard Analysis in Conflict Settings

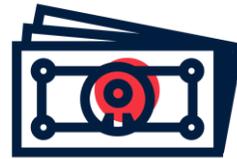
The context of Lebanon shows **compounding effects of different crisis:**



Regional conflict



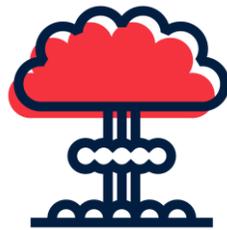
Syrian refugee influx



Economic crisis



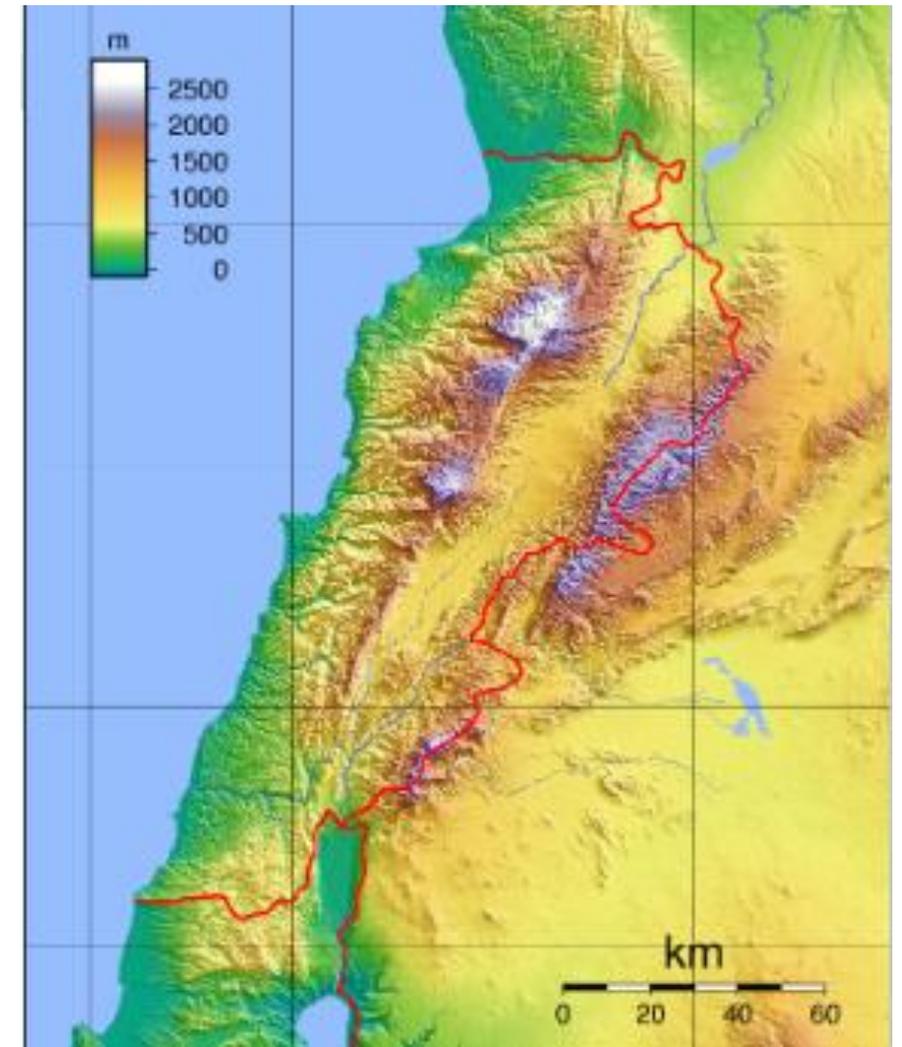
Infrastructural issues



Beirut explosion



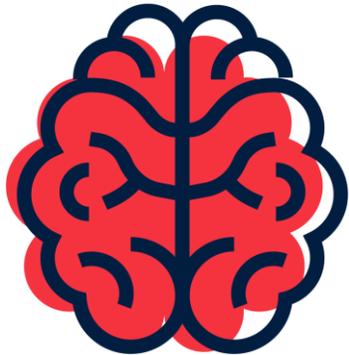
Natural hazards



# Qualitative and quantitative data integration

The **compounding effect** of these crises on **vulnerable communities** requires an **adaptive and strong humanitarian** response, therefore it is important to:

- Understand how different **risks and hazards** are **connected**
- Understand the **capacities and vulnerabilities** of the communities
- Emphasize the **human factor** when making decisions on the humanitarian response



# Community Engagement

**Stakeholder and community engagement** with local authorities, community leaders, other NGOs, and academia

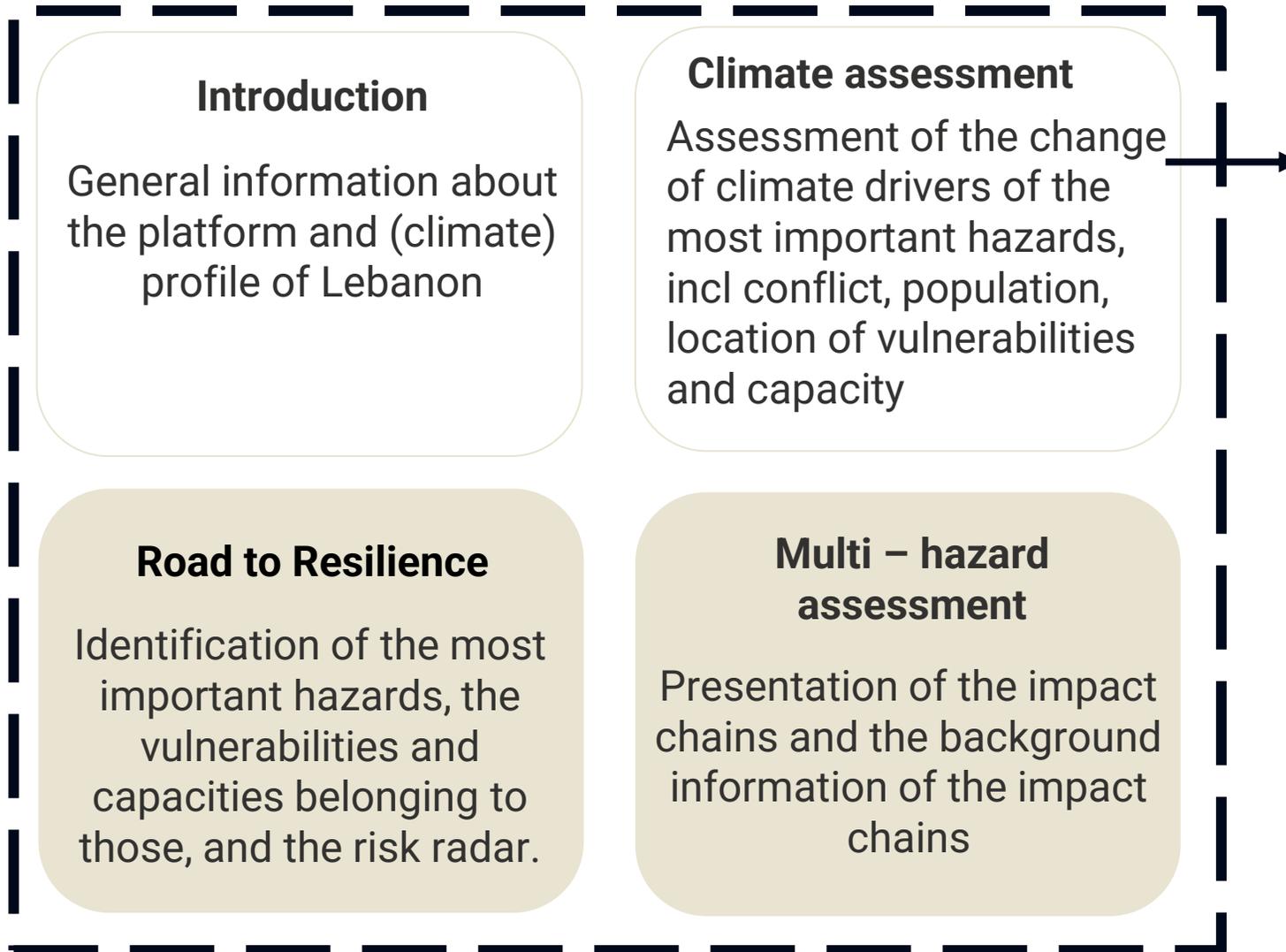
- **Workshops**
- **Focus Group Discussions**
- **Co-design sessions**
- **Enhanced vulnerability and capacity assessment**

“Knowing if villages have **previously encountered a natural hazard**, supported by **statistics and characteristics**, is useful information that will **give us an idea about what kinds of projects to implement to mitigate those hazards in the future.**”

*ICRC employee who participated in co-design session*



# Impact Chain



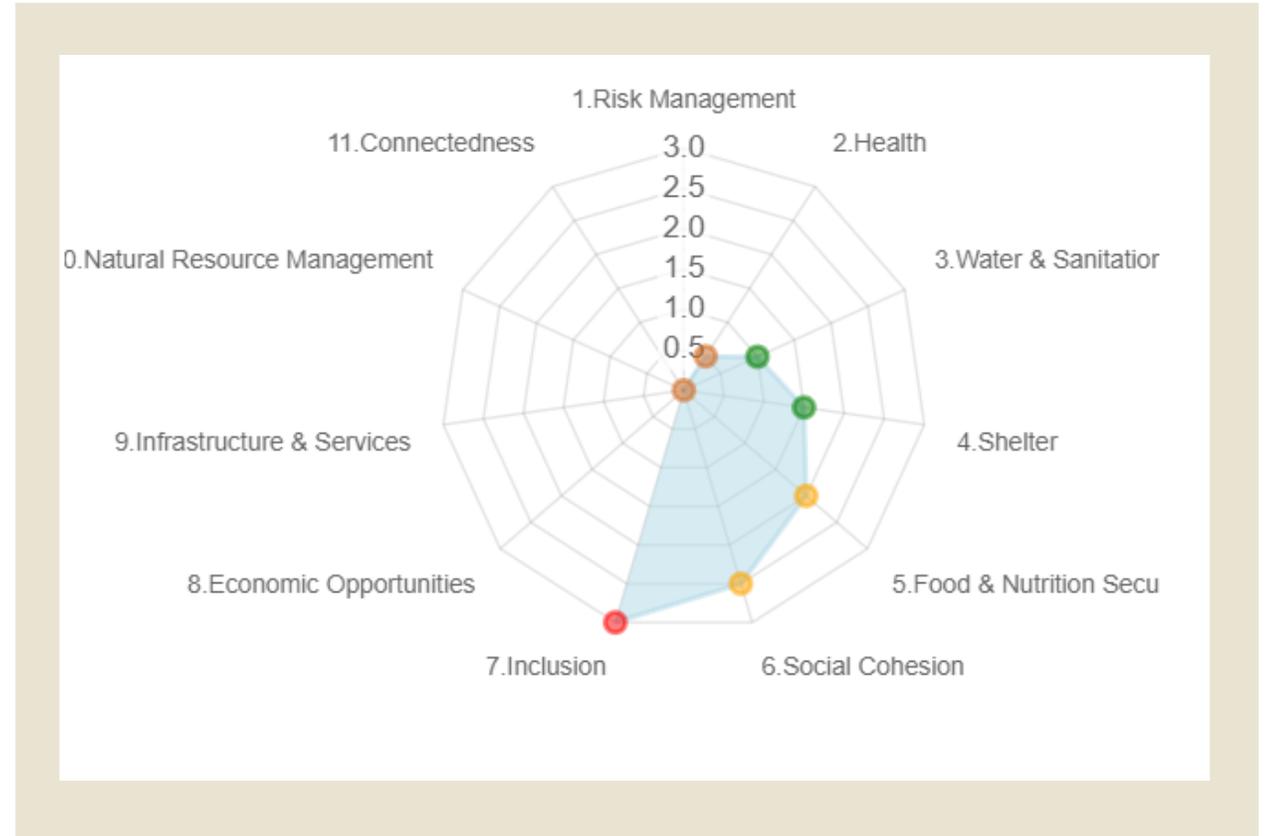
**Output**  
Understanding of the multi-hazard exposure of **the community and water infrastructure** that is vulnerable for conflict. Enhanced with understanding of the capacities and vulnerabilities.



# Enhanced Vulnerability and Capacity Assessment (eVCA)

Support measure community resilience by using multiple tools - **Enhanced Vulnerability and Capacity Assessment (EVCA)**.

The Vulnerability and Capacity Assessment (VCA) is a participatory process developed for communities to become more resilient through the assessment and analysis of the risks they face and the identification of actions to reduce these risks..



# The platform

At the core of this project was the **development of a platform which combines qualitative and quantitative information** to provide a comprehensive overview of: **climate hazard exposure, vulnerabilities, and community capacities.**

The platform showcases the **power of partnership** among Red Cross Red Crescent Movement partners by **combining insights on different perspectives** to achieve a more **disaster-resilient community.**



# The platform - Lebanon

### Home page

Home page interface showing a navigation bar with 'User name', a main content area with an 'Explanation of the platform with pop ups that explain the different concepts and definitions', a map of Lebanon with climate drivers, and a sidebar with 'Maps of climate drivers', 'Summary of the EVCA results', and 'Qualitative understanding of multi-hazard exposure in the area of interest'. Logos for UN, UNICEF, and ICRC are visible at the bottom.

### Climate page

Climate page interface with a navigation bar, three maps for 'Hazard exposure', 'Historic climate drivers', and 'Change in climate drivers', and a sidebar with 'Key figures related to selected hazards' and 'Narrative: explanation of how the hazard exposure is expected to change due to climate change'. Logos for UN, UNICEF, and ICRC are visible at the bottom.

### EVCA page

EVCA page interface with a navigation bar, 'EVCA information', 'Main hazards' (Winter storms, Floods, Drought), 'Hazard exposure' (Cause / origin, Duration, Exposed people, Cascading hazards), 'Risk Radar' chart, 'Resilience dimension' (Health, Water & sanitation, Shelter, Food & nutrition security, Social cohesion, Inclusion, Economic opportunities, Infrastructure & structure, Natural Resource Management, Connectedness), 'Vulnerability', 'Capacity', and 'Dimensions to prioritize' (Health, Shelter, Economic opportunities). Logos for UN, UNICEF, and ICRC are visible at the bottom.

### Impact chain page

Impact chain page interface with a navigation bar, 'Main hazards in' (Winter storms, Floods, Drought), 'Dimensions to prioritize' (Wash, Shelter, Economic opportunities), a complex flowchart diagram, and a 'Narrative of the impact chain' box. Logos for UN, UNICEF, and ICRC are visible at the bottom.

# The platform - Myanmar

The screenshot displays the 'Climate maps' section of a risk assessment platform, specifically for Myanmar. The interface includes a navigation bar with tabs for Home, Climate maps, Risk assessment, Results, Reporting, and Edit Risk Assessment. Under 'Climate maps', several hazard types are listed: Floods (selected), Droughts, Wind, Landslides, Extreme heat, Sea level rises, and Storm Surge.

On the left, a sidebar contains a 'Understanding Climate Change' section with a green checkmark and a list of instructions:

1. For each **hazard** you can see the exposure on your project location.
2. Search for your **project location** in the **search bar** on the top. Or **zoom** in to it by scrolling
3. Turn on the **climate change** to see the difference in hazard exposure on the map.
4. Assess for **each hazard** the historic and future exposure
5. **Click** on a location to see more numbers on the hazard
6. To **see** the relative climate change between the historic and future, click the box on.

Below the instructions are sections for 'How to navigate the page:' and 'How to navigate the climate slicer', along with buttons for 'User guide' and 'Explanation of calculation'.

The central map shows Myanmar and surrounding regions (Bangladesh, Thailand, Laos, Vietnam, Cambodia) with a color-coded overlay representing flood exposure. Major cities like Yangon, Mandalay, and Naypyitaw are labeled. A search bar is visible in the top right of the map area.

On the right, a control panel titled 'To start turn climate difference on.' includes a toggle switch for 'Turn climate change on:' and a list of selected layers:

- Relative change Flood Exposure
- Historic Flood Exposure (1981 - 2014)
- Future Flood Exposure (2021 - 2050)

A legend for 'Relative change Flood Exposure' shows a color scale from light red (< 15.1) to dark red (> 28). Below it, a legend for 'Historic Flood Exposure (1981 - 2014)' shows a blue square representing the number of days where precipitation exceeds 90% threshold (normalized).

# The platform – User Insights

Calculating vulnerability **shouldn't be a one time thing but should be regularly updated.** There are many answers that we can collect through the governmental institutions like the water and electricity utilities.

Multi-hazard tool will give us **a holistic view about the risks that can happen in an area.** This can help in **identifying risk reduction measures** and can help in **decision-making by identifying the higher risk communities** and where we will focus on in DRR strategies.

Knowing if villages have previously encountered a natural hazard and what were statistics and characteristics is useful. **We can use it in the design and planning phase, it will give us an idea about the type of project to mitigate those hazards.**

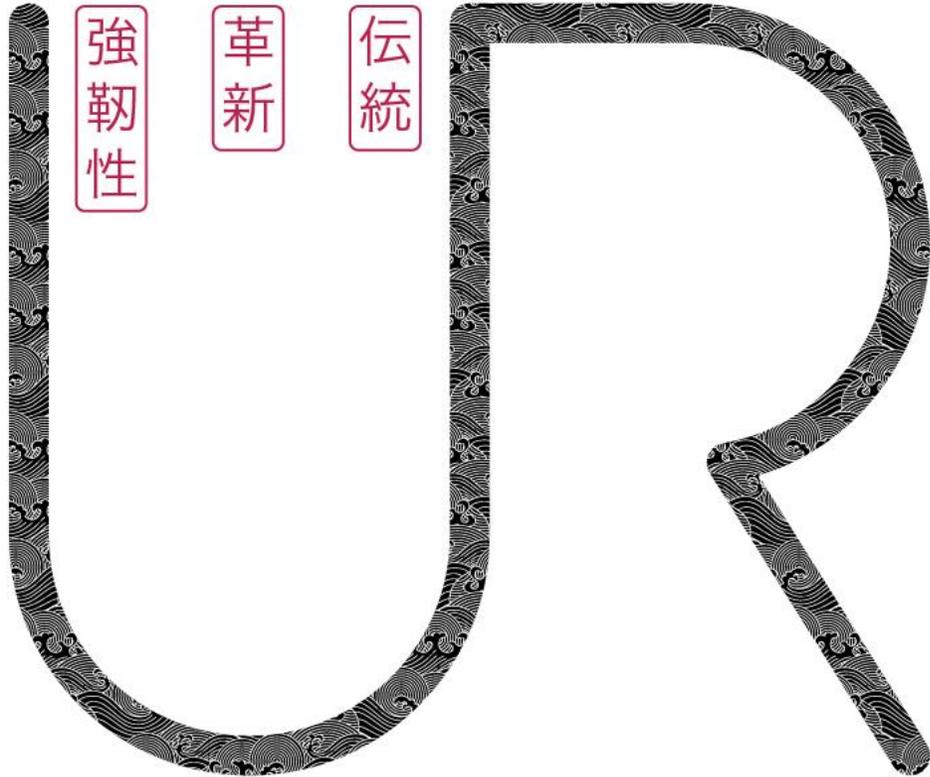
Now I know that wind can reach to 140 km/h, but maybe in 10 years from now it can be higher. **It's a great idea to visualize.**

I would say in terms of climate change or risks **Lebanon is still in quite a good position** with regards to other countries in the MENA region. However, the tendency is there. There is precipitation, change in patterns, but **the main reason of water scarcity in the country is due to mismanagement** of the resources. Then of course the climate risks will come as a **compounded affect.** I wouldn't say it is that visible in the moment in terms of water scarcity, but it will come, **so we have to be prepared.**

# Lessons learned and challenges

- **Consider microclimates** – granularity of the data and analysis needs to be valuable for the country and local teams.
- A combination between **Human Centered Design, Community/Stakeholder engagement and Data** is essential
- Openness and great ideas of all participants: **platform is 99.9% their idea**, sketch, and data. We facilitate and bring together.
- Combine **qualitative data, quantitative data, community specific information and country/area data in one platform** to give an as complete picture as possible
- **Knowledge sharing** between all partners: learn from and use each other's strengths
- Being **flexible and having short lines** with stakeholders to adapt when needed

“In dialogue with our Movement partners, we learned that the **human factor cannot be disregarded**. A **complete picture** about the concerned areas was needed to **improve timely and data-driven decision making**, and to ensure that the Lebanese Red Cross and the ICRC **adopt a project strategy that works for specific communities.**”



TRADITION • INNOVATION • RESILIENCE

Thank you !

[mpanis@redcross.nl](mailto:mpanis@redcross.nl)



An initiative of  
the Netherlands  
Red Cross

# Panel discussion

# Part 2: Marketplace



UNDERSTANDING RISK  
GLOBAL FORUM 2024

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## Part 2: Marketplace

**Speakers:**

Natalia León Barrios

Timothy Tiggeloven

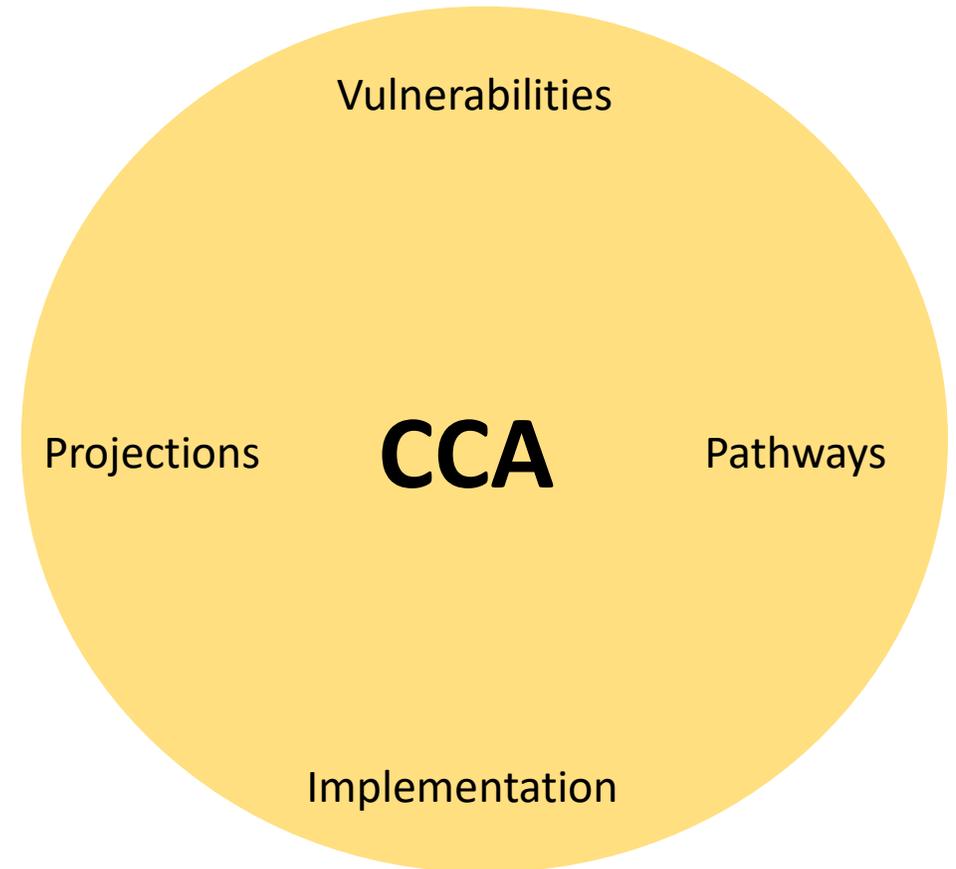
**Deltares**

 IVM Institute for  
Environmental Studies

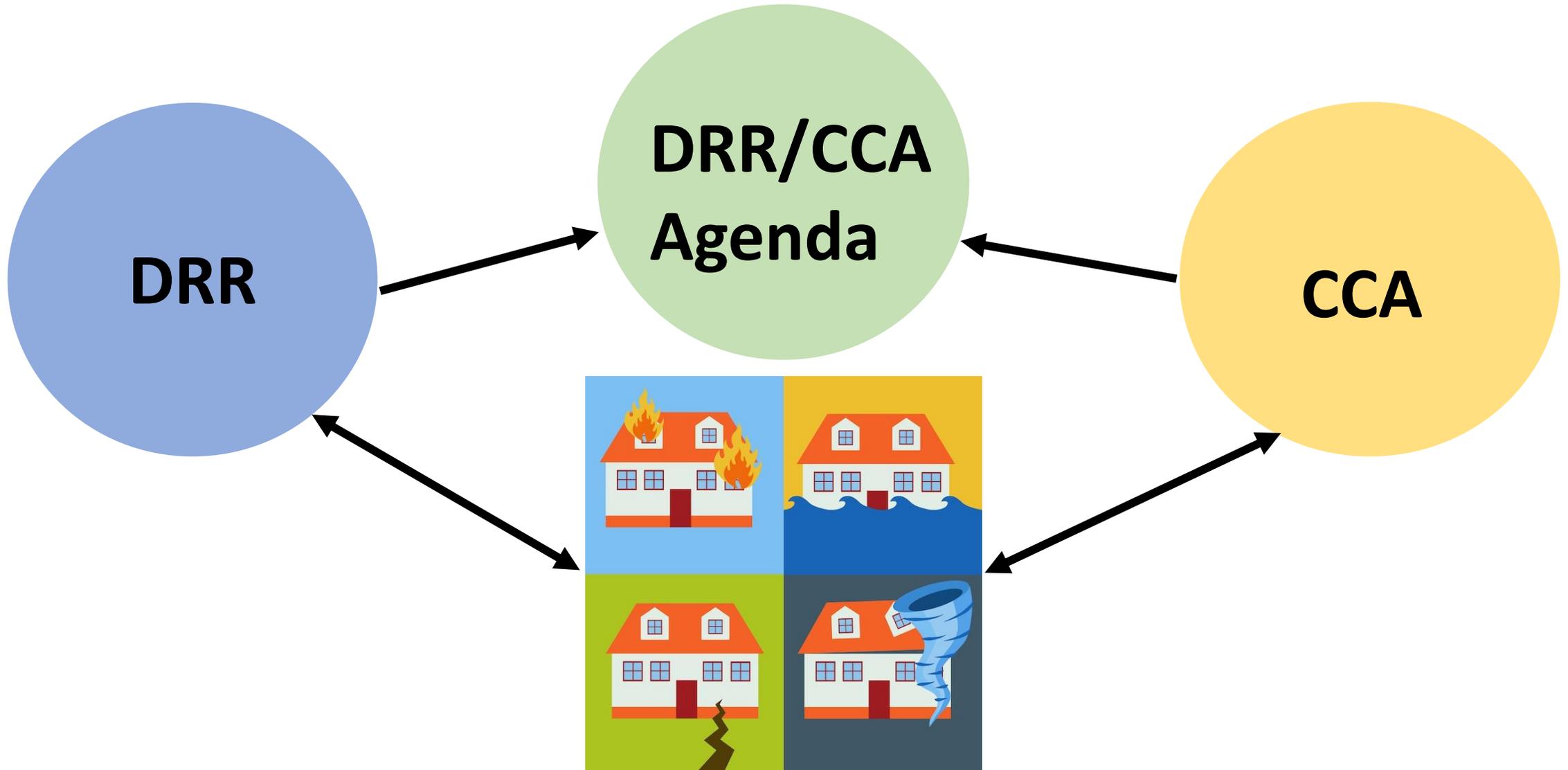
**VU** 

  
**myriad\_eu**  
Reducing risks together

# DRR and CCA in Silos



# Bridging DRR and CCA



# Marketplace

**1. Lightning talks**

**2. Market stall  
session**

# Marketplace round A

Stall A1: MachiCare

Stall A2: CLIMADA

Stall A3: Impact based Forecasting Portal

Stall A4: Hotel Resilient

Stall A5: EPIC Rapid Assessment Methodology

Stall A6: Flood and Health tool

Stall A7: RA2CE

# Marketplace round B

Stall B1: MYRIAD-EU

Stall B2: HIPS

Stall B3: National Open Geodata

Stall B4: Micro Geodata for DRR

Stall B5: Decisions for the Decade

Stall B6: Flood Resilient Landscapes

Stall B7: FloodAdapt

Stall B8: RISE: Resilient Indonesian Slums Envisioned

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UNDERSTANDING RISK  
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## MachiCare

Speakers:

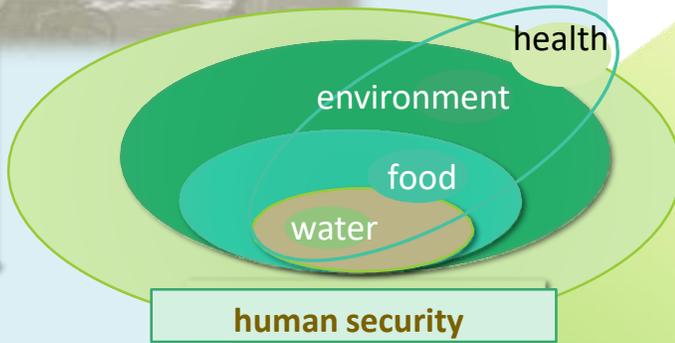
Takahiro Ando

Affected Community= Isolated communities people who are not able to return home

Who is community  
Place : Temporary  
Time: Open/ Close

- Road available
- Shelters (to get foods)
  - Temporary Toilet
  - Bathroom/ faucet
  - Nearest Home center /Pharmacy(Drugstore)
  -

Information survivors wants to know is not the damage and survivors needs



prepare

environment

action

symptoms

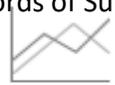
syndrome

sickness

Shelter and Medical team

First Aid

Records of Supporting Organizations



Hospitals

treatment

Medical Records Surveillance



Medical Team Survey



Cure



Where are the tools and places for information sharing, common understanding and decision making among the affected people?

# Users to register and Judgment of data

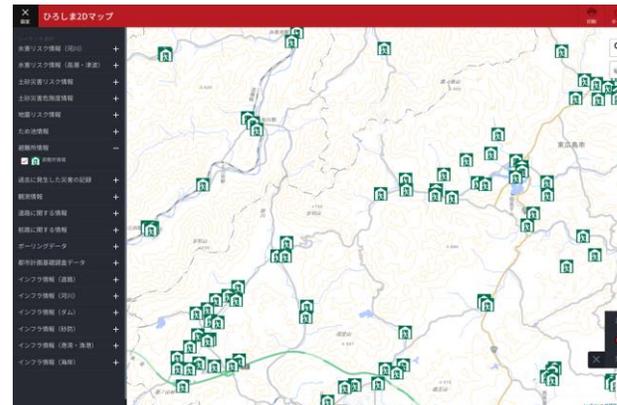
## Dataeye



Local government officials

Workflow approval functions are available.

## DoboX



Local government officials

Workflow approval functions are available.

## Machicare



citizens, volunteers, NPO etc.

There is a decision-making function among citizens.

# To open governance

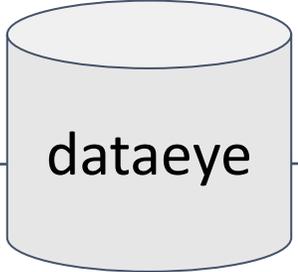
  
Citizens

+ 1line

No.	住所	店舗名	業種	電話番号	営業時間	備考
1	東京都 練馬区 東練馬 1-1-1	東練馬郵便局	郵便局	03-3581-1111	08:00-17:00	
2	東京都 練馬区 東練馬 1-1-1	東練馬郵便局	郵便局	03-3581-1111	08:00-17:00	
3	東京都 練馬区 東練馬 1-1-1	東練馬郵便局	郵便局	03-3581-1111	08:00-17:00	
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→  
A.S.A.P.

several days later



  
Local government officials

workflow and approval



with warning message



with NO warning message

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CLIMADA

Speakers:

Dr. Evelyn Mülhofer



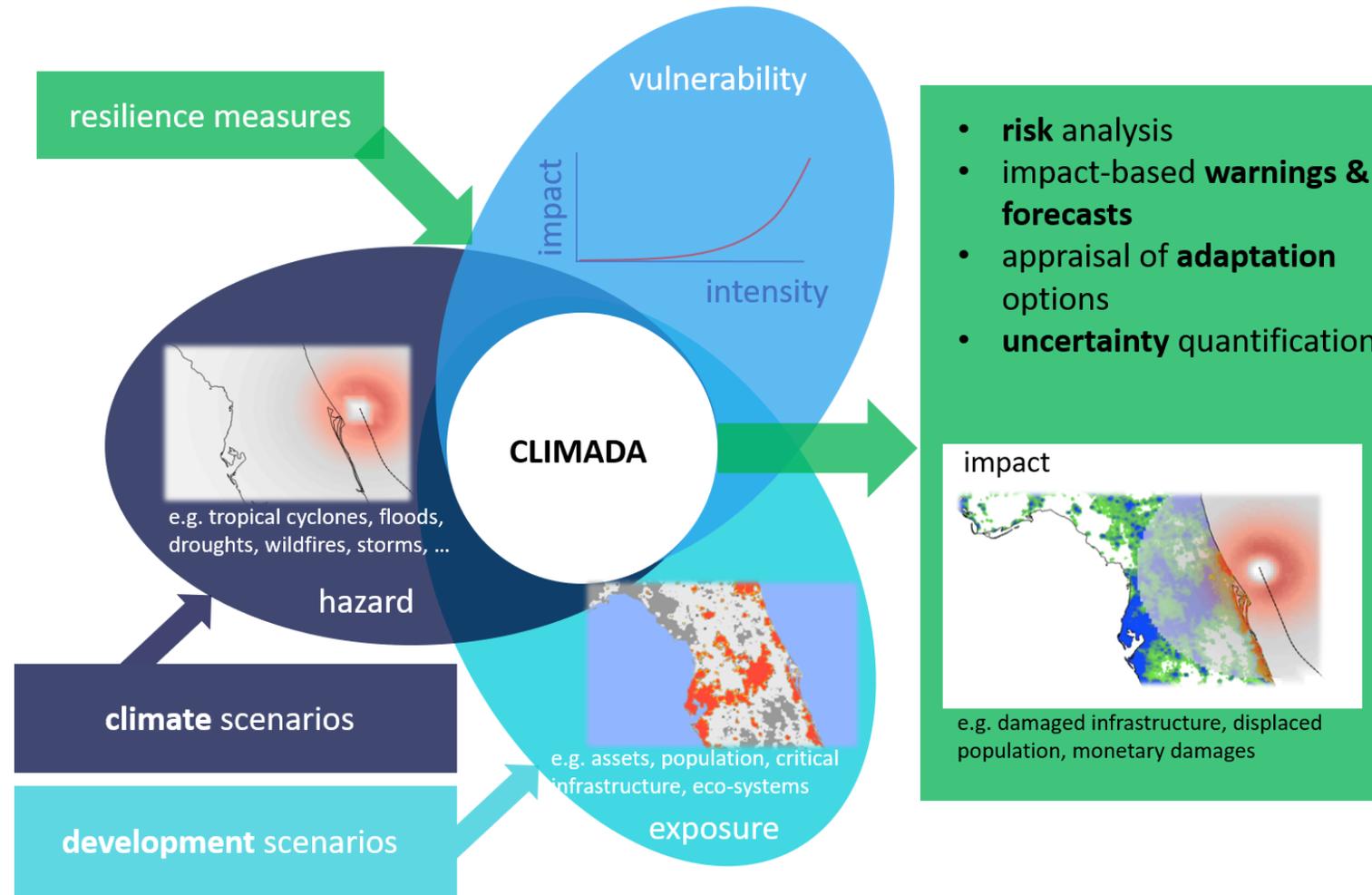
CLIMADA  
Economics of Climate Adaptation

# CLIMADA

## event-based, probabilistic risk assessment platform



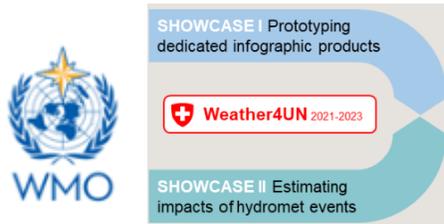
<https://wcr.ethz.ch/research/climada.html>; [1]



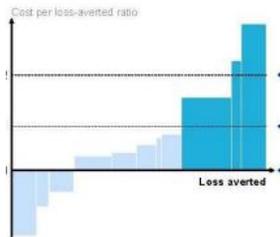
# Use cases & availability

Open-source, Python-based, freely available ([GitHub](#)) stable software package + [data API](#)

Developed by >20 researchers @ ETH Zürich; used by (I)NGOs, academia, national weather services & private companies



impact-based forecasts for NGOs & Switzerland [2,3]



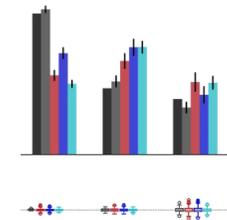
Economics of Climate Adaptation (ECA) studies [4]



Systemic risks, failure cascades & basic service disruptions [5, 6]



multi-hazard risk studies (incl. climate change) [9]



tropical cyclone model intercomparison & DMDU [7, 8]

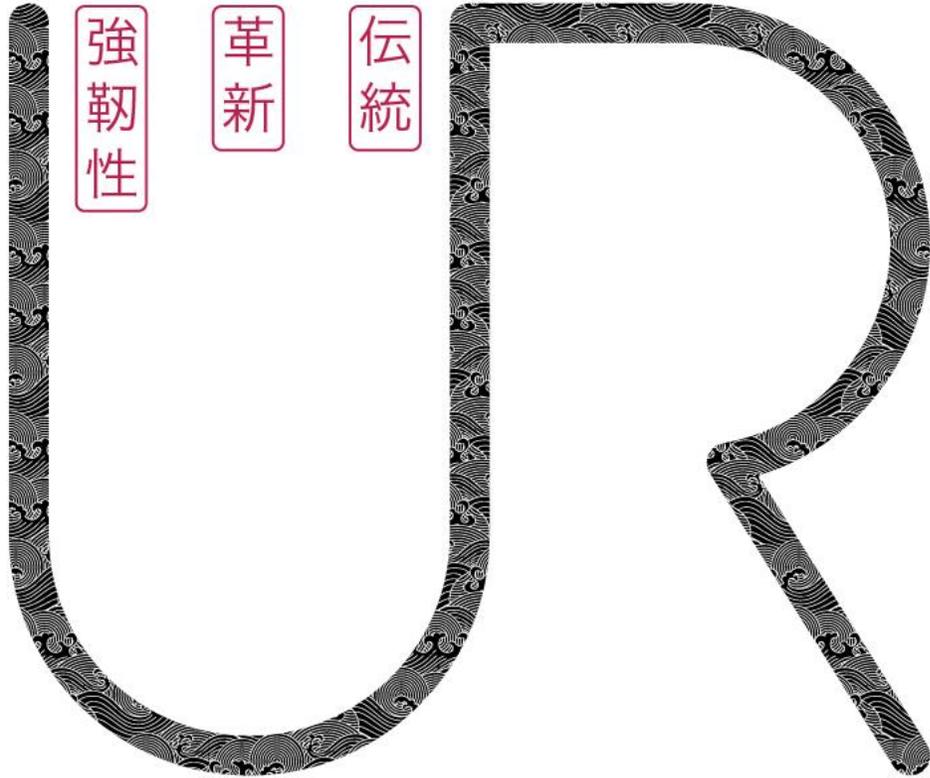


displacement risk [10]

& many more ...!

# References & further links

- [1] <https://doi.org/10.5194/gmd-12-3085-2019>
- [2] <https://www.meteoswiss.admin.ch/about-us/research-and-cooperation/projects/2021/weather4un.html>
- [3] <https://doi.org/10.1002/met.2035>
- [4] <https://wcr.ethz.ch/research/casestudies.html>
- [5] <https://doi.org/10.1016/j.res.2023.109194>
- [6] <https://doi.org/10.1016/j.oneear.2024.03.010>
- [7] <https://doi.org/10.1038/s41467-022-33918-1>
- [8] <https://doi.org/10.1038/s43247-023-00998-w>
- [9] <https://doi.org/10.1038/s41598-024-55775-2>
- [10] <https://iopscience.iop.org/article/10.1088/1748-9326/abd26c/meta>



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Thank you !





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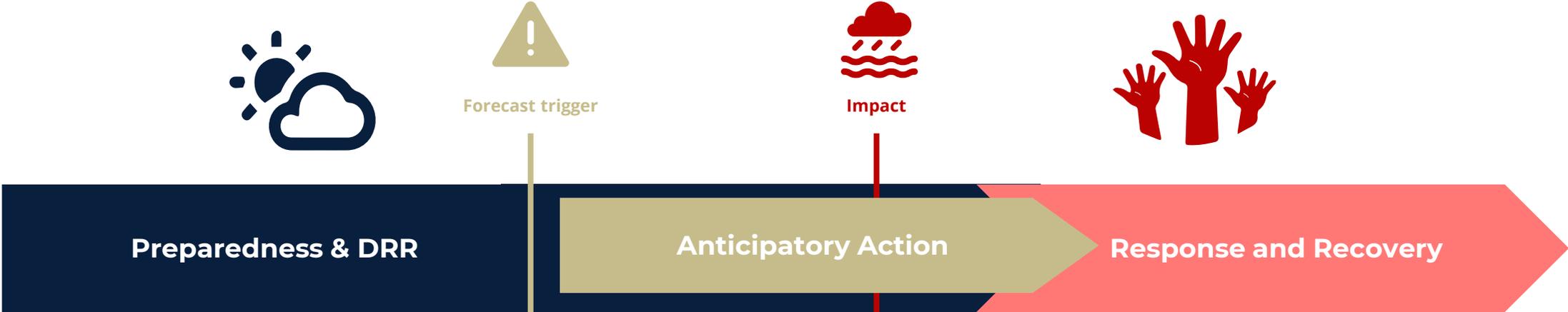
# Impact based Forecasting (IBF) Portal

Speakers:

Marijke Panis (MSc)



# Products & Services – Climate Disaster Risk Management



## Impact-Based Forecasting Portal

EAP & Trigger model development

Capacity Building & Training



# Impact-Based Forecasting (IBF)

- 9 IBF trigger model and portals
- 7 EAP development support
- 6 Hazard covered



FLOODS



DROUGHT



EPIDEMICS



CYCLONES



HEAVY RAINS



FLASH FLOODS

**2 Oct 2023**  
Monday, 13:36 GMT+2

**IBF** Hello Henry Dunant. The information in this portal is based on the model last run on **Friday, 29 September 11:14.**

**About Trigger** **IBF Guide**

**Trigger log** **Export View**

**▲ Trigger: flood**  
A **flood** trigger warning was issued on **Friday, 29 September.** There are **2** districts triggered. They are listed below in order of exposed population and are highlighted in the map with a red outline.

- [Butaleja \(Eastern\) - 1,482](#)
- [Budaka \(Eastern\) - 132](#)

Please select an area to monitor by selecting from the list or on the map and manage the trigger and the preplanned anticipatory actions of each area.

**Uganda - National View**  
2 Exposed Districts

Exposed Population	1,613
Total Population	450,998
Female-Headed Household	268
Population U8	568
Population 65+	50

**Actions Summary**

Sector	Compl...
Disaster Risk Reduction	0/0
Shelter	0/12
Livelihoods & Basic Needs	0/2
Health	0/0
WASH	0/8
Protection, Gender And Inclusion	0/0
Migration	0/0

**Map Legend**

- Alert Threshold Reached
- Glofas stations no trigger
- Glofas stations max trigger
- Flood extent

**Exposed population (no. of people)**

- 132-402
- 402-672
- 672-942
- 942-1.2k
- 1.2k+

# What is the IBF Portal

A **decision-making support tool** displaying and disseminating impact information of an incoming disaster.

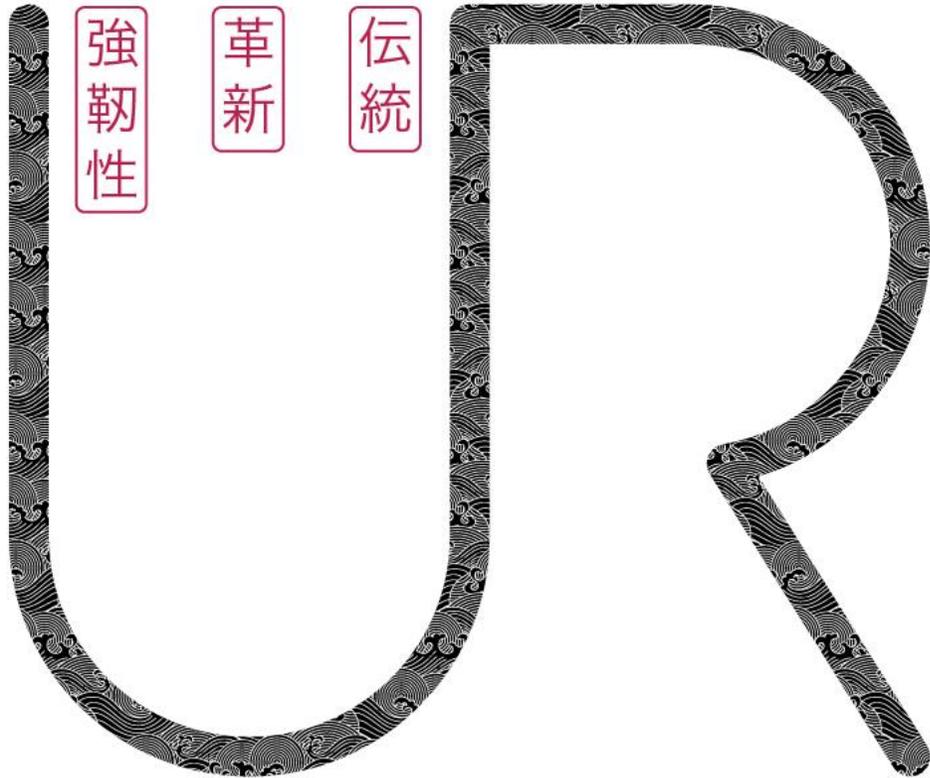
**Enables anticipatory action**

**Supports decision making**

**Follows national disaster response plans**

**Alignment between the stakeholders**

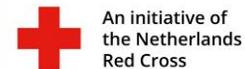
**Notify the relevant stakeholders**



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Thank you !

[mpanis@redcross.nl](mailto:mpanis@redcross.nl)



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Protecting +  
Assessing ...

Digital +  
Sectoral ...

Enhancing  
Tourism ...

## Hotel Resilient

Speakers:

Prof. Dr. James Daniell

Hotel  
Resilient

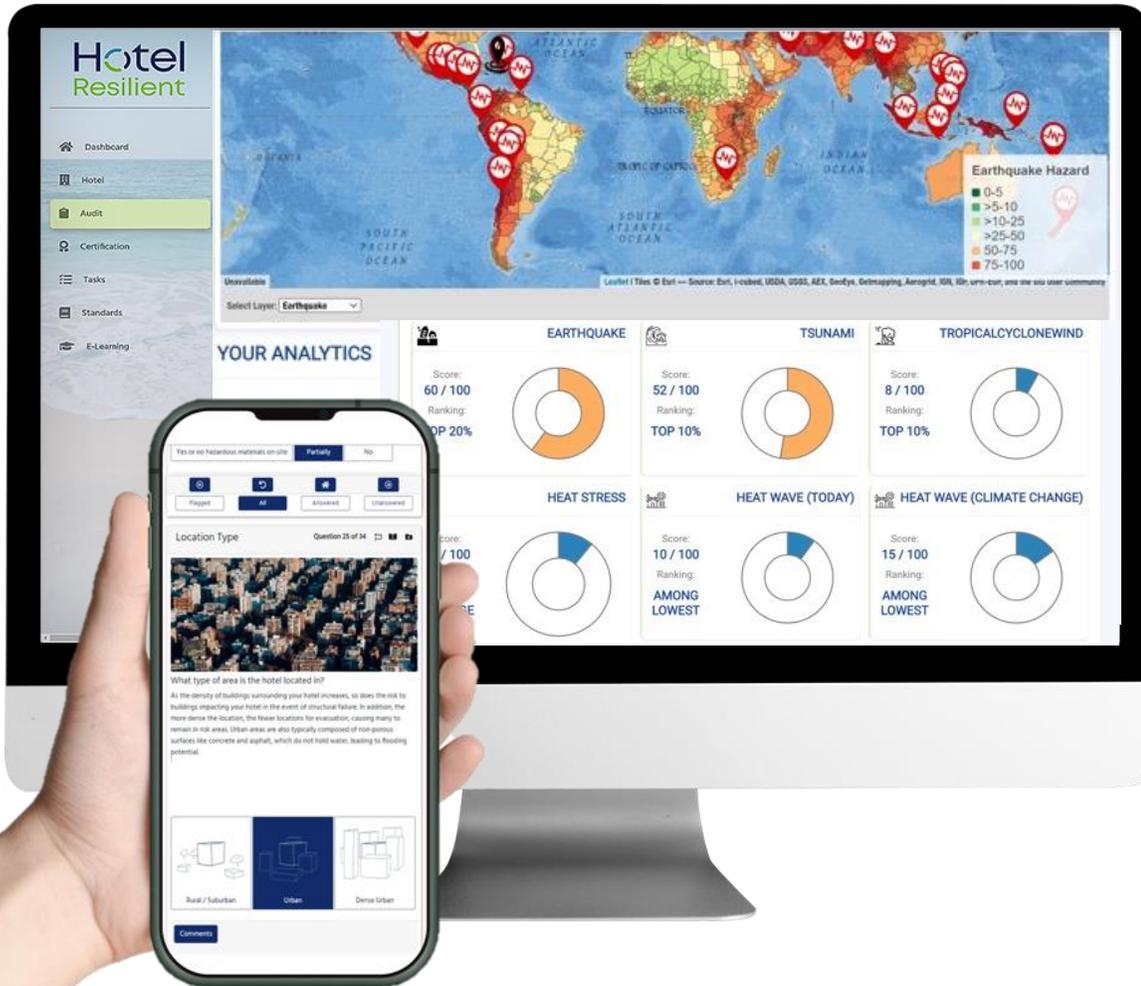


Hotel  
Resilient

# STANDARDS on resilient and responsible hotels



# The Hotel Resilient ASSESSMENT SYSTEM



**MULTI-HAZARD, CLIMATE IMPACT & RISK-BASED METRICS + SURVEY**

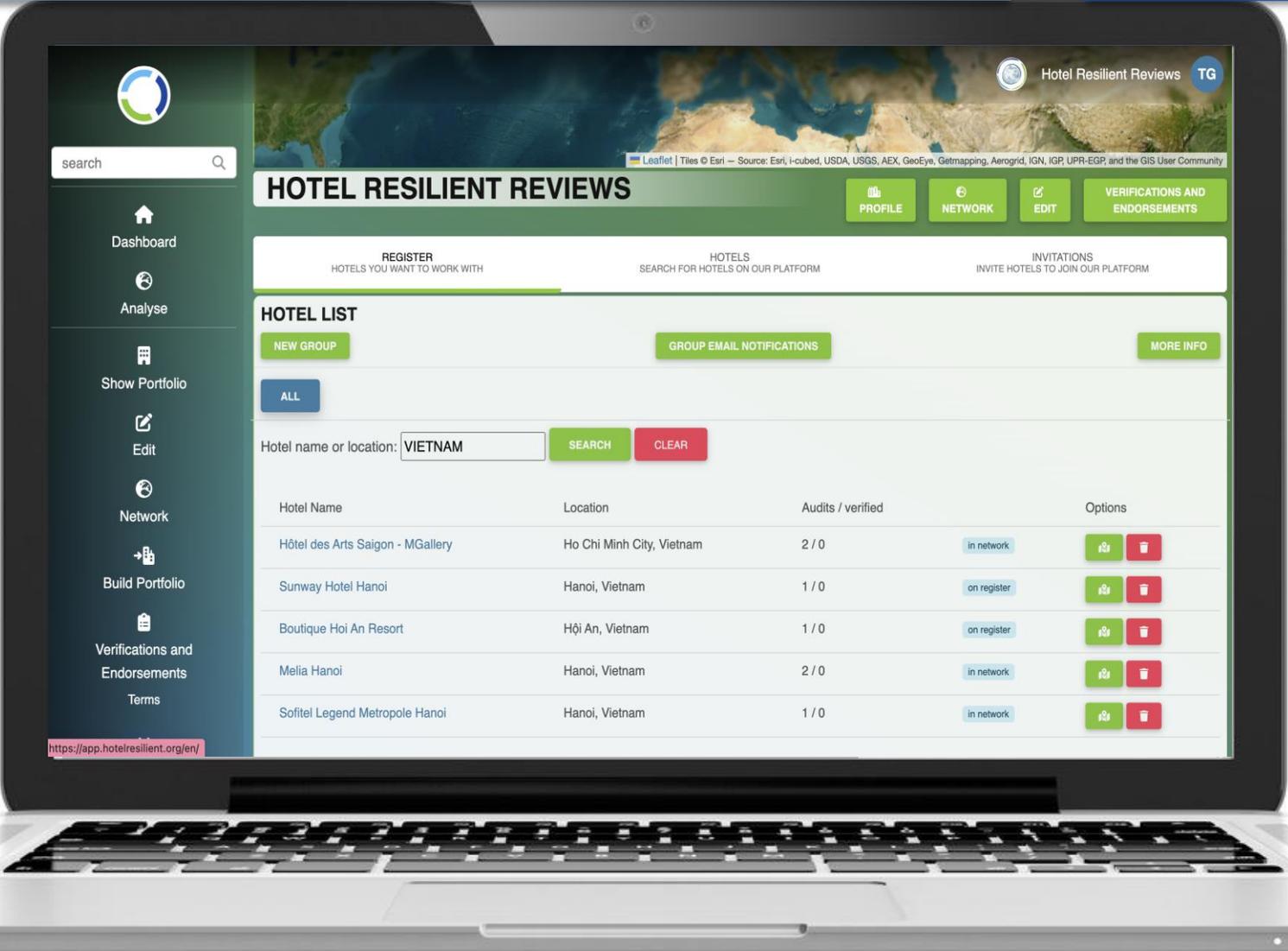


# COLLABORATION on Hotel Resilient Platform

Destination Management Companies

Tour Operators

Hotels



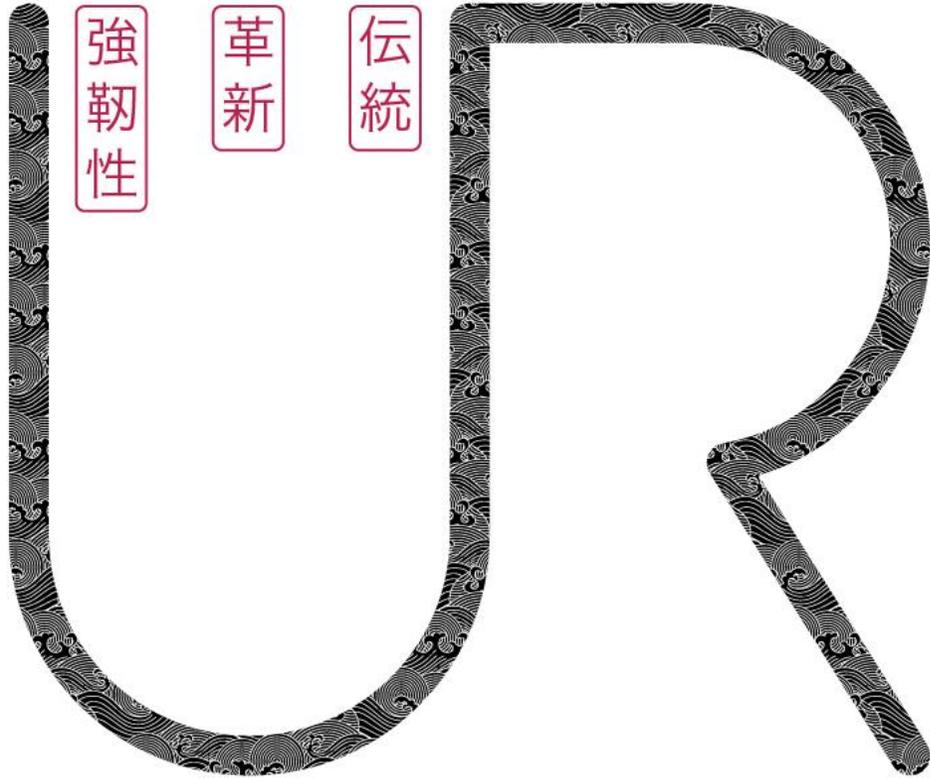
**PALM RESORT PHUKET**  
24/4 Moo 8 Tambon Saku, Amphur Talang, 83110 Phuket, Thailand



Find out how Palm Resort Phuket is crisis resilient, climate-friendly and responsible.

Resilience Practices	Climate-Friendly Practices	Responsible Practices
<ul style="list-style-type: none"> <li>Multi-hazard Risk Screening</li> <li>Crisis Resilience Plan</li> <li>Crisis Resilience Actions                             <ul style="list-style-type: none"> <li>Emergency Power and Supplies</li> <li>Warning Systems</li> <li>Safe Evacuation</li> <li>Training and Drills</li> <li>Building Safety Check</li> <li>Fire Protection</li> <li>COVID-READY</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Baseline Climate Risk Screening</li> <li>Baseline Carbon Footprint</li> <li>Climate Commitment Targets -2030</li> <li>Climate Resilience Plan</li> <li>Climate Resilience Actions                             <ul style="list-style-type: none"> <li>100% Renewable Energy</li> <li>Offset private footprint of employees</li> <li>Waste Recycling</li> <li>Plastic Free</li> <li>Climate-Friendly Rooms</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Basic Responsible Hotel Practices</li> <li>Detailed Responsible Hotel Protocols</li> <li>Responsible Hotel Actions                             <ul style="list-style-type: none"> <li>Barrier Free</li> <li>Employee Wellbeing</li> <li>Forced Labour Protection</li> <li>Responsible Sourcing</li> <li>Community Engagement</li> </ul> </li> </ul>

<https://app.hotelresilient.org/en/>



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# EPIC Response Framework

## Speakers:

Annegien Tijssen

Ana Nunez Sanchez

---

## Logos:





Executive Summary

# An EPIC Response:

Innovative Governance for Flood and Drought Risk Management



GREG BROWDER, ANA NUÑEZ SANCHEZ, BRENDEN JONGMAN, NATHAN ENGLE, EELCO VAN BEEK, MELISSA CASTERA ERREA, STEPHEN HODGSON



## Combined Management of Floods and Droughts – Transformations in Governance Structures EPIC Response Program

# The EPIC Response Framework

- Provides a new perspective on hydro-climatic risks by looking at the combined management of floods and droughts
- Identifies the roles of different government agencies in managing these risks and highlights where and how these agencies need to collaborate
- Represents the most extensive compendium of flood and drought policies and programs that currently exists in the literature
- Creates a mechanism for engaging in policy discussions in a structured manner to identify gaps, constraints, and opportunities for advancing a country's hydro-climatic risk management system can be discussed in a with a broad range of stakeholders

## PROGRAM AREAS

### **E**NABLE

- National Frameworks: Laws, Agencies, Strategic Plans
- Facilitating Whole-of-Society Approach
- Hydro-Met Services

### **P**LAN

- Flood and Drought Risk Mitigation and Contingency Planning

### **I**NVEST

- Healthy Watershed
- Water Resources Infrastructure

### **C**ONTROL

- Water Allocation and Groundwater Management
- Floodplain Management

### **RESPOND**

- Drought Monitoring, Response, and Recovery
- Flood Monitoring, Response, and Recovery
- Disaster Risk Financing



# The EPIC Response Process is Evolutionary

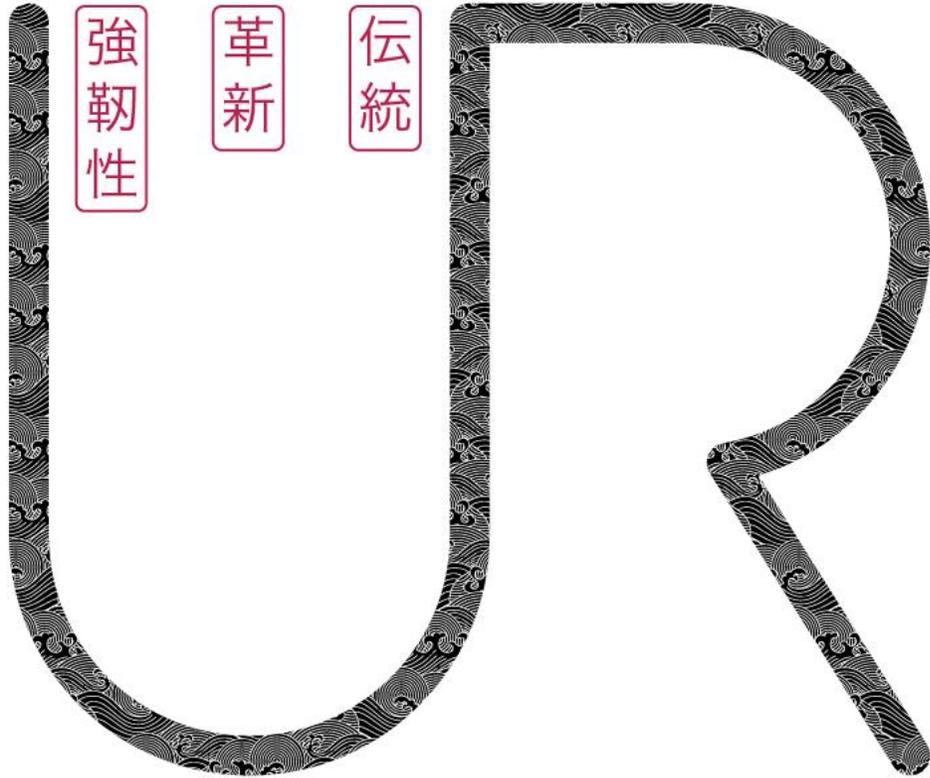
Continuously strive to improve program performance through rigorous monitoring, evaluation, and adjustments.

## Generic Evolution Tables for 40+ Different Programs

Nascent	Engaged	Capable	Effective
No legal framework or formal program. <i>Ad hoc</i> approach	Legal framework authorizes the program, but program not yet operational	Program is operational but still in early stages of implementation	Legal framework has been refined based upon experience, with mature program implementation



**1: Nascent**  
**2: Engaged**  
**3: Capable**  
**4: Effective**



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# Flood and Health Tool

**Speakers:**

Nishchal Sardjoe

Gertjan Geerling

---

Logos:

**Deltares**

# Managing Floods, Water Quality & Wellbeing

## Current flood management planning

Flood risk assessments encompass computing *flood risk maps* followed by estimates of *cost of infrastructure repair* and “*number of affected people*”.

Based on these assessments, mostly “civil engineer type” solutions are proposed.

## Our intention is

To lower vulnerability to floods and lower the health and well-being burden

## By (strategy)

- Co-management (bridge flood and public health stakeholders)
- Quantify the non-tangible burden (health)
- Understand cause and effect complexity
- Enhance flood risk planning with the above

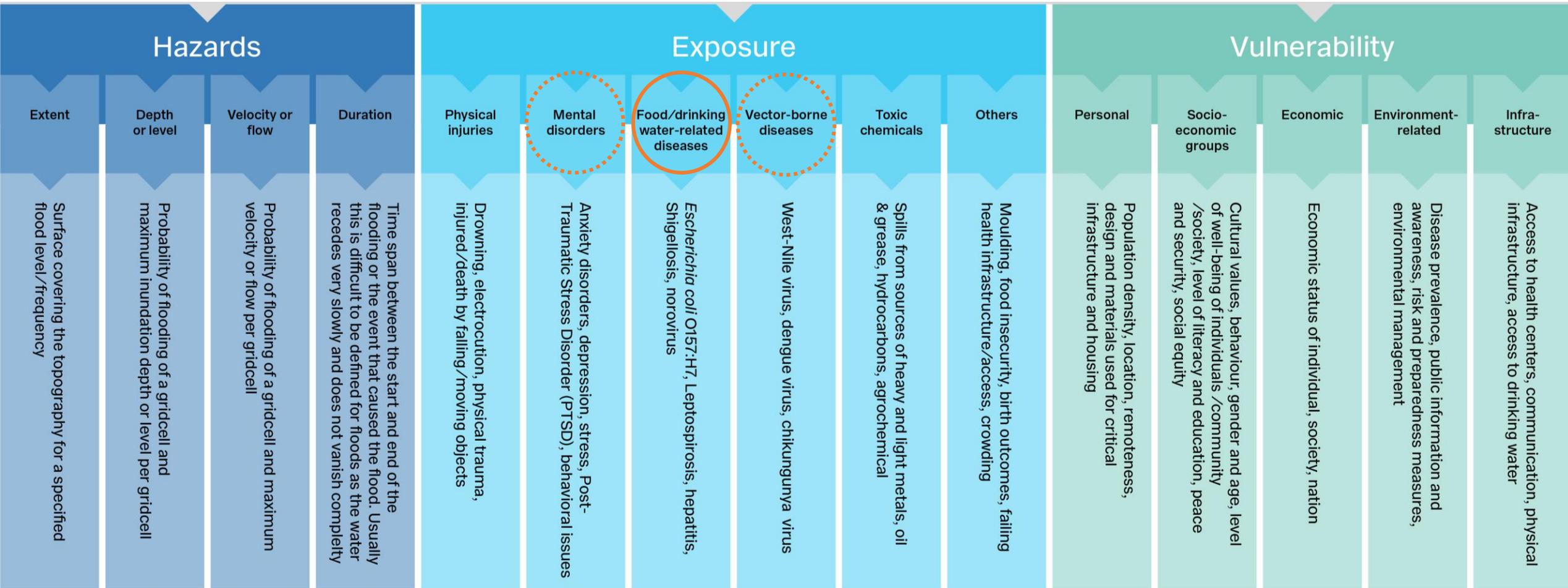


# Health quantification “wish list (road map)”

Developing methods and tools for floods & health mapping, analysis and measures

-  Tool in beta
-  Under investigation

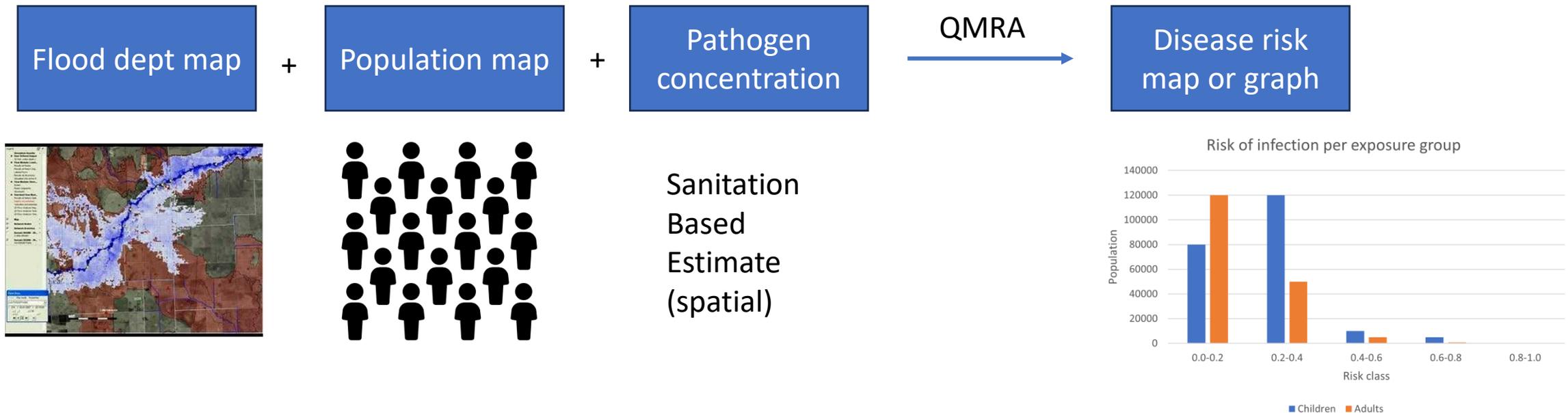
## Flood Hazards, Exposure & vulnerability



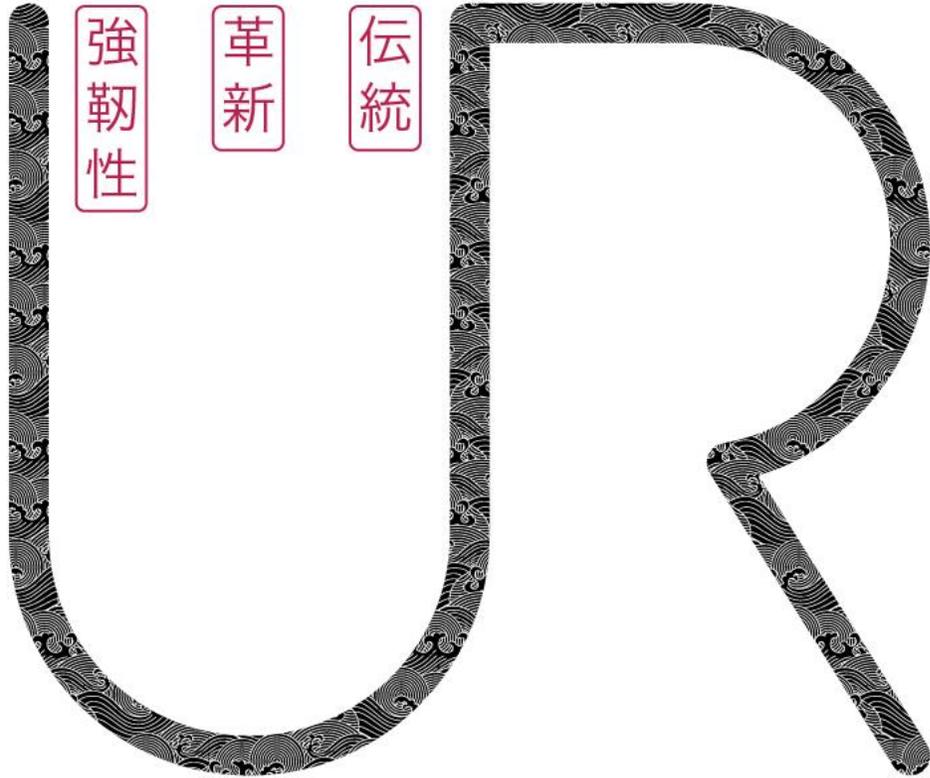
# Waterborne disease risk tool (QMRA based)

Our first tool that is available (script form) estimates the waterborne disease risk of a flood.

It is based on Quantitative Microbial Risk Assessment (QMRA)



**For more details visit the marketplace!**



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# RA2CE

Resilience Assessment and  
Adaptation for Critical Infrastructure

**Towards resilient infrastructure systems**

**Speakers:**

Natalia Leon Barrios

Thomas Bles

---

Logos:

**Deltares**

# Resilience of infrastructure



How can we make our infrastructure network resilient?

How to quantify the effects of extreme weather conditions?



Where are adaptation measures cost-effective?

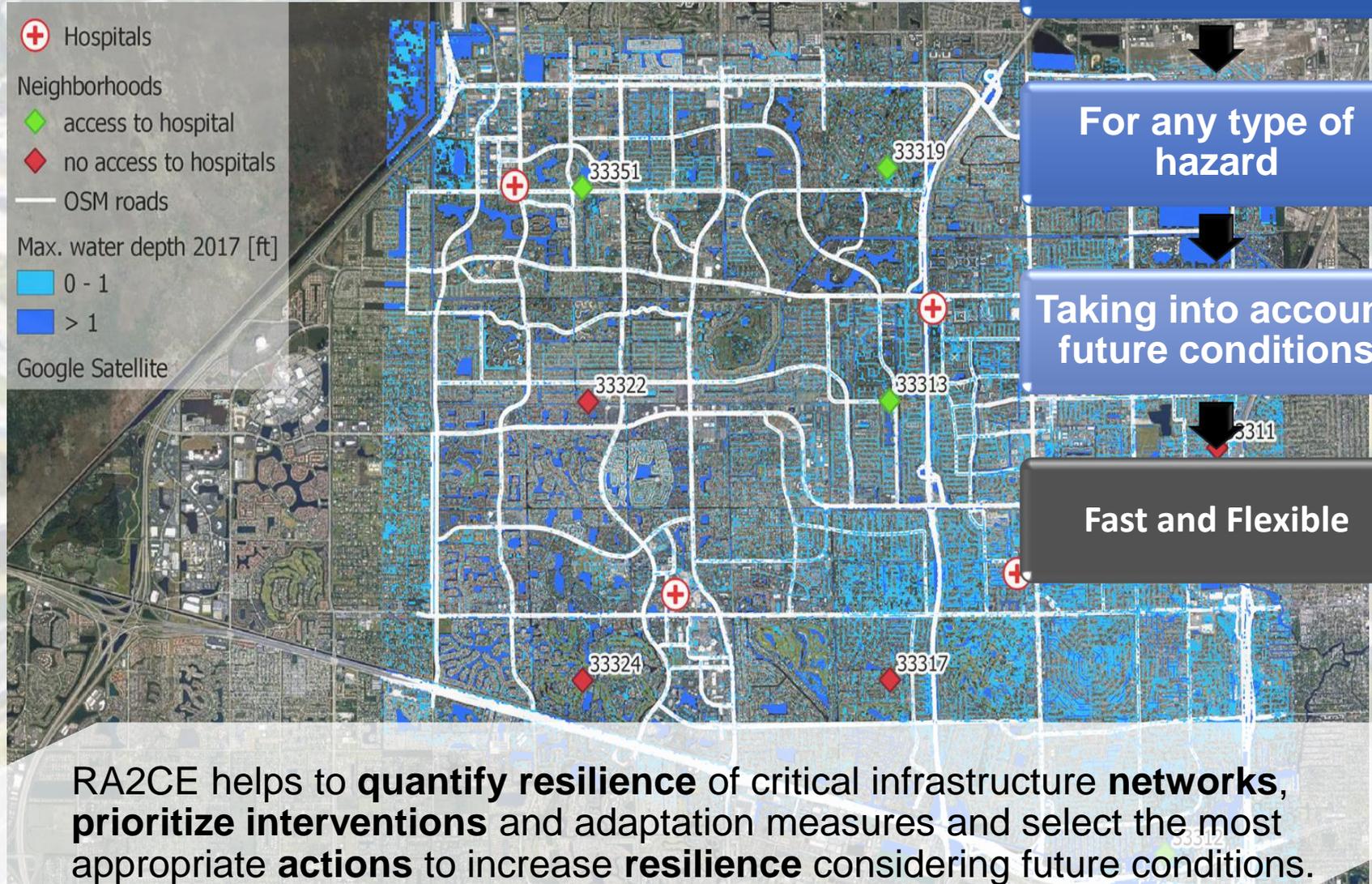


How do effects propagate over networks?

How can we take into account uncertainty?



Where should emergency response focus during disaster?



Fully quantitative network analyses

For any type of hazard

Taking into account future conditions

Fast and Flexible

RA2CE helps to **quantify resilience** of critical infrastructure **networks**, **prioritize interventions** and adaptation measures and select the most appropriate **actions** to increase **resilience** considering future conditions.

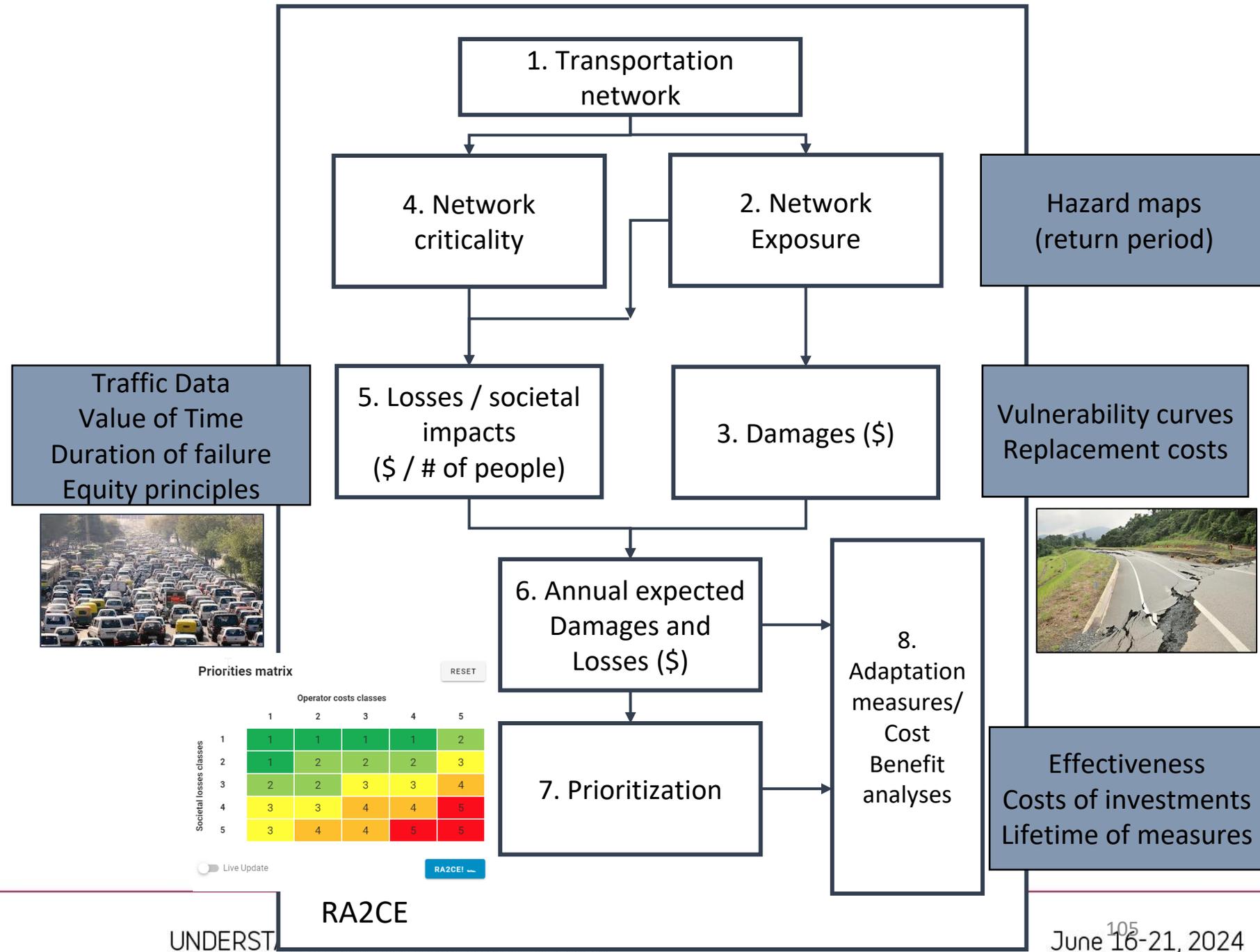
# The RA2CE modeling framework

Graph-based network analyses

Hazard model output can serve as input

Output has different visualisation options

Fast and Flexible



# Applications

## Adaptation Planning

### As Ministry of Infrastructure

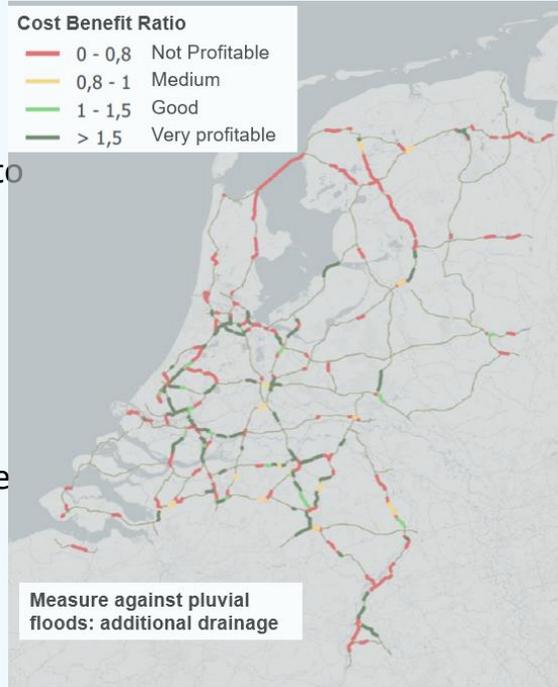
Gain insight in the measures to take to achieve future resilience by making the best investments

### To do this

With use of RA2CE analyses maps were provided with overview of measures and cost beneficial interventions based on efficacy of the interventions on the hazard impact

### Which results in

Cost-savings due to better informed investment planning and spatially explicit



## Emergency Response

Client: First responder/Emergency manager

### Benefits

Faster emergency response due to better informed results.

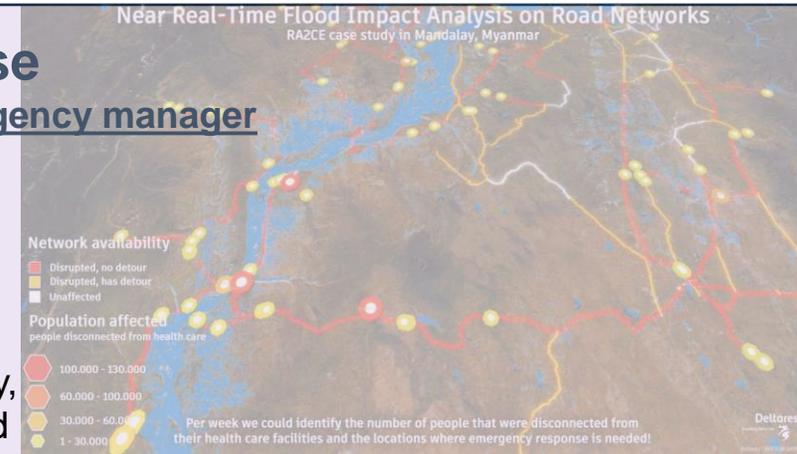
Near real time information for fast responders on accessibility, number of people affected (and isolated), and importance of infrastructure during and after an event.

### Analysis

For natural hazards or scenarios calculation

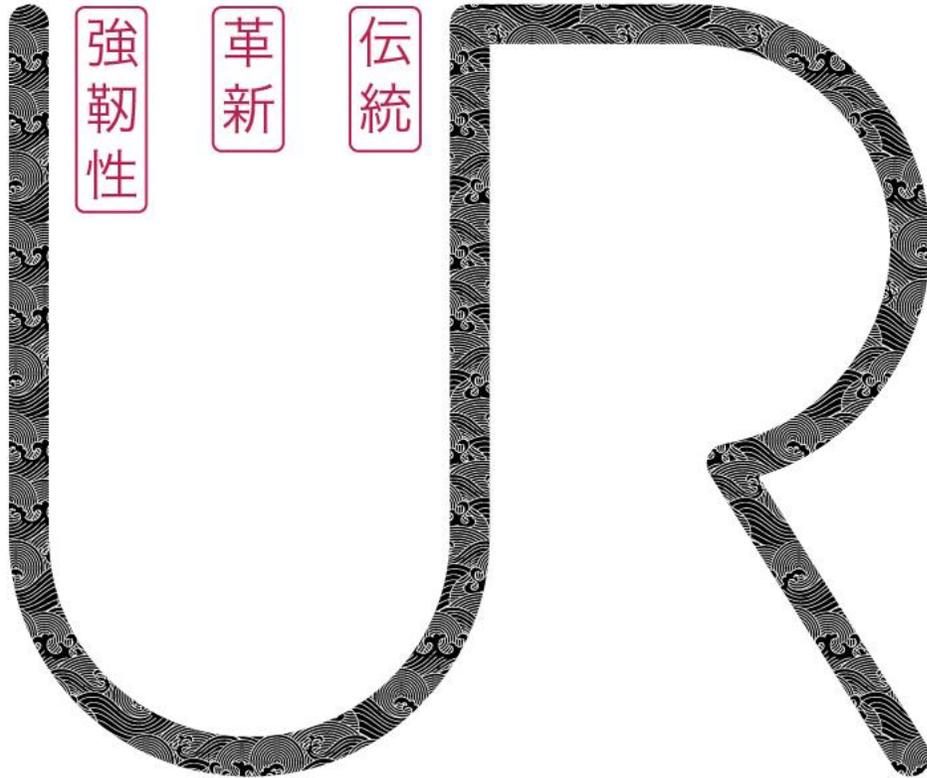
- Disruption of the network - Accessibility from population centers to services (health care, evacuation, markets) - Critical hotspots in transport network - Prioritization of locations where most people are affected

<https://arcg.is/1uGm5W0>



*In Nepal, we developed a user interface for RA2CE so that the World Food Program could do effective post-disaster-needs assessments within 72 hours after a flood.*

*Open-source  
available*



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## Part 2: Marketplace

Speakers:

Natalia León Barrios

Timothy Tiggeloven

**Deltares**

IVM Institute for  
Environmental Studies

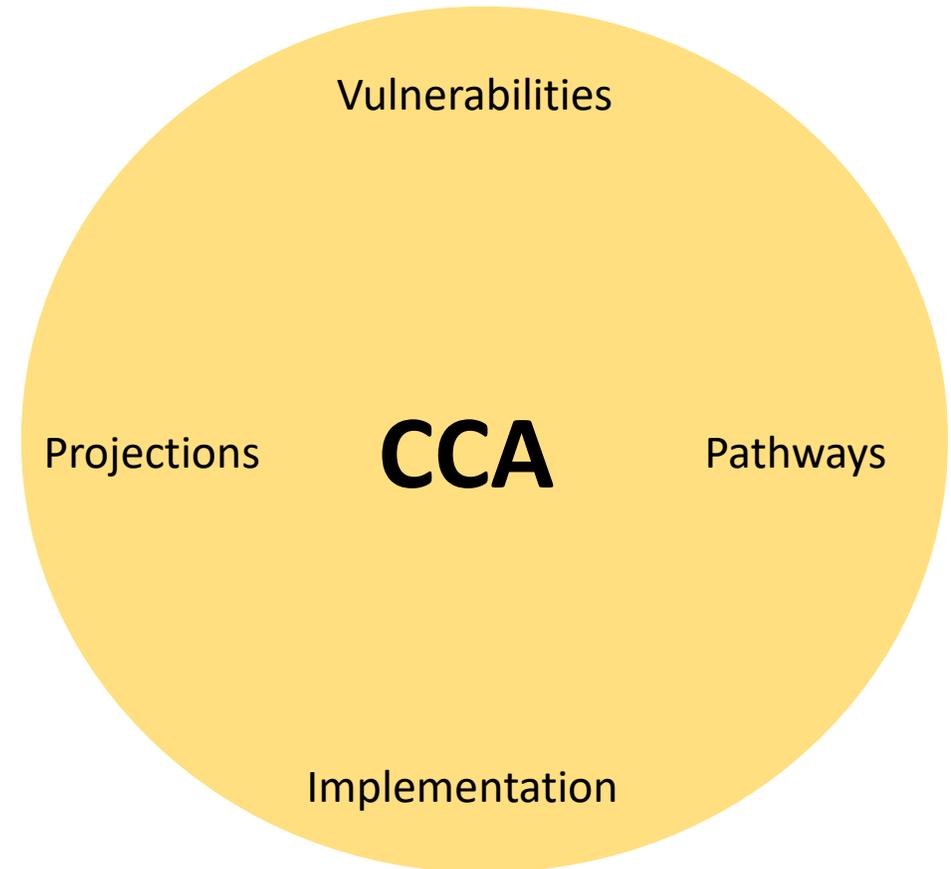
VU

**myriad\_eu**  
Reducing risks together

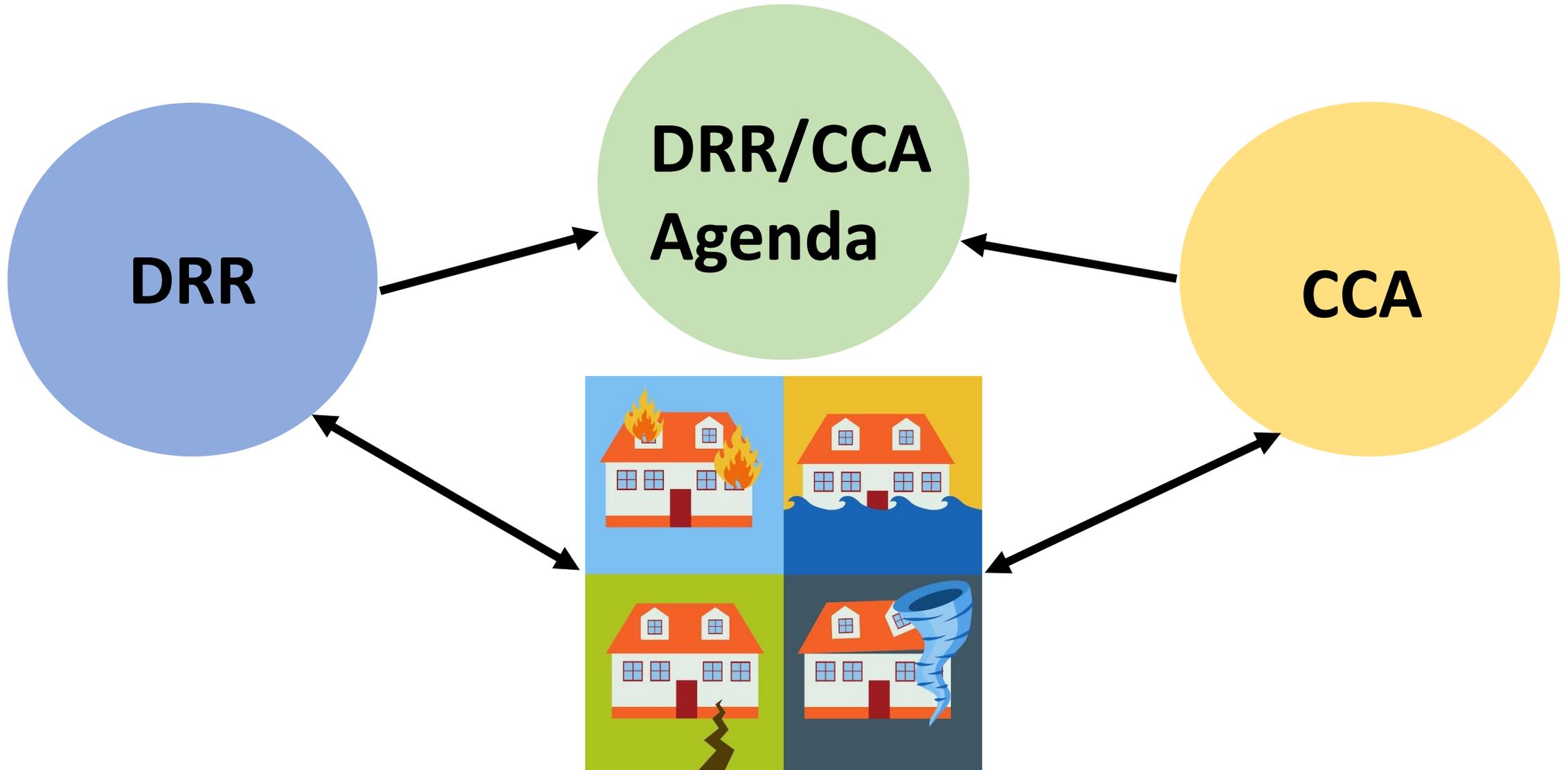
# Agenda

Time	Agenda Item	Presenter(s)
14:00-14:05	Introduction to the marketplace – round 2	Natalia Leon Barrios
14:05-14:30	Lightning talks by marketplace hosts	Moderator: Natalia Leon Barrios
14:30-15:30	Marketplace round B Stall B1: MYRIAD-EU Stall B2: HIPS Stall B3: National Government Tools Japan Stall B4: Micro Geodata for DRR Stall B5: Decisions for the Decade Stall B6: Flood Resilient Landscapes Stall B7: FloodAdapt Stall B8: RISE: Resilient Indonesian Slums Envisioned	Timothy Tiggeloven Virginia Murray Maki Koyama Yuki Akiyama Madhab Uprety Annegien Tijssen Tiaravanni Hermawan Nishchal Sjar DOE
15:30-16:00	Afternoon break	
<b>Part 3: Enhancing uptake</b>		
16:00-16:10	Introduction to session	Annegien Tijssen
16:10-16:55	Breakout discussions	Moderator: Annegien Tijssen
16:55-17:15	Plenary feedback	Moderator: Annegien Tijssen
17:15-17:30	Wrap-up <ul style="list-style-type: none"> <li>Closing remarks</li> </ul>	Reflections by Loretta Hieber Girardet (Chief of UNDRR's Risk Knowledge, Monitoring and Capacity-Development Branch)

# DRR and CCA in Silos



# Bridging DRR and CCA



# Marketplace

**1. Lightning talks**

**2. Market stall  
session**

# Marketplace round B

Stall B1: MYRIAD-EU

Stall B2: HIPS

Stall B3: National Open Geodata

Stall B4: Micro Geodata for DRR

Stall B5: Decisions for the Decade

Stall B6: Flood Resilient Landscapes

Stall B7: FloodAdapt

Stall B8: RISE: Resilient Indonesian Slums Envisioned

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UNDERSTANDING RISK  
GLOBAL FORUM 2024

TRADITION • INNOVATION • RESILIENCE

## MYRIAD-EU

### Speakers:

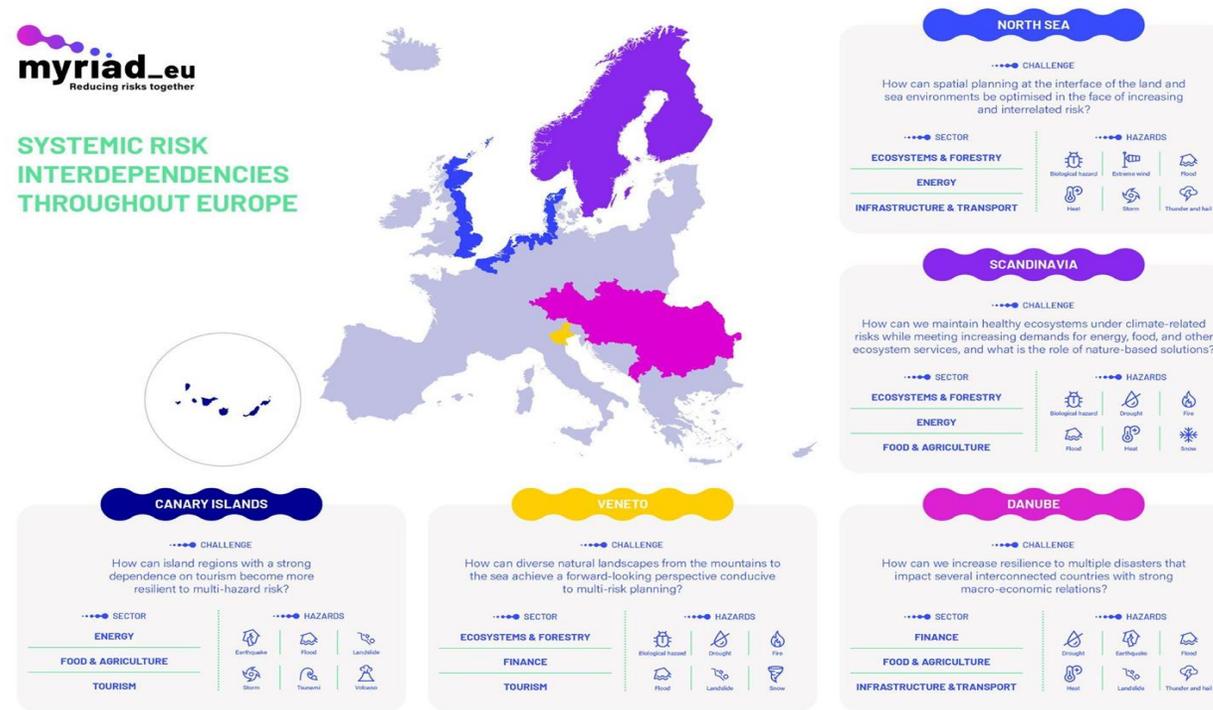
Timothy Tiggeloven (VU Amsterdam)

Philip Ward (VU Amsterdam / Deltares)



# MYRIAD-EU: Vision and aim

- **Vision:** to catalyse the paradigm shift required to move towards a multi-risk, multi-sector, systemic approach to risk assessment and management.
- **Aim:** to develop forward-looking disaster risk management pathways that assess trade-offs and synergies across sectors, hazards, and scales



# Disaster Risk Gateway

[www.disasterriskgateway.net](http://www.disasterriskgateway.net)

- Discussions on updating UNDRR/ISC Hazard Information Profiles (HIPs)



Search Disaster Risk Gat

Contents [to top](#)

- Multi-hazard Risk Assessment
- Multi-hazard Risk Management
- Definitions
- Resources
- Contribute
- Feedback



## Disaster Risk Gateway

Reducing risks together

Welcome to your toolbox for Disaster Risk. Here you can find and share existing approaches for understanding, analysing and managing multi-hazard and multi-hazard risks. This catalogue has been developed as part of the MYRIAD-EU project, which aims to change the way risks are currently assessed and managed through the development and promotion of tools and solutions as well as knowledge sharing.

The purpose of this wiki is to serve as an information resource and starting point to encourage engagement between different actors involved in disaster risk assessment and management, to promote interdisciplinary research and for research activities within MYRIAD-EU and other future projects. The platform aims to support the wider hazard and risk management community to increase their understanding of what is currently possible, and how this knowledge can be applied to different disaster risk (including multi-hazard, multi-risk) challenges.

The wiki is hosted by the [British Geological Survey](#), and we welcome contributions from across the disaster risk community.

Browse by clicking on the icon text below, or search directly for specific keywords.



**Multi-hazard Risk Assessment**  
Understanding Disaster Risk



**Multi-hazard Risk Management**  
Governance and policy



Definitions



Resources



Contribute

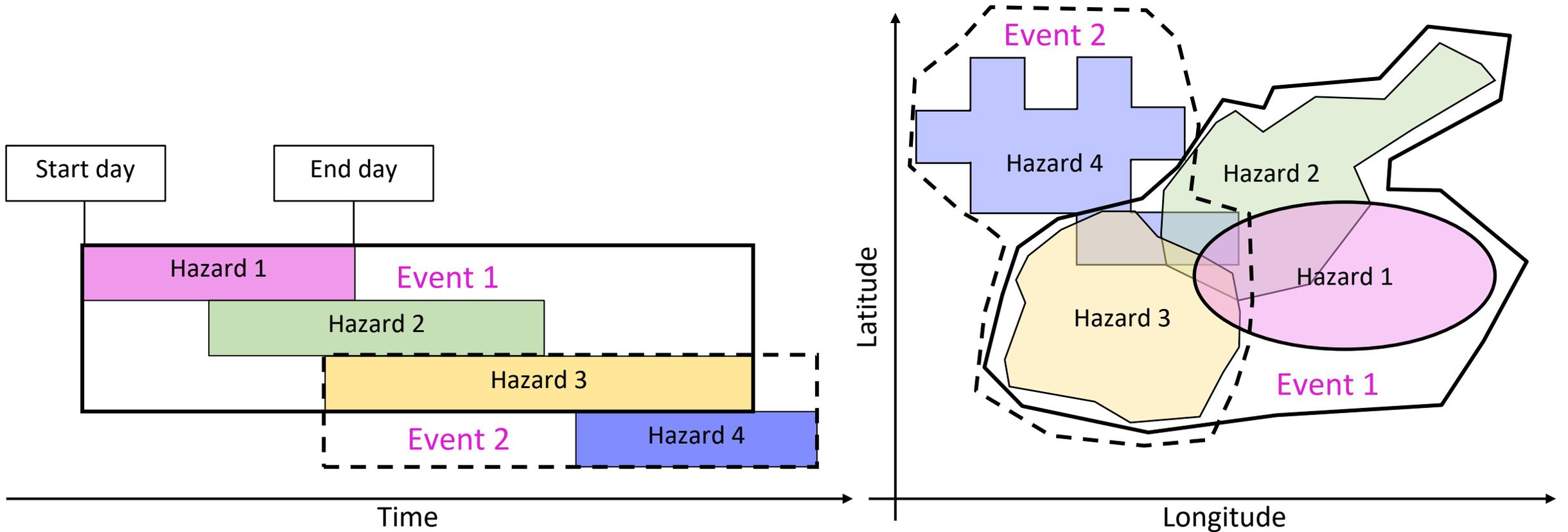


Feedback

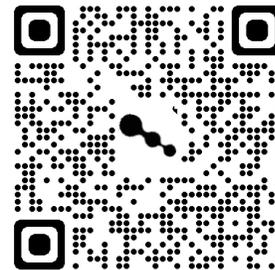


MYRIAD-EU project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. 101003276

# Novel Methods: First Global Multi-Hazard Database



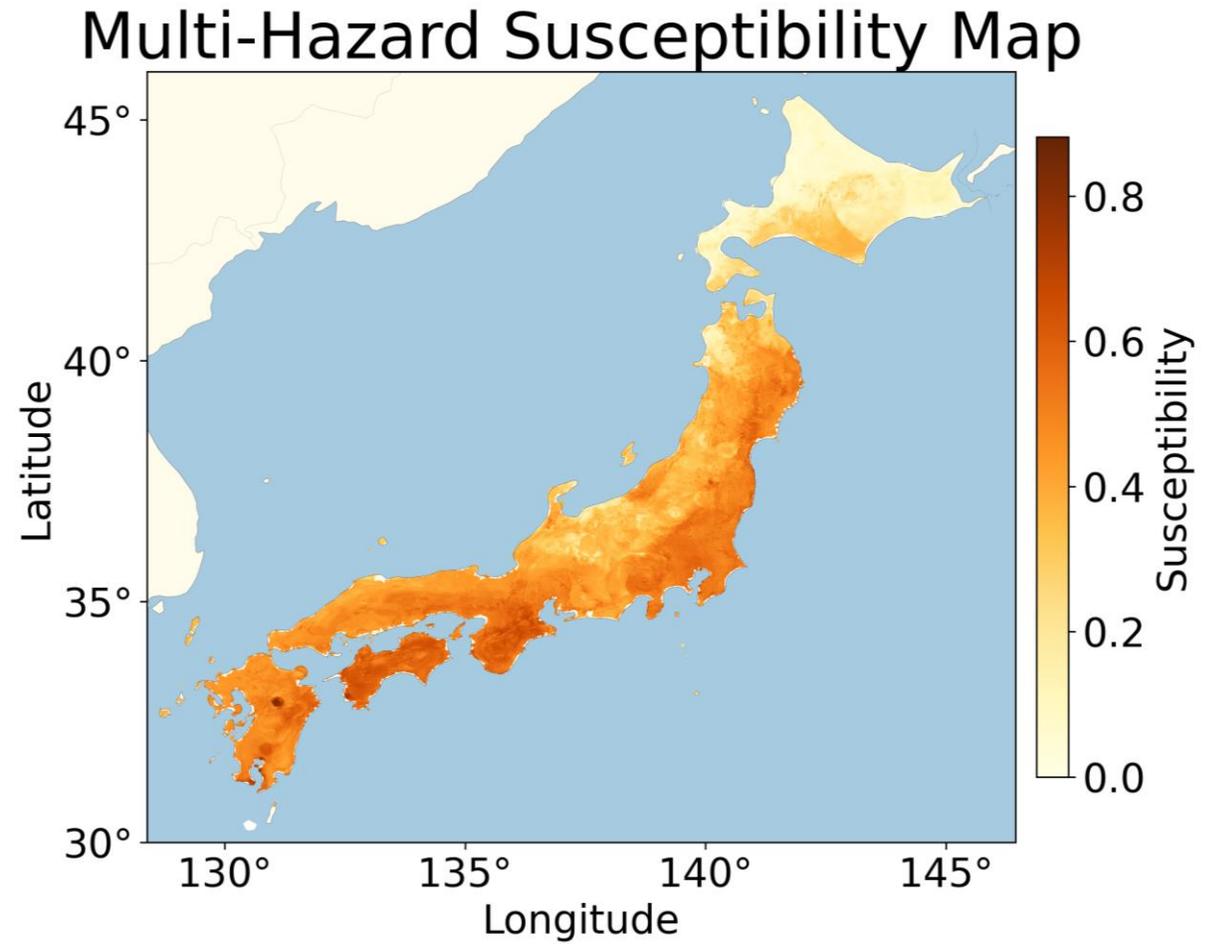
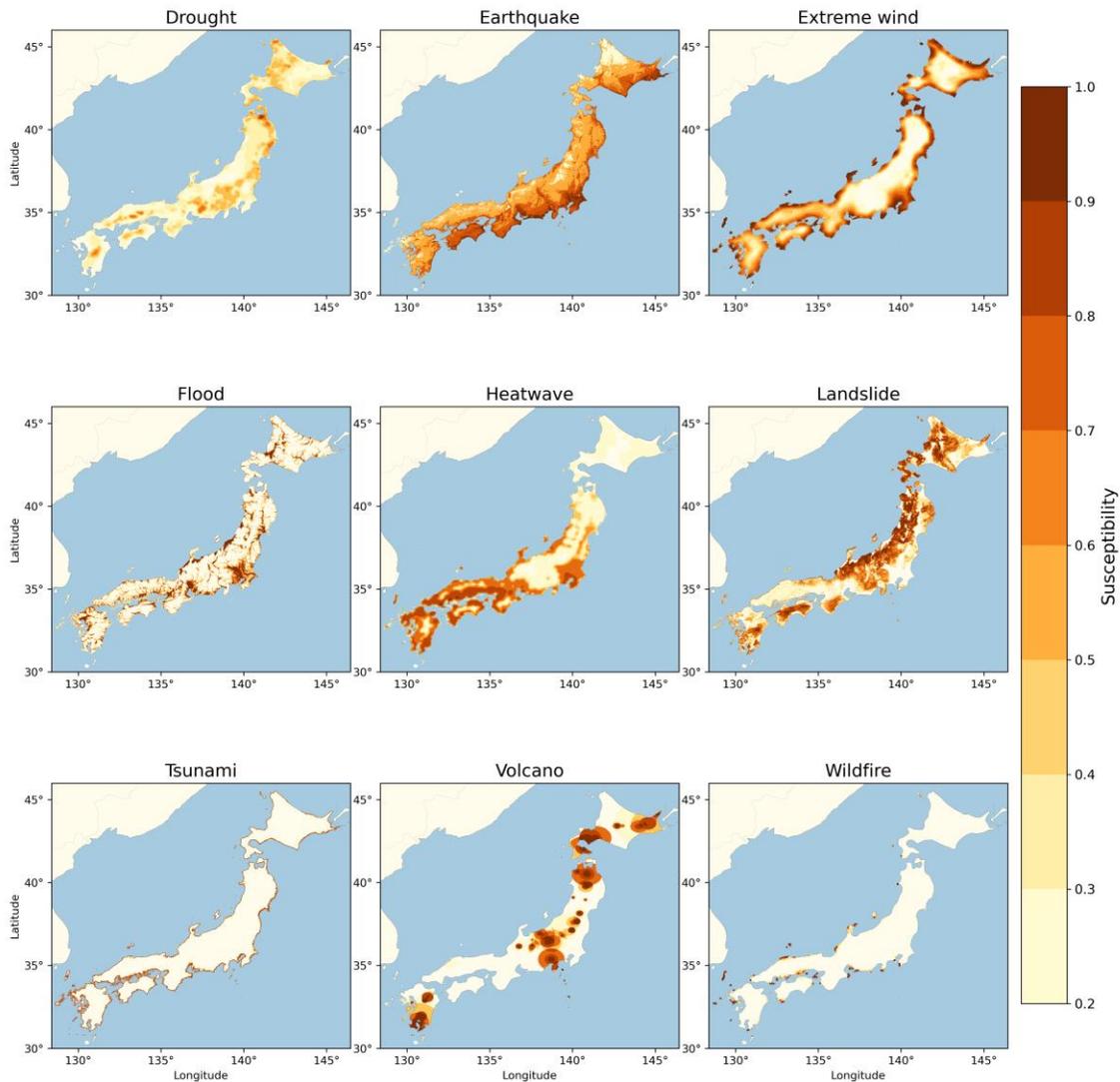
Claassen et al et al., 2023, Nature Scientific Reports,  
doi:10.1038/s41598-023-40400-5



 @Myriad\_EU

  
myriad.eu  
Reducing risks together

# Novel Methods: AI and multi-hazard susceptibility in Japan



[philip.ward@vu.nl](mailto:philip.ward@vu.nl)

[Timothy.tiggeloven@vu.nl](mailto:Timothy.tiggeloven@vu.nl)



The MYRIAD-EU project has received funding from the European Union's Horizon 2020 research and innovation programme call H2020-LC-CLA-2018-2019-2020 under grant agreement number 101003276

 @Myriad\_EU



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## Hazard Information Profiles (HIPS)

**Speakers:**

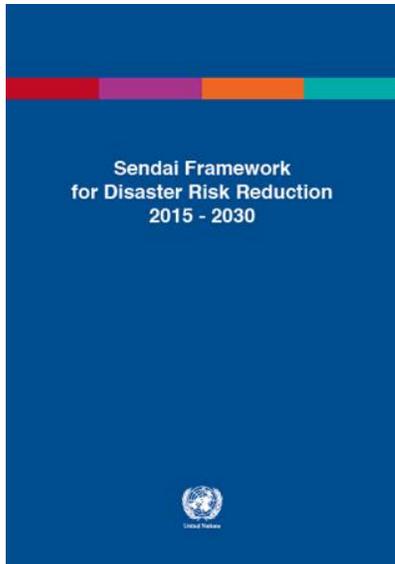
Virginia Murray Chair of UNDRR/ISC Steering Group for Hazard Information Profiles

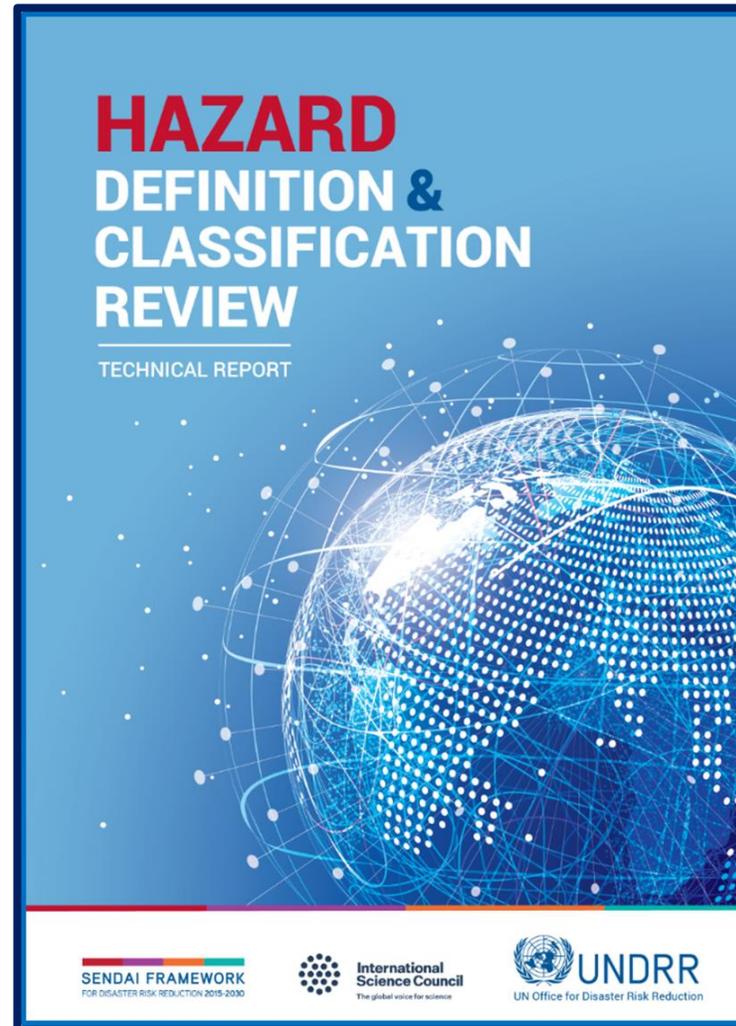
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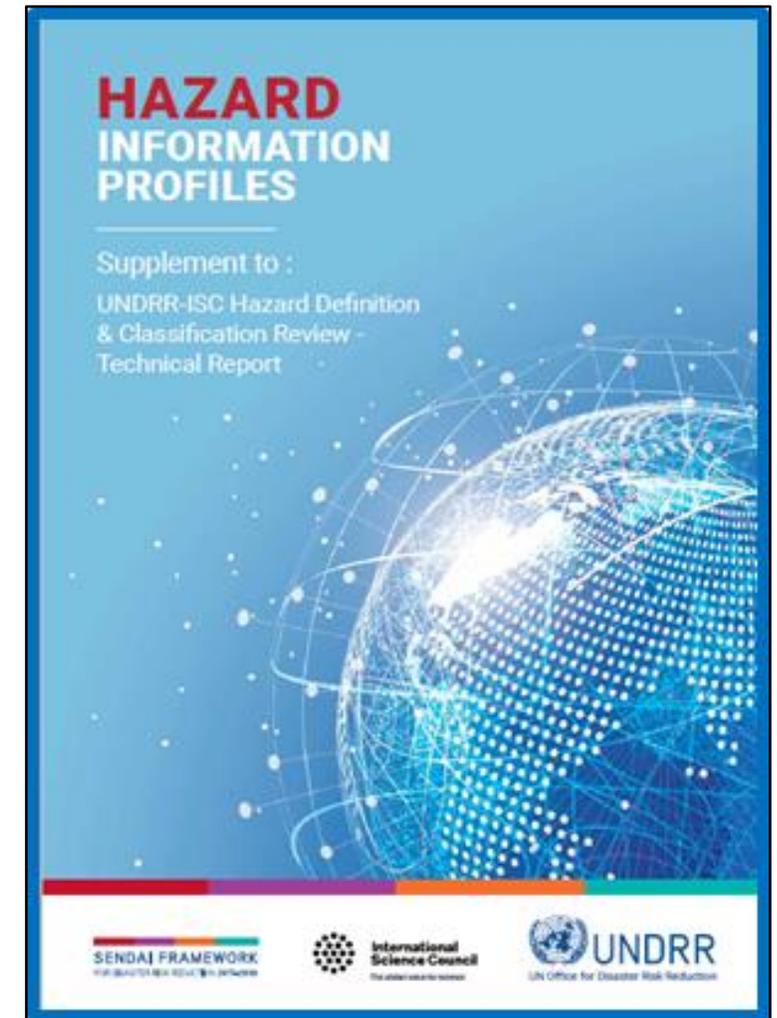
# Sendai Framework for Disaster Risk Reduction 2015-2030

- To strengthen technical and scientific capacity to capitalize on and consolidate existing knowledge and to develop and apply methodologies and models to **assess disaster risks, vulnerabilities and exposure to all hazards**; *(paragraph 24 j)*



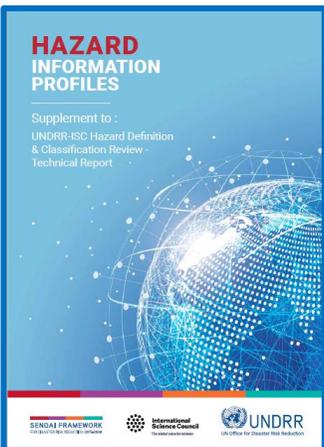
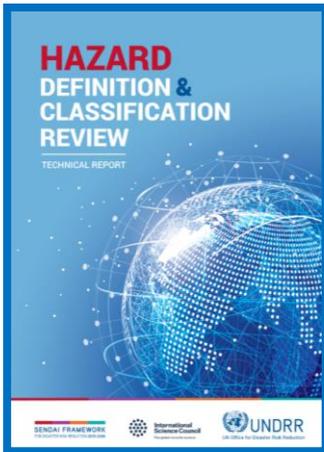


[UNDRR / ISC Hazard Definition  
and Classification Review  
Technical Report  
July 2020](#)



[UNDRR / ISC Hazard Information Profiles  
Supplement to UNDRR / ISC Hazard  
Definition and Classification Review  
October 2021](#)

# UNDRR / ISC Hazard Information Profiles

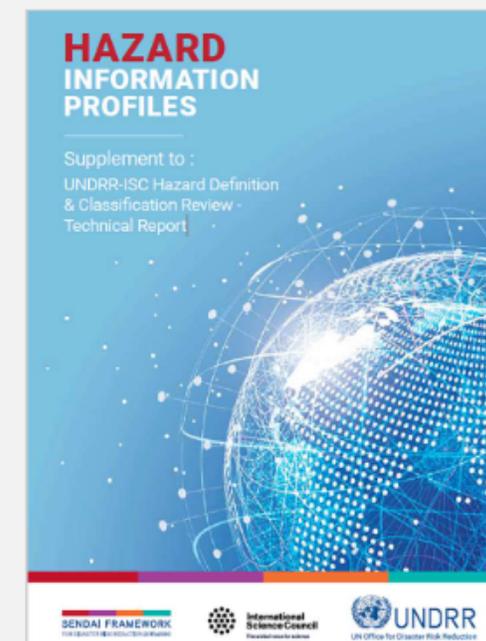


## Hazard Information Profiles (HIPs) online reference

A description of each of the 302 hazard information profiles (HIPs), [developed using a consultative process](#) by scientists and experts across the globe.

Responding to increasing calls for 'a data revolution, rigorous accountability mechanisms and renewed global partnerships', the [Hazards Information Profiles](#) and the [Technical report](#) provide an important resource to support the implementation of disaster risk reduction and risk-informed investment, aligned with the Sendai Framework for Disaster Risk Reduction 2015–2030, but also the Sustainable Development Goals of Agenda 2030, the Paris Agreement on Climate Change and the Addis Ababa Action Agenda on Sustainable Financing. [It provides a common set of hazard definitions to Governments and stakeholders to inform their strategies and actions on risk reduction and management.](#)

Specifically, both publications (the profiles and the technical report) could support the development and updating of national and local disaster risk reduction strategies and loss databases, as well as integrating disaster risk reduction into national statistics, legal, accounting and regulatory frameworks and public and private policy, financing and investment decisions.



[Read the original publication](#)



## [Disaster risk reduction: UNDRR and ISC to review Hazard Information Profiles ahead of 2025 Global Platform - International Science Council](#)

### Latest Updates



#### BLOGS

### Disaster risk reduction: UNDRR and ISC to review Hazard Information Profiles ahead of 2025 Global Platform

The UNDRR and ISC are undertaking a review of the Hazard Information Profiles (HIPs) to enhance their relevance and usability in disaster risk reduction efforts, particularly in multi-hazard contexts.



## Background on the HIPs

Hazard information when combined with exposure, vulnerability and capacity is fundamental to all aspects of disaster risk management, from multi-hazard risk assessments for prevention and mitigation to warnings and alerts, to disaster response and recovery, long-term planning and public awareness.

In 2019 the United Nations Office for Disaster Risk Reduction (UNDRR) and the International Science Council (ISC) jointly established a technical working group to identify the full scope of hazards relevant to the Sendai Framework as a basis for countries to review and strengthen their risk reduction policies and operational risk management practices.

The Hazard Information Profiles (HIPs) are the result of this international collaborative effort and aim to fill gap by providing a systematic approach and standardised characterisation of hazards. The HIPs aim to contribute to a coherent view of hazards, which can support countries:

- Report effectively on loss and damage;
- Implement a comprehensive and inclusive approach to the development of disaster risk reduction strategies;
- Develop and use multi-hazard early warning systems effectively and forecast events in the future.



## Related resources

Prevention  
Recovery  
Exposure  
Disaster risk  
Preparedness  
Build back better  
Economic loss  
Mitigation  
Hazard  
Disaster risk  
Vulnerability  
Infrastructure  
Resilience  
Capacity  
Early warning systems



## Background on the HIPs



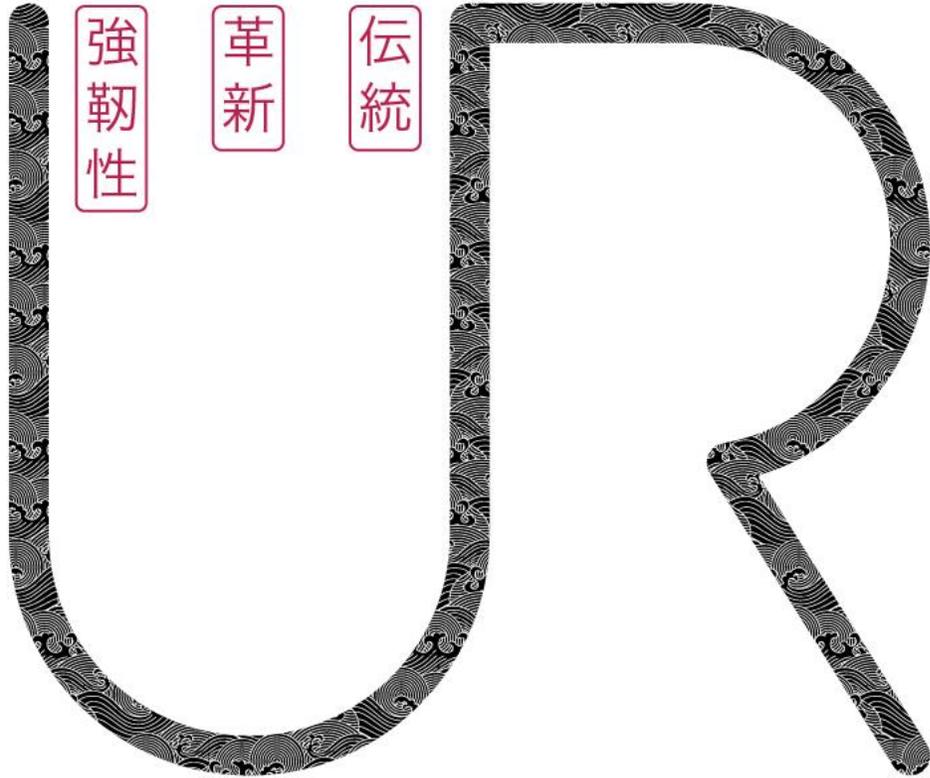
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The Hazard Information Profiles (HIPs) aim to contribute to a coherent view of hazards, which can support countries:

- Report effectively on loss and damage;
- Implement a comprehensive and inclusive approach to the development of disaster risk reduction strategies;
- Develop and use **multi-hazard** early warning systems effectively and forecast events in the future.

Preparedness Build back better  
Economic loss Mitigation Hazard  
Disaster risk Vulnerability  
Infrastructure Resilience  
Capacity Early warning systems





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Thank you !

[Virginia.Murray@ukhsa.gov.uk](mailto:Virginia.Murray@ukhsa.gov.uk)

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# National Government Tools Japan

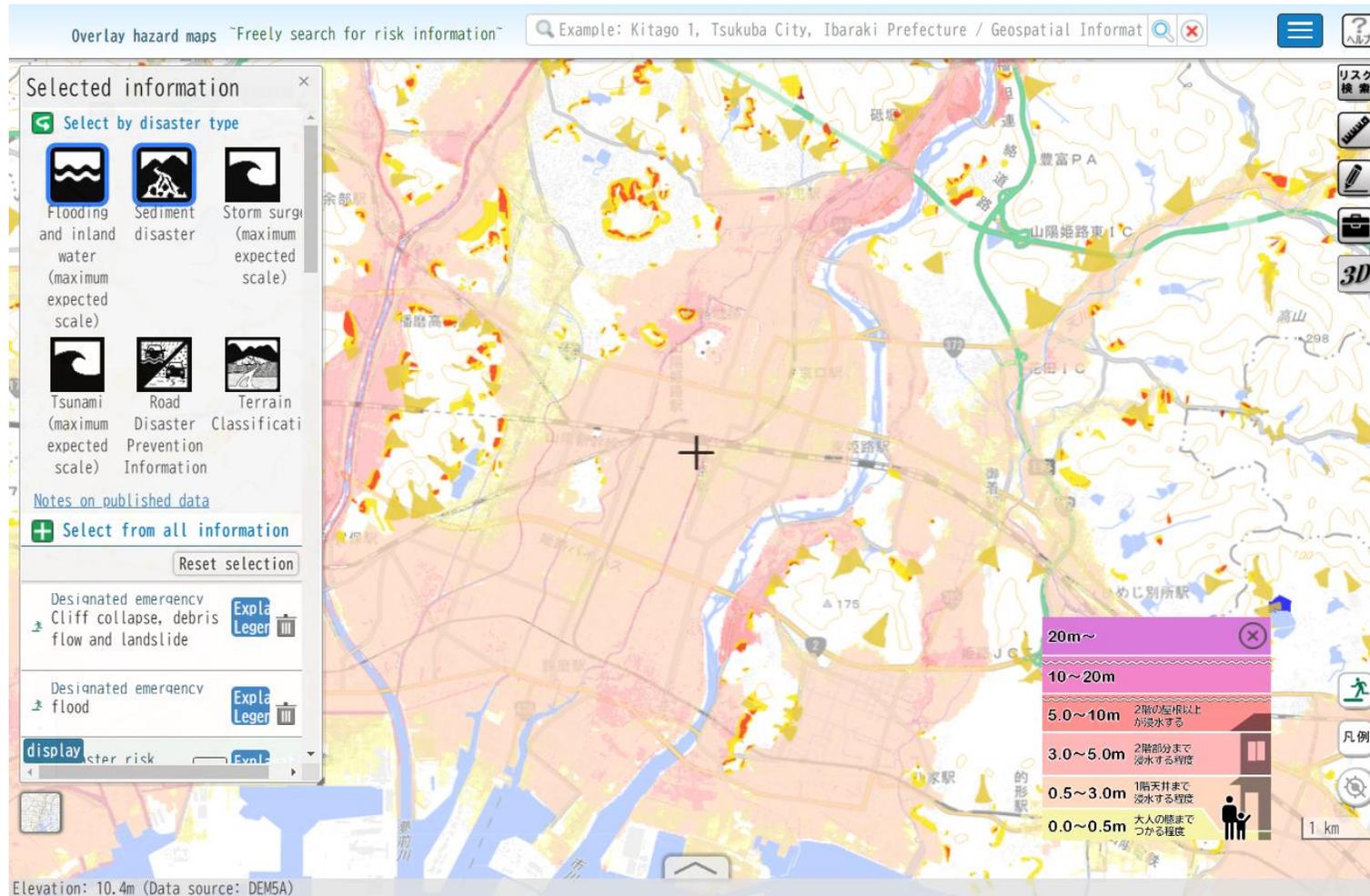
Speakers:

Maki KOYAMA

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# Overlay hazard map (重ねるハザードマップ) by MLIT (Ministry of Land, Infrastructure, Transport and Tourism)

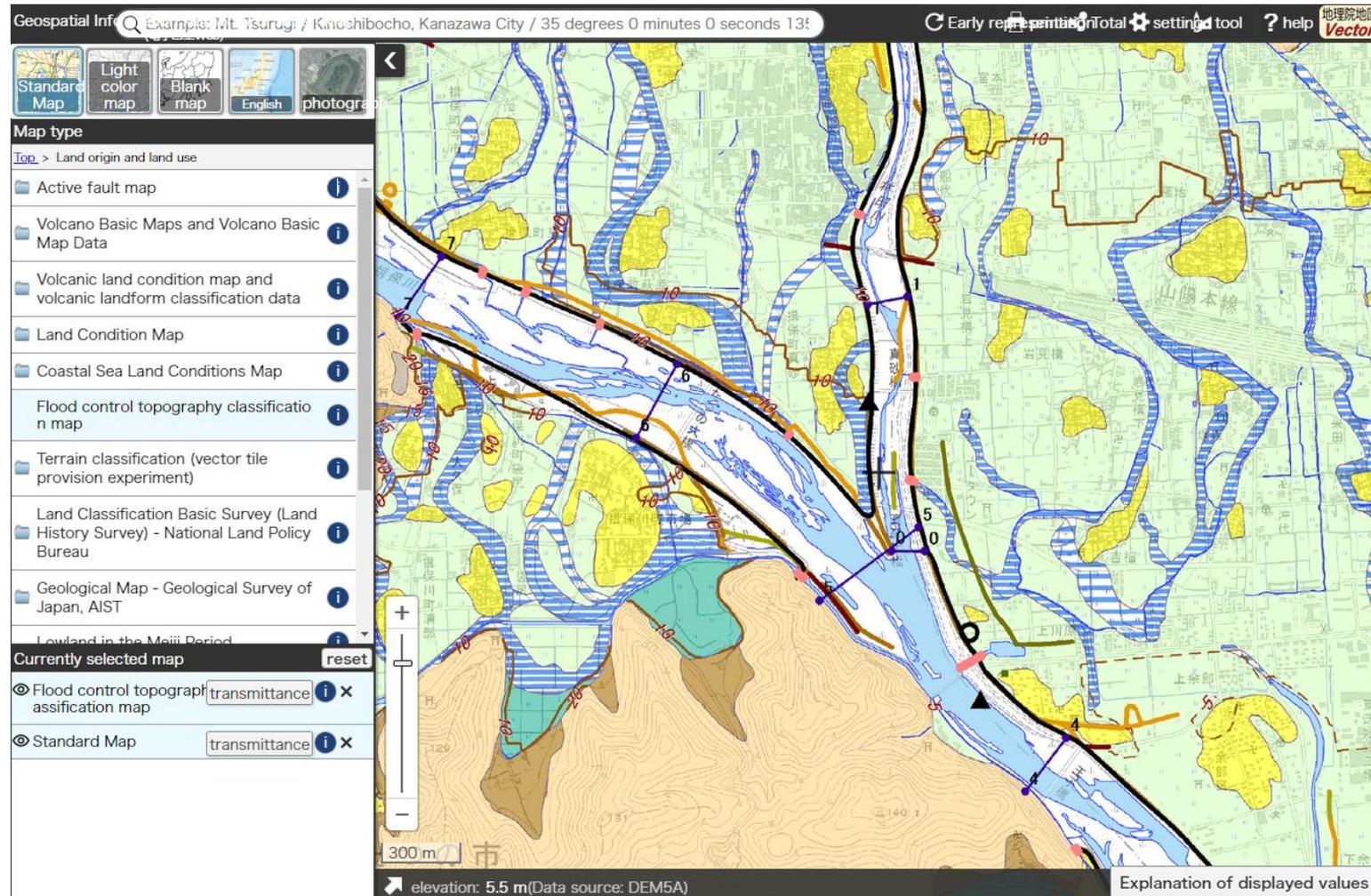


You can look up hazard maps for rivers and other hazards managed by the national government.

:Hazard types are Flood, Landslide, Tsunami

<https://disaportal.gsi.go.jp/maps/>

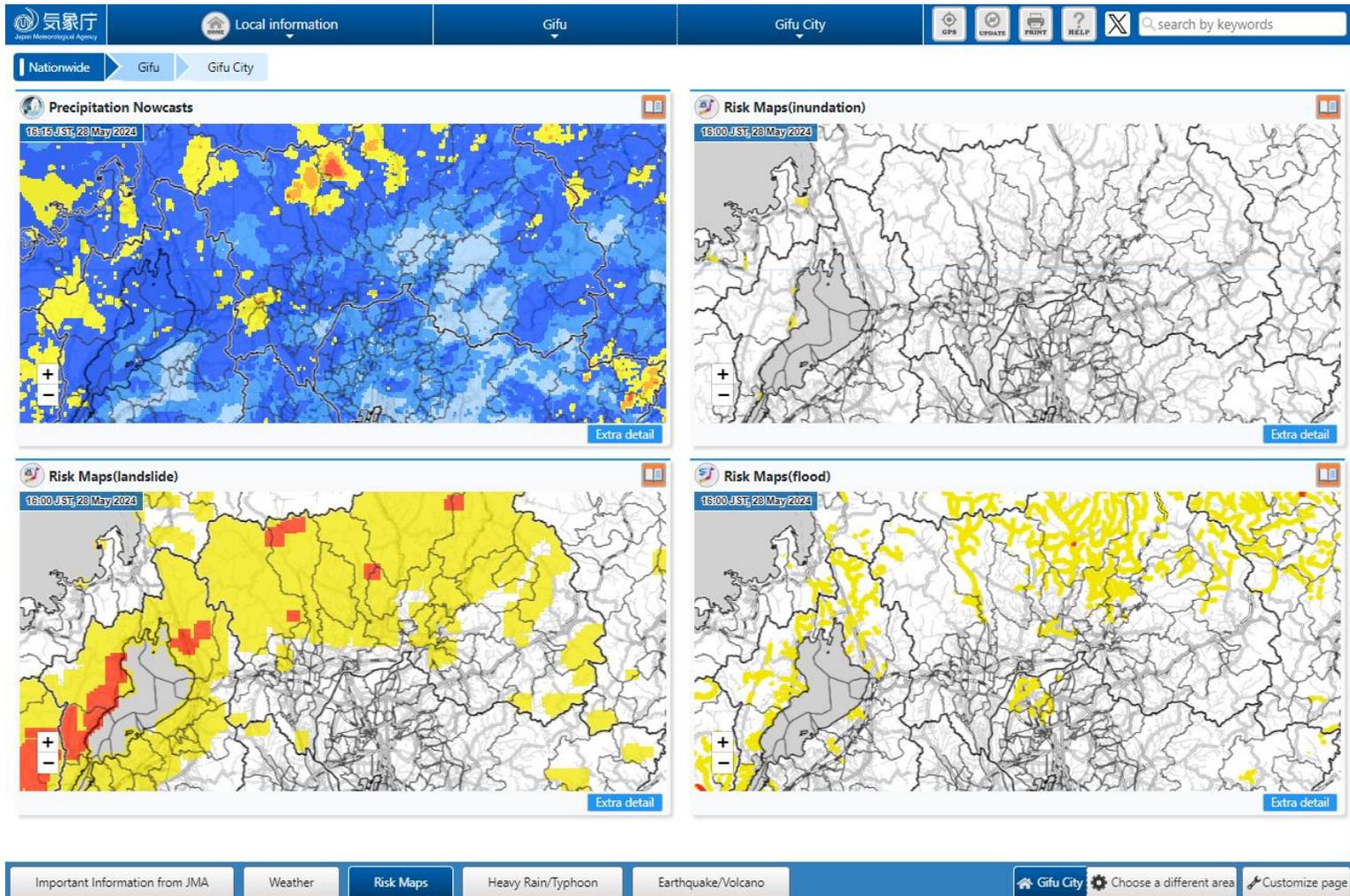
# Geographic map (地理院地図) by the Geospatial Information Authority of Japan



View a variety of maps, including old maps, topographic divisions, elevations, and damage from past disasters.

<https://maps.gsi.go.jp/>

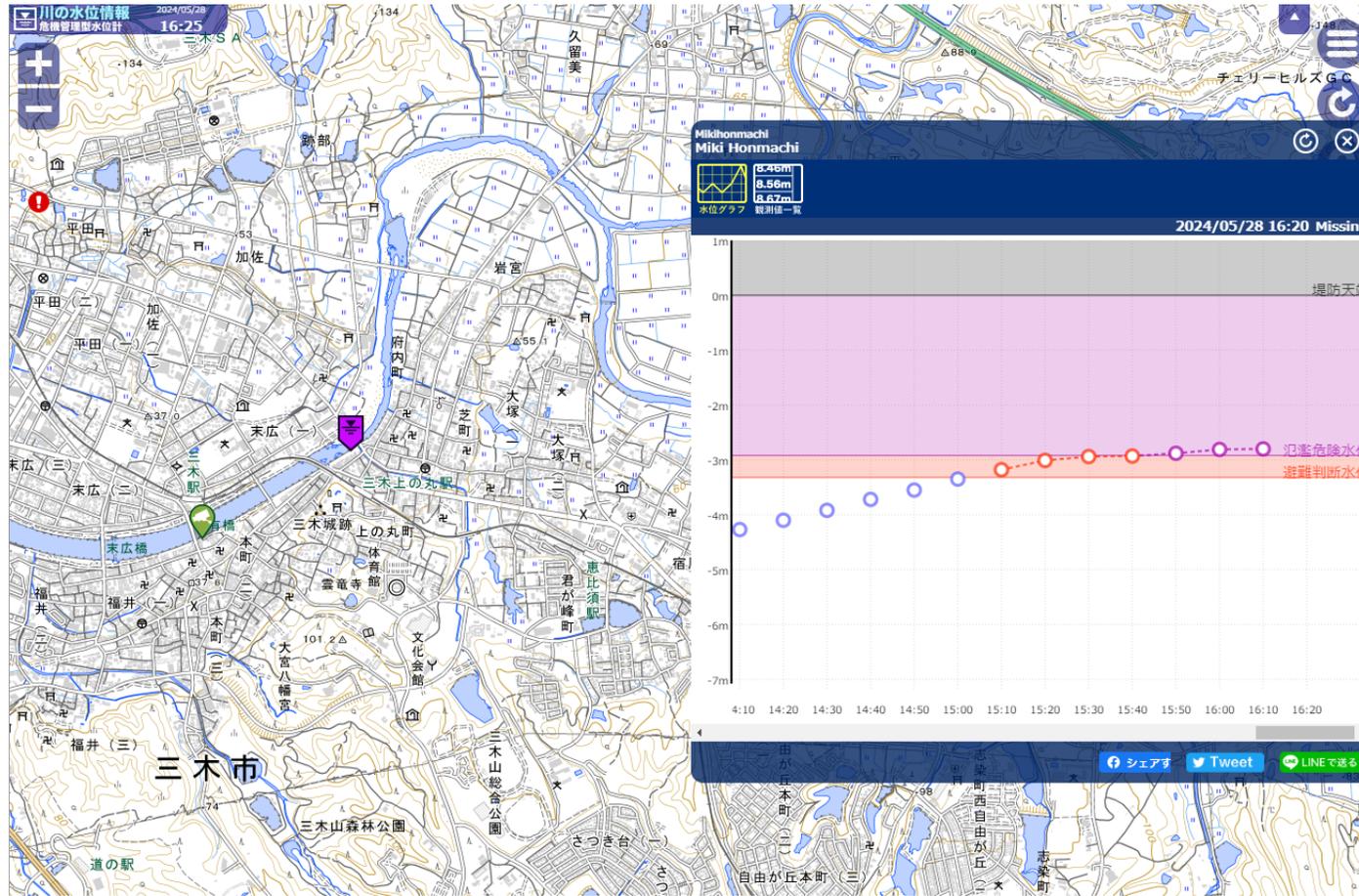
# Risk Maps by Japan Meteorological Agency



On this page you can see rain cloud conditions, current inland flooding risk, landslide risk, and river flooding risk.

<https://www.jma.go.jp/jma/indexe.html>

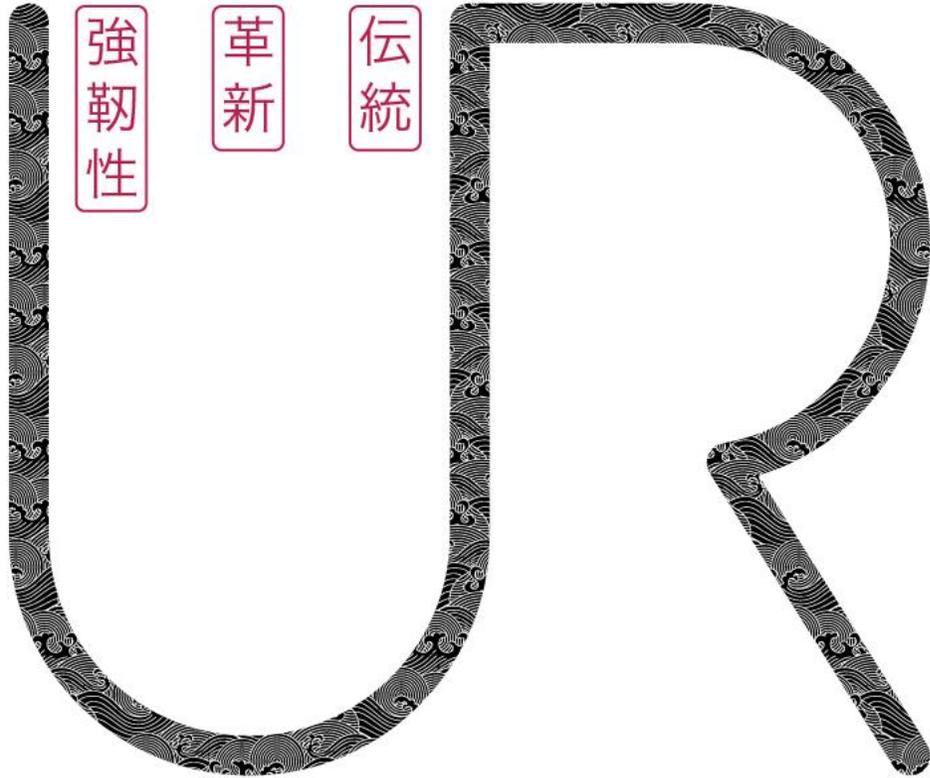
# River level information (川の水位情報) by MLIT



Current river levels and live camera photos can be seen on this page.



<https://k.river.go.jp/>



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# Development of MGD (Micro Geodata) for Disaster Risk Reduction (DRR)

Speaker:

Yuki AKIYAMA

Professor

Department of Urban and Civil Engineering,  
Faculty of Architecture and Urban, Tokyo City University (TCU)

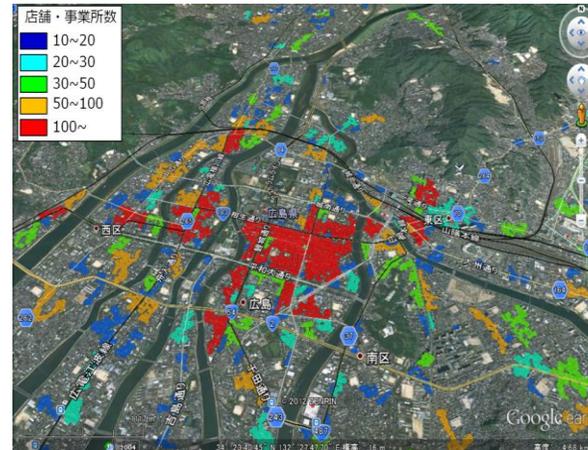


# 1. What is Micro Geodata (MGD)?

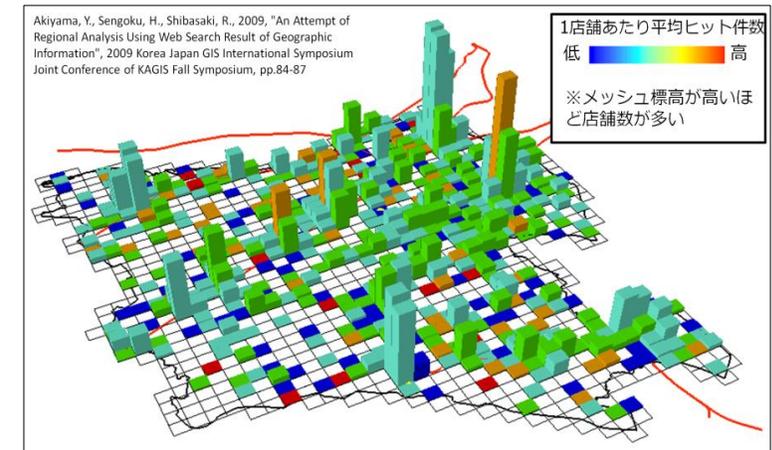
Micro scale spatio-temporal data showing the distribution and movement of micro geographical objects such as individual buildings, roads, vehicles and people.



Building data



POI (Point of Interest) data



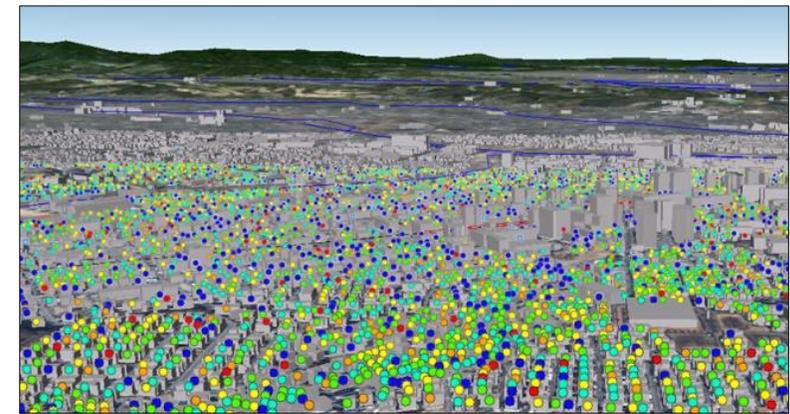
Information on the web



Person flow big data

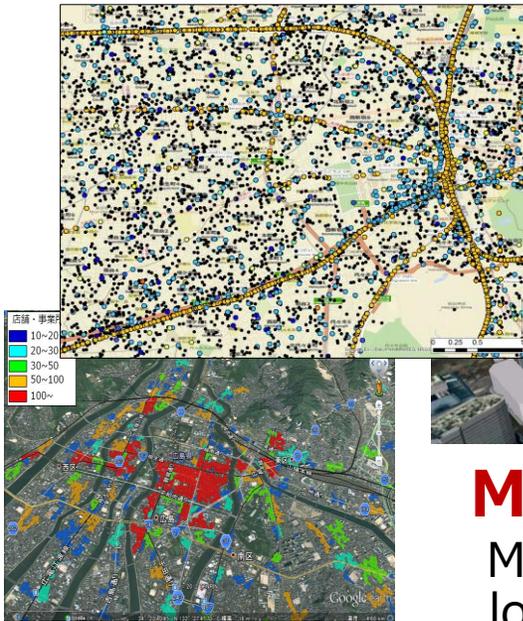


Car probe data



Micro population data

# 2. Research Strategy of Our Laboratory



**Micro Geodata (MGD)**  
 Micro spatial information with location and time information

**Statistics and image**  
 Various conventional statistics and image data



**National and municipal data, Field survey data**

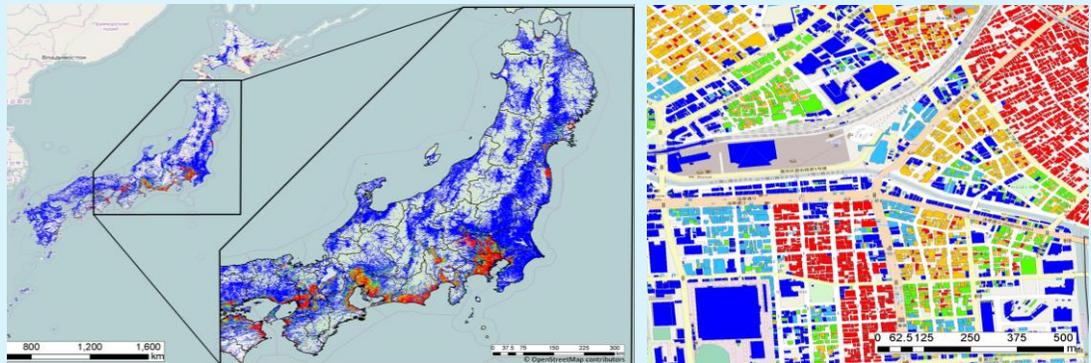
**Urban Spatial Information Science Laboratory (USIS LAB)**

By integrating these data and technologies, We are developing new MGD for assisting Disaster Risk Reduction (DRR)

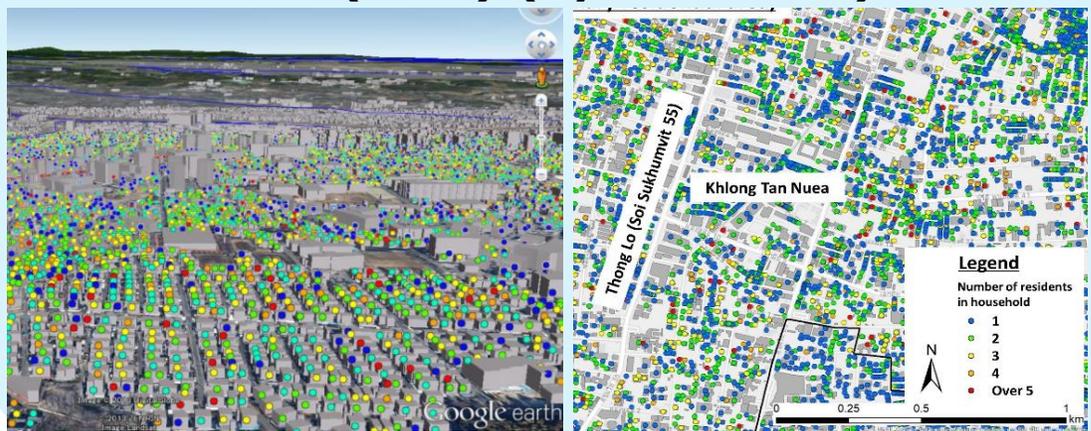
## 3. Studies for Assisting DRR

### Development of MGD

Development of building data for damage estimation by natural disaster

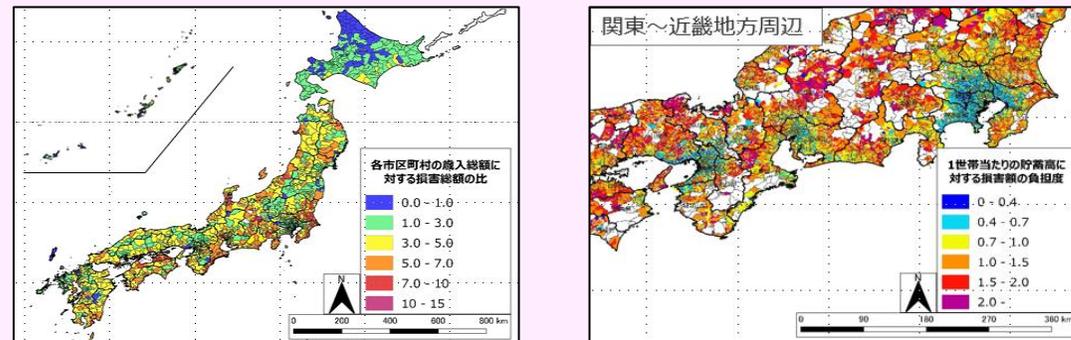


Development of Global Micro Population Data (MPD) (by KAKENHI)



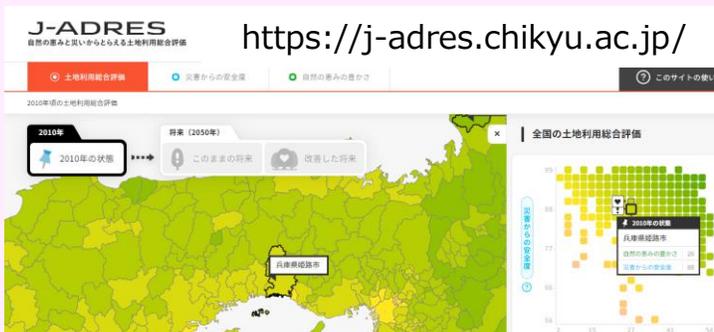
Estimation of economic damage assessment by flood and earthquake (by our lab)

Loss burden as a percentage of total municipal revenue



Eco-DRR project (by RIHN)

RIHN : Research Institute for Humanity and Nature



National land planning for both DRR and environmental protection

Future vacant house map (by our lab)

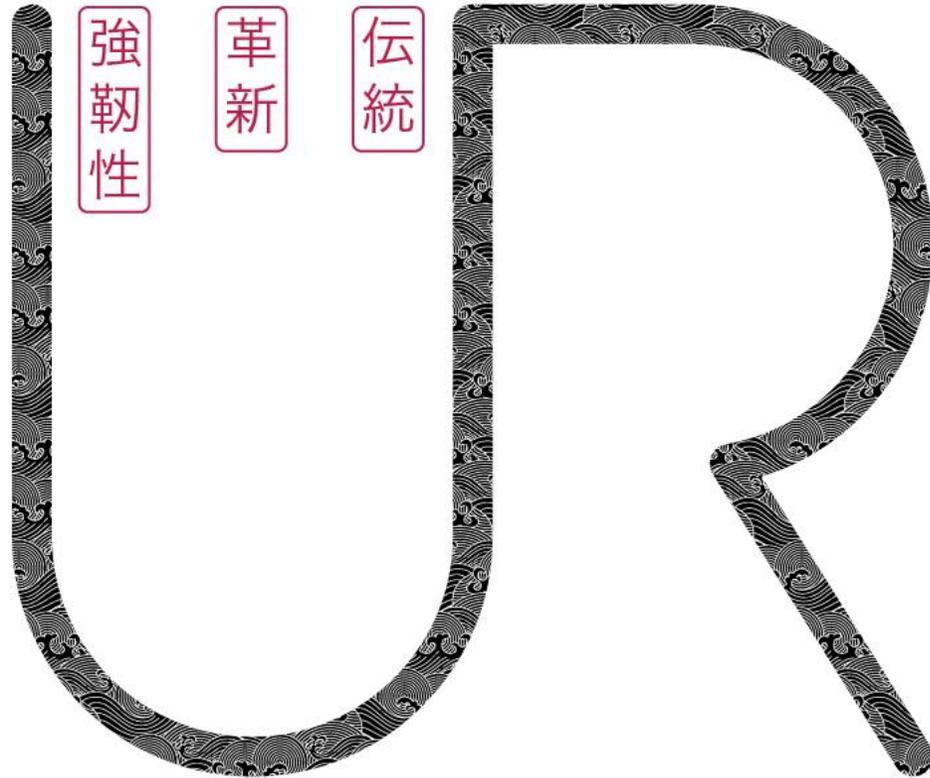


<https://www.akiyama.jp/wp/>

Predicts the distribution of vacant homes that will block reconstruction

## 4. Challenges in making MGD useful for DRR

- The national government, local governments, private sectors, and universities have **various useful data and statistics**.
- To collect, integrate, and utilize them, there is **great potential to create new MGD to assist DRR**.
- **AI** has the potential to support to create the new MGD
- To promote the utilization of MGD, **Let's talk about this at the market stall!** is
- Continuing with conventional methods may be safe (?). **Trying new methods takes courage**.
- It is important for everyone to have a mindset that is willing to **take on new challenges using new data for DRR**.
- **Big challenge: How to promote the MX**



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# Thank you you're your kind attention!

If you are interested in us,  
please visit our stall and website!



[usis.jp](https://www.usis.jp)





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## Decision for the Decade Or Beat the Hazard: Anticipatory Action Game

*Choose the timescale you want to work?*

**Speakers:**

**Madhab Uprety**

Senior Technical Adviser & Asia Pacific Regional Lead

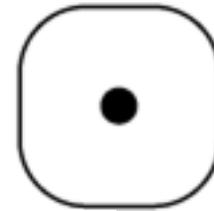
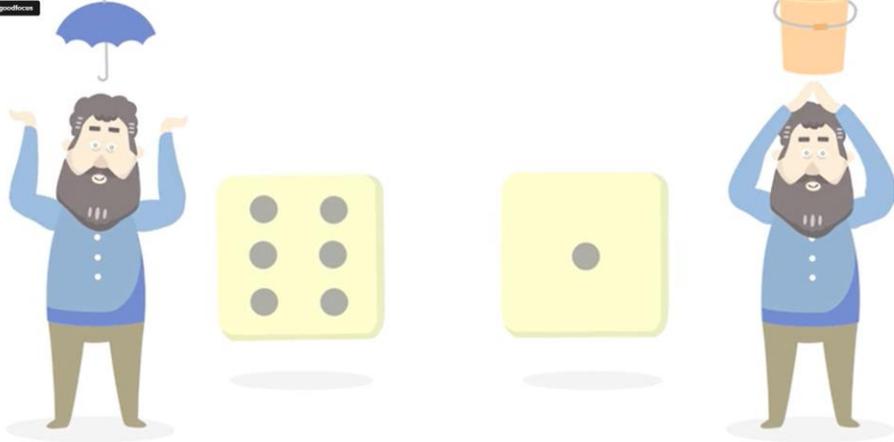
Red Cross Red Crescent Climate Centre/Anticipation Hub



# Decisions for the Decade

How to invest in a climate-resilient future?

Decisions for the Decade (D4D) (RELEASE)  
goodfrees



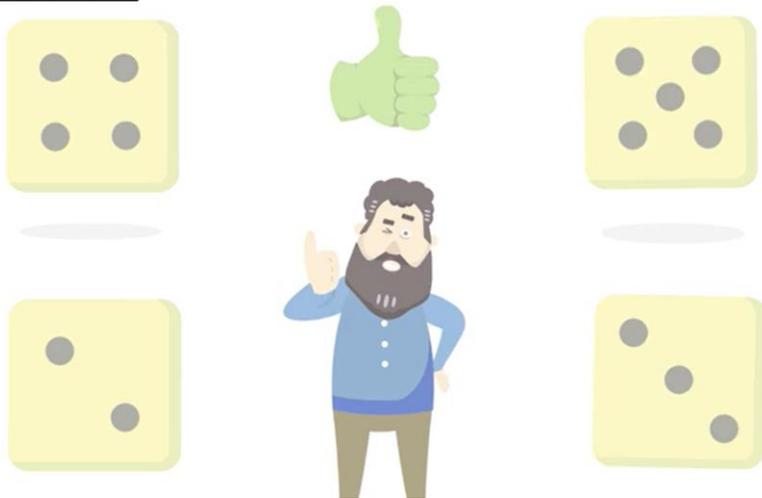
= Drought



= Extreme Flood



Decisions for the Decade (D4D) (RELEASE)  
goodfrees



Have you heard?

the **CLIMATE** is **CHANGING!**

- Historical probability of hazard occurring might not hold true for future

**EXPECT SURPRISES**

# Decisions for the Decade

How to invest in a climate-resilient future?

Investment in  
**FLOOD PROTECTION**  
If you roll a 6: Use 1 umbrella



Investment in  
**DEVELOPMENT**  
Gain 1 Prosperity Point (Thumbs Up stays)  
But only if no Crisis (If Crisis, all prosperity points is lost)



Investment in  
**DROUGHT PROTECTION**  
If you roll a 1: Use 1 bucket



## Resilience Plan

Used  
Buckets/Umbrella

Decade (three rounds)	How Many Humanitarian Crises?	How Many Prosperity Points?
1		
2		
3		

Humanitarian  
Crises

# Beat the Hazard! - The AA Game



**Hazard cards**  
Shuffle all cards and place them here, cover up.

**Action cards**  
Shuffle all cards and place them here, cover up.

**Impact cards**  
Shuffle all cards and place them here, cover up.

**Sector cards**  
Shuffle all cards and place them here, cover up.

Each player starts with 1 random Action card, 1 random Readiness card, and 1 Readiness Token.

Start the game! Draw a hazard card.

If it says 'no hazard approaching':

- each player gets 1 Readiness Token, 1 random Action card.
- each player has the opportunity to buy a Readiness card with their Readiness Tokens.

If you draw a hazard, put the card on the field below. Then draw:

- 3 Sector cards (ways), or 2 sector cards (medium), or 1 sector card (hard) - put them on the fields below
- 3 Impact cards - put them on the fields below

**Hazard approaching**

**Readiness!**  
+ capacity  
You carried out operations at the maximum capacity. Reach up to 100 people.  
Cost: 1 Readiness Token

**Readiness!**  
+ capacity  
You built an additional 10,000 people.  
Cost: 1 Readiness Token

**Readiness!**  
+ Partners  
You have an exceptional relationship with partners. 10,000 people affected.  
Cost: 1 Readiness Token

**Readiness!**  
+ Partners  
You have a strategic relationship with the government. 20,000 people affected.  
Cost: 2 Readiness Tokens

**Readiness!**  
+ Lead time  
You have an action card for less than 2 days. 50,000 people.  
Cost: 1 Readiness Token

**Readiness!**  
+ Lead time  
You have an action card for less than 1 day. 10 days. 5 days. 10 days. 15 days. 5 days. 10 days.  
Cost: 2 Readiness Tokens

**Readiness!**  
+ sector  
You have an action card for the sector.  
Cost: 1 Readiness Token

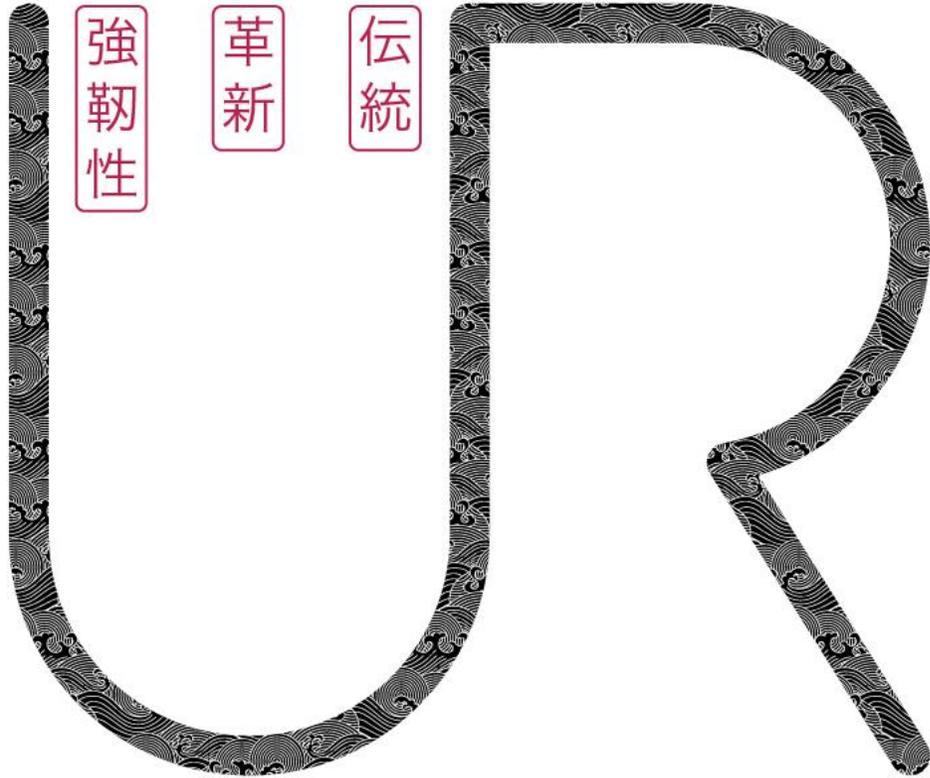
**Readiness!**  
+ Institutionalisation  
You have each player + 1 additional Readiness Token at the end of the round.  
Cost: 2 Readiness Tokens

**Your Anticipatory Action!**

Check your Action cards!  
They must match the hazard's lead time and sector.  
Check with your partners if you can match the impact number!

Use your Readiness cards!  
to increase the effectiveness of your Action cards!

If you manage to partially match the impact numbers, each player gets 1 Readiness Token  
If you manage to fully match the impact numbers, each player gets 1 random Readiness card



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# Flood Resilient Landscapes

a participatory designer's approach for flood resilient  
spatial planning

Speakers:

Annegien Tijssen

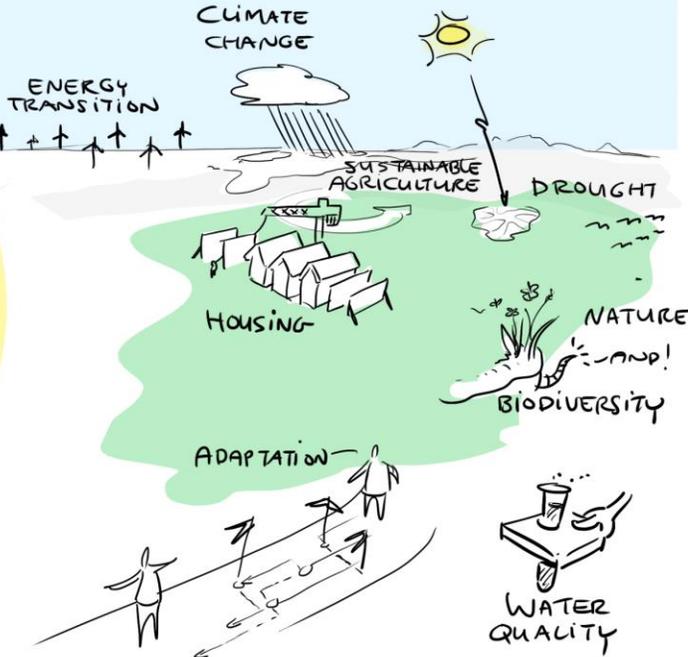
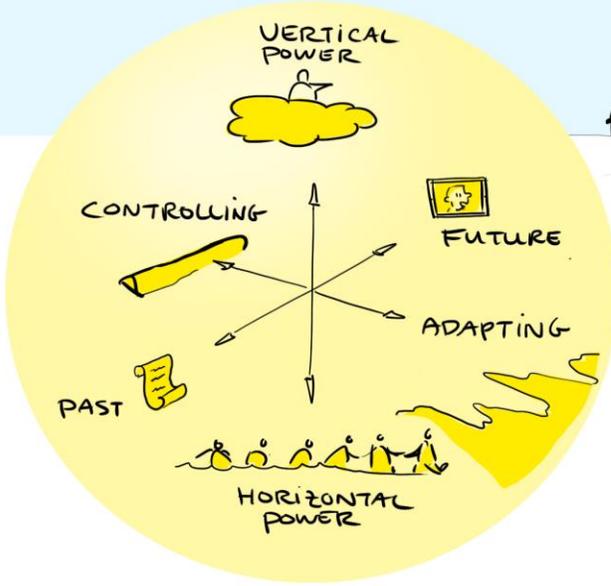
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**Deltares**

# Flood resilient landscapes...

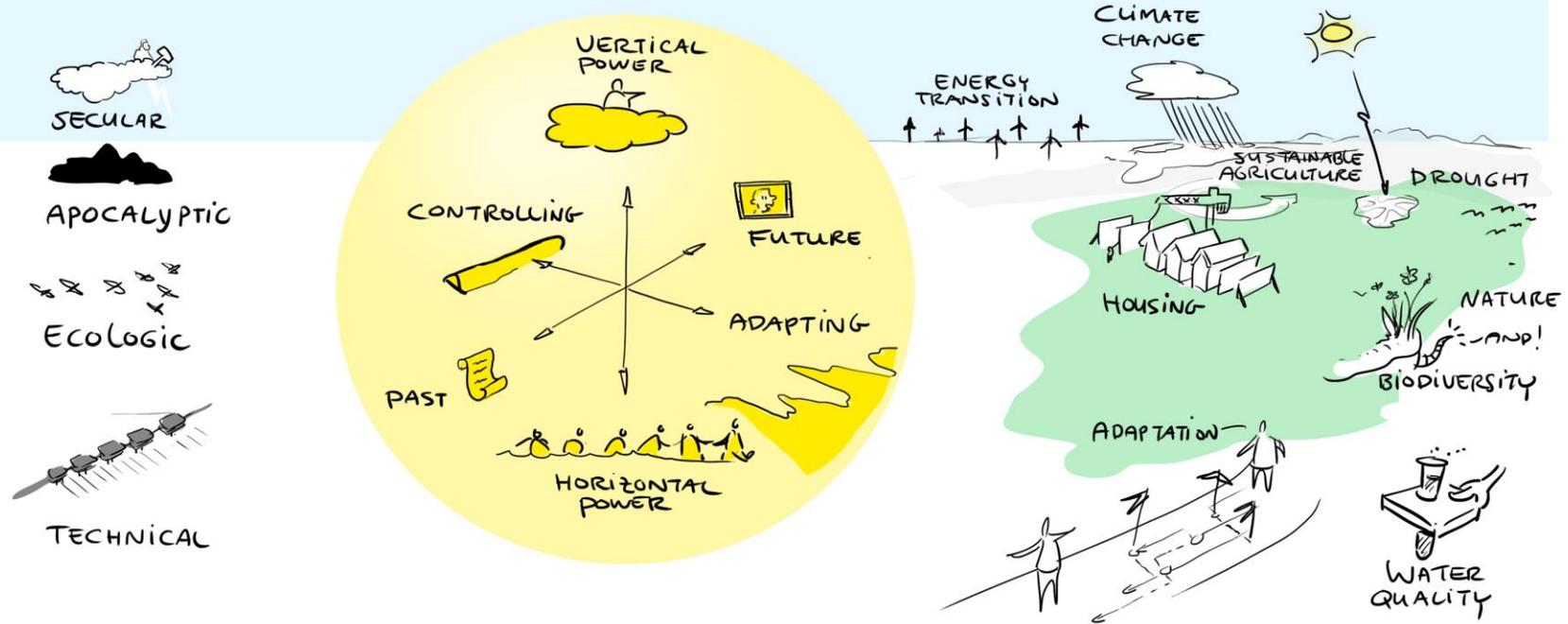
..consider an uncertain future..

- SECULAR
- APOCALYPTIC
- ECOLOGIC
- TECHNICAL

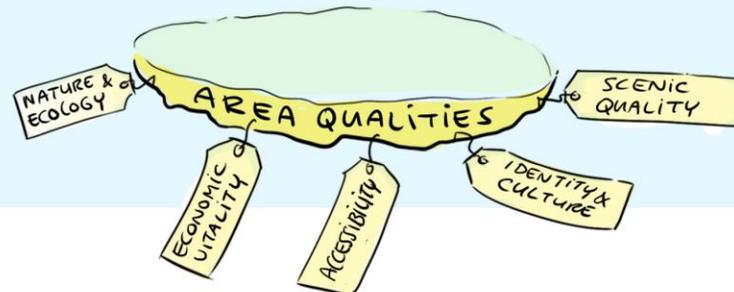


# Flood resilient landscapes...

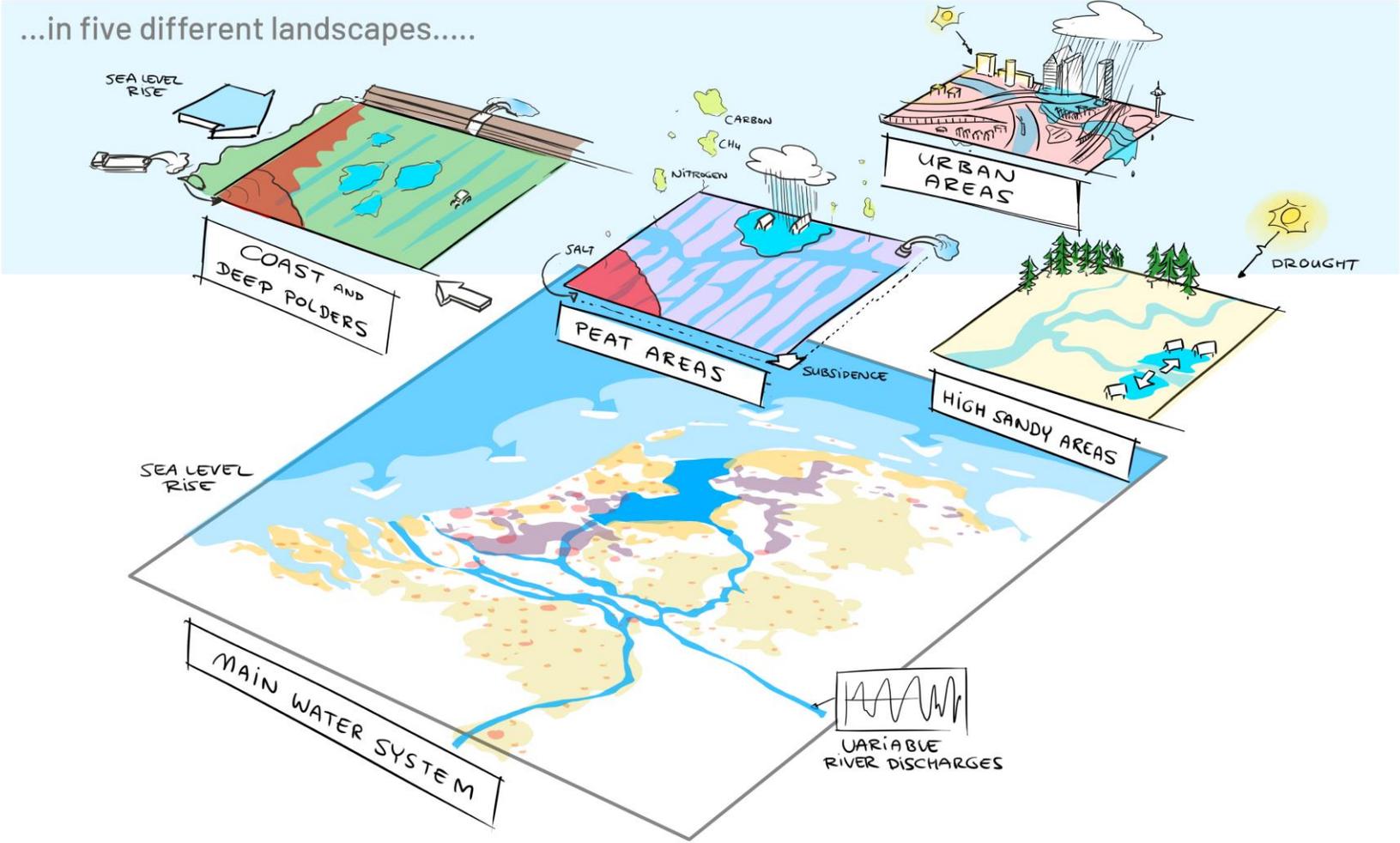
..consider an uncertain future..



...add to spatial quality...

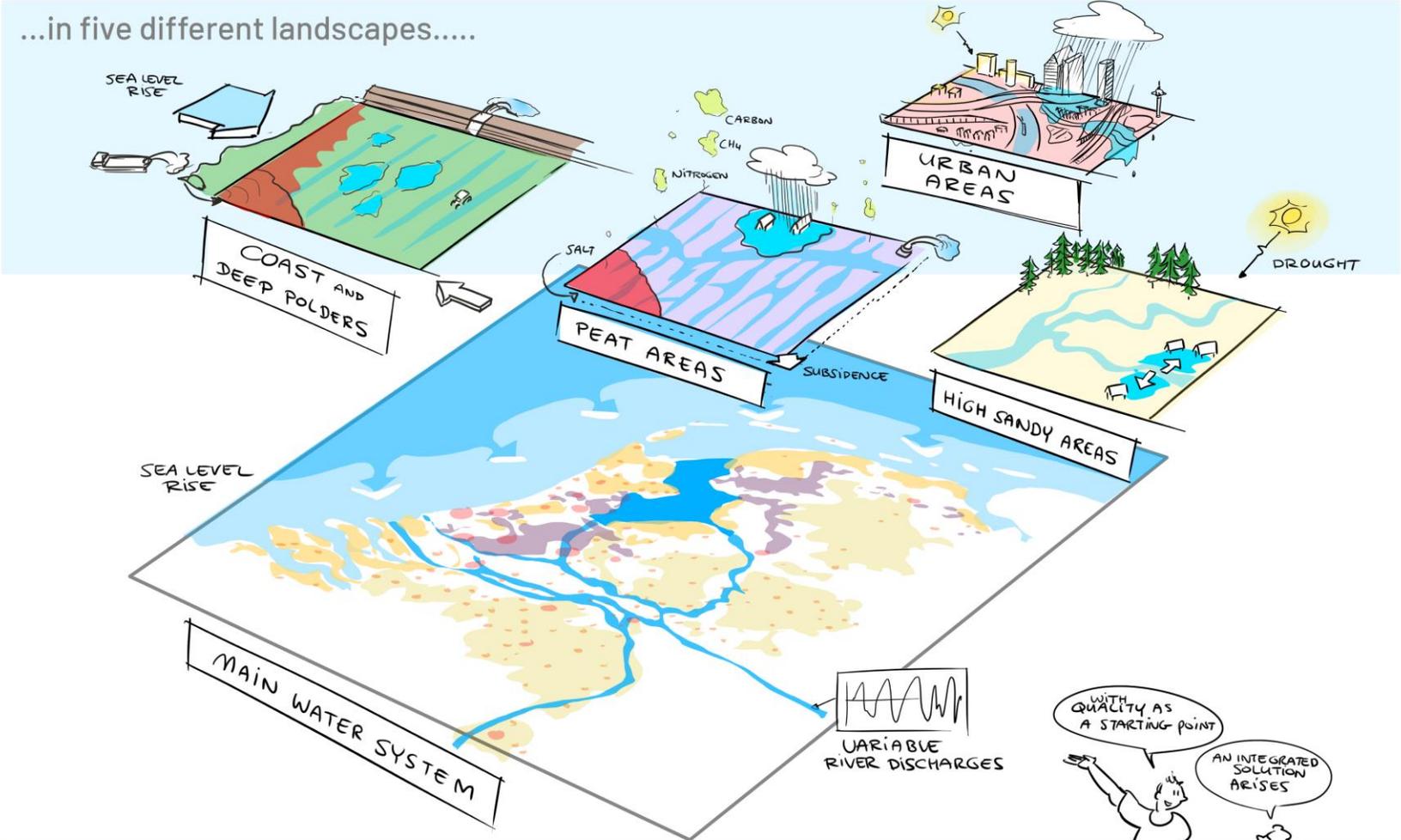


# Flood resilient landscapes...



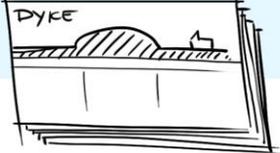
# Flood resilient landscapes...

...in five different landscapes....



...and we can act now! .

BUILDING BLOCKS

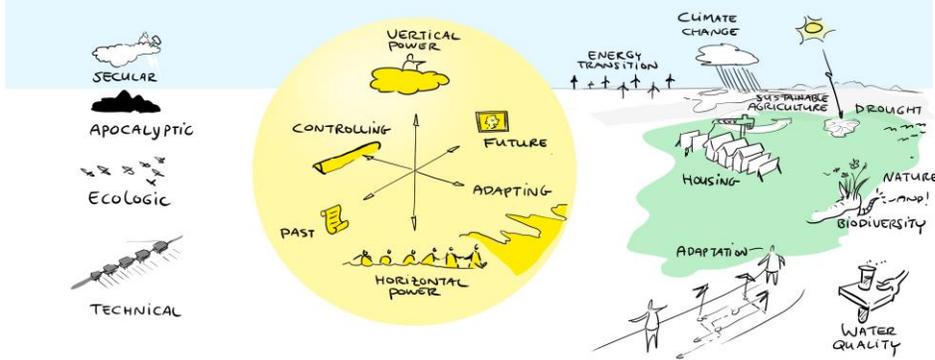


PER LANDSCAPE



# Flood resilient landscapes...

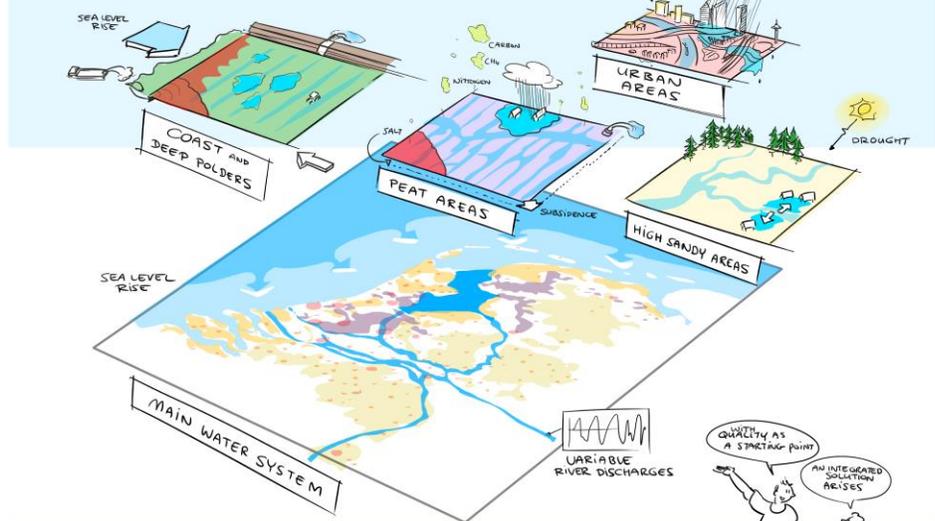
..consider an uncertain future..



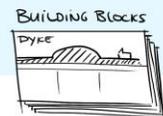
...add to spatial quality...



...in five different landscapes....

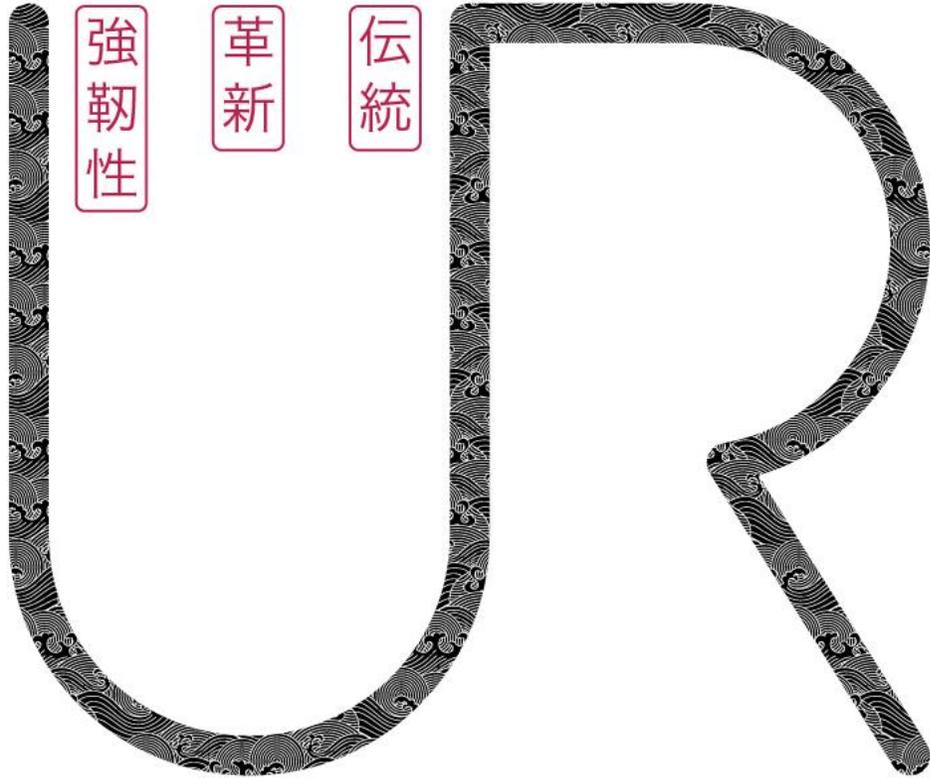


...and we can act now! .



PER LANDSCAPE





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Thank you !

Logos:

**Deltares**

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# Accelerating flood adaptation planning

*Decision support system*

Speakers:

Tiaravanni Hermawan, Gundula Winter

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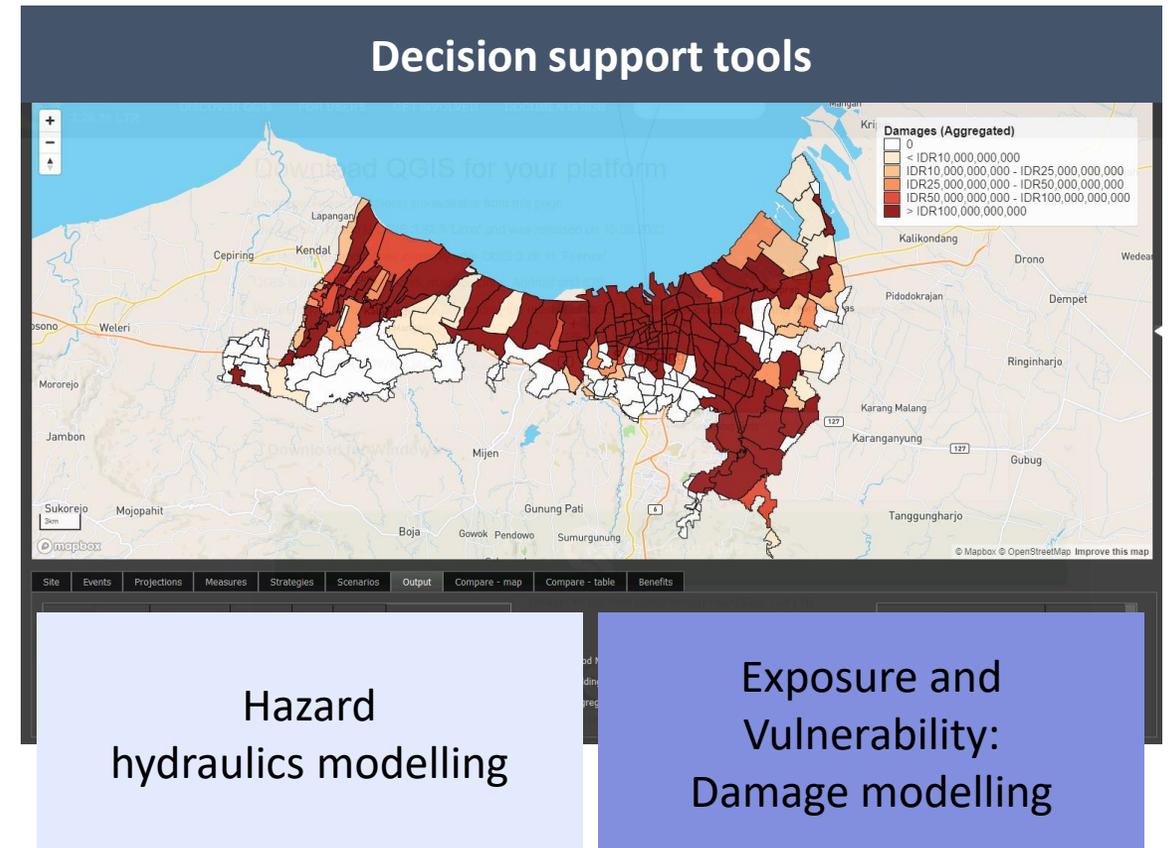
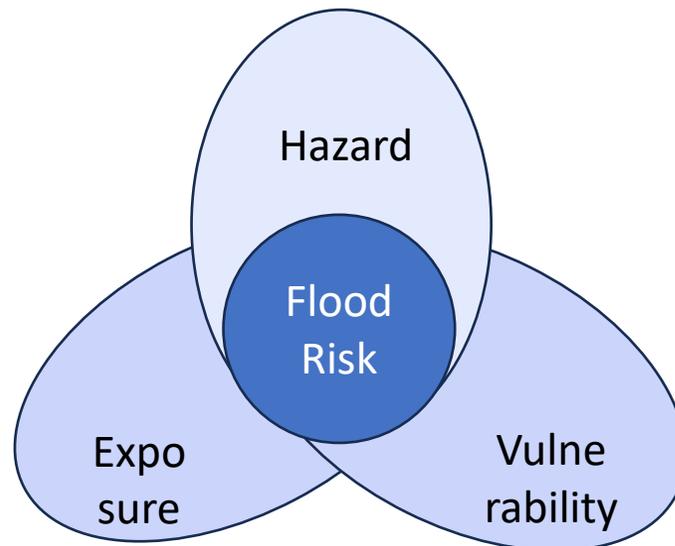
**Deltares**

# Flood risk assessment tools

## FloodAdapt & Planning Kit

Flood risk now and under different **future conditions**

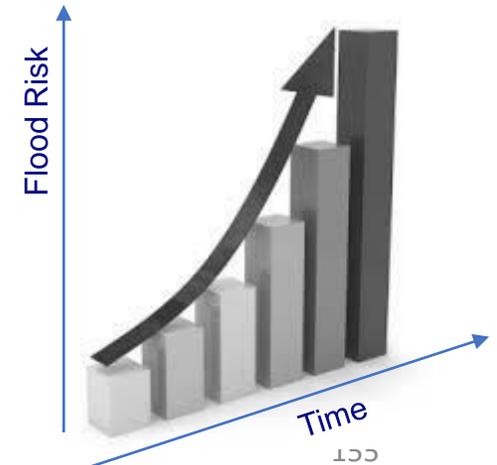
- facilitating real-time flood risk calculations
- adjustments of scenario & measures by non-technical stakeholders



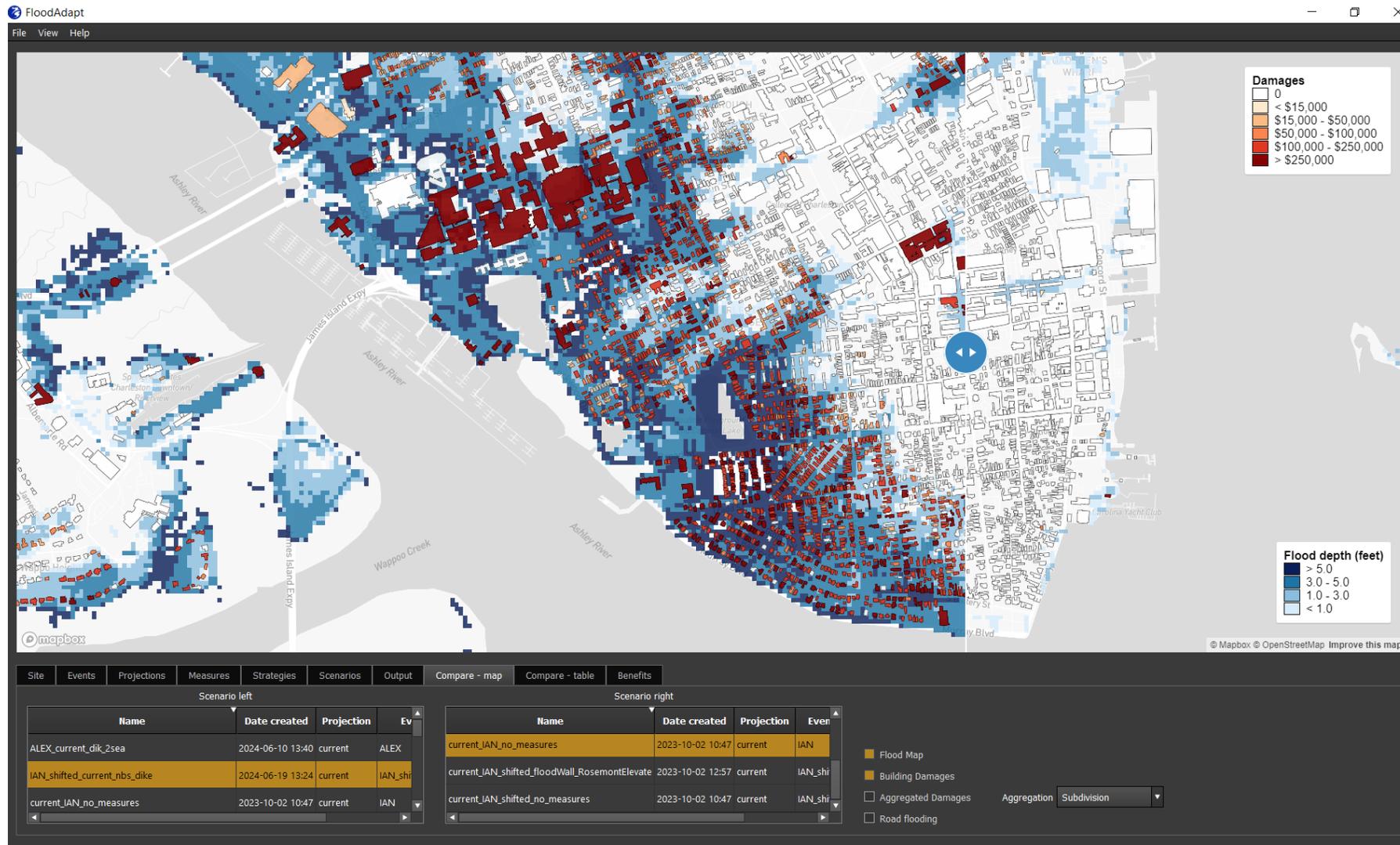
# Planning for the future



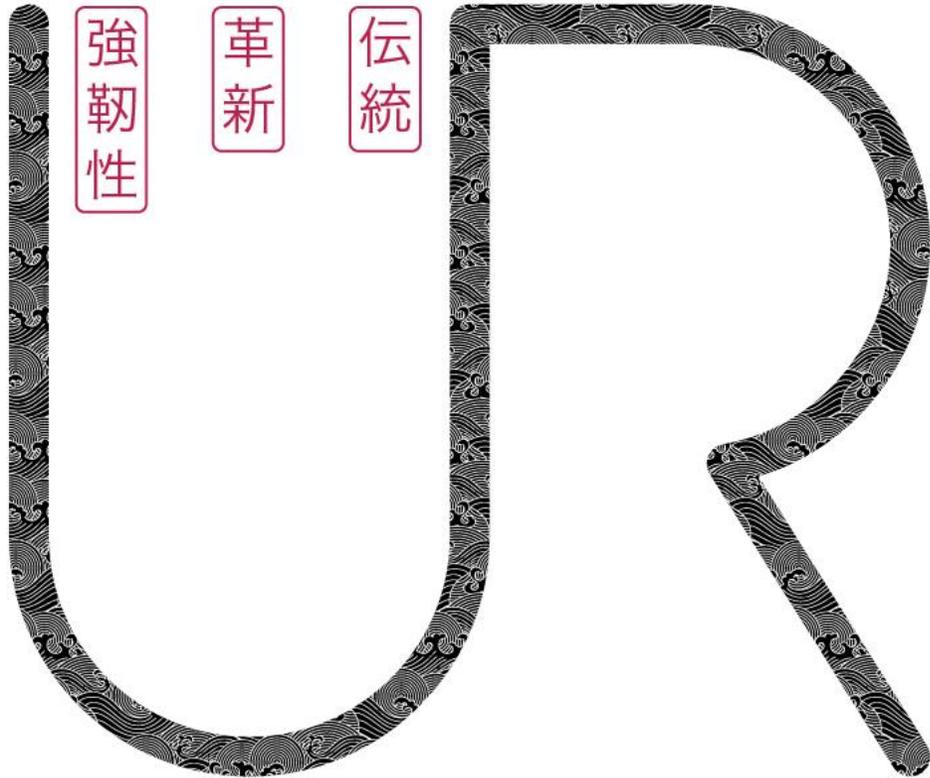
**Decision support system:**  
Modeling needs to be easier, faster,  
and **more accessible**



# You are few clicks away from assessing impacts of your designed flood strategies & NBS



20 June 2024  
14:30-15:30  
Room 401  
Stall B7: FloodAdapt



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Thank you !

**Deltares**

[tiaravanni.Hermawan@deltares.nl](mailto:tiaravanni.Hermawan@deltares.nl)

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UNDERSTANDING RISK  
GLOBAL FORUM 2024

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## RISE

Resilient Indonesian Slums  
Envisioned

**Speakers:**

Nishchal Sardjoe

Gertjan Geerling

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Logos:

**Deltares**

# RESILIENT

# INDONESIAN SLUMS ENVISIONED

Informal river-delta communities suffer from poor water, floods, and inadequate housing, sanitation, and infrastructure. These factors increase disease risk and flood damage, harming their socioeconomic well-being.

Causes and impacts are linked, often with feedbacks that make simple solutions ineffective.

There is a need for a multi-perspective approach, linking sociology, (mental) health, water management and (inclusive) governance.

## Objective

To develop an inclusive governance roadmap to transform Indonesian cities towards social-ecological resilience that builds capacity to mitigate water-related disasters and enhance people's wellbeing



A research collaboration of:



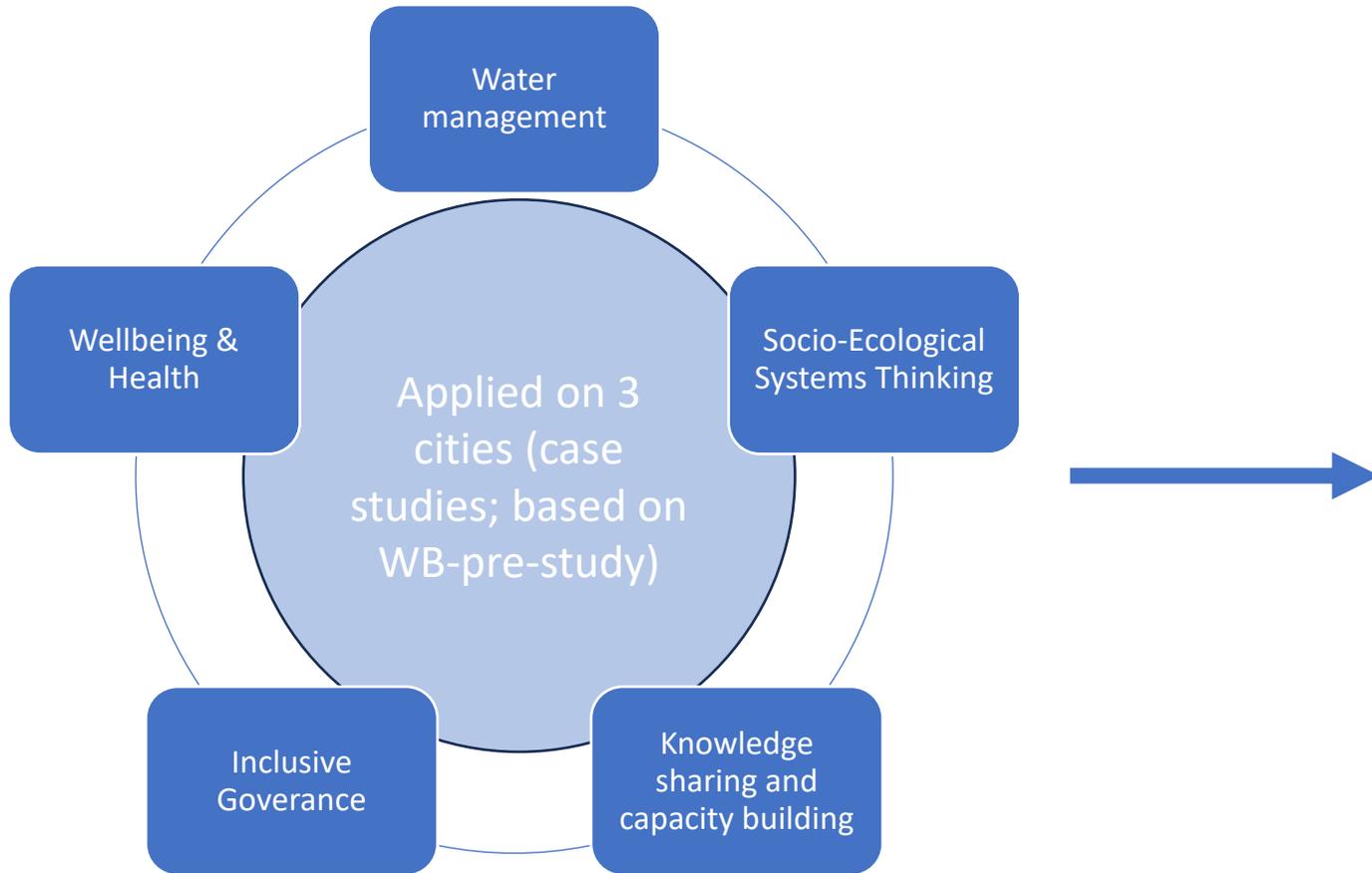
# RESILIENT | **INDONESIAN SLUMS ENVISIONED**

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## Background:

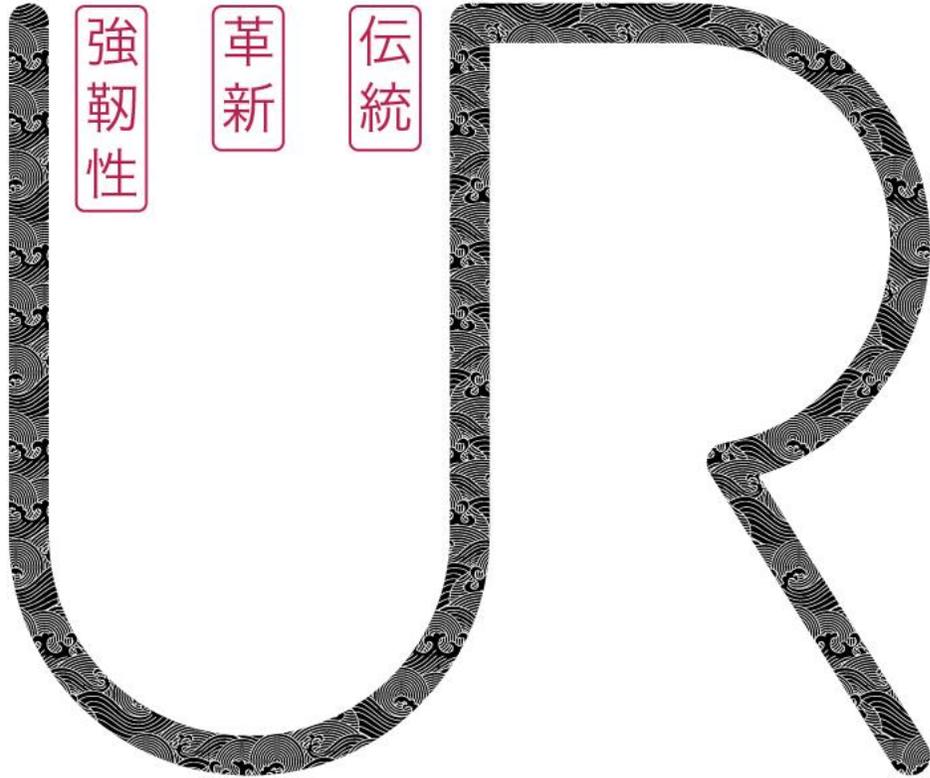
- **Building upon World Bank research on flood protection**
- **Why RISE?**
  - Water-related disasters and climate change
  - Rapid urbanization
  - Slums, a blind spot on maps
- **Follow a comparative case study approach**
  - Study the social-ecological interactions
  - Interdisciplinary approach
  - Mixed methods research

# RESILIENT | INDONESIAN SLUMS ENVISIONED



**Generic Roadmap** | from advocacy, multi perspective system analysis, to implementation and evaluation.

**Toolbox** | assisting tools that underpin steps in the roadmap



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Thank you !

Logos:

**Deltares**

# Part 3: Enhancing uptake

# Open space – golden principles and 1 law

- Agenda co-created by attendees
- Whoever comes are the right people
- Whenever it starts is the right time
- Wherever it happens is the right place
- Whatever happens is the only thing that could have
- When it's over, it's over
- The law of two-feet: “if at any time during the time together you find yourself in a situation where you are neither learning nor contributing, use your two feet and go someplace else”

# Open Space – Golden Principles and 1 Law

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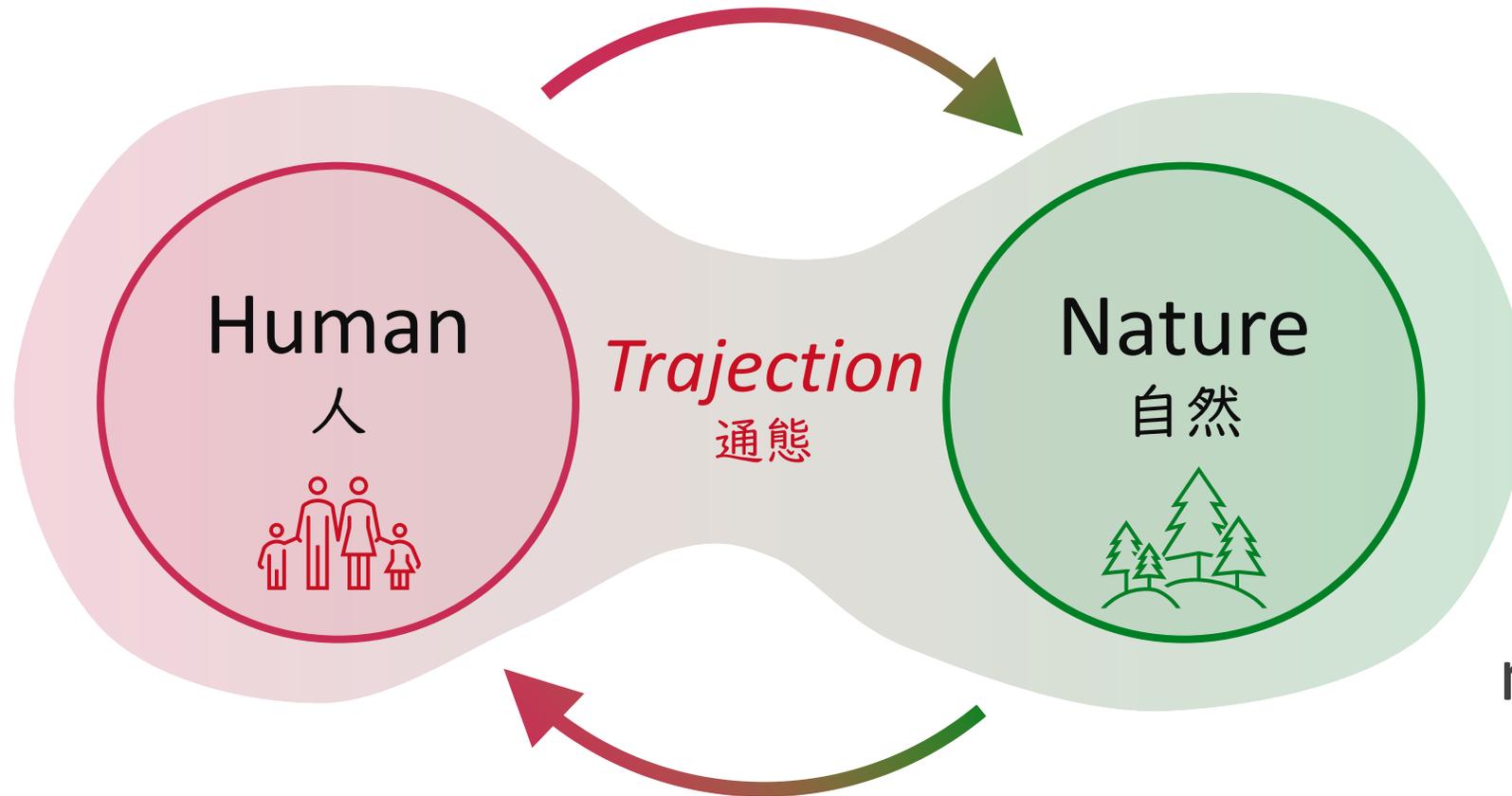
# Open Space – process

- Audience get's an opportunity to bring in a topic they would like to discuss in a breakout group.
- If you bring in a topic, you will be the topic owner and lead the discussion and assign a note taker for the discussion.
- When all topics have been introduced, everyone can choose a breakout group they want to join.
- We will reconvene in 45 min!
- Report back breakout group results to the plenary group (20 min)

# Don't forget the law of the two feet!!

*If at any time during the time together you find yourself in a situation where you are neither learning nor contributing, use your two feet and go someplace else*

# Comments to the Session: Importance of cultural approach



*Fūdo*  
風土

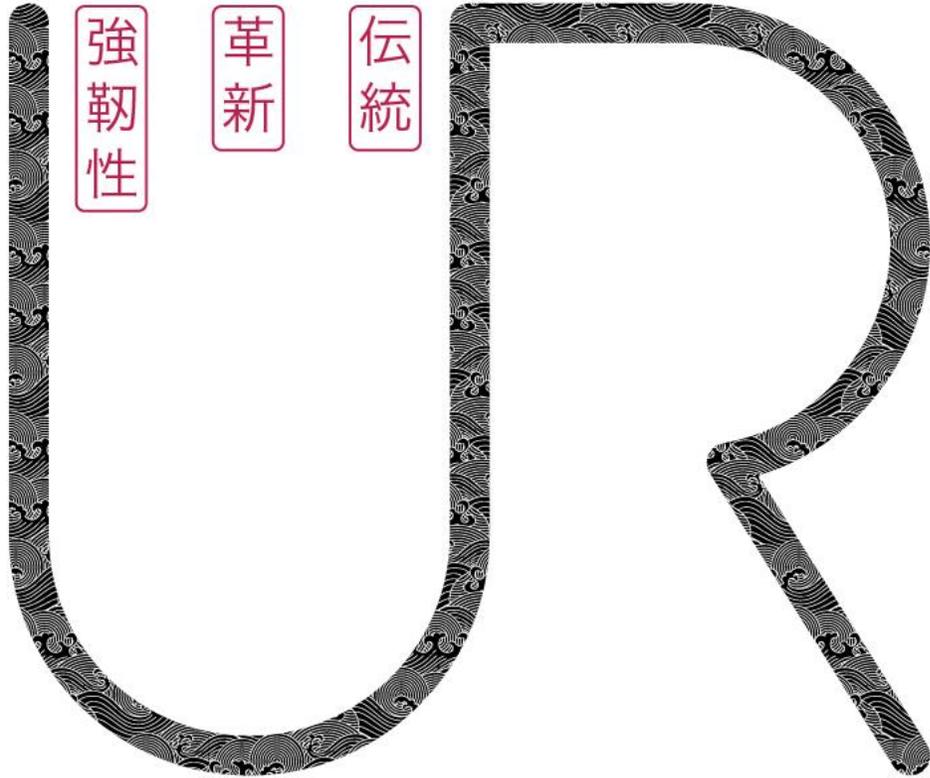


WATSUJI Tetsuro  
(1889-1960)



Augustin Berque  
(1942-)

mesology



Thank you !

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Logos:

