



Governing Uncertainty

**From managing risk to managing the unexpected
PARTICIPATION as a key factor in avoiding the collapse of societies**



The importance of (citizen) participation for DRM

- Casajus Valles, A., Marin Ferrer, M., Poljanšek, K., Clark, I. (Eds.), 2020, Science for Disaster Risk Management 2020: Acting Today, Protecting Tomorrow, EUR 30183 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-18182-8, doi:10.2760/571085, JRC114026.
- Poljanšek, K., Marín Ferrer, M., De Goeve, T., Clark, I. (Eds.), 2017. Science for Disaster Risk Management 2017: Knowing Better and Losing Less. EUR 28034 EN, Publications Office of the European Union, Luxembourg, ISBN 978-92-79-60679-3, doi:10.2788/842809, JRC102482.

Involving citizens and civil society actors, and including their perspectives in decisions relating to (environmental) risk

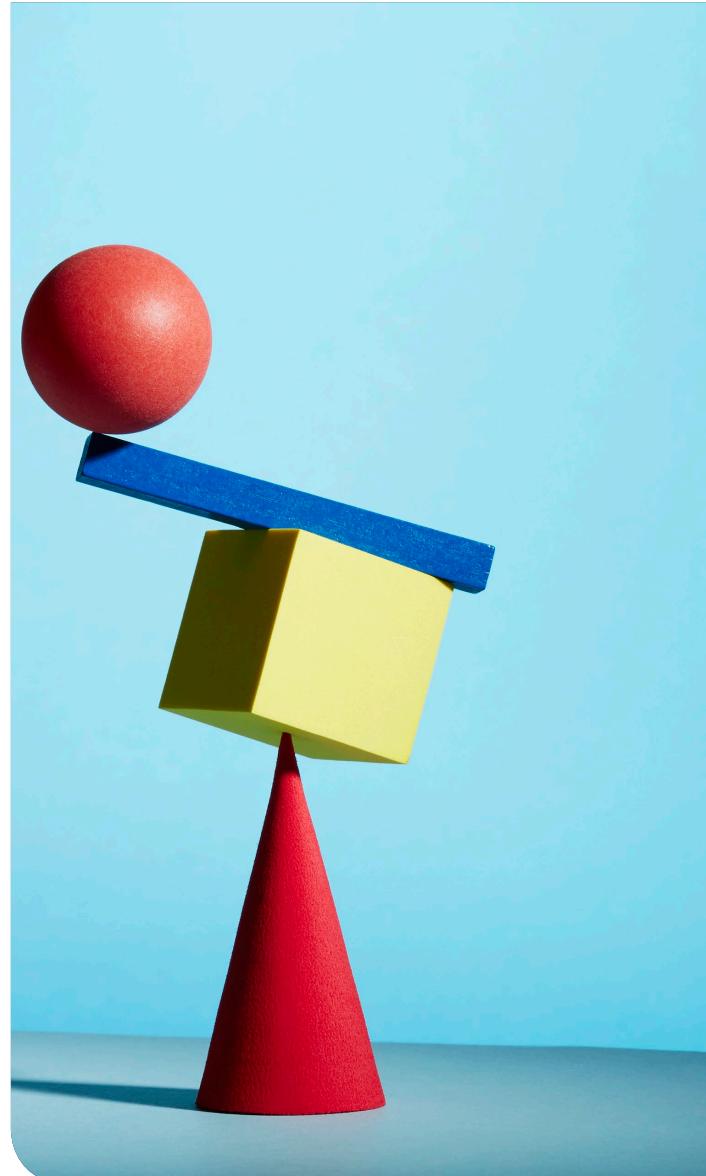
- Empowers people
- Raises awareness
- Encourages preparedness, ownership and responsibility
- Enables to anticipate social conflicts
- Helps improve policy effectiveness, project credibility and legitimacy
- Supports decision acceptance

Participation as a prerequisite for resilience

To build more resilient communities, we need bottom-up approaches in which the public is actually involved in risk assessment, preparedness measures, emergency plans etc. at all levels of disaster risk management.

We should involve citizens by consulting and empowering them to participate in the decision making process, and by tailoring management systems to their needs

Claassen, L., Sapountzaki, K., Scolobig, A., Perko, T., Górska, S., Kaźmierczak, D., Anson, S., Carnelli, F., Bossu, R., Sousa Oliveira, C., Laurikainen, H., 'Citizen participation and public awareness', in: Casajus Valles, A., Marin Ferrer, M., Poljanšek, K., Clark, I. (eds.), *Science for Disaster Risk Management 2020: Acting Today, Protecting Tomorrow*, EUR 30183 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-18182-8, doi:10.2760/571085, JRC114026.



Participation in risk assessment and risk prevention

RISK DIALOGUE

Is this risk worth taking? How can it be mitigated? Should it be compensated, and how?
Upstream engagement – Framing the issues – Ownership of problem and solution

Democratic (normative/moral argument)

- Participation as a fundamental political right in a democratic society
- **Transparent** and debated policy; **trust** relation
- [Empowerment (emancipatory argument)]

Instrumental (process argument)

- Legitimacy, **acceptance**, **public support**, responsibility
- To ease implementation

Functional (substantive argument)

- **Broaden the knowledge base**: 'hands-on' expertise, values, emotions, ...
- Improving quality of policy process and outcome => to achieve **better decisions and impact on behaviour**

BOX 1

Good practice example: Flood risk management in Stroud, South West England

Stroud in South West England is located in a lowland landscape in which the River Frome flows. This area was strongly hit by the 2007 floods. Widespread flooding occurred after sustained periods of rainfall and subsequent increased groundwater levels/flow causing increased baseflow combined with increased runoff response from land areas. Following this, a 3-year project called Rural Sustainable Drainage System, led by the local government, was carried out in 2014.

Working with NGOs, landowners and farmers, many successful interventions were initiated by reaching consensus, defining how to best implement the mitigation scheme and building the works. During this process, the different actors assessed, characterised, evaluated and managed risk. They were all bearers of different kinds of knowledge, which interacted at the local level, driven by relationships among actors and between actors and water catchments. In terms of lesson learned, this case points to how considering local knowledge in risk management can act on risk awareness. Flood risk management was developed by walking, talking, doing and flooding: the flowing of water turned into a socio-political element of risk governance by enhancing or weakening the relationships among the different actors.

Good practices

Claassen, L., Sapountzaki, K., Scolobig, A., Perko, T., Górska, S., Kaźmierczak, D., Anson, S., Carnelli, F., Bossu, R., Sousa Oliveira, C., Laurikainen, H., 'Citizen participation and public awareness', in: Casajus Valles, A., Marin Ferrer, M., Poljanšek, K., Clark, I. (eds.), *Science for Disaster Risk Management 2020: Acting Today, Protecting Tomorrow*, EUR 30183 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-18182-8, doi:10.2760/571085, JRC114026.



Participation in emergency planning and preparedness

From risk dialogue to **COLLABORATIVE ACTION**

- Monitoring and detecting hazards
- Dissemination of information
- Raising alarm
- Preparing for protective actions
- Planning and training activity (ensuring realistic emergency planning and response measures)

BOX 3

Education and training

Good practice example: clubs for civil protection at schools

Risk education at schools can lead to more accurate risk perceptions and ensures cross-cultural and more inclusive risk communication. Children are believed to be more receptive to environmental ethics and new ideas; students can influence the wider community through their peers and parents (Twigg, 2015). The creation of clubs for civil protection at secondary school level (15–18 years) is one way to reach this age range. This strategy is adopted in Greece, where the Earthquake Planning and Protection Organization has set about training school teachers to raise their awareness and point to ways of teaching pupils about risk issues (⁴).

BOX 4

Disseminating information

Good practice examples: support material for communication

- The members of the project Effective Education for Disaster Risk Reduction – Learning Matters have uploaded a video entitled 'How levee wars are making floods worse' (EDU4drr, 2018). The video displays some difficult-to-comprehend issues such as risk perception, risk transfer, risk complexity and risk scale.
- The EU project 'Know your city, reduce seismic risk through non-structural elements' (KnowRISK, 2016) promotes the engagement of school students, citizens and businesses with social and earthquake researchers to disseminate important issues and tools for reducing non-structural seismic damage.

Good practices

Claassen, L., Sapountzaki, K., Scolobig, A., Perko, T., Górska, S., Kaźmierczak, D., Anson, S., Carnelli, F., Bossu, R., Sousa Oliveira, C., Laurikainen, H., 'Citizen participation and public awareness', in: Casajus Valles, A., Marin Ferrer, M., Poljanšek, K., Clark, I. (eds.), *Science for Disaster Risk Management 2020: Acting Today, Protecting Tomorrow*, EUR 30183 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-18182-8, doi:10.2760/571085, JRC114026.

BOX 5

Monitoring and raising alarm

Good practice example: LastQuake

LastQuake is a simple, affordable multichannel rapid information system that may contribute to immediate global seismic risk reduction. It offers timely, geotargeted information (e.g. safety checks and safety tips to describe behaviours to be encouraged or avoided after violent tremors) in regions where an earthquake is felt. It is based on internet technologies and social media (websites, Twitter, a quakebot using the messaging app Telegram, and a smartphone app) providing rapid tremor detection (between a few tens of seconds and a couple of minutes), derived from the analysis of indirect information, i.e. internet and social media searches by eyewitnesses eager to find out the cause of the tremor. It also collects eyewitnesses' information about the degree of shaking being felt and possible damage incurred. The data from eyewitnesses using the LastQuake website⁽⁵⁾ or app are comparable to real-time seismic sensors. These data are fed back into the ongoing information product, which, in turn, attracts more eyewitnesses through a viral spread (Bossu et al., 2018).

(5) <https://www.emsc-csem.org/#2>

Good practices

Claassen, L., Sapountzaki, K., Scolobig, A., Perko, T., Górska, S., Kaźmierczak, D., Anson, S., Carnelli, F., Bossu, R., Sousa Oliveira, C., Laurikainen, H., 'Citizen participation and public awareness', in: Casajus Valles, A., Marin Ferrer, M., Poljanšek, K., Clark, I. (eds.), *Science for Disaster Risk Management 2020: Acting Today, Protecting Tomorrow*, EUR 30183 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-18182-8, doi:10.2760/571085, JRC114026.



Participation in emergency response and recovery

Some good examples, but also Underdeveloped potential

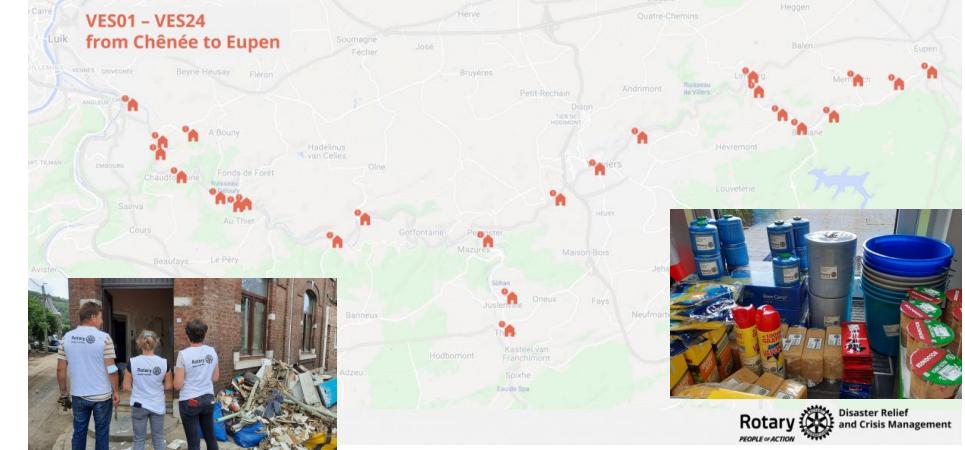
- Lack of framework/structure/support
- Tension between ‘professional’ emergency services and citizen-volunteers
- Framework for crisis management strongly focussed on swift interventions
- Less experience with long-lasting crises

Good practice example: ‘building back better’ after the Faial Earthquake in Azores (1998)

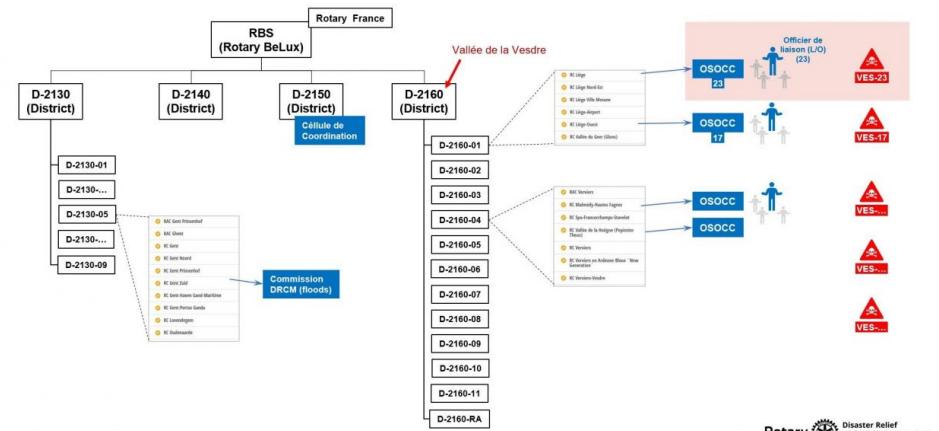
In 1998, an earthquake took place, accompanied with hurricanes, large sea waves, heavy rains and landslides, causing tremendous impacts on housing, school buildings, lifelines and monumental structures on the islands of Faial and Pico (Zonno et al., 2009; Oliveira et al., 2011). During the reconstruction process, a huge effort was made to ‘build back better’ (UNISDR, 2015, p23): analyse the building stock (building by building) and provide building advice, such as the use of wire mesh to enclose poor-quality masonry walls and not replacing old timber floors by heavy reinforced concrete floors. New rules for urban planning were also implemented (e.g. avoid fault traces and proximity to cliffs). Public sessions were organised to involve citizens in the whole process, discussing solutions with technicians and eventually influencing final solutions. The media (local newspapers) took a very important role criticising when the works did not progress more rapidly. The creation of an office for the population to communicate their worries was also very effective in resolving many conflicts. Although at the end of the reconstruction phase citizens became more reluctant to accept some of the recommendations (e.g. to keep the wooden floors), the reconstruction was achieved at relatively low cost for citizens and with considerable support from them.

Good practices

Rotary Disaster Relief teams in the Vesdre Valley, Belgium



Organisational Concept (OB)



Essential pathways for involving citizens in DRM

- Consult community representatives to **complement scientific knowledge with the knowledge and practices that exist within the community** and to **establish partnerships** during the development of strategies and regulations, local plans and projects, assigning roles and tasks. **Direct feedback about local needs and capabilities** also helps to align the national strategies with the actual needs of a community.
- **Empower citizens within the community, raising public awareness, educating people about the risk and providing them with the tools, skills, motivation and confidence to participate and to maintain involvement.** This is especially needed for marginalised and vulnerable groups (e.g. poor, disabled, illiterate and elderly people and ethnic minorities), as unequal power relations, and lack of information, access to resources, awareness of rights, opportunity and capacity, constrain the motivation and ability to participate or hold decision-makers to account.
- **Tailor disaster risk management systems to the needs of users.** This means investing in people-centred, simple and low-cost, multi-hazard, multi-sector, multi-channel hazard-monitoring telecommunication and warning systems, risk communication mechanisms and social technologies through a participatory process.

Claassen, L., Sapountzaki, K., Scolobig, A., Perko, T., Górska, S., Kaźmierczak, D., Anson, S., Carnelli, F., Bossu, R., Sousa Oliveira, C., Laurikainen, H., 'Citizen participation and public awareness', in: Casajus Valles, A., Marin Ferrer, M., Poljanšek, K., Clark, I. (eds.), *Science for Disaster Risk Management 2020: Acting Today, Protecting Tomorrow*, EUR 30183 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-18182-8, doi:10.2760/571085, JRC114026.

Different risks – different needs and opportunities

Man-Made Disaster Risk



Natural Disaster Risk



Man-Made Natural DR





Man-Made Disaster Risk

Focus mostly on: role in siting decisions, risk assessment, emergency planning, dissemination of information

Limited possibility for preventative action, monitoring, ... by individuals

Difficult balance between raising awareness and raising concern

If disaster occurs: possibility for role in response and recovery

Natural Disaster Risk

More opportunity for citizens to participate actively the **full DRM 'chain'**: risk assessment / communication / education – preventative action – monitoring – emergency preparedness and response – mitigation & recovery

Man-Made Natural DR

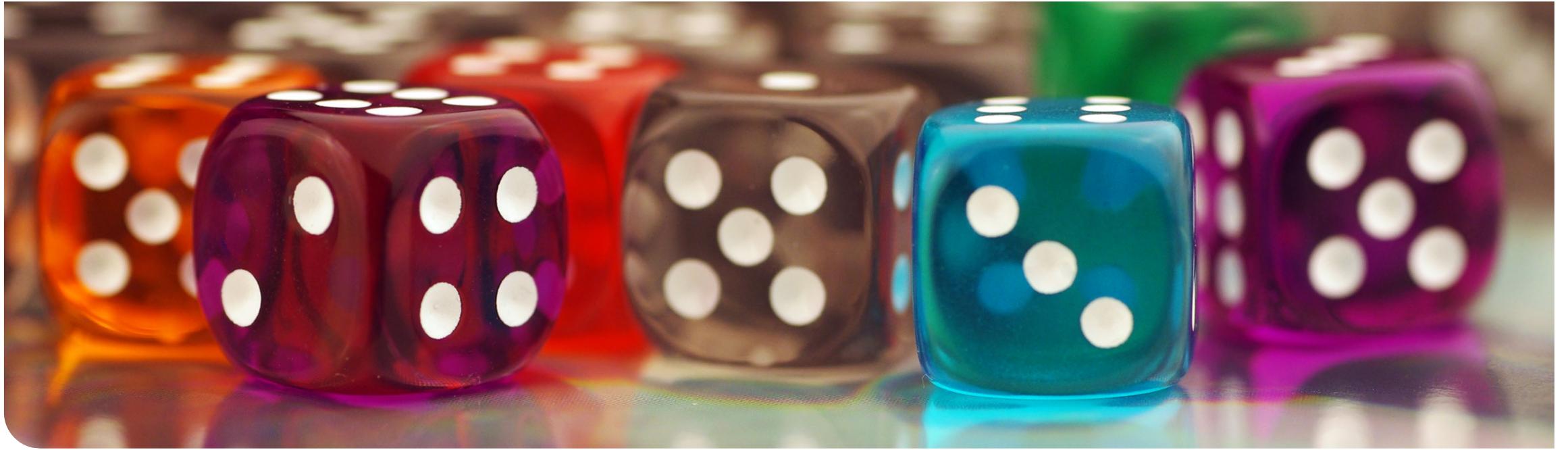
Often related to decisions taken long ago, or as result of incremental decision making

Citizen participation in DRM more related to monitoring, risk mitigation, disaster prevention and control

Possibility for role in emergency preparedness, response and recovery

Raising awareness versus raising concern

- **The cognitive paradox: a higher trust in protection hampers intentions for preparedness**
- **Awareness and ‘familiarity’**
 - Focus on the hazards, vulnerability and needs of the locality
 - Focus on tangible factors, and issues relevant to the community context
 - Appropriate communication (and participation) efforts tailored to target groups
 - Comparable message, but different style, medium, ...
- **A question of capability, power and control**
- **The particularity of low-probability, high-consequence events**



A modern preoccupation with risk

And the (shattered) illusion of controllability

Consequences for DRM



A world full of risk

- Changes in the quantity and type of risks
- Changes in the societies in which those risks emerge
 - See lecture Juergen Weichselgartner: emerging risks & systemic risks
- Changes in risk perception

A malleable society

- Future as open, indeterminate, unlimited and unpredictable
- Sensitive for wrong decisions, particularly those taken by others

→ Loss of confidence in decision-makers, and their advisors
Loss of confidence of decision-makers in citizens



**Learning to deal with uncertainty
has become one of the most
important challenges of the 21st
century**

Zigmund Bauman



RISK

- Risk = chance x effect
 - Converts uncertainty to **probability**
- Exact future unknown, but some idea about possible futures
 - Clearly delineated options/possibilities
 - E.g. throwing a dice



UNCERTAINTY

- No knowledge about probability
 - No knowledge about division
 - Extremely big division
- No knowledge about (all) possible futures
- Techniques such as expert elicitation to make predictions or judgement



Risk as a way of dealing with uncertainty

To conceptualize an object as risk entails seeing it as manageable and governable

Risk creates space for action as it opens the future for calculation, deliberation and decision making

Lidskog & Sundqvist 2012

Tendency to reduce uncertainty to risk

- Blinding us for residual uncertainty
- Putting the focus on probable safety rather than real (un)safety
- Creating an illusion of control
- Framing crisis management as an *end of pipe* phenomenon
- Making us even less capable of dealing with uncertainty

Turning uncertainty into ‘probable certainty’ entails some risk

- Is based on decisions and “one can only make a risky decision” (Luhmann 1993)
- Predictive power of risk analysis is often overestimated, and low chance interpreted as ‘no chance’
- Risk formula (chance x effect)
 - focusses primarily on negative outcome (and how to reduce it), less on weighing that against expected positive outcome
 - is less suitable for complex issues (remaining unknowns; facts are never entirely value free)
- False feeling of safety when taking probable safety for actual safety

Governing uncertainty

(more) consciously and explicitly working with uncertainty to bridge between risk and crisis management

- Crisis management as an integral part of risk management
- Always **expect the unexpected**

“To recognise the existence of a risk or set of risks is to accept not just the possibility that things might go wrong, but that this possibility cannot be eliminated.” (Giddens 1990: 111)

- May require a new mindset, but uncertainty leaves more room for participation, awareness and preparedness than the concept of risk



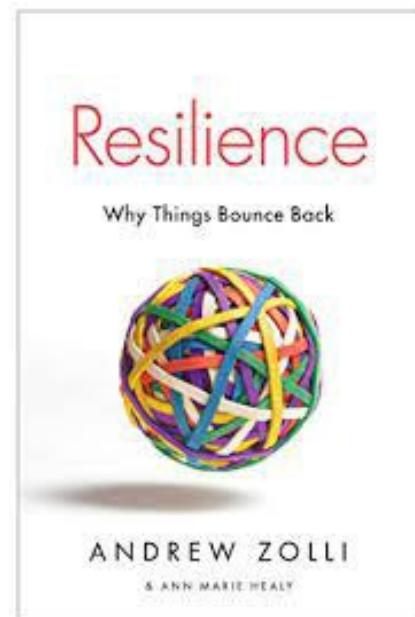
Resilience

Participation as a key factor in avoiding the collapse of societies

Two resilience paradigms

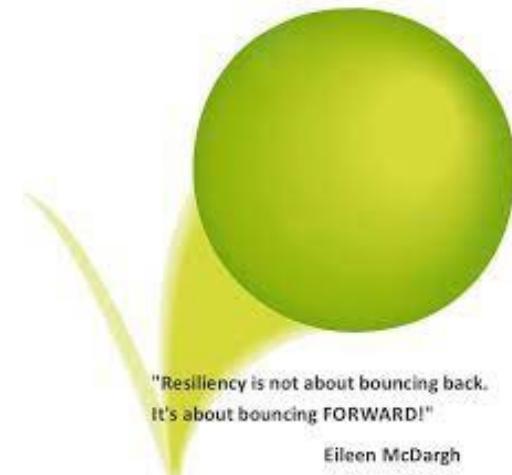
Bounce Back (the engineering resilience paradigm)

- The ability of systems to resist against external influences and return to a well-defined state of equilibrium



Bounce Forward (the ecosystem resilience paradigm)

- A measure of the ability of systems to absorb changes of state variable, and parameters and still persist
 - Social-ecological systems
 - Sociotechnical systems



Social resilience

- “*The ability of social systems to cope with external stress or change – which can be rapid or steady as well as widespread or on a small scale – and persist as a system, even if a modified internal structure is necessary*” (Adger op cit. in Lorenz 2013: 10)
- Not just external shock, also internal change can cause stress (Lorenz and others)
- When does change or stress become problematic?
 - FAILURE OF EXPECTATIONS
 - “*Disasters are ... the disturbance or destruction of expected organizational and reproductive services that are considered fundamental for a certain system*” (Douglas & Wildavsky op cit. in Lorenz 2013: 11)



Coping capacity

Assure continuity with the past: ability give meaning to failed expectations

- Modify old structures of expectations
- Imagine new worthwhile ones
- Integrate “disaster” in existing structures of signification
- Importance of legitimacy of (political) institutions, trust and social cohesion

Adaptive capacity

Future oriented: ability to establish new structure relationships

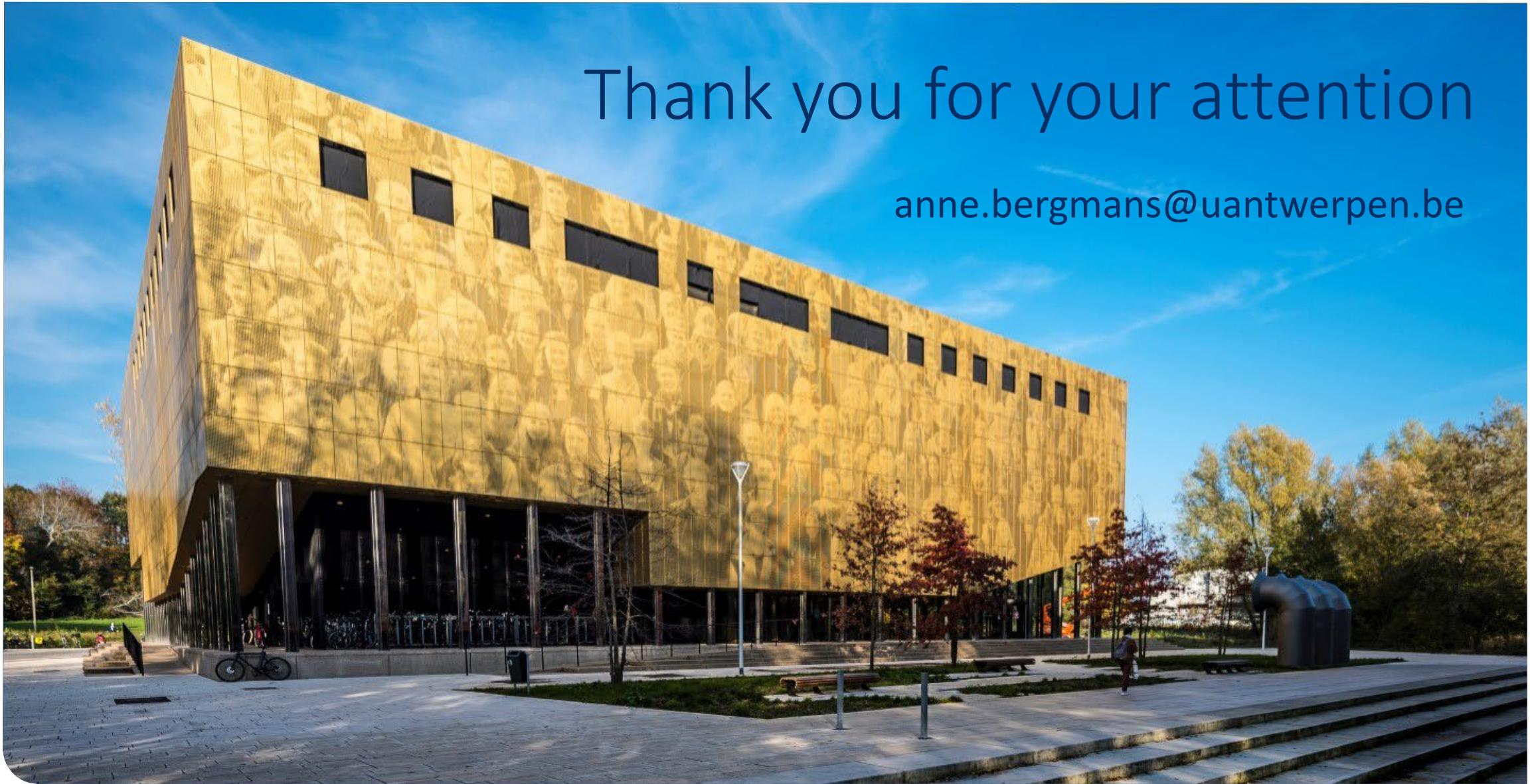
- Short-term response in crisis and emergencies (adaptation)
- Creation of fundamentally new system structures (transformation)

Participative capacity

Ability to self-organise

Interpretative and normative power: unequal distribution of power and resources reduces social resilience

- Who is allowed to give meaning?
- Who is capable of adapting? Who is forced to adapt and who isn't?
- E.g. focus on vulnerability deprives ‘the local’ of capacity for resilience



Thank you for your attention

anne.bergmans@uantwerpen.be