

Still planning for climate change vulnerability?

Evidence from Norway on the lack of success in adapting to climate change, and suggestions on how to move from ‘adjustments’ to ‘transformation’ in climate change adaptation

Presentation during session 2 “Scientific approaches: evidence and scenarios of climate change in mountain areas” at the X European Mountain Convention “Mountains’ vulnerability to climate change: how can people and territories adapt and mitigate its effects?”

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Teatro Municipal de Bragança, Bragança, Portugal



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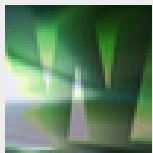
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Environment

Industrial ecology | Local Environmental and Climate Policy | Sustainable Mobility |
Alternative Fuels | Sustainable Agriculture



Innovation

eGovernment and public sector organisation | Regional development | Infrastructure and
networking | e-Commerce in small and medium-sized businesses



Research Centre for Tourism

Leisure-time Consumption | Sustainable Tourism | IT and tourism



Usability

Requirements specifications | Semantic web | Human Computer Interface |
Information architecture

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Part of the regional research infrastructure in Norway

Annual turnover of 3,25 mill Euro

24 researchers – 12 of which do sustainable development related research



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Study modell: Master in Climate Change Management

Emne	M/C	Namn på emne	A-16	S-17	A-17	S-18
XXXX-1	C	Climate change and climate policy	10			
XXXX-2	C	Introduction to methods in environmental sciences	10			
XXXX-3	C	Climate change and ecosystems	10			
XXXX-4	C	Towards a zero emission society		10		
XXXX-5	C	Geohazards		10		
XXXX-6	C	Rural and urban run-off management		10		
XXXX-7	C	Climate change adaptation in land use planning			10	
XXXX-8	C	Societal transformation			10	
XXXX-9	C	Scientific writing, scientific theory and data analyses			10	
XXXX-10	C	Master thesis				30
XXXX-11	O	Snow sciences and avalanche		10		
Sum			30	30	30	30

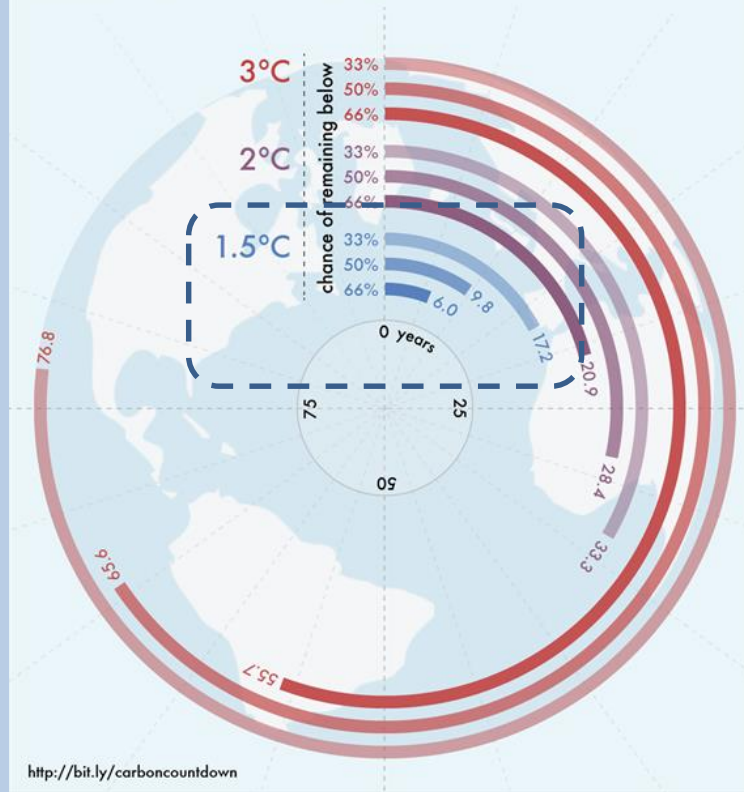
*C = compulsory, O = optional for students with necessary background in Geohazards.
Semester 2 and 4 is open for international student exchange.*



The Paris Agreement Challenge

Carbon Countdown

How many years of current emissions would use up the IPCC's carbon budgets for different levels of warming?

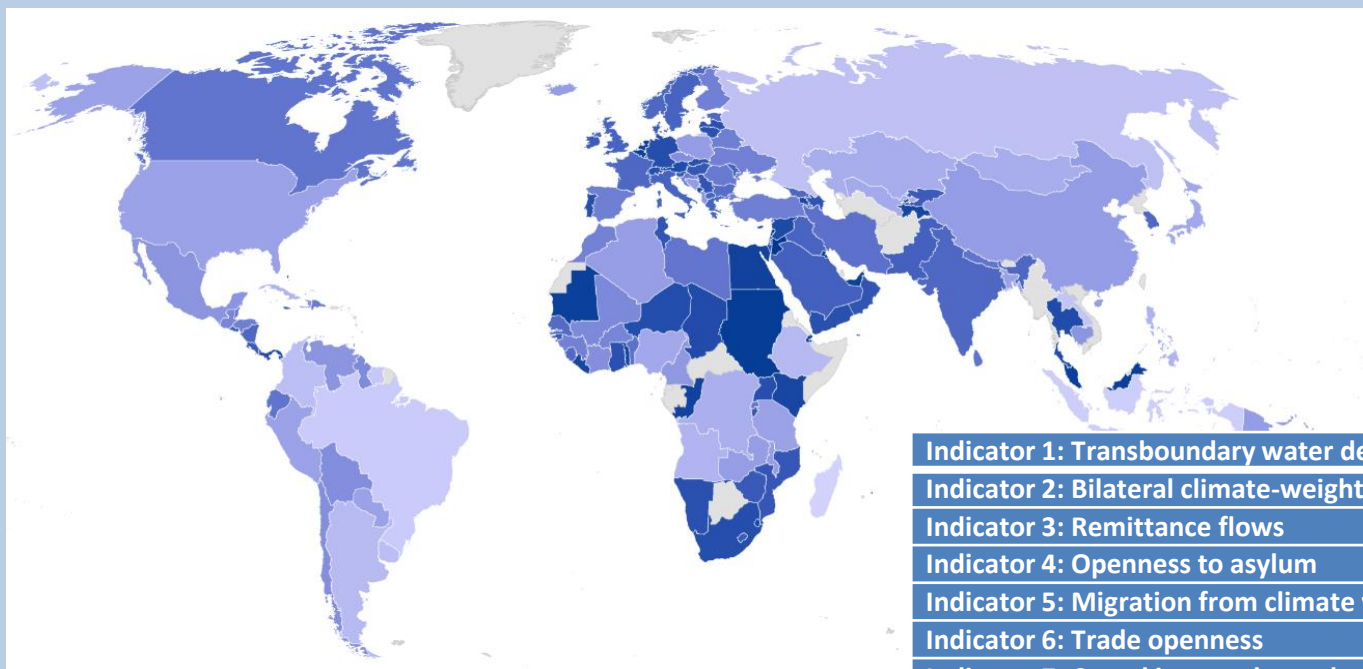


Two observations about the near past

- The need to **mitigate** climate change has been on the table for more than **25 years**
 - still **emissions** continue to **increase**
- The need to **adapt** to climate change has been on the table for more than **10 years**
 - still climate **vulnerabilities** continue to **increase**

And, we need to expanding the currant narrow-sighted perspective on climate vulnerabilities

Stockholm Environmental Institute Index of Exposure to indirect effects of climate change



- Indicator 1: Transboundary water dependency ratio
- Indicator 2: Bilateral climate-weighted foreign direct investment
- Indicator 3: Remittance flows
- Indicator 4: Openness to asylum
- Indicator 5: Migration from climate vulnerable countries
- Indicator 6: Trade openness
- Indicator 7: Cereal import dependency ratio
- Indicator 8: Embedded water risk
- Indicator 9: KOF Globalization Index

One conclusion

- «If current incremental approaches to preventing dangerous climate change and adapting to the change we are already locked into are insufficient, **then more radical approaches may be required**”

A briefing note issued from the Learning Hub on the concept of
‘transformation’ at the UK Institute of Development Studies
Bahadur and Tanner, 2012:1

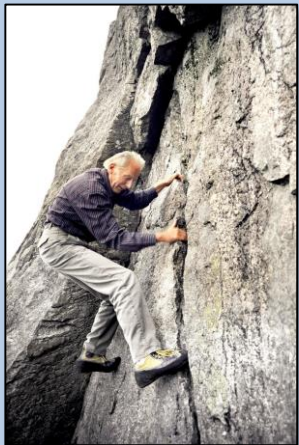
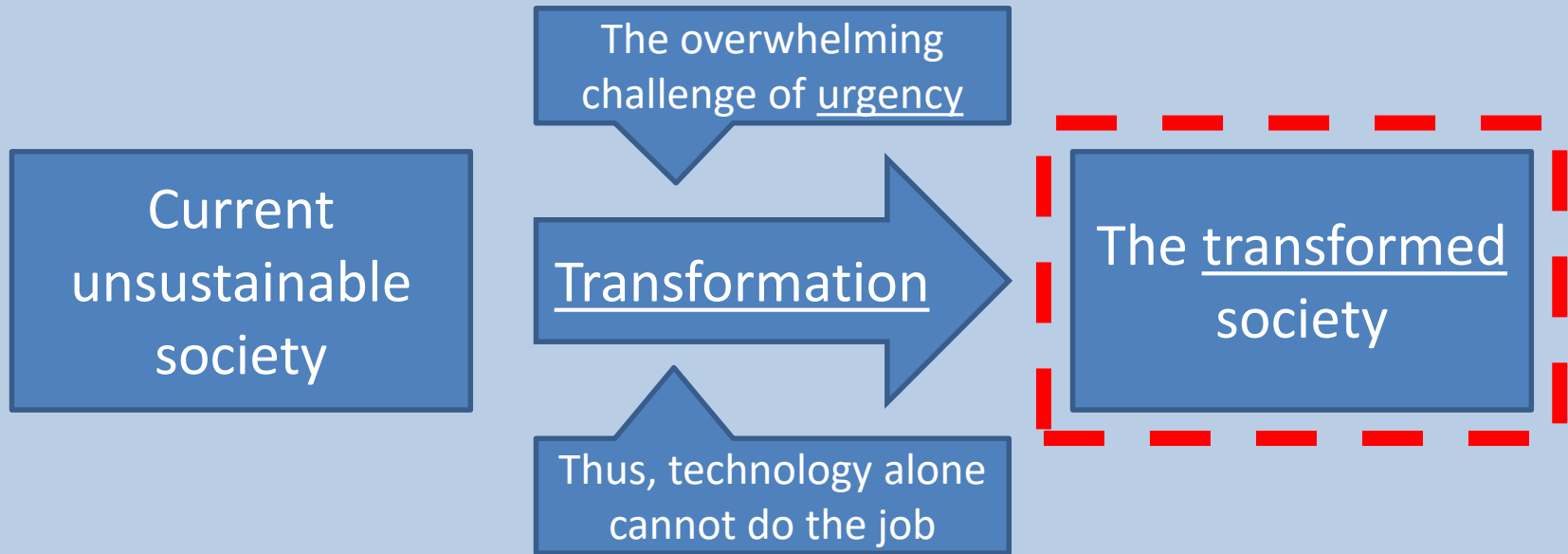
..and a corresponding definition

- **Transformation**

- “The **altering of fundamental attributes of a system** (including value systems; regulatory, legislative, or bureaucratic regimes; financial institutions; and technological or biological systems)”

- (as opposite to that of “The process of **adjustment** to actual or expected climate and its effects, in order to **moderate harm or exploit beneficial opportunities**”)

Transformation as process and output



Eco-philosopher and mountain climber Arne Næss:

- “On a long-term basis of 100 years I am **optimistic** with respect the capability of mankind to solve the ecological crisis. However, on a short-term basis I am **pessimistic**”

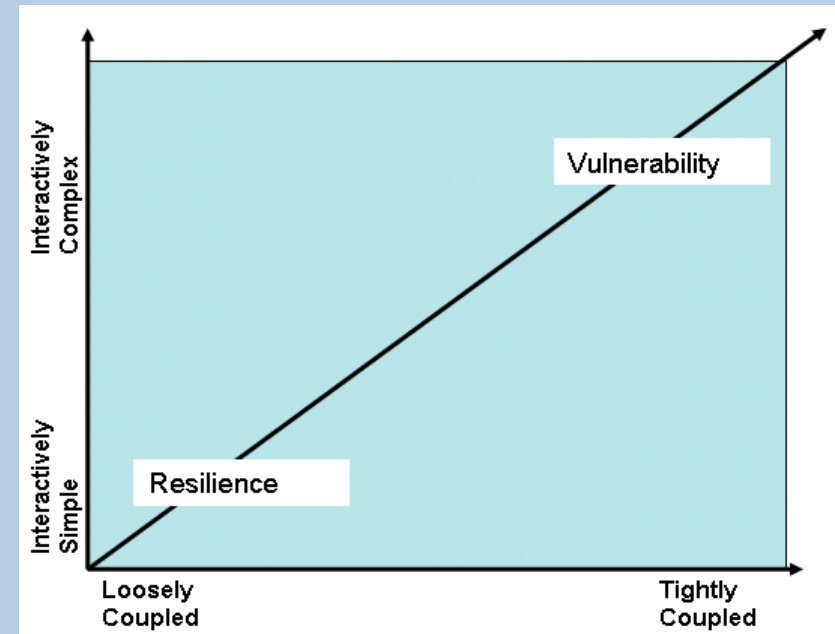
Key characteristics of the transformed society

- Living in a fossil-free world
 - at least in the beginning
- Living with a changed climate
 - Which we currently do not know how will look like
- In many respects, a very different – and - unknown future
- How may mountainous areas of Europe cope under these conditions?

Could climate change be good for mountainous areas? (in a relative sense!)

- In times of big crises – rural areas often come out better than urban areas
 - A potential for increasing “low-capital-intensity” food production and housing capacity
- Rural mountainous areas can be more resilient to the effects of climate change than urban areas
 - When the system is tightly coupled and complex, failures more easily get out of control

Charles Perrow's theory of high-risk societies



Back-casting the transformed mountainous areas

- **Avoid**

- loosing areas with

- a potential of increasing current levels of low-capital-intensive food production
 - a potential of increased housing capacity

- **Maintain**

- Societal structures the creates high resilience

- Loosely coupled and low complexity societies, allowing for high levels of cross-sectorisation, cross disclipinarity and business diversification



Thank you for your attention!

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