The need to shift from ‘adjustments’ to ‘transformation’ in the climate change efforts of European mountain regions

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?”
3 October 2016
Teatro Municipal de Bragança, Bragança, Portugal

Carlo Aall
Head of research at Western Norway Research Institute
Professor II in Sustainable Development at the Sogn og Fjordane University College


UNESCO
United Nations Educational, Scientific and Cultural Organization
World Heritage Convention
40 YEARS
2012
"nothing can compare to this incredible beauty"


FOSSHAUGANE CAMPUS
VESTLANDSFORSKING


Sogndal

NY PAKNING
Lerums eplejus
Lerums


The smallest community in Norway with a football team in the elite division

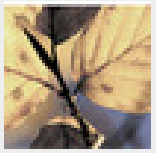

The main destination in Norway for off-pist skiing

VESTLANDSFORSKING

Front page

Keywords A-Z | Norsk Search

RESEARCH AREAS PROJECTS PUBLICATIONS EVENTS EMPLOYEES ABOUT VESTLANDSFORSKING



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

www.vestforsk.no

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

SOGN OG FJORDANE UNIVERSITY COLLEGE

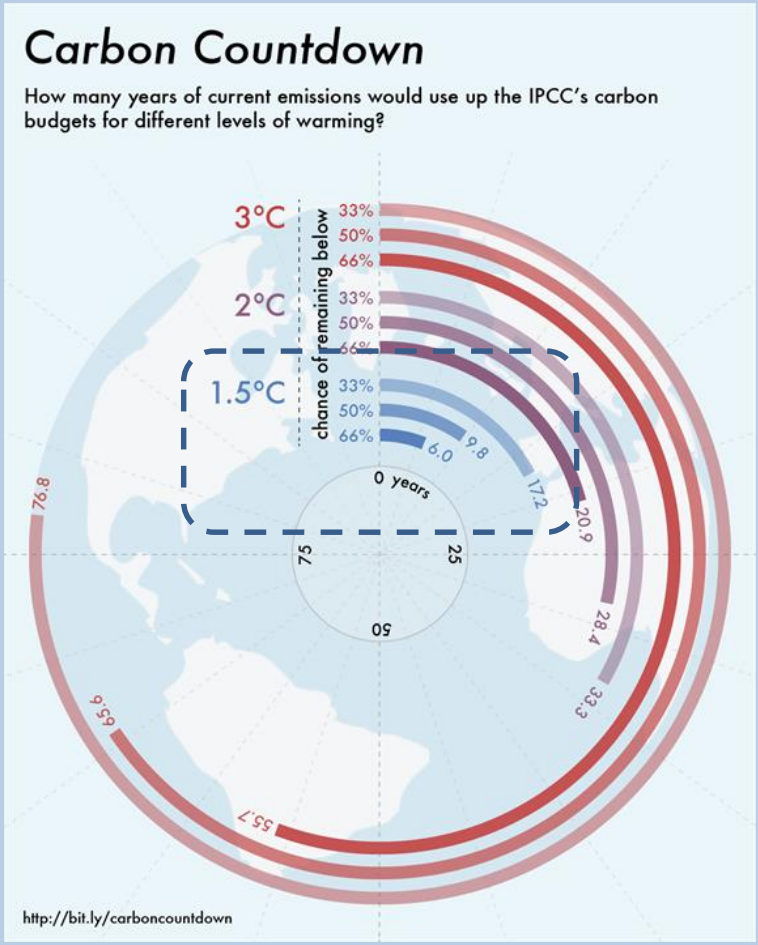
HØGSKULEN I SOGN OG FJORDANE

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



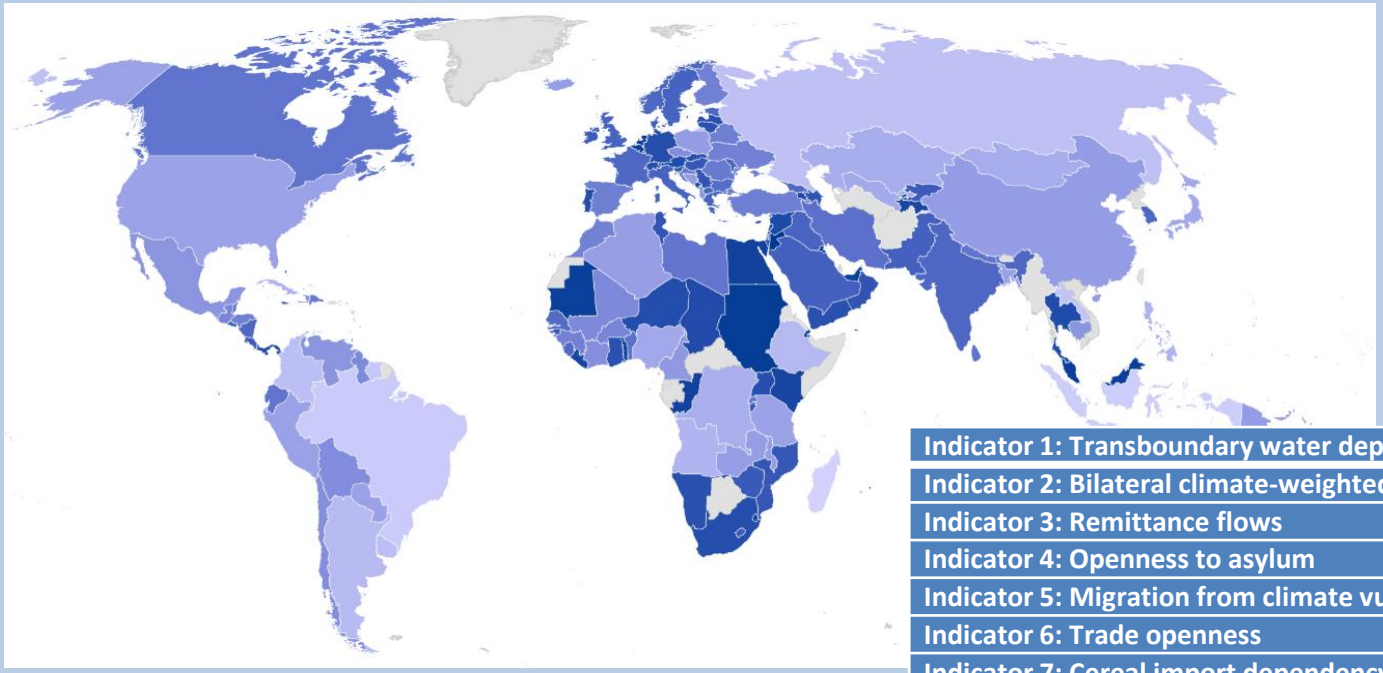
Two observations about the near past

- 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 mote 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 <u>indirect</u> 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

https://www.sei-international.org/publications?pid=2972

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**”

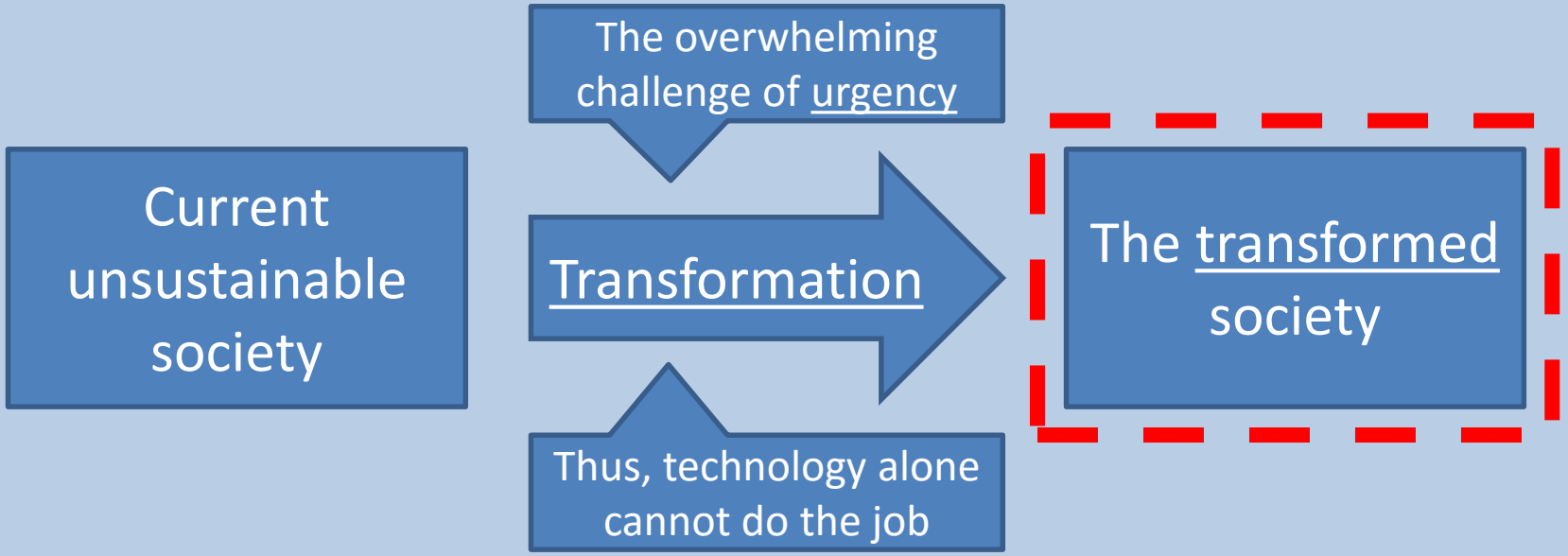
A briefing note issued from the Learning Hub on the concept of ‘transformation’ at the UK Institute of Development Studies
Bahadur and Tanner, 2012:1

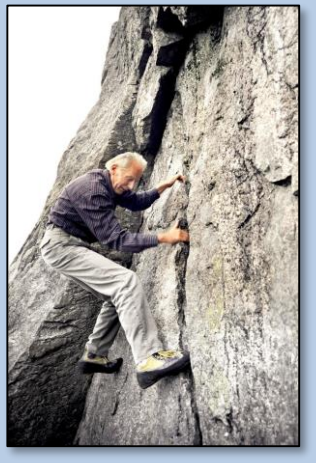
..and a corresponding definition

- **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**")

The IPCC Special Report "Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation"
IPCC, 2012: 4

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

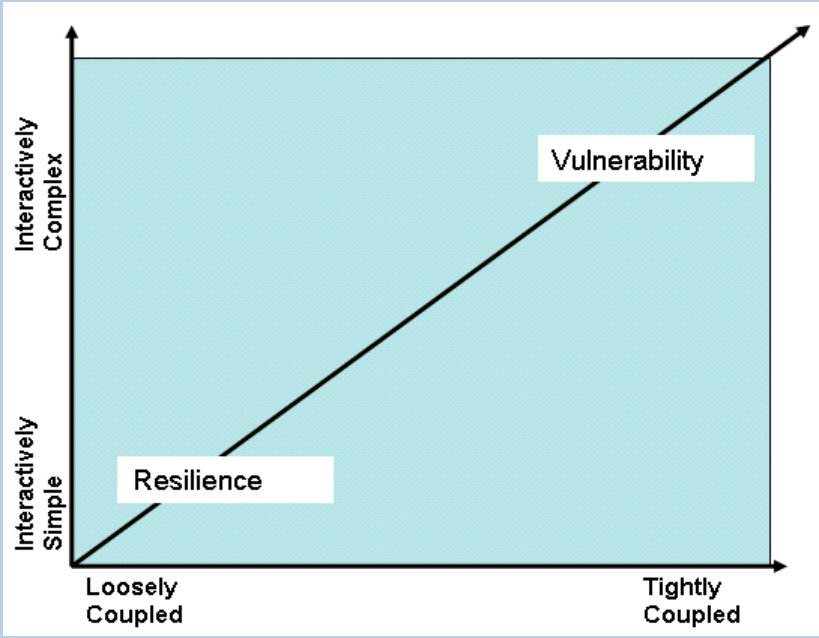
- In many respects, a very different – and - unknown future

- 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!

Carlo Aall, caa@vestforsk.no, www.vestforsk.no, + 47 991 27 222