Aspects of intergenerational equity in view of climate change

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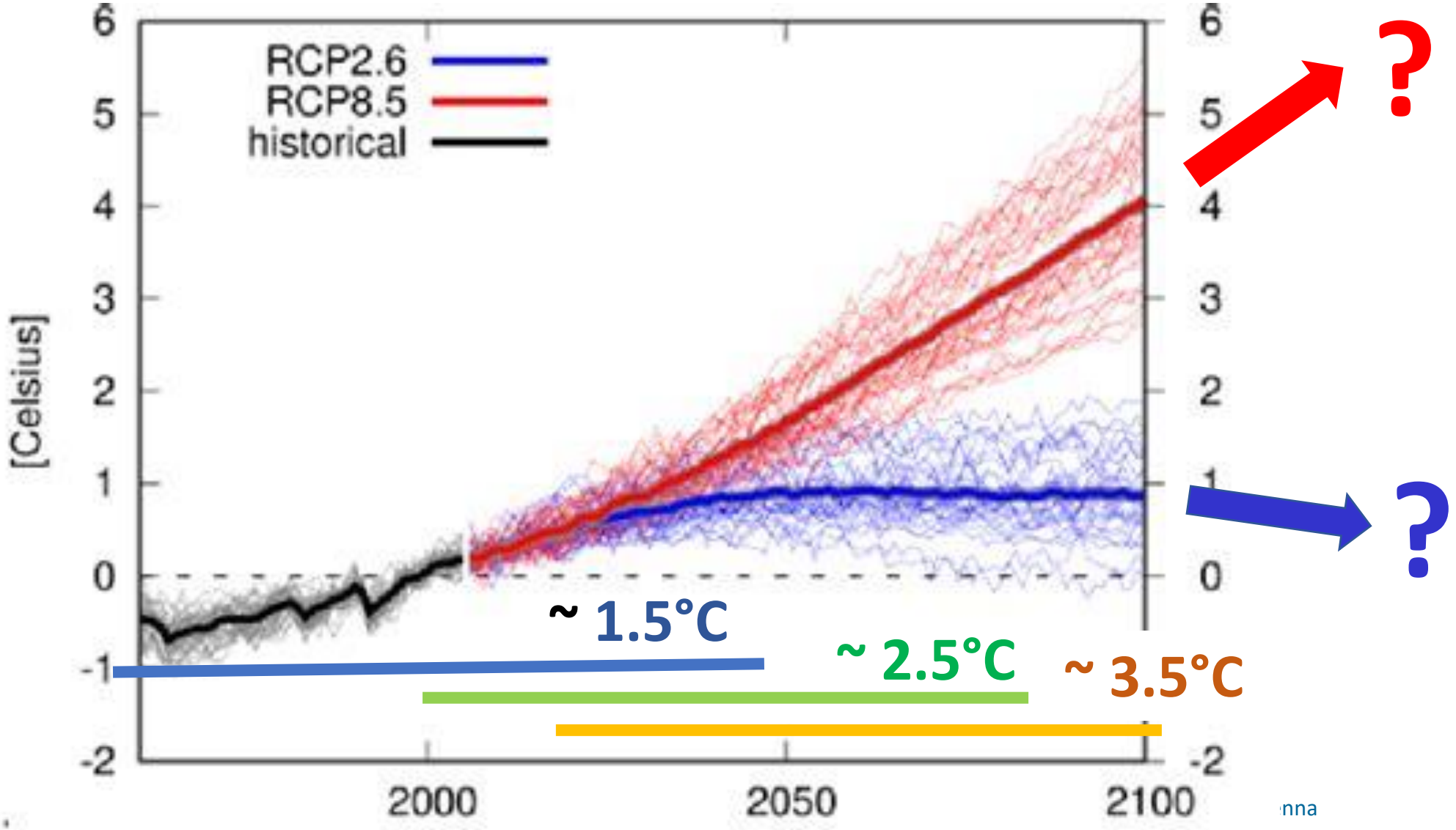
Temperatur der letzten 131 Jahre

NASA https://www.youtube.com/watch?v=O019E8k51ww

Climate Change is unjust

- Contributions past and present
- Exposure differs in time and place
- Sensitivity differs
- Adaptability is not the same
- Vulnerability is not equal
- Measures and their impact

What are we heading for?



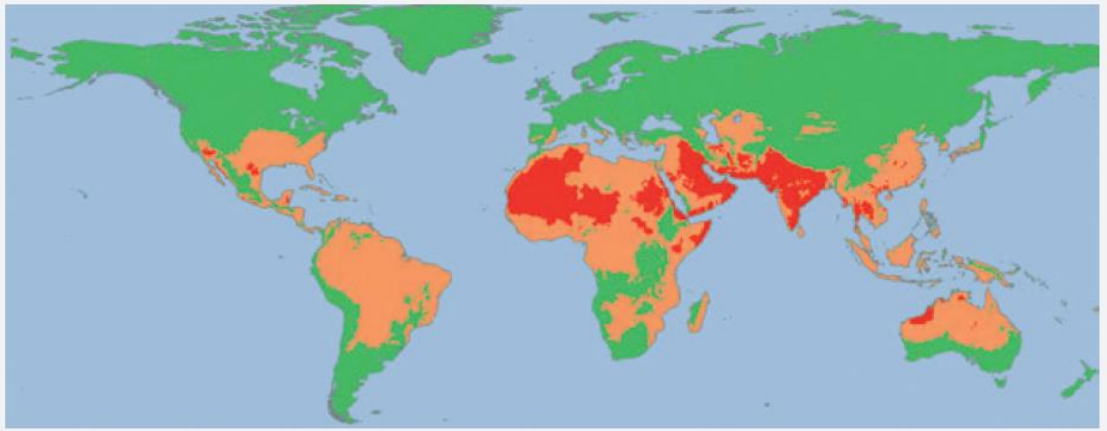
World Economic Forum 2023: John Rockström

Heat stress

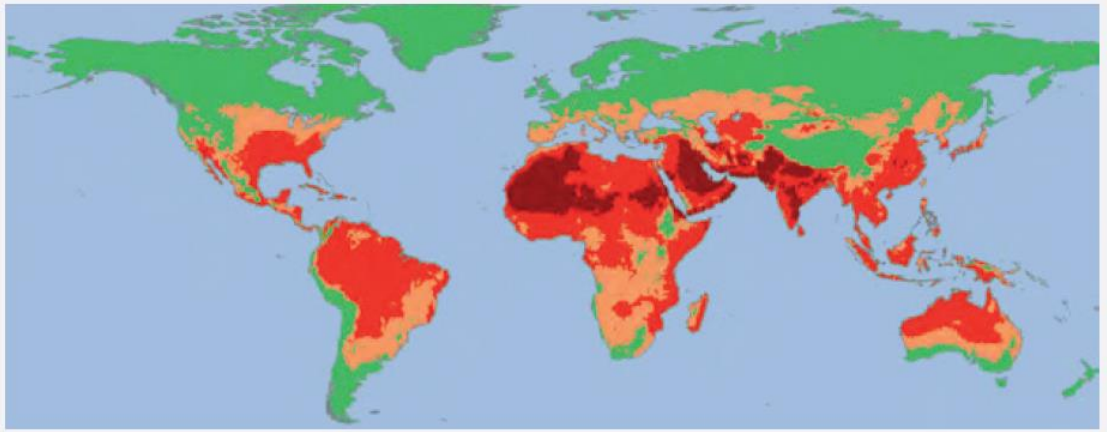
Abbildung 3: **Ausdehnung von Gebieten mit großer Hitze**

Karte 1: **Temperaturdaten für den Zeitraum 1981–2010 des Climate Research Unit (CRU)**

- <26°C (kein Hitzestress)
- 26–32°C (begrenzter Hitzestress)
- 32–38°C (starker Hitzestress)
- 38–46°C (sehr starker Hitzestress)
- 46+°C (extremer Hitzestress)



Karte 2: **Anstieg der globalen Durchschnittstemperatur zwischen 2,6 und 3,1 °C im Zeitraum 2071–2099**
– Berechnung von: ISI-MIP data, HadGEM and GFDL model mid-points of Representative Concentration Pathways 6.0



+1,5°C → 30 - 60 mio people affected
+2°C → > 130 mio people
>2°C → > 1 billion people

Climate change induced migration

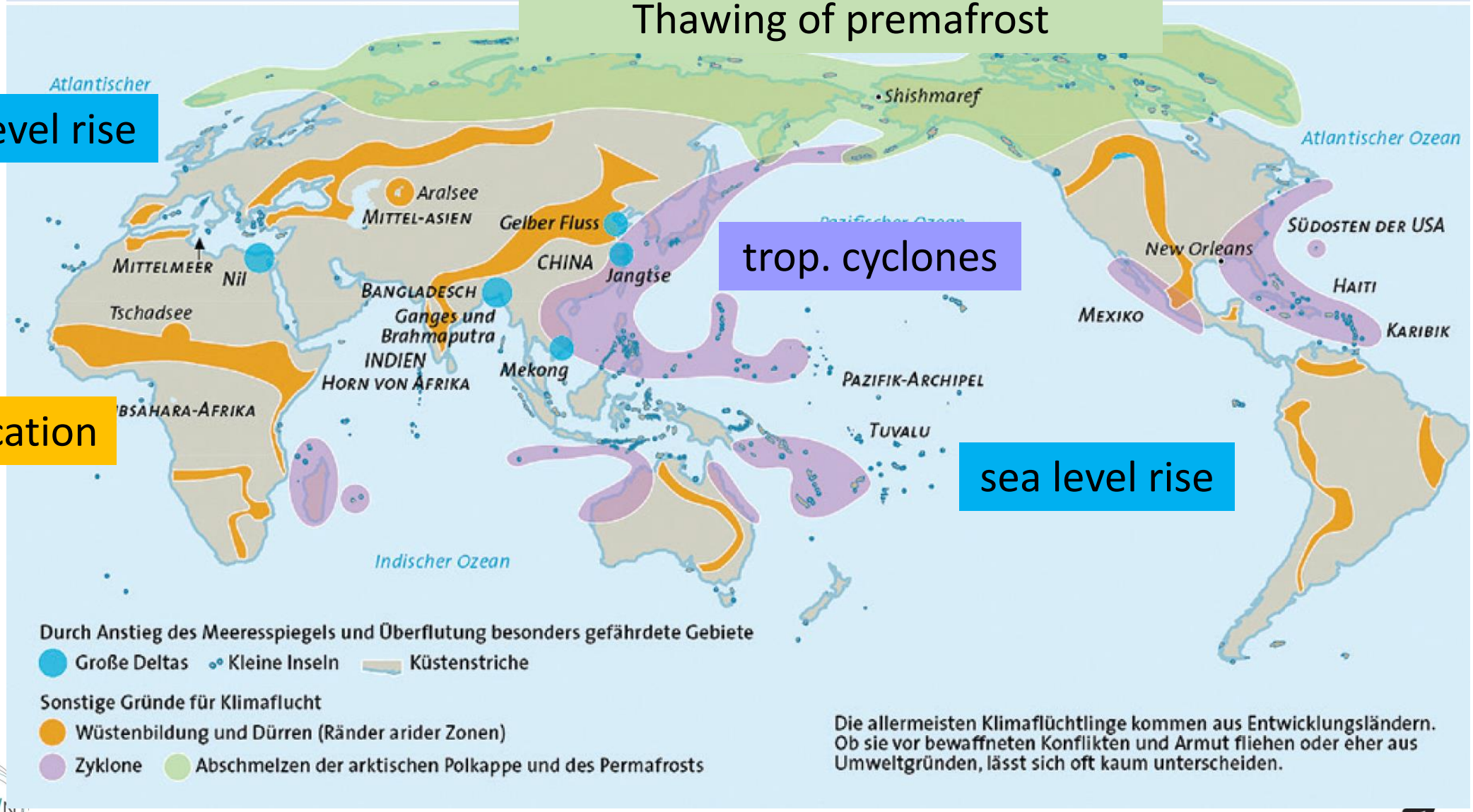
Thawing of premafrost

sea level rise

trop. cyclones

desertification

sea level rise

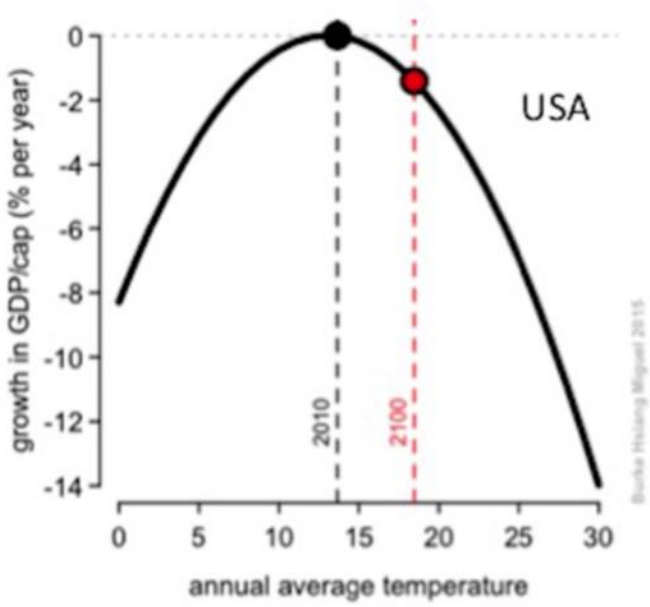


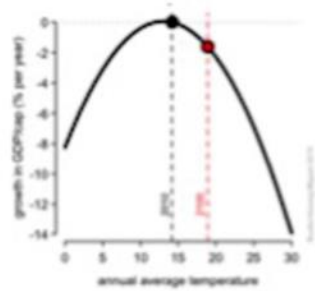
Heat sensitivity

- The very young (<5 years old) and the old (>65 years old)
- People with chronic or heart diseases, high blood pressure, overweight,…
- People working outdoors, on roofs,…
- People doing sports

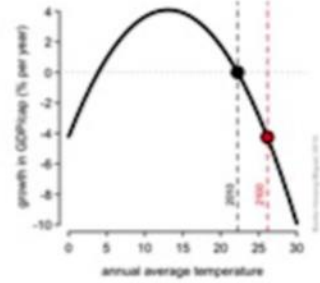
Productivity is temperature dependant

GDP vs. temp

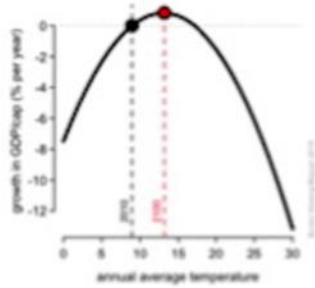




China



Brazil

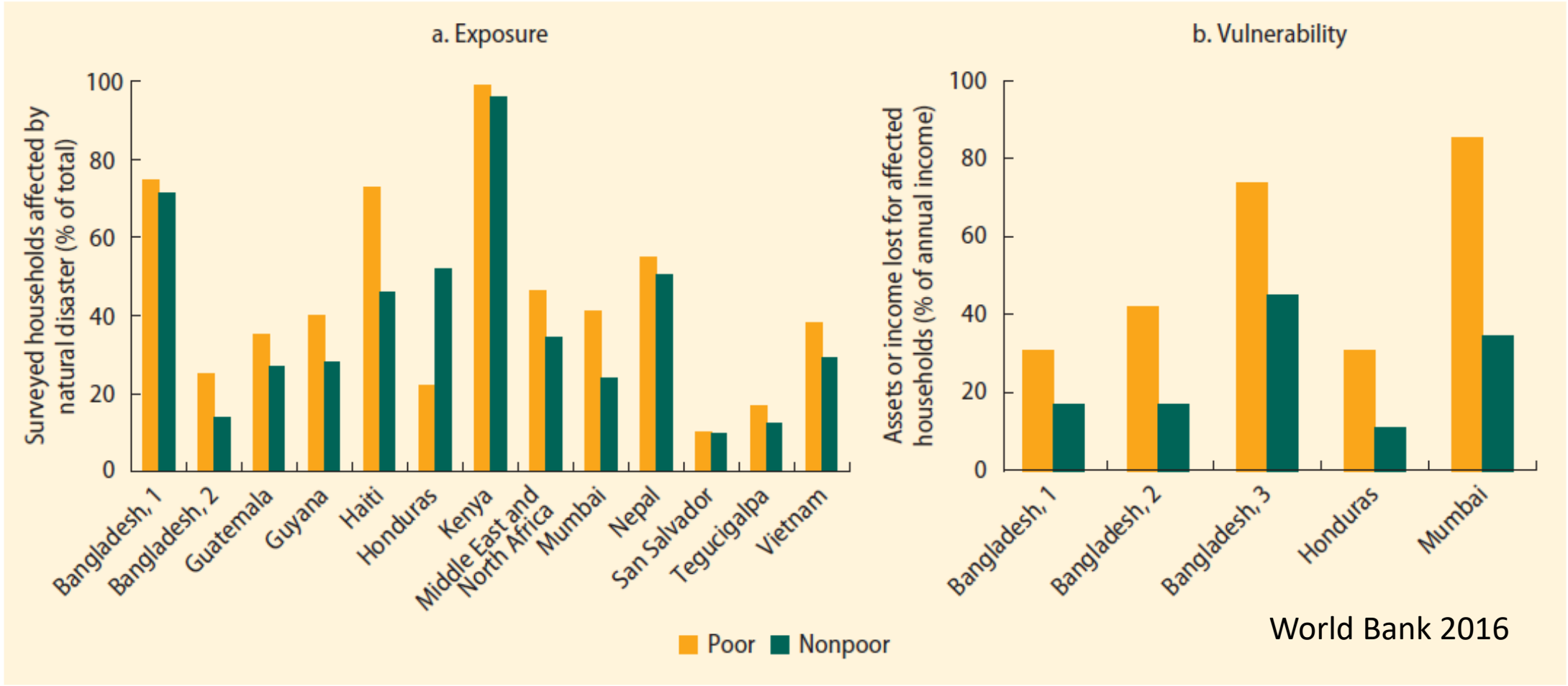


Germany

http://web.stanford.edu/~mburke/climate/map.php

Weather disasters hit the poor harder

FIGURE O.6 **When disasters hit in the past, poor people were more likely to be affected (panel a) … and poor people always lost relatively more than nonpoor people (panel b)**



World Bank 2016

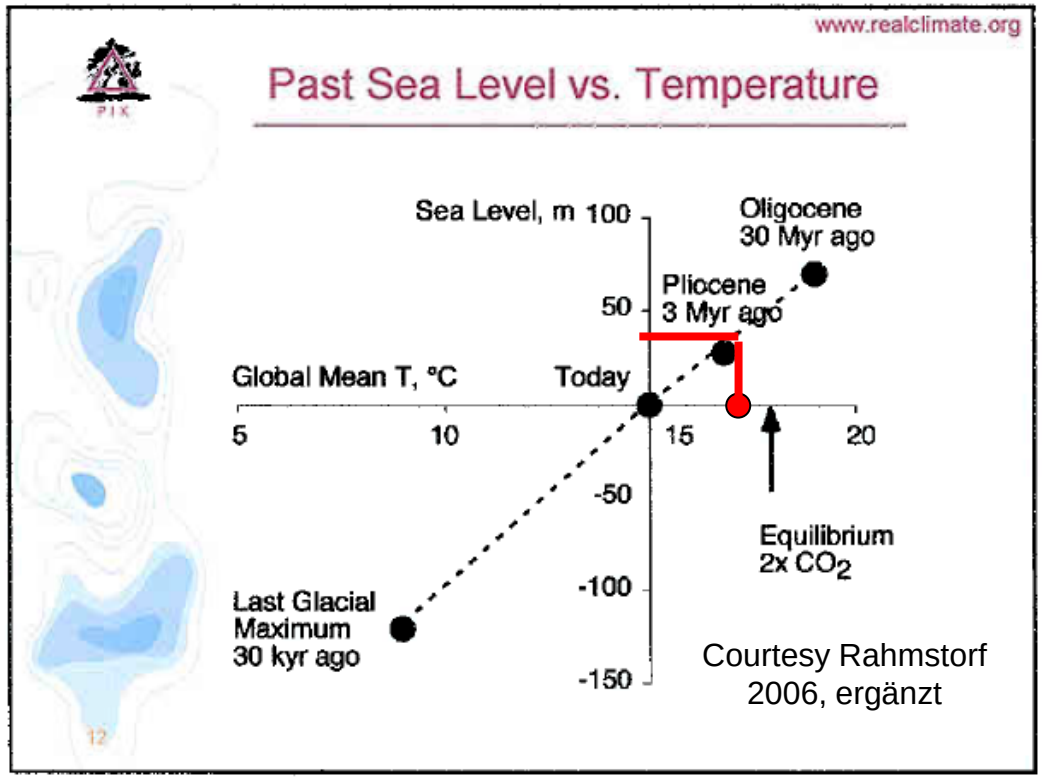
Source: See sources in Chapter 3.
Note: Each Bangladesh case represents a unique study.

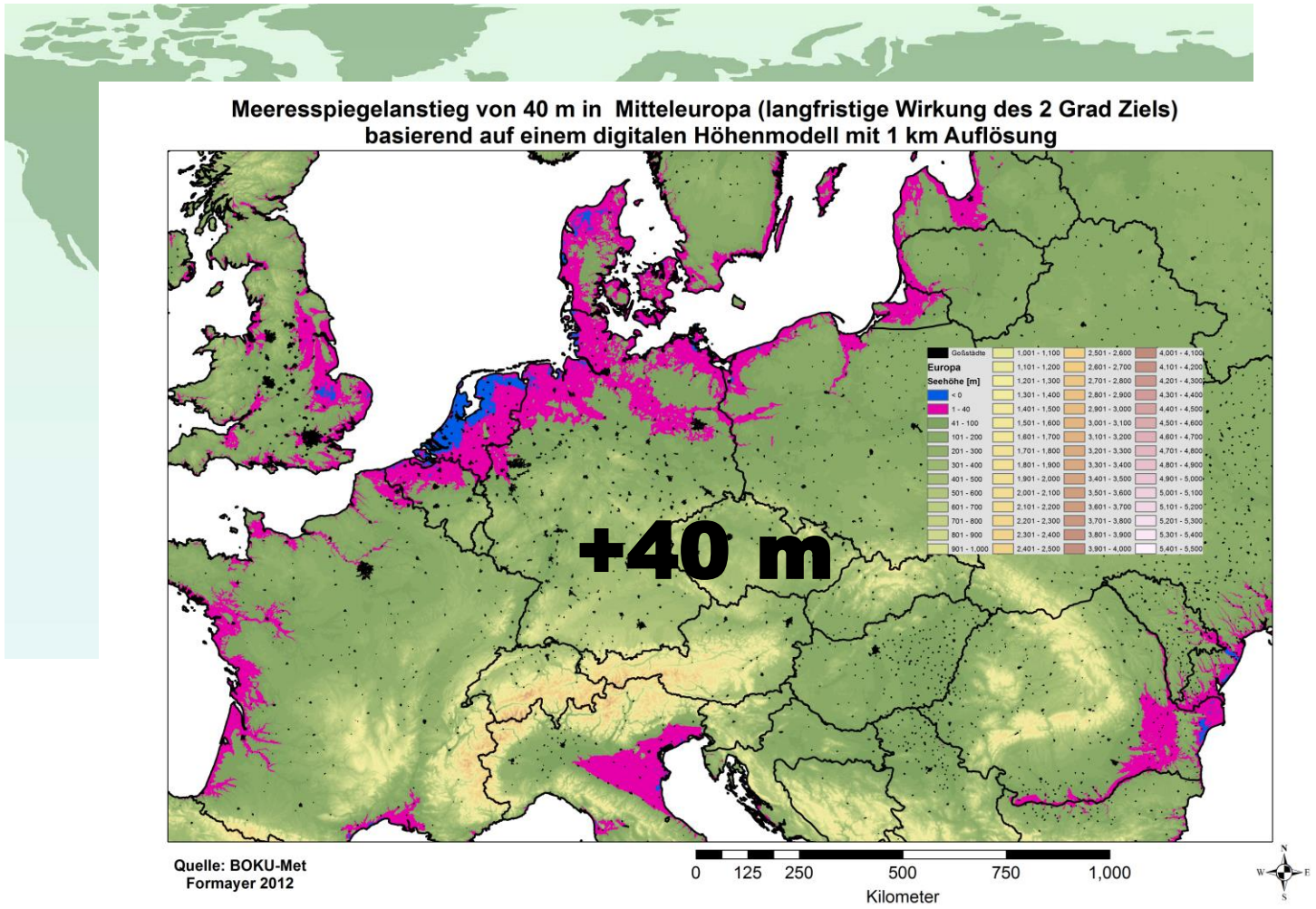
BOKU gW/N Met

Adaptation

▲ Pigeons take cover under the shade of trees on the seafront of Kuwait City in July 2021, as the Gulf state recorded extreme summer temperatures. Photograph: Yasser Al-Zayyat/AFP/Getty Images

Temperature & sea level: Past and future





2°C Erwärmung → etwa
40 m Meeresspiegelanstieg

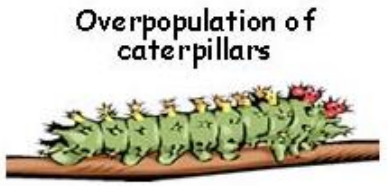
Vulnerability = f(exposure, sensitvity, adaptability)

Interconnectivity

Simple answers are not always good answers

Parachuting cats

Killed parasitic wasp



Overpopulation of caterpillars

Caterpillars ate the roofs off the villager's houses

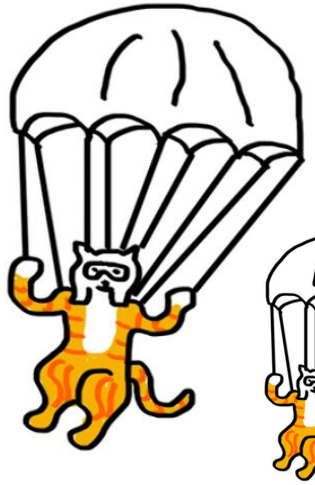
Tin rooves → hot homes

Malaria went rampant in Borneo

Health issue

DDT accumulated in Geckos

Eating the geckos caused more DDT to accumulate in the cats that eventually that killed the wild cats



Parachutung cats into Borneo

As the cats died, the rat population flourished and and so did an outbreak of plague

Climate crisis is a social problem

- Sea level rise
- Extreme weather events
- Economic inequality
- Diseases

→ Migration, internation… …nflicts

→Increased mortali… …ability, food and resou…

→Biodiversi… …stem services

Positive feedback loops

(Kemp, Xu et al. 2022)

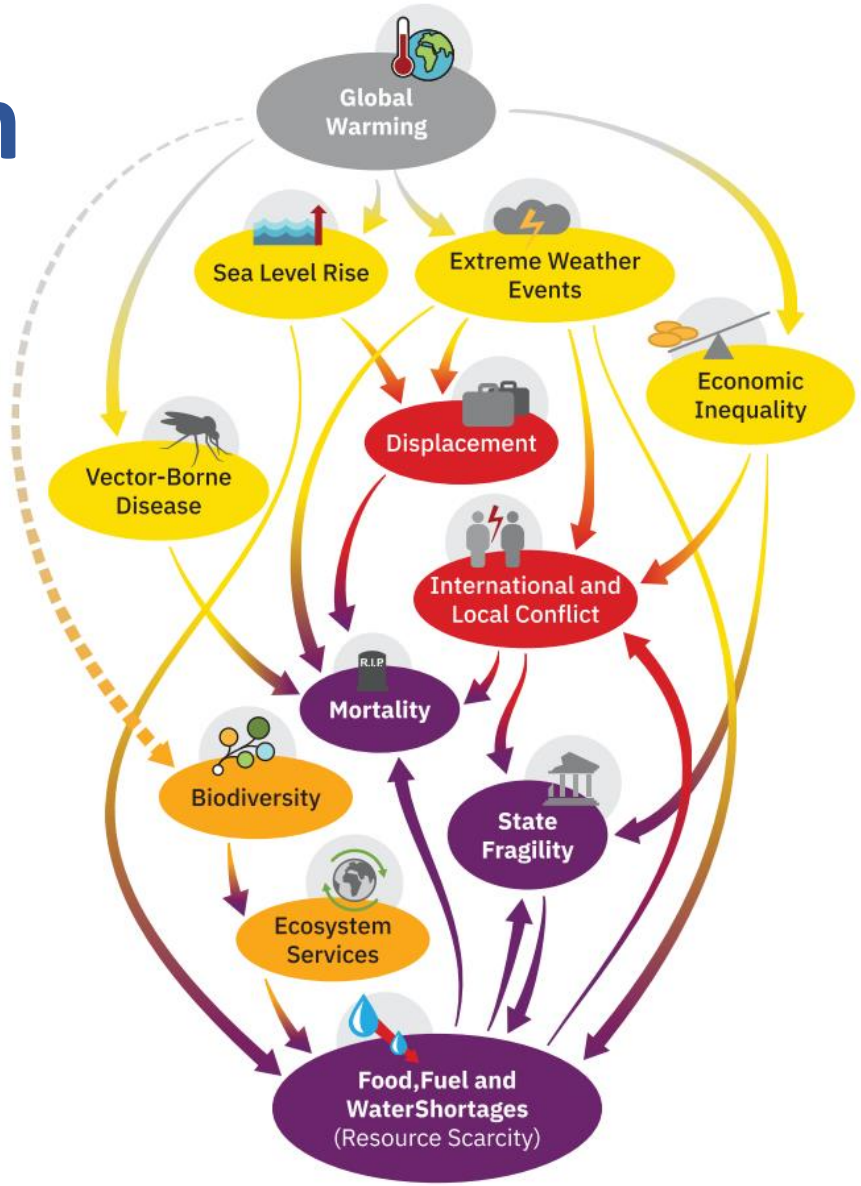


Fig. 3. Cascading global climate failure. This is a causal loop diagram, in which a complete line represents a positive polarity (e.g., amplifying feedback; not necessarily positive in a normative sense) and a dotted line denotes a negative polarity (meaning a dampening feedback). See *SI Appendix* for further information.

What follows?

SUSTAINABLE DEVELOPMENT GOALS

Follow-up to the Millennium Development Goals,
Unanimously adopted by the UN in 2015
Implementation by 2030

- Basically, there are 2 agendas:
  - (i) A "good life for all" (human well-being)
  - (ii) Staying with ecological limits

- The challenge is to pursue both synergistically and not play them off against each other

"Without peace there can be no sustainable development and without sustainable development there can be no peace."

Riahi, based on Oran Young, UCSB

" .... Full transformation of our way of doing business" (A. Merkel, 2021.07.15) and of thinking

- Energy → Geopolitics, dependencies, money stays in the country/community, ...
- Industry → durable products, recycling, ownership --> rental, ...
- Mobility → active mobility, less pollution, less noise, healthier and safer, ...
- Infrastructure → flexible, climate-friendly, soil sparing, ...
- Agriculture → healthy food & soils, full time jobs, increased biodiversity, ...
- Healthcare system → Health before profit, boost immune system, prevention ....
- Education → Creativity, co-operation, thinking in systems, ...
- Economic system → no need for growth, accounting for natural resources, care work, ..
- Financial system → Biotope of currencies, money not a commodity, ...
- Democracy → Ethics of responsibility

Components of Transformation

- **Rethinking values: which can we still afford?**
  - Quantitative economic growth?
  - Compound interest?
  - GDP as a yardstick?
  - Shareholder instead of stakeholder value?
  - Profit maximization as the only criterion for success?
  - Sufficiency and resilience - not just efficiency?.....
- **Longer-term thinking**
  - Assessments that outlast legislative periods
  - Long-term development instead of quarterly reports

↗ **Cultural change!**

Quality of Life vs. Standard of Living

- We need to reduce the **standard of living**
  – defined by income, car, size of TV screen, holiday destination, …. → material goods based on resources and energy –
- But can gain **quality of life**
  – defined by fullfillment and happiness…

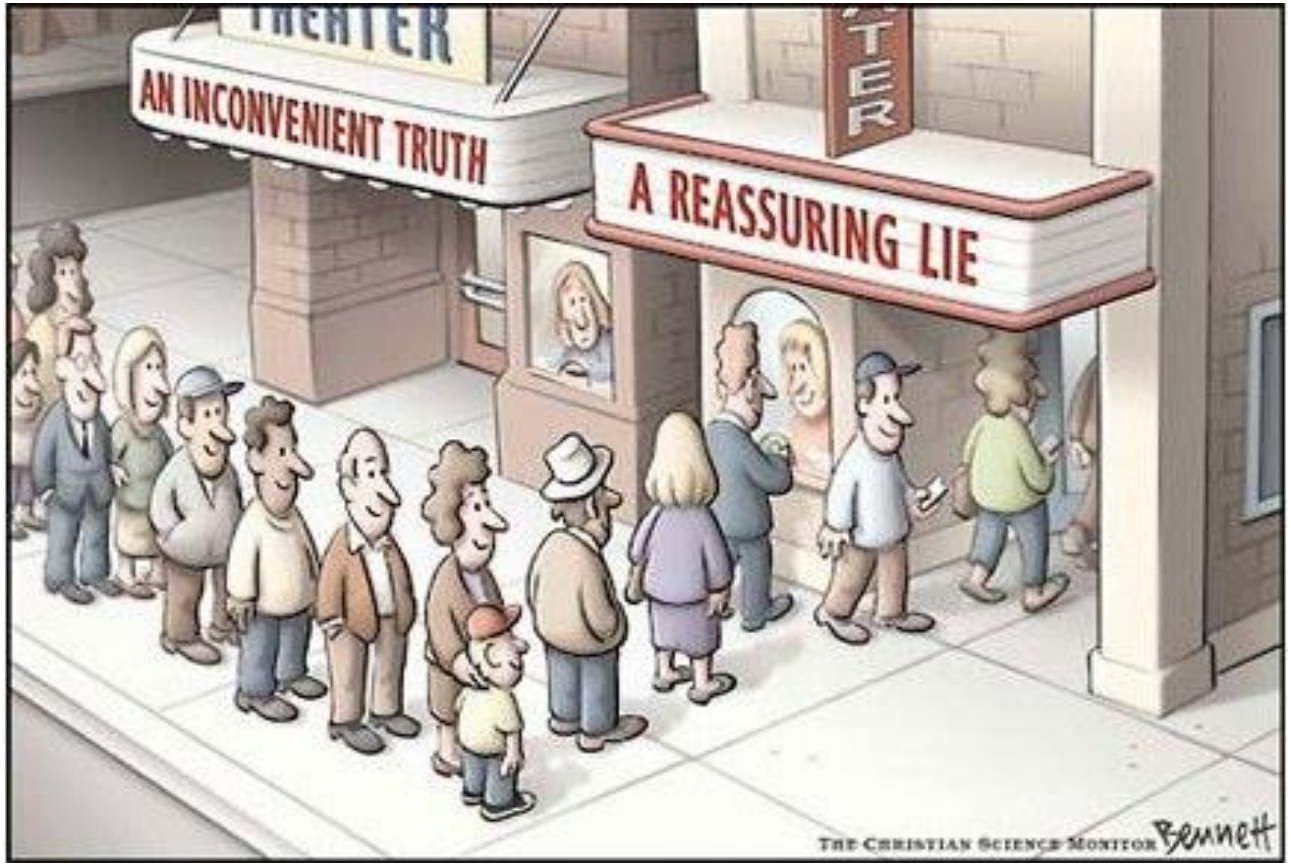
Making the necessary possible

"As long as we focus on what is politically possible rather than what is necessary, there is no hope.

If solutions within the system are so impossible to find, then perhaps we should change the system."

(Greta Thunberg 2018)

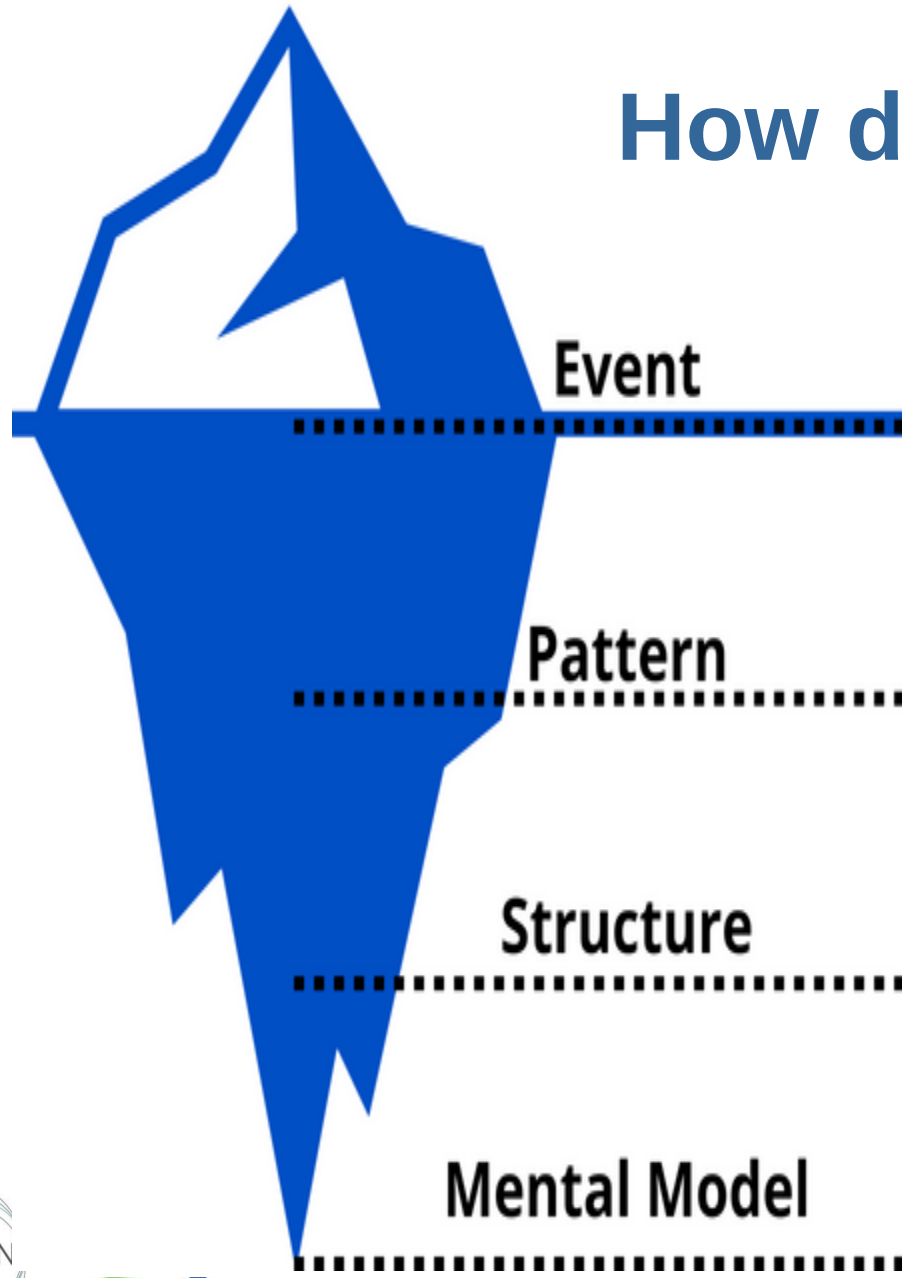
Can democracies handle these changes?



- Democracies' short timetable runs counter to long-term, sustainable solutions
- Climate policy measures remain stuck between national impotence and supranational constraints
- The system is fighting back: e.g. the myth of the global eco-dictatorship
- **How does democracy need to change?**

How does change happen?

Ice berg model



- Systainability days / weeks, cycling days, swap events, …
- Habit building incentives ....
- Climate friendly legislation, economic systems that do not promote growth
- Quality of life instead of standard of living

Three questions you should ask
(adapted from Bendell)

- What is really important to us? What do we want to keep?
- What do we have to let go of in order to enable a good life for all within ecological limits?
- What can we restore that was already helpful in the past? What can we learn from other cultures?

Thank you for your attention!

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