UNIVERSITY of OTAGO

Te Whare Wānanga o Otāgo

One earth, one health?

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Outline

- One health – what is it?
- Global trends
- Planetary boundaries
- Conclusions

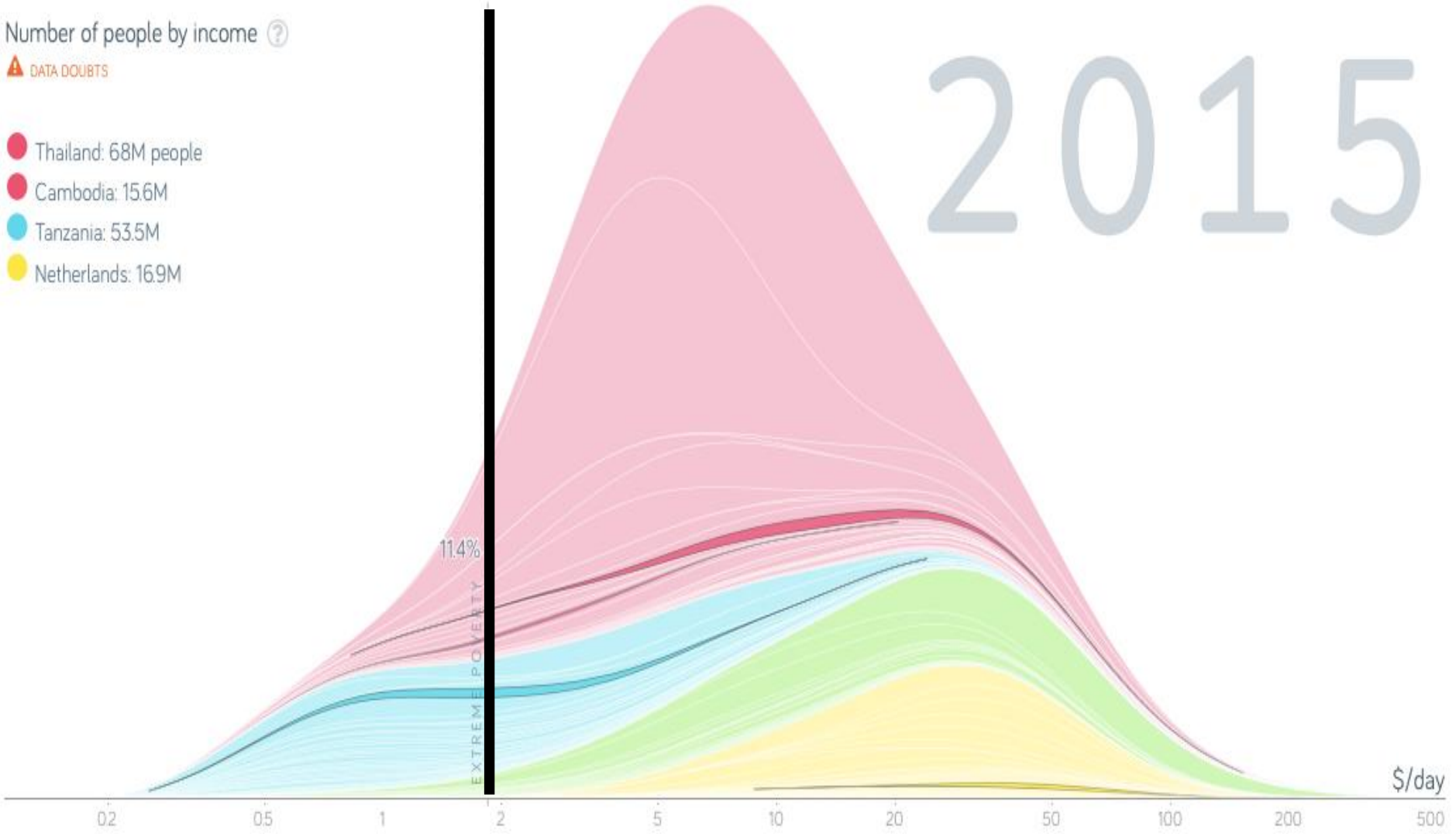
- What is “one health”?
  - Interdependence of human and animal health… (especially infectious diseases)
  - can also include environmental issues…
  - but what about social and economic factors?

In the last 20 years the proportion of people living in extreme poverty (<$2/day), worldwide, has…?

A. Almost doubled

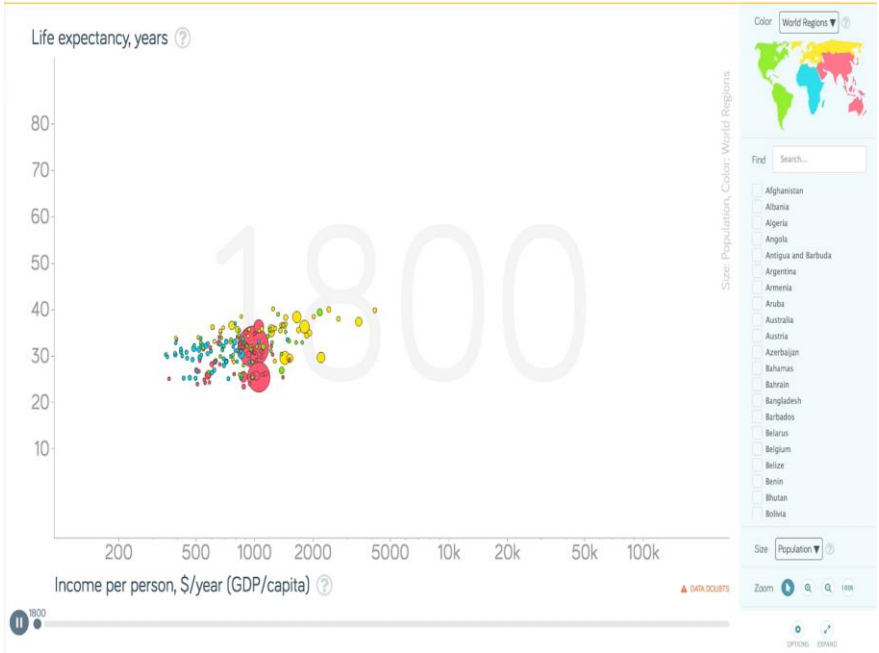
B. Remained more or less the same

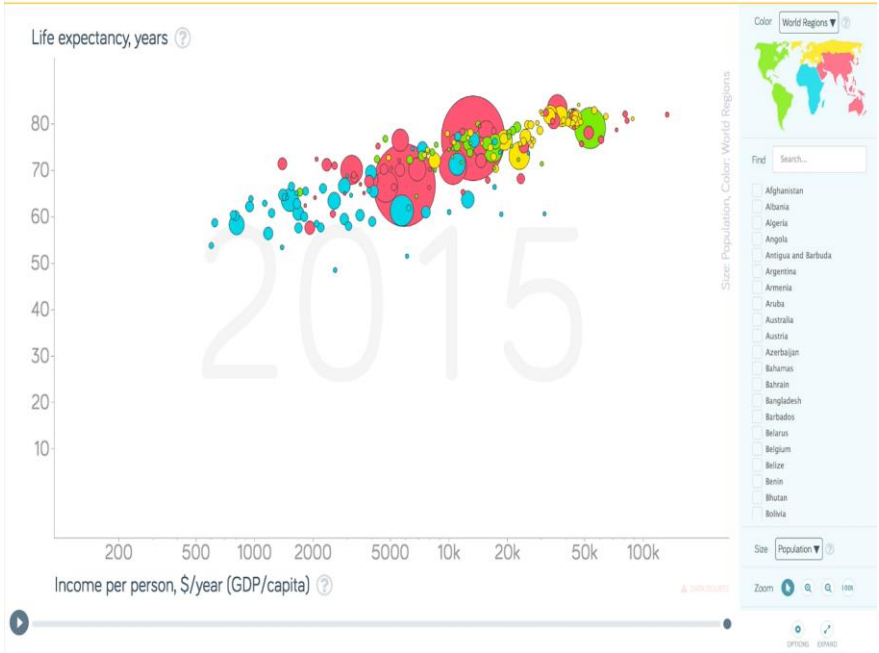
C. Almost halved



https://www.gapminder.org/tools/#_locale_id=en;&state_time_value=1800;&marker_select@_geo=khm;&_geo=tha;&_geo=tza;&_geo=nld;;;;&chart-type=mountain

Life expectancy





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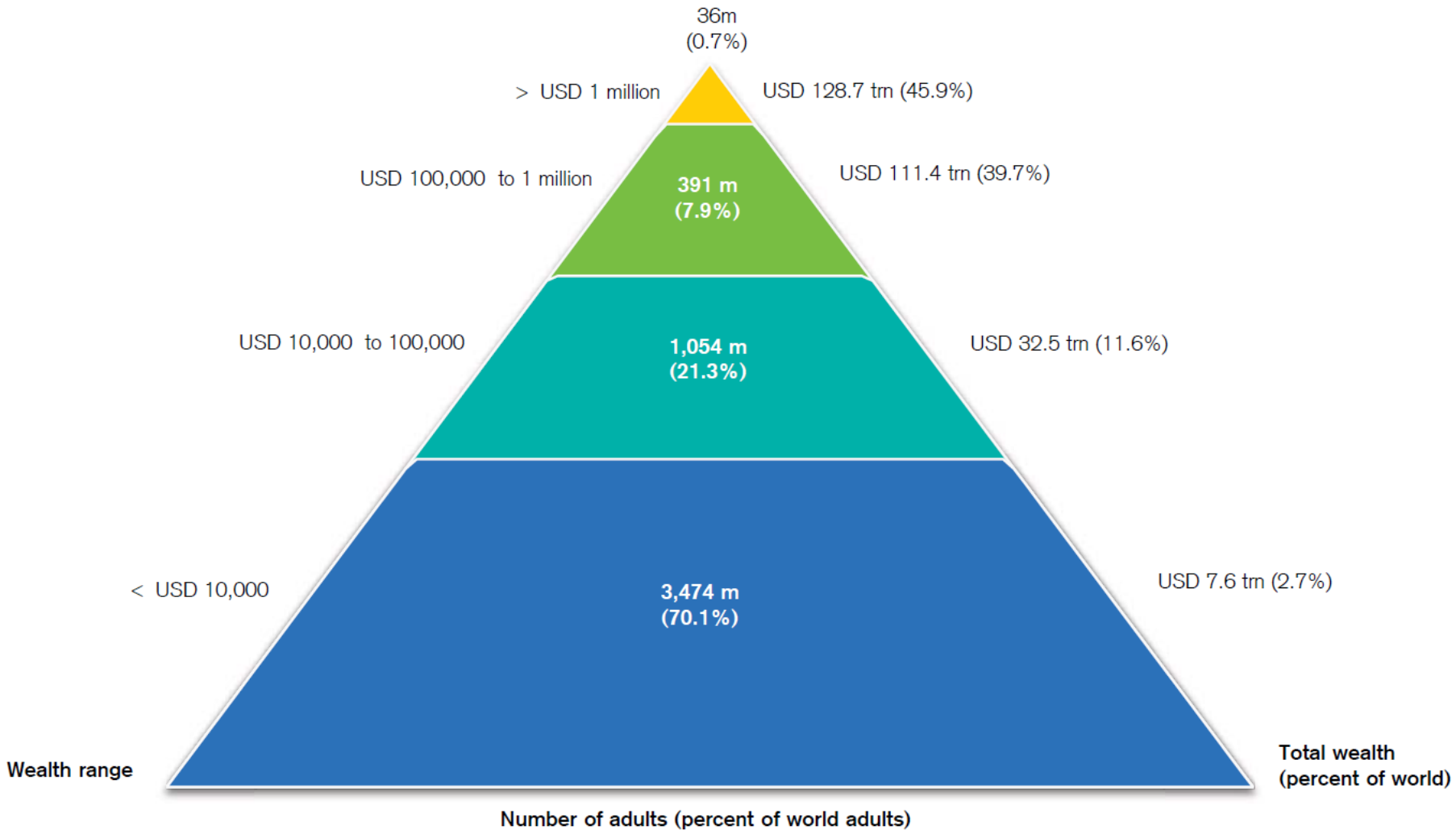
The global wealth pyramid 2017



Source: James Davies, Rodrigo Lluberas and Anthony Shorrocks, Credit Suisse Global Wealth Databook 2017

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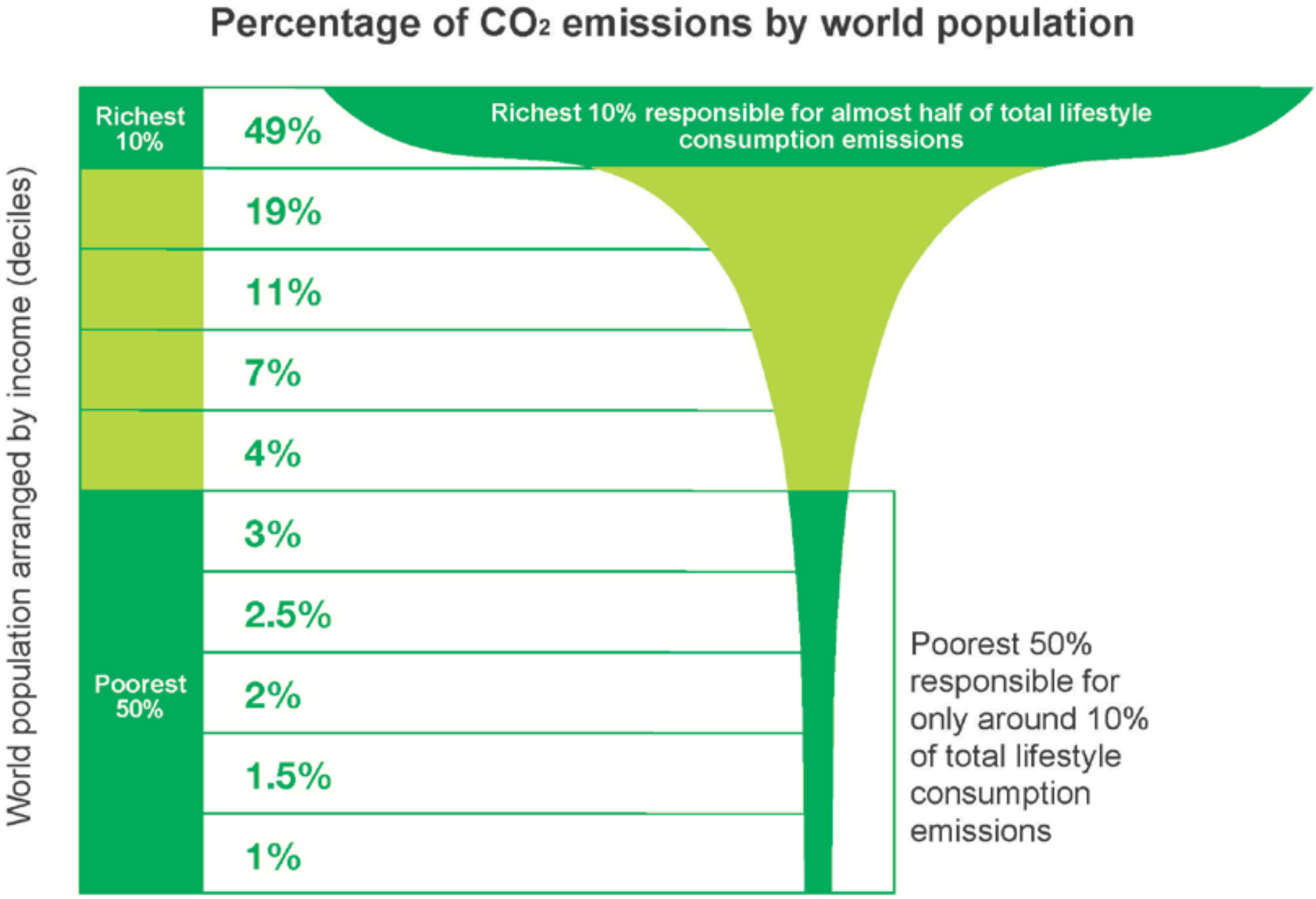
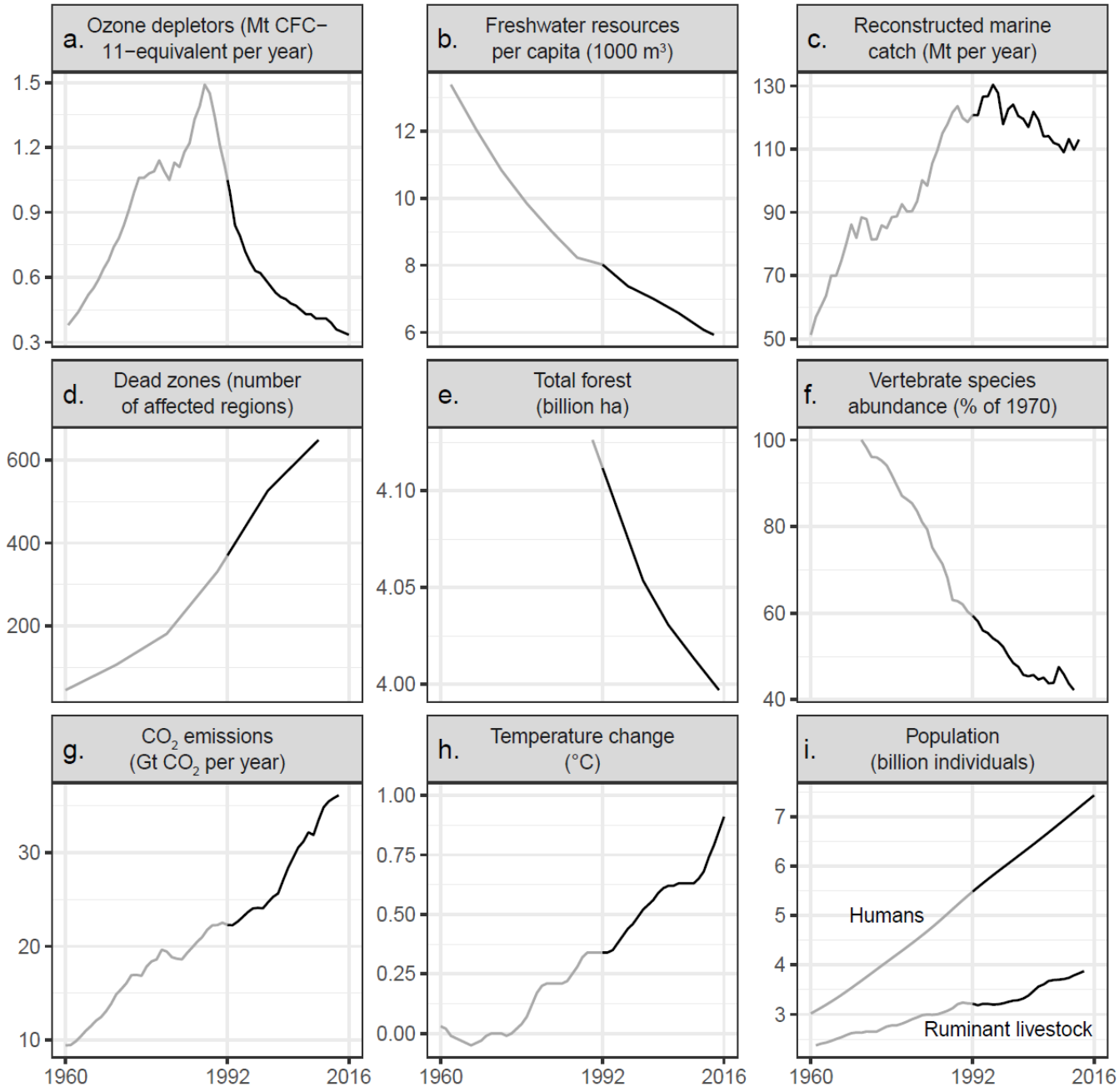


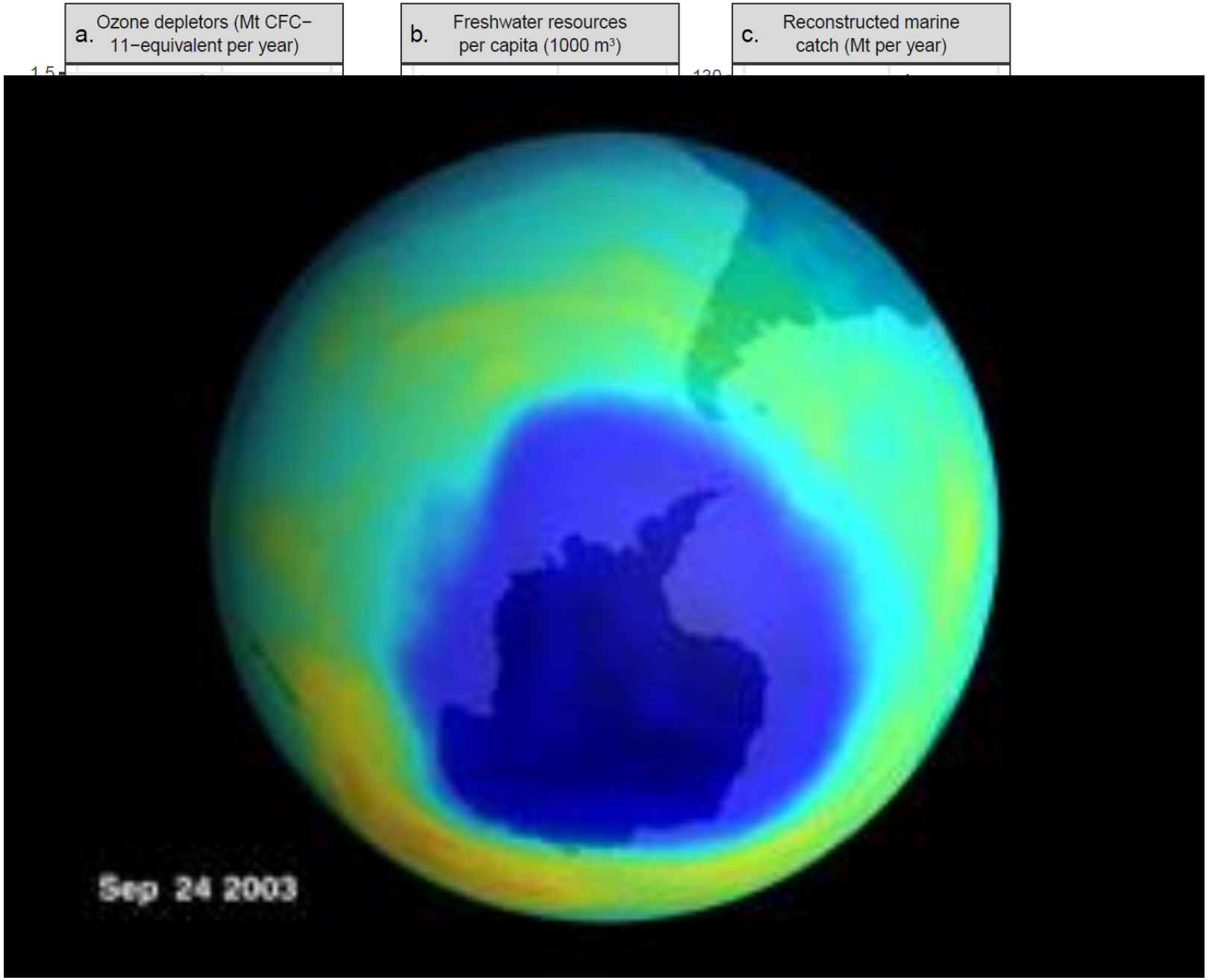
https://www.oxfam.org/sites/www.oxfam.org/files/file_attachments/mb-extreme-carbon-inequality-021215-en.pdf

Main Types of Global/Worldwide Environmental Changes

- Changes to land use: urbanization, exploitation of productive ecosystems
- Depletion of freshwater
- Biodiversity loss
- Biogeochemical cycles: N, P, C
- Changes to atmosphere: stratospheric ozone; climate system; aerosols;



https://www.researchgate.net/publication/321159576_World_Scientists%27_Warning_to_Humanity_A_Second_Notice



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Rockstrom et al, 2009. https://www.nature.com/articles/461472a.pdf

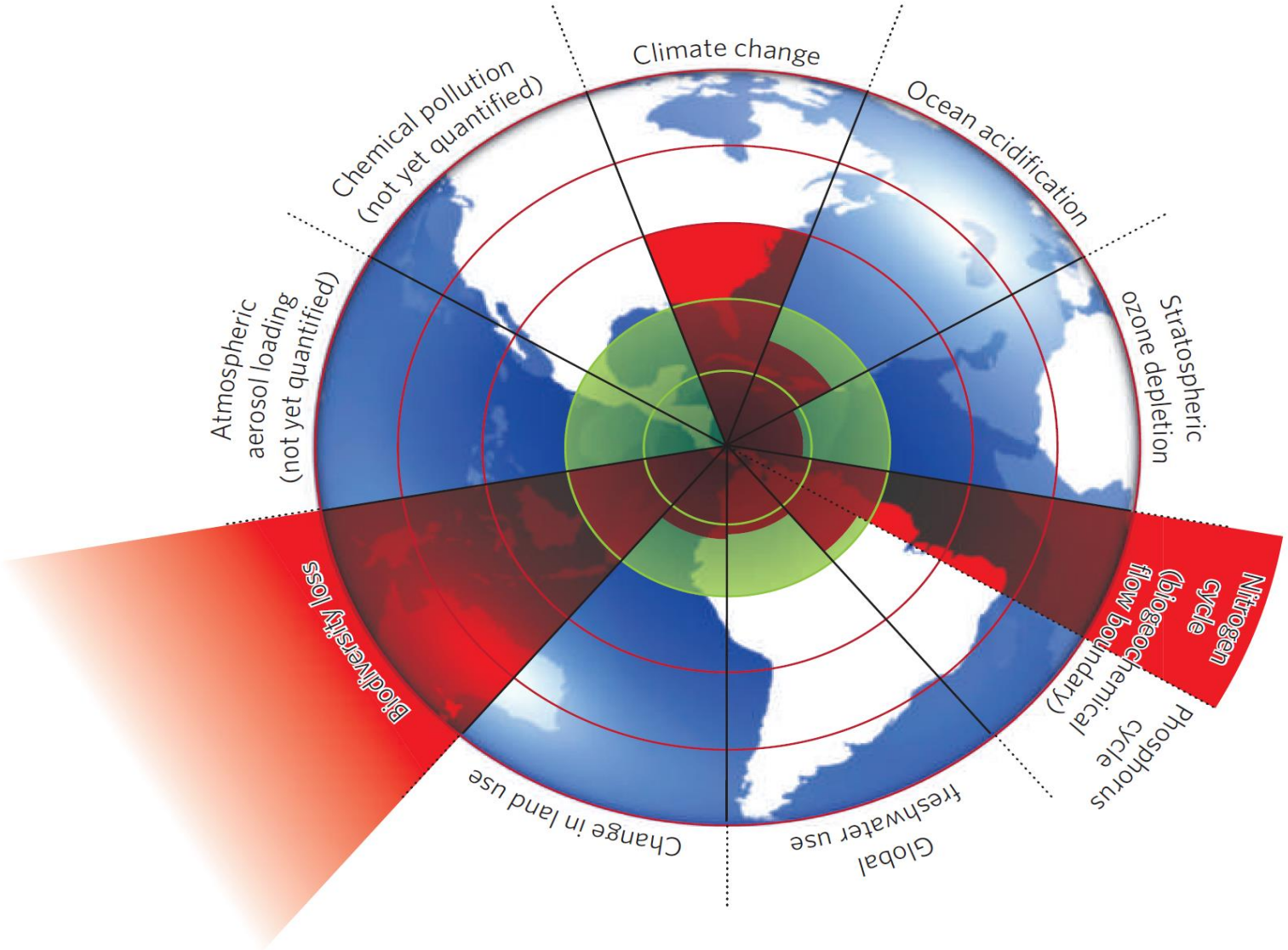
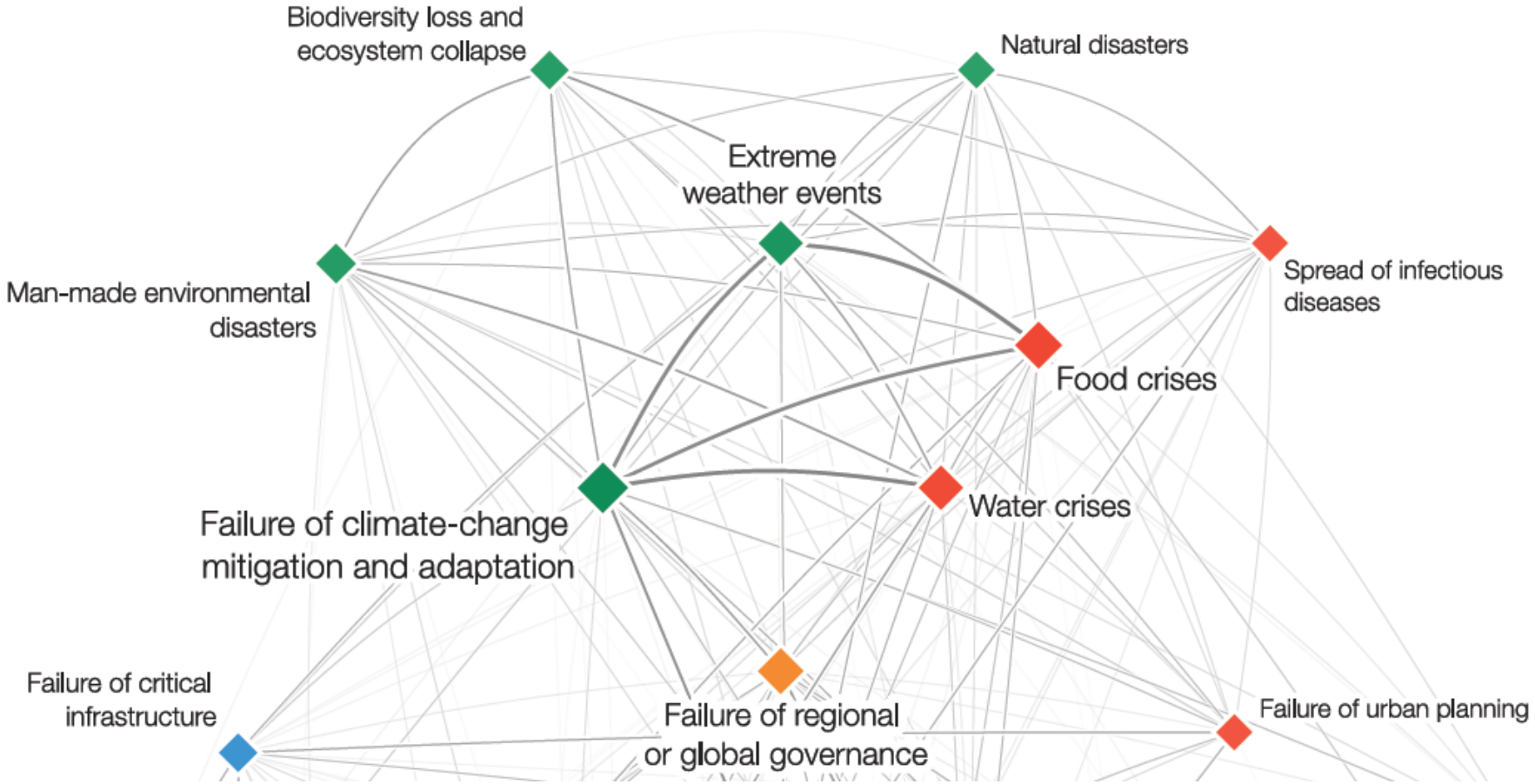


Figure 1 | Beyond the boundary. The inner green shading represents the proposed safe operating space for nine planetary systems. The red wedges represent an estimate of the current position for each variable. The boundaries in three systems (rate of biodiversity loss, climate change and human interference with the nitrogen cycle), have already been exceeded.

“Although it is now accepted that a rich mix of species underpins the resilience of ecosystems, little is known quantitatively about how much and what kinds of biodiversity can be lost before this resilience is eroded.”

Rockstrom et al, 2009.



Source: World Economic Forum Global Risks Perception Survey 2016
Note: Survey respondents were asked to identify between three and six pairs of global risks they believe to be most interconnected.

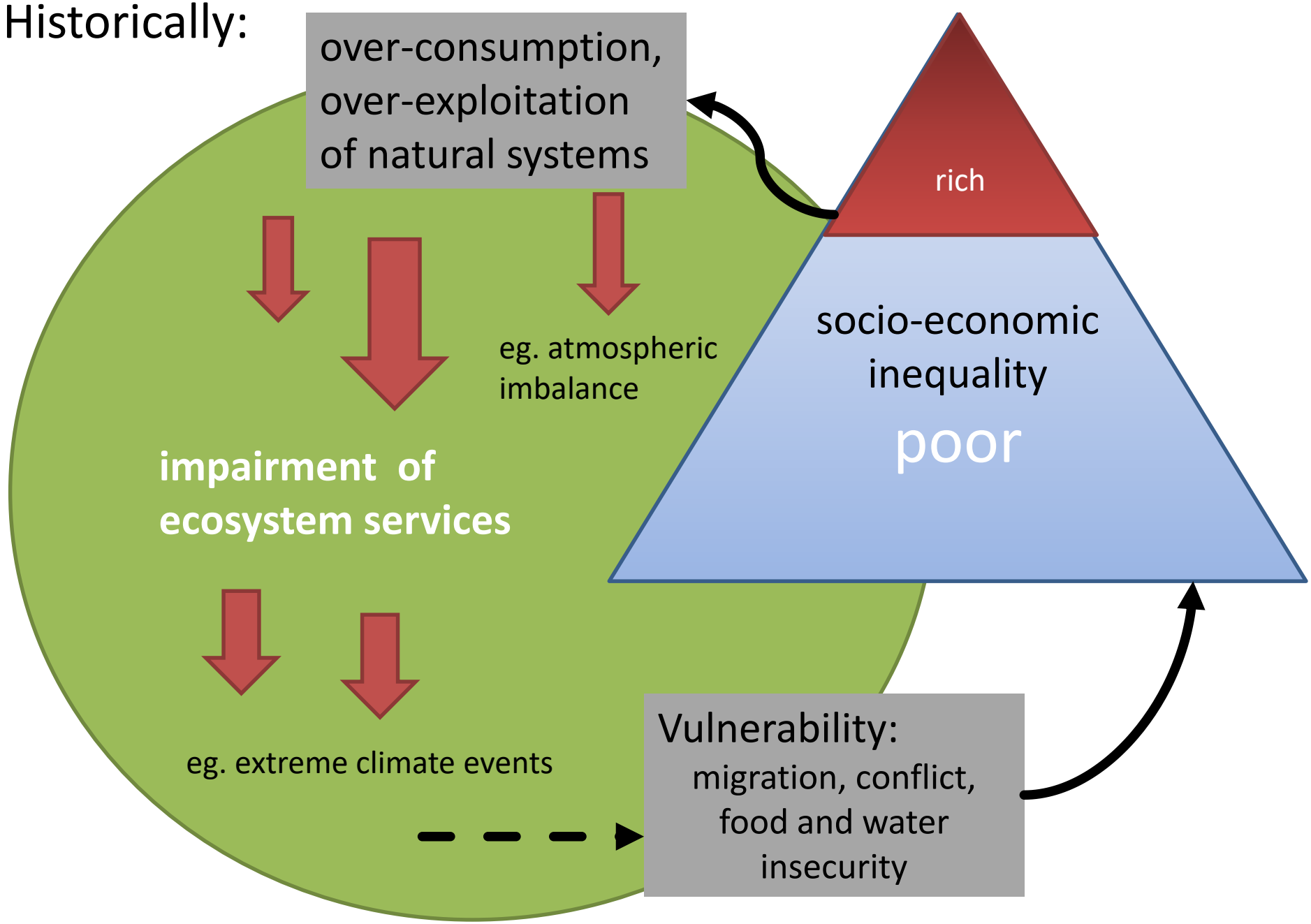
World scientists' warnings (1992 and 2017)

- Interlinked challenges:
  - bring environmentally damaging activities under control to restore and protect the integrity of the earth's systems…
  - manage resources crucial to human welfare more effectively
  - stabilize [human] population
  - reduce and eventually eliminate poverty
  - …

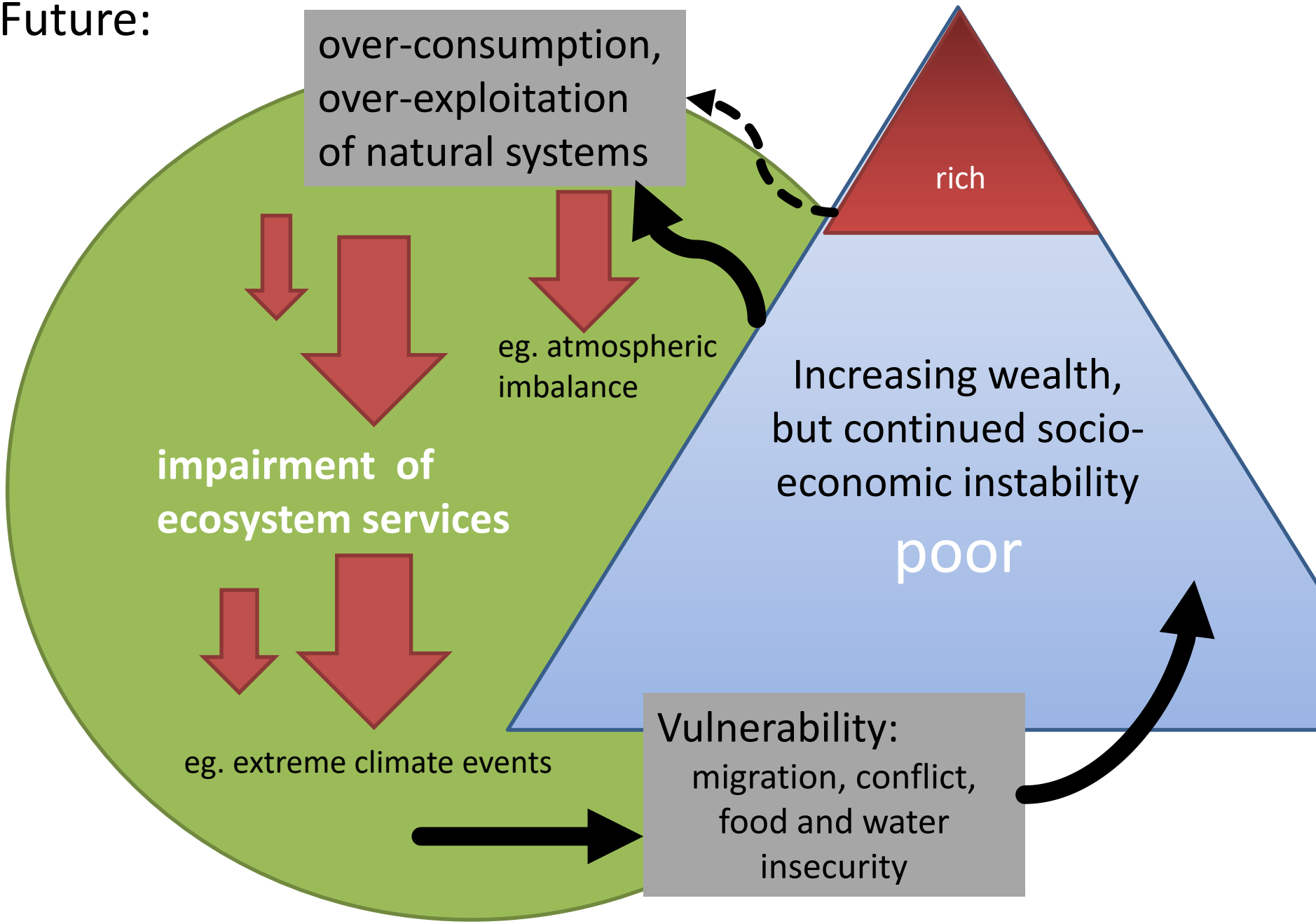
http://www.ucsusa.org/about/1992-world-scientists.html

Climate change example

- Reduce greenhouse emissions (the quicker the better, from the perspective of avoiding *dangerous anthropogenic interference*)
- Enhance and protect natural carbon sinks
- … while ensuring equitable uses of energy and other essential resources
- … and reducing population vulnerability


Historically:
over-consumption,
over-exploitation
of natural systems
rich
socio-economic
inequality
poor
eg. atmospheric
imbalance
impairment of
ecosystem services
eg. extreme climate events
Vulnerability:
migration, conflict,
food and water
insecurity

Future:

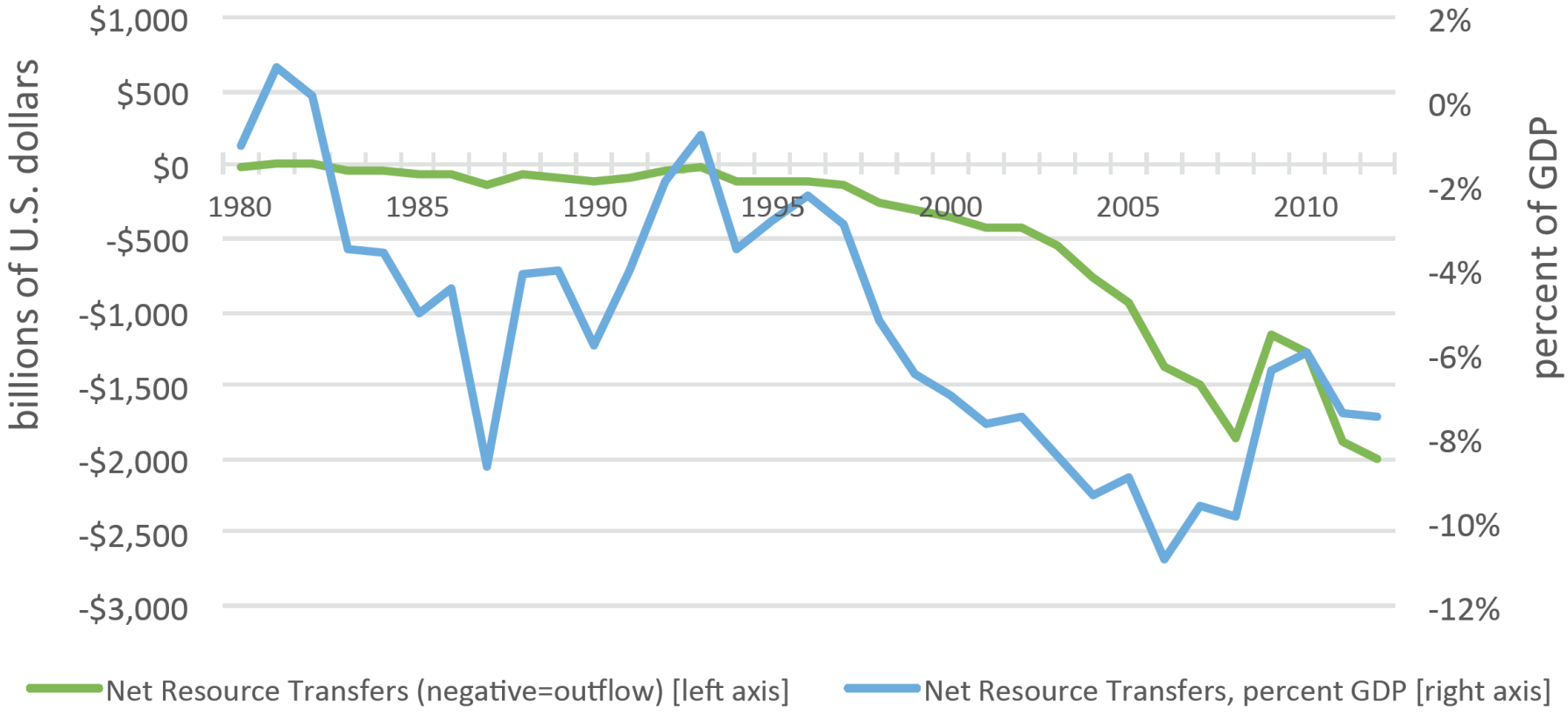

over-consumption,
over-exploitation
of natural systems
rich
eg. atmospheric
imbalance
Increasing wealth,
but continued socio-
economic instability
poor
impairment of
ecosystem services
eg. extreme climate events
Vulnerability:
migration, conflict,
food and water
insecurity

Some personal opinions…

- The most fundamental determinants of health are **ecological;**
- the global economic system risks social and ecological instability;
  - these risks are difficult to quantify
  - but are potentially severe and certainly not negligible
- adverse global outcomes are not inevitable;
- solutions will require long term, interdisciplinary perspectives with wide scope.

The End ?

Net financial transfers to rich countries, 1980-2013



http://www.gfintegrity.org/wp-content/uploads/2016/12/Financial_Flows-final.pdf