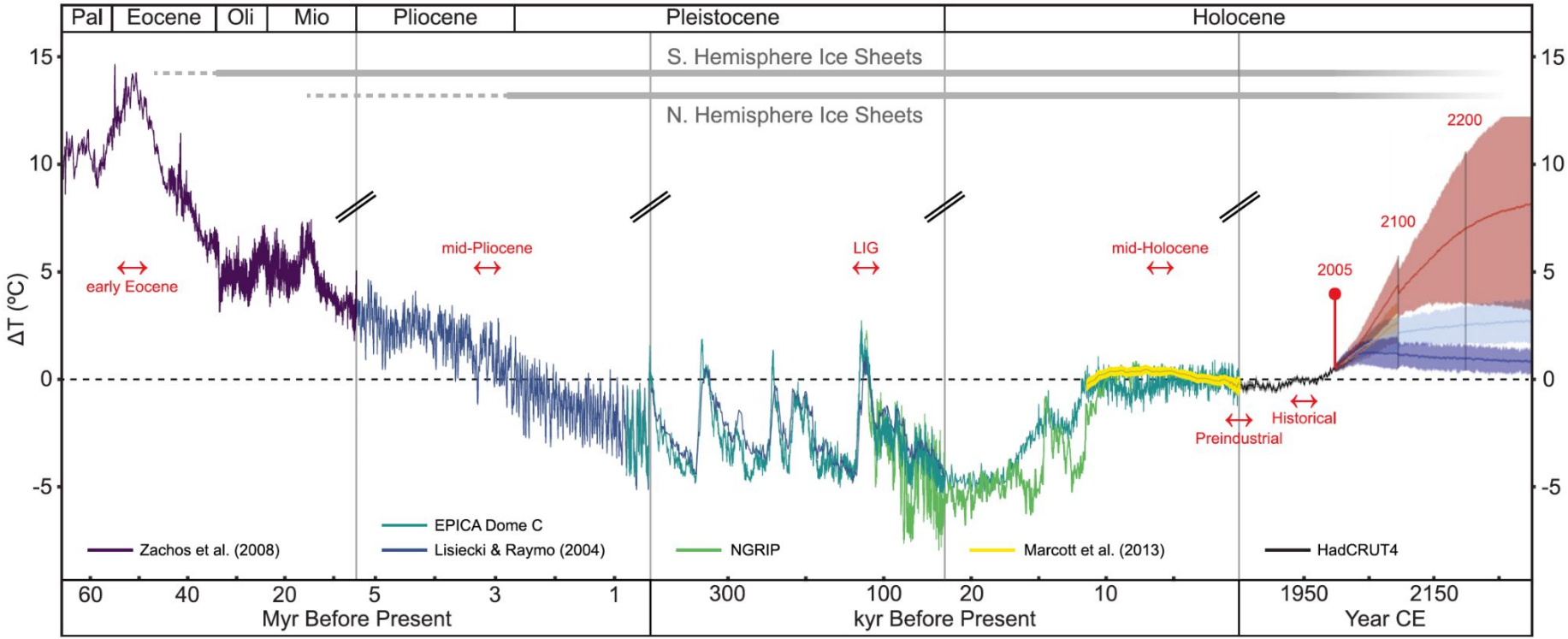
Lunch meeting:

Climate Crisis Globally and in Africa: Causes, Consequences, Responses

Tuesday 13 June | 12:30 – 13:30 | Open space (PharmAccess side)

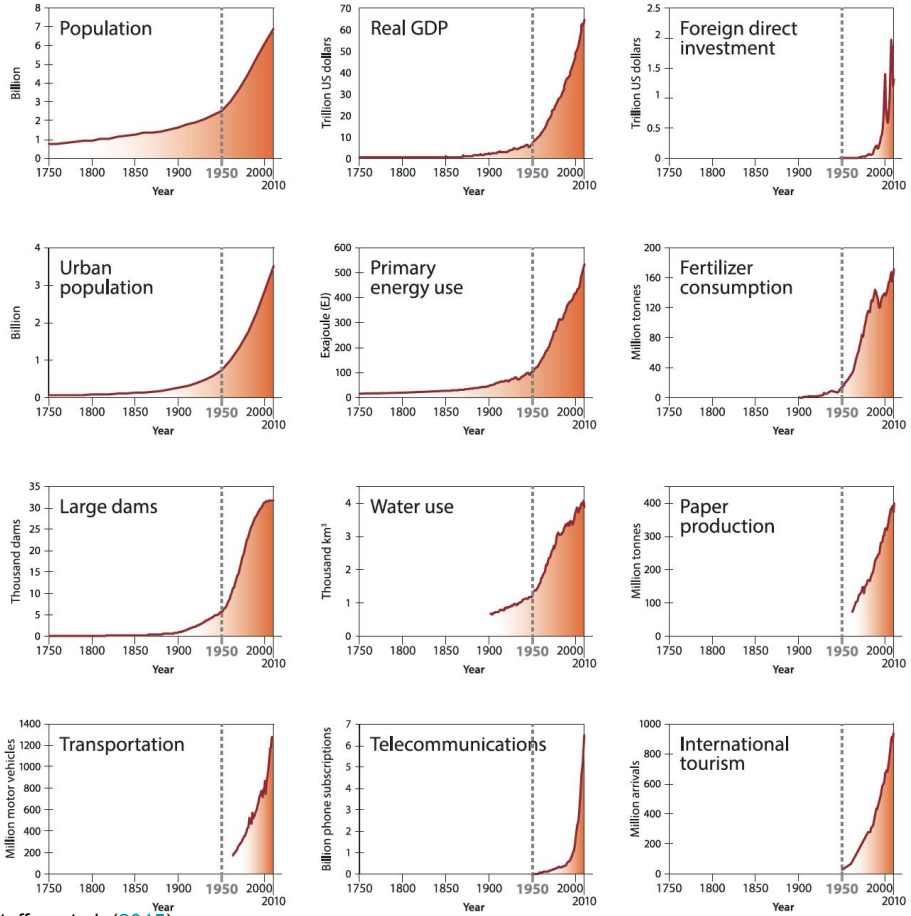
Outline

- Part I: The Bigger Picture
  - Short Q&A
- Part II: Climate Impacts in Africa
  - Short Q&A
- Part III: Climate Action
  - Short Q&A



Burke et al. (2018)

Socio-economic trends



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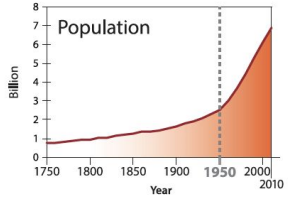
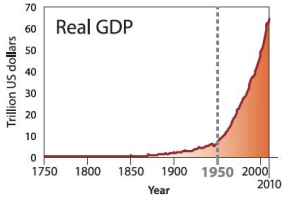
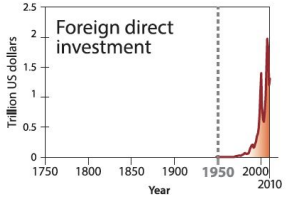
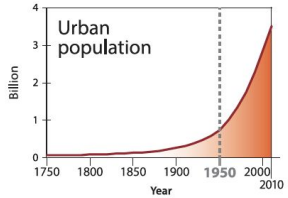
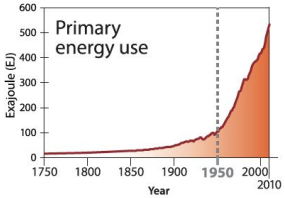
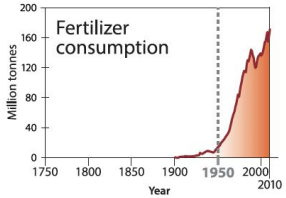


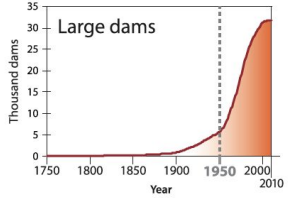


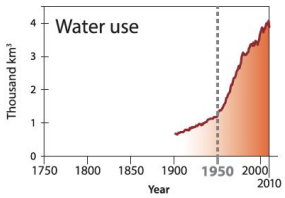


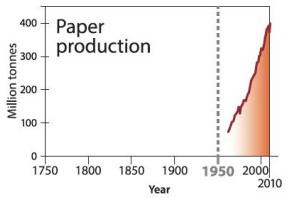


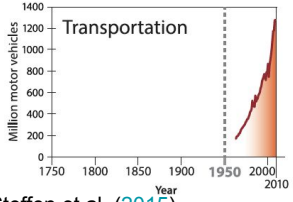


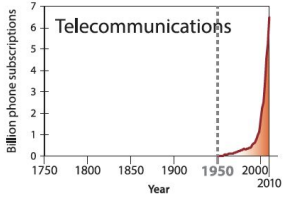


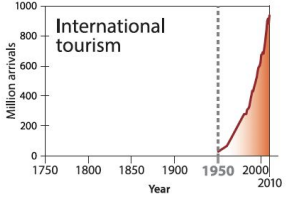




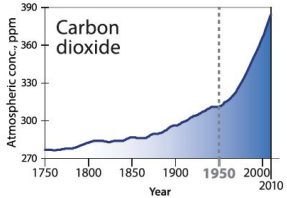


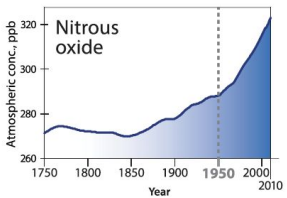


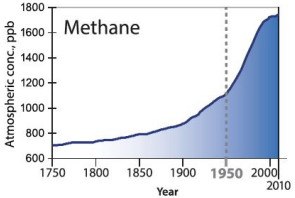


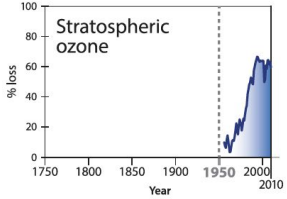


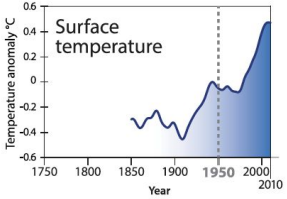
Earth system trends

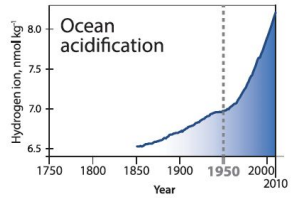


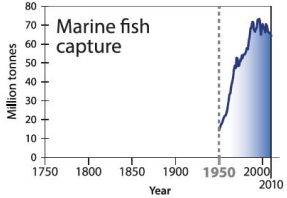


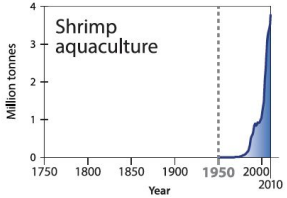


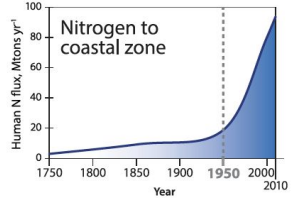


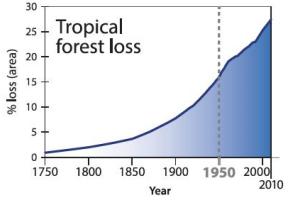


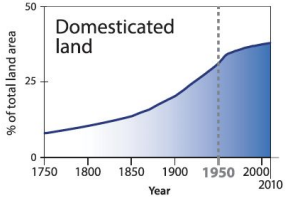


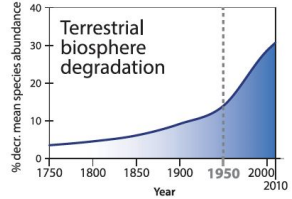




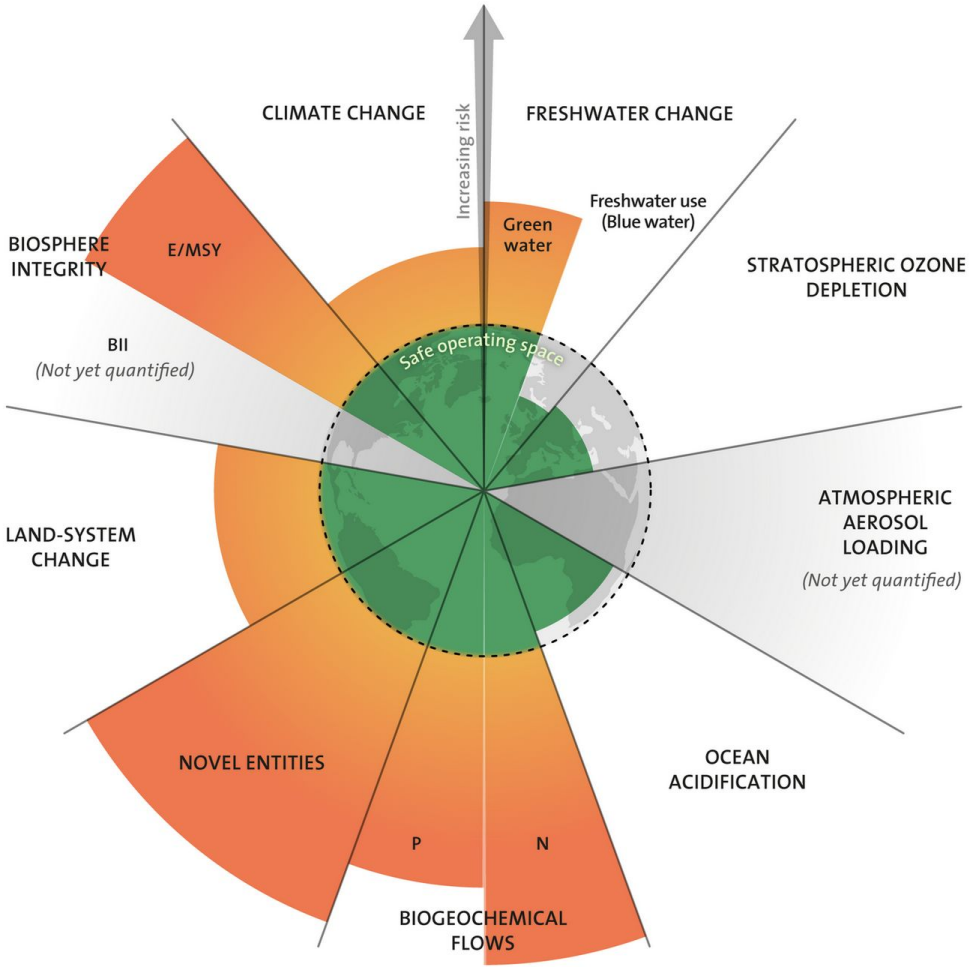




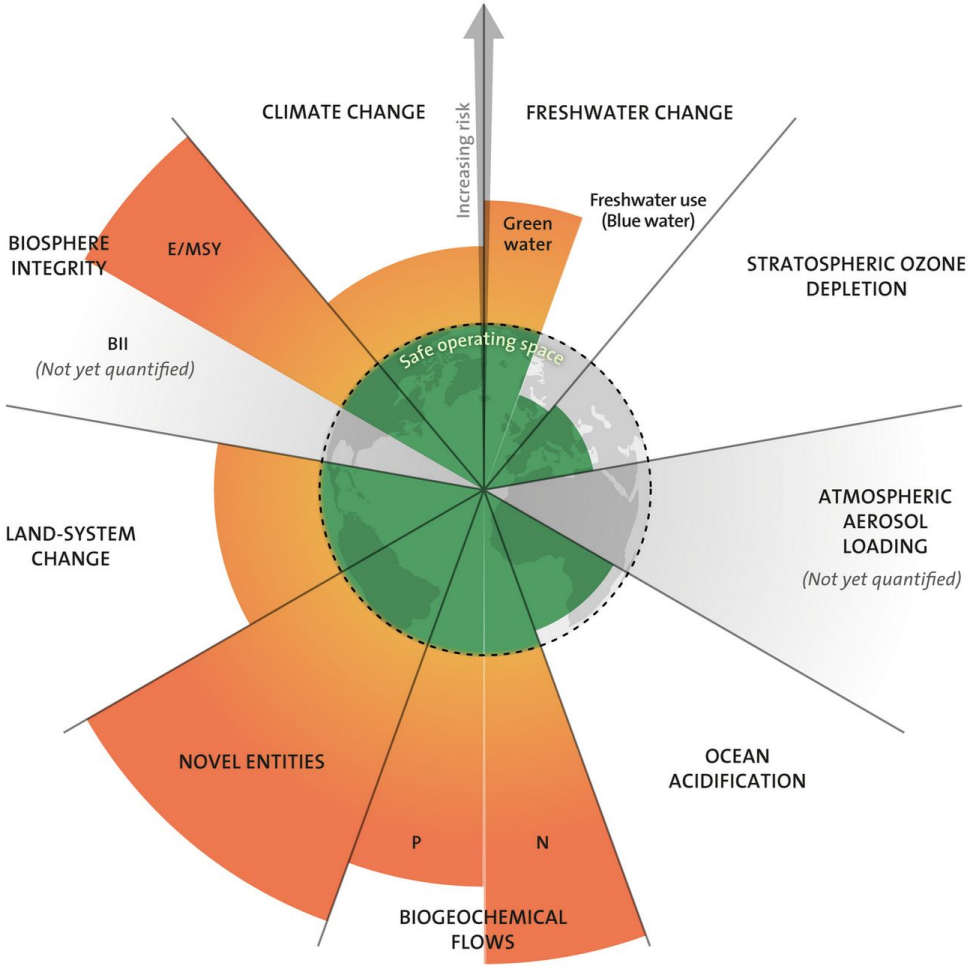


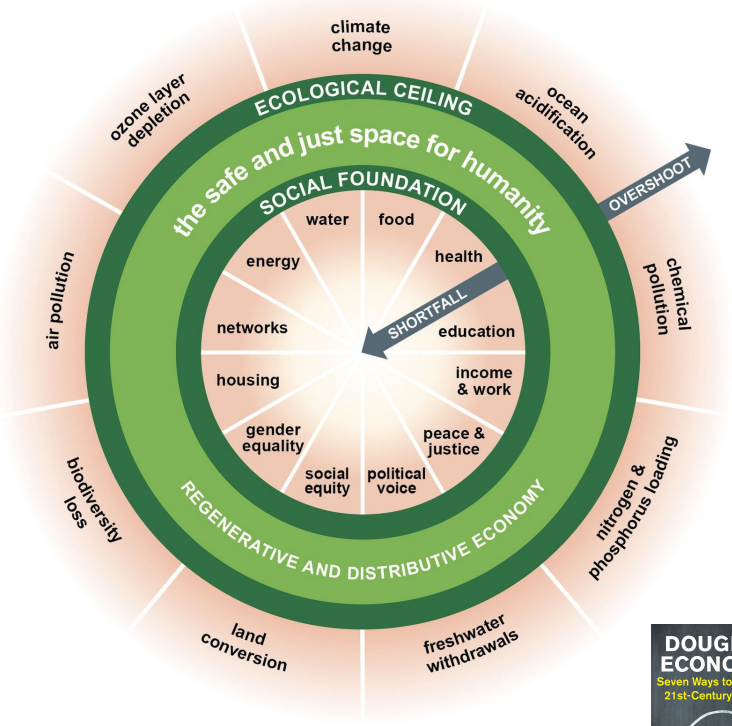


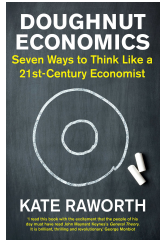
Steffen et al. (2015)



Rockström et al. (2009); Steffen et al. (2015)

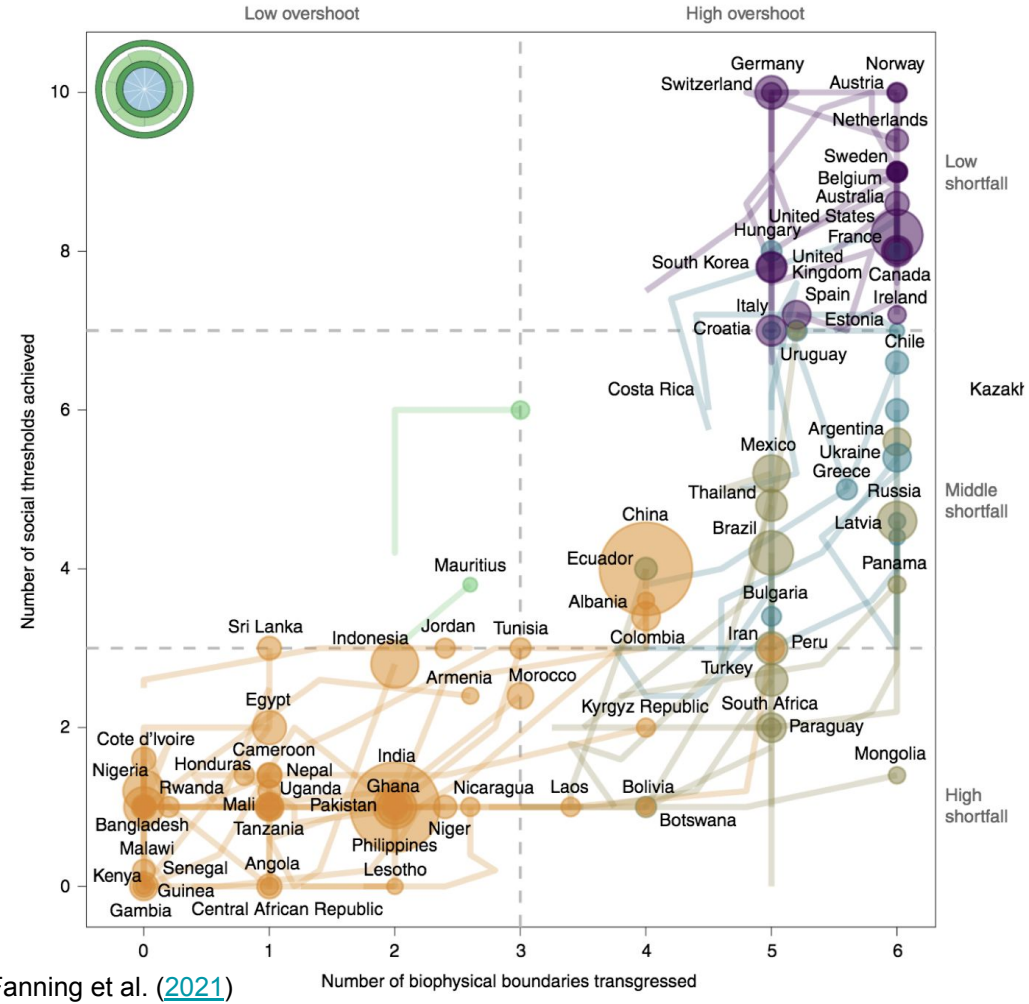






Rockström et al. (2009); Steffen et al. (2015)

https://goodlife.leeds.ac.uk/



Fanning et al. (2021)

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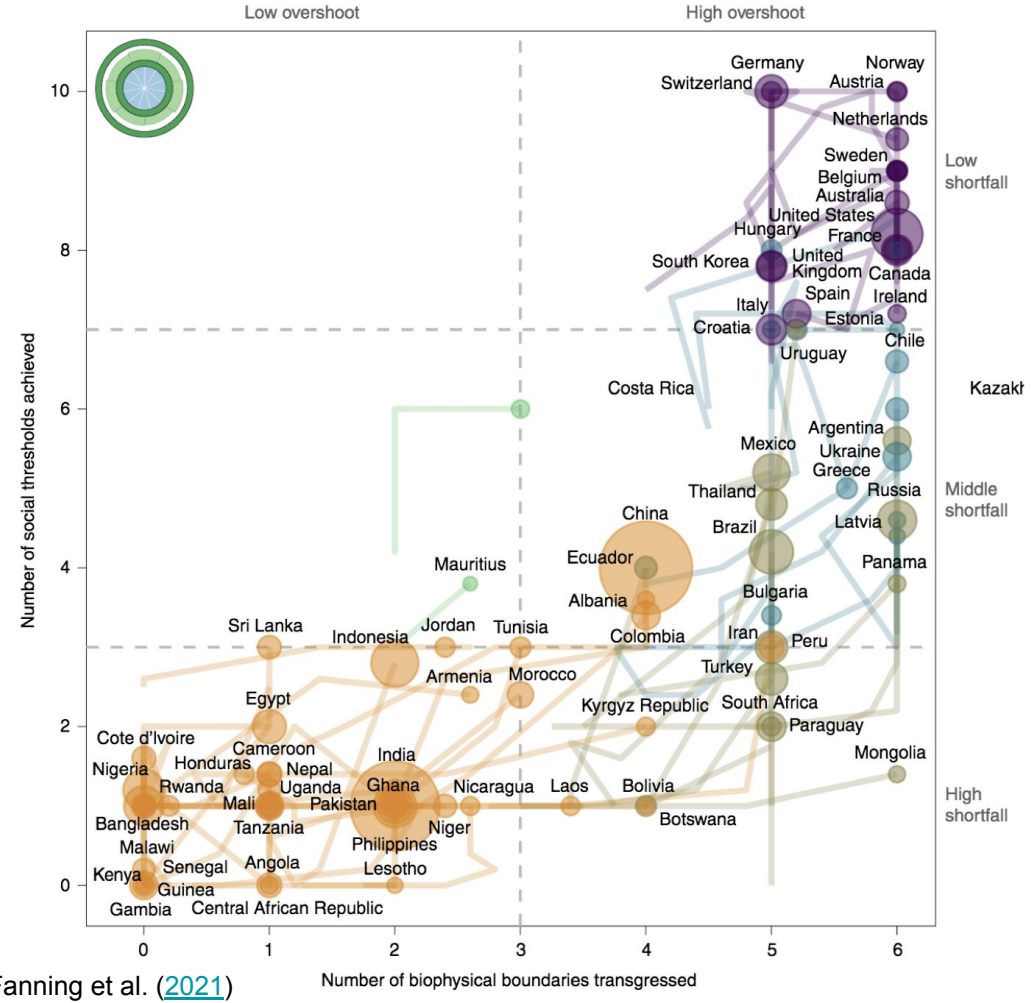
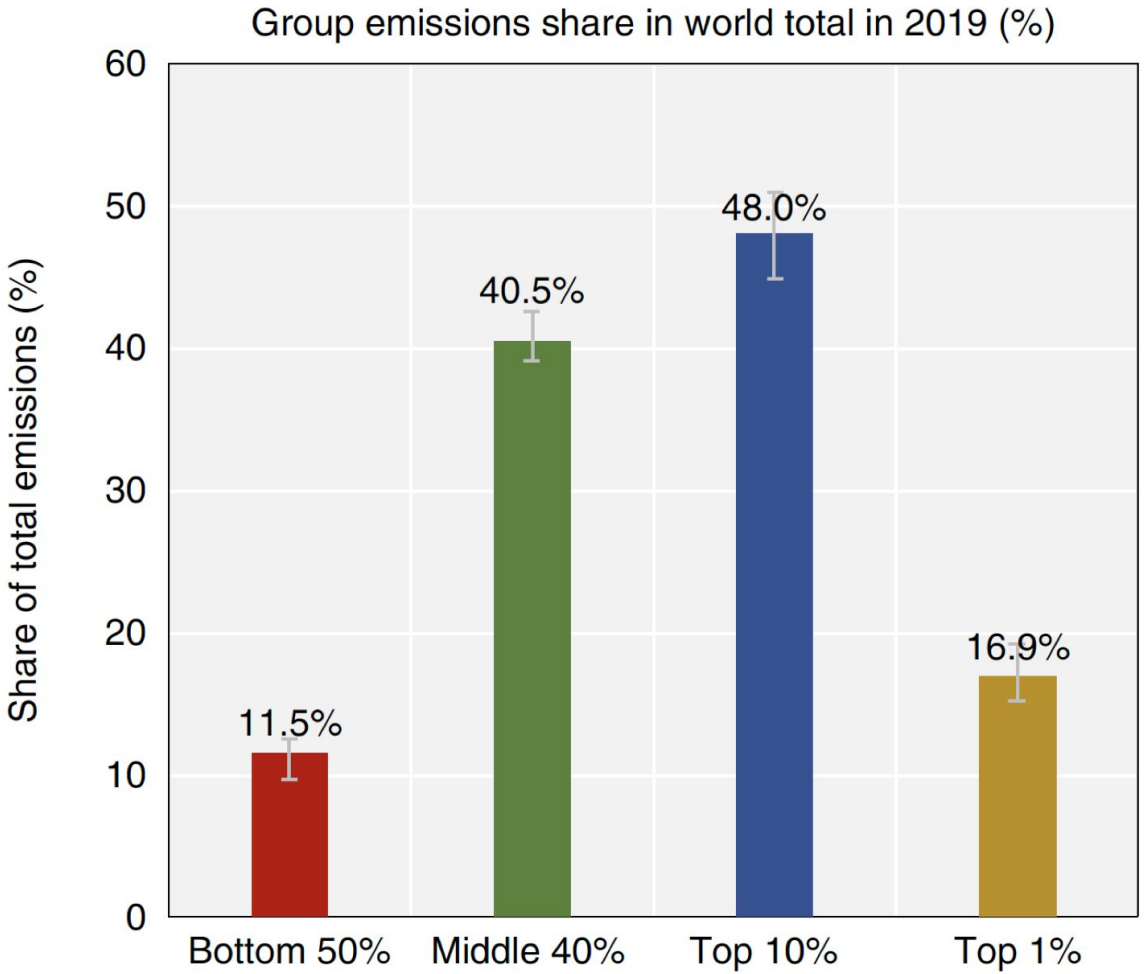


23 rich, developed countries are responsible for half of all historical CO_2 emissions.

Fanning et al. (2021)

Source

23 rich, developed countries are responsible for half of all historical CO_2 emissions.



Chancel (2022)

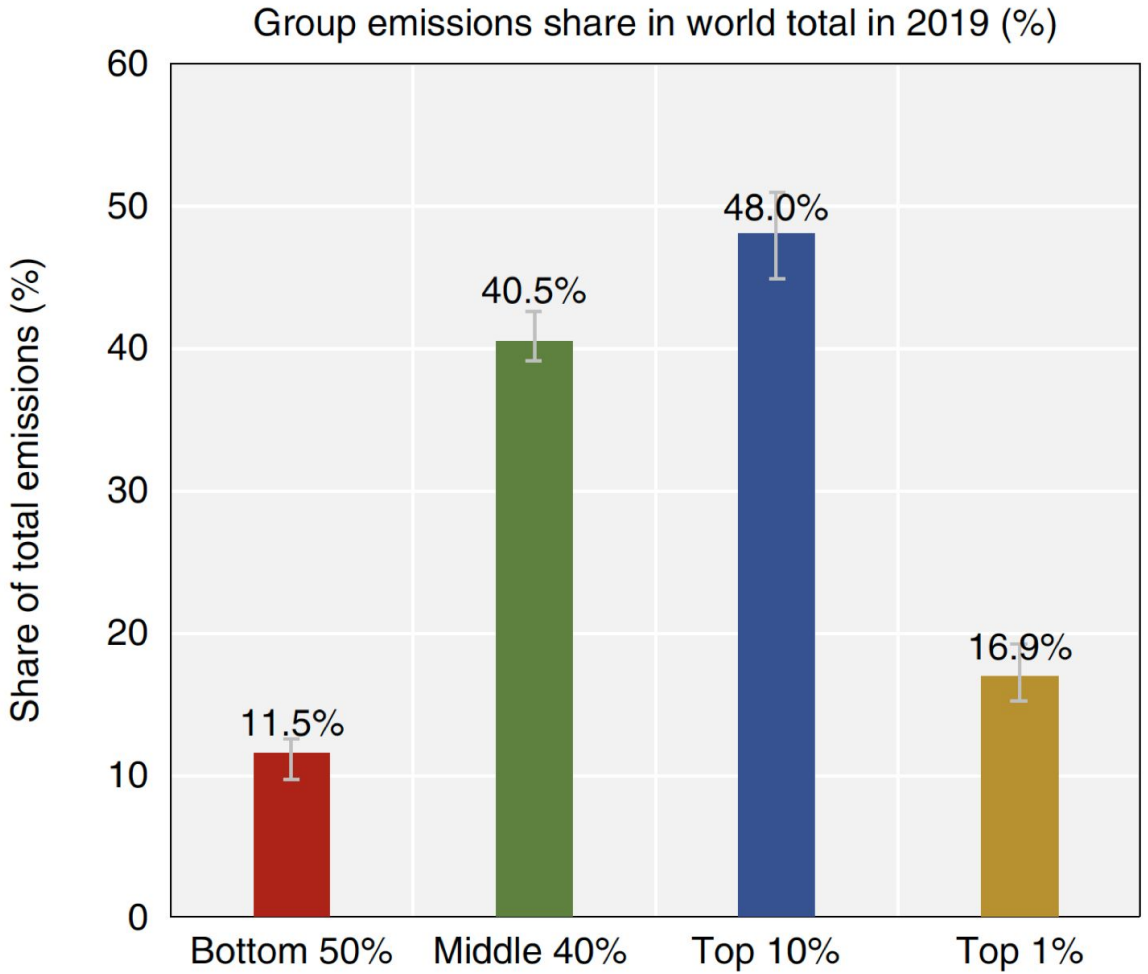
23 rich, developed countries are responsible for half of all historical CO_2 emissions.

Perspective | Open Access | Published: 19 June 2020

Scientists' warning on affluence

Thomas Wiedmann, Manfred Lenzen, Lorenz T. Keyßer & Julia K. Steinberger

Nature Communications **11**, Article number: 3107 (2020) | Cite this article



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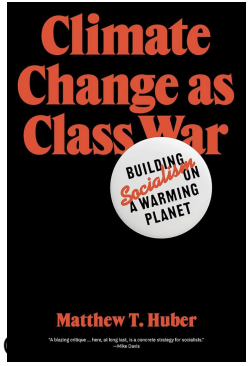
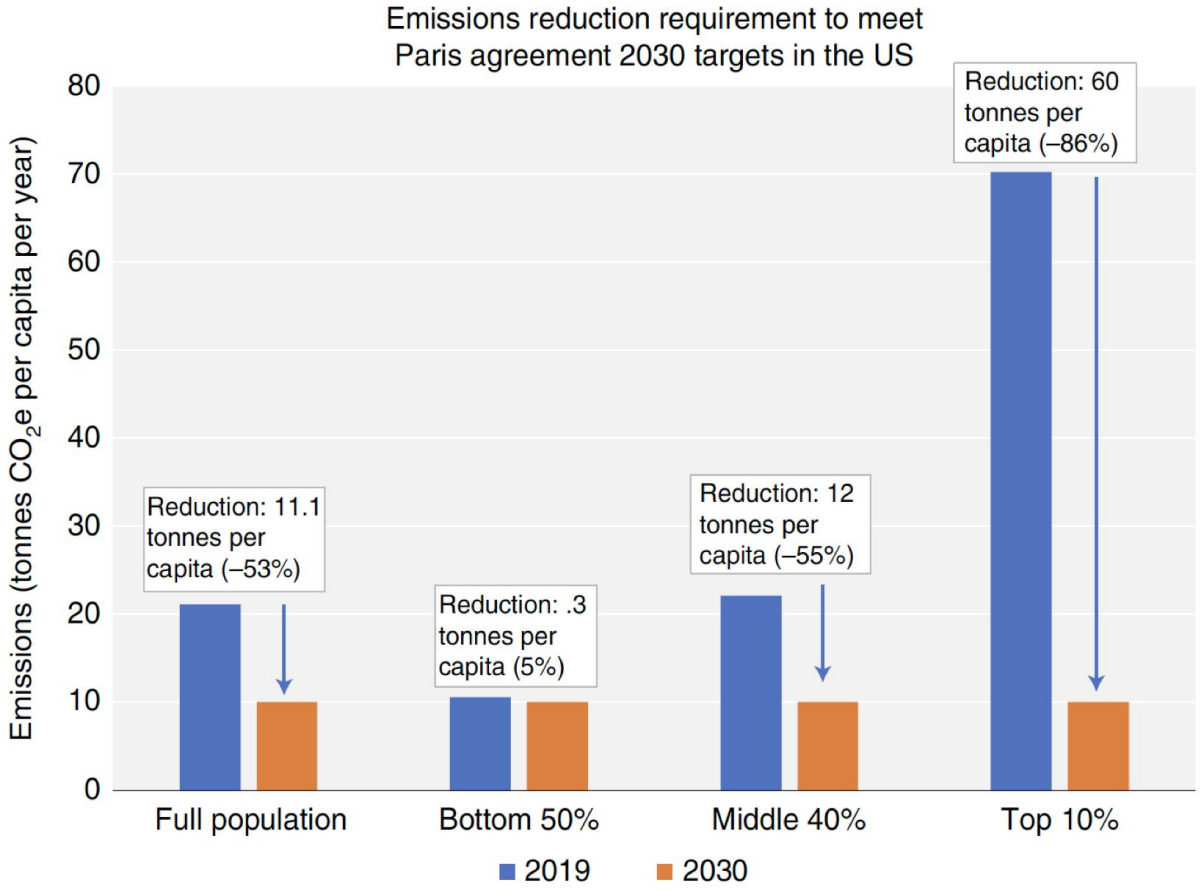
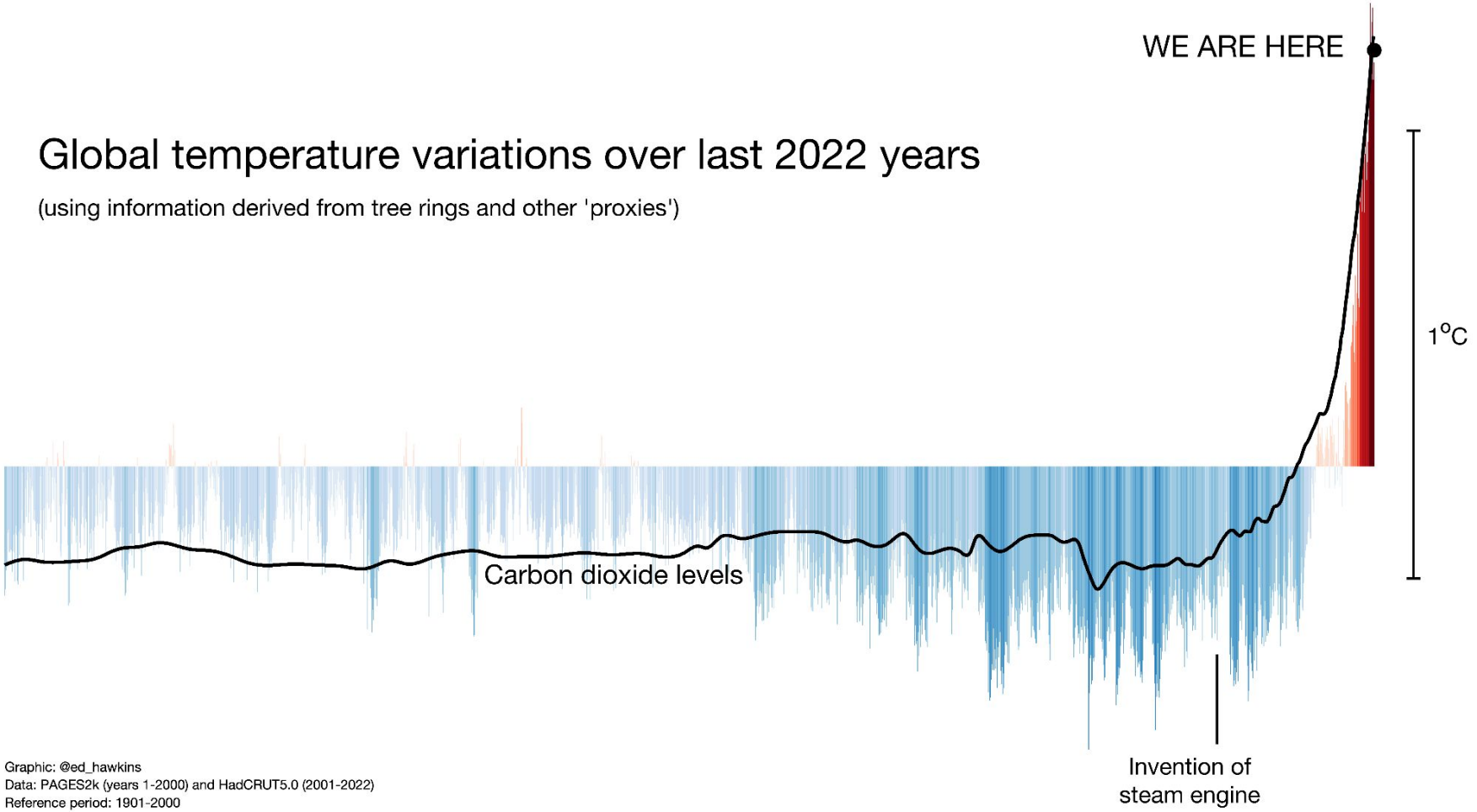


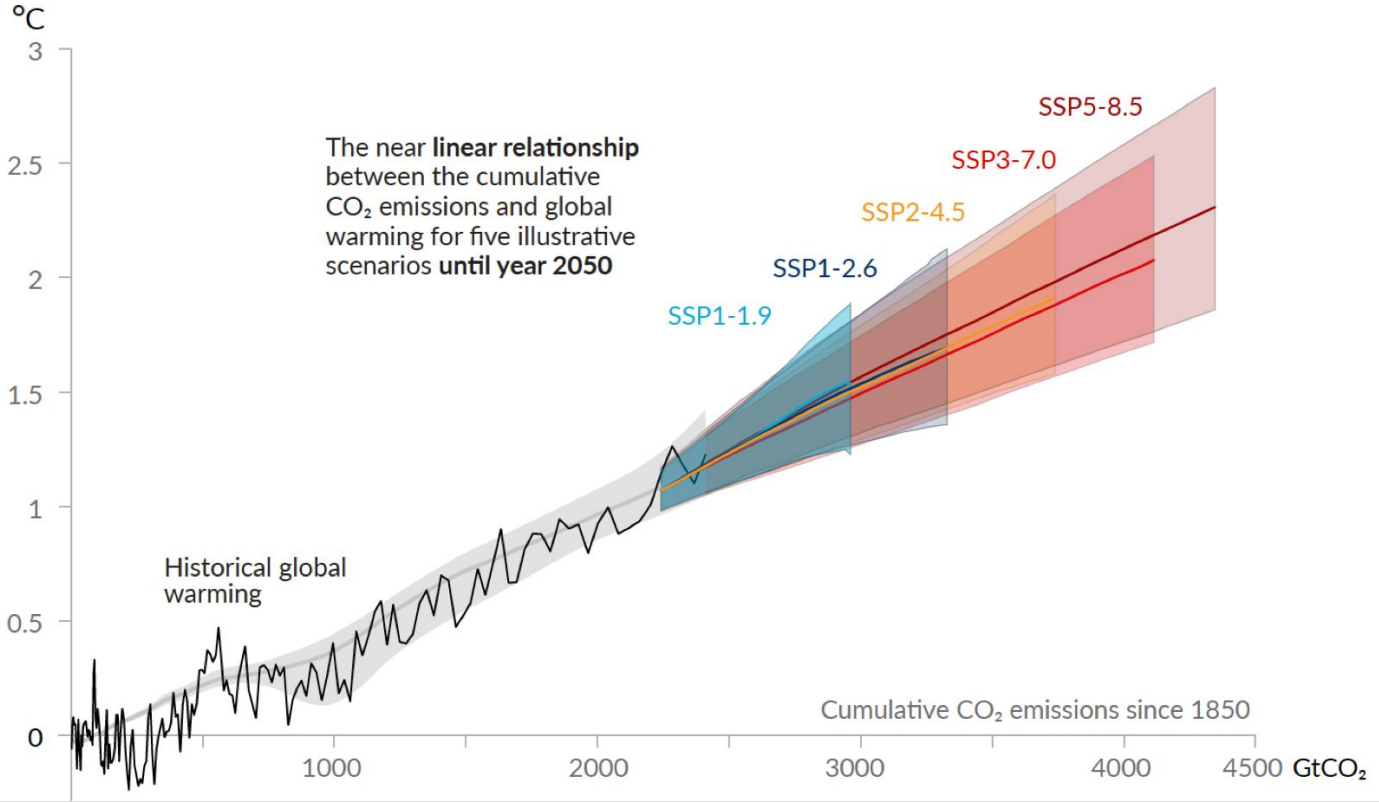



Global temperature variations over last 2022 years
(using information derived from tree rings and other 'proxies')
WE ARE HERE
1°C
Carbon dioxide levels
Invention of steam engine
Graphic: @ed_hawkins
Data: PAGES2k (years 1-2000) and HadCRUT5.0 (2001-2022)
Reference period: 1901-2000

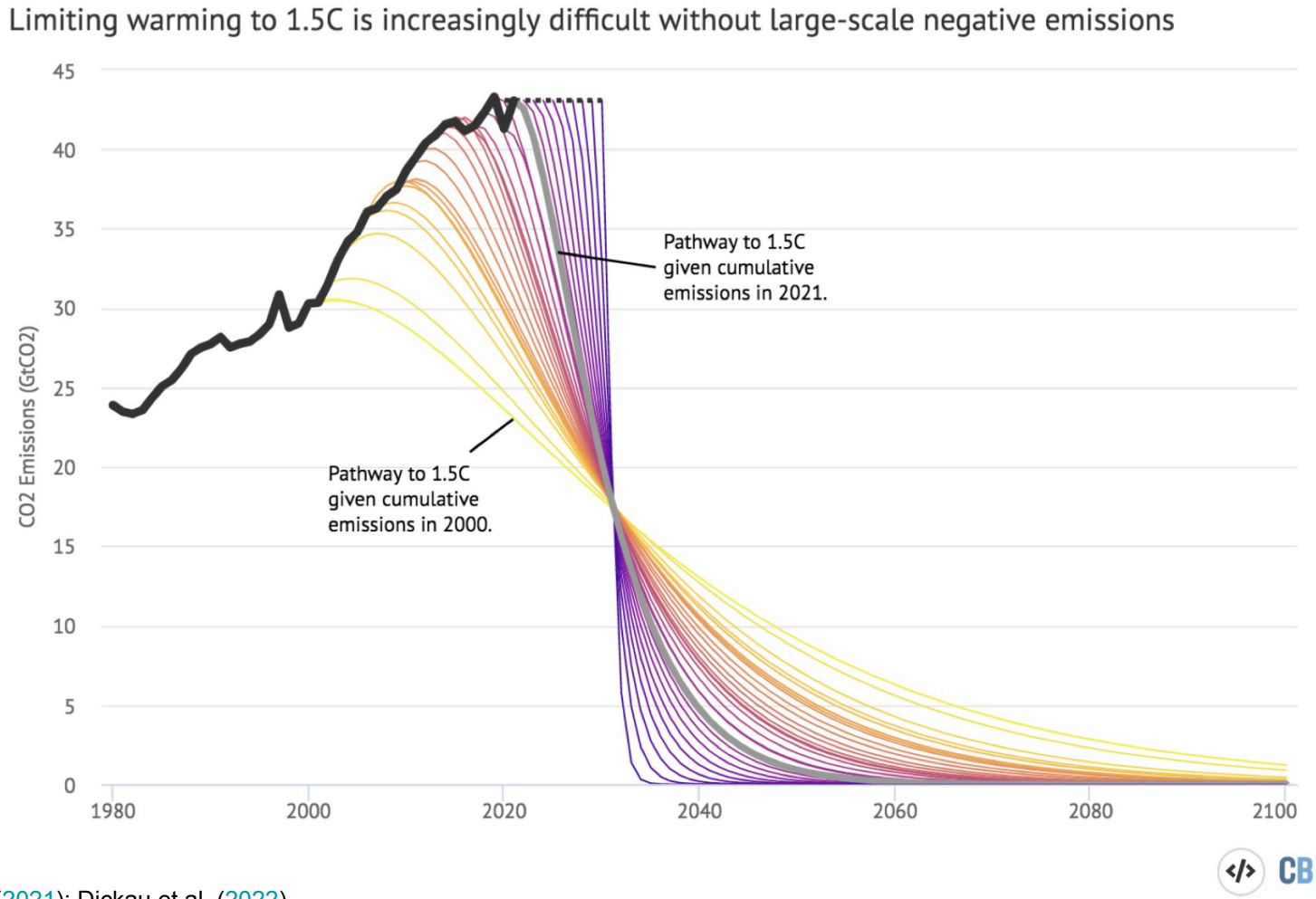
Source

Every tonne of CO_2 emissions adds to global warming

Global surface temperature increase since 1850-1900 (°C) as a function of cumulative CO_2 emissions ($GtCO_2$)

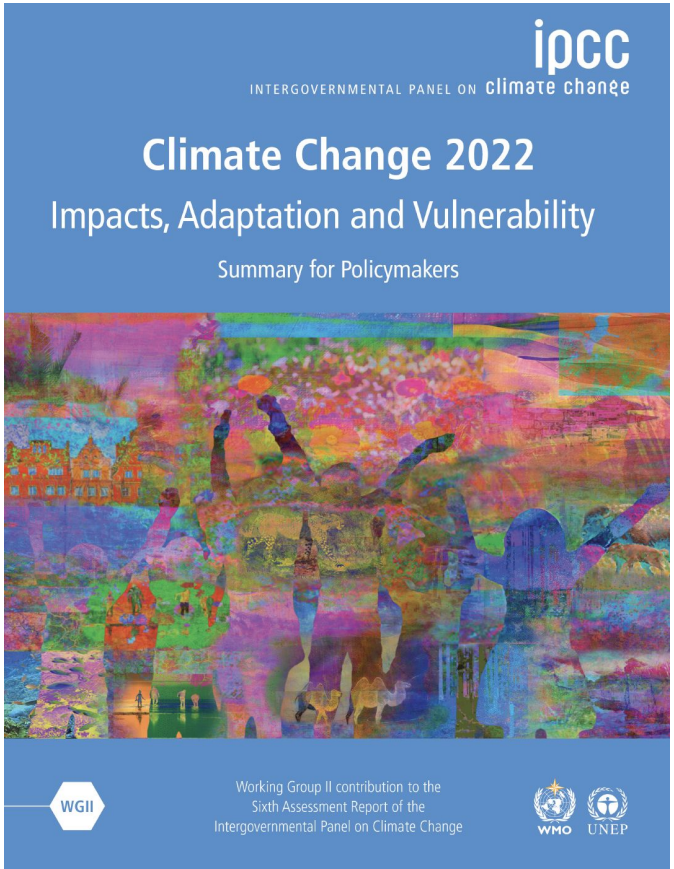


IPCC AR6 WGI SPM



Matthews et al. (2021); Dickau et al. (2022)

Climate impacts emerge earlier and are worse than anticipated



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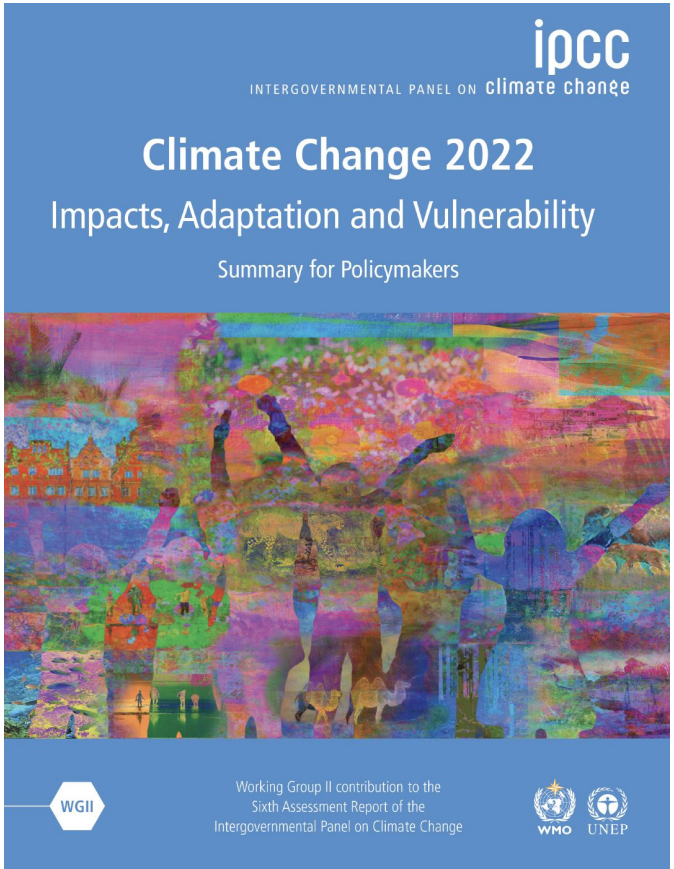

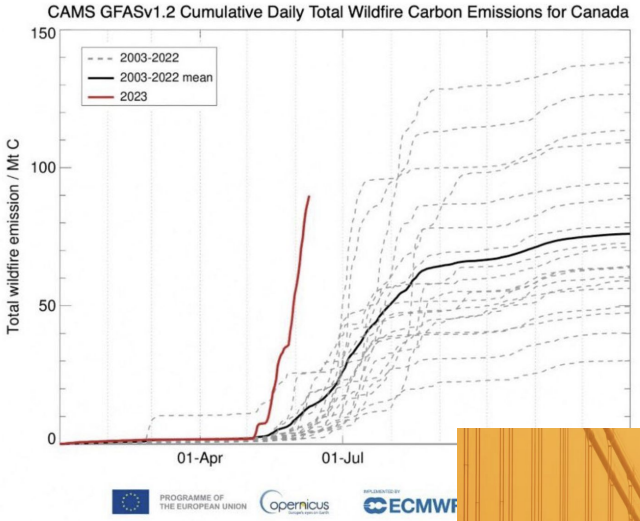

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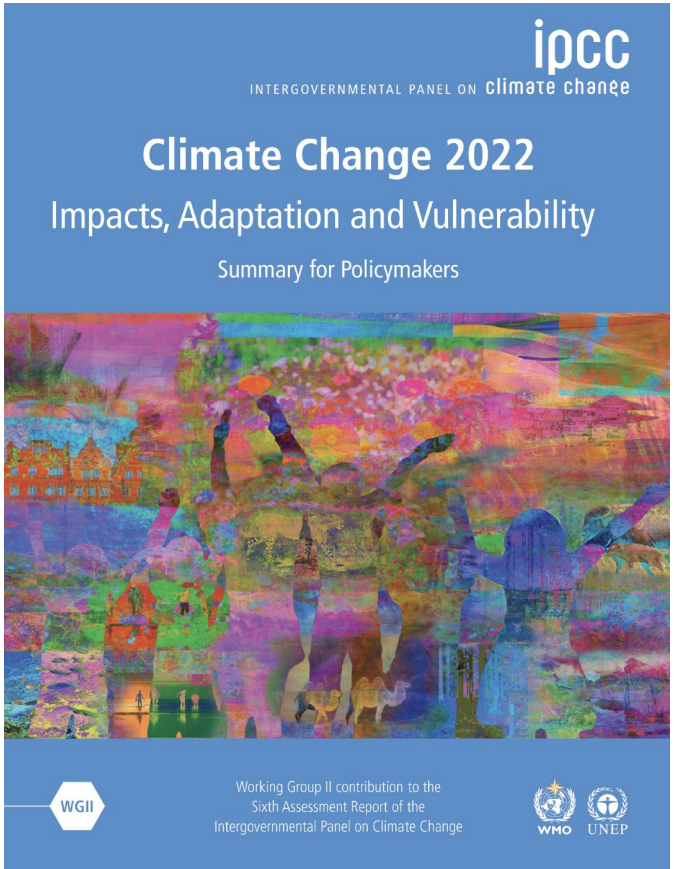

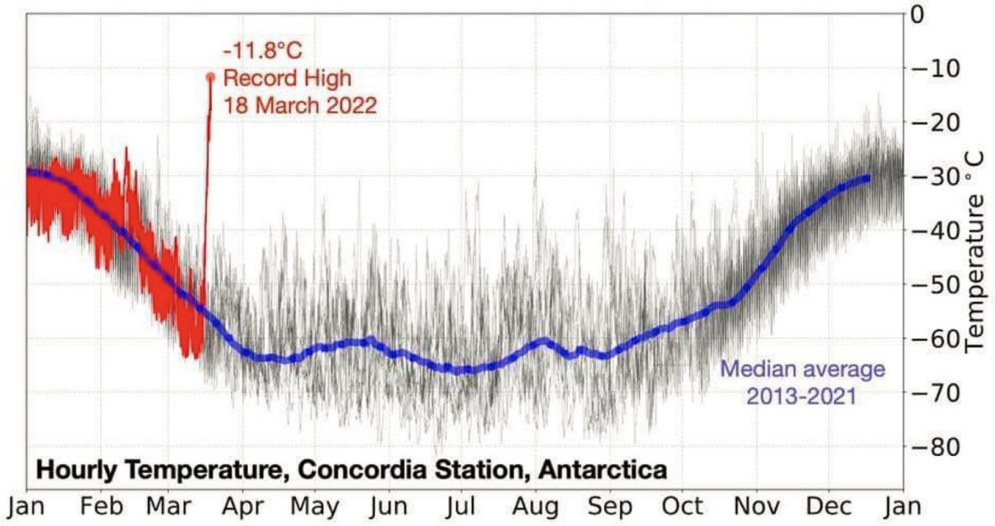

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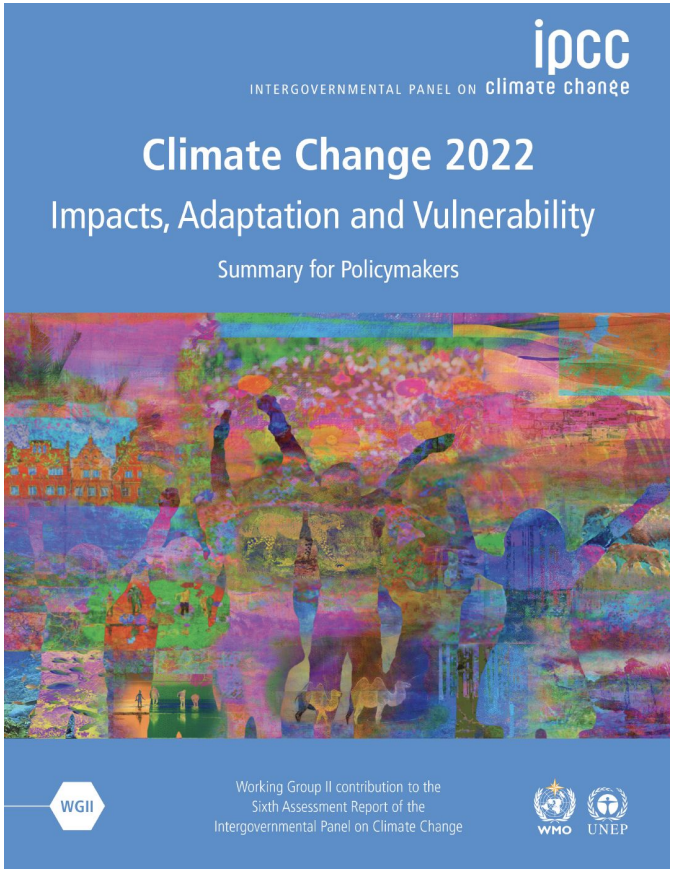

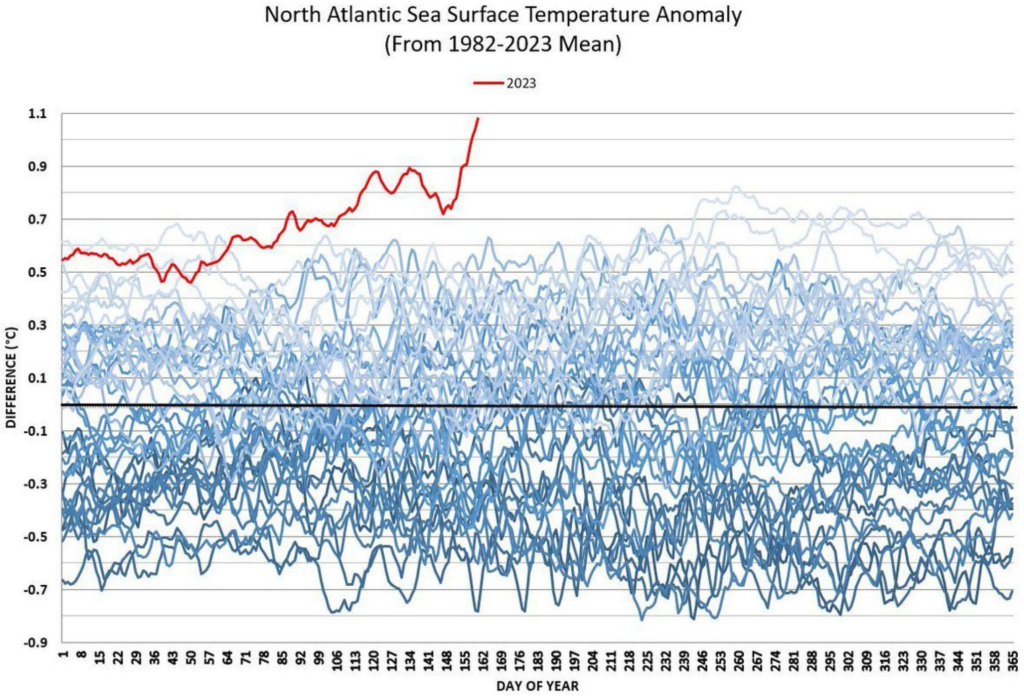

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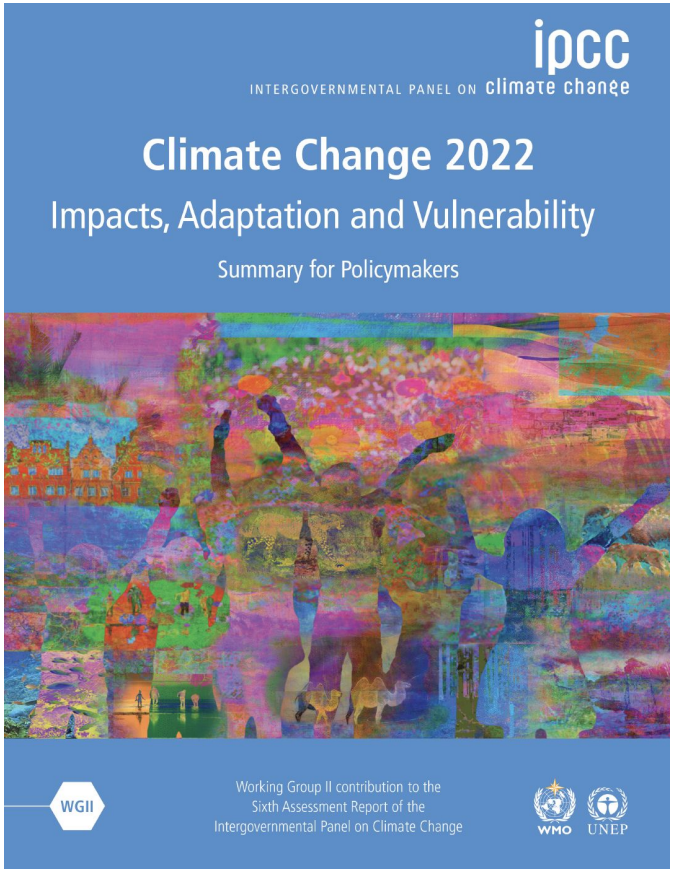
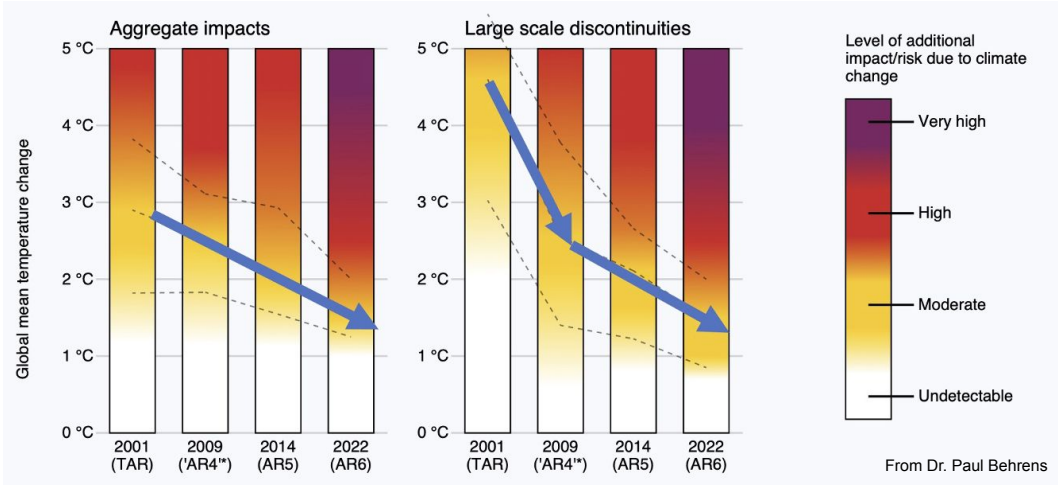




RESEARCH ARTICLE | CLIMATE CHANGE

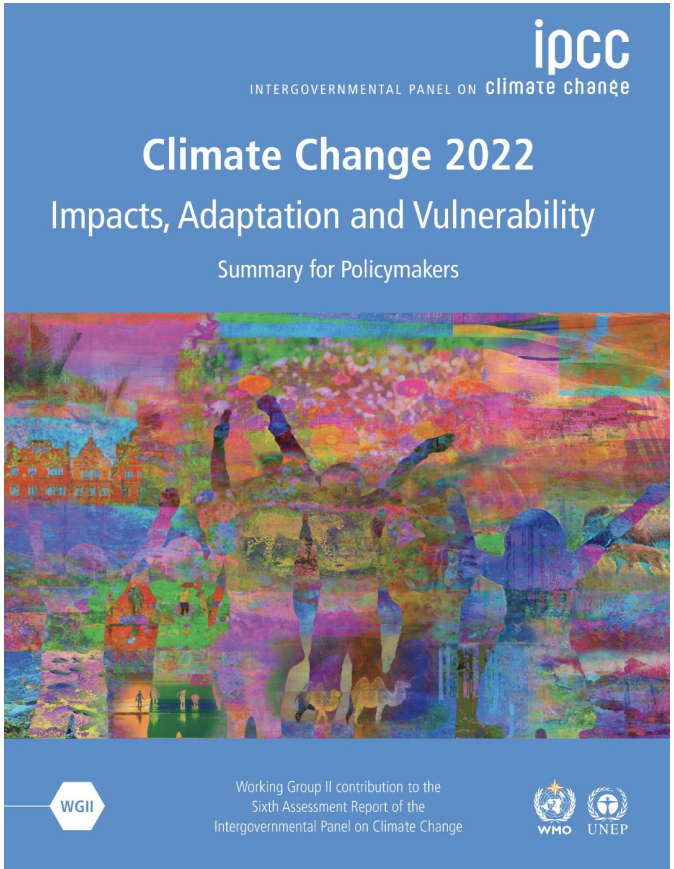
Exceeding 1.5°C global warming could trigger multiple climate tipping points

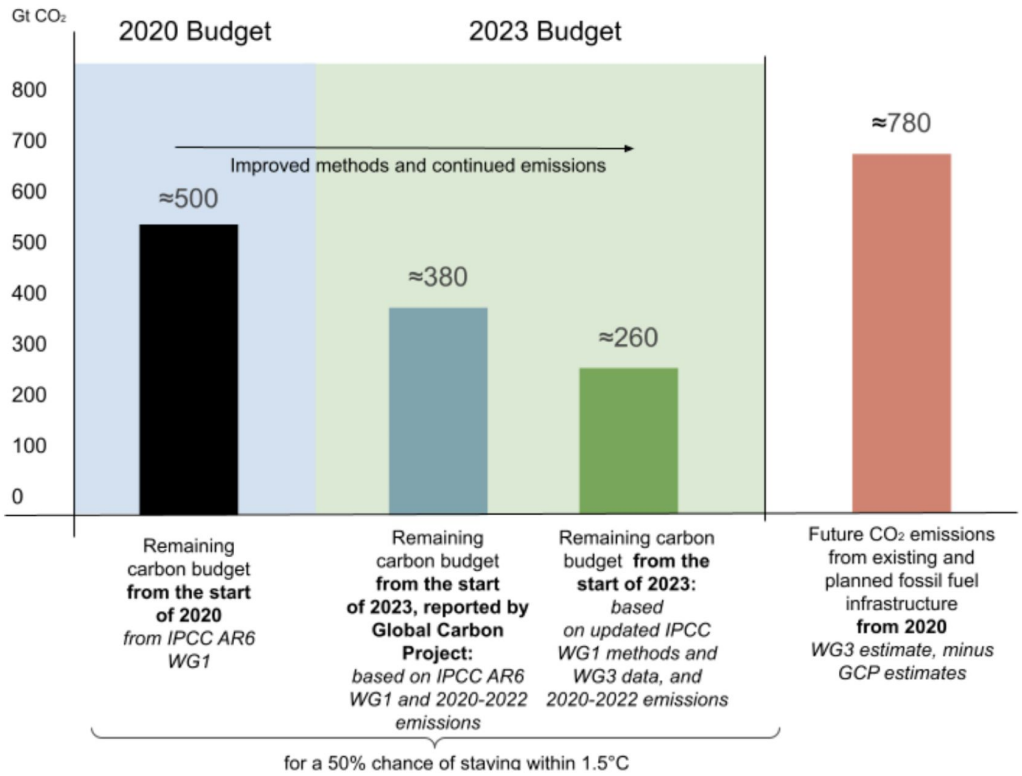
DAVID I. ARMSTRONG MCKAY, ARIE STAAL, JESSE F. ABRAMS, RICARDA WINKELMANN, BORIS SAKSCHEWSKI, SINA LORIANI, INGO FETZER, SARAH E. CORNELL, JOHAN ROCKSTRÖM, AND TIMOTHY M. LENTON

fewer Authors Info & Affiliations

SCIENCE · 9 Sep 2022 · Vol 377, Issue 6611 · DOI: 10.1126/science.abn7950

Climate impacts emerge earlier and are worse than anticipated





Source

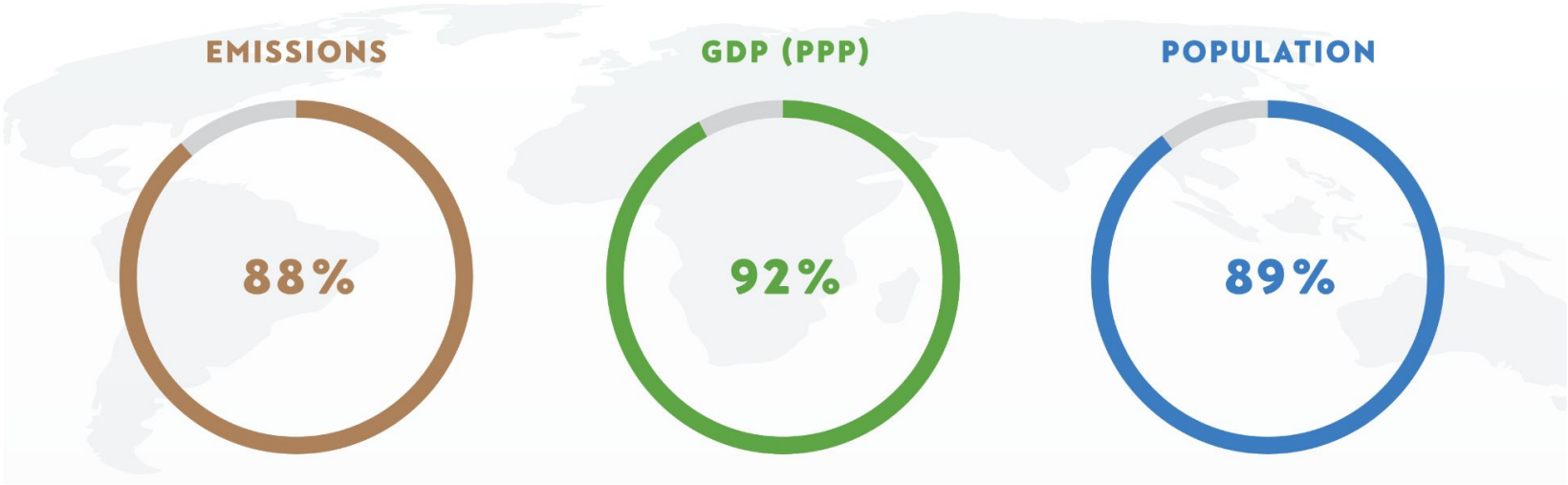
NET ZERO TRACKER

Energy&Climate INTELLIGENCE UNIT | DATA DRIVEN ENVIROLAB | NEW CLIMATE INSTITUTE | NET ZERO | UNIVERSITY OF OXFORD

NET ZERO STOCKTAKE 2023

Assessing the status and trends of net zero target setting across countries, sub-national governments and companies

June 2023



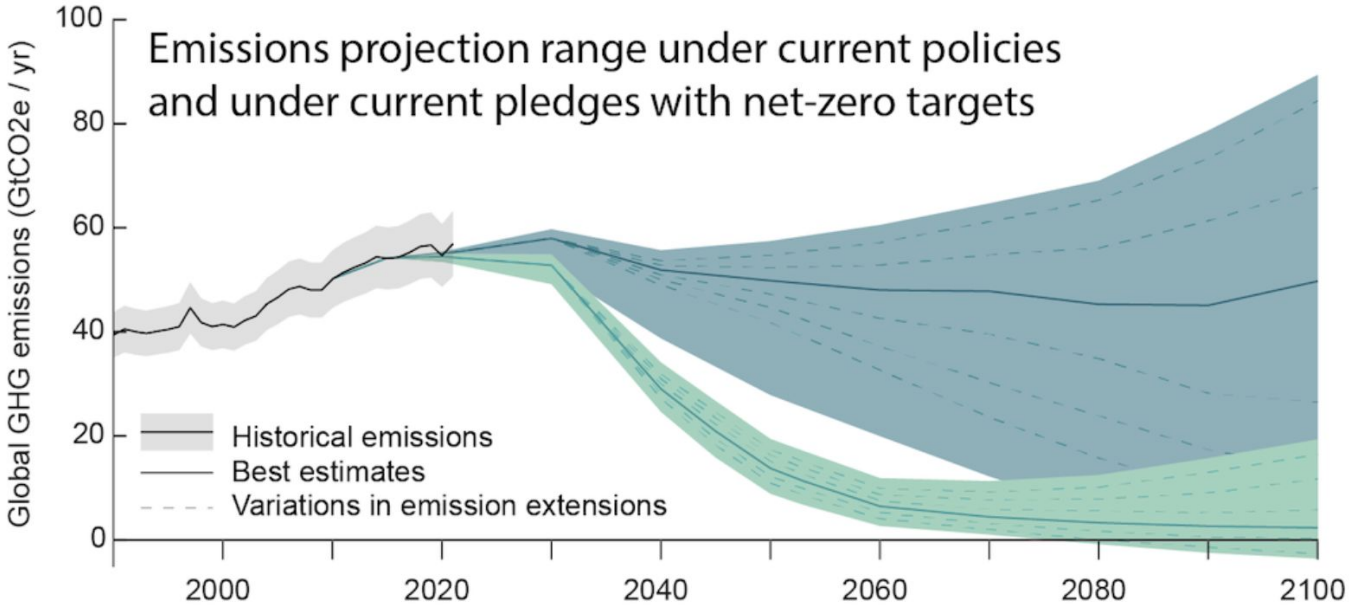
Source

POLICY FORUM

CLIMATE POLICY

Credibility gap in net-zero climate targets leaves world at high risk

Looking at policies instead of promises shows that global climate targets may be missed by a large margin



Source: adapted from Rogelj et al. (2023) doi:10.1126/science.adg6248

Rogelj et al. (2023)

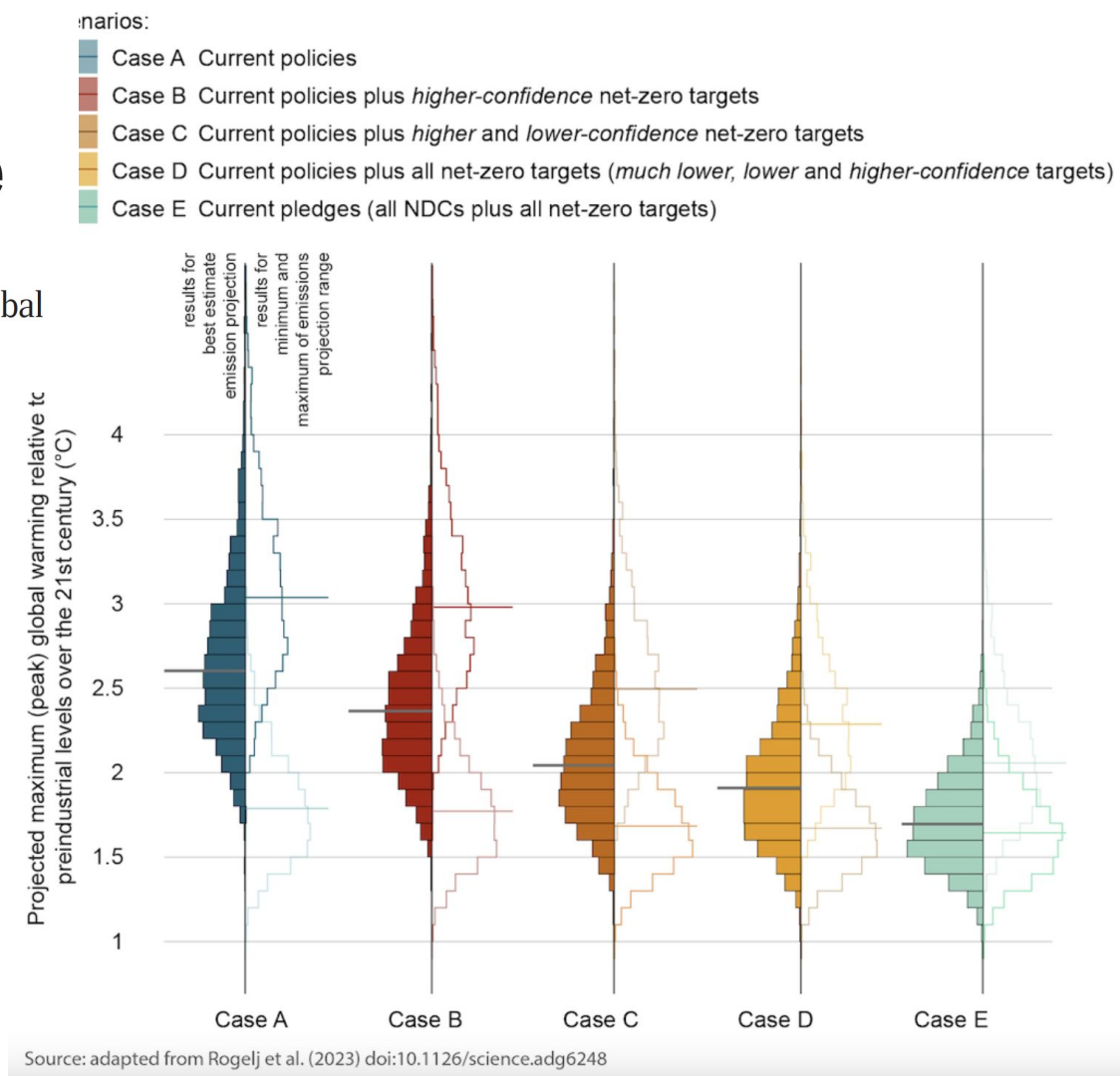
POLICY FORUM

CLIMATE POLICY

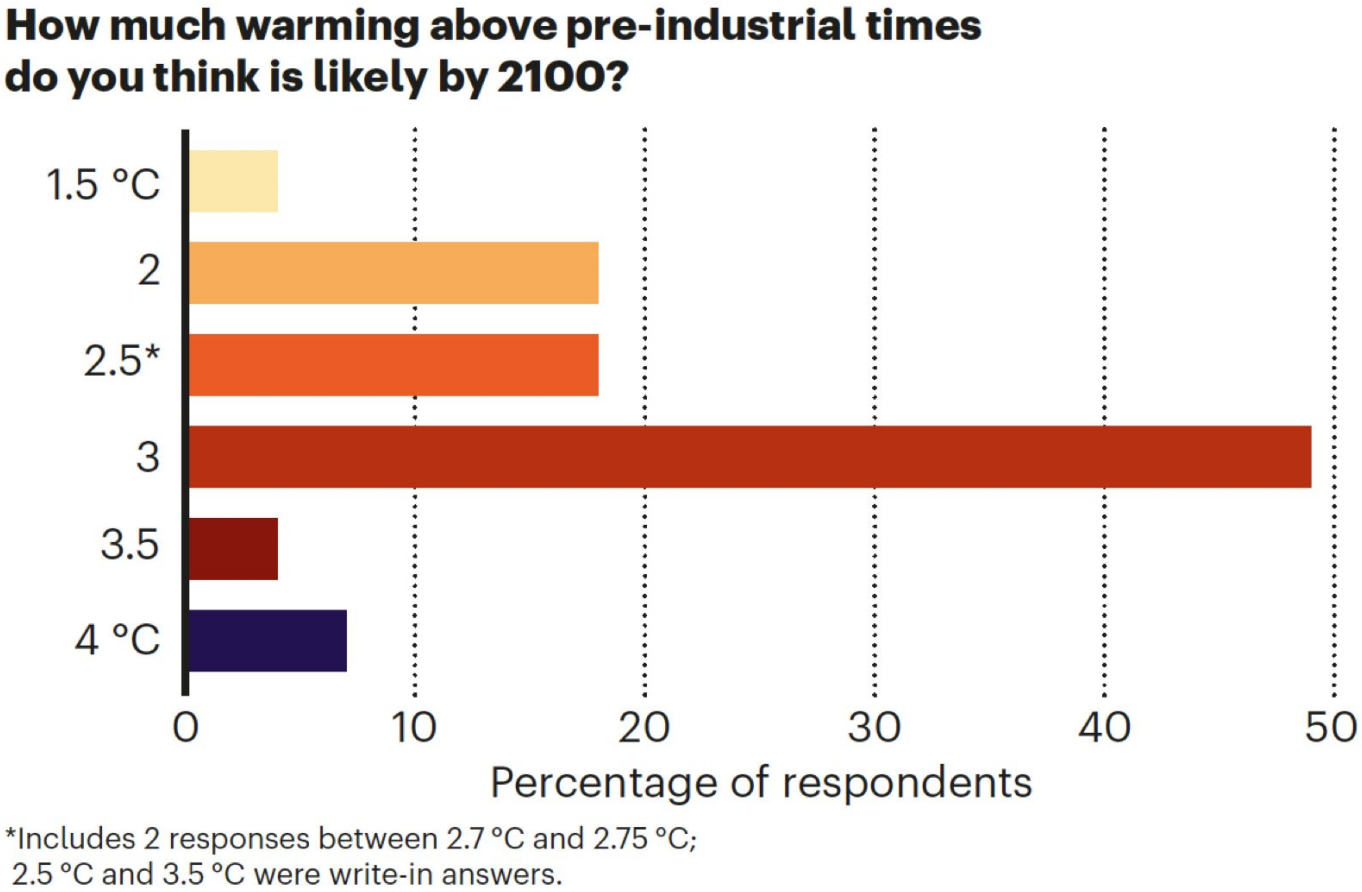
Credibility gap in net-zero climate targets leaves world at high risk

Looking at policies instead of promises shows that global climate targets may be missed by a large margin

"When we consider the credibility of current climate pledges, our assessment shows that the world remains far from delivering a safe climate future."



Rogelj et al. (2023)



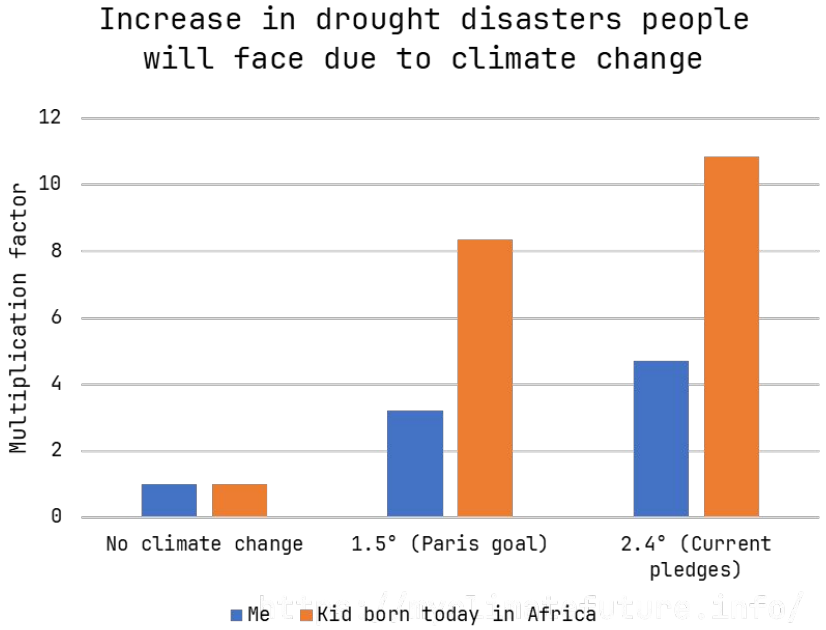
Tollefson (2021)

Short Summary

- We have crossed 6/9 Planetary Boundaries and exited the stable Holocene
- There currently exists no country that is sustainably developed
- Rich countries are in ecological overshoot — there is no carbon budget left for them
- The top 1% (~80 million people) emit more than the bottom 50% (~4 billion people)
- At constant emissions, the 50% carbon budget for 1.5°C will be used up by 2029
- Climate impacts emerge earlier and are worse than anticipated
- Current policy would lead to 2.6°C [1.7°C - 3.0°C] of heating by the end of the century
- We are in the defining decade for preventing climate breakdown

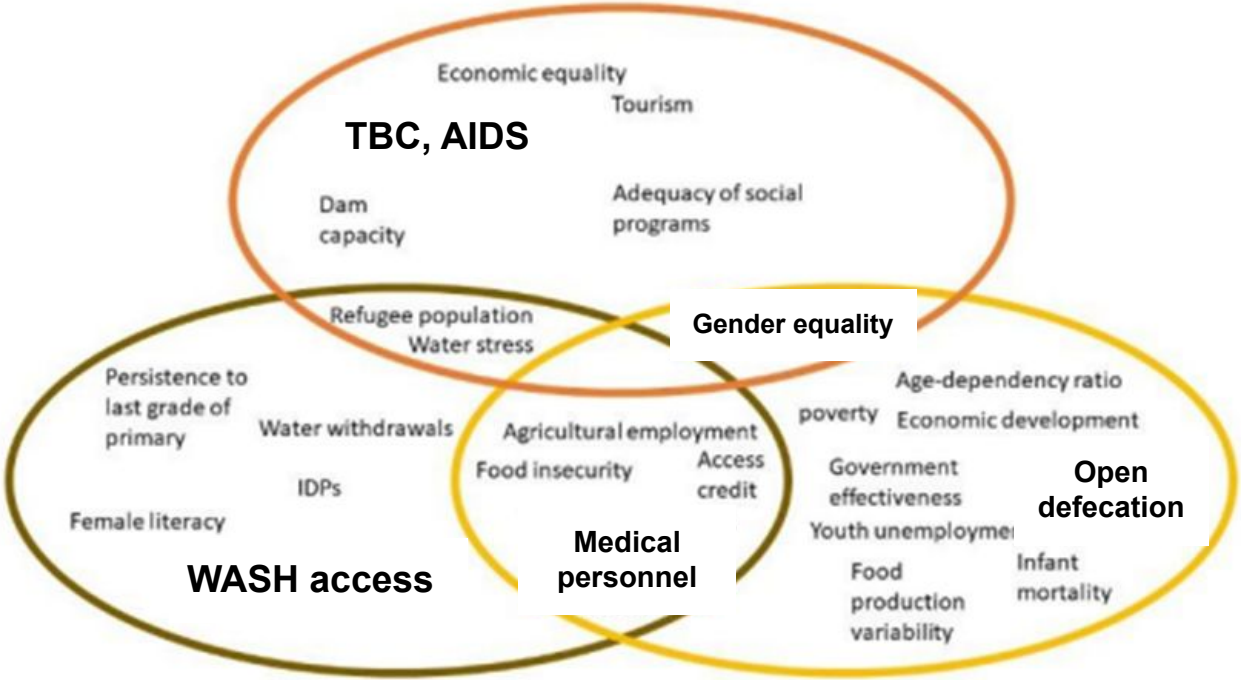
Short Q&A

Climate change brings the water system out of balance



https://myclimatefuture.info/

There is an elevated vulnerability in Ethiopia, Kenya and Somalia



DROUGHT-STRICKEN COMMUNITIES HIT BY DESTRUCTIVE FLOODS IN THE HORN OF AFRICA

MAY 2018 | IVANA HAJŽMANOVÁ

Droughts contribute to compound crises

Matano et al. (2021)

Drought disasters cause a multitude of (in)direct, cascading impacts affecting ecosystems and societies

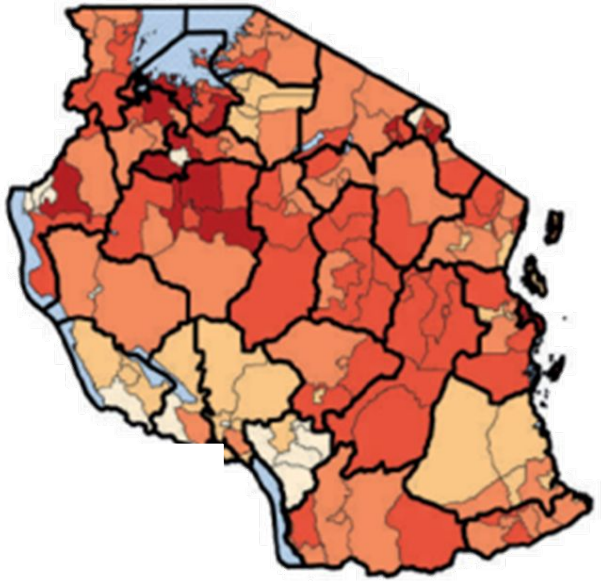
Droughts lead to maladaptation and long-term damage

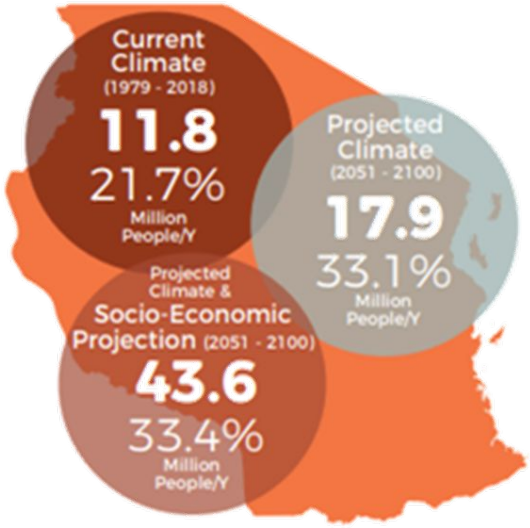
"In 2017. There was **hunger** and there was **water scarcity**. Before this drought the rains had failed for about four years so there wasn't anywhere you could find food. So due to food shortage we resulted in **charcoal burning** to| survive. After burning the charcoal, there were trucks which could come and buy from us. In situations where the trucks failed to show up, we would sleep hungry. "

"We used to have a lot of big trees around here, then we used not to lack rains in our area but **when we started cutting down trees we have been experiencing short to no rains**. [...] As from 2004 is when we started cutting down trees to burn charcoal and sell so that we can buy food stuff. [...] We have to burn charcoal because the rains are really bad. [...] Today it's a form of survival and **we have to cut trees down to burn charcoal so as to buy food**. [...] Without any job that is giving me money I have to cut them."

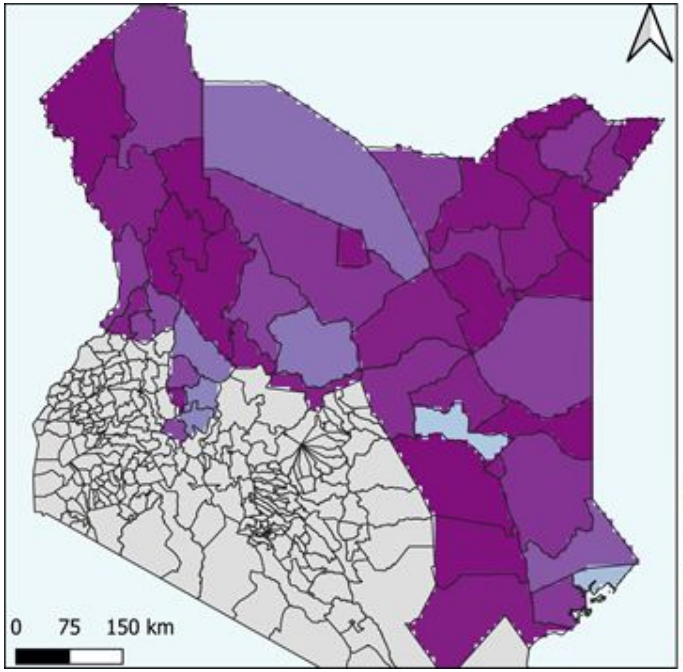
Perfect STORM

Climate change & population growth will increase drought risk





Rudari et al. (2019)

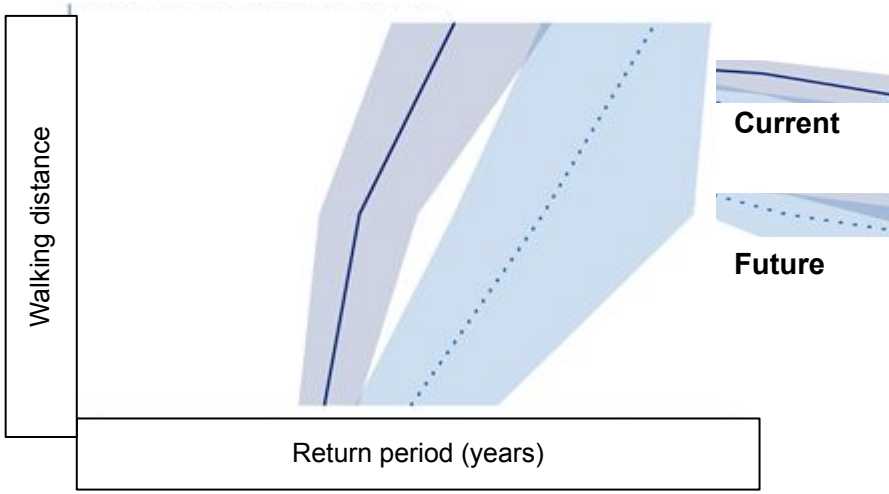


WCI
(m3/person/yr below threshold)

Historical
(1979-2019)

% of total population
0% - 25%
25% - 50%
50% - 75%
75% - 95%
> 95%

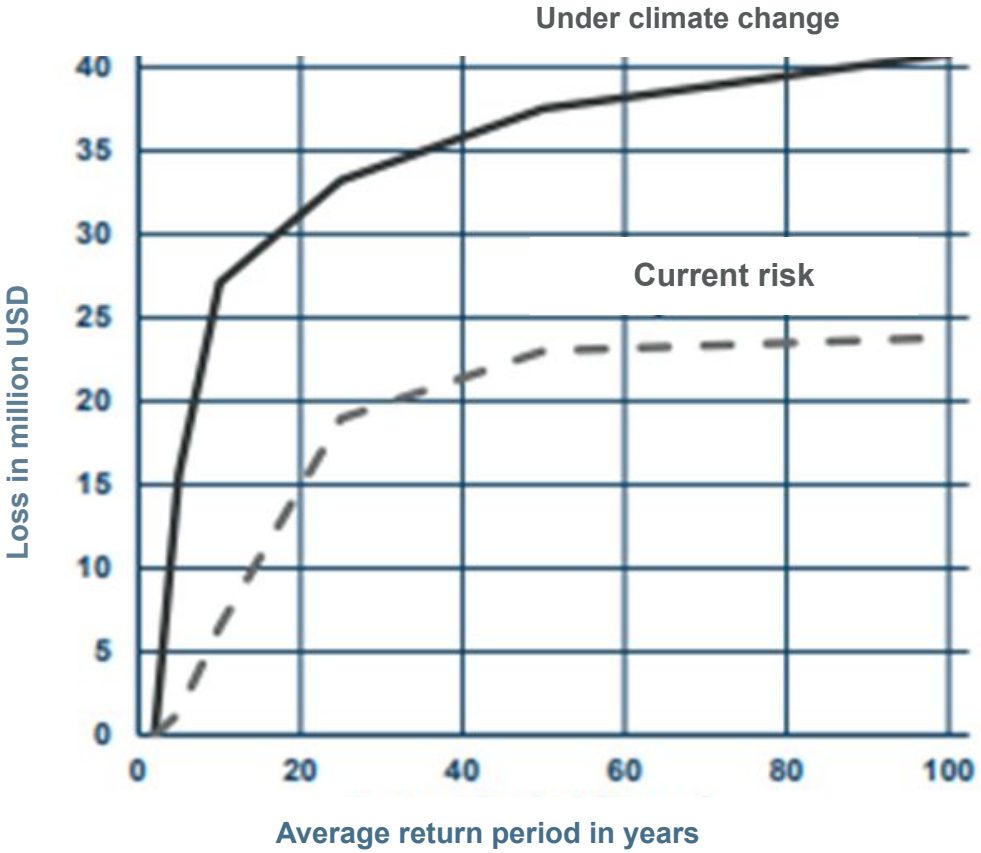
Drought induced increase in access to water in Baringo



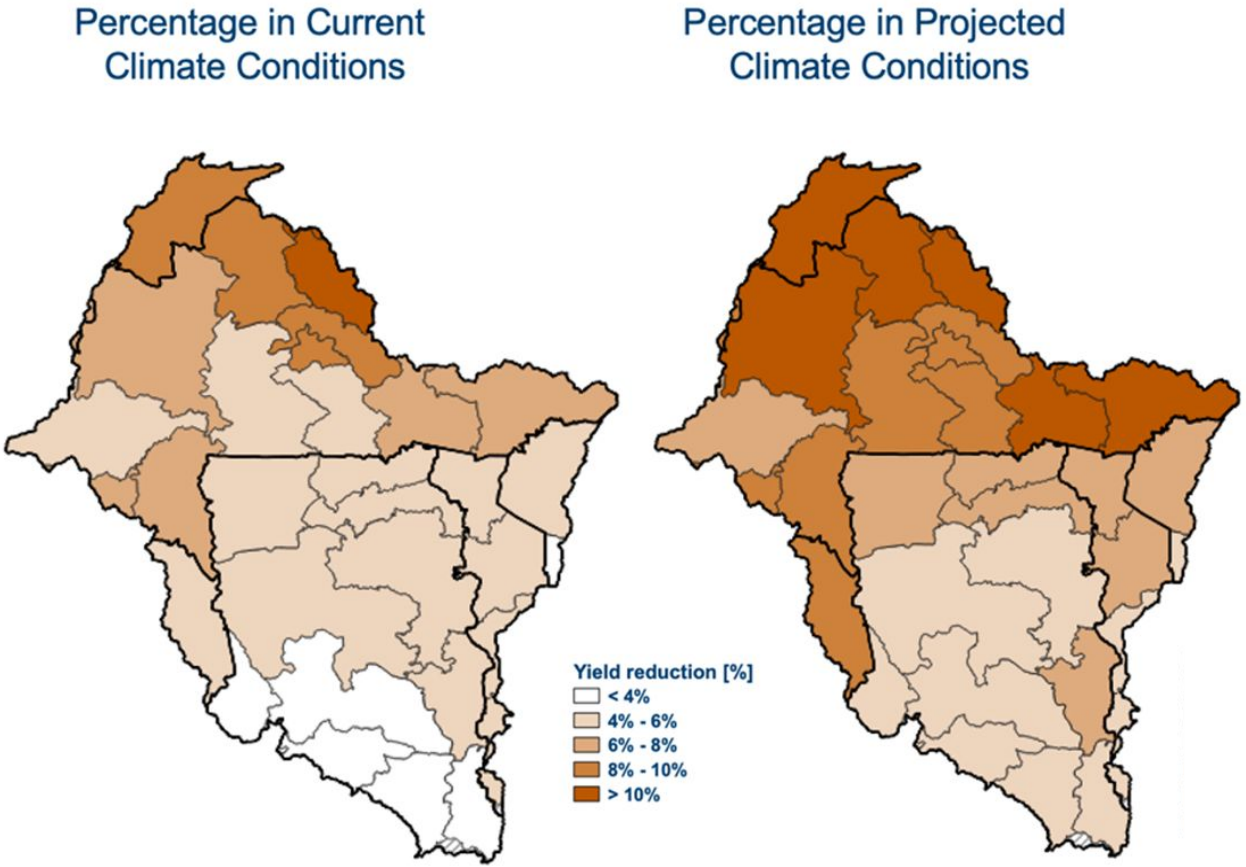
Droughts and climate change influence water security

Wens et al. (2021)

Droughts threatens energy security in Tanzania, increasing the likelihood of production losses

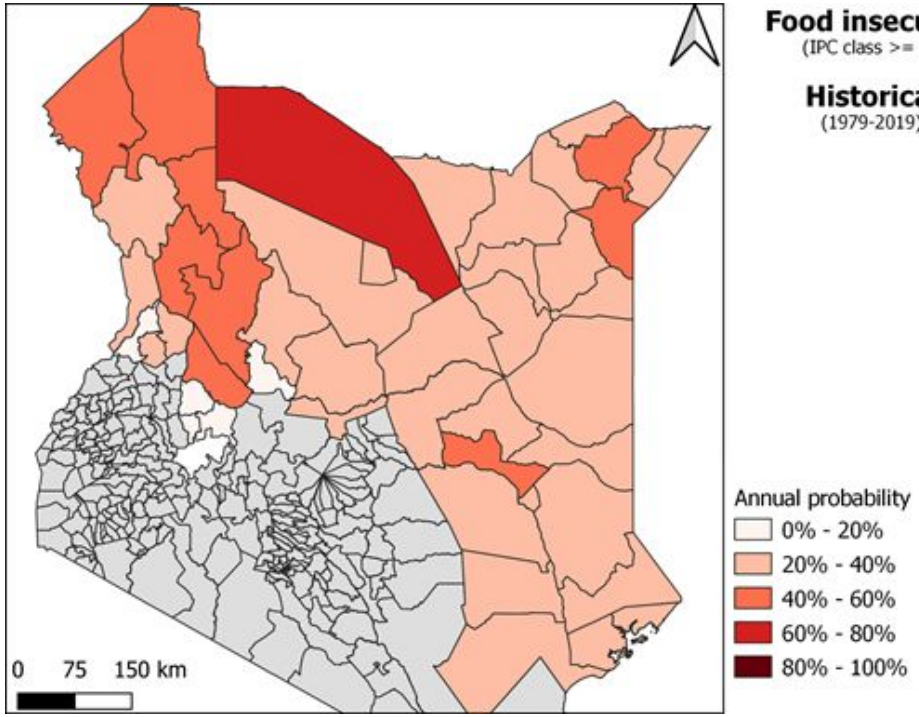


Rudari et al. (2019)



Agricultural -depended regions face significant production losses

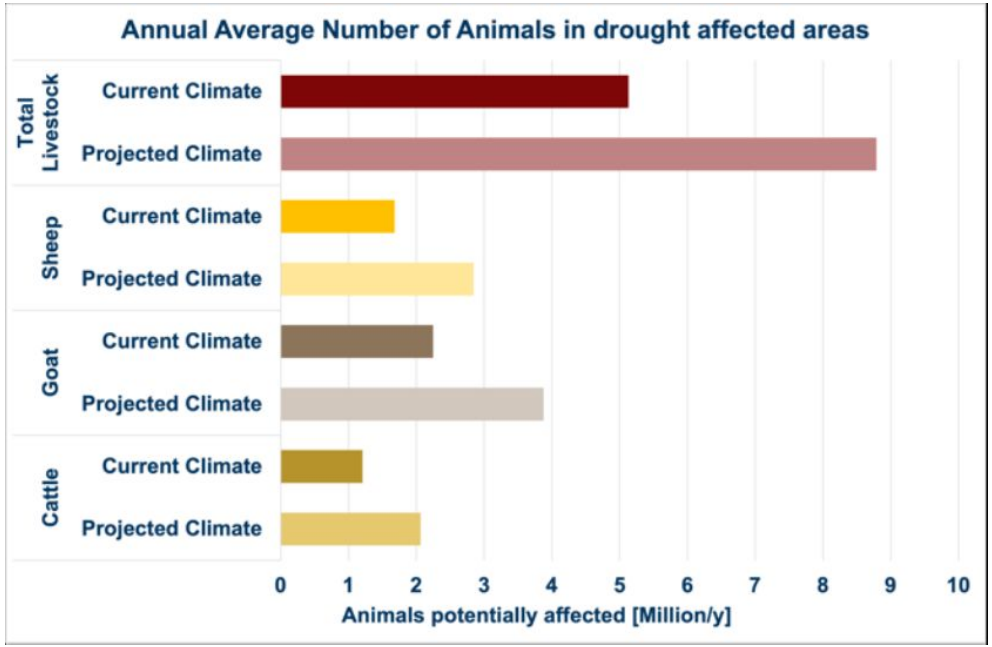
Wens et al. (2021)



Agricultural -depended regions face significant production losses

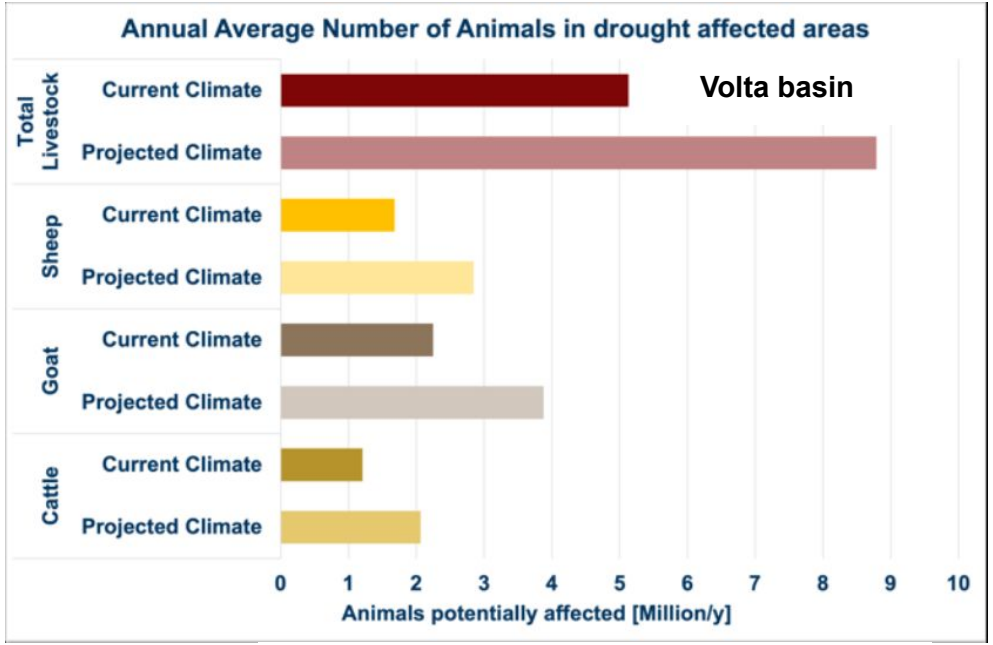
Wens et al. (2021)

Volta basin

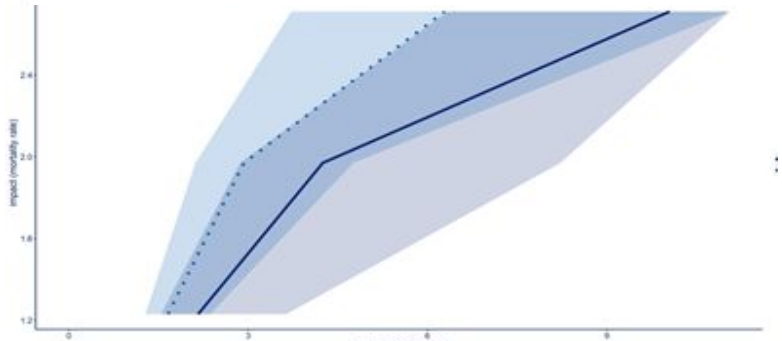


Agricultural-depended regions face significant production losses

Wens et al. (2021)



Livestock mortality rate in Turkana

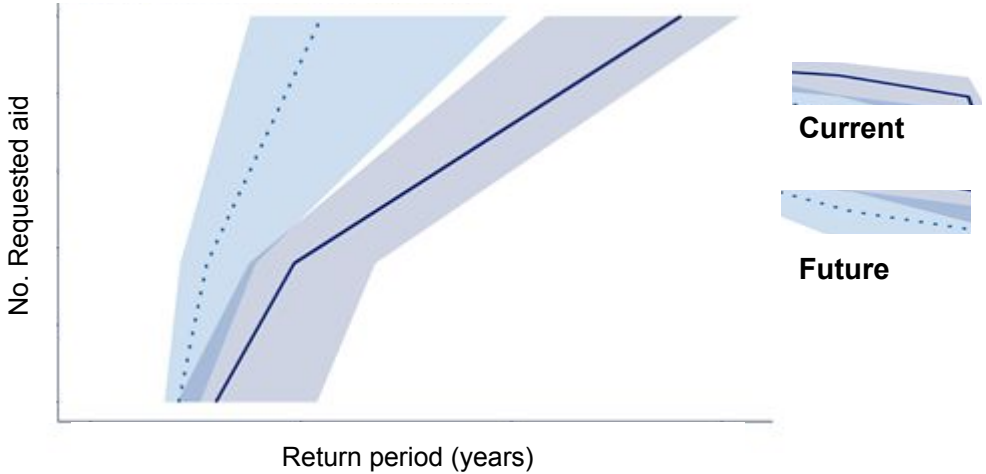


Wens et al. (2021)

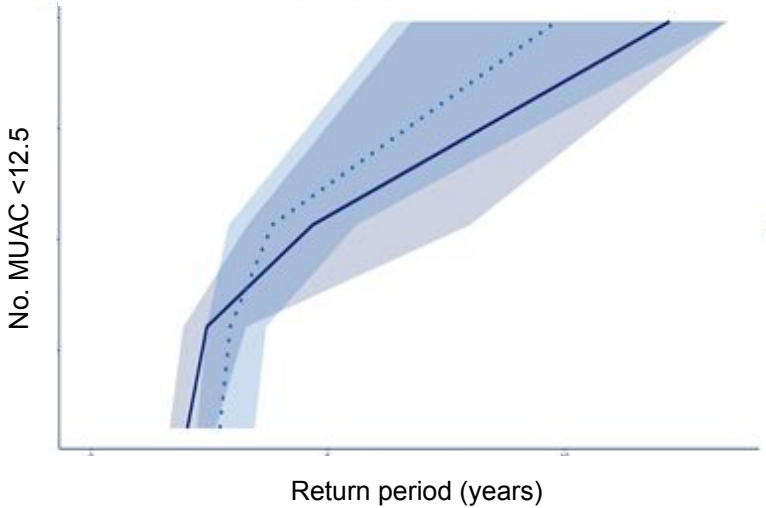
Agricultural -depended regions face significant production losses

Food insecurity has devastating effects on communities

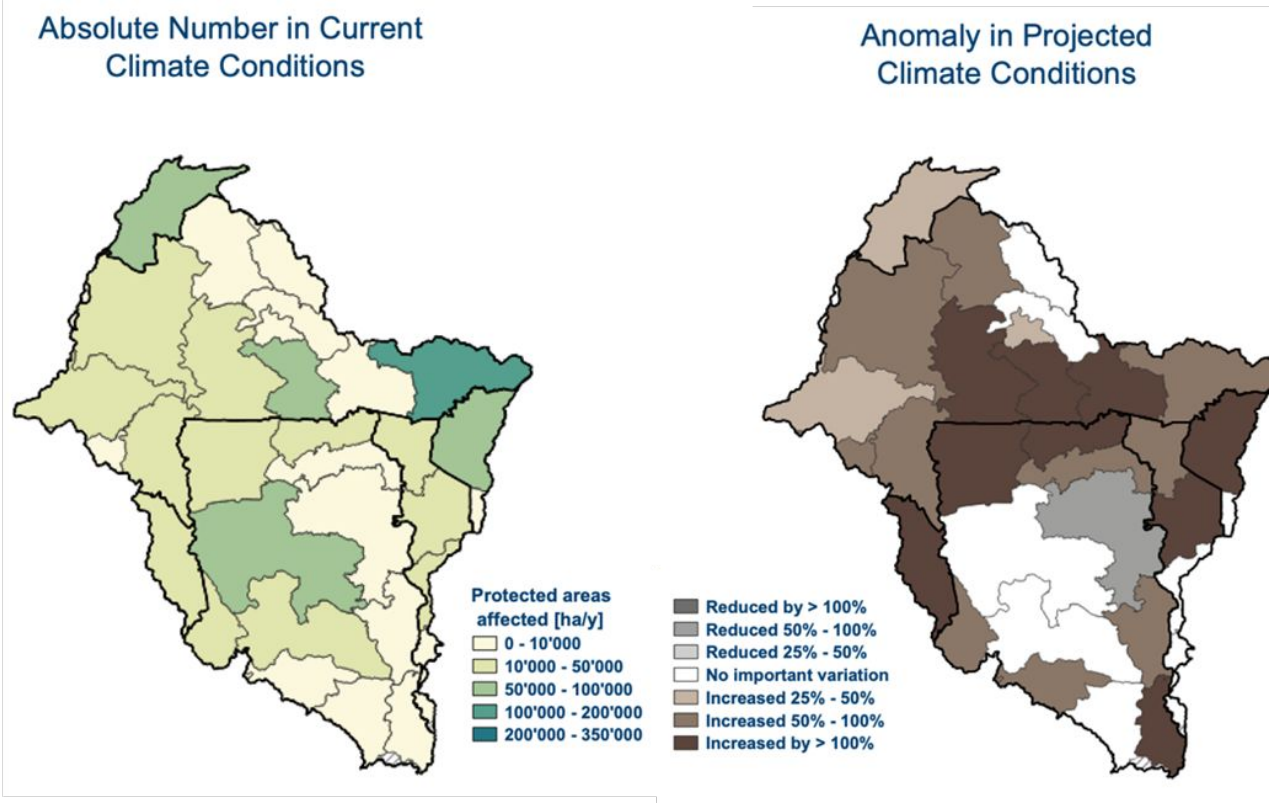
Drought induced increase in people needing food assistance in west Pokot



Drought induced increase in child malnutrition in Tana



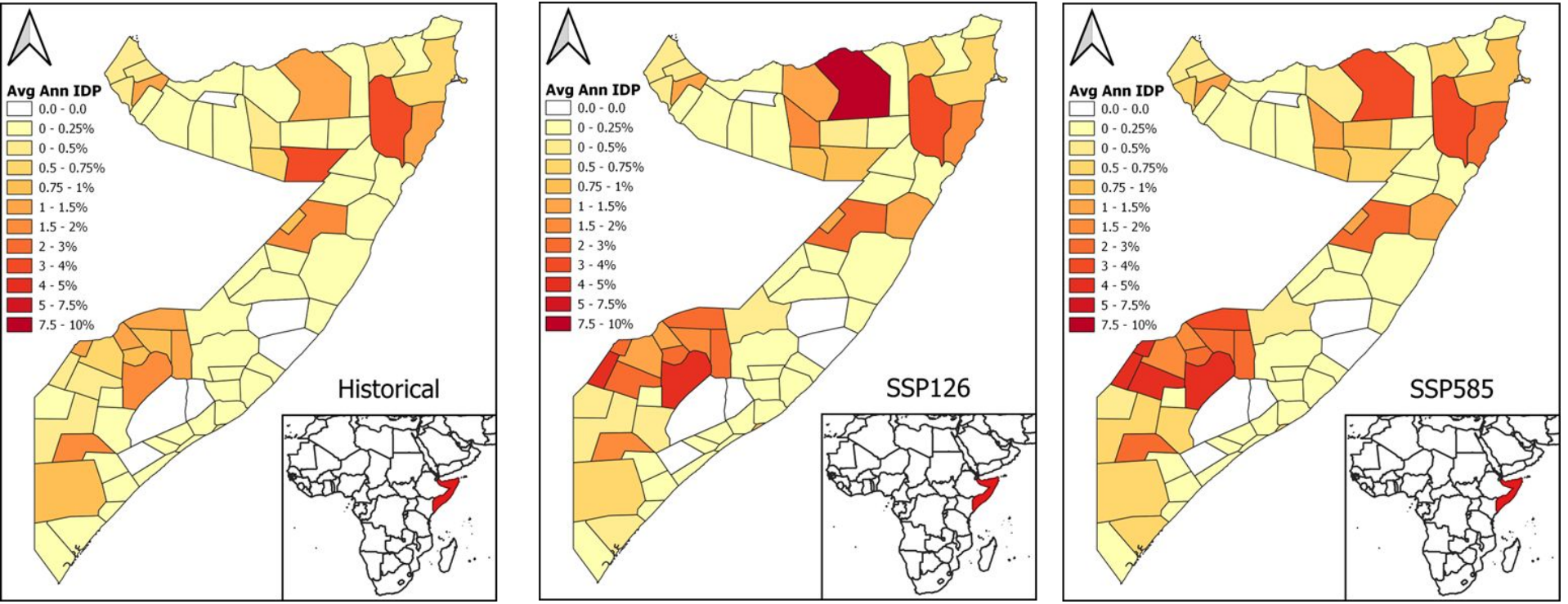
Wens et al. (2021)



7.6k km2 of protected areas hit by severe drought conditions every year

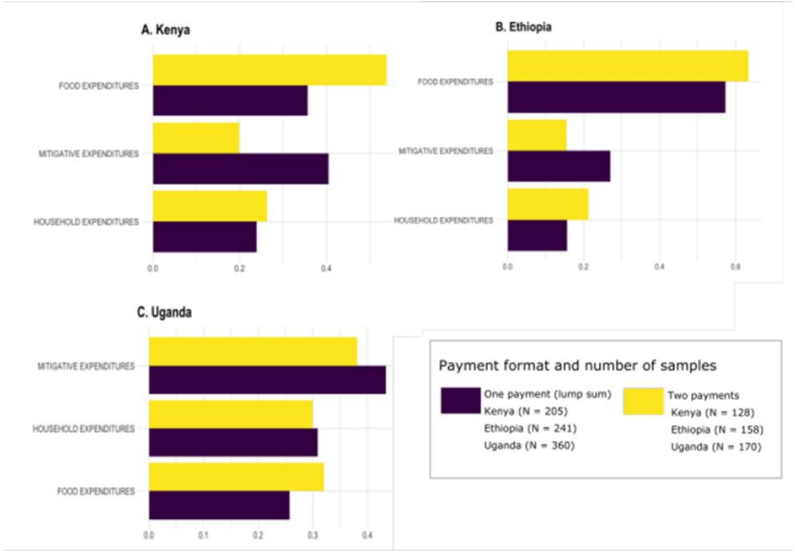
Wens et al. (2021)

Droughts increase internal displacement



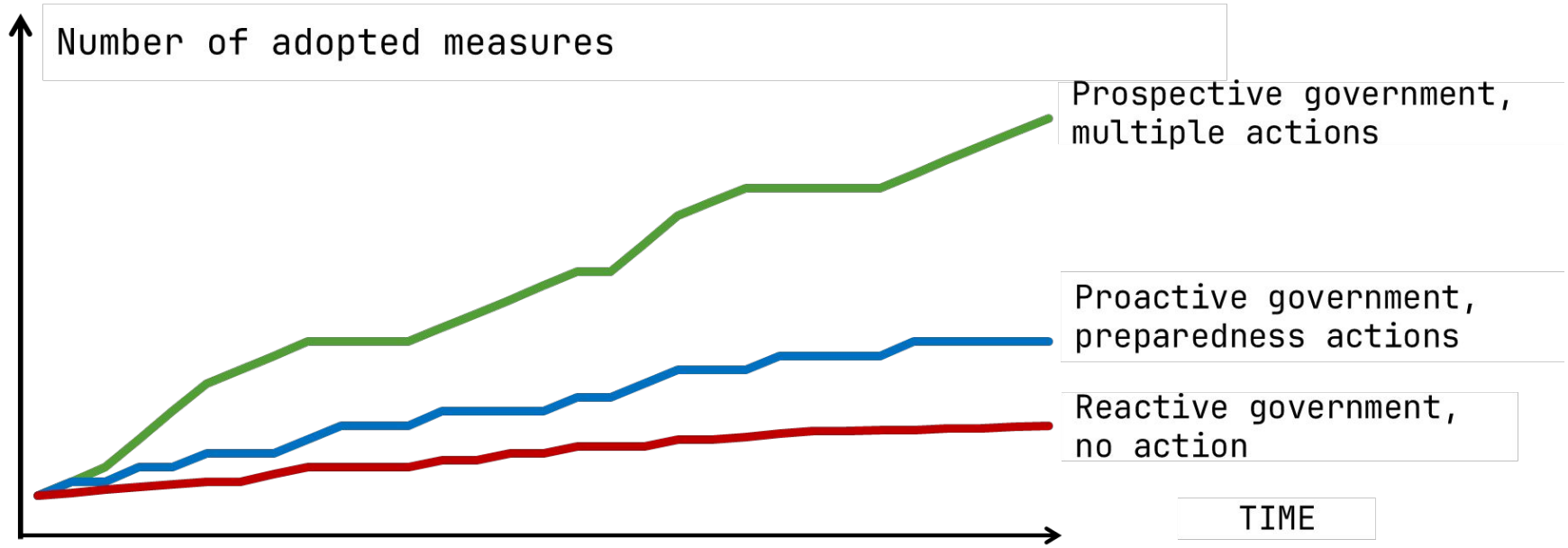
Wens et al. (2023)

Decisions on drought measures are rational but bounded by cognitive and knowledge imperfections



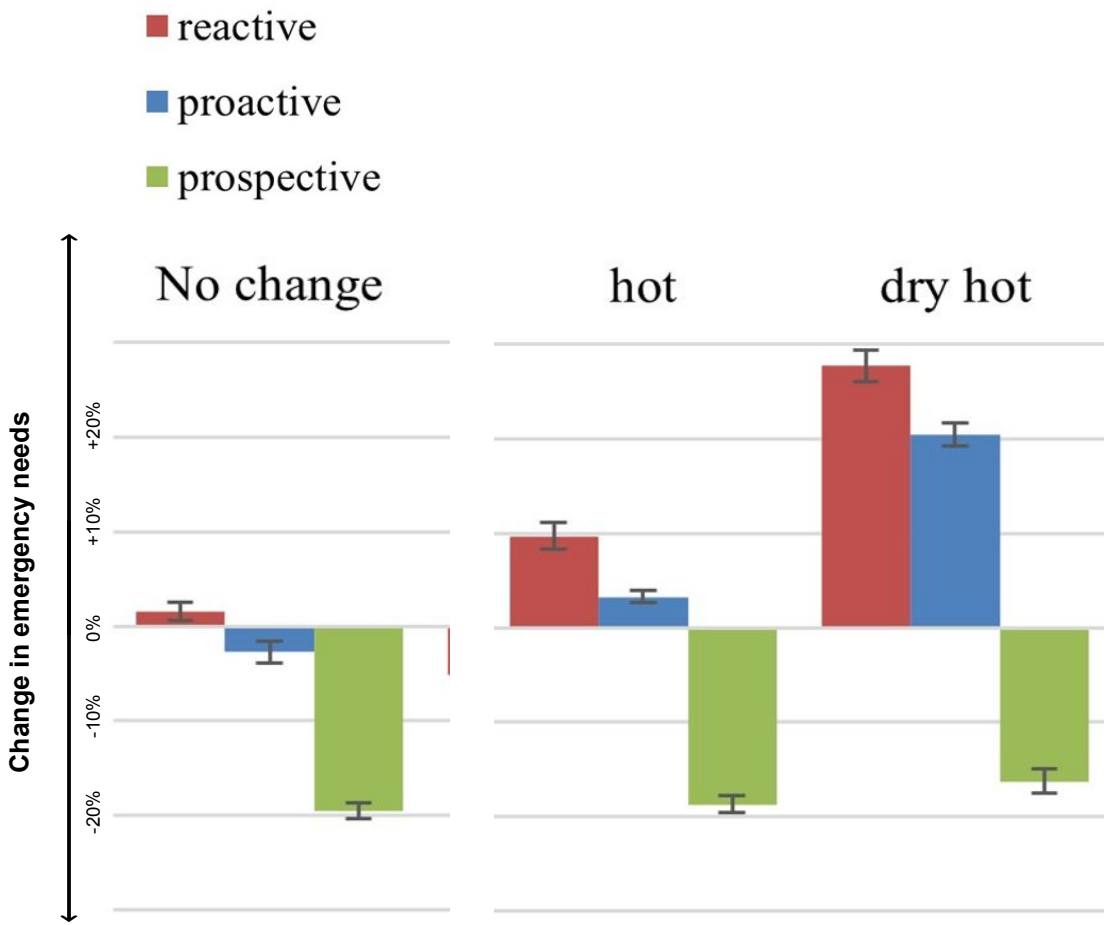
Wens et al. (2022)

Models can simulate decisions of farmers under policy change



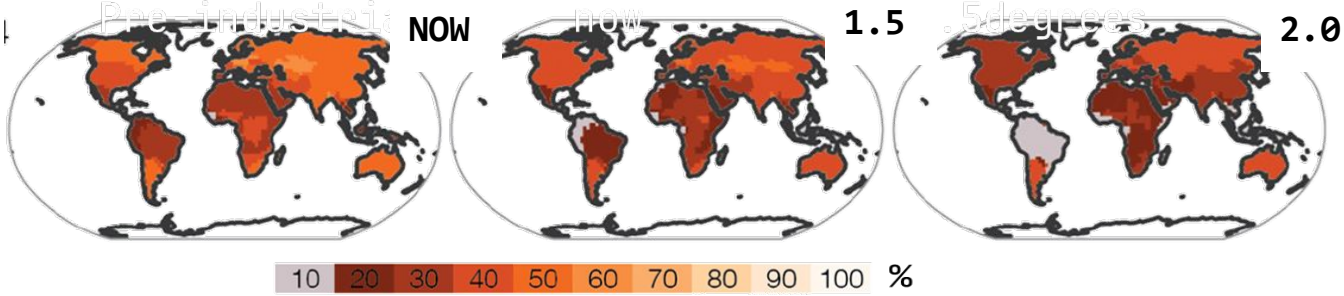
Wens et al. (2021)

Only prospective action can support farmers towards resilience



Wens et al. (2023)

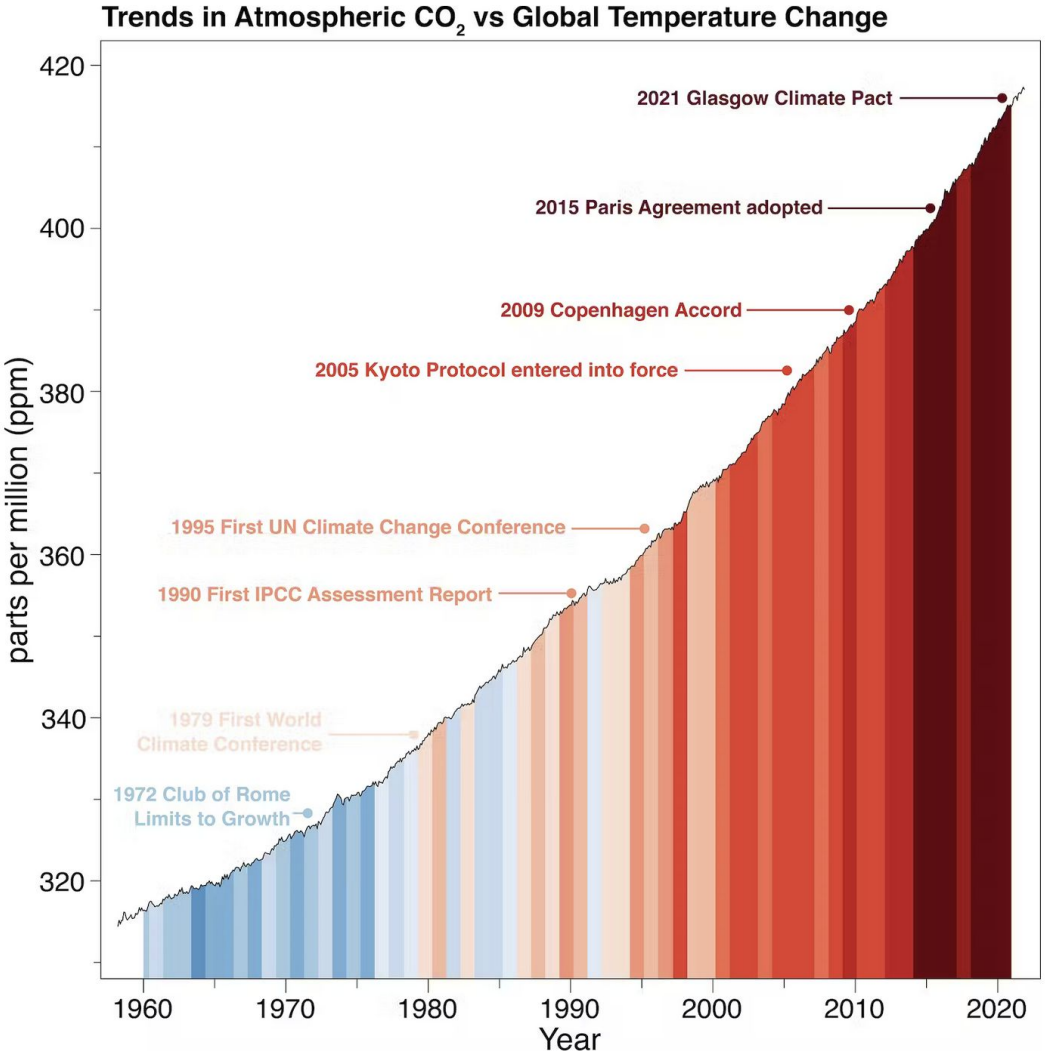
The best way to mitigate drought risk, is to mitigate climate change



Percentage of months **without** individual extreme events

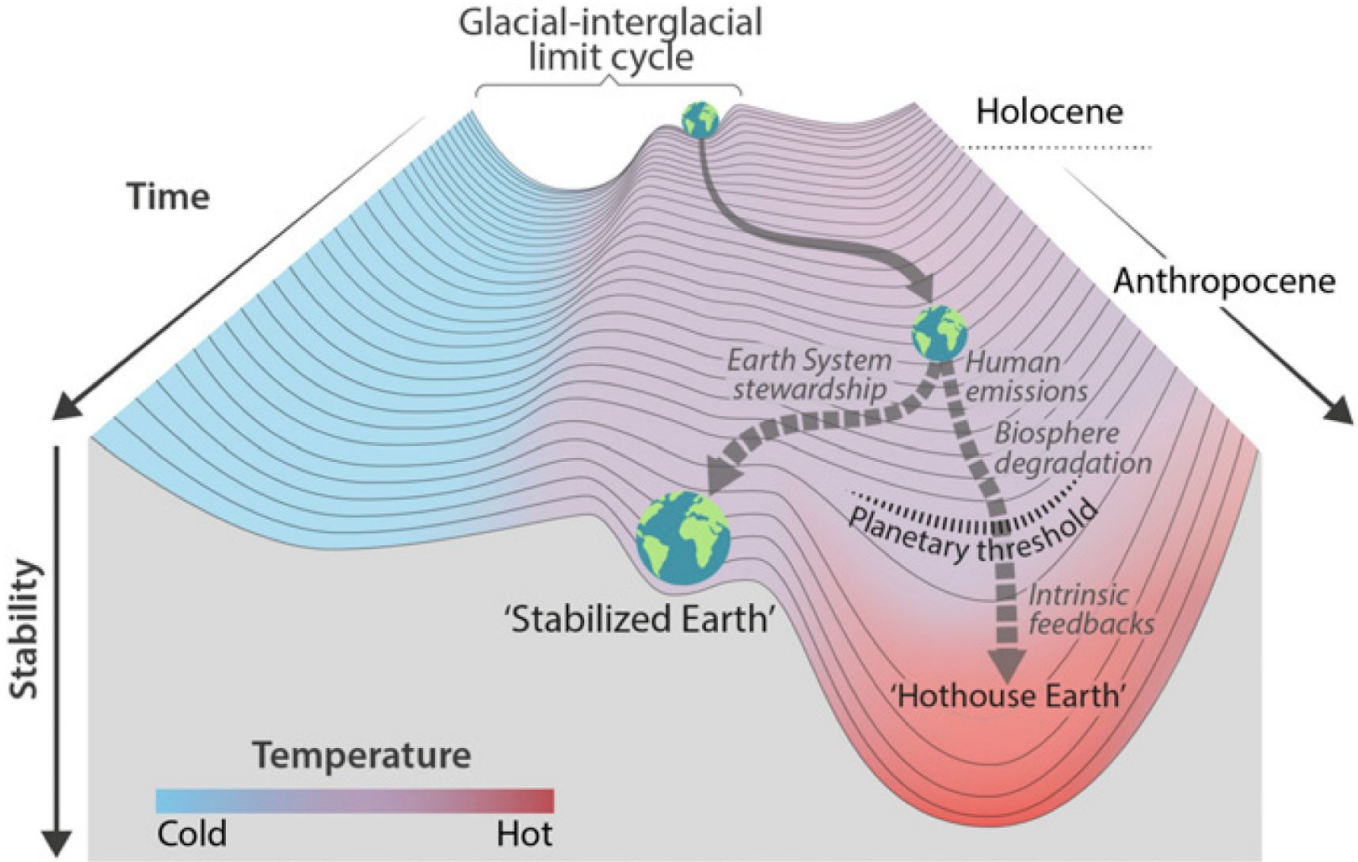
Batibeniz et al 2023 https://doi.org/10.5194/egusphere-2022-321

Short Q&A

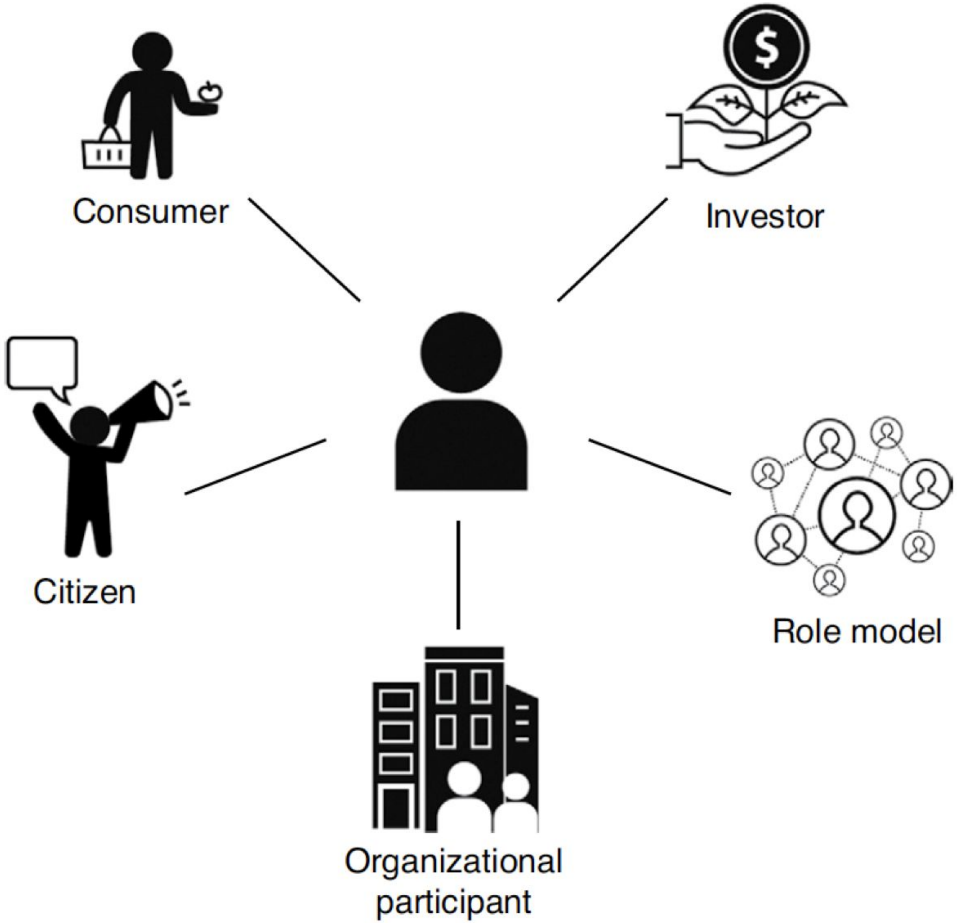

Trends in Atmospheric CO_2 vs Global Temperature Change
parts per million (ppm)
420
400
380
360
340
320
1960
1970
1980
1990
2000
2010
2020
Year
2021 Glasgow Climate Pact
2015 Paris Agreement adopted
2009 Copenhagen Accord
2005 Kyoto Protocol entered into force
1995 First UN Climate Change Conference
1990 First IPCC Assessment Report
1979 First World Climate Conference
1972 Club of Rome Limits to Growth

Source

“There is a rapidly closing window of opportunity to secure a liveable and sustainable future for all.”



Steffen et al. (2018)



Nielsen et al. (2021)

Three Decades of Climate Mitigation: Why Haven't We Bent the Global Emissions Curve?

Annual Review of Environment and Resources
Vol. 46:653-689 (Volume publication date October 2021)
First published as a Review in Advance on June 29, 2021
https://doi.org/10.1146/annurev-environ-012220-011104

Isak Stoddard,[1] Kevin Anderson,[1,2] Stuart Capstick,[3] Wim Carton,[4] Joanna Depledge,[5] Keri Facer,[1,6] Clair Gough,[2] Frederic Hache,[7] Claire Hoolohan,[2,3] Martin Hultman,[8] Niclas Hällström,[9] Sivan Kartha,[10] Sonja Klinsky,[11] Magdalena Kuchler,[1] Eva Lövbrand,[12] Naghmeh Nasiritousi,[13,14] Peter Newell,[15] Glen P. Peters,[16] Youba Sokona,[17] Andy Stirling,[18] Matthew Stilwell,[19] Clive L. Spash,[20] and Mariama Williams[17]

Anderson Talk

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"I've been there all along, and it had taken me too long to figure out what was happening. [...]

I thought that we were in an argument. And it took me too long to figure out that we won the argument, but that that didn't mean anything. We won the argument — the science was entirely robust and clear. We were just losing the fight.

Because the fight wasn't about data and reason, the fight was about money and power, which is what fights are always about."

- Bill McKibben

Anderson Talk


NL
Cycling

Over 1000 academics in 27 countries took to the streets during 4 - 9 April 2022

- Blocking government ministries / corporations, paper pastings
- Academic strikes, occupations, teach-ins, street theatre
- Mass arrests in multiple countries
- Global press coverage


G600


ERBIED PRIVÉJETS
BELAST DE VEELVLIEGERS


MEER TREINEN
MINDER VLUCHTEN


SCIENTIST REBELLION
STOP DE FOSSIELE WAANZIN
STOP FOSSIELE SUBSIDIES


2030
IS THE NEW
2050
SCIENTIST REBELLION
There is a brief and rapidly closing window to secure a liveable future for all.
– IPCC


STOP FOSSIELE SUBSIDIES


scientist rebellion
WE ARE ON A HIGHWAY TO CLIMATE HELL
I HAVE... WRITTEN PAPERS SIGNED PETITIONS MARCHED STREETS BLOCKED A12


scientist rebellion
STOP DE FOSSIELE

international

The fossil industry's real interest is delaying the energy transition

21 februari 2023 - 13:14


Franciska de Vries


Enzo Rossi


Gijs van Houwelingen


Fabian Dablander

OPINIE

07 november 2022

reacties 1

Shell verdient onze wetenschap niet

Universiteiten moeten hun banden met Shell subiet verbreken, vinden de VU-docenten Petra Verdonk en Hans Ossebaard.

The Nation.

Politics World Culture Events Shop Current

CLIMATE CHANGE HIGHER EDUCATION STUDENTNATION

A Dutch University Just Set a Powerful Precedent for Climate Research

VU Amsterdam will reject collaborations with fossil fuel companies that fail to demonstrate a commitment to the Paris Agreement.

By Ilana Cohen

MAY 10, 2023

Opinie Wetenschap

Academische besturen moeten alle banden met de fossiele industrie verbreken

De leiding van Nederlandse universiteiten reageert te gemakkelijk op het protest van studenten en staf tegen de innige banden met de fossiele industrie, schrijven Guus Dix (Universiteit Twente) en Philipp Pattberg (VU Amsterdam).

Guus Dix en Philipp Pattberg 17 januari 2023, 10:24

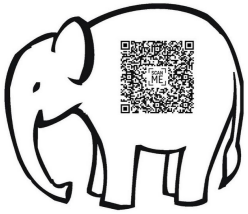
Samenwerking met fossiele industrie maakt wetenschap schuldig aan klimaatschade

Opinie | door Guus Dix

4 May 2023

Addressing the Elephant in the Lecture Hall: Climate Education Now

1,573 signatures



Opinie Klimaatbeleid

Waar blijft het verplichte klimaatonderwijs voor studenten?

Studenten weten vaak te weinig over de klimaatcrisis. Hoogste tijd om hen bij de spijkeren, betogen Koen Lemaire, Harald Buijtendijk en Fabian Dablander van Scientist Rebellion.

Koen Lemaire, **Harald Buijtendijk en Fabian Dablander** en **Namens Scientist Rebellion NL** 8 mei 2023, 22:00

SR actions in Tanzania

Stop EACOP

SR actions in Zimbabwe

- Awareness talks about wetlands’ essential role in carbon capture
- Inclusion of indigenous knowledge in policies

SR actions in Rwanda

“NET ZERO IN 2050 IS A DEATH SENTENCE!” “G7: Decarbonise by 2031!”

SR actions in DRC

« Nous ne voulons pas nous faire arrêter, nous voulons simplement survivre.
Oui, nous avons besoin de notre planète! »
#LossAndDamage

“Climate activists are sometimes depicted as dangerous radicals.

But the truly dangerous radicals are those that are increasing fossil fuel production.”

•António Guterres, 2023

Thank you!