The Maladaptation of Adaptation Research, Policy and Practice

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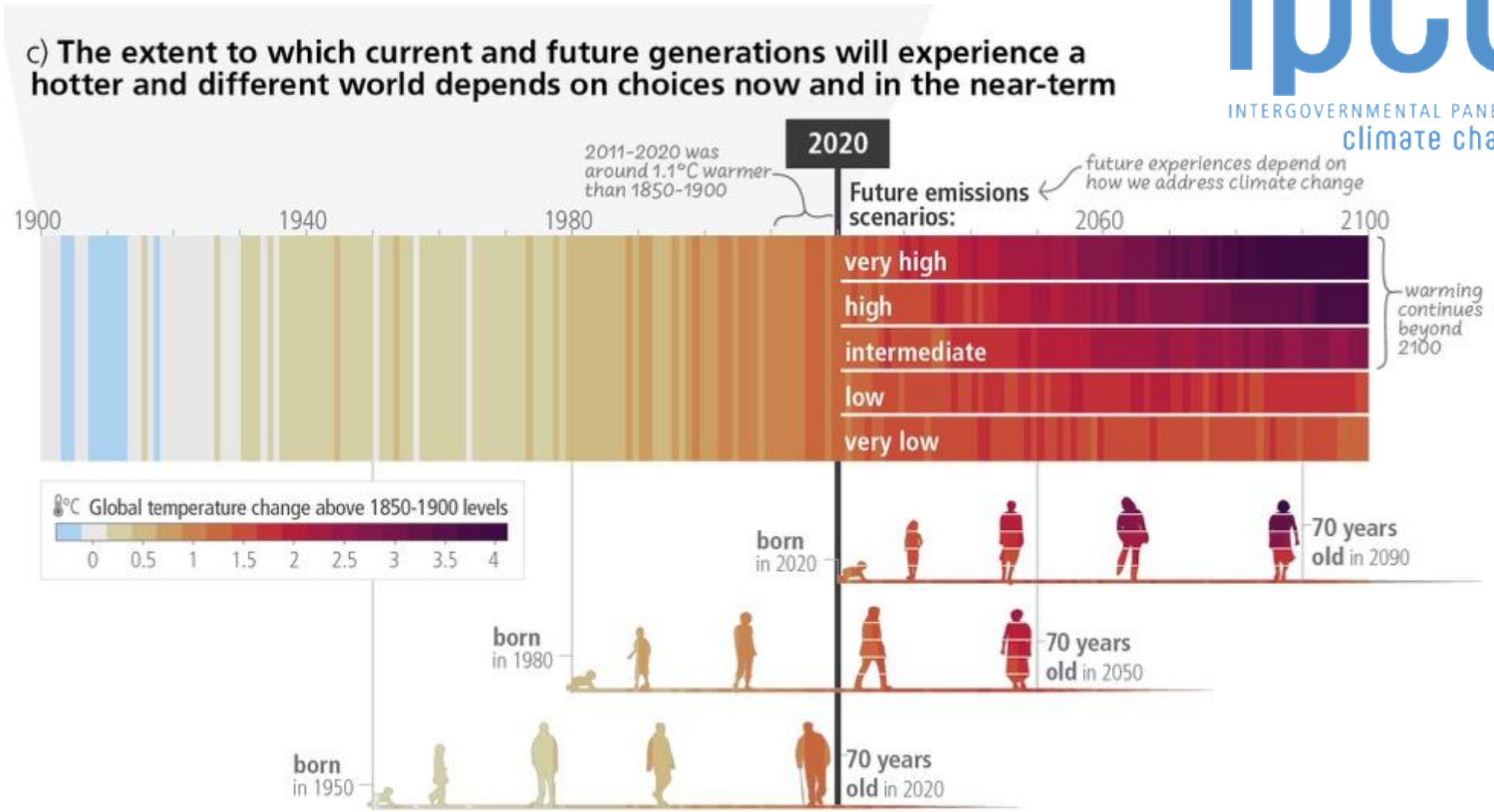
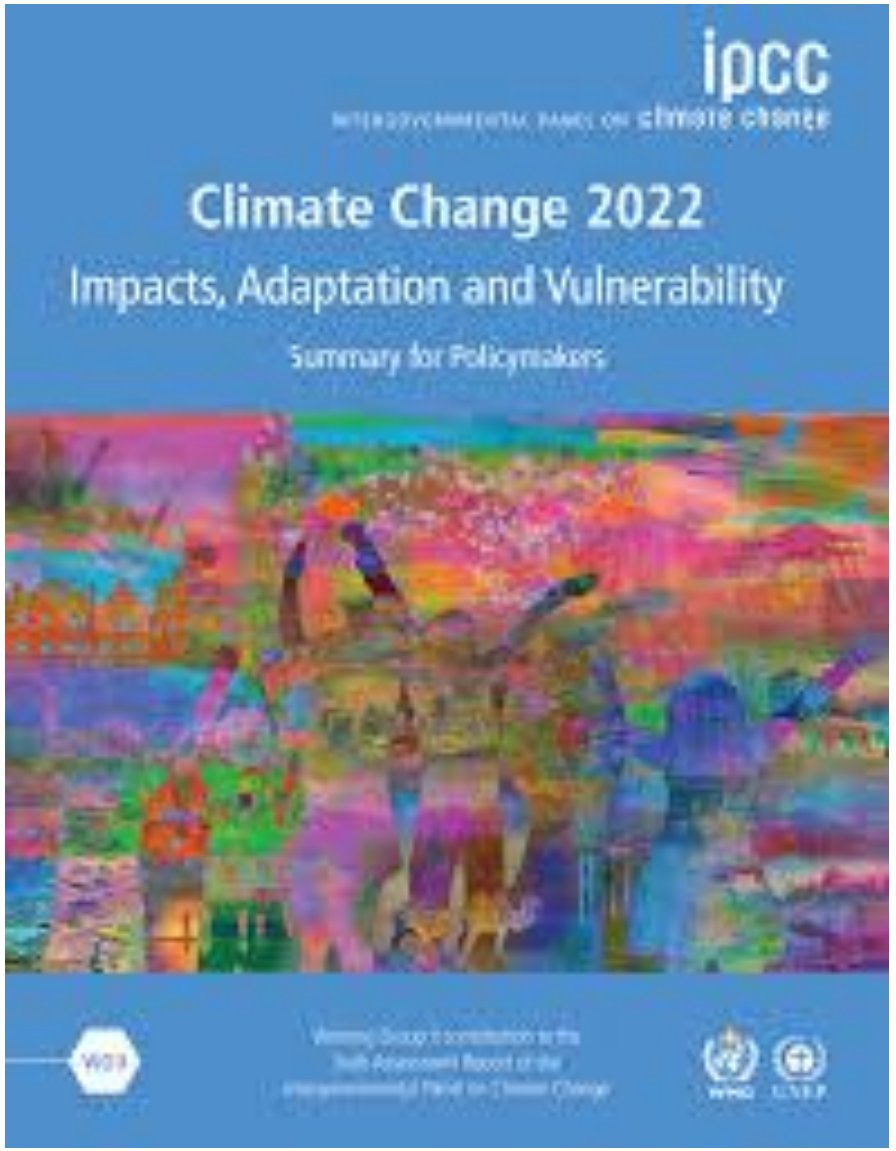
3 December 2025



IPCC SYR, 2023

IPCC AR6: There are limits to adaptation

- Even effective adaptation cannot prevent all losses and damages
- Above 1.5°C some natural solutions may no longer work
- Above 1.5°C, lack of fresh water could mean that people living on small islands and those dependent on glaciers and snowmelt can no longer adapt.



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Article | Open Access | Published: 22 May 2023

Quantifying the human cost of global warming

Timothy M. Lenton ✉, Chi Xu ✉, Jesse F. Abrams, Ashish Ghadiali, Sina Loriani, Boris Sakschewski, Caroline Zimm, Kristie L. Ebi, Robert R. Dunn, Jens-Christian Svenning & Marten Scheffer

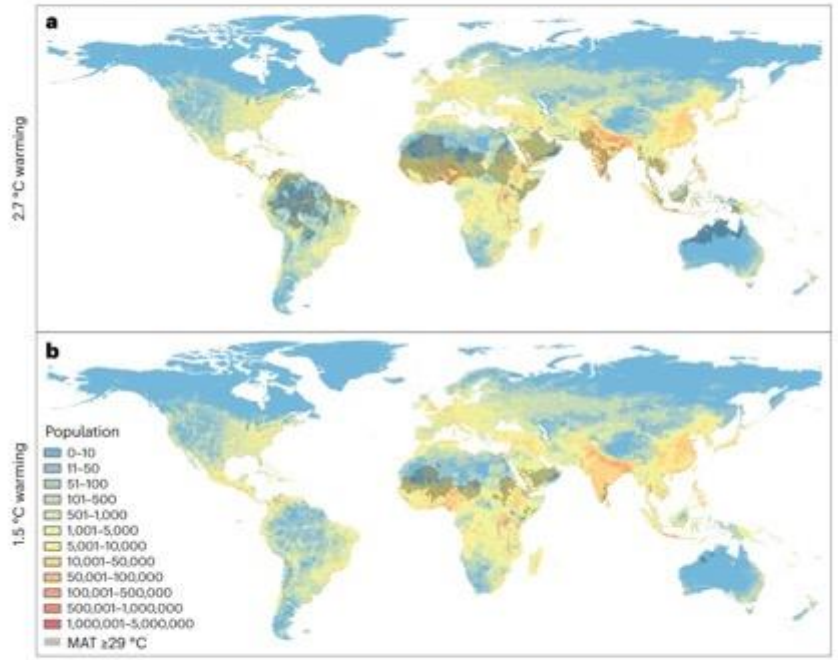
Nature Sustainability (2023) | Cite this article

1044 Altmetric | Metrics

Abstract

The costs of climate change are often estimated in monetary terms, but this raises ethical issues. Here we express them in terms of numbers of people left outside the 'human climate niche'—defined as the historically highly conserved distribution of relative human population density with respect to mean annual temperature. We show that climate change has already put ~9% of people (>600 million) outside this niche. By end-of-century (2080–2100), current policies leading to around 2.7 °C global warming could leave one-third (22–39%) of people outside the niche. Reducing global warming from 2.7 to 1.5 °C results in a ~5-fold decrease in

Fig. 4: Regions and population densities exposed to unprecedented heat at different levels of global warming.



a,**b**, Regions exposed to unprecedented heat (MAT ≥29 °C) overlaid on population density (number in a ~100 km^2 grid cell) for a world of 9.5 billion (SSP2, 2070) under 2.7 °C global warming (**a**) and 1.5 °C global warming (**b**).

We need to adapt, but there are **limits** to the effectiveness of adaptation – how do we advance from here?

Maladaptation

‘An adaptation that does not succeed in reducing vulnerability but increases it instead’

(IPCC WG II, 2001)

Maladaptatic

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Climate Responses That Backfire Are a Growing Problem, IPCC Says

Leslie Kaufman & Eric Roston

Why some climate change adaptations just make things worse

Short-term and poorly thought-out solutions are hardly solutions at all.

BY SARA KILEY WATSON | PUBLISHED MAR 19, 2022 11:00 AM

ENVIRONMENT | SCIENCE

meant to protect against rising oceans that make those just beyond their borders more exposed to flooding; irrigation that counteracts **drought** to keep food growing, but at the same time depletes precious groundwater; and tree planting in ecosystems that were never meant to be forested.

All of it was intended to help. "Most often, maladaptation is an unintended consequence," the report

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assung an die Folgen der Erderwärmung

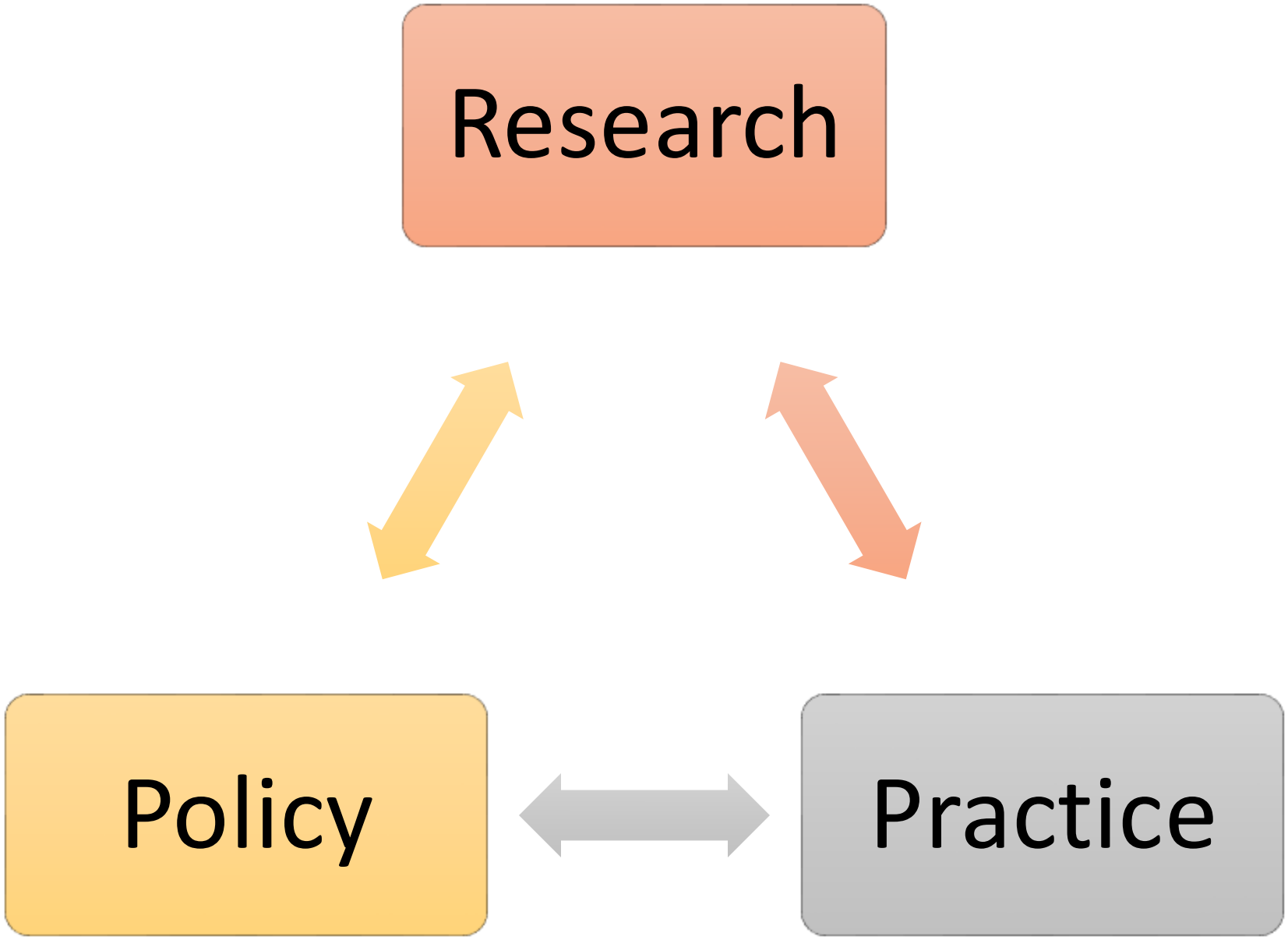
ls Beispiel für teurer Fehlplanung zu

IPCC AR6: ‘Maladaptation is an *unintended* consequence’

‘If adaptation projects are produced under unjust systems, maladaptation should be considered an expected outcome.’ Shah et al (2025)

Shah et al (2025) ‘Beyond unintentionality: considering climate maladaptation as cyclical’ *Climatic Change*, https://doi.org/10.1007/s10584-025-03922-7

→ Thus maybe the problem lies with the way that we research, implement and make policy on adaptation


Research
Policy
Practice

Research → Came from hazards & livelihoods, resilience directions, later strongly linked with critical development scholarship, political ecology – but also model-driven impacts studies (diff between *outcome* vs *contextual* vulnerability – O'Brien et al)

Practice → Came out of DRR and development, focus initially on community-based adaptation, development & humanitarian actors took lead

Policy → Lagged behind due to UNFCCC/Kyoto Protocol focus on mitigation, now largely driven by Paris Agreement's equal balance on mitigation/adaptation (→ GGA)

2001:

'…there are two directions and purposes in adaptation research; adaptation research for mitigation policy, and adaptation research for adaptation policy. **To date, the overwhelming preponderance of adaptation research has been conducted in response to the mitigation issue.'**

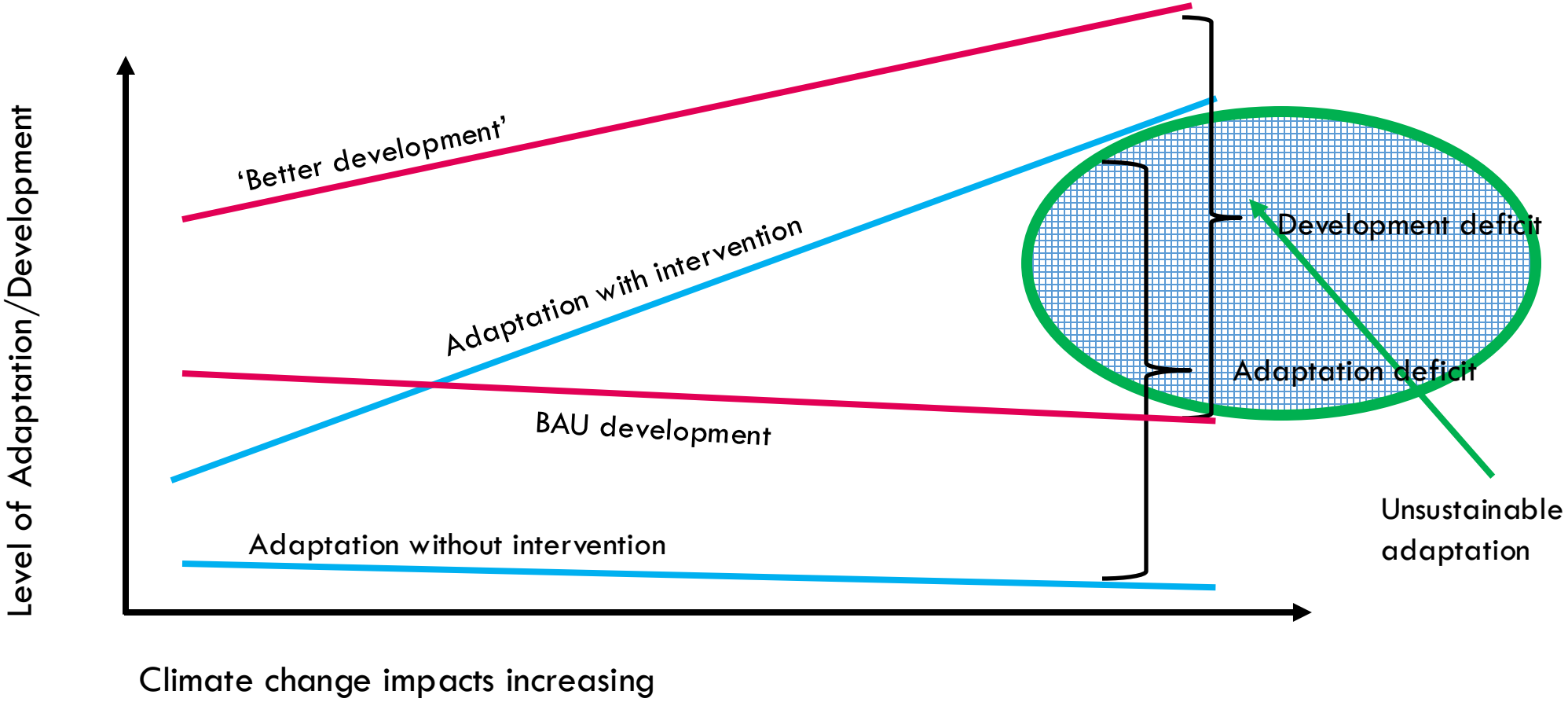
Burton, et al (2001) 'From Impacts Assessment to Adaptation Priorities: The Shaping of Adaptation Policy' *Climate Policy*.

2021:

‘Over the last two decades climate change adaptation has **emerged as a central and now acknowledged component of the international climate change policy and research agenda.’**

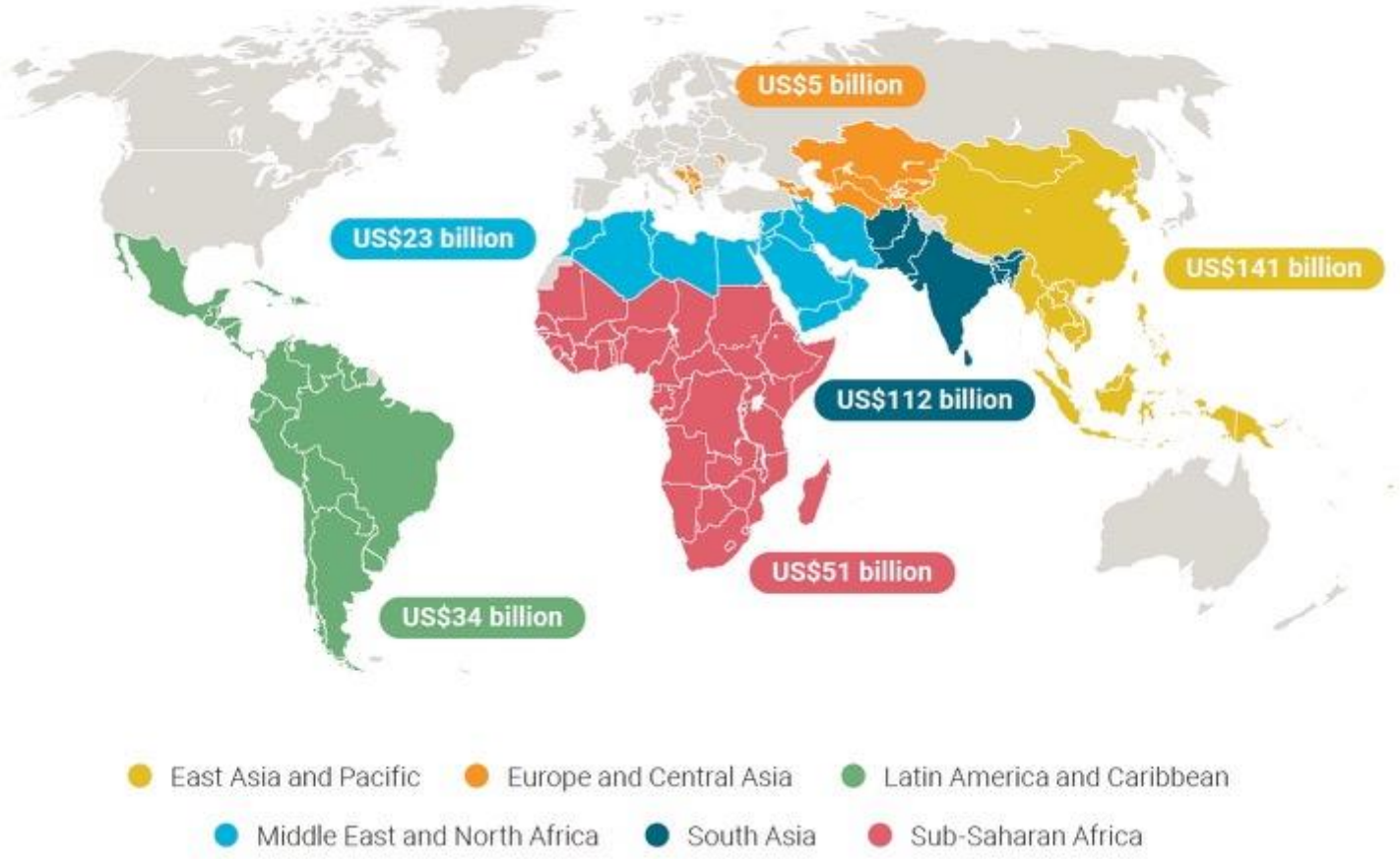
Nalau and Verrall (2021) ‘Mapping the evolution and current trends in climate change adaptation science’ *Climate Risk Management*

Development Deficit vs Adaptation Deficit



Describing adaptation with numbers

Figure 4.2 Adaptation finance needs in developing countries by region (US$ billion, 2023 prices). Only non-Annex I countries are shown by region.



UNEP (2025) 'Adaptation Gap Report'

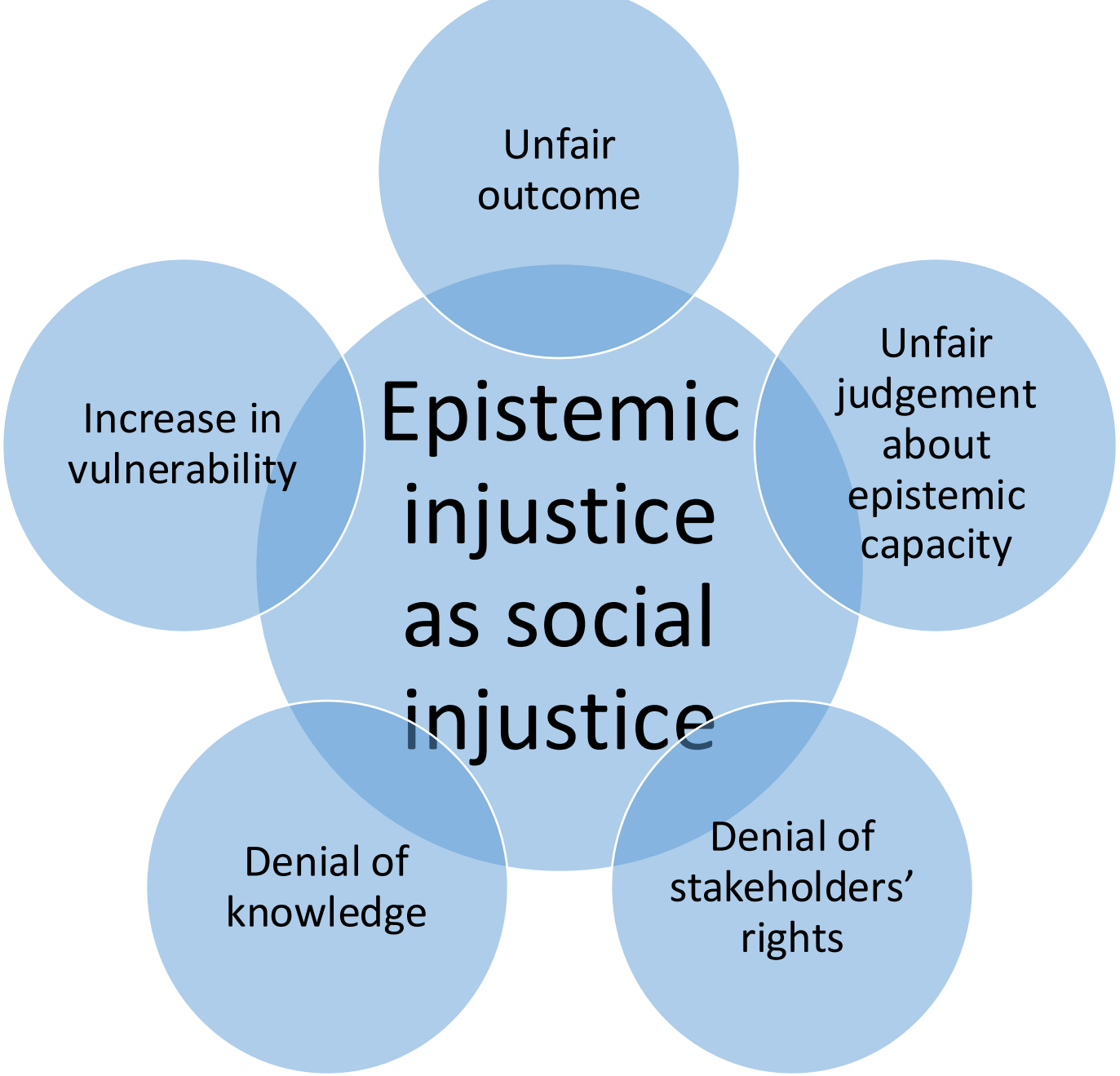
Why does this disturb me?

The starting points for planning, measuring and funding adaptation are aligned with contradictory understandings stemming from diverse understandings of the world (ontology) and how we study/understand it (epistemology)…

…Yet one of the challenges in finding common ground has to do with the *lack of* epistemic and ontological diversity in research, policy and practice.

This is caused by…

- Dominant discourse being rooted in coloniality of knowledge systems
- Epistemic hierarchies (eg. quantitative vs qualitative) [epistemic injustice]
- Emphasis on positivist, reductionist and instrumentalist perspectives



Source: Cummings, S., Dhewa, C., Kemboi, G., & Young, S. (2023). Doing epistemic justice in sustainable development: Applying the philosophical concept of epistemic injustice to the world. *Sustainable Development*, 31(3), 1965–1977. https://doi.org/10.1002/sd.2497

Research → Policy

THE LIST

The Reuters Hot List

This is the Reuters list of the world's top climate scientists. To build it, we created a system of identifying and ranking 1,000 climate academics according to how influential they are.

https://www.reuters.com/investigates/special-report/climate-change-scientists-list/

1000 ‘Climate influencers’

- 122 women
- 111 in Global South (88 from China)
- No one at an African institution outside of South Africa – and there only 4 (all of them men)

CLIMATE AND DEVELOPMENT
https://doi.org/10.1080/17565529.2021.1923308

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EDITORIAL

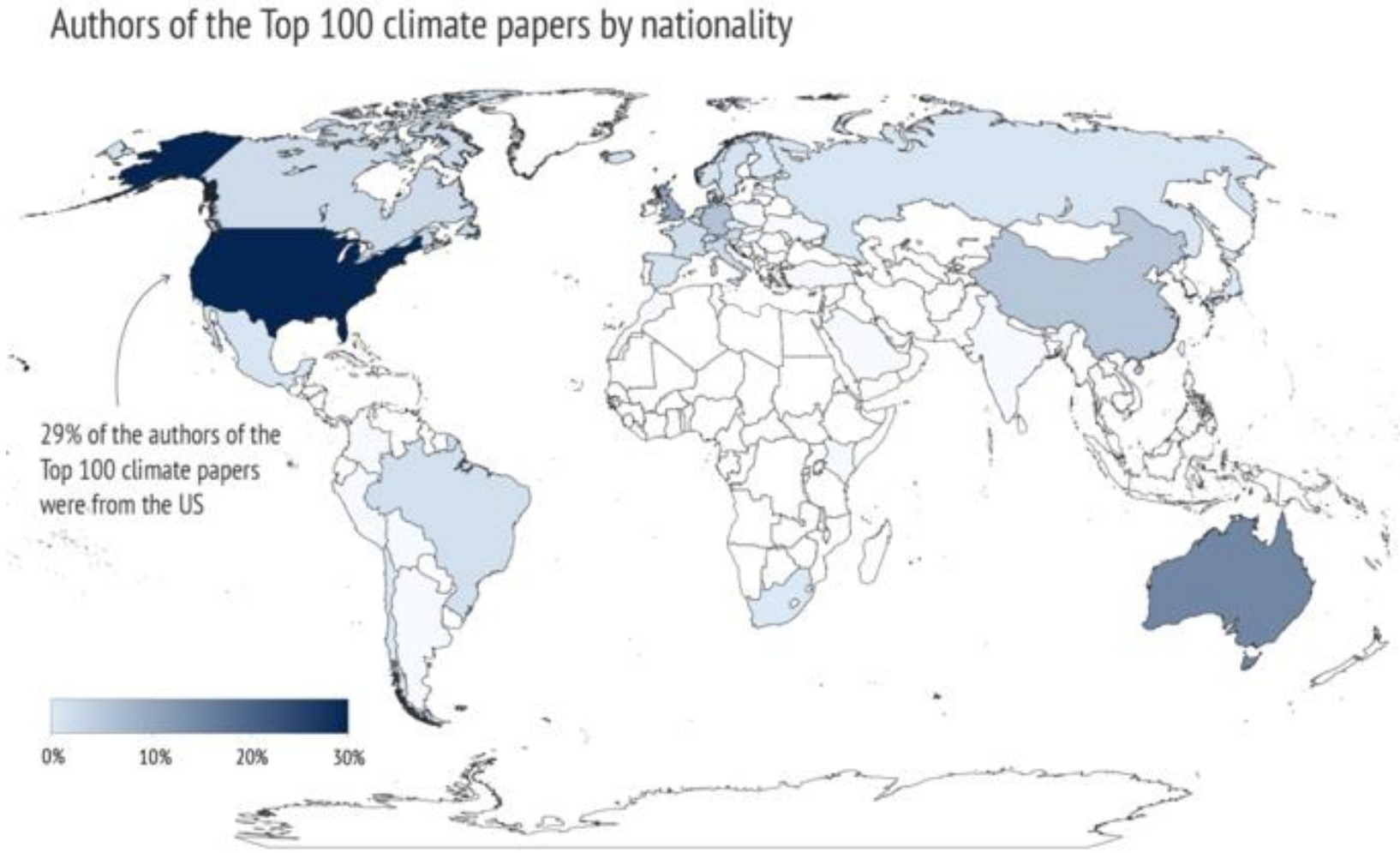
Equity in climate scholarship: a manifesto for action

We – the Editors of *Climate and Development* – react in both delight and dismay to the ‘Hot List’ of 1000 influential scholars in climate change published by Reuters[1] on 20 April 2021. Delight because the compilation of such a list demonstrates the critical importance of climate change as a major global challenge, celebrating climate change knowledge-holders who are at the forefront of ground-breaking and influential thinking and research. As a climate change journal, we commend these scholars and their achievements.

Yet we are dismayed to see that only 122 of the people on the list are women, and only 111[2] on the list are based in institutions in countries of the Global South, of whom 88 are from China. Not a single one of these scholars is based at an African

infrastructure including libraries and journal subscriptions. Scholars in the Global South have more restricted access to journals, libraries and online resources, and while they may be able to publish a paper for free, they might not even be able to download and read other papers published in the same issue of a journal. In illustration, only a few African university libraries have reliable internet connectivity, with South African universities being among the most equipped in the continent.

Additional barriers relate to the persistence of inequitable partnerships and colonial models of scientific practice, where researchers from the Global North often claim senior author-

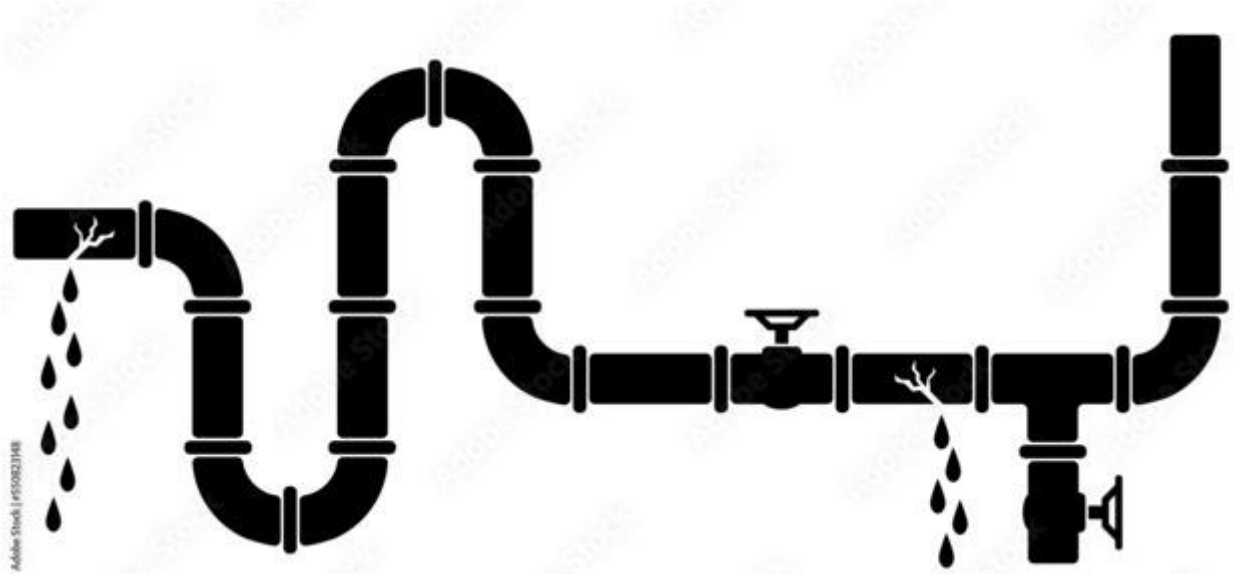


Source: https://www.carbonbrief.org/analysis-the-lack-of-diversity-in-climate-science-research

- Natural sciences receive 770% more research funding on climate change than social sciences (Overland & Sovacool, 2020)
- More men in STEM subjects – more research on STEM
- Global South: colonial science / parachute research models where GN scholars claim senior authorship rights
- Unless these lists use metrics that take into account the realities of power, privilege and how 'merit' is constructed, we and many like us will continue to question the appropriateness of such lists.

Knowledge hiarchies, funding power

- Rooted in research funding inequities
  - 78% funding on African climate research → European and N. American institutions
  - 14.5% to African institutions



This is not accidental!

- Epistemic diversity requires us to acknowledge that there are different understandings of *what* knowledge is, and that this influences *how* knowledge is constructed and *whose* knowledge counts.
- Creation of epistemic hierarchies is based on systemic barriers: Rooted in lack of equity, inclusion, diversity in the knowledge production process
- Resulting epistemic injustice intersects with knowledge singularity to create incomplete, wrong, unjust and explicitly biased knowledge

Whose voices are influencing the knowledge that makes its way to decision makers and influences policy?

Is the fact that we are past 1.5C partly a result of epistemic coloniality in the climate change knowledge production?

Research → Practice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POLICY FORUM | CLIMATE POLICY
Misguided negative adaptation narratives are hurting the poor
Measurement and maladaptation are being weaponized
E. L. F. SCHIPPER AND A. MUKHERJI Authors Info & Affiliations
SCIENCE • 7 Nov 2024 • Vol 386, Issue 6722 • pp. 624-626
Since publication of the Intergovernmental Panel on Climate Change (IPCC) Working Group II report in 2022, adaptation has been gaining attention among decision-makers and practitioners, including on the international policy level through the United Nations Framework Convention on Climate Change (UNFCCC). Two dimensions of adaptation in particular have received considerable focus: the risk of maladaptation, and the contention that any metrics to assess success are likely to fall short of capturing all dimensions of adaptation. Although these conclusions are grounded in academic evi-
Go to #core-collateral-references on this page
arise when policy-makers interpret such findings in overly simplis
REFERENCES

Photo: CGIAR

Measurement (1)

- 'Adaptation success' is vague and defined by those who use it
- No agreement on how indicators could look – quantitative, qualitative?
- Adaptation as Outcome *or* Process?
- **When** do we assess the adaptation outcome?
- **Who** should benefit / be adversely affected?
- **What** should the purpose of the original initiative be?
- **What** should it be assessed against?

Measurement (2)

- Measurement of funding for accountability?
- Ensuring that funding is being used for adaptation?

Weaponised messages: Measurement

- 'What cannot be measured cannot be funded'
- Excuse of lack of ability to assess success to prevent funding
- Complexity of measurement discussions directing funding in line with too much 'aid conditionality'

Weaponised messages: Maladaptation

- Some policymakers are uncomfortable with the broad definition of maladaptation – could include almost any adaptation strategy.
- Most organisations do not want to draw attention to failures.
- Worry that focus on maladaptation suggests all adaptation fails

- IPCC AR6 Synthesis Report → removal of lists of interventions that could lead to maladaptation
- IPCC Cities Report Outline → removal of 'maladaptation' from the report outline

Maladaptation


Picture: BBC

- Maladaptation will always be a risk

- The focus should instead be on improving adaptation.
  - Clarity on what counts as adaptation
  - Transparency on who designs adaptation (power imbalances)
  - Focus on vulnerability reduction
  - Overcoming the challenge of ‘additionality’

Schipper and Mukherji, 2024, 10.1126/science.adq7821

Source: IWMI

An unfortunate conclusion

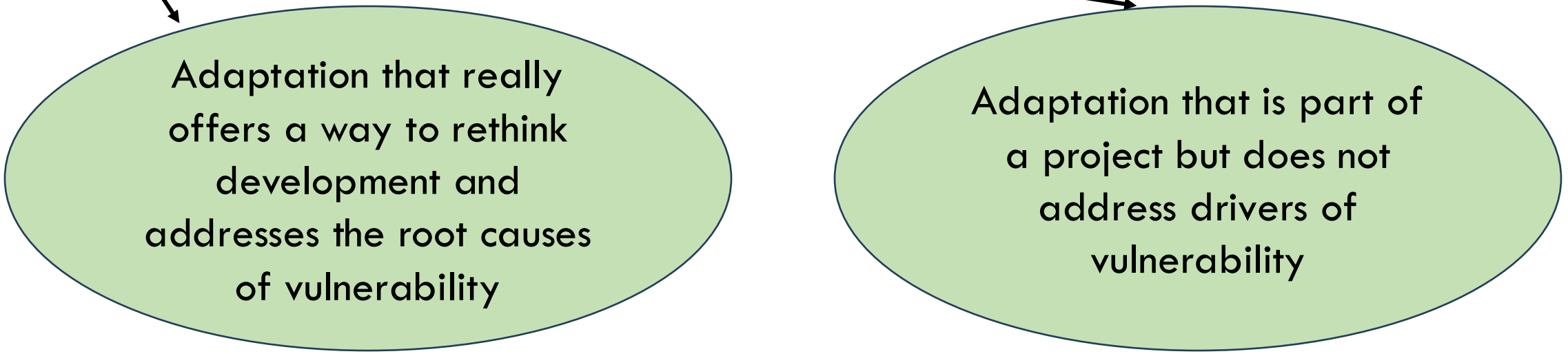
Is adaptation simply too difficult to find because it is likely to fail, and its success impossible to measure?

The biopolitics (and necropolitics) of adaptation

Adaptation research, policy and practice are guilty of not asking sufficiently: Adapting to what?

→ eg. Global Goal on Adaptation

‘Adaptation’ vs ‘adaptation’ (Big A vs little a) (via Webber, 2016)



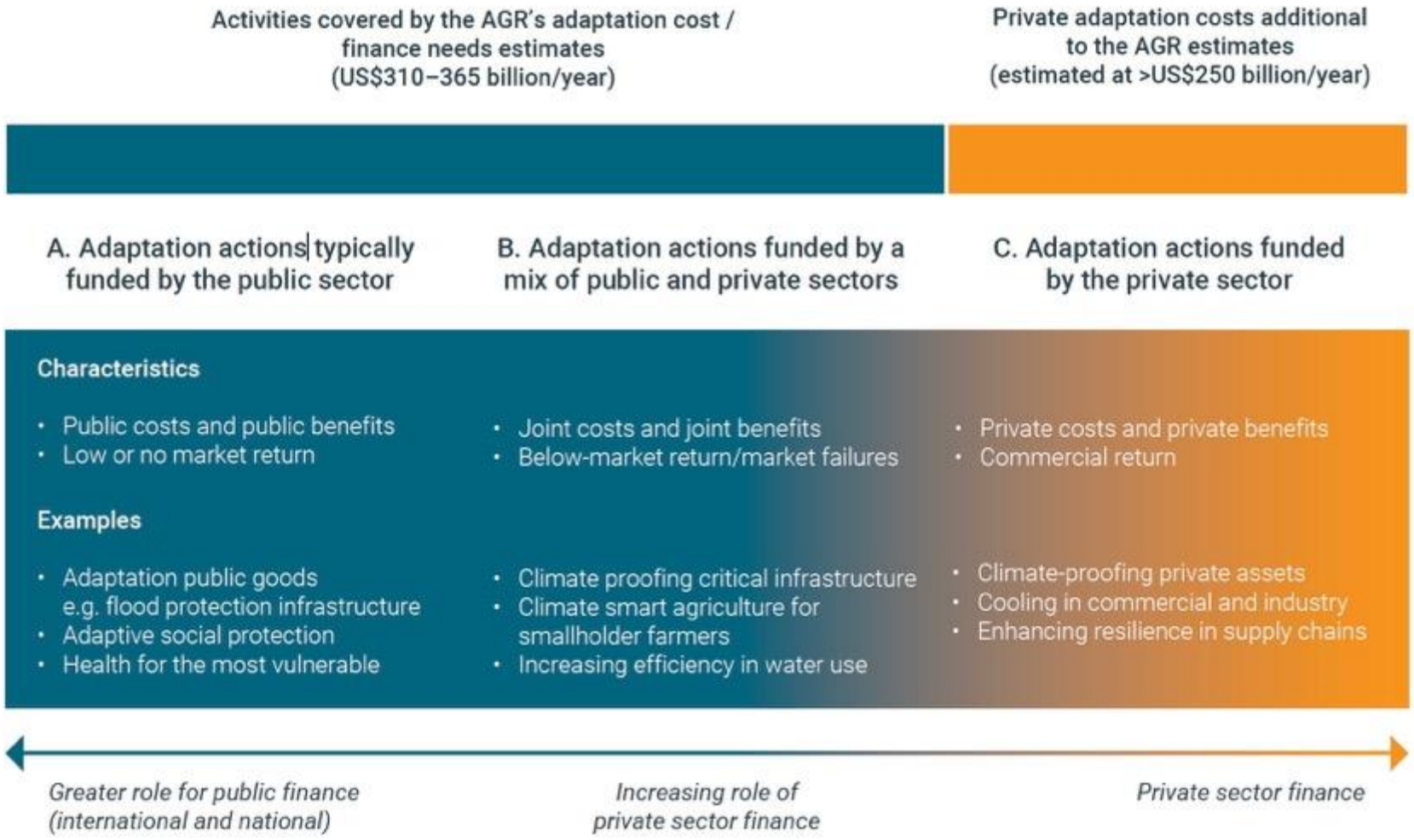
What *needs to be* transformed in response to climate change vs. what *can be* transformed?

Decoupling responsibility from adaptation

- Depoliticising adaptation
- Neoliberal approach – project-based, funding-oriented
- Not focussing sufficiently on the root causes of vulnerability
- Not acknowledging the injustice in adaptation – and the challenge of doing successful adaptation in a system that is fundamentally unjust

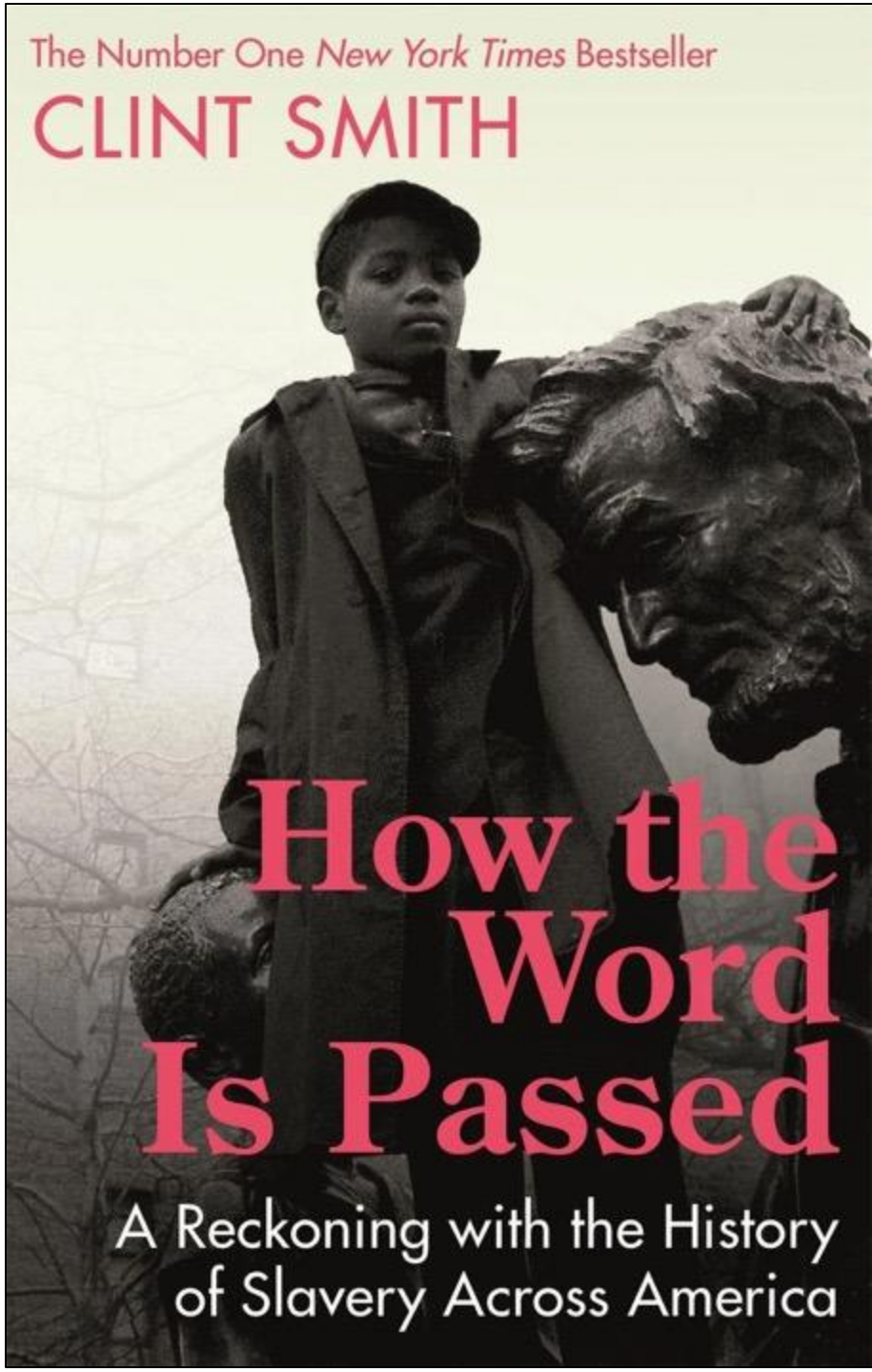
Private sector – they care so much (not)

Figure ES.4 Simplified categorization of adaptation types and opportunities for private sector engagement



- **Biopolitics** – adaptation is normalised, and this is the real problem – *this may even be a story of Necropolitics*

- **Shifting responsibility** – shoving the fight on the poorest, assuming that Indigenous People will want to take on the battle…



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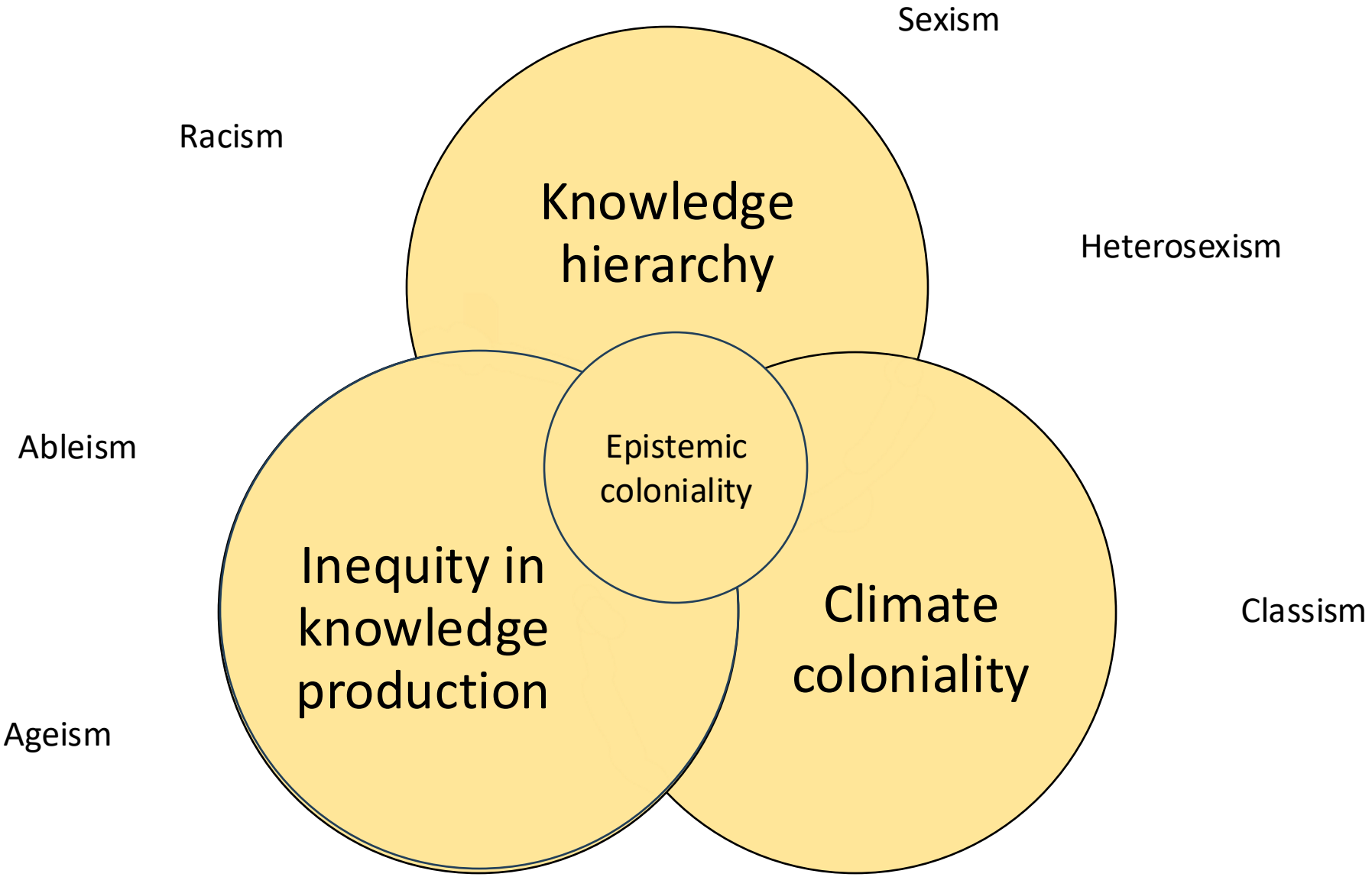
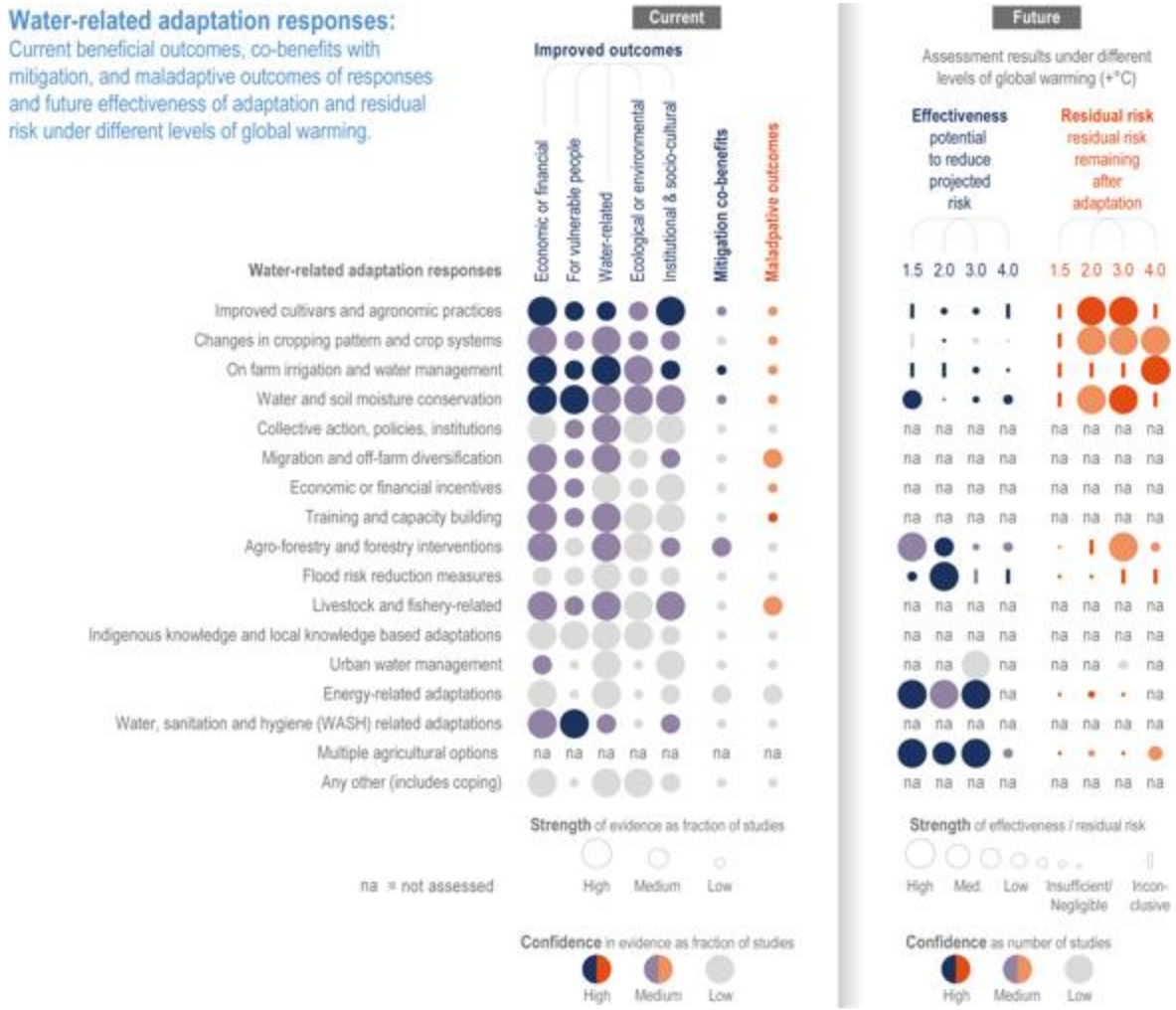


Source: Schipper and Sultana, in prep.

Normalisation of adaptation (biopolitics) suggests that the real fight is the fight for more funding – not asking whether funding is even being used well

Instrumentalist and reductionist approaches by IPCC are worsening the situation



Attempts at bringing justice into adaptation are trying to operate in a system that is not just.

→ This leads to the maladaptation of adaptation research, policy and practice

Thank you

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