

Living Well Within Planetary Limits: Is it possible? And what will it take?



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LEVERHULME
TRUST _____

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We are headed for cataclysm

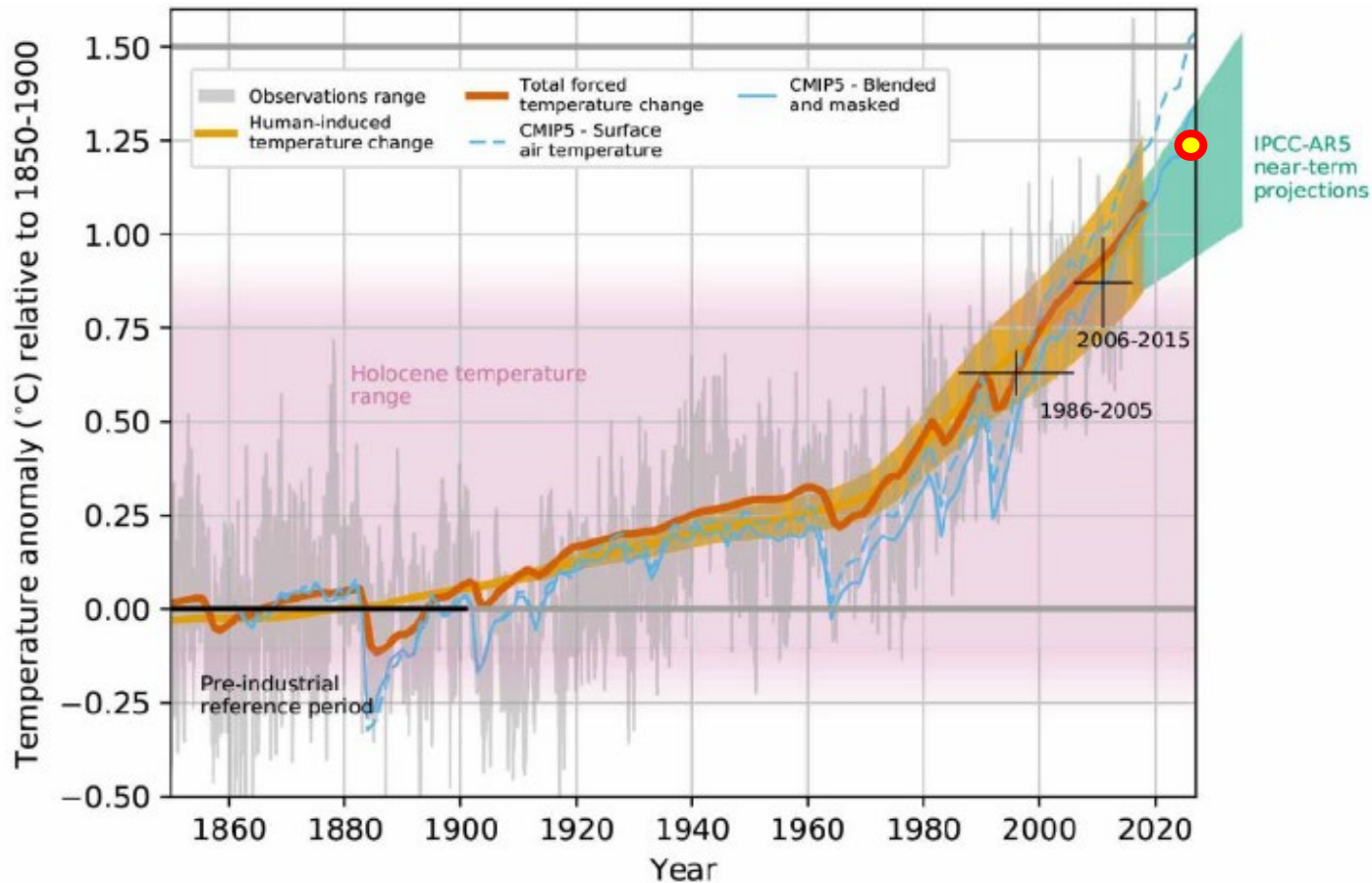


Figure 1.2: Evolution of global mean surface temperature (GMST) over the period of instrumental observations. Grey line shows monthly mean GMST in the HadCRUT4, NOAA, GISTEMP and

IPCC, Special Report on 1.5 degrees

ipcc
INTERGOVERNMENTAL PANEL ON climate change

Global Warming of 1.5°C

An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.

This report gives policymakers and practitioners the information they need to make decisions that tackle climate change while considering local context and people's needs. The next few years are probably the most important in our history.

Debra Roberts
Co-Chair, WGII
Incheon, 8 October 2018



Bavaria, June 2024

dpa (www.dpa.de)



Jaipur, May 2024

Times of India



Mexico, May 2024

YURI CORTEZ/AFP / Getty Images

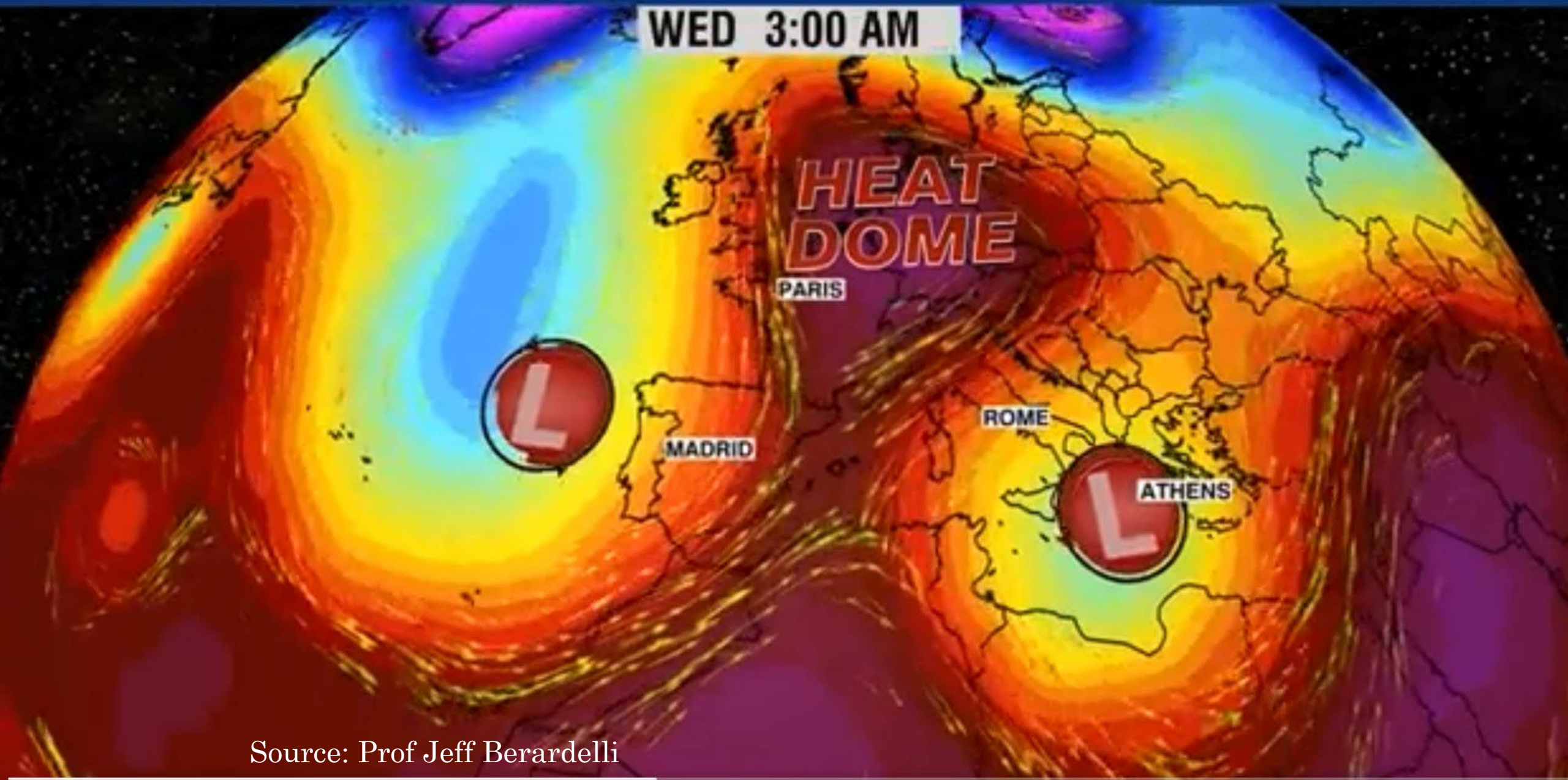


Canada, May 2024

Reuters

OMEGA BLOCK = EXTREME WEATHER

WED 3:00 AM



Source: Prof Jeff Berardelli

Greece, 08/09/2023

OICHALIANEWS.GR

Derna, Libya, 12/09/2023



Is green growth happening? An empirical analysis of achieved versus Paris-compliant CO₂-GDP decoupling in high-income countries

Jefim Vogel, Jason Hickel

Findings The emission reductions that high-income countries achieved through absolute decoupling fall far short of Paris-compliant rates. At the achieved rates, these countries would on average take more than 220 years to reduce their emissions by 95%, emitting 27 times their remaining 1.5°C fair-shares in the process. To meet their 1.5°C fair-shares alongside continued economic growth, decoupling rates would on average need to increase by a factor of ten by 2025.

Interpretation The decoupling rates achieved in high-income countries are inadequate for meeting the climate and equity commitments of the Paris Agreement and cannot legitimately be considered green. If green is to be consistent with the Paris Agreement, then high-income countries have not achieved green growth, and are very unlikely to be able to achieve it in the future. To achieve Paris-compliant emission reductions, high-income countries will need to pursue post-growth demand-reduction strategies, reorienting the economy towards sufficiency, equity, and human wellbeing, while also accelerating technological change and efficiency improvements.

And «green growth»
claims are greenwashing.

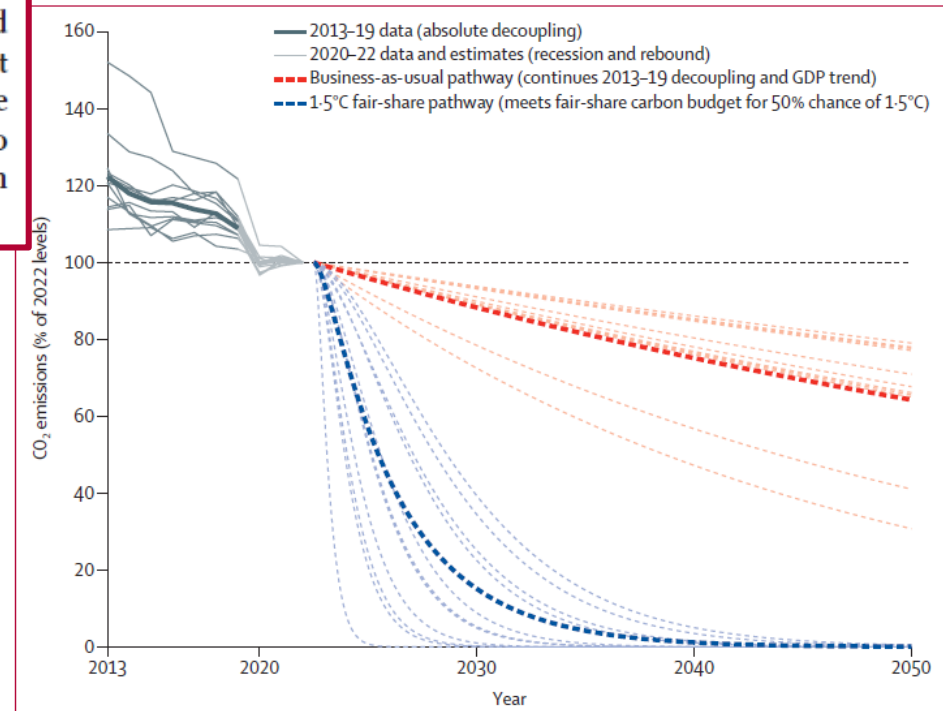


Figure 1: Emission reductions achieved in high-income countries through recent absolute decoupling are highly insufficient for complying with their fair-shares of the 1.5°C global carbon budget

What should we do?

Interpretation The decoupling rates achieved in high-income countries are inadequate for meeting the climate and equity commitments of the Paris Agreement and cannot legitimately be considered green. If green is to be consistent with the Paris Agreement, then high-income countries have not achieved green growth, and are very unlikely to be able to achieve it in the future. To achieve Paris-compliant emission reductions, high-income countries will need to pursue post-growth demand-reduction strategies, reorienting the economy towards sufficiency, equity, and human wellbeing, while also accelerating technological change and efficiency improvements.

What do “post-growth strategies, reorienting the economy towards sufficiency, equity and human well-being” mean?

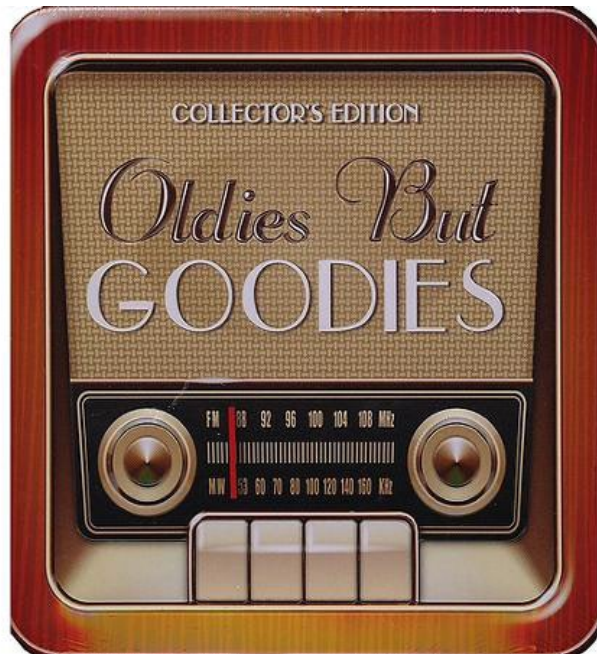


Stylised facts
on
**Energy &
Well-being**

Energy & well-being: stylised fact #1

“The high plateau”

Beyond a certain level, energy increases do not result in measurably higher well-being.



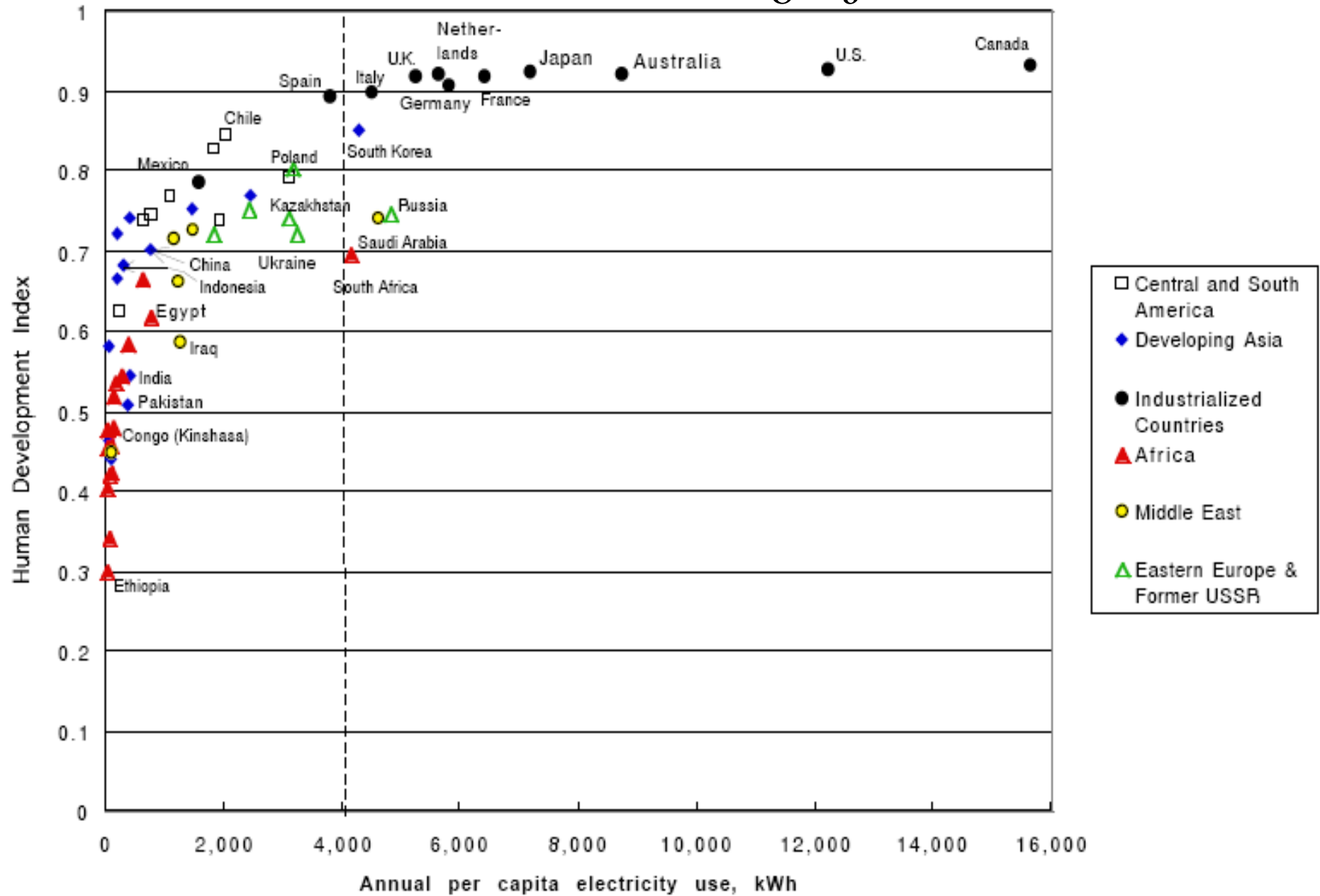
Science, New Series, Vol. 186, No. 4164. (Nov. 15, 1974), pp. 607-610.

Energy and Life-Style

Massive energy consumption may not be necessary to maintain current living standards in America.

Allan Mazur and Eugene Rosa

“The high plateau”

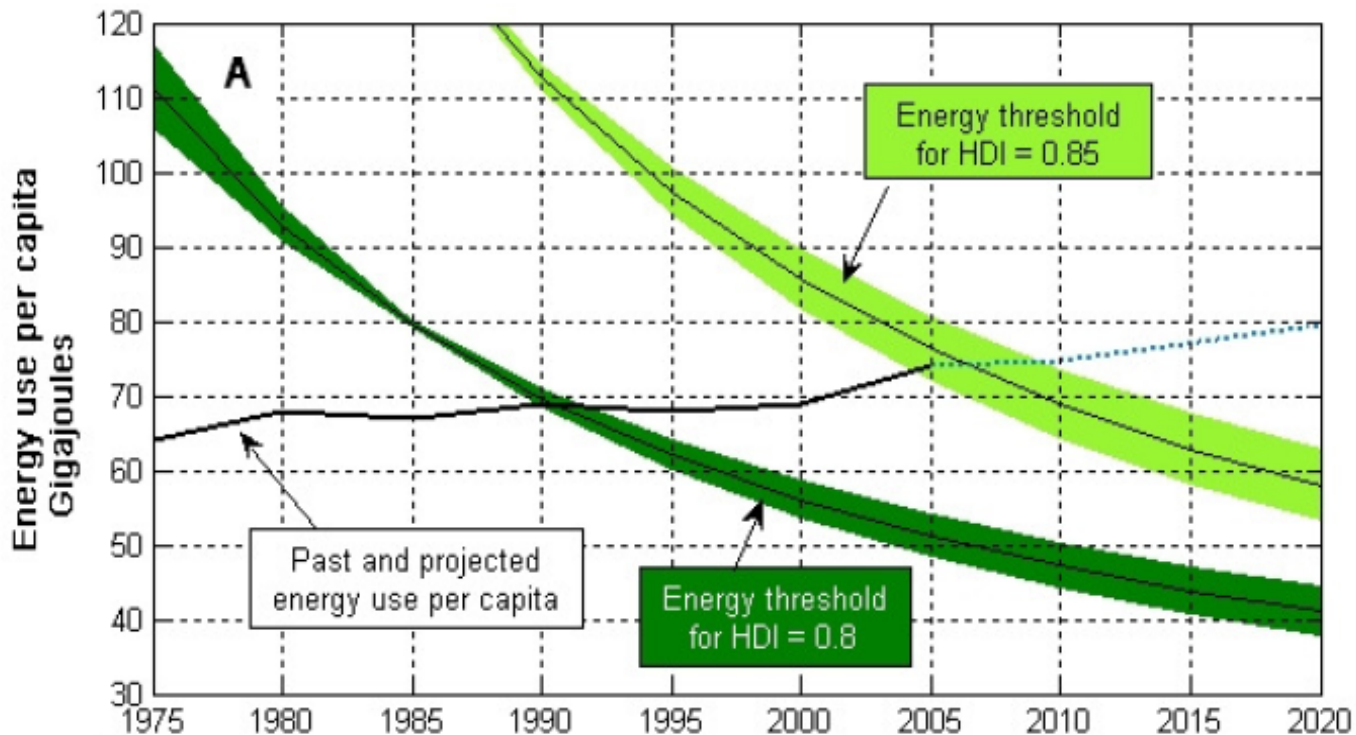


Source: A. Pasternak, United States Department of Energy, 2000


Energy & well-being: stylised fact #2

“Dynamic decline”

The energy threshold associated with any given level of well-being decreases dramatically over time.



Steinberger, J. K. and J. T. Roberts (2010). "From constraint to sufficiency: the decoupling of energy and carbon from human needs, 1975-2005." *Ecological Economics* 70(2): 425-433.



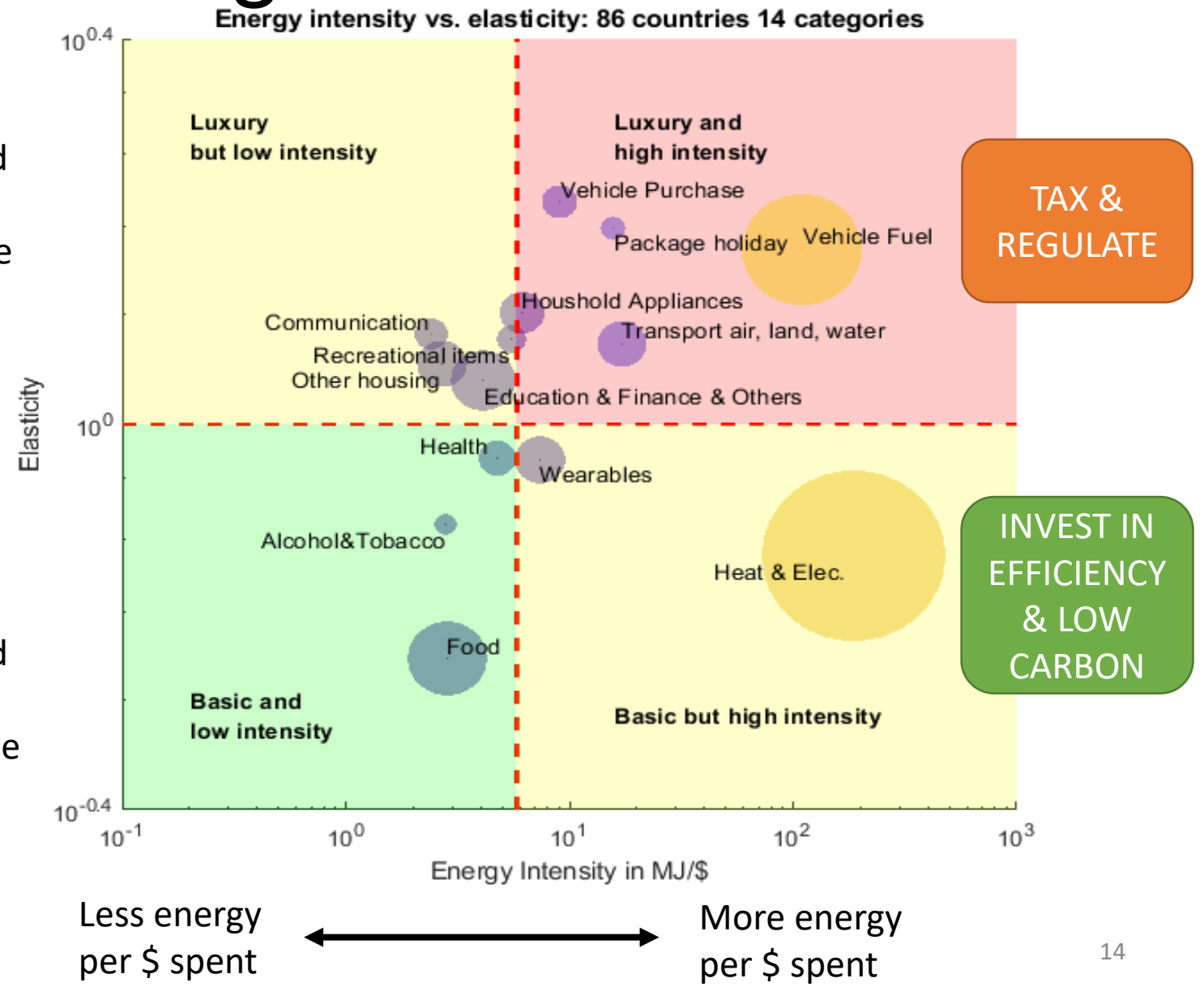
What role
does
inequality
play?

Mapping product categories

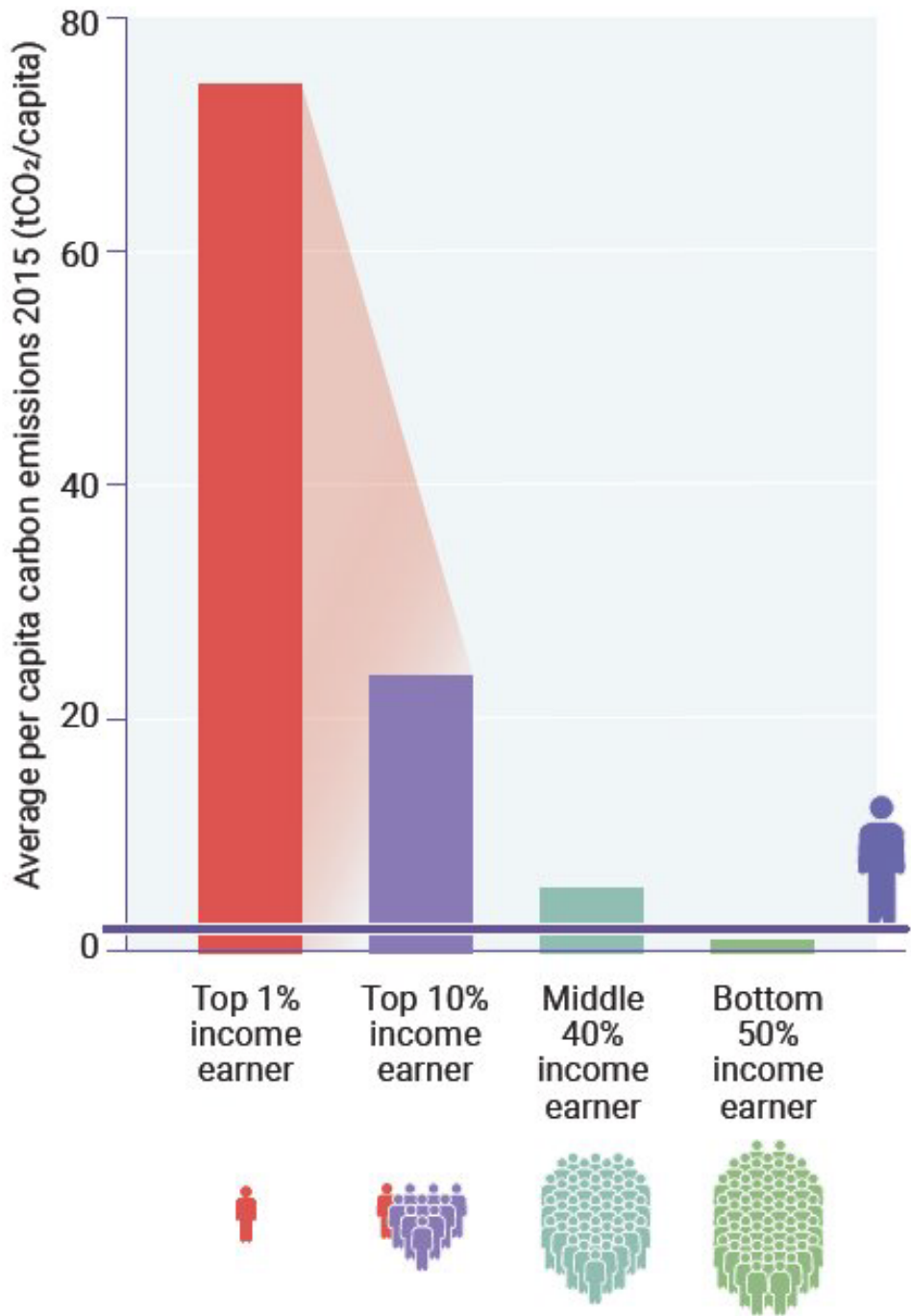
Large inequality in international and intranational energy footprints between income groups and across consumption categories

Yannick Oswald, Anne Owen and Julia K. Steinberger

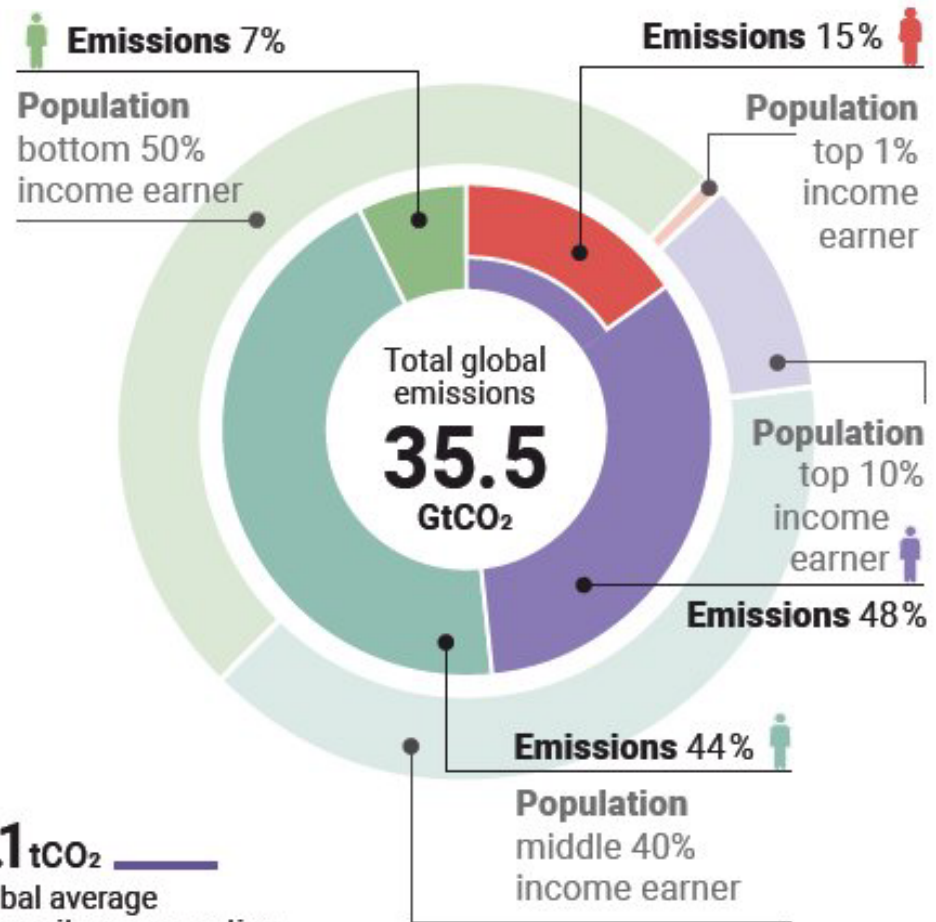
Consumed more by rich people
↑
↓
Consumed more by poor people



Oswald, Owen & Steinberger, 2020, Nature Energy

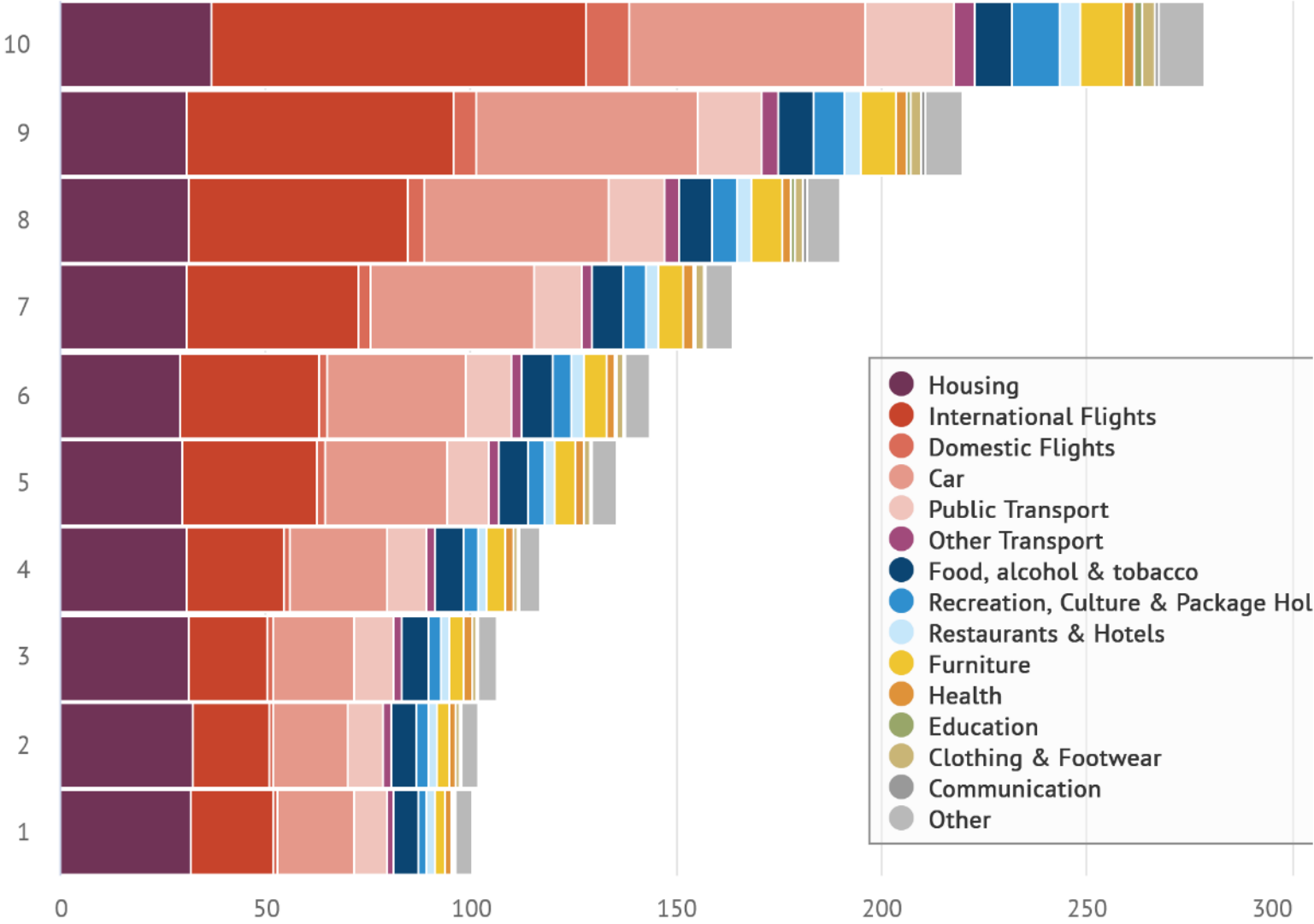


Total carbon emissions per group 2015 (GtCO₂)



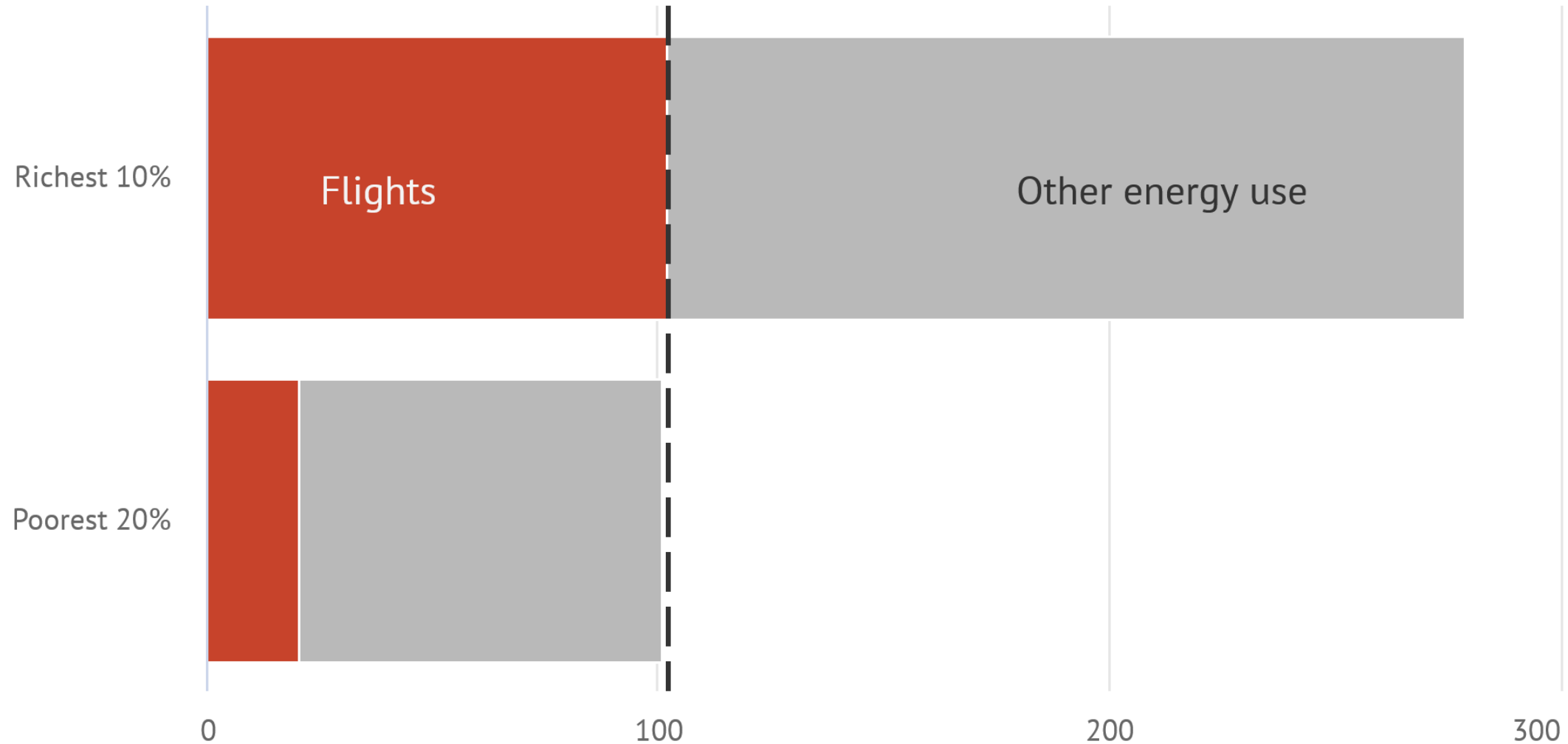
Wealthy British people use far more energy for transport, but housing energy use remains similar across income brackets

Annual energy use per adult equivalent, GJ



The richest British people use **more energy flying** than the poorest use overall

Annual energy use per adult equivalent, GJ




Baltruszewicz et al 2023

Carbon Brief <https://www.carbonbrief.org/richest-people-in-uk-use-more-energy-flying-than-poorest-do-overall/>



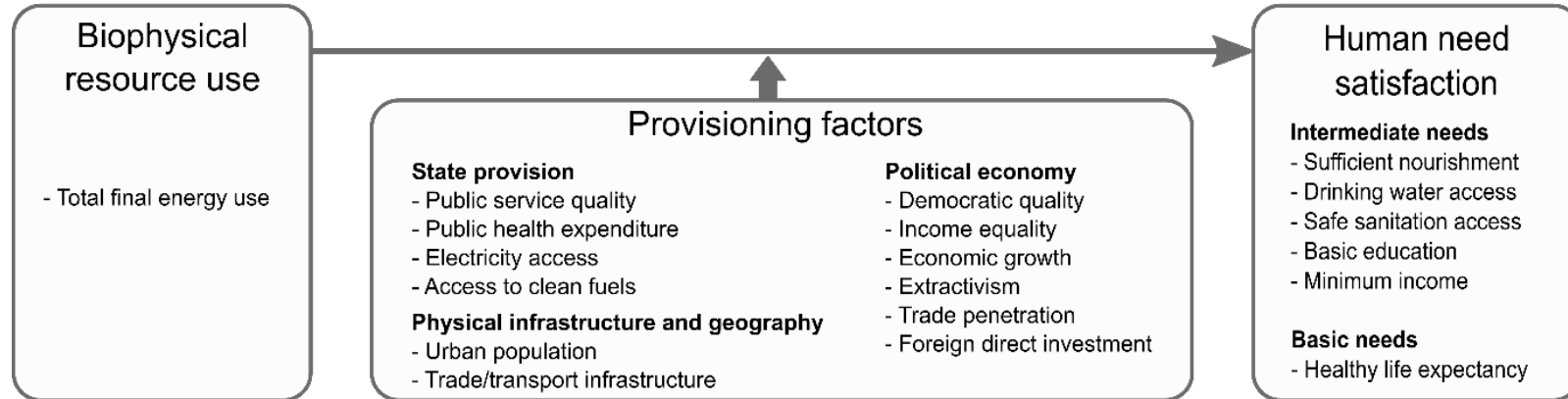
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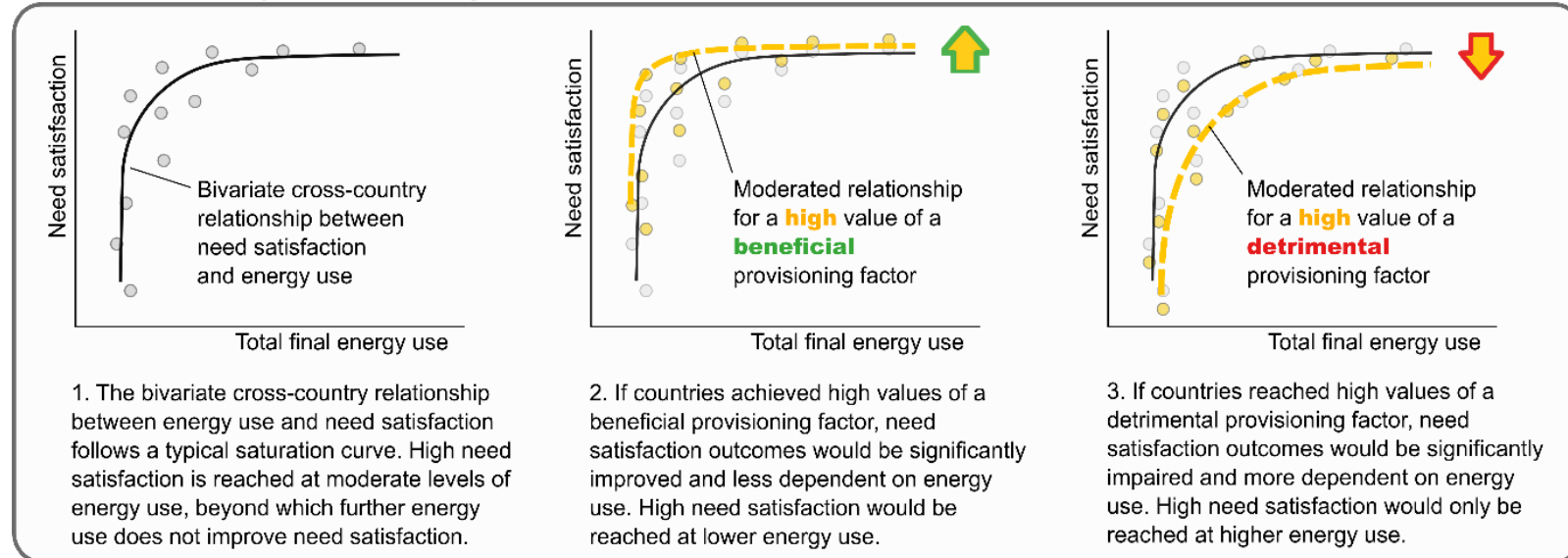
**What factors
enable (or
disable)
societies from
achieving well-
being at low
energy use?**

International energy demand vs well-being: what are mediating factors?

A. Analytical framework



B. Qualitative depiction of analysis



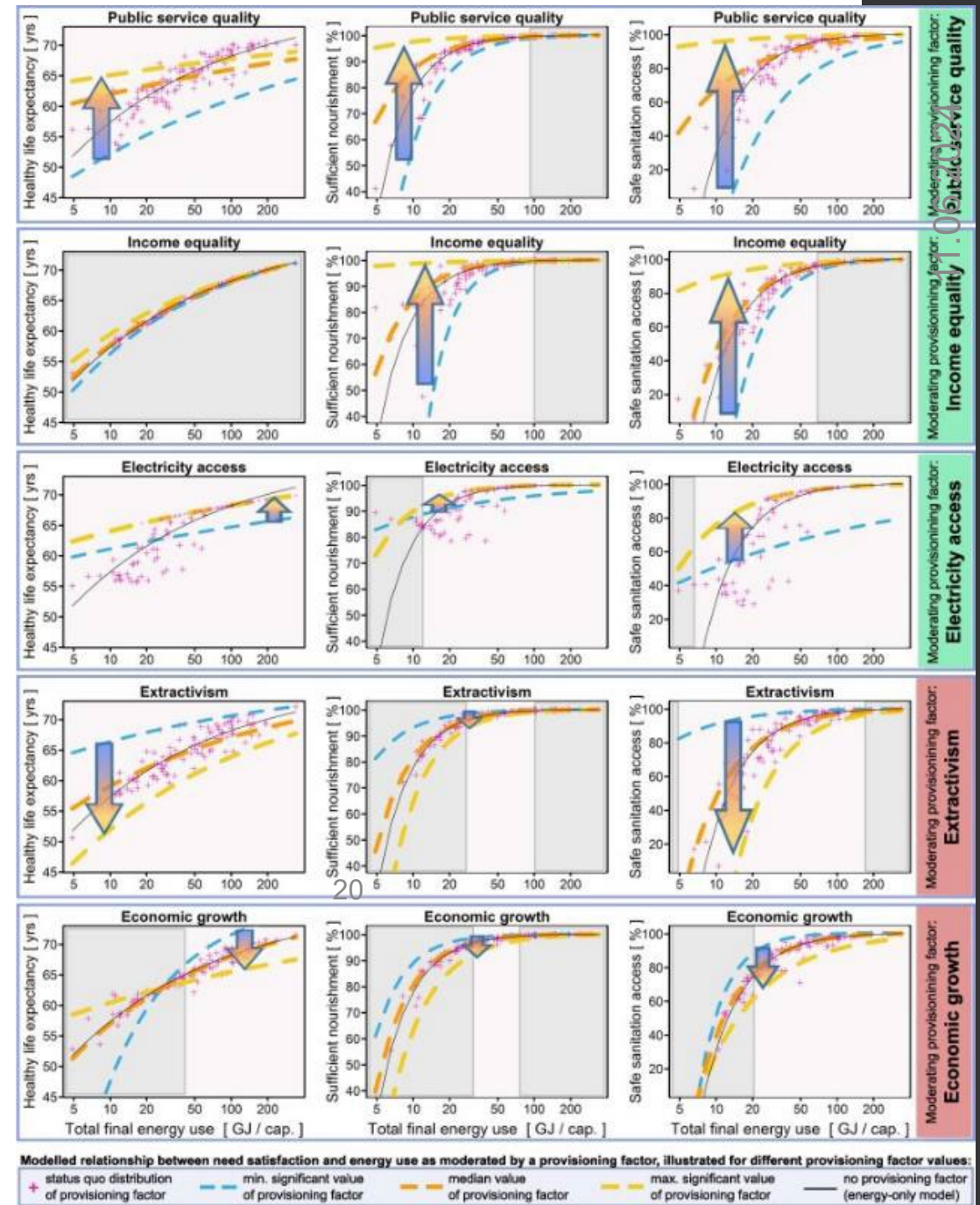
Socio-economic factors enabling well-being at lower energy use

Positive factors

- Public services
- Income equality
- Democracy
- Electricity & sanitation access.

Negative factors:

- Extractivism
- Economic growth above a moderate income.



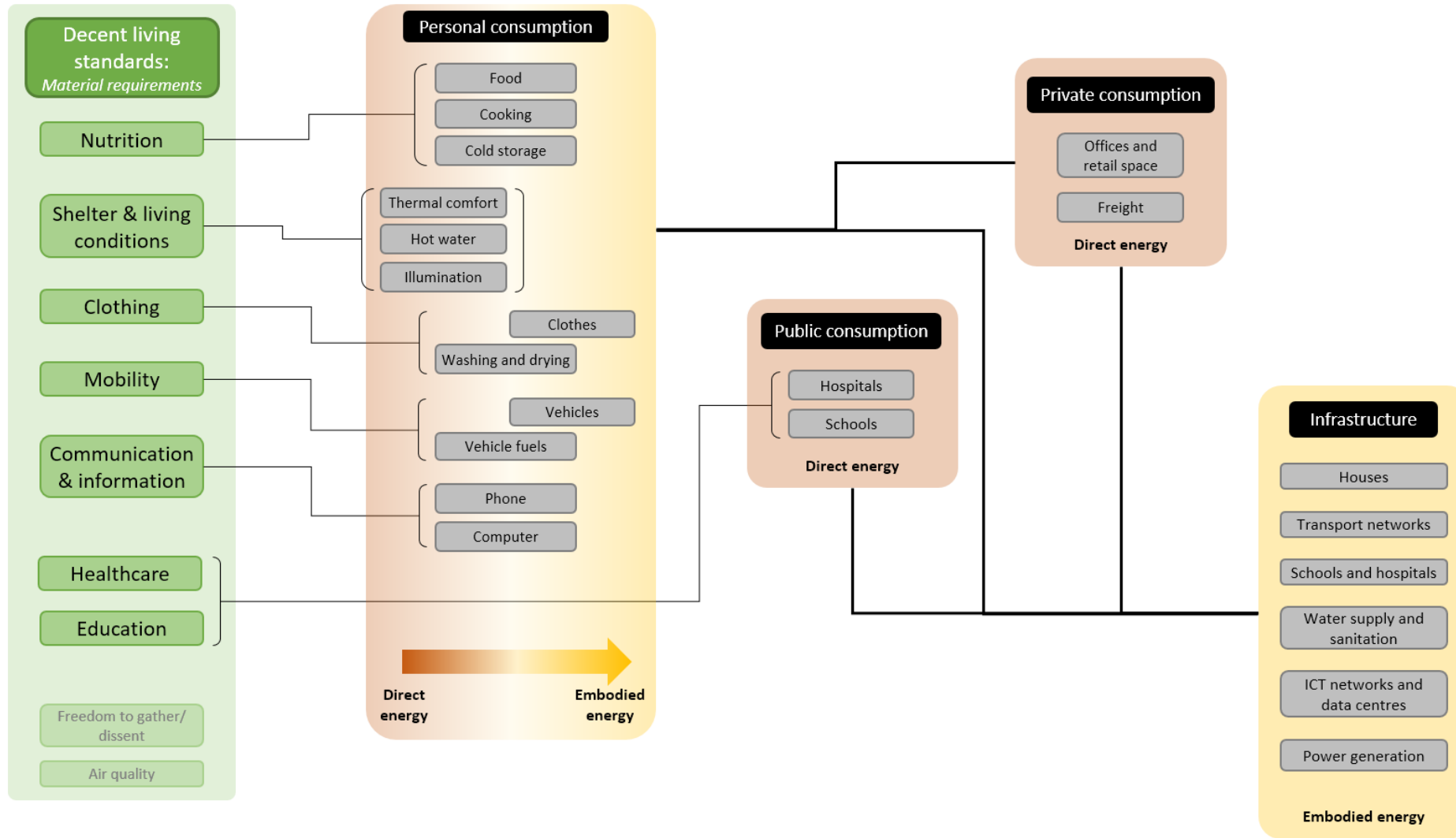
Modelling a low energy & high well-being future



Can we model a different future?

- Based on the “Decent Living Energy” framework of Professor Narasimha Rao, Yale.
- Connects needs to sufficient levels of energy services.
- Global model takes into account technology improvements, equal distribution, lower demand levels.

What the model looks like, and takes into account

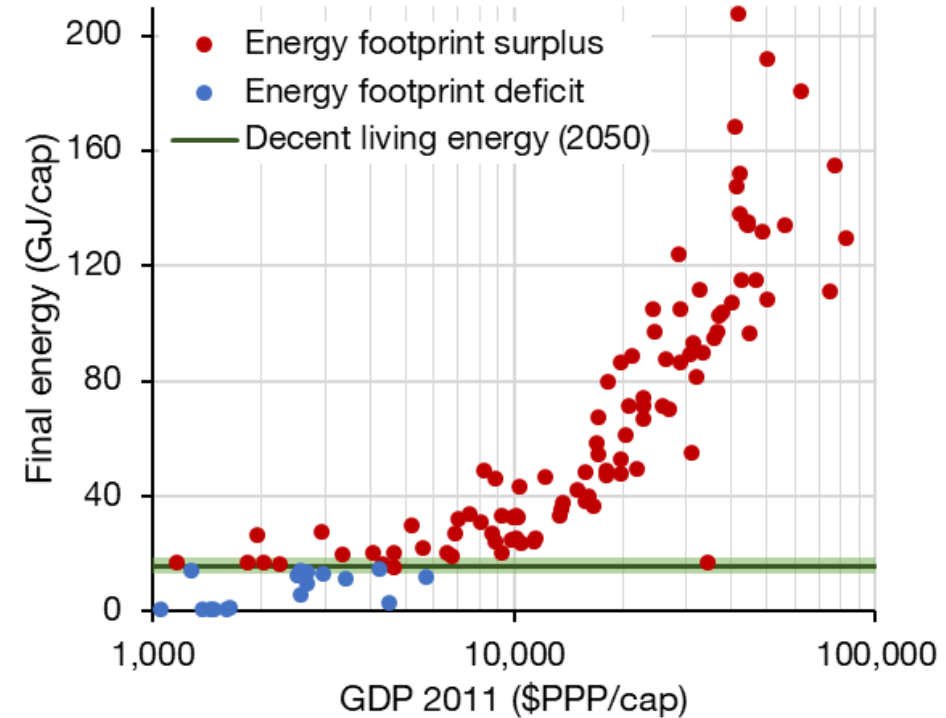
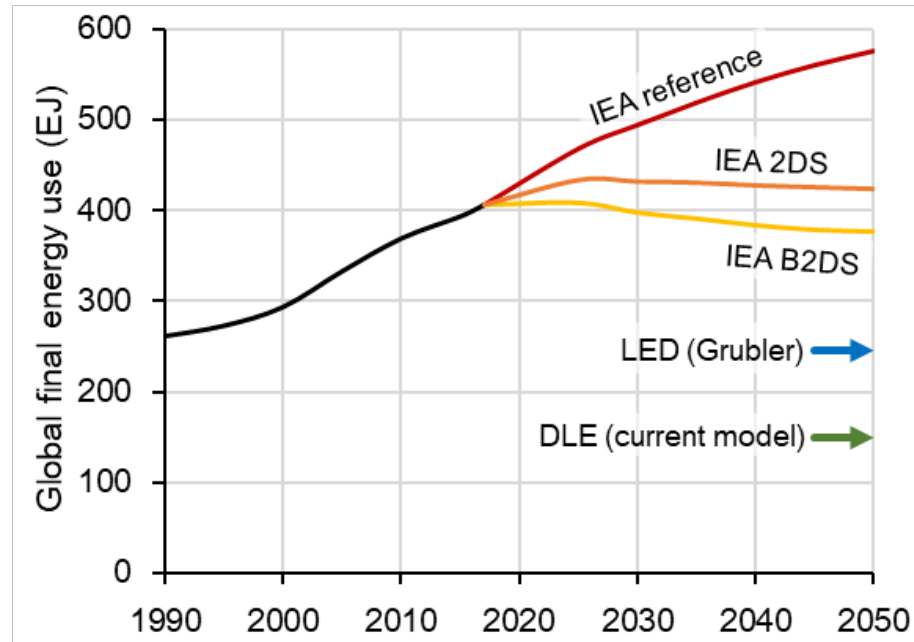


Decent Living Energy Services

Energy service	Level per person	Depends upon
Nutrition	2000–2150 kcal/day	Demography
Living space heated or cooled to 20 degrees year round	15 m ² per person	Rural-urban Climate
Clean water	50 liters, of which 20 heated	
Communication	1 mobile phone per person 1 laptop per household	
Mobility	5'000 - 15'000 km/year	Rural-urban
Health	8 hospital beds per 1000 persons	
Education	5-19 year-olds in school	Demography

And the energy embodied in appliances, infrastructure, etc.

Global decent living energy results



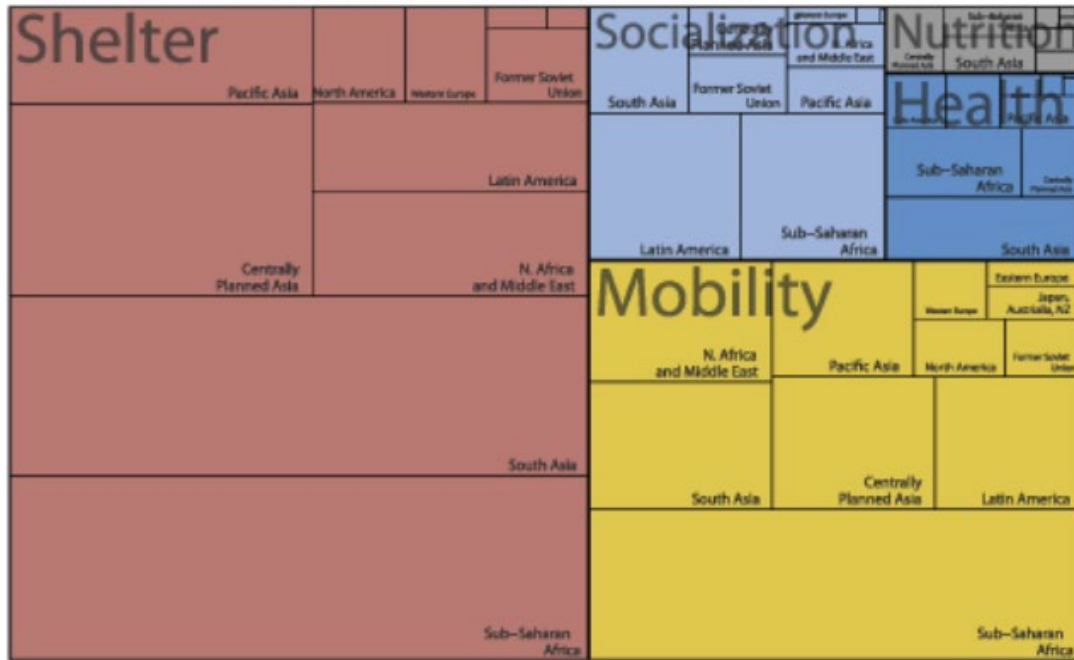
Decent Living Energy for all achievable at 40% of current energy use, despite population growth until 2050.

ENERGY FOR DECENT LIVING: INVESTMENT VS. ANNUAL USE

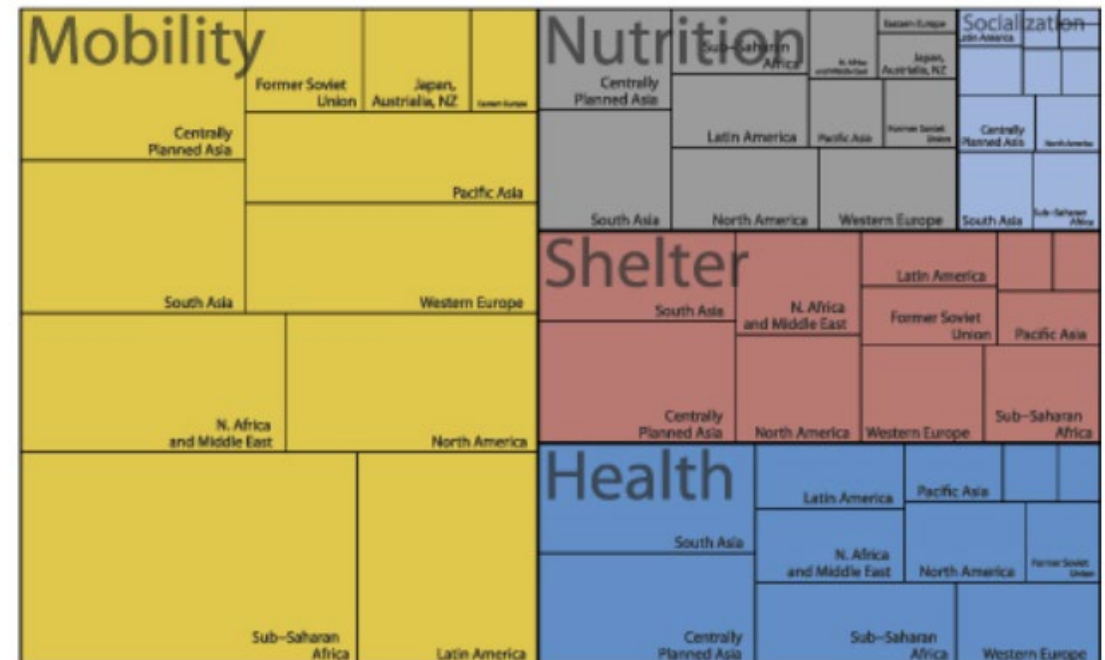
Investissements en infrastructure: 290 EJ

Utilisation annuelle après investissement: 156 EJ

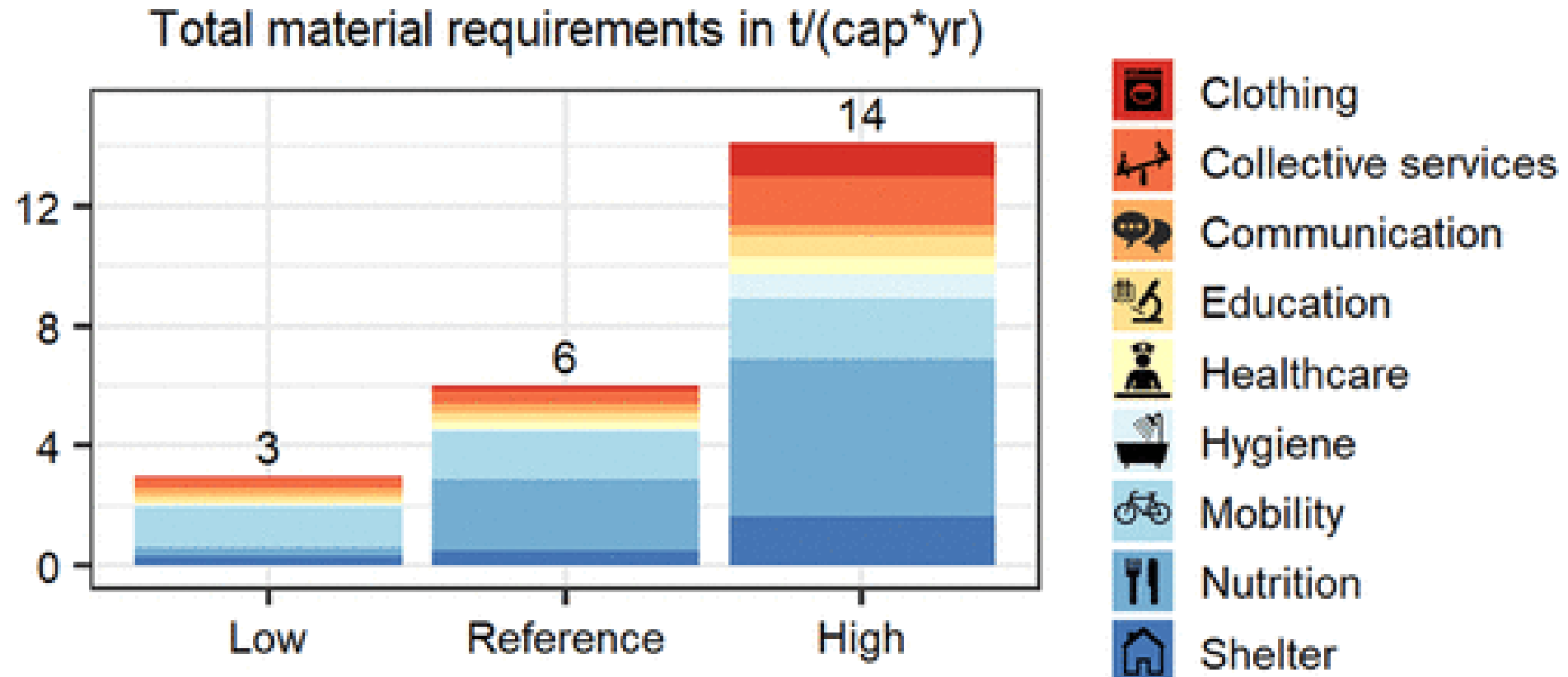
A Cumulative need from 2015 until 2040 for constructing new infrastructure for Decent Living
Sizes based on new construction energy per region for SSP2. Total cumulative: 290 EJ.



B Total yearly Decent Living Energy need
Sizes based on operation and construction energy per region for SSP2. Total DLE in 2050: 156 EJ/yr.



DECENT LIVING MATERIAL REQUIREMENTS





Next research steps: ERC Synergy Grant
REAL “A Post-Growth Deal”
2023-2029

Prof Giorgos **Kallis**, UAB, Barcelona, Spain

Prof Jason **Hickel**, UAB, Barcelona, Spain

Prof Julia **Steinberger**, University of Lausanne, Switzerland

Major Contributions

01.

Ground-breaking models charting diverse aspects of post-growth pathways.

02.

Post-Growth Deals, for Europe and Global South, based on systemic analysis and evidence.

03.

Bridging the gap between Post-Growth theory and implementation, engaging with social movements and decision-makers.



From scientific analysis to scientist rebellion_

nature
ecology & evolution



Credit: Louise Gardner



Credit: Alfredo Romero-Muñoz

Scientists must act on our own warnings to humanity

We face interconnected planetary emergencies threatening our climate and ecosystems. Charlie J. Gardner and Claire F. R. Wordley argue that scientists should join civil disobedience movements to fight these unprecedented crises.

“The scientists who alerted the world to the climate and ecological crises have a moral duty to join the popular movements demanding political action.”

ENVIRONMENT OCTOBER 13, 2019 / 3:09 AM / 3 DAYS AGO

Scientists endorse mass civil disobedience to force climate action

Matthew Green

5 MIN READ



LONDON (Reuters) - Almost 400 scientists have endorsed a civil disobedience campaign aimed at forcing governments to take rapid action to tackle climate change, warning that failure could inflict “incalculable human suffering.”

From Publications to Public Actions: The Role of Universities in Facilitating Academic Advocacy and Activism in the Climate and Ecological Emergency

Charlie J. Gardner^{1*}, Aaron Thierry², William Rowlandson³ and Julia K. Steinberger⁴

Check for updates

comment

Civil disobedience by scientists helps press for urgent climate action

Time is short to secure a liveable and sustainable future; yet, inaction from governments, industry and civil society is setting the course for 3.2 °C of warming, with all the cascading and catastrophic consequences that this implies. In this context, when does civil disobedience by scientists become justified?

Stuart Capstick, Aaron Thierry, Emily Cox, Oscar Berglund, Steve Westlake and Julia K. Steinberger

Environment protest being criminalised around world, say experts

More than 400 climate scientists sign letter that says activists are being targeted at pivotal time in fight against global heating

“It has become abundantly clear that governments don’t act on climate without pressure from civil society: threatening and silencing activists thus seems to be a new form of anti-democratic refusal to act on climate.”