Transformative Change
A matter of some urgency!

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European Academies Science Advisory Council-
Science advice for the benefit of Europe

Transformative Change – recent analyses

Intergovernmental Platform on Biodiversity and Ecosystem Services

Lancet

International Resource Panel

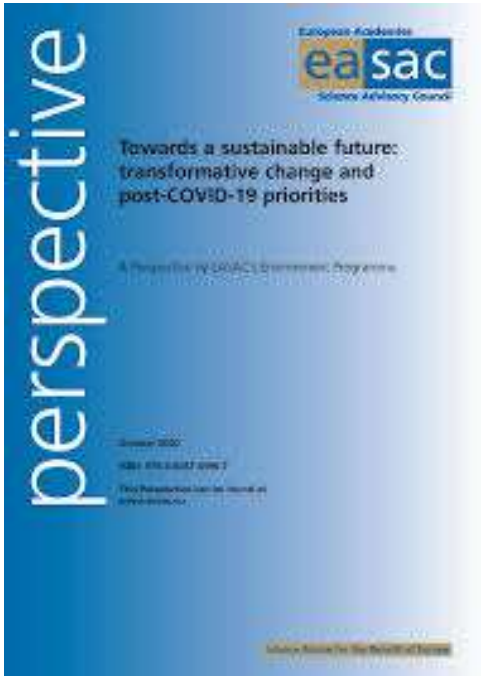
Planetary Health Check

2024 State of the Climate

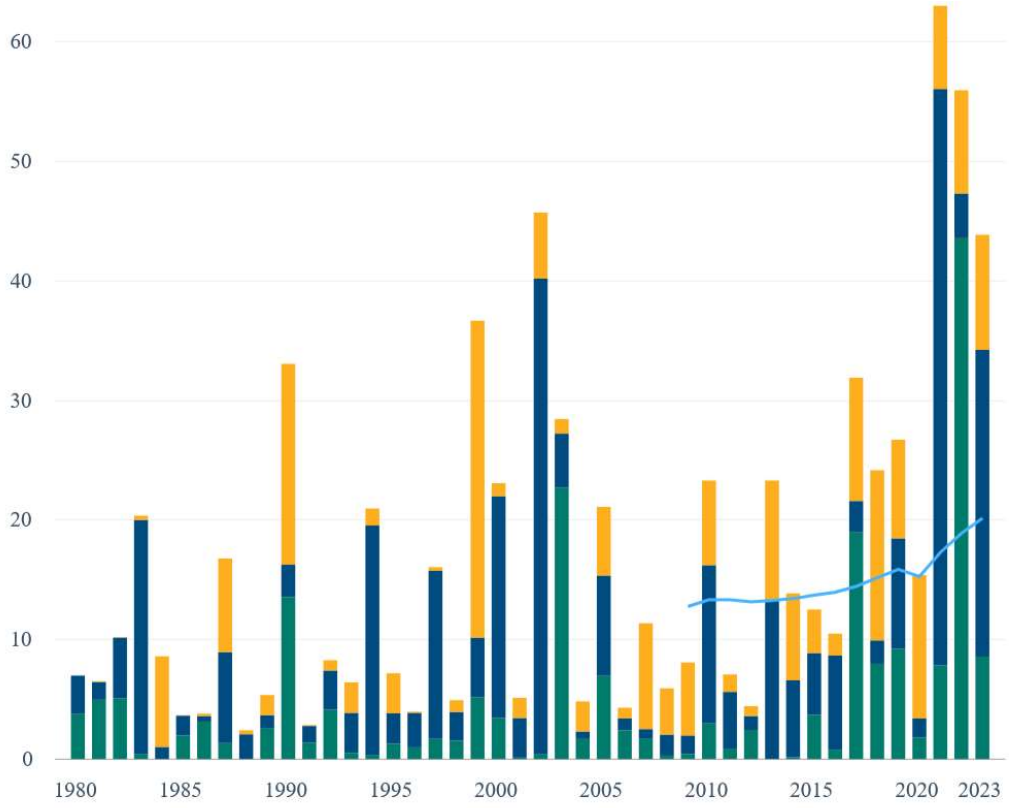
EASAC and Transformative Change

- 2020 Perspective- Towards a sustainable future: Transformative Change and post-COVID priorities

Decided to update and review progress over 5 years since publication based on the new analyses



How is the planet doing? EU damage

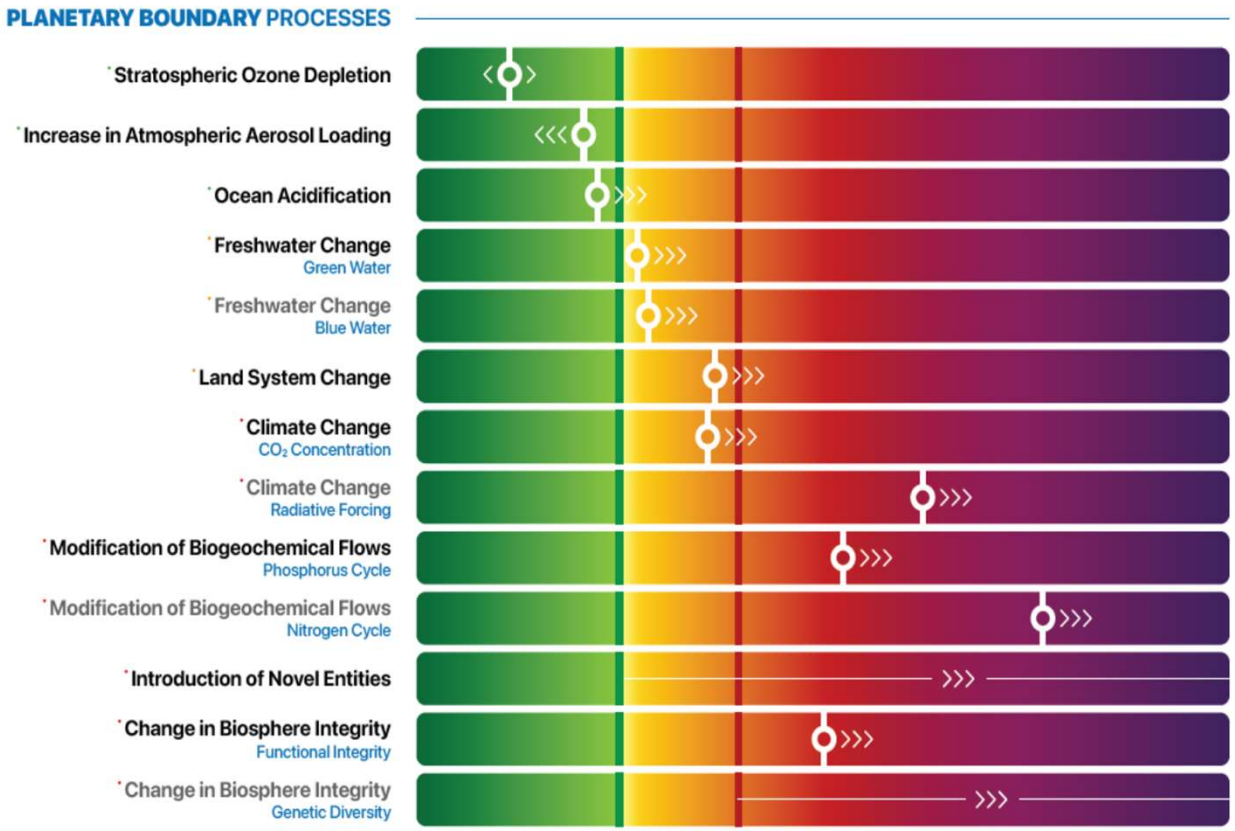


Europe
EUR 162 billion
in last 3 years

Indicators - all negative

Indicator	Date	Value	Date	Value	Trend
Atmospheric CO_2	6/2019	415ppm	6/2024	427ppm	Negative
Atmospheric methane	4/2019	1860ppb	4/2024	1932ppb	Negative
CO_2 emissions	2019	36.8 (Energy);4.3 (Land)	2024	37.4 (Energy); 4.2 (Land)	Negative
Coal consumption	2019	7.5 billion tonnes	2024	8.8 billion tonnes	Negative
Global Population	2019	7.7 billion	2024	8.2 billion	Negative
Global Material Footprint	2017	92 billion tonnes	2022	98.5 (12.28x8.021).	Negative
Resource productivity (kg/$)	2010	1.16	2017	1.16	Unchanged
Circularity (Global recycling rate)	2018	9.1%	2023	7.2%	Negative
Planetary Boundaries	2015	3 of 9 exceeded	2024	6 of 9 exceeded with 7th near threshold	Negative
Global temperature anomaly (from 1961-1990 average)	2017/8	0.8	2023/4	1.14 (equivalent to 1.45 above pre-industrial)	Negative
Extreme weather costs for EU	2017 and 2018	€56	billion2022 and 2023	€100 billion	Negative
Biodiversity loss		-2 to -5% per decade		Future -7% to +1% depending on assumptions	Negative

Planetary Boundary assessments

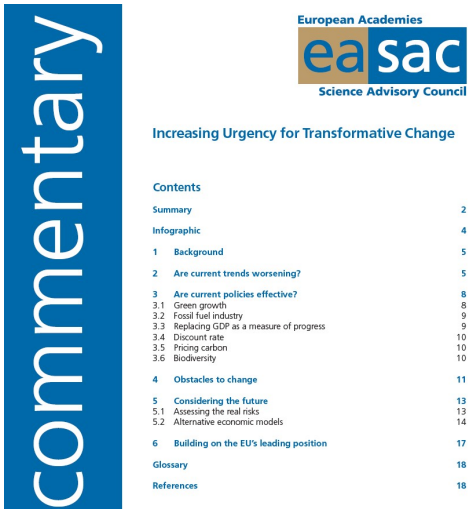


Trends worsening: e.g.

- Annual increment in atmospheric CO_2 0.93 for 1959/60; 1.17 for 1999/2000 and 3.3 for 2022/23, and 3.6ppm from 2023 to 2024.
- Methane increase of 8.76ppb in 2018 and 17ppb in 2021
- Land sink collapsing
- Recycling rates fallen

Progress since 2019?

- Record growth in wind and solar, EVs etc.
- BUT just covered growth and not led to a decline in global emissions
- Little or no reduction in the main drivers of warming: fossil fuels, agriculture practices, transport..
- We look at the progress (or lack of it) in the representative policy areas considered earlier:-


commentary

European Academies
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Science Advisory Council

Increasing Urgency for Transformative Change

Contents

3.1 Green growth

3.2 Fossil fuel industry

3.3 Replacing GDP

3.4 Discount rate

3.5 Pricing carbon

3.6 Biodiversity

We find:

- 3.1 Green growth — Helpful but not enough
- 3.2 Fossil fuel industry — Subsidies increasing. Exploration and growth continues. No cooperation from industry
- 3.3 Replacing GDP as a measure of progress — GDP still rules
- 3.4 Discount rate — Still too high so future undervalued
- 3.5 Pricing carbon — Works but not high enough or sufficiently applied
- 3.6 Biodiversity — Promises but will they be kept?

Why? Many structural reasons

ipbes
Science and Policy for People and Nature

1) relations of domination over nature and people;
2) economic and political inequalities;
3) inadequate policies and unfit institutions;
4) unsustainable consumption and production patterns including individual habits; and
5) limited access to clean technologies and uncoordinated knowledge and innovation systems.

(N.B. Many more actions and resources are devoted to blocking transformative change (such as lobbying) than those devoted to conservation and sustainable use of biodiversity).

THE LANCET
Planetary Health

- Legal barriers, Property rights, Political and institutional barriers from short-term political cycles and polarisation of social and environmental issues.
- Autocracy and powerful elites control elections, repress unions, and punish protest.
- Excessive personal consumption encouraged while pollution costs are externalised.
- Shifts to lower-carbon energy systems undermined by the risk of stranded assets and effects on powerful interests. Subsidies to sectors such as fossil fuels, extractive industries and fishing are huge and strongly protected.

Are we underestimating the risks??

- ‘Fat’ tails to the future projections, so the risks of catastrophic heating extremely high compared with those we are prepared to accept in other aspects of society.
- Still uncertainty over climate sensitivity.
- Positive feedback loops already in play and greater than predicted warming
- Climate Trigger points being passed.
- Researchers looking into mechanisms of global societal collapse through second and third order effects of warming such as crop failures that lead to starvation, mass migration and intra- and interstate conflict.



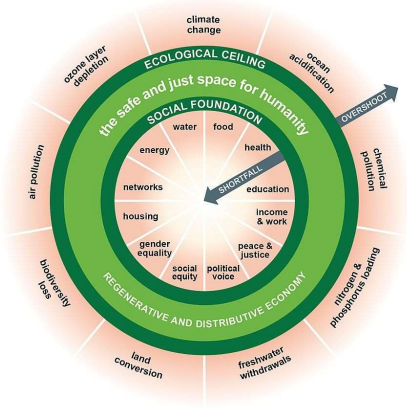

Can we adjust the current economic system?

- IRP and IPBES list the necessary reforms e.g. GDP vs wellbeing economies and 13 other major reforms in our Table 5.2
- BUT the current system remains structured on short-term profit maximisation and externalising environmental and social effects.
- MOREOVER, power of special interests/stakeholders has grown through social media and populism.
- Current system still profits from destroying nature and inefficient use of resources. No self-correcting mechanisms in the current system to keep within limits.
- Is it us?? Is self restraint against our nature? Have the basic human characteristics evolved to be incompatible with long-term sustainability?

Alternatives - Degrowth, Post-Growth, Sufficiency

Points for

- Not growing anyway despite extreme measures
- Just not enough to go round
- Meets environmental, resource and justice objectives
- Some models exist (e.g. doughnut)



Points against

- Is it possible for a politician to campaign on this?
- Would they be even ‘allowed’ to by media owners and oligarchs?
- Why would anyone vote for this after centuries of growth

- Can we use the concept of SUFFICIENCY – how to measure or persuade

At least the EU was trying to change

- The comprehensive post-COVID policies of the previous European Commission and Parliament (2019–2024) went further to address these issues than most other countries.
- There is thus a strong foundation for the current Commission and Parliament on which to build.
- We point current policy-makers to several areas on which EASAC has advised over recent years.

Circular economy
Emission reductions
GDP replacement
Carbon pricing
Nature Restoration
Fossil Fuel subsidies and industry
Other environmentally harmful subsidies
Adaptation
Agriculture
Land sink
Green Finance
Competition/border adjustments
Demand

Our conclusion

- Current trends very dangerous – whether planetary or political
- Politicians cannot (or should not) ignore reality
- This commentary attempts to give an objective overview of the direction to go for those prepared to take a longer-term view