



Energy sufficiency: Living well, within the limits

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There are multiple technological ways to meet GHG reductions – models do not tend to take notice of whether people will accept them or not

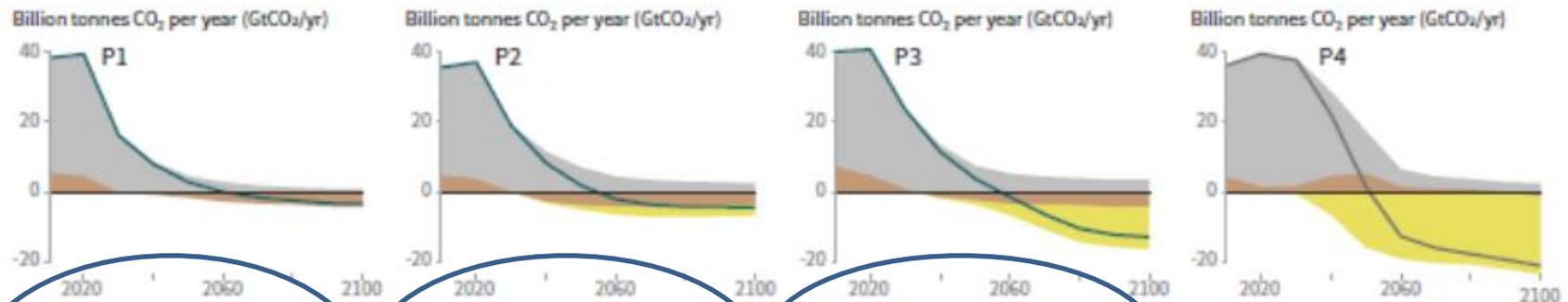
<http://www.ipcc.ch/report/sr15/>

Characteristics of four illustrative model pathways

Different mitigation strategies can achieve the net emissions reductions that would be required to follow a pathway that limits global warming to 1.5°C with no or limited overshoot. All pathways use Carbon Dioxide Removal (CDR), but the amount varies across pathways, as do the relative contributions of Bioenergy with Carbon Capture and Storage (BECCS) and removals in the Agriculture, Forestry and Other Land Use (AFOLU) sector. This has implications for emissions and several other pathway characteristics.

Breakdown of contributions to global net CO₂ emissions in four illustrative model pathways

● Fossil fuel and industry ● AFOLU ● BECCS



P1: A scenario in which social, business and technological innovation result in lower energy demand up to 2050 while living standards rise, especially in the global South. A downsized energy system enables rapid decarbonization of energy supply. Afforestation is the only CDR option considered; neither fossil fuels with CCS nor BECCS are used.

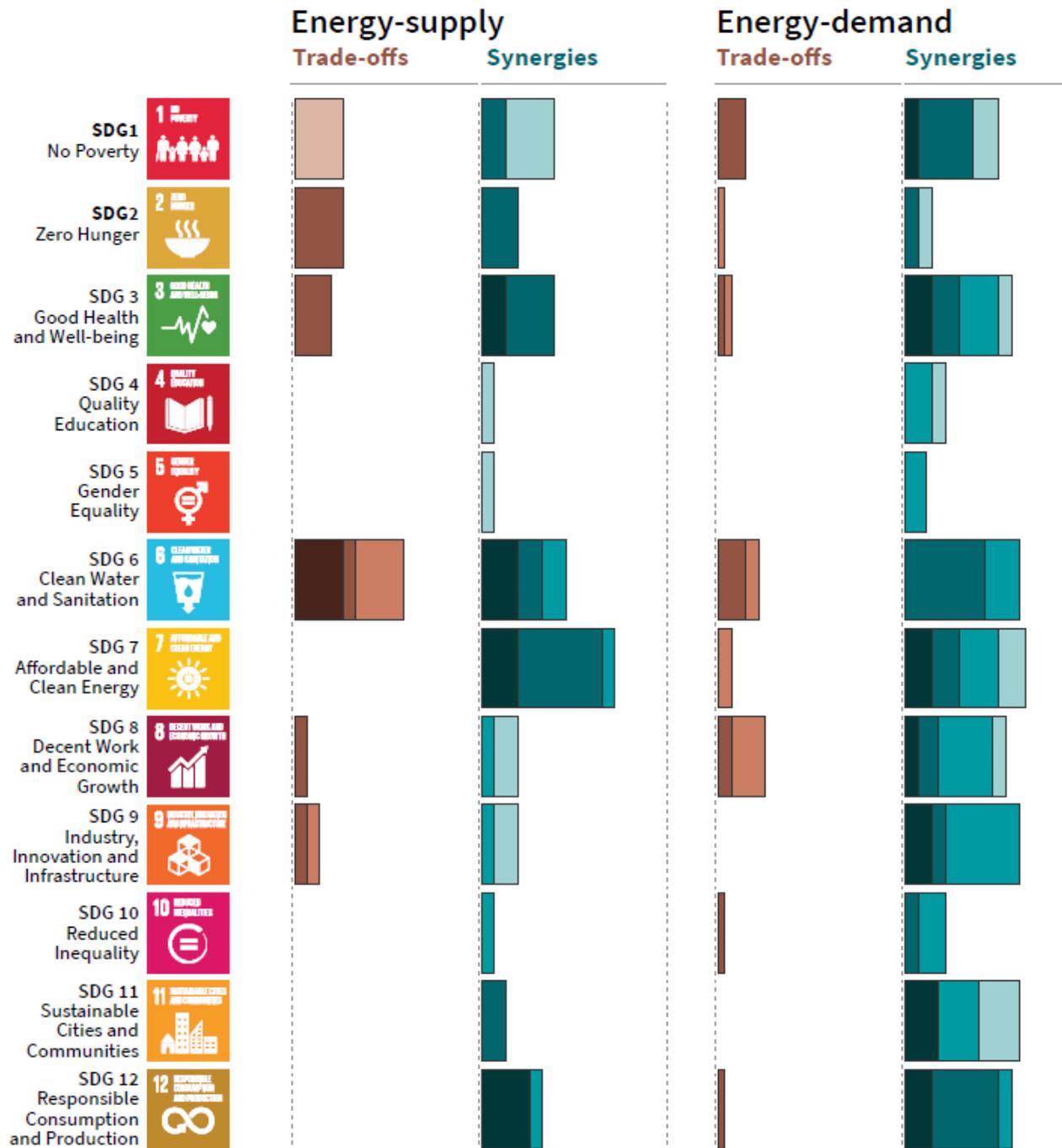
P2: A scenario with a broad focus on sustainability including energy intensity, human development, economic convergence and international cooperation, as well as shifts towards sustainable and healthy consumption patterns, low-carbon technology innovation, and well-managed land systems with limited societal acceptability for BECCS.

P3: A middle-of-the-road scenario in which societal as well as technological development follows historical patterns. Emissions reductions are mainly achieved by changing the way in which energy and products are produced, and to a lesser degree by reductions in demand.

P4: A resource- and energy-intensive scenario in which economic growth and globalization lead to widespread adoption of greenhouse-gas-intensive lifestyles, including high demand for transportation fuels and livestock products. Emissions reductions are mainly achieved through technological means, making strong use of CDR through the deployment of BECCS.

Energy demand is social:

Sustainable Development Goals



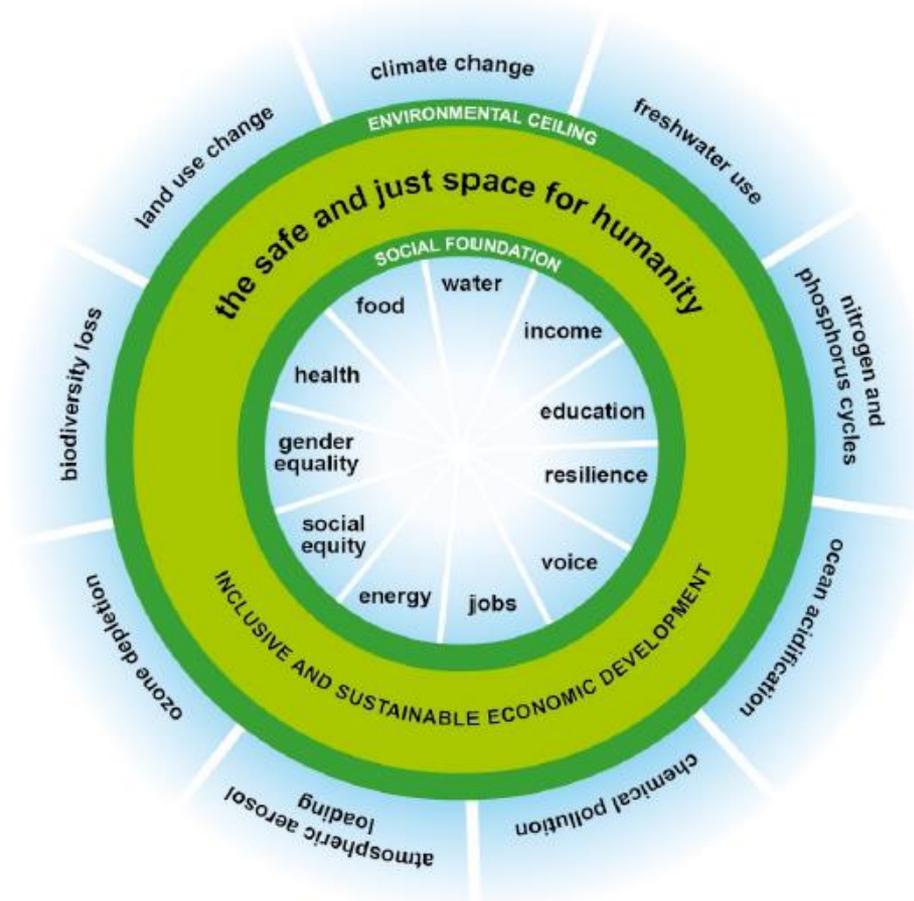
Humans are undermining the life-support systems of other species and their own. What we are now doing is not sustainable... We really ought to do something...

[But] It's gloom-and-doom plus platitude... the proposed solutions tend to be more of the same: use resources more efficiently. Recycle more. Form partnerships. Tax the bads, subsidise the goods. Promote spiritual awakening. Adapt...

Missing are principles of social organisation consonant with long-term, sustainable resource use. It is from principles that ecologically sensitive patterns of use can emerge. Sufficiency is one such broad principle.

(Princen 2005, vii-viii)

The Raworth/Oxfam sustainable development 'doughnut'



Raworth, K. (2017) *Doughnut economics: Seven ways to think like a 21st-Century economist*. London, Random House Business Books

Definitions

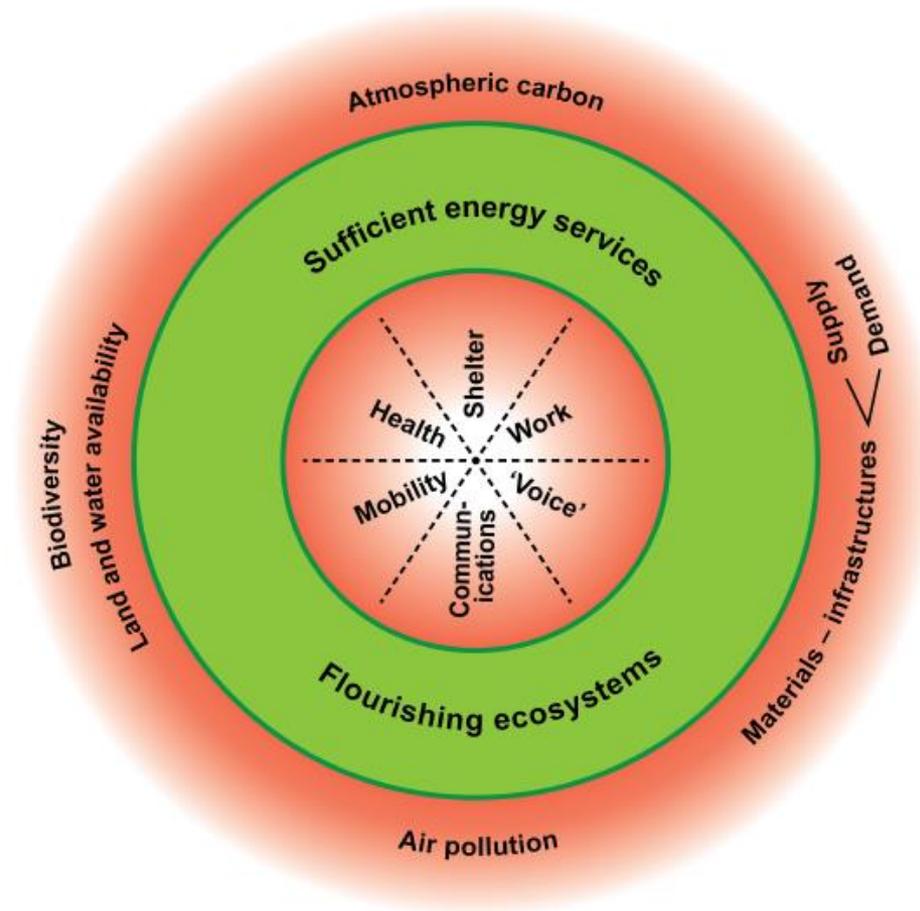
Sufficiency is an amount of something that is enough for a particular purpose

*Energy sufficiency is a **state** in which people's basic needs for energy services are met equitably and ecological limits are respected*

+

*Energy sufficiency is an **organising principle** for achieving that state*

The doughnut, adapted for thinking about energy sufficiency



Distinguishing between needs and wants

There are complex and long-standing debates as to whether there is a distinction between human needs and wants, and if so, how this can be defined.

Key themes:

- whether human needs have any universal or objective features;
- what an account of human need should look like, with different approaches to
 - material and non-material necessities
 - absolute and relative norms
 - expert and public/'lay' judgement about what are necessities.

Empirical research on needs and wants

The ‘Minimum Income Standard’ is calculated by specifying ‘baskets’ of goods and services required by different types of household.

“A minimum standard of living in the UK today includes, but is more than just, food, clothes and shelter. It is about having what you need in order to have the opportunities and choices necessary to participate in society.”

A participatory method is used to determine what is necessary for different groups in society, and this is revisited every two years. Most items regarded as ‘needs’ have been stable since 2008.

JRF

Transport needs

MIS discussions about transport identified the following as needs:

- a (second hand) car for families with children, but not for single people or couples without children.
- bus fares
- modest amount of taxi fares for those without cars
- bicycles for pensioners, children and the man in parent couples (!)
- UK holidays – so no international travel



By contrast, some campaigners make a distinction between frequent flyers, and other flyers, with one tax free flight per person per year - suggesting this is a basic entitlement (<http://afreeride.org>).

From concept to implementation: some energy sufficiency issues for planners

How do needs for energy services/consumption differ in regions/areas with different **ecosystems and social conditions**, and what does that mean in terms of **equity**?

At what scale(s) is sufficiency most effectively addressed – neighbourhood, city region, nation, continent? How do answers vary according to whether we are talking about built environment, supply or transport infrastructures, social norms or appliance standards?

What **timescales** does sufficiency operate on? Some energy-consuming and generating activities are more time-sensitive than others.

How might sufficiency policy address **dynamism and uncertainties** of product and system development?

Towards a flowering of energy and planning policy

