

Dimensions of the Doughnut

An introduction to each of the 21 social and planetary dimensions of the Doughnut

@DoughnutEcon

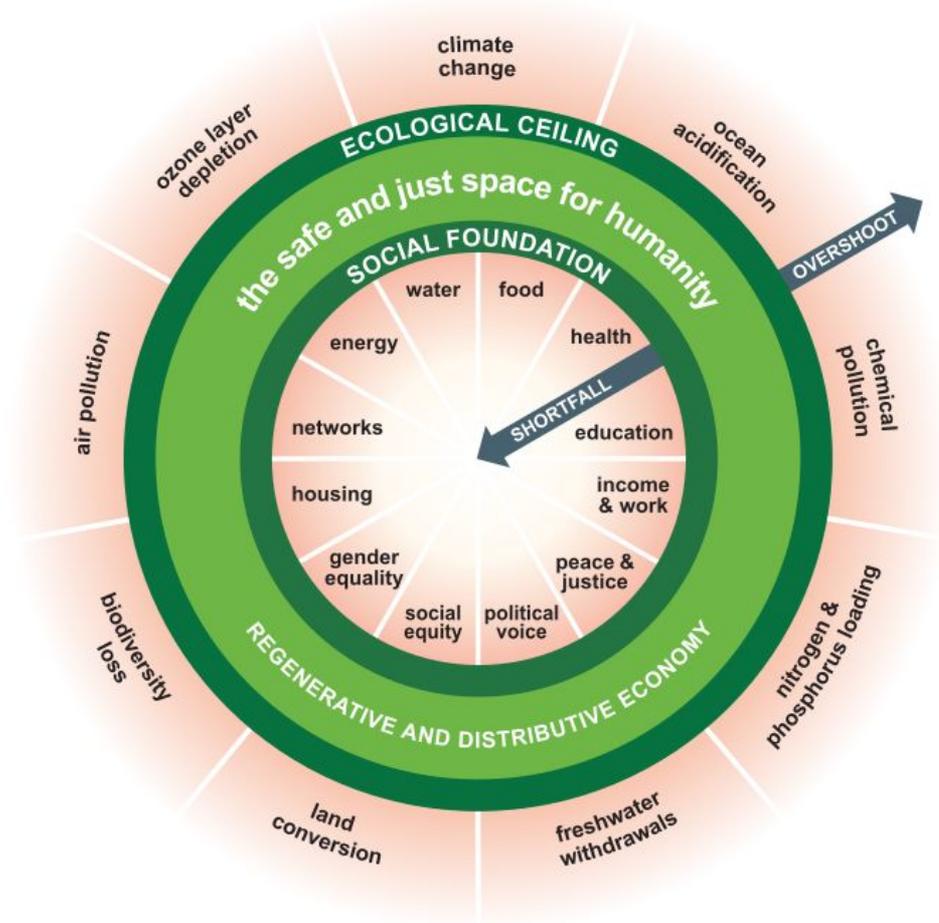
www.doughnuteconomics.org

The Doughnut

This is the Doughnut.

The goal of the Doughnut is to meet the needs of all within the means of living planet.

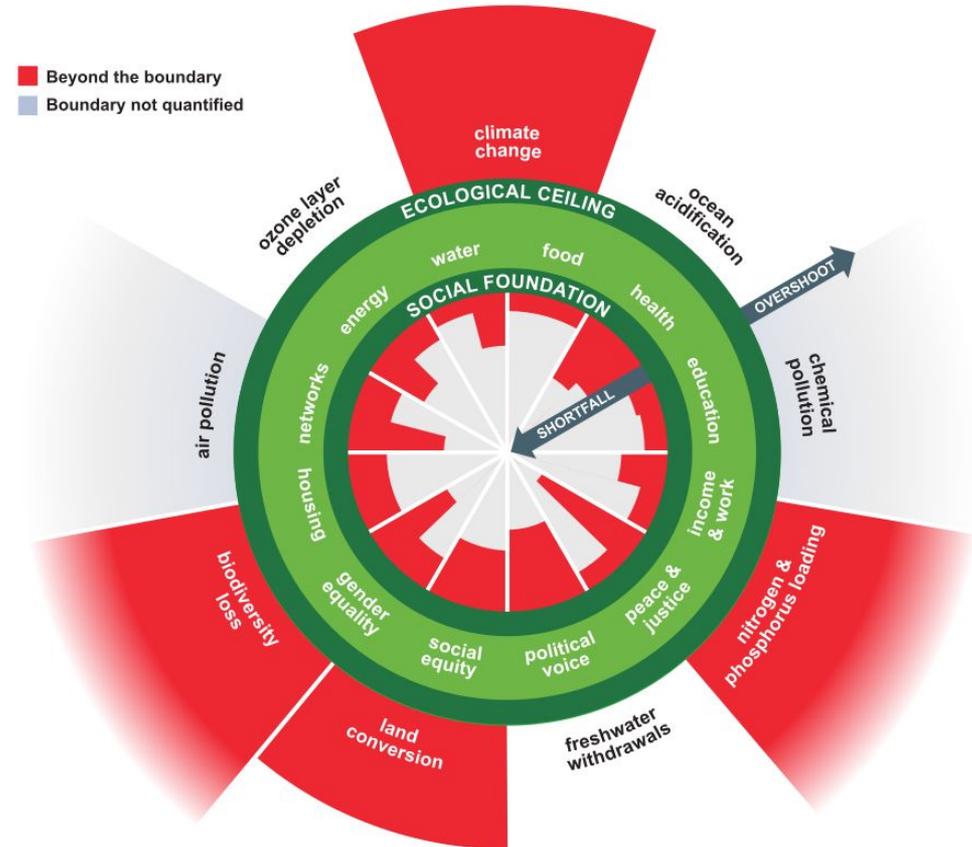
In other words, to live in the safe and just space for humanity.



Humanity's 'Selfie'

Humanity is currently living far outside the Doughnut, on both sides – social and ecological – as all of the red wedges show.

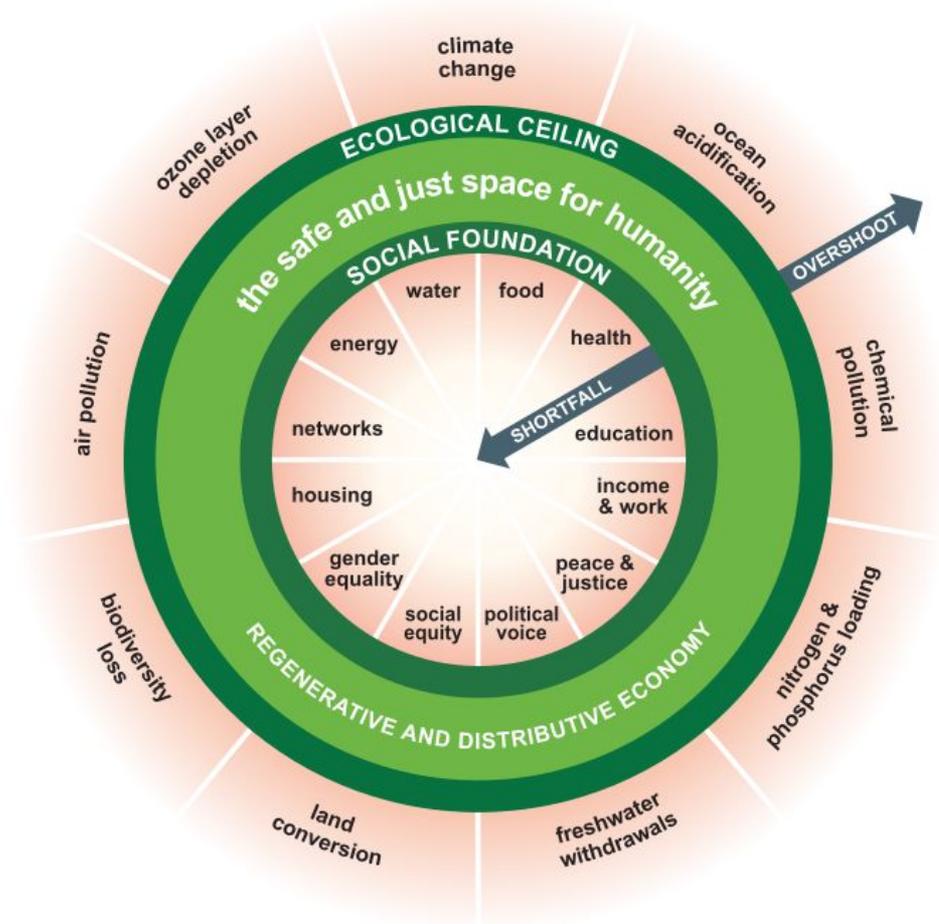
Billions of people still cannot meet their most essential needs while humanity has already overshoot multiple planetary boundaries.



Explore the 21 Dimensions

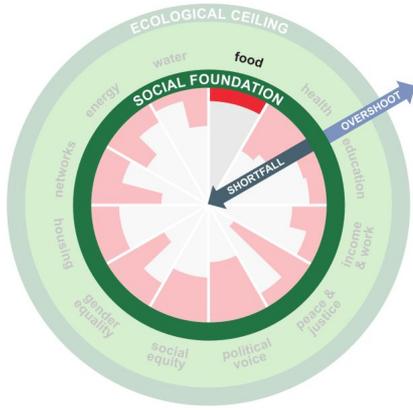
As you explore each of the 21 Dimensions of the Doughnut, some questions you might want to consider are:

- How does this issue show up in your country?
- What kinds of policies or actions could help tackle the issue?
- How is this dimension related to other Doughnut dimensions?



Food

Safe, sufficient, nutritious food for all. Food is a daily essential for a healthy life, which is why all people need to have secure access to sufficient, affordable, safe and nutritious food. Yet more than 800 million people worldwide are currently undernourished, and this number has been rising in recent years, especially in countries most affected by conflict and by the impacts of climate change.



Illustrative Indicators

Population undernourished

% of global population

11%

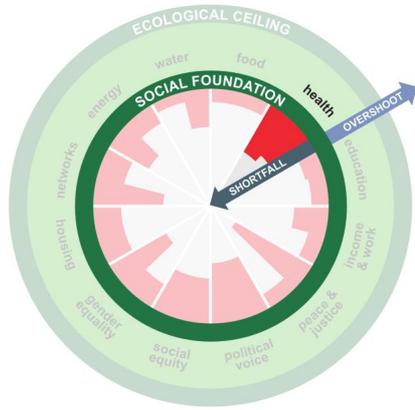
Year and source

2014-2016 (FAO)



Health

Access to affordable, quality healthcare for all. Health services provide people with essential care and treatment for illness and injury, from birth to death. They also significantly reduce the prevalence of disease – but globally, progress in tackling diseases such as malaria and tuberculosis has slowed or stalled. At least half the world's population do not have access to essential health services, and many of those who do still have to pay a high price for it, which too often pushes vulnerable families into poverty.



Illustrative Indicators

Population living in countries with under-five mortality rate exceeding 25 per 1,000 live births

Population living in countries with life expectancy at birth of less than 70 years

% of global population

46%

39%

Year and source

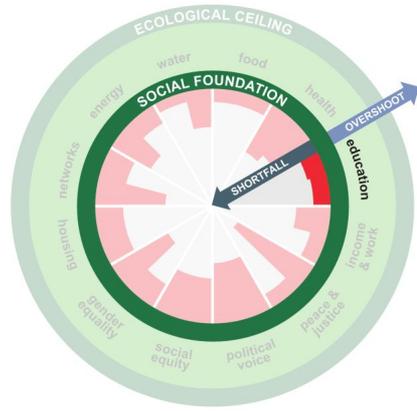
2015 (World Bank)

2013 (World Bank)



Education

Access to life-long learning for all. Education is foundational to every person's ability to participate in society and to take up opportunities throughout their life. Yet over 250 million children worldwide are still out of primary and secondary school. The reasons range from a shortage of qualified teachers and a lack of toilets in schools to prohibitive school fees and discrimination against girls and minorities.



Illustrative Indicators

Adult population (aged 15+) who are illiterate

Children aged 12-15 out of school

% of global population

15%

17%

Year and source

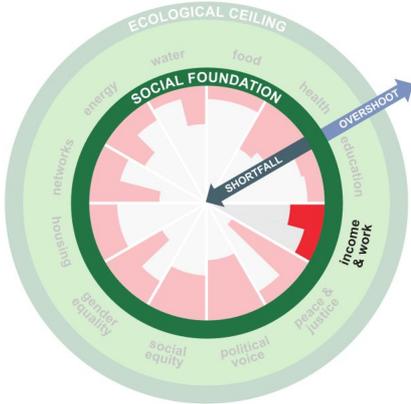
2013 (UNESCO)

2013 (UNESCO)



Income & Work

Decent work and adequate income for all. Work that is safe, meaningful and fairly paid provides essential income for households to meet many of their needs and wants. Yet more than two billion people worldwide live in income poverty and around half a billion people are un- or under-employed. Many millions more work in dangerous and exploitative conditions, and are denied the right to organise and bargain collectively.

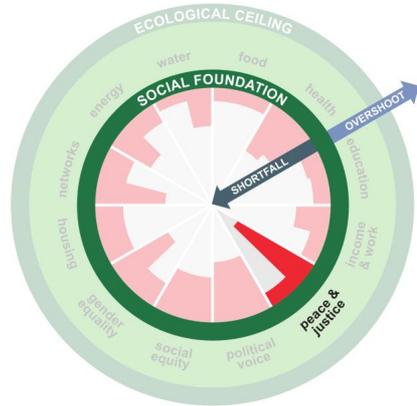


Illustrative Indicators	Population living on less than the international poverty line of \$3.10 a day	Proportion of young people (aged 15-24) seeking but not able to find work
% of global population	13%	9%
Year and source	2012 (World Bank)	2014 (ILO)



Peace & Justice

Personal security, government accountability, and access to justice for all. Peaceful and just societies enable people to live in their communities, free from fear and exploitation. They likewise tackle corruption in business and politics by building effective and accountable institutions at all levels. Worldwide, over 70 million people have been forcibly displaced from their communities primarily due to armed conflict, violence, human rights violations, and climate change.



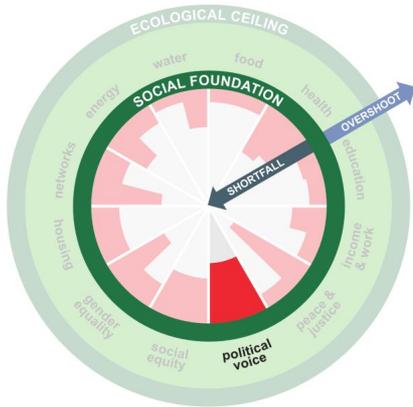
Illustrative Indicators

Population living in countries scoring 50 or less out of 100 in the Corruption Perceptions Index	Population living in countries with a homicide rate of 10 or more per 10,000
85%	13%
2014 (Transparency International)	2008–2013 (UNODC)



Political Voice

Ensure people have voice in, and influence over, decisions that affect their lives. Democratic institutions, freedom of expression, freedom of association, and a free media all tend to support more inclusive, participatory and representative decision-making in public life. Half the world's population, however, currently live in countries whose institutions fall significantly short on ensuring this.



Illustrative Indicators

Population living in countries scoring 0.5 or less out of 1.0 in the Voice and Accountability Index

% of global population

52%

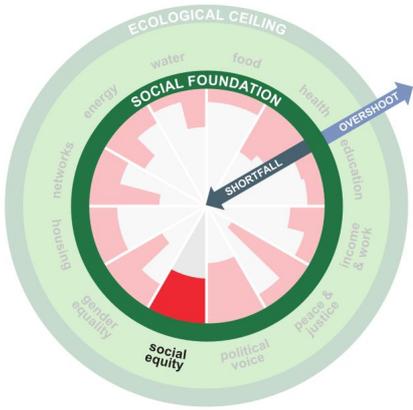
Year and source

2013 (World Bank)



Social Equity

Ensure equality of opportunity, and reduce income inequality. People living in more equal societies tend to be healthier, safer, and more trusting compared to those in less equal societies – but there are wide and growing inequalities of income and wealth in many countries. These inequalities are frequently exacerbated by inequalities of race and ethnicity, sexual orientation, religion, age, language, disability and location.



Illustrative Indicators

Population living in countries with a Palma ratio of 2 or more (the ratio of the income share of the top 10% of people to that of the bottom 40%)

% of global population

39%

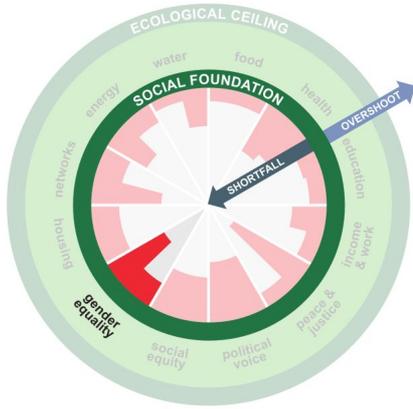
Year and source

1995–2012 (World Bank)



Gender Equality

Achieve gender equality and empower all women and girls. Ensuring that women and girls have equal access to education, health care, decent work, and representation in political and economic decision-making processes are essential elements of just societies. Women and girls continue to face discrimination and violence in every part of the world. Gender equality is not only a fundamental human right, but a necessary precondition for a peaceful and prosperous world.



Illustrative Indicators

Representation gap between women and men in national parliaments

Worldwide earnings gap between women and men

% of global population

56%

23%

Year and source

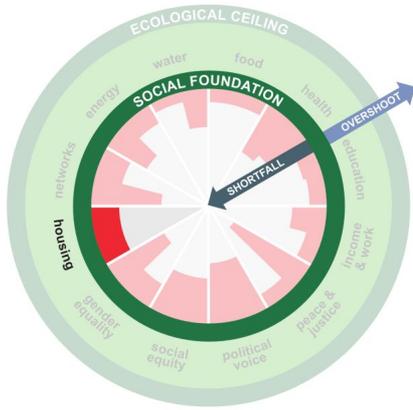
2014 (World Bank)

2009 (ILO)



Housing

Decent, affordable, safe housing for all. Sustainable and resilient homes and settlements are foundational for creating thriving communities, and for reducing the risk of natural disasters and climate change. However, close to one billion people (and rising) live in slums – in overcrowded, poor-quality dwellings, often with inadequate drinking water and sanitation services.



Illustrative Indicators

Proportion of global urban population living in slum housing in developing countries

% of global population

24%

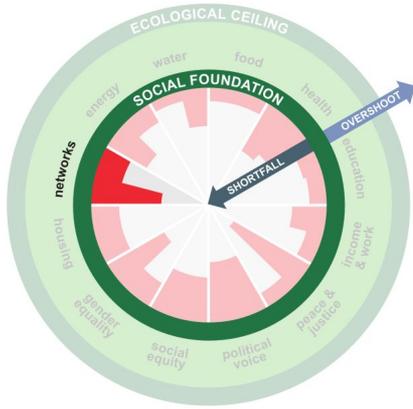
Year and source

2012 (UN)



Networks

Access to networks – of transport, of communications, and of community support. Transport infrastructure, digital communications, and social connections are crucial for creating opportunity and for building community wellbeing and resilience. However, half the world's population have no access to local public transport, over 40% of people cannot access the Internet at home, and one person in four says they have no one to count on in times of trouble.



Illustrative Indicators

Population stating that they are without someone to help in times of trouble

Population without access to the Internet

% of global population

24%

57%

Year and source

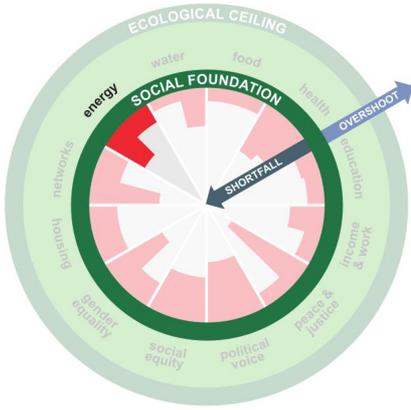
2015 (Gallup)

2015 (ITU)



Energy

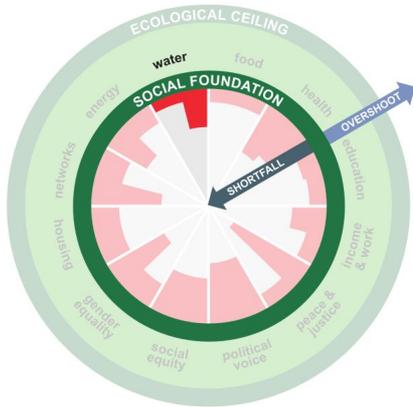
Access to clean, affordable energy services for all. Gaining access to electricity can be transformative – for children’s education, household life, community healthcare and the local economy. Despite progress, nearly 800 million people still live without electricity, and the share of renewable energy used worldwide is far too low. In addition, 3 billion people still depend on fuels like wood, dung and kerosene for cooking, which creates damaging indoor air pollution especially affecting women and girls.



Illustrative Indicators	Population lacking access to electricity	Population lacking access to clean cooking facilities
% of global population	17%	38%
Year and source	2013 (OECD / IEA)	2013 (OECD / IEA)

Water & Sanitation

Access to clean water and decent sanitation. Water is a daily essential for drinking, bathing, cooking, and washing clothes. However, billions of people still don't have access to safe drinking water, or to a hygienic toilet. This exacerbates the spread of diseases like cholera and diarrhea, which cause millions of preventable childhood deaths every year.



Illustrative Indicators

Population without access to improved drinking water

Population without access to improved sanitation

% of global population

9%

32%

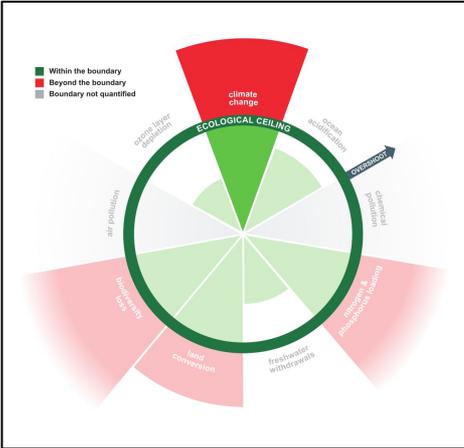
Year and source

2015 (WHO / UNICEF)

2015 (WHO / UNICEF)

Climate Change

When greenhouse gases such as carbon dioxide, methane and nitrous oxide are released into the air, they enter the atmosphere and amplify Earth's natural greenhouse effect, trapping more heat within the atmosphere. This results in global heating, whose effects include rising temperatures, more frequent droughts, floods and storms,, and sea level rise.

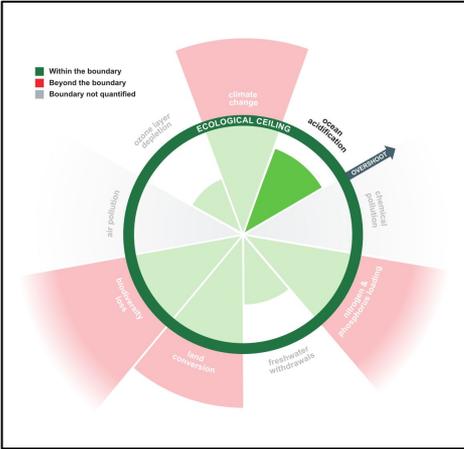


Control Variable	Atmospheric carbon dioxide concentration, parts per million
Planetary Boundary	At most 350ppm
Current value, (% of PB) & trend	400ppm and rising. (169%). Worsening
Source	Steffen et al., 2015



Ocean Acidification

Around one quarter of the carbon dioxide emitted by human activity is eventually dissolved in the oceans, where it forms carbonic acid and decreases the pH of the surface water. This acidity reduces the availability of carbonate ions that are an essential building block used by many marine species for shell and skeleton formation. This missing ingredient makes it hard for organisms such as corals, shellfish and plankton to grow and survive, thus endangering the ocean ecosystem and its food chain.

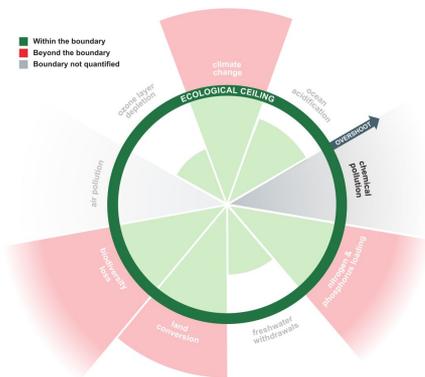


Control Variable	Average saturation of aragonite (calcium carbonate) at the ocean surface, as a percentage of pre-industrial levels
Planetary Boundary	at least 80% of pre-industrial saturation levels
Current value, (% of PB) & trend	~84%. (%78). Worsening
Source	Steffen et al., 2015



Chemical Pollution

When toxic compounds, such as synthetic organic pollutants and heavy metals, are released into the biosphere they can persist for a very long time, with effects that may be irreversible. And when they accumulate in the tissue of living creatures, including birds and mammals, they reduce fertility and cause genetic damage, endangering ecosystems on land and in the oceans.

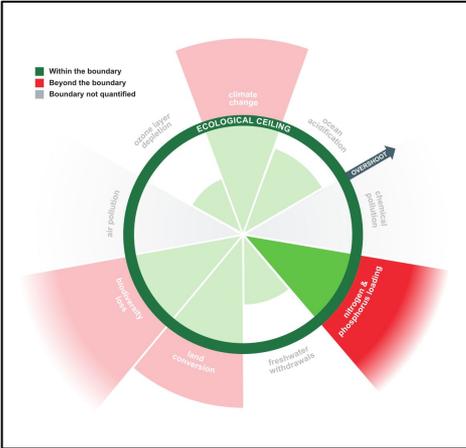


Control Variable	No global control variable yet defined
Planetary Boundary	-
Current value, (% of PB) & trend	-
Source	-



Nitrogen & phosphorus loading

Reactive nitrogen and phosphorus are widely used in agricultural fertilizers but only a small proportion of what is applied is actually taken up by crops. Most of the excess runs off into rivers, lakes and oceans, where it causes algae blooms that turn the water green, brown or even red. These blooms can be toxic and they kill off other aquatic life by starving the water of oxygen.

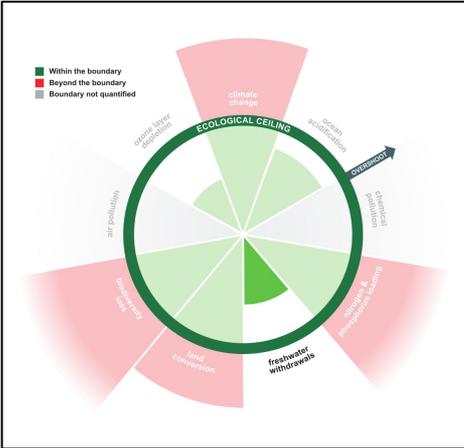


Control Variable	Phosphorus applied to land as fertilizer, millions of tons per year	Reactive nitrogen applied to land as fertilizer, millions of tons per year
Planetary Boundary	at most 6.2 million tons per year	at most 62 million tons per year
Current value, (% of PB) & trend	~14 million tons per year and rising (229%). Worsening	~150 million tons per year and rising (217%). Worsening
Source	Steffen et al., 2015	



Freshwater withdrawals

Water is essential for life and is widely used by agriculture, industry and households. Excessive withdrawals of water, however, can impair or even dry up lakes, rivers and aquifers, damaging ecosystems and altering the hydrological cycle and climate.

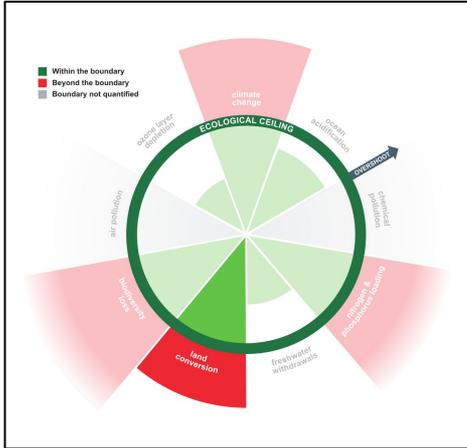


Control Variable	Blue water consumption, cubic kilometres per year
Planetary Boundary	at most 4000 km ³ per year
Current value, (% of PB) & trend	~2600 km ³ per year (61%). Intensifying
Source	Steffen et al., 2015



Land conversion

Converting land for human use – such as turning forests and wetlands into cities, farmland and highways – depletes Earth’s carbon sinks, destroys rich wildlife habitats, and undermines the land’s role in continually cycling water, nitrogen and phosphorus.

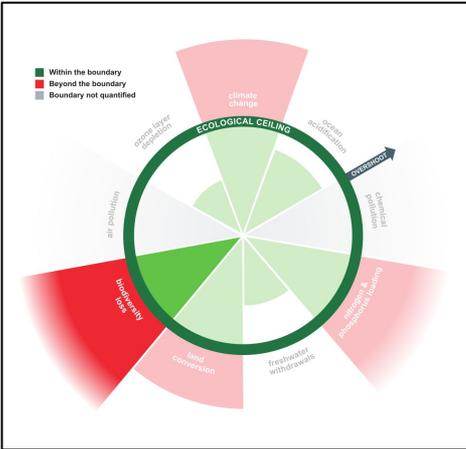


Control Variable	Area of forested land as a proportion of forest-covered land prior to human alteration
Planetary Boundary	at least 75%
Current value, (% of PB) & trend	62% and shrinking (152%) worsening
Source	Steffen et al., 2015



Biodiversity loss

A decline in the number and variety of living species damages the integrity of ecosystems and accelerates species extinction. In doing so it increases the risk of abrupt and irreversible changes to ecosystems, reducing their resilience and undermining their capacity to provide food, fuel and fibre, and to sustain life.



Control Variable	Rate of species extinction per million species per year
Planetary Boundary	at most 10
Current value, (% of PB) & trend	Around 100-1000 and rising (1000%). Worsening
Source	Steffen et al., 2015



Air pollution

Micro-particles, or aerosols, emitted into the air – such as smoke, dust and pollutant gases – can damage living organisms. Furthermore, they interact with water vapour in the air and so affect cloud formation. When emitted in large volumes these aerosols can significantly alter regional rainfall patterns, including shifting the timing and location of monsoon rains in tropical regions.

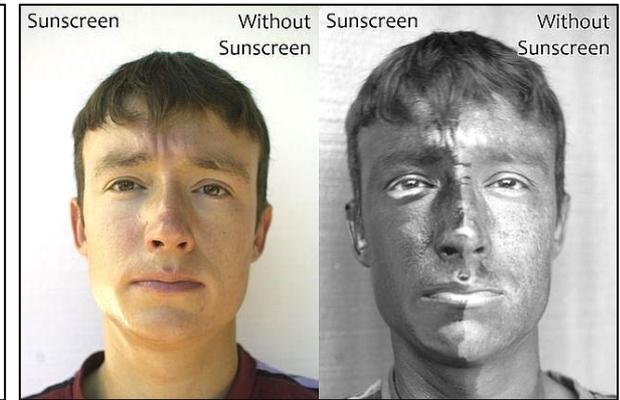
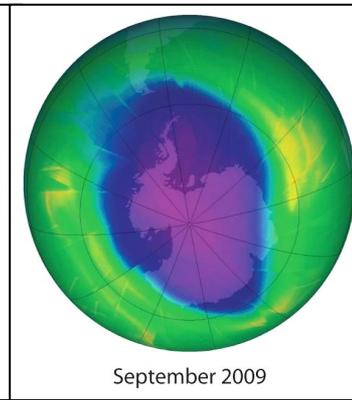
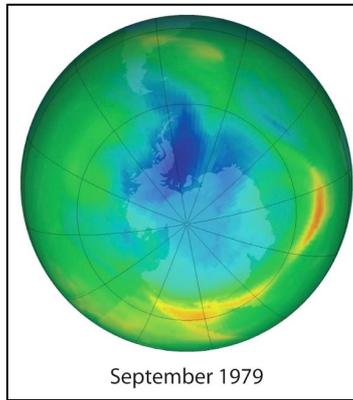
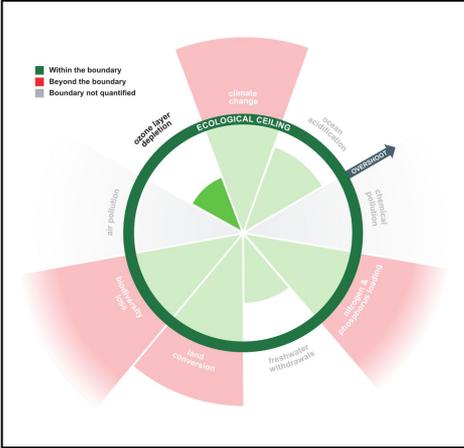


Control Variable	No global control variable yet defined
Planetary Boundary	-
Current value, (% of PB) & trend	-
Source	-



Ozone layer depletion

Earth's stratospheric ozone layer filters out ultraviolet radiation from the sun. Some human-made chemical substances, such as chlorofluorocarbons (CFCs) will, if released, enter the stratosphere and deplete the ozone layer, exposing Earth and her inhabitants to the sun's harmful UV rays.



Control Variable	Concentration of ozone in the stratosphere, in Dobson Units
Planetary Boundary	at least 275 DU
Current value, (% of PB) & trend	283 DU and rising (47%). Improving
Source	Steffen et al., 2015



Image Sources

Dimension	Top left	Top right	Bottom left	Bottom right
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Health	UN (CC BY-NC-ND 2.0)	rawpixel.com	CDC on Unsplash	The World Bank
Education	Church of the King on Unsplash	Kids Computers by TB (CC BY-NC-SA 3.0)	mynextmove.org (CC BY 4.0)	Yannis H on Unsplash
Income & Work	Makers on Unsplash	CIAT/NeilPalmer (CC BY-SA 2.0)	Steve Evans (CC BY-NC 2.0)	Shubham Verma on Unsplash
Peace & Justice	Wikimedia	Wikimedia	Wikimedia	Wikimedia
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Networks	Joe Martin (CC BY-SA 3.0)	Unknown (CC BY-NC-ND 2.0 UK)	pixabay.com	Joel Mott on Unsplash
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Dimension	Top left	Top right	Bottom left	Bottom right
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Ocean Acidification	Unknown (CC-BY-SA)		Godo	XL Catlin Seaview Survey
Chemical Pollution	IBRRC (CC BY 2.0)	Kingstonsprings (CC BY-SA 3.0 US)	Unknown (under Creative Commons Attribution)	Etienne Girardet on Unsplash
Nitrogen & phosphorus loading	Robert Burns (CC BY-NC-ND 2.0)	Diego Sideburns (CC BY-NC-ND 2.0)	Red Tide in Naples (CC by 2.0)	Unknown
Freshwater withdrawals	SkyPixel (CC BY-SA 4.0)	NASA Earth Observatory (CC BY 2.0)	IRRI (CC BY-NC-SA 2.0)	Brad Smith (CC BY-NC 2.0)
Land conversion	Greenpeace International (CC BY-NC-SA 4.0)	Tokyoform (CC BY-NC-ND 2.0)	Elias Schewel (CC BY-NC-ND 2.0)	Kate Evans/CIFOR (CC BY-NC-ND 2.0)
Biodiversity loss	Pixabay.com	Untitled (CC BY-NC 2.5 AR)	Sergey Yastrzhembsky (CC BY-NC-ND 3.0)	Ryk Porras on Unsplash
Air pollution	CIFOR (CC BY-NC-ND 2.0)	Alexander Tsang on Unsplash	Alexander Popov on Unsplash	dsleeter_2000 (CC BY-NC 2.0)
Ozone layer depletion	NASA	Wikimedia	Nasa Earth Observatory (CC BY 2.0)	J.G. Park (CC BY-NC-ND 2.0)

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