

# People and the Planet

Humans have become a dominant force of planetary change, with profound implications for the Earth's marine and terrestrial ecosystems. Observations from across sectors, cities, countries and cultures, however, suggest that a new renaissance of reconnecting economic progress with the state of the environment is starting to emerge. Active stewardship of the oceans and their resources is fundamental in ensuring the wellbeing and prosperity of all people.

## Overview

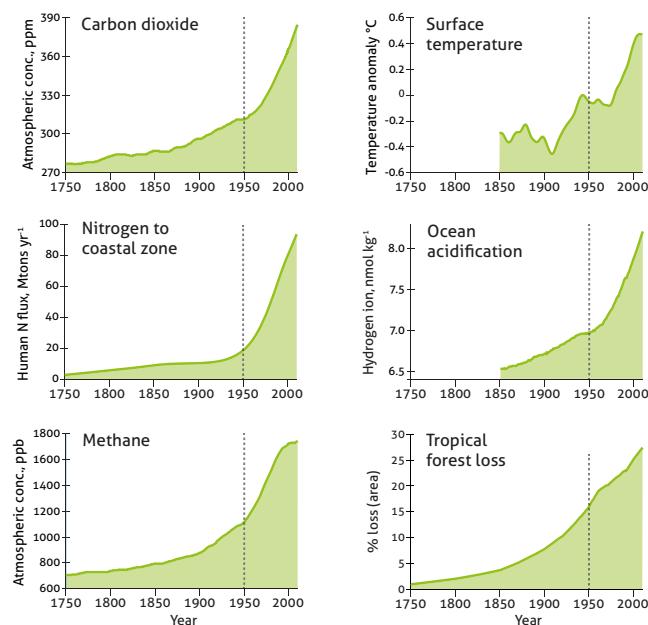
Human societies depend on natural resources and ecosystem services derived from well-functioning oceans, forests and the biosphere as a whole. At the same time, the reach and fast-moving pace of the global economy is impacting the planet at every level – locally, nationally and globally<sup>1</sup>. Humanity has moved from operating as a “small player on a big planet” to a “big player on a small planet”.

That human footprint touches every aspect of the natural world, and the costs associated with our current model of progress (pollution, resource depletion,

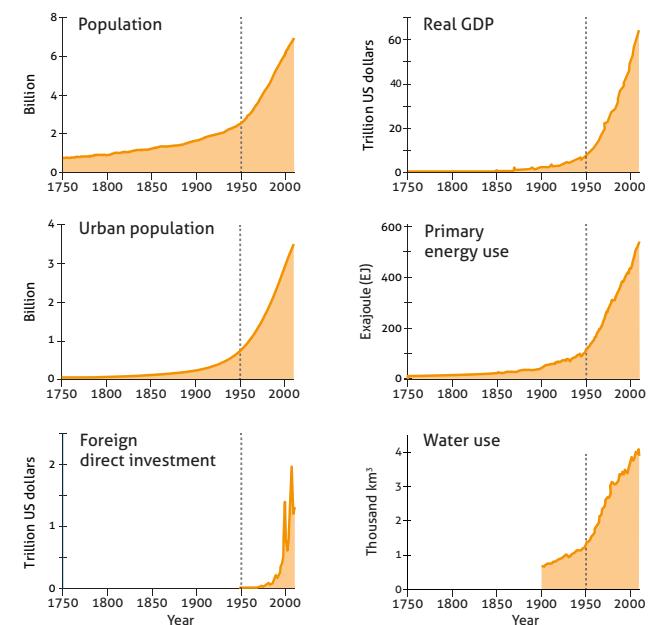
extreme weather events and species extinctions) are negatively impacting both the rate of economic growth and the quality of life of a growing number of people.

Environmental concerns have consequently shifted from focusing on protecting ecosystems and biodiversity from overuse and pollution, to a recognition that sustainable ecosystems are critical for the future of humans on Earth. A growing emphasis is now directed towards the global impacts and consequences of continuing to pursue economic growth without due concern for the natural environment.

## EARTH SYSTEM TRENDS



## SOCIO-ECONOMIC TRENDS



Human activity, predominantly in the global economic system, is now the prime driver of change in the Earth System (the sum of our planet's interacting physical, chemical, biological and human processes). Adapted from Steffen *et al.* 2015a [2].

As emphasised by the United Nations Sustainable Development Goals (SDGs), progress for humankind as a whole must address chronic poverty. However, that can no longer be done at the expense of the natural systems and resources on which we all depend. Stewardship of the biosphere is now an absolute imperative. Social innovations, new business models and transformative collaborations that account for the capacity and resilience of the biosphere are starting to emerge.

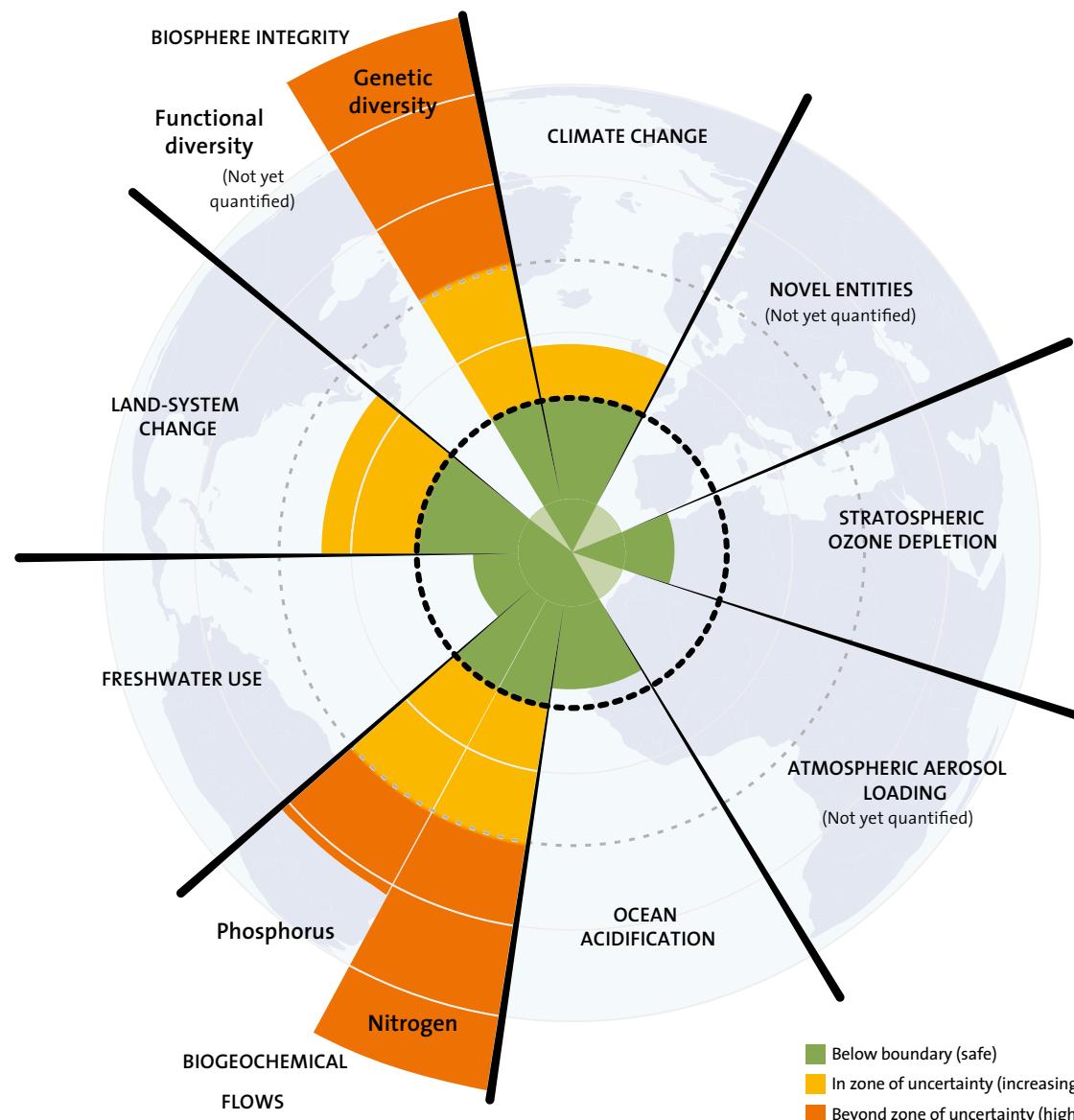
### Approaching critical tipping points

Human civilisation developed during a remarkably stable period in Earth's history, where global temperatures changed no more than about 1°C for 10,000 years. This stability has allowed for the development of agriculture and complex societies. Human population grew from 2.5 billion in 1950 to 7.4 billion today<sup>2</sup>. However, there is growing evidence that the Earth is now operating in a fundamentally new way as a consequence of the scale and magnitude of human activities.

Driven by concerns about what this means for humanity, researchers have identified nine planetary boundaries<sup>3</sup> that help to define a "safe operating space for humanity". These are climate, ozone, land use, ocean acidification, water, fertiliser use, biodiversity, chemical use and air pollution (aerosols). Scientists estimate that we have already crossed four of these boundaries (climate, land use, biodiversity and fertiliser use), which clearly indicates that human actions are now undermining the resilience of the biosphere.

### The final frontier

Humans have a frontier mentality. If we deplete resources, for example a fishing ground or a forest, we have historically been able to move on to the next place or another resource<sup>4</sup>. In the face of a growing human population, limited room for further expansion of human activities, and compounding effects from climate change, this approach to economic development clearly poses a risk to the future wellbeing and security



Four of nine planetary boundaries have been crossed: climate change, loss of biosphere integrity, land-system change, altered biogeochemical cycles (phosphorus and nitrogen). Adapted from Rockström *et al.* 2009 [3], Steffen *et al.* 2015b [10].



Container terminals in the port of Hong Kong. Photo: xPACIFICA/Getty Images

of humankind. This demands that we fundamentally rethink our approach to resource use and the global commons<sup>5</sup>.

### The state of the ocean

Many cultures have a saying similar to "the straw that broke the camel's back". If you push something too hard, it can suddenly collapse as it reaches a tipping point. Are ocean and coastal ecosystems close to such tipping points? The research community is deeply concerned about it. Oceans store 90% of the additional warming caused by industrial emissions of greenhouse gases, and they absorb about a quarter of the carbon dioxide that humans put into the air, primarily through the burning of fossil fuels. That CO<sub>2</sub> causes accelerated acidification in the oceans at a rate not seen on Earth for over 50 million years.

Dead zones (caused by the run-off of fertilisers used in intensive agriculture) are increasing in number and growing in scale. Toxic pollutants are reducing the value of seafood. Commercial fisheries are reaching their capacity at a global scale. These combined pressures are reducing the resilience of ocean ecosystems – or their ability to remain productive in the face of shocks and disturbances<sup>6,7</sup>. As an example, record global temperatures this year (for the third year in a row) led to severe bleaching of the Great Barrier Reef.

### Turning crises into opportunities

We are heading into unknown territory, and can expect uncertainty and surprise. A serious risk for marine ecosystems and global fisheries is that critical thresholds are crossed, resulting in collapse of fish stocks and long-term degradation of the marine environment.

Recognising humans as a major driver of planetary change may also provide an opportunity to create a better world. After all, it implies that humans are indeed capable of shaping the future of our planet. Our societies are now increasingly connected – financially, culturally and politically<sup>8</sup> – enabling us to maximise the value of a new relationship between ecosystems and humankind.

This growing connectivity, together with increased awareness of the major risks facing humanity, has resulted in a political tipping point. This was evident last year when the Paris Agreement on climate change and the United Nations Sustainable Development Goals (SDGs) were both agreed on. Making progress with these two global Agreements will depend in large measure on the leadership shown by the business community in partnership with both governments and civil society.

The new global connectivity represents a novel opportunity for highly connected actors, like transnational corporations, to influence change in positive directions<sup>9</sup>. In that regard, today's leading seafood companies have an unprecedented opportunity to work in partnership with others to help ensure healthy and productive marine ecosystems for present and future generations.

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**Authors:** Henrik Österblom and Jean-Baptiste Jouffray, with support from Carl Folke, Fredrik Moberg, Owen Gaffney and Johan Rockström

**Affiliation:** Stockholm Resilience Centre

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