

# futureearth

research for global sustainability

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From MDGs to SDGs: Key challenges  
and opportunities

**Dave Griggs**

**Director, Monash Sustainability Institute**

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# Rio+20 Future We Want - Outcome document

We underscore that the Millennium Development Goals are a useful tool in focusing achievement of specific development gains as part of a broad development vision and framework for the development activities of the United Nations, for national priority-setting and for mobilization of stakeholders and resources towards common goals. We therefore remain firmly committed to their full and timely achievement.

We further recognize the importance and utility of a set of sustainable development goals.....The goals should address and incorporate in a balanced way all three dimensions of sustainable development and their interlinkages. They should be coherent with and integrated into the United Nations development agenda beyond 2015....The development of these goals should not divert focus or effort from the achievement of the Millennium Development Goals. We also underscore that sustainable development goals should be action oriented, concise and easy to communicate, limited in number, aspirational, global in nature and universally applicable to all countries while taking into account different national realities, capacities and levels of development and respecting national policies and priorities.

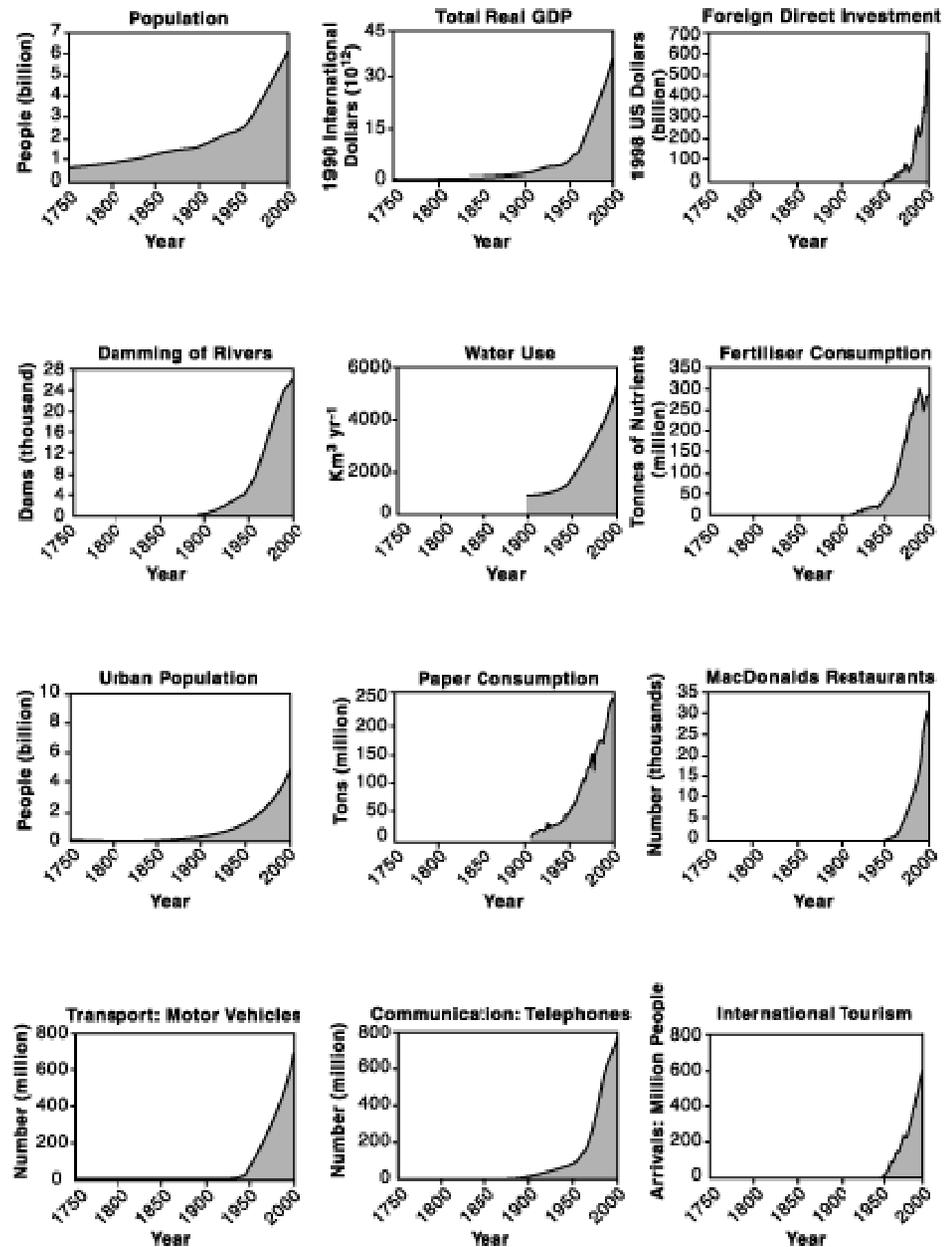
# Millennium Development Goals

- End poverty and hunger
- Universal education
- Promote gender equality and empower women
- Reduce child mortality
- Improve maternal health
- Combat HIV/AIDS, malaria and other diseases
- Ensure environmental sustainability
- Develop a global partnership for development

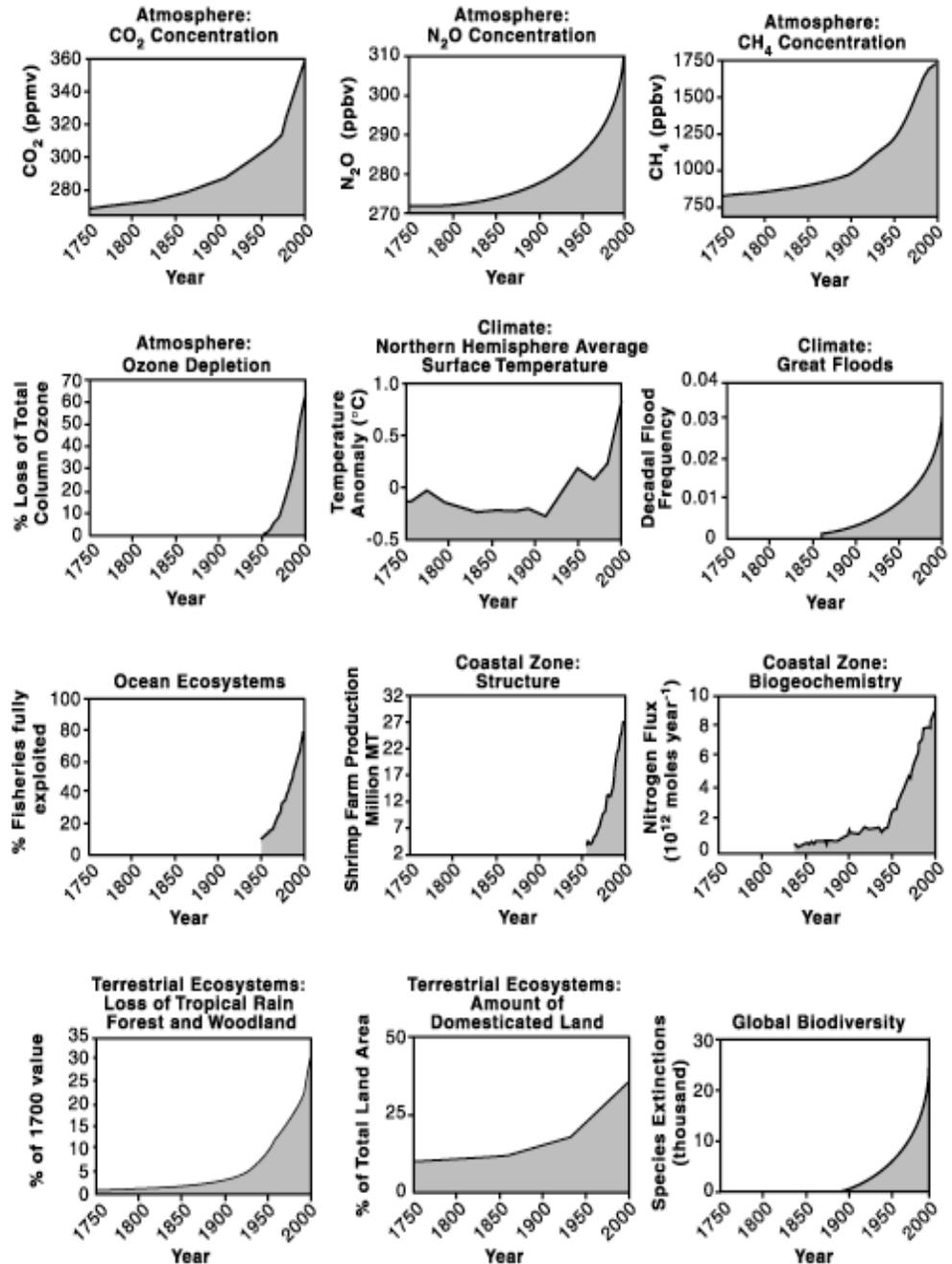
New research since 2000 shows the stable functioning of the Earth system is a pre-requisite for a thriving global society.

# The changing human enterprise, from 1750 to 2000

Note the start of the 'Great Acceleration' around 1950, when many activities began or accelerated sharply.



# Responses of the biophysical Earth System to the accelerating human enterprise



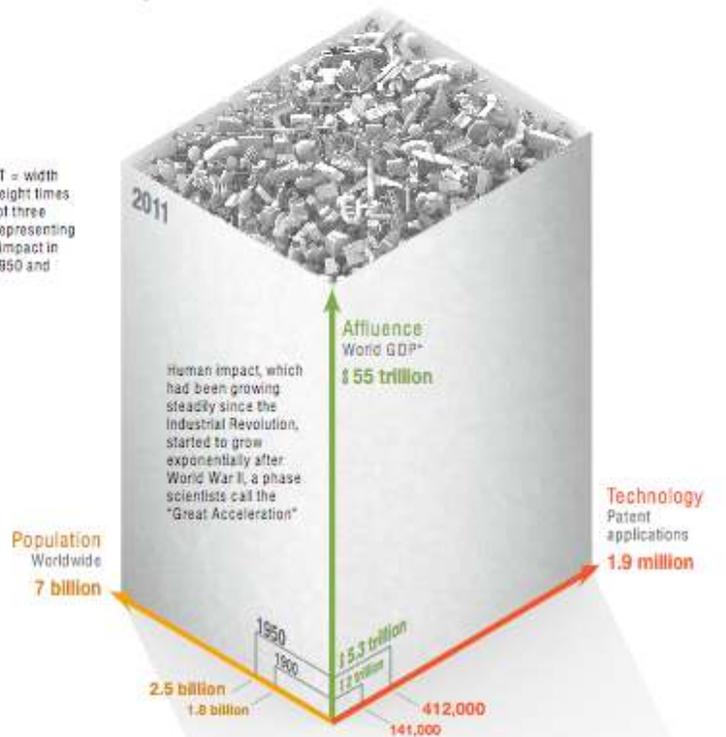
### WHY IS OUR IMPACT GROWING?

Is population growth the root cause? Or is it affluence, which leads to greater consumption of energy and other resources? Or technology, which offers new tools for exploiting and consuming? The IPAT formula is a way of thinking about the issue: it says the three factors compound. Since 1900 world GDP (a measure of A) and the number of patent applications (a measure of T) have grown even faster than population.

$$I = P \times A \times T$$

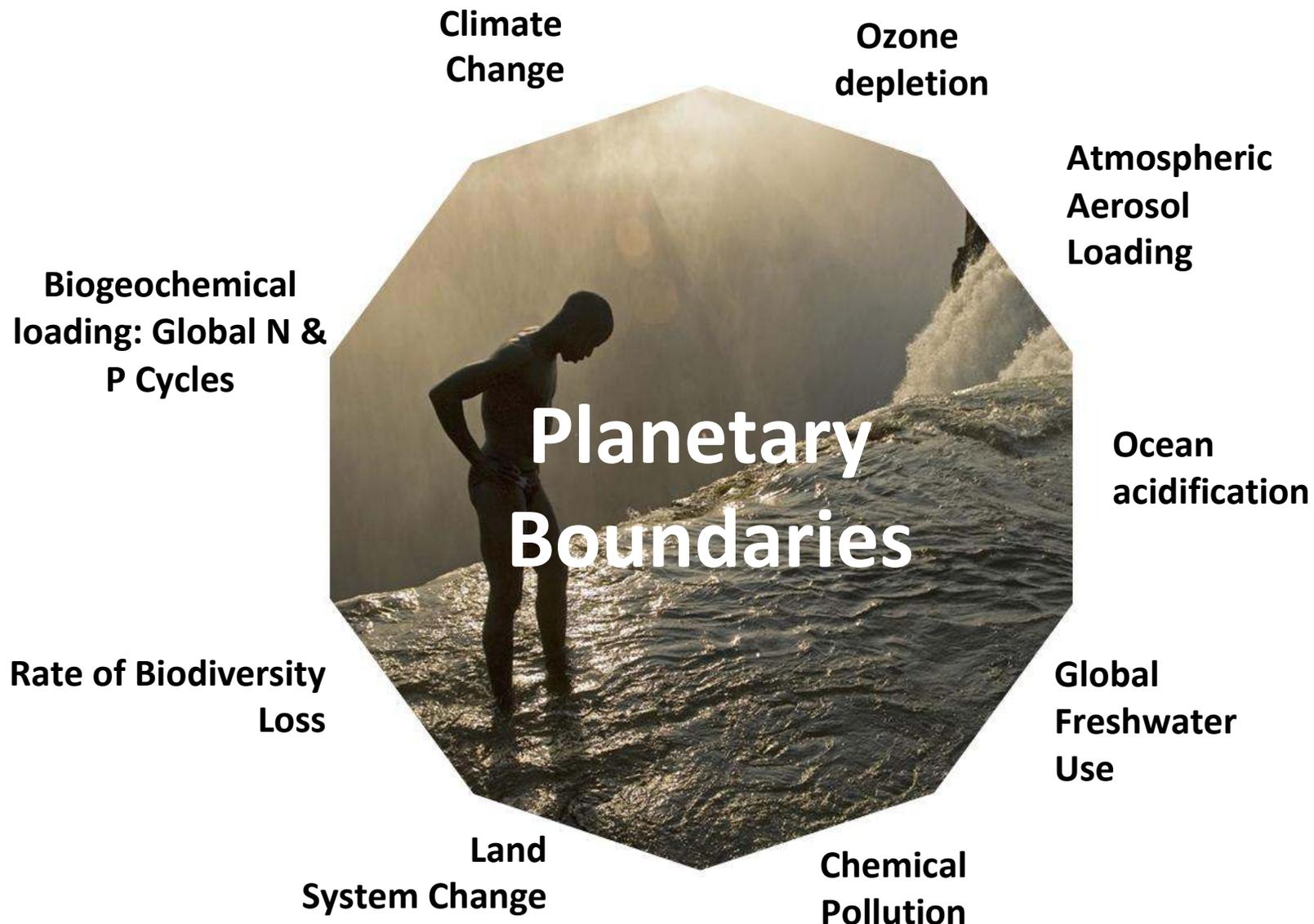
Human Impact = Population x Affluence x Technology

P x A x T = width times height times length of three boxes representing human impact in 1900, 1950 and 2011.

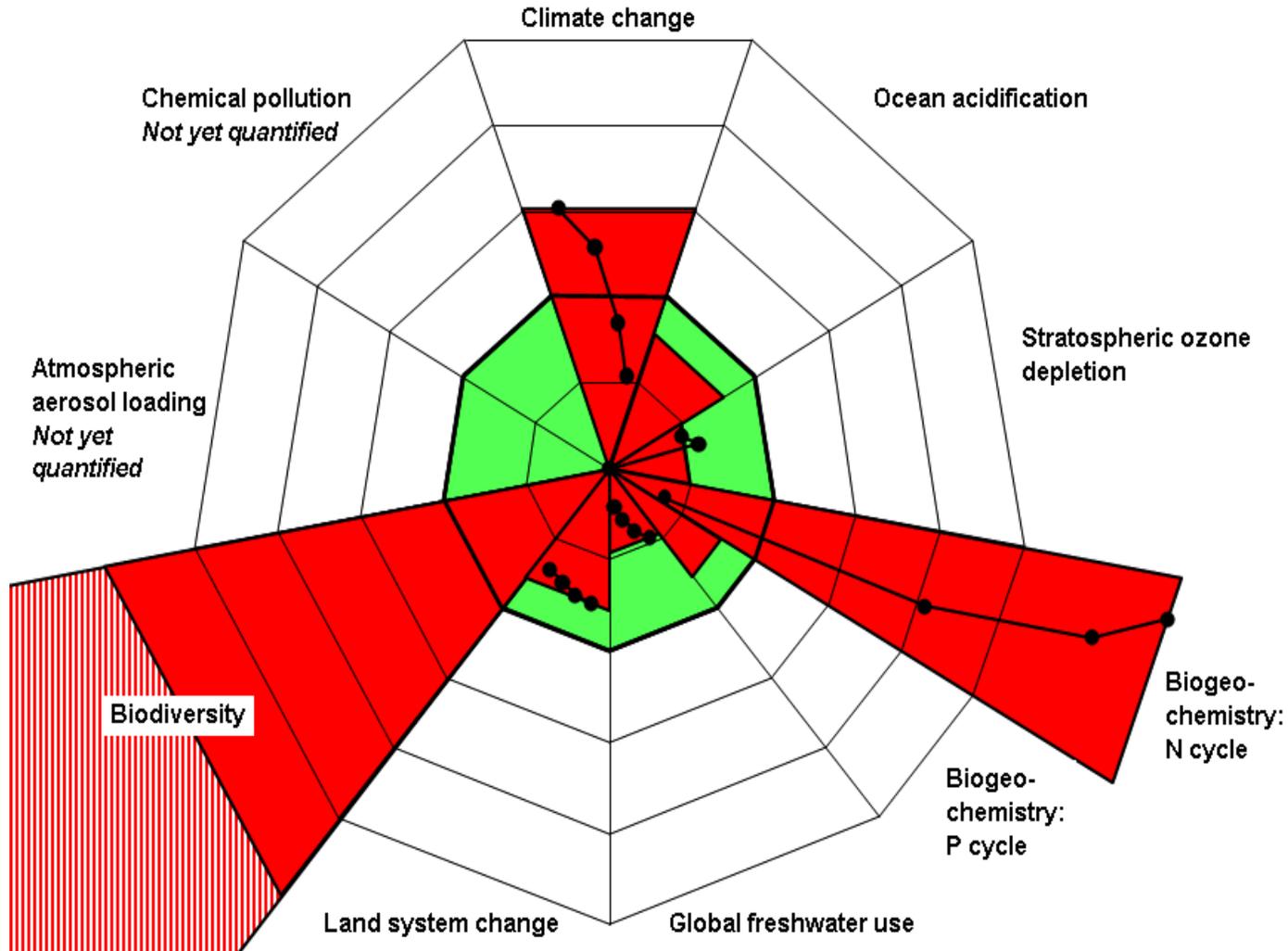


\*GDP FIGURES ARE CONSTANT 1999 INTERNATIONAL DOLLARS.  
JOHN TOMASO; AGM SIMP; ART. BRUNO CHINTE; SOURCES: UNITED NATIONS; ANGUS MEEKING; STATISTICS ON WORLD POPULATION, GDP AND PER CAPITA GDP; ISON AD.; UNIVERSITY OF GOSWEN; WORLD BANK; WORLD INTELLECTUAL PROPERTY ORGANIZATION

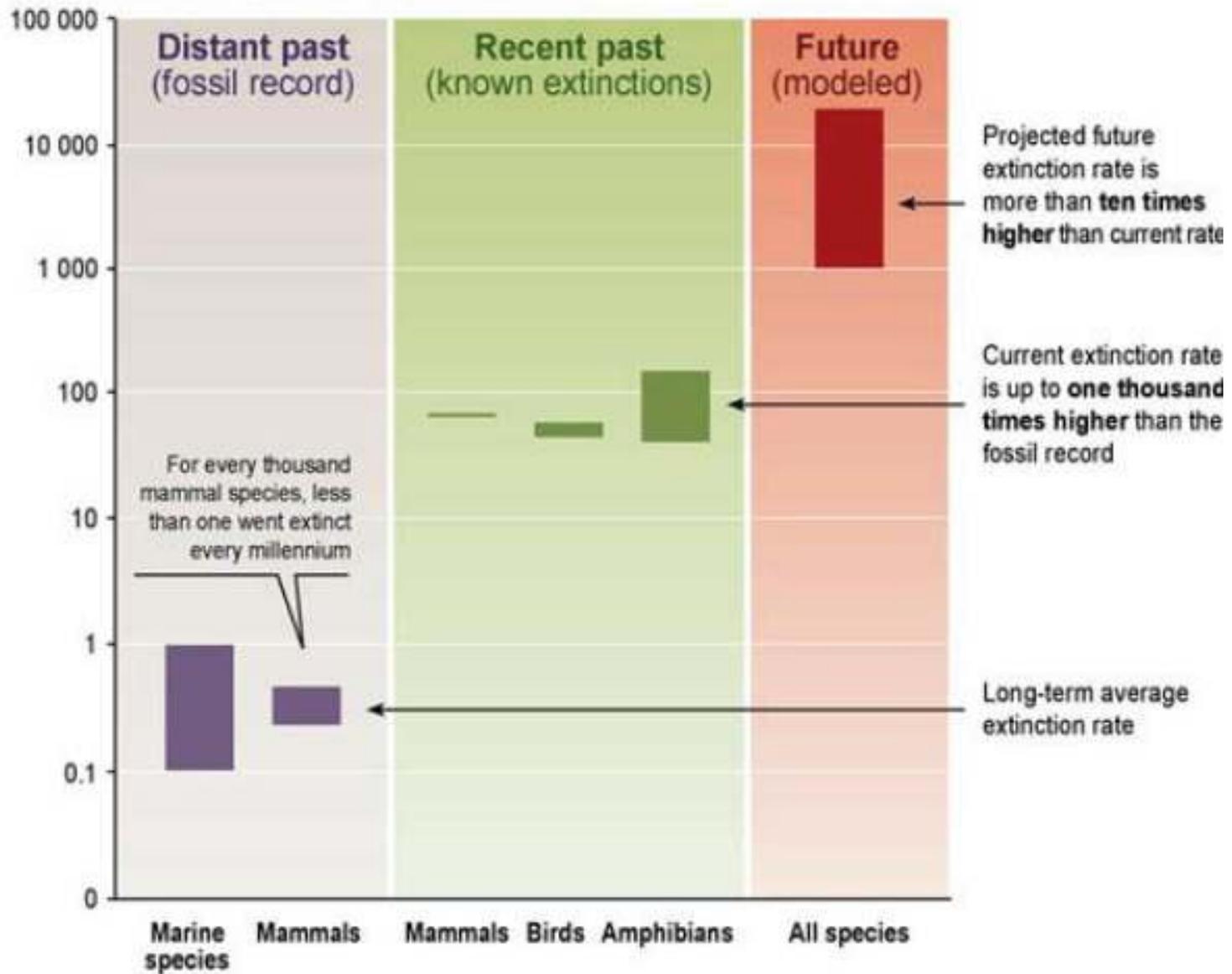
- Equity issues profoundly complicate the challenge of global change.
- In the Great Acceleration technology and especially consumption have overtaken population as a driver of change.



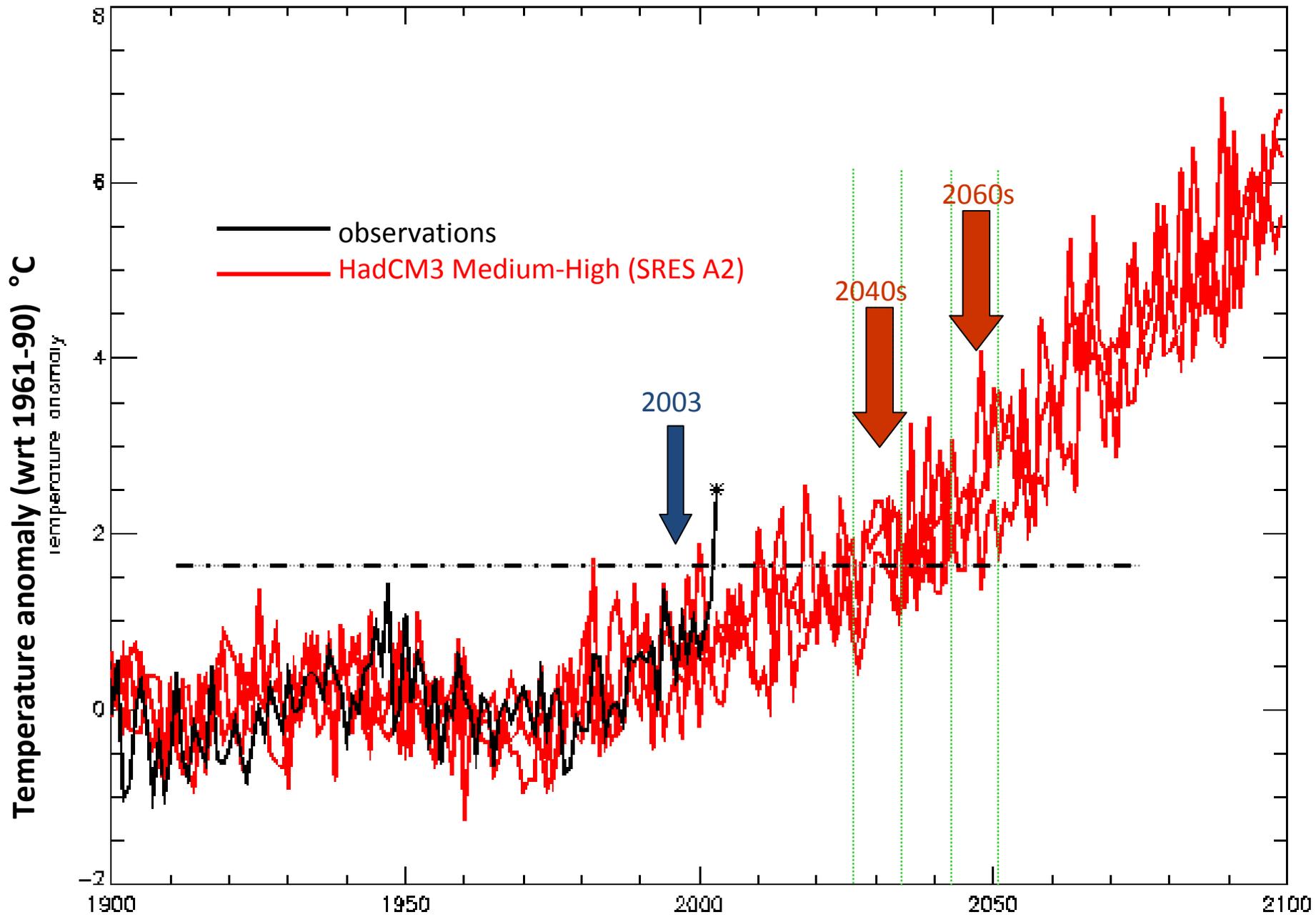
# Planetary Boundaries: Defining the safe operating space



# Extinctions per thousand species per millennium

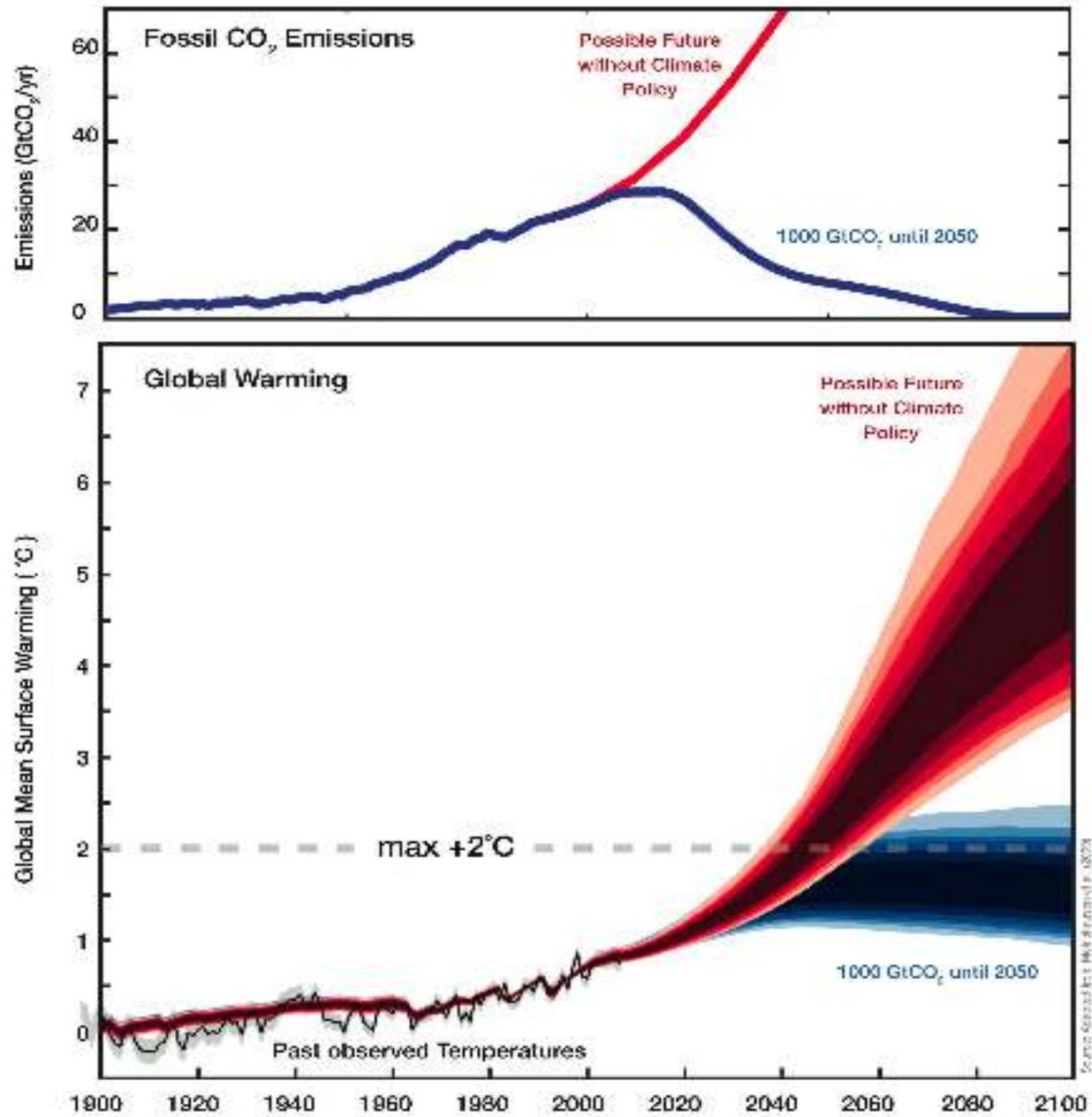


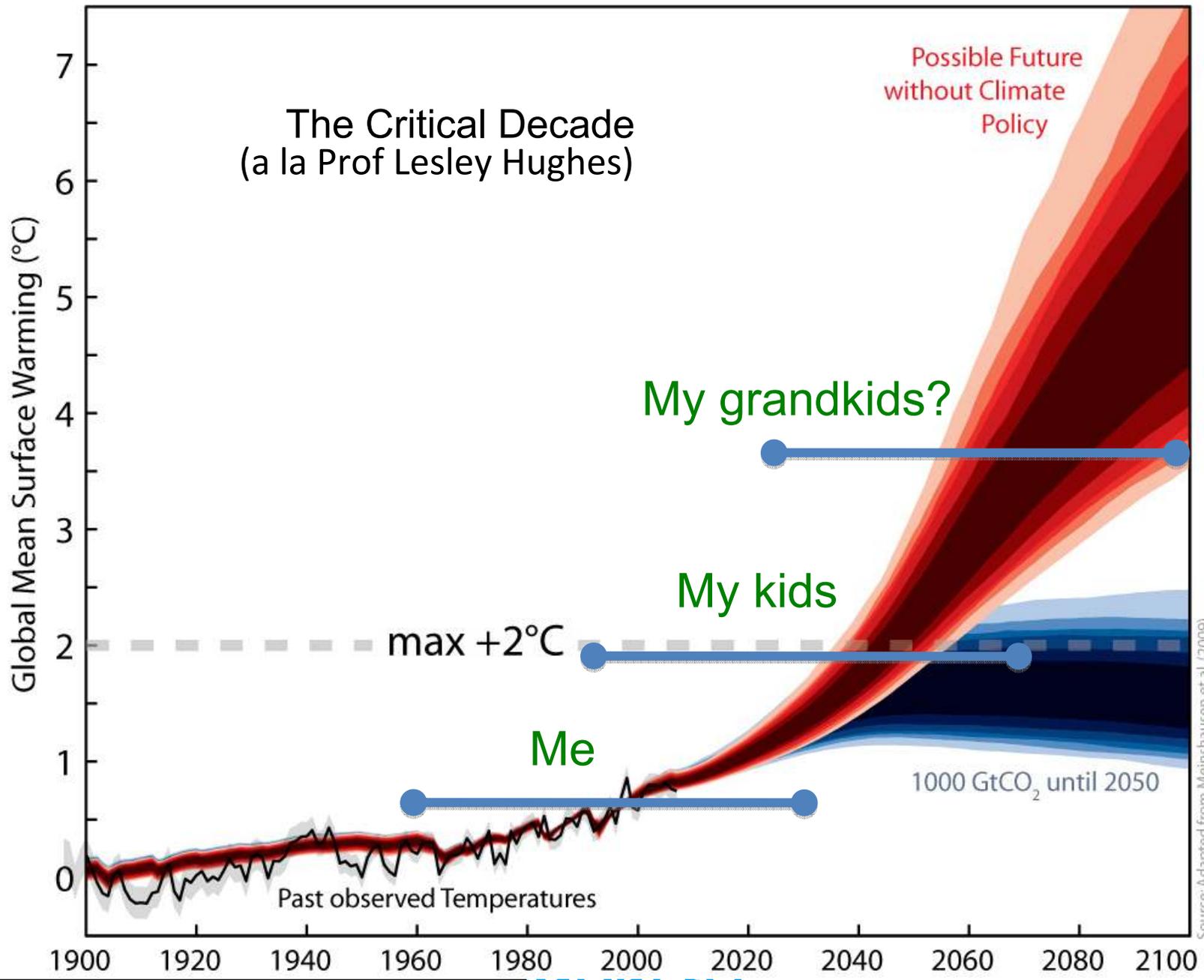
Source: Millennium Ecosystem Assessment



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4. Science-policy intersection:  
The critical decade





# Sustainability - definition

The most widely quoted definition of sustainability and sustainable development is that of the Brundtland Commission of the United Nations in 1987:

- “sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

At the 2005 World Summit it was noted that this requires the reconciliation of environmental, social and economic demands - the "three pillars" of sustainability.

The simple definition "sustainability is improving the quality of human life while living within the carrying capacity of supporting eco-systems" is vague but conveys the idea of sustainability having quantifiable limits. Some definitions set out common goals and values.

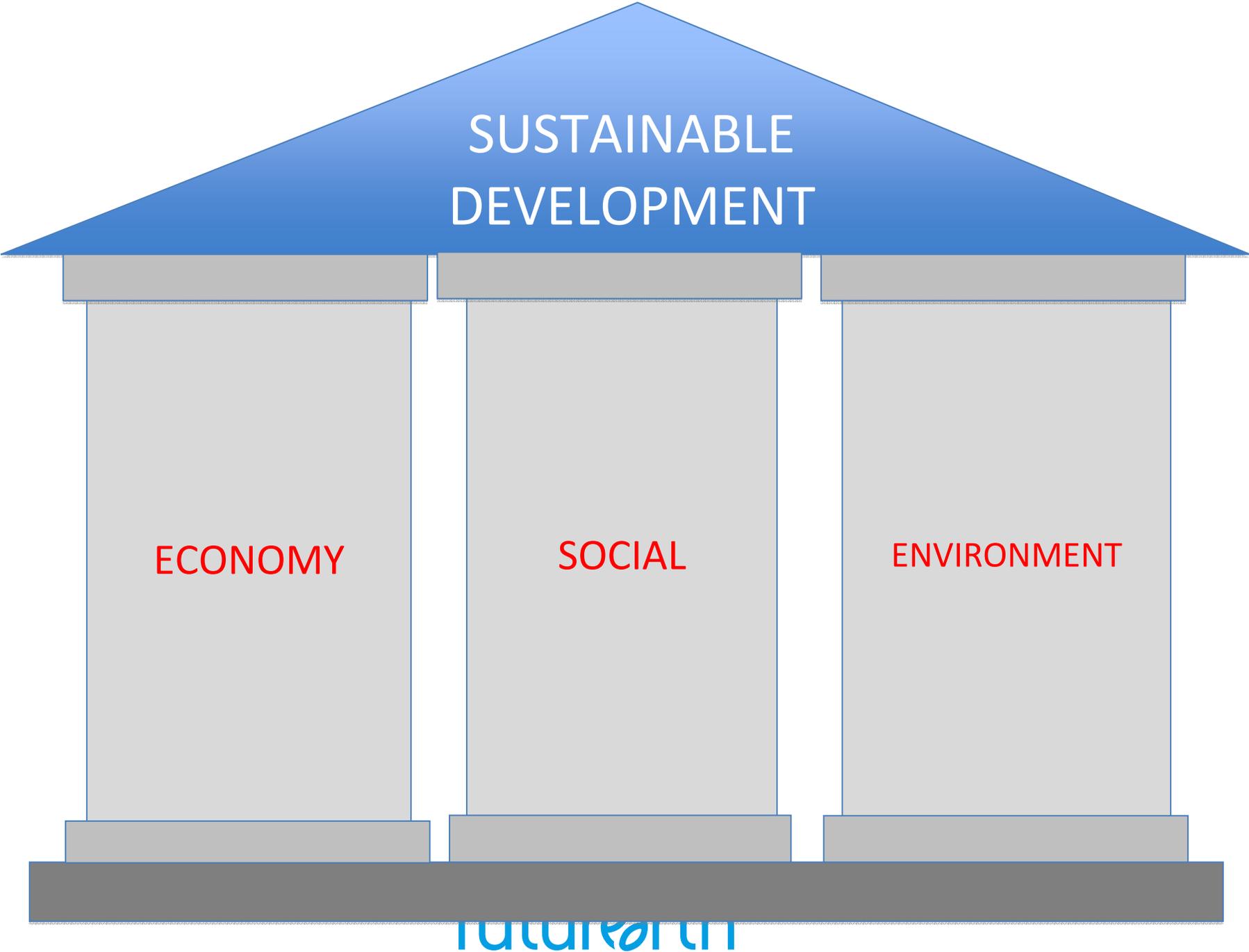
# Sustainability - definition

The Earth Charter speaks of

- “a sustainable global society founded on respect for nature, universal human rights, economic justice, and a culture of peace.”

Key components of sustainability therefore include:

- Interconnection of social, economic and environmental issues
- Thinking long term and dealing cautiously with risk
- Equity – global and between generations
- Appropriately valuing nature



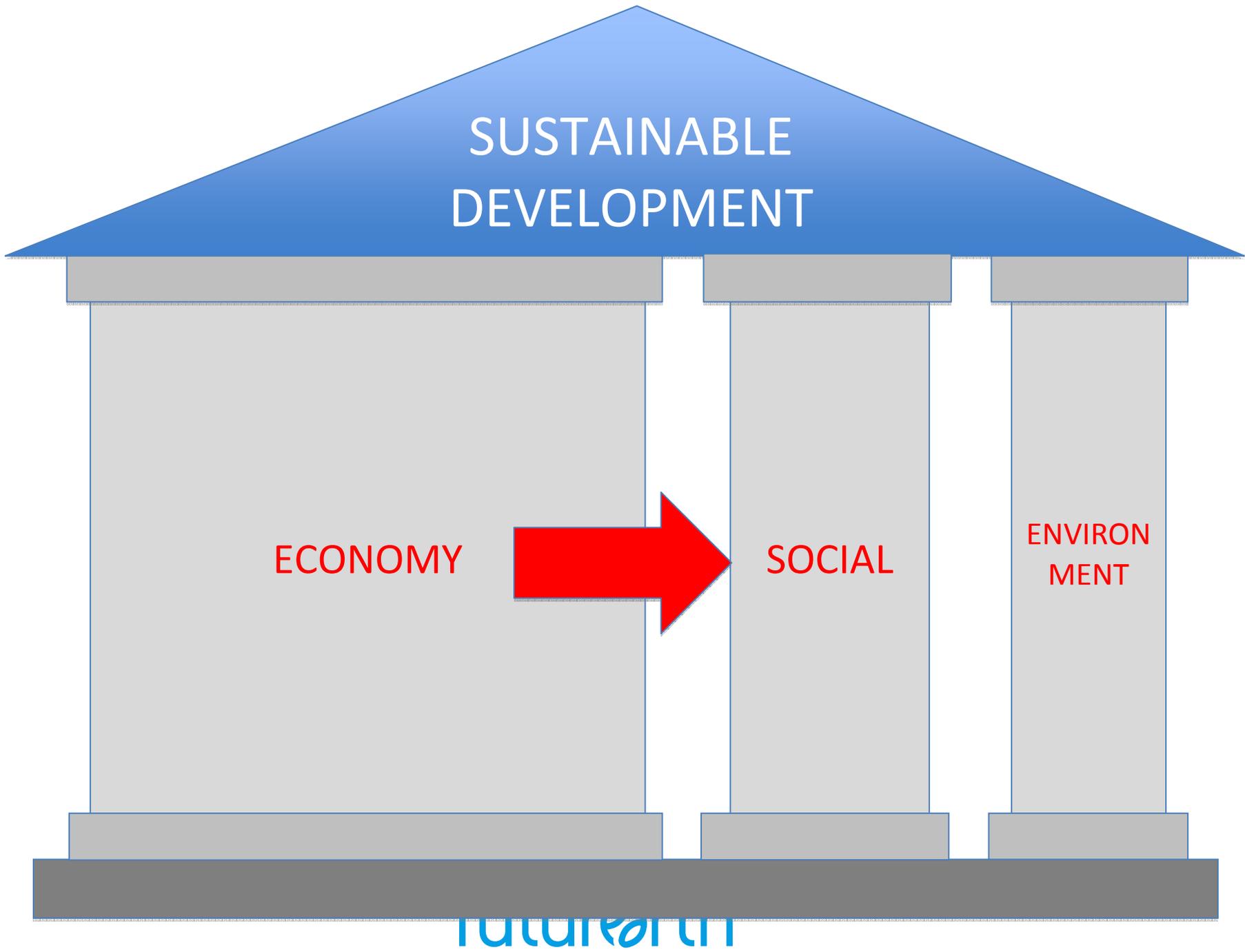
SUSTAINABLE  
DEVELOPMENT

ECONOMY

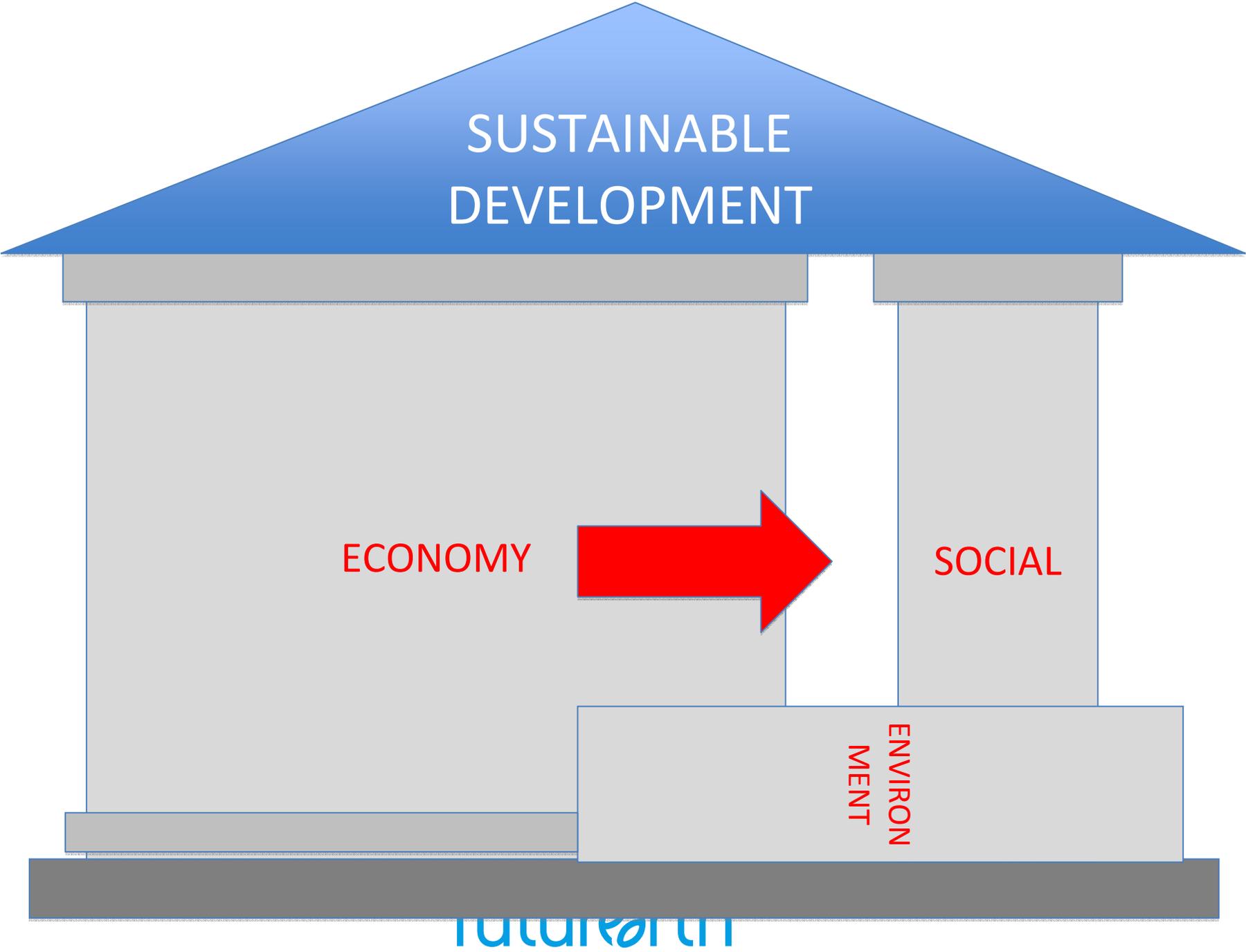
SOCIAL

ENVIRONMENT

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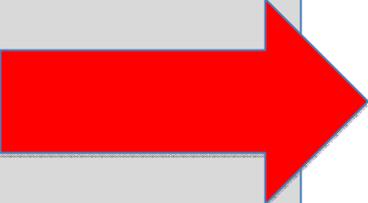


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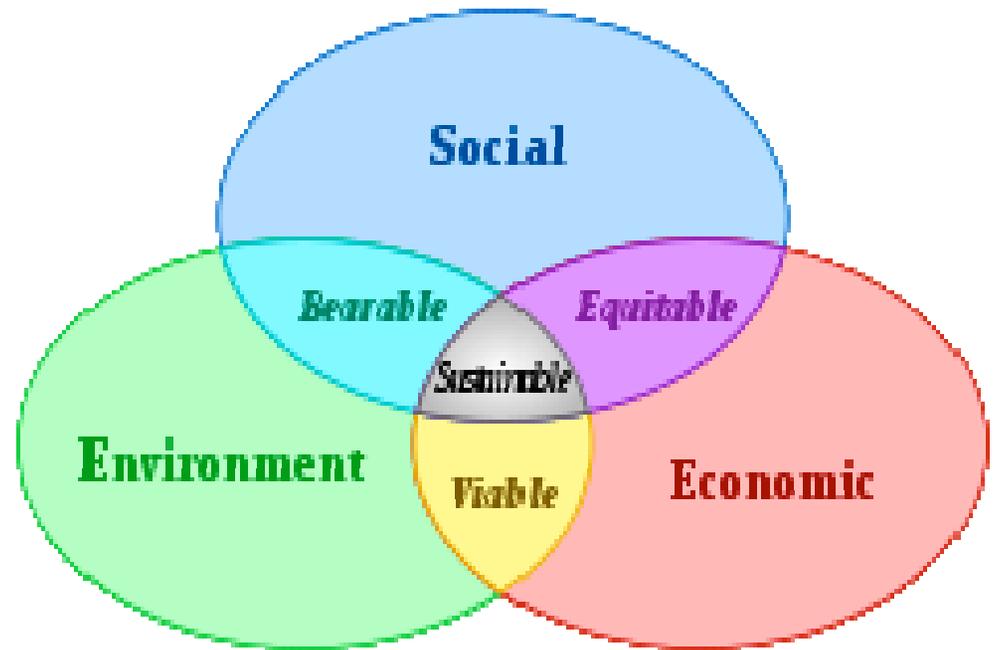


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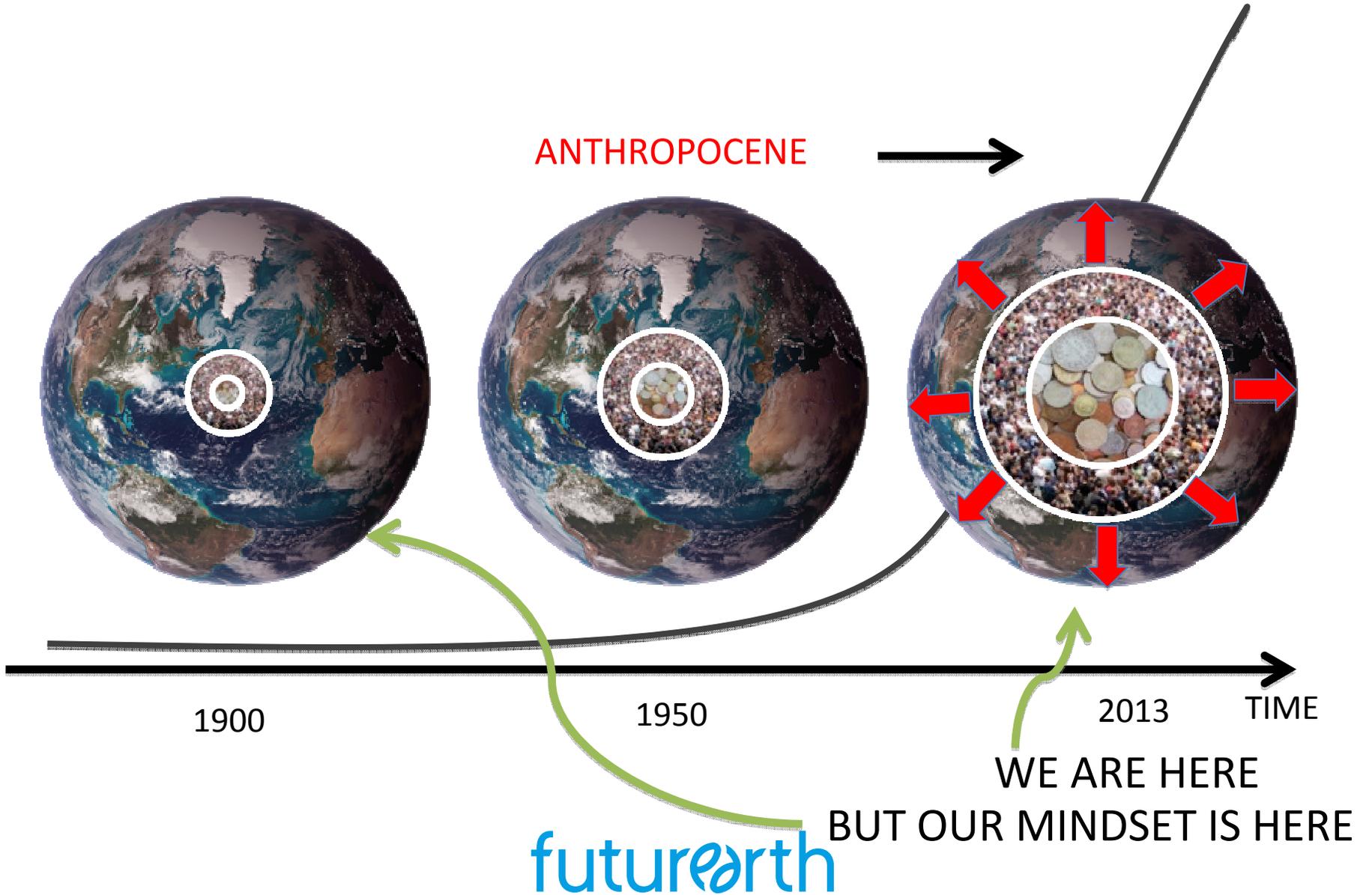
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# Models of Sustainability



RETHINKING SUSTAINABLE DEVELOPMENT IN THE ANTHROPOCENE



# Global Sustainability Objectives

- Maintain a stable climate system limiting global temperature increases to no more than 2 C
- Reduce the rate of global biodiversity loss
- Safeguard ecosystem services from critical biomes
- Maintain the capacity of the global hydrological cycle to provide freshwater to sustain the resilience of ecosystems
- Maintain well-functioning nitrogen and phosphorous cycles
- Maintain clean air for health and regional environments
- Sustainable and precautionary use of new entities (e.g. chemical pollutants) and abiotic natural resources such as minerals and metals

MDGs + GSOs = SDGs

# SDGs (1)

## Thriving Lives and Livelihoods

- End poverty and improve well-being through access to education, employment and information, better health and housing, and reduced inequality, whilst moving towards sustainable consumption and production

## Sustainable Food Security

- End hunger and achieve long-term food security, including better nutrition, based on sustainable agriculture and fisheries production, distribution and consumption systems.

## Sustainable Water Security

- Achieve universal access to clean water and basic sanitation, and ensure efficient allocation through integrated water resource management.

# SDGs (2)

## Universal clean energy

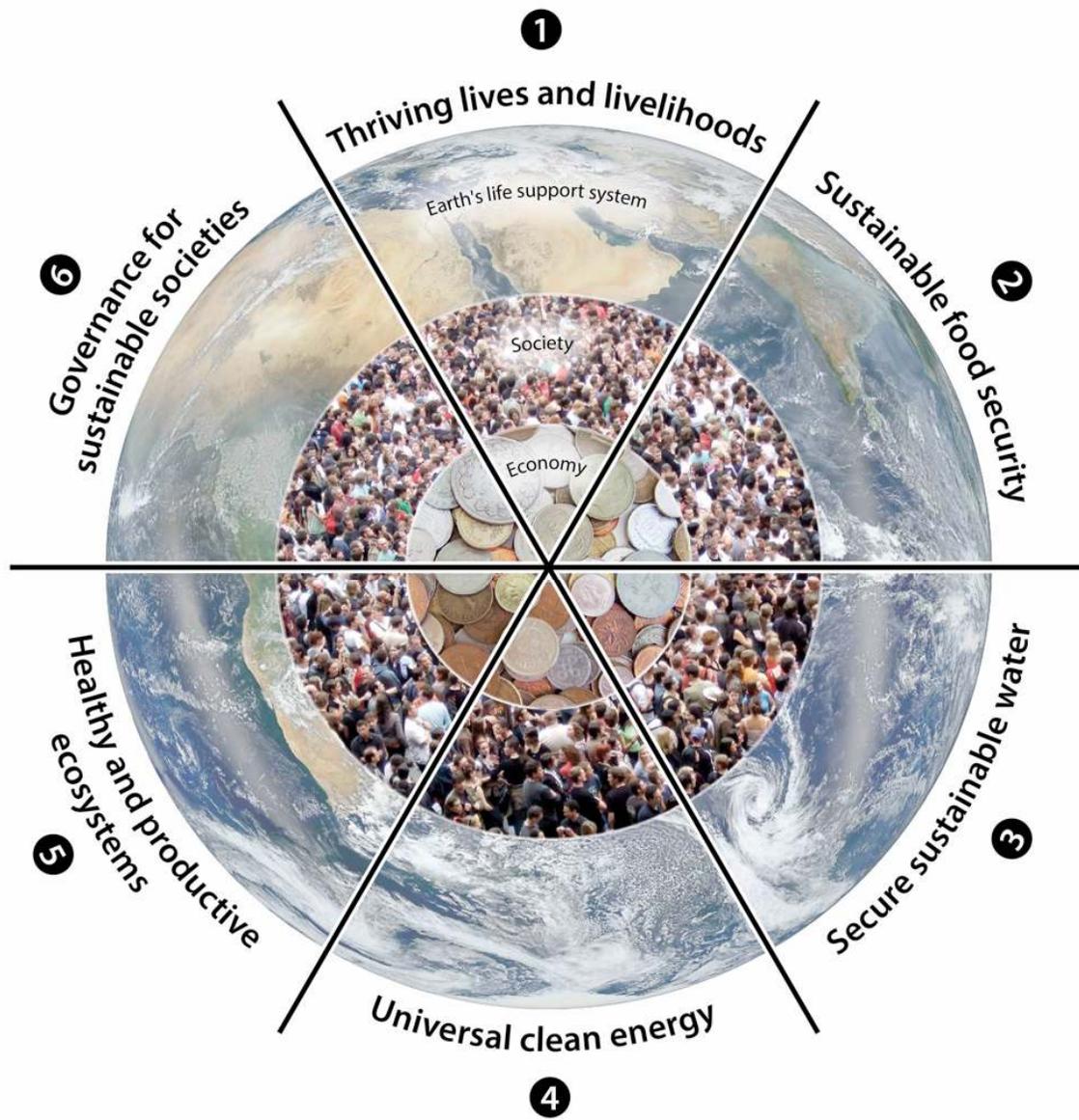
- Improve universal, affordable access to clean energy that minimizes local pollution and health impacts as well as reducing global warming.

## Healthy and productive ecosystems

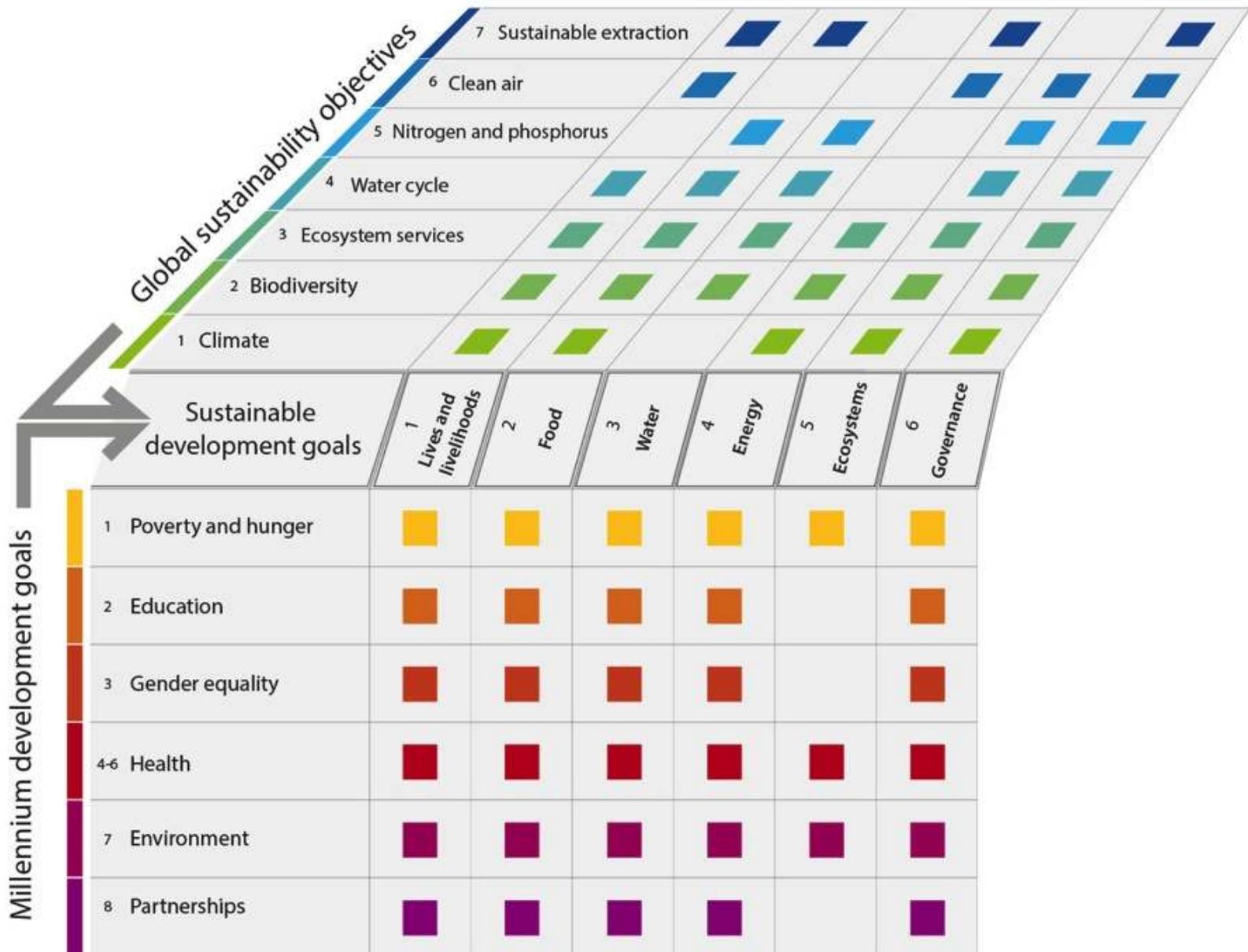
- Improve the status of biodiversity and sustain ecosystem services through better valuation, measurement, conservation and restoration.

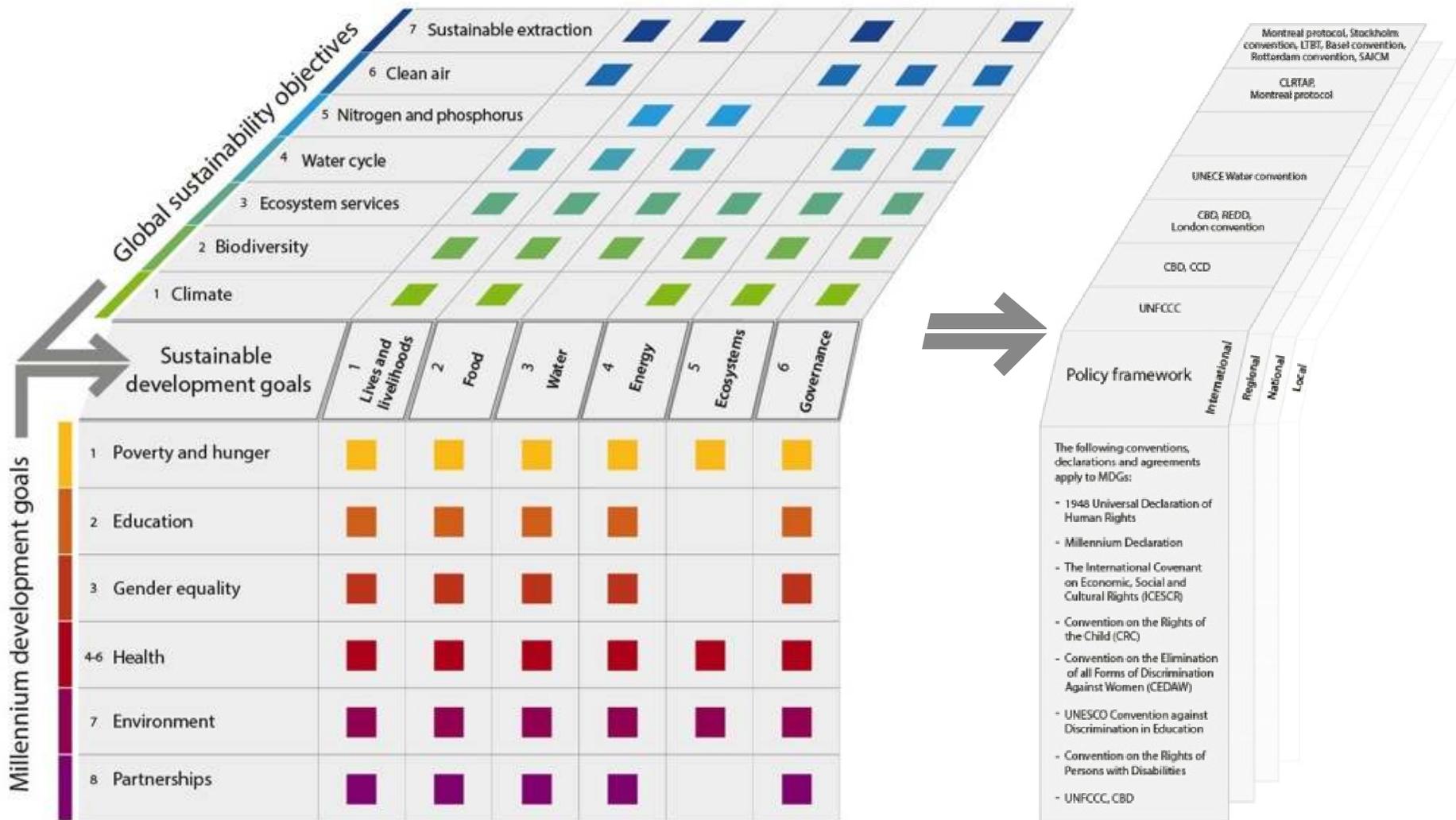
## Governance for sustainable societies

- Transform governance and institutions at all levels to address the previous five SDGs.



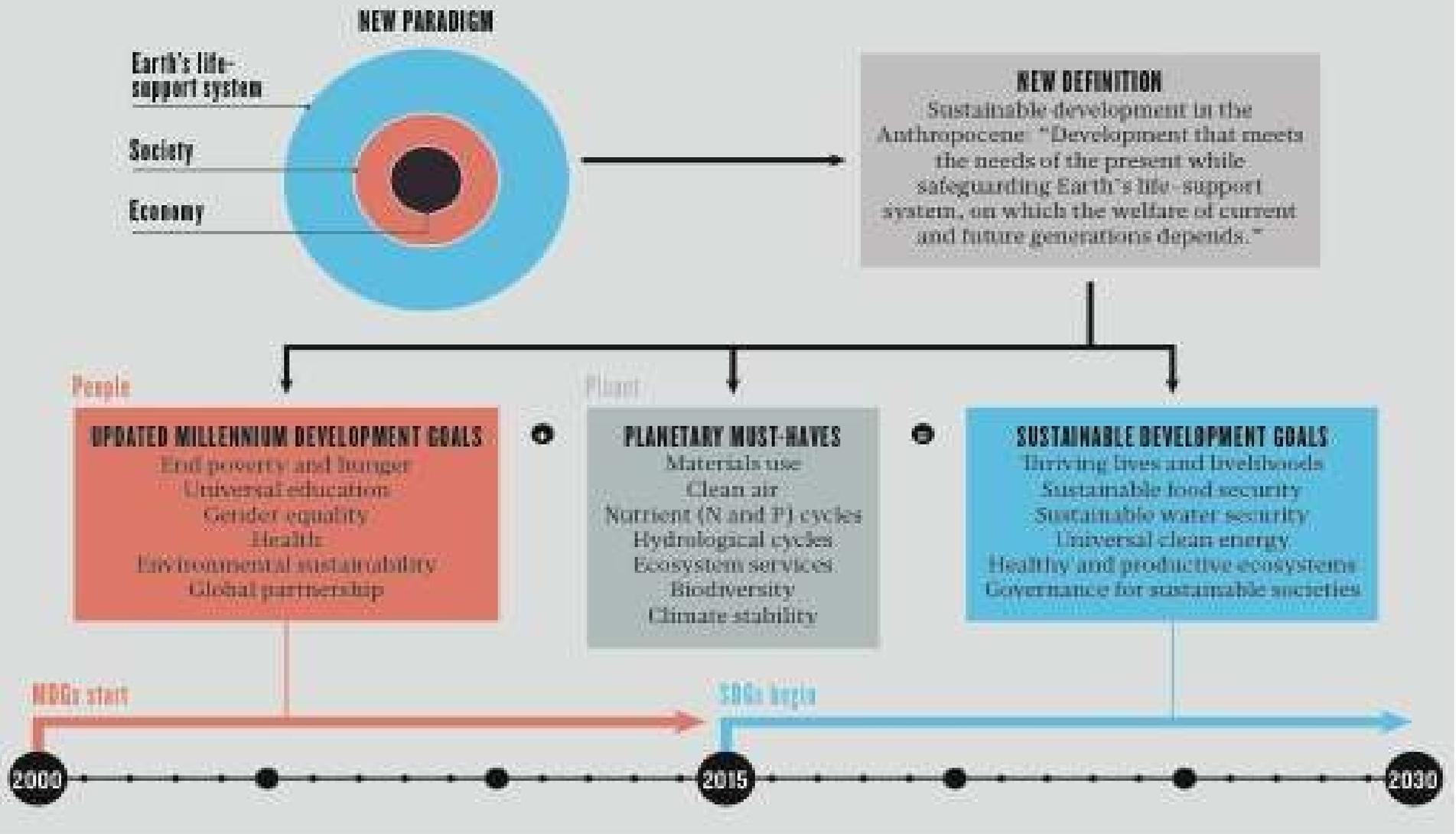
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# A UNIFIED FRAMEWORK

A set of six sustainable development goals (SDGs) follow from combining the Millennium Development Goals (MDGs) with conditions necessary to assure the stability of Earth's systems.



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# A 10-year initiative by a new global Alliance

