Planetary Health:

Safeguarding human health in the Anthropocene epoch

Presented by

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THE UNIVERSITY OF SYDNEY

Image: [no title] by Mi Pham on Unsplash

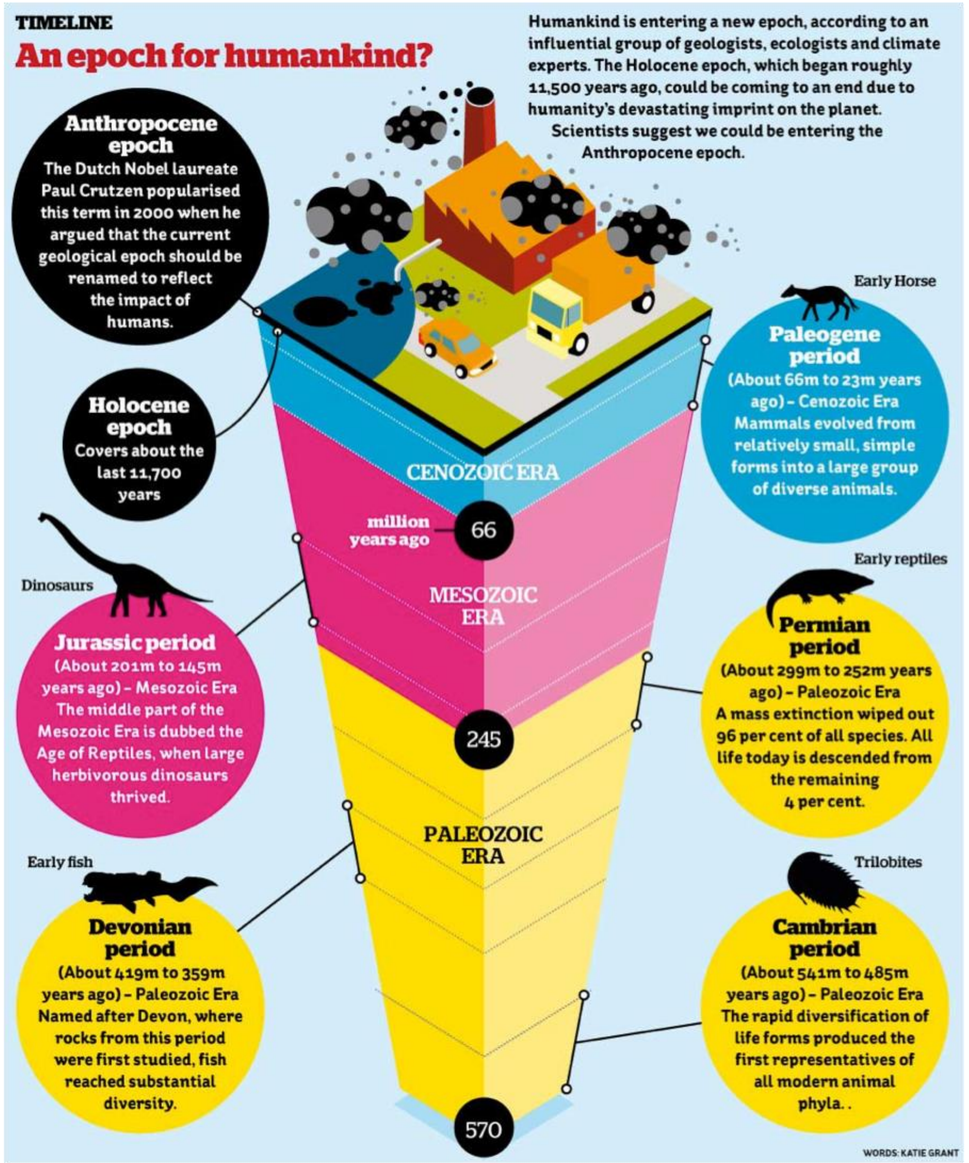
This talk

1. The Anthropocene epoch

2. The Rockefeller Foundation–*Lancet* Commission on Planetary Health

3. What does this mean for environmental health and the work of environmental health officers?

The Anthropocene epoch



https://vimeo.com/39048998

THE LANCET

Commission on Planetary Health

THE ROCKEFELLER FOUNDATION

The ROCKEFELLER FOUNDATION THE LANCET

COMMISSION ON PLANETARY HEALTH

Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–*Lancet* Commission on planetary health

Commissioners:

Prof Chris Beyrer

Dr Fred Boltz

Prof Anthony Capon

Dr Alex Ezeh

Prof Gong Peng

Prof Sir Andy Haines (Chair)

Dr Richard Horton

Dr Sam Myers

Dr Sania Nishtar

Dr Steve Osofsky

Prof Subhrendu Pattanayak

Dr Montira Pongsiri

Dr Agnes Soucat

Dr Jeanette Vega

Dr Derek Yach

Dr Sarah Whitmee
(Commission Researcher)

Building on previous work including the IPCC, MA and the Brundtland Commission

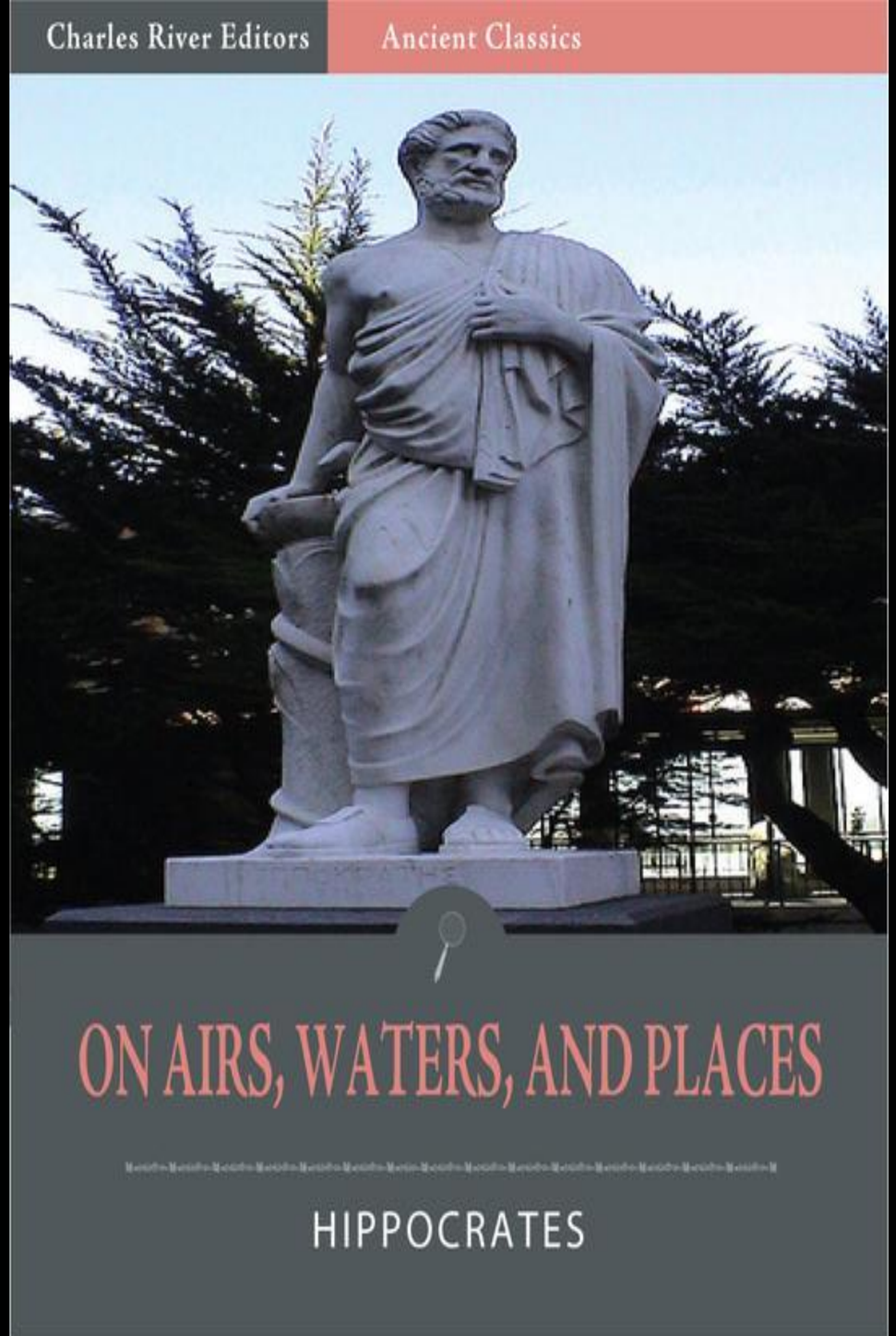
Image: Globaïa

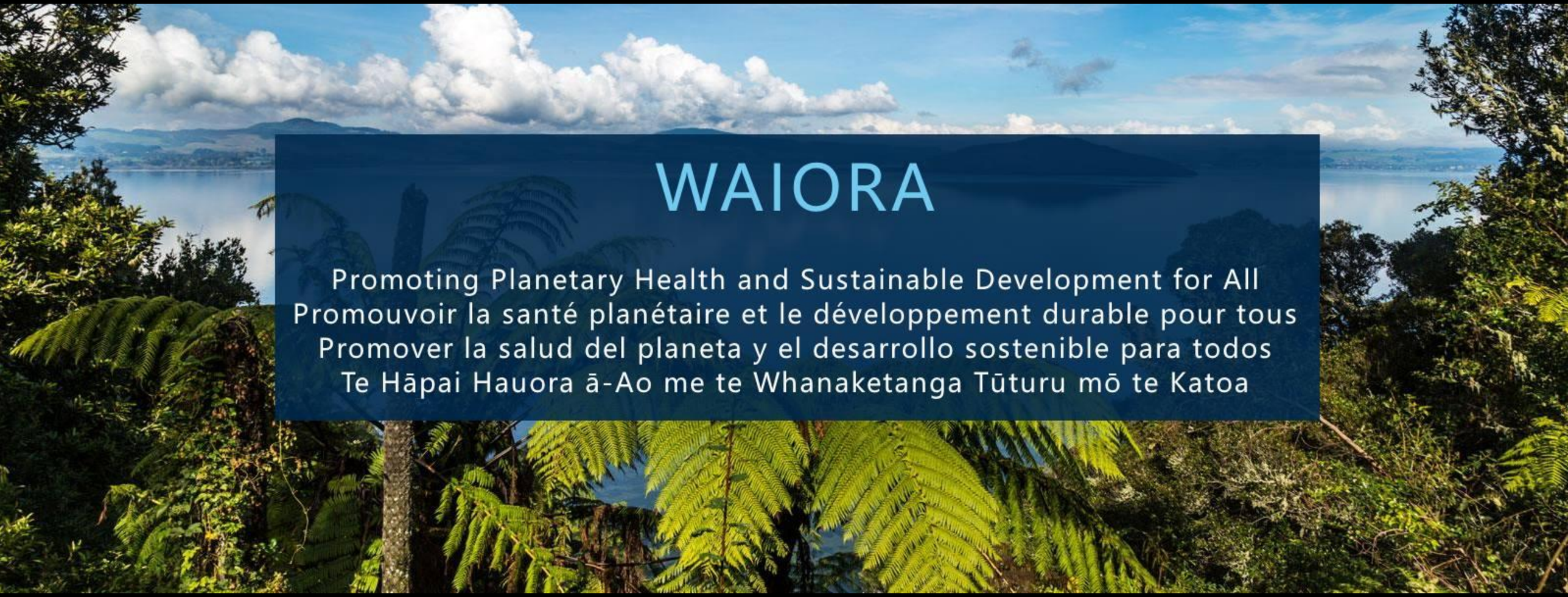
OUR COMMON FUTURE

THE WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT

Hippocrates

circa 400 BC




WAIORA
Promoting Planetary Health and Sustainable Development for All
Promouvoir la santé planétaire et le développement durable pour tous
Promover la salud del planeta y el desarrollo sostenible para todos
Te Hāpai Hauora ā-Ao me te Whanaketanga Tūturu mō te Katoa

By almost any measure, the human population is healthier than ever before

(World Bank, 2011)

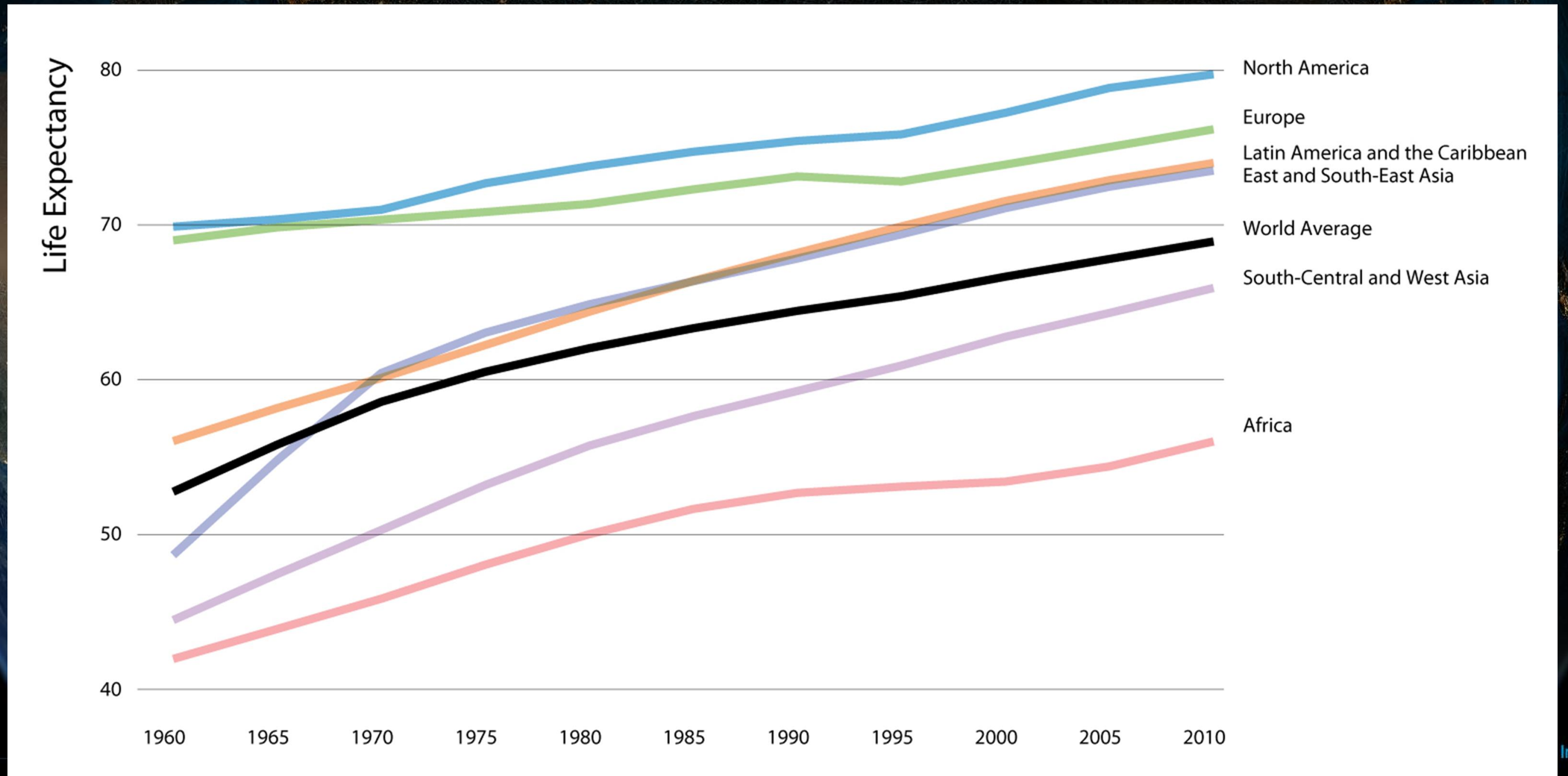


Image: Globaïa

But in achieving this, we've exploited the planet at an unprecedented rate

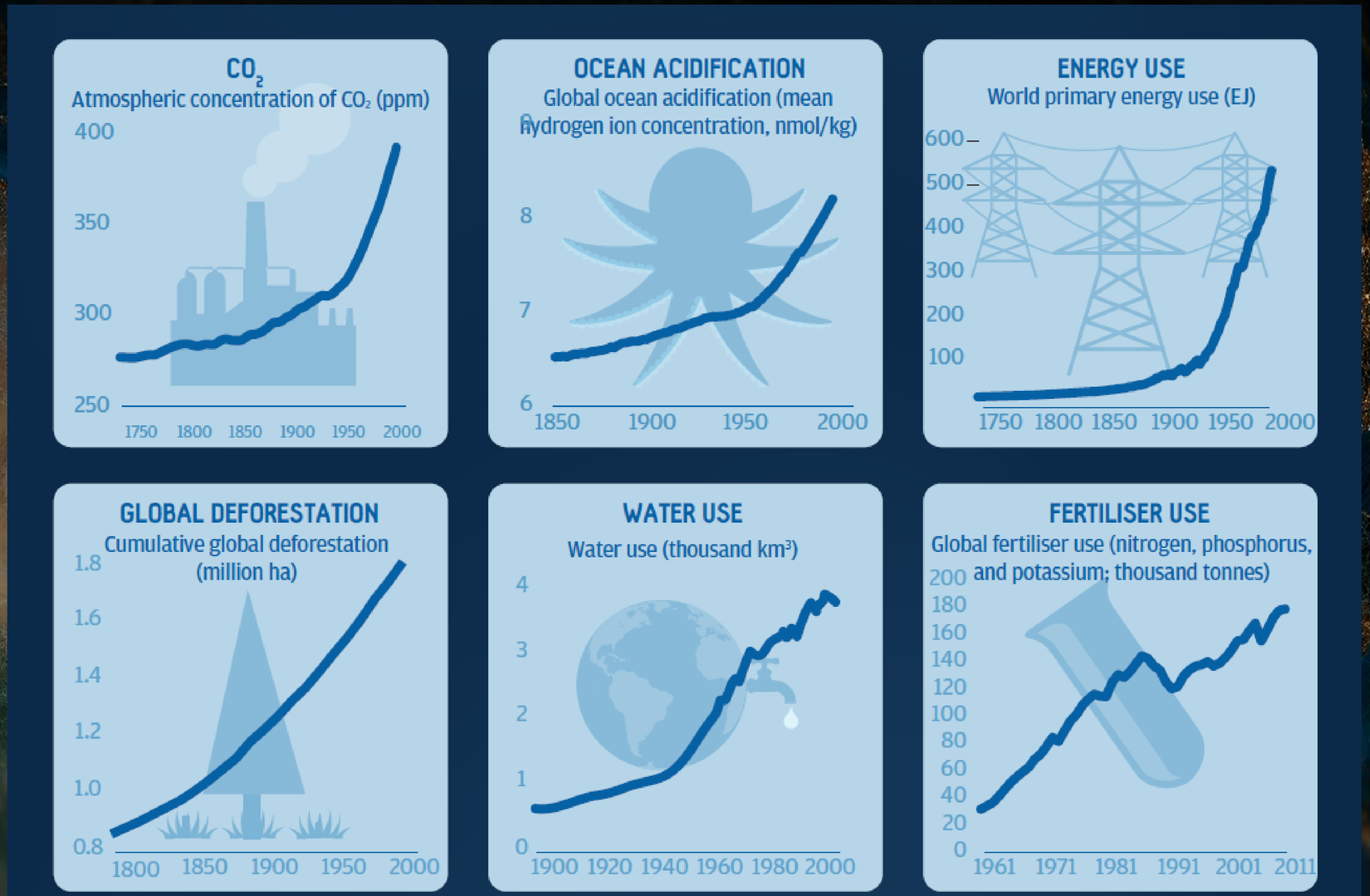


Image: Globaïa

What is Planetary Health?

> “Put simply, planetary health is the health of human civilisation and the state of the natural systems on which it depends.”

Image: Globaïa

Links between environmental change and health

(Millennium Ecosystem Assessment, 2005)

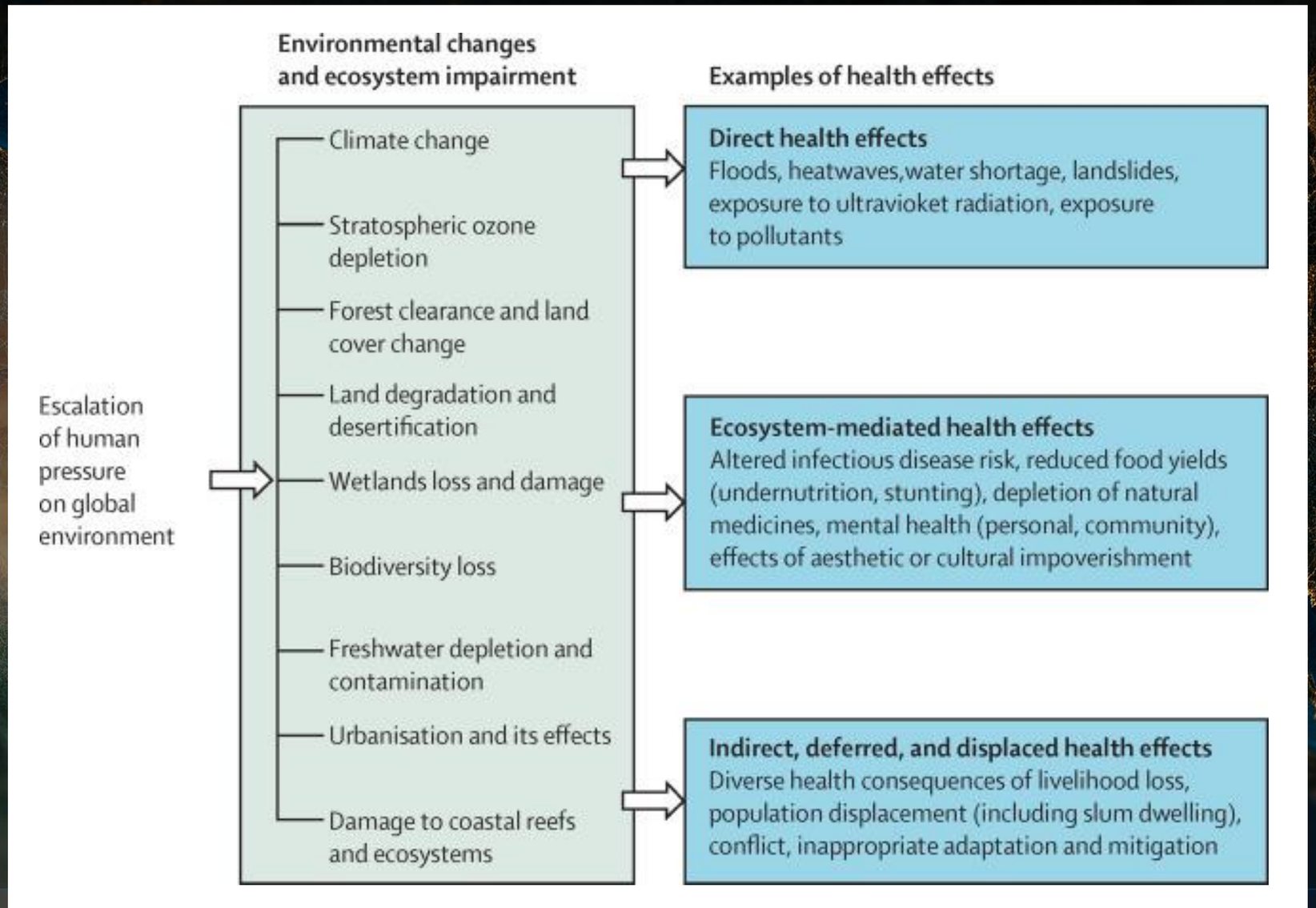


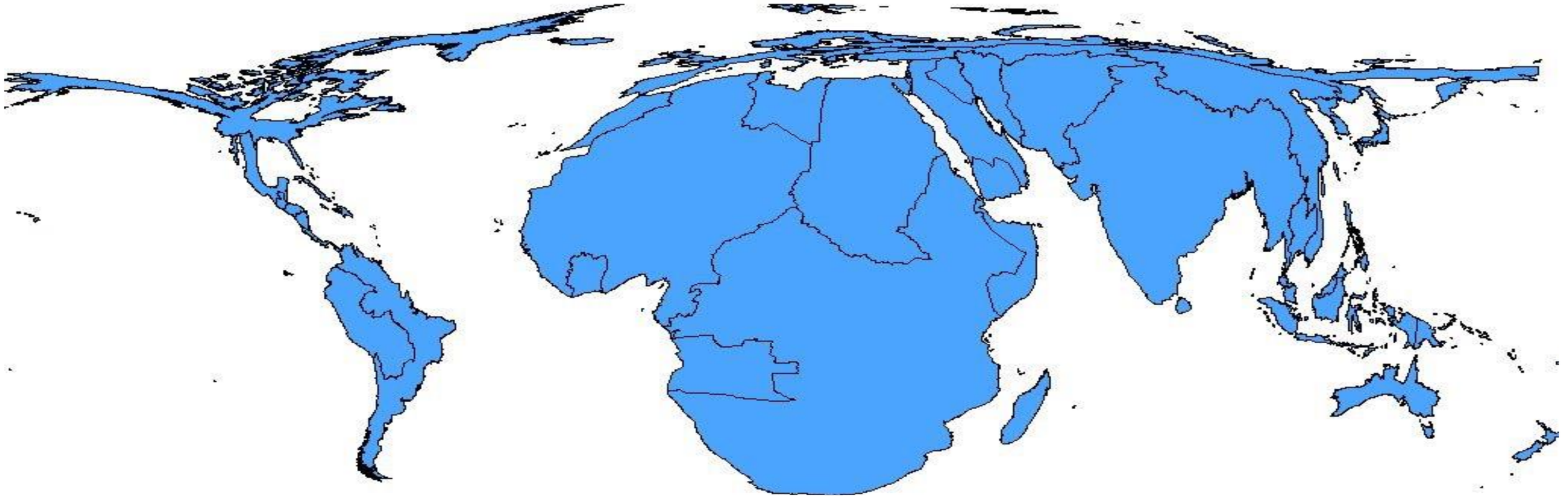
Image: Globaïa

Planetary health is a social justice issue

Image: Globaïa

Mortality Impacts of Climate Change: Year 2000

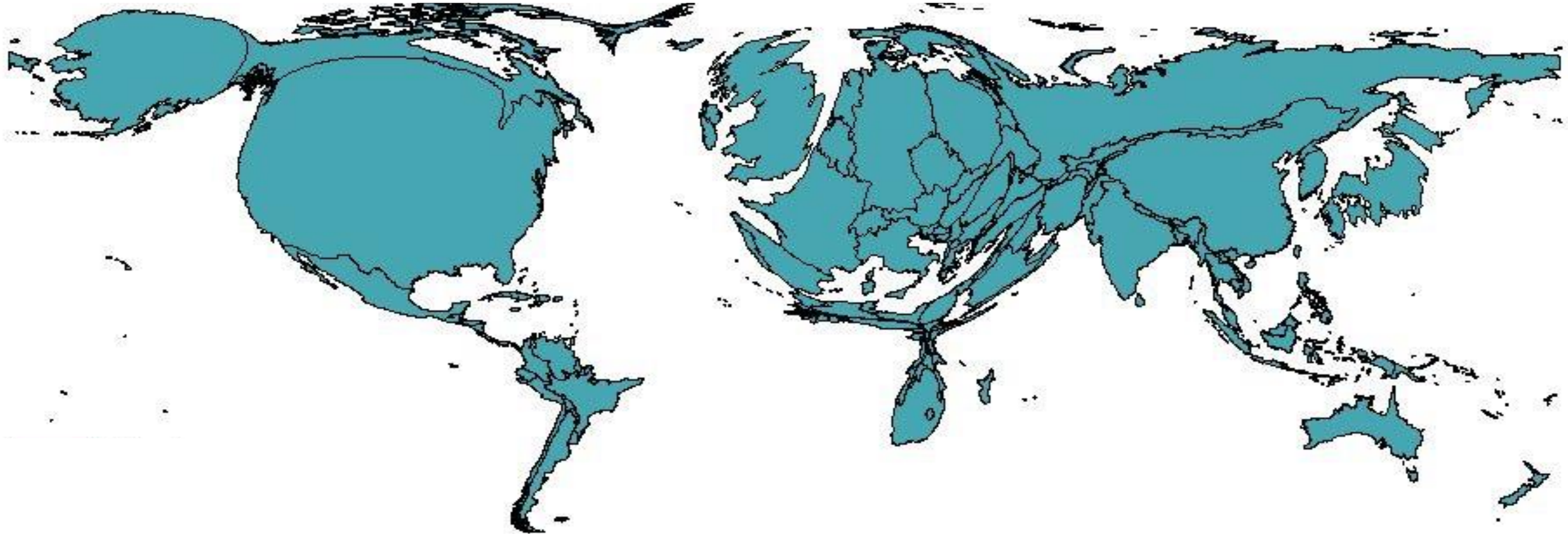
Estimated annual deaths due to climate change:
malnutrition (~80K), diarrhoea (~50K), malaria (~20K), flooding (~3K)



14 WHO regions scaled according to estimated annual death rates
due to the change in climate since c.1970

(Patz, Gibbs et al, 2007: based on McMichael, Campbell-Lendrum, et al, 2004)

Cumulative Emissions of Greenhouse Gases



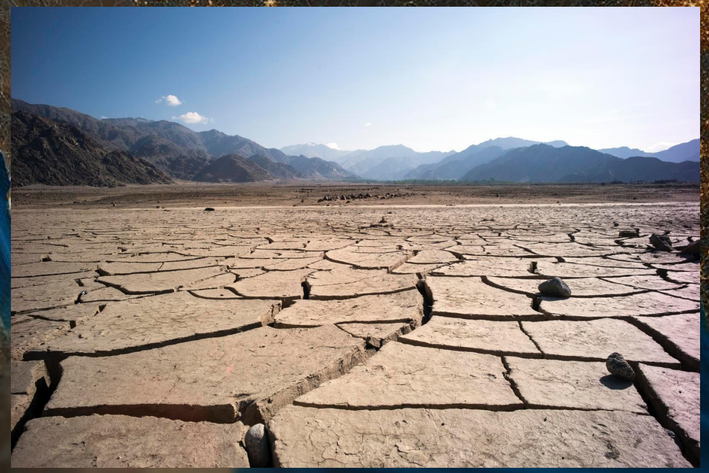
Countries scaled according to cumulative emissions (billions of tonnes CO_2-equivalent) up to 2002.

(Patz, Gibbs, et al, 2007)

Equity and climate change

- Those least responsible are the worst affected
- Risk of worsening disadvantage (policies to reduce greenhouse gas emissions could worsen inequity)

Effects of multiple environmental changes on food availability and quality



- Climate change
  - Temperature/extreme events
  - CO_2 fertilization
  - Pests, mold and fungi
- Land degradation and soil erosion
- Water scarcity (from overconsumption, diversion to non-food crops, climate change and changes to ecosystem function)
- Loss of pollinators
- Overfishing/Ocean acidification

Image: Globaïa

Estimates of air pollution deaths

(WHO 2014; Lim et al, Lancet 2012)

- Ambient particulates >3 m deaths p.a.
- Household from solid fuels >4 m deaths p.a.
- >7 million in total

Image: Globaïa

Emerging diseases

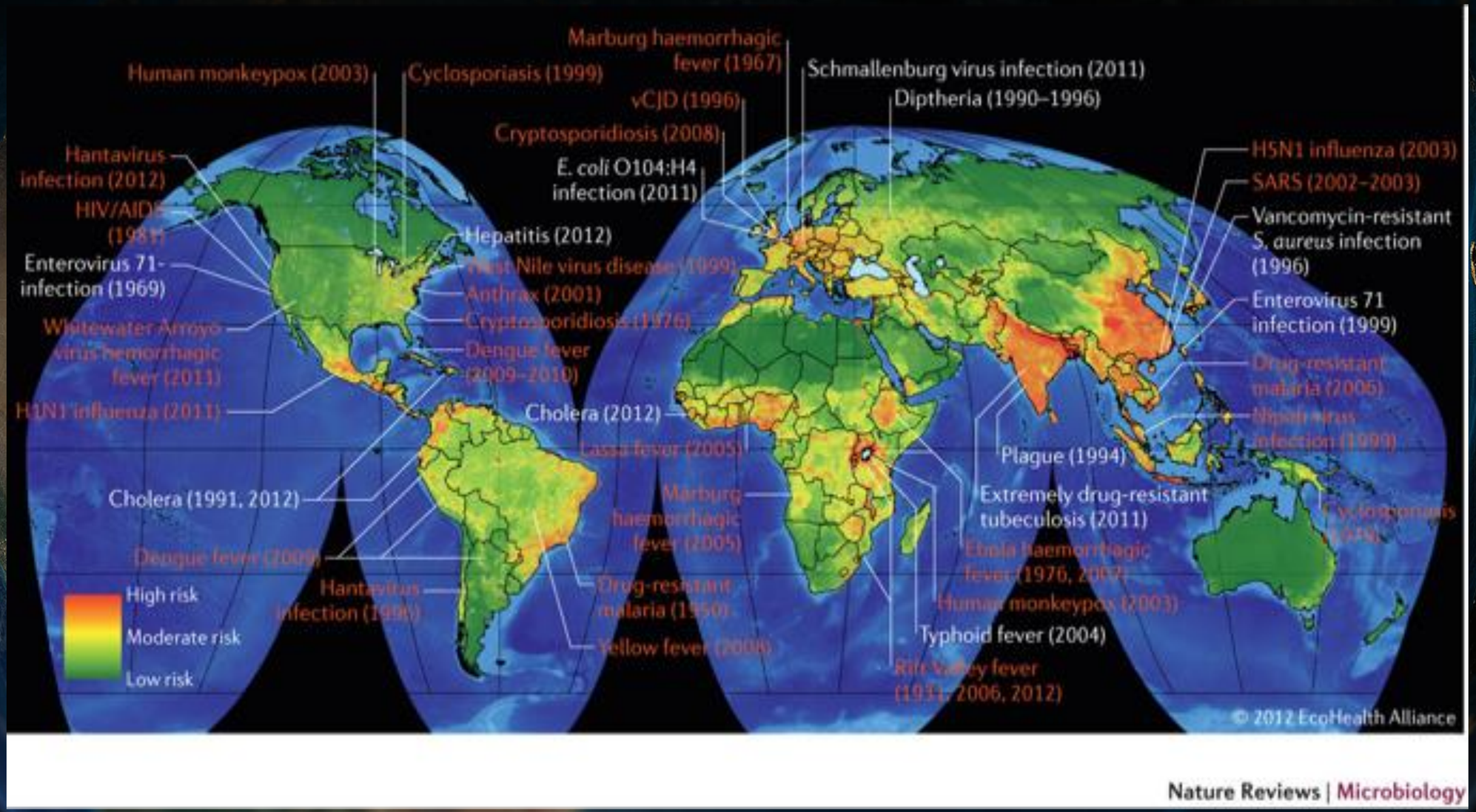


Image: Globaïa

Meeting the challenges

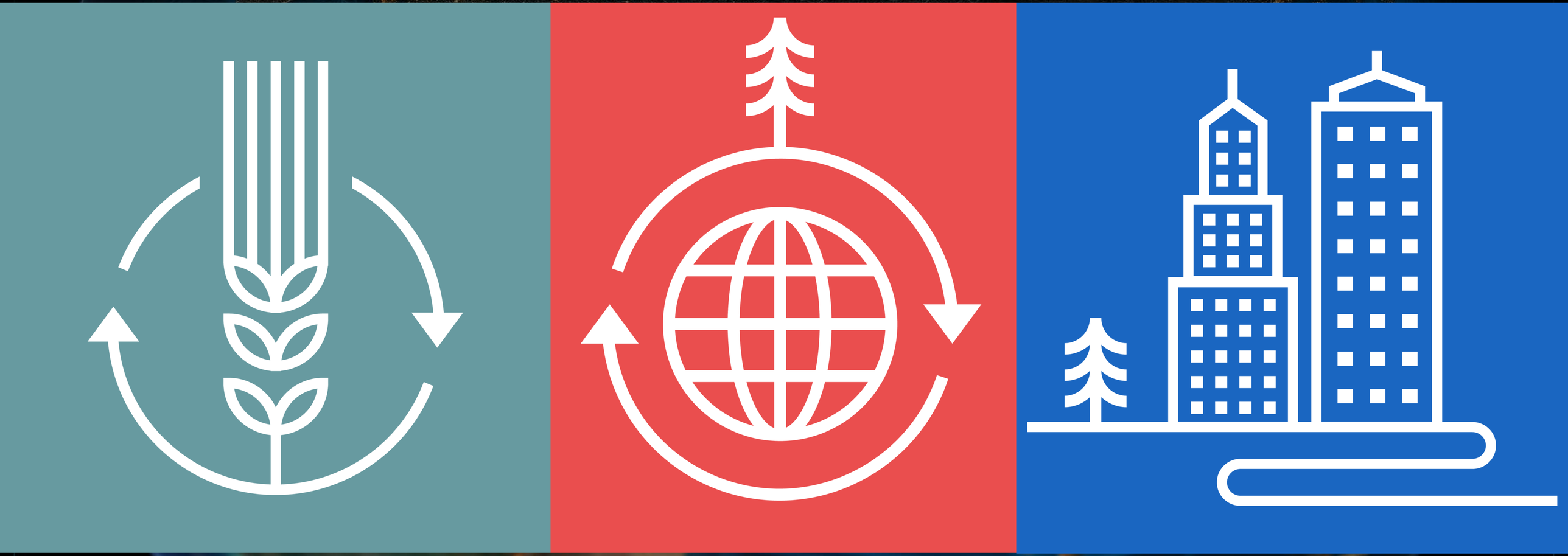


Image: Globaïa

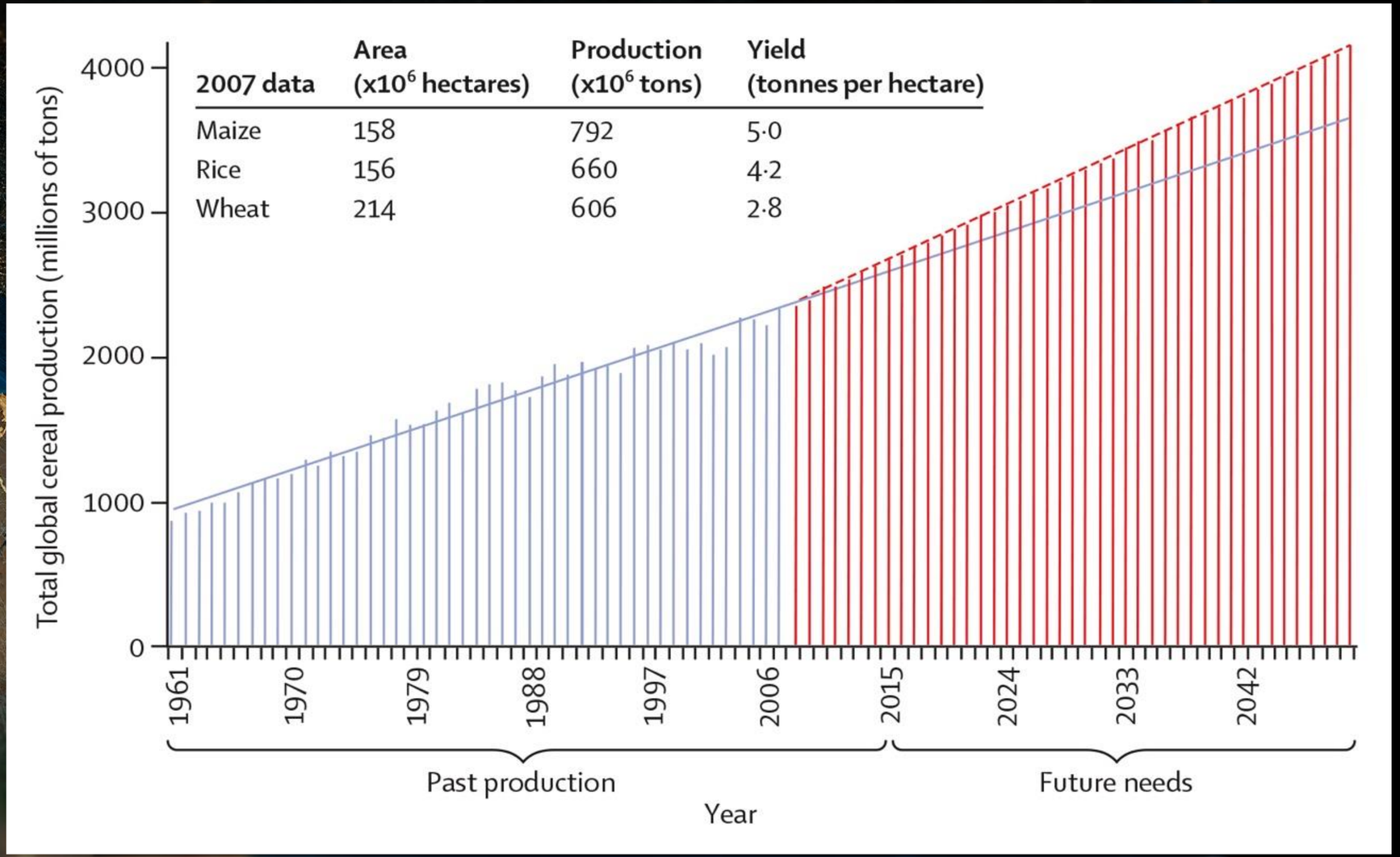
Developing sustainable and healthy cities

- Active travel /public transport
- Reduced fine particulate air pollution
- Green spaces –biodiversity, reduced heat island and mental health benefits
- Watershed conservation
- Access to healthy food
- Increased resilience to floods,storms and droughts

Image: Globaïa

Multiple approaches for meeting increased food requirements

- Sustainable intensification
- Efficient use of water and fertiliser
- Sustainable aquaculture
- Support for subsistence farmers
- New sources of nutrition + diversification
- Biofortification
- Change of diets and redirect landuse back to food
- Reduced food waste



Tester and Langridge (2010)

Image: Globaïa

Reducing food waste

Nearly 30% of the world's total agricultural land is used to produce food that is never eaten.
Various strategies needed e.g. ---

Reducing aflatoxin through aflasafe

http://www.iita.org/2009-press-releases/-/asset_publisher/hB8z/content/maize-farmers-enjoy-better-grains-with-aflasafe;

UN World Food Programme's 'Training Manual for Improving Grain Postharvest Handling and Storage'

Image: Globaïa

Forest Conservation Reduces Disease risks: examples from the Brazilian Amazon

Malaria transmission
(-) fewer vector breeding sites.
(-) larger vector predator populations and greater diversity of mammalian species (promoting dilution effects)
(-) microclimate inhibits anopheline mosquitoes.

Acute Respiratory Infections (ARI)
(-) forests may filter air particulates .
(-) fewer fires and lower smoke emission
(-) reduced collection and burning of biomass fuel

Diarrhoea
(-) forest may reduce flooding and filter pathogens from surface water.

Bauch, Birkenbach, Pattanayak and Sills PNAS 2014

Image: Globaïa

Increasing access to modern family planning

More than 200 million women who want to avoid pregnancy are not using effective contraception

Access to family planning could cut maternal deaths by around 30%

Meeting the needs for modern contraception in low-income countries would cost only an additional $5.3 billion per year

Source: UN Millennium Development Goals Report 2012

Image: Globaïa

Circular economy

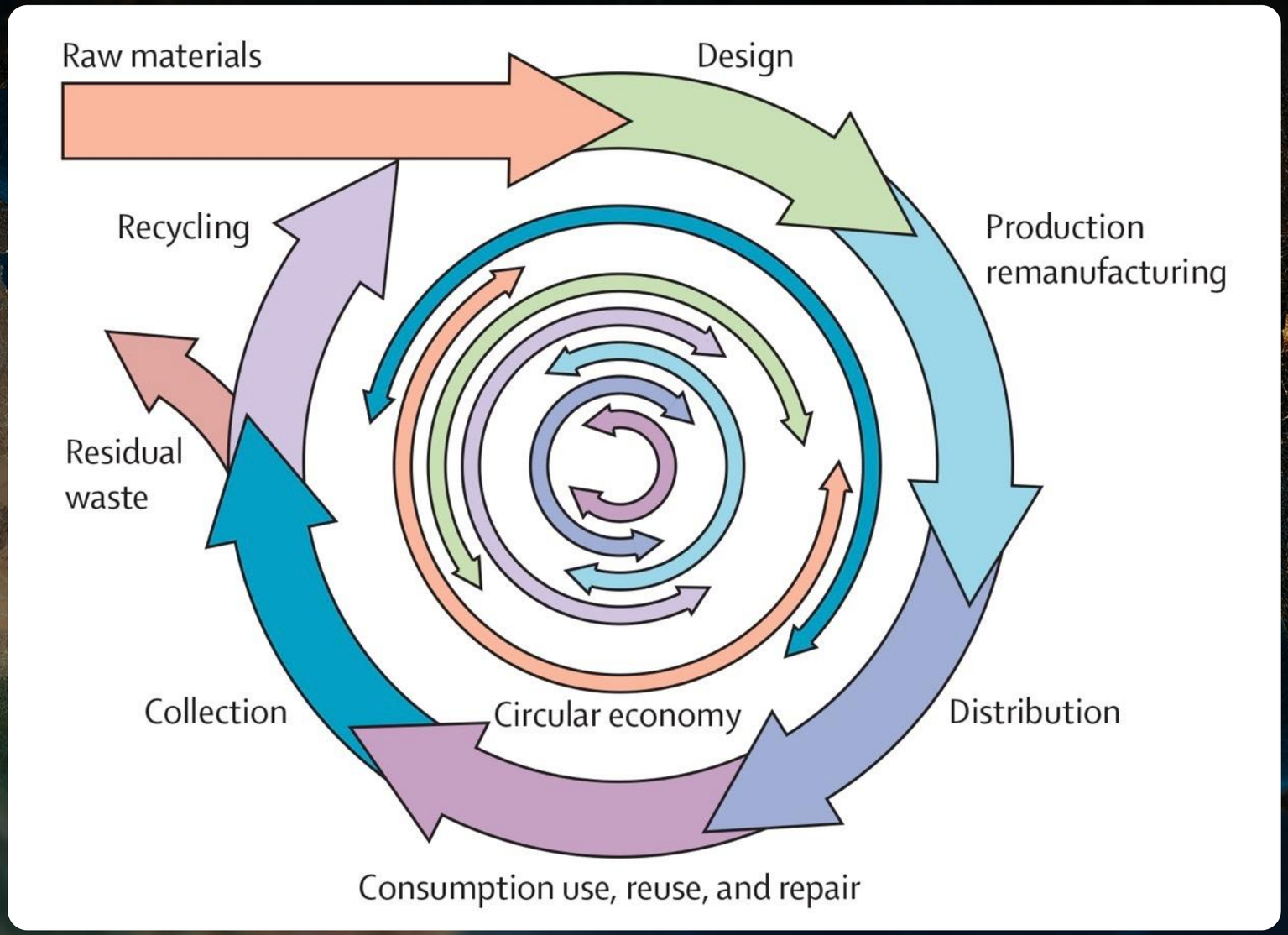


Image: Globaïa

Solutions lie within reach and require a redefinition of prosperity to focus on quality of life and improved health for all, together with respect for the integrity of natural systems

- Conceptual challenges
  (e.g. genuine progress measures)
- Research and information challenges
  (e.g. transdisciplinary)
- Governance challenges
  (e.g. wellbeing of future generations)

Image: Globaïa

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COMMISSION ON PLANETARY HEALTH

http://www.thelancet.com/commissions/planetary-health

Image: Globaïa

SUSTAINABLE DEVELOPMENT GOALS

Image: Globaïa

HEALTH IN THE SDG ERA

World Health Organization

WWW.WHO.INT/SDGS

SUSTAINABLE DEVELOPMENT GOALS

Image: Globaïa

ISSUE BRIEF

United Nations Development Programme

Empowered lives.
Resilient nations.

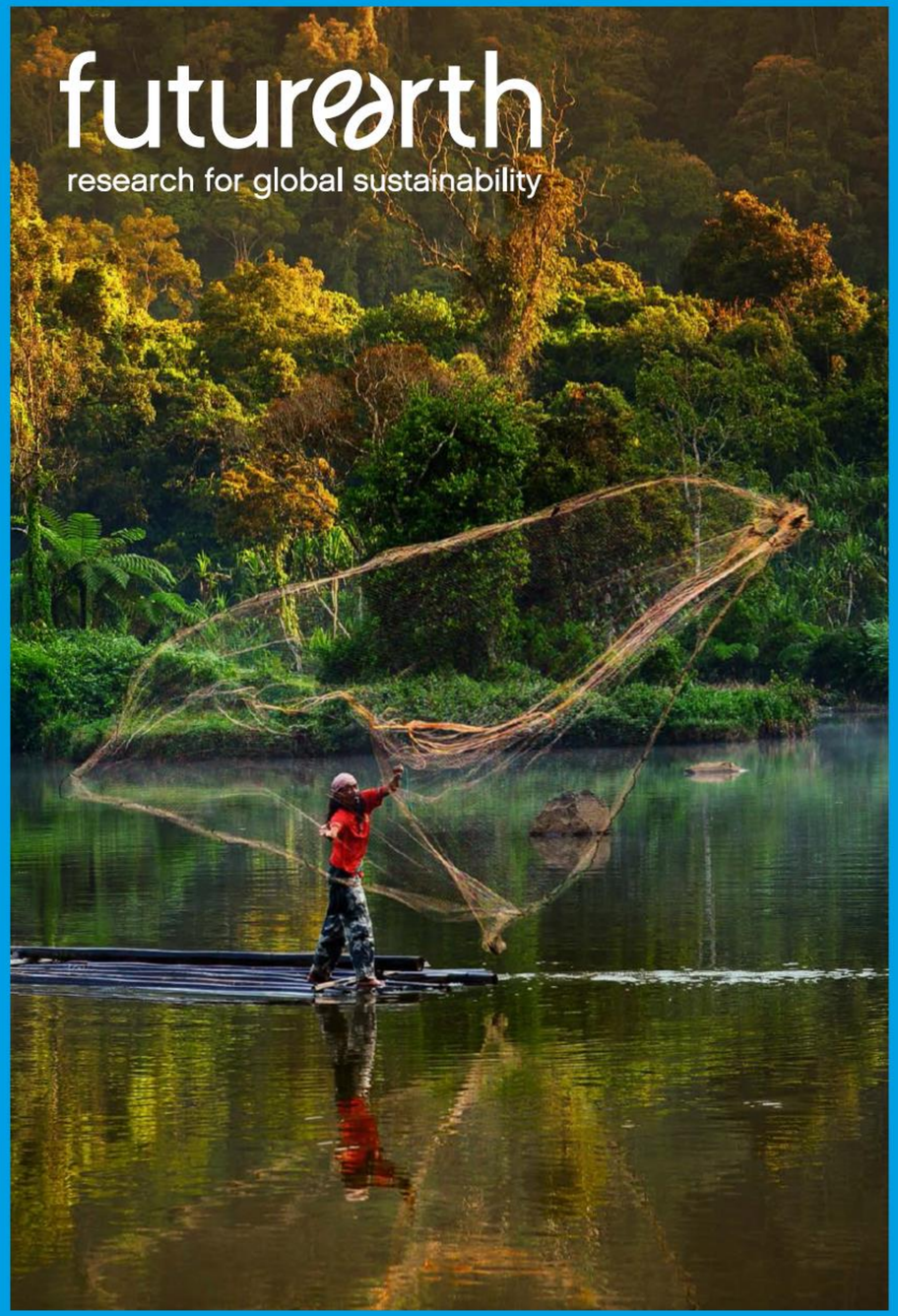
PLANETARY HEALTH

Achieving the Sustainable Development Goals (SDGs) and meeting UNDP's vision to eradicate poverty and reduce inequalities and exclusion, requires new ways of working: identifying co-benefits across targets, encouraging effective cross-sector action, and ensuring policy coherence.

Planetary Health, a new trans-disciplinary field, calls for simultaneously safeguarding human health and the natural systems that underpin it. Its focus is more expansive and holistic than traditional environmental health, bringing to the forefront inter- and intra- generational equity dimensions and calling for integrated approaches to address social, environmental and economic impacts of increasing pressures on our planet.

Key Facts

- Climate change could push 100 million people into poverty by 2030. Between 2030 and 2050, it is expected to kill an additional 250,000 people annually, from malnutrition, malaria, diarrhoea and heat stress.
- In 2012, almost one quarter of global deaths were attributed to unhealthy environments. Of the 12.6 million deaths, children and the elderly were disproportionately impacted.
- The increased frequency of natural disasters is a clear threat to health particularly for women who accounted for 70–80% of fatalities in the 2004 Indian Ocean tsunami, and 91% in the 1991 cyclone in Bangladesh.



An international research platform that aims to provide knowledge and support to accelerate transformations to a sustainable world

10-year initiative, launched in 2015

Builds on decades of international research on global environmental change carried out by projects sponsored by IGBP, DIVERSITAS and IHDP

Within Future Earth, 9 Knowledge Action Networks (KANs) on priority themes

More information from http://www.futureearth.org/

Our planet, our health

We're committed to understanding and tackling the threat to our health posed by a dramatically changing world. We also want to ensure that any solutions protect, nurture and sustain our planet.

Our planet, our health has been a strategic priority for us since late 2015.

Why it's a priority for us

Our health is closely linked to the environment we live in. But we're placing too many demands on our planet. Natural systems that we rely on – from clean air to fresh water, biodiversity to a stable climate – are under threat.

As researchers discover more links between our health and the environment, we become better equipped to come up with ways to reduce these threats. There are already opportunities for change, but more research and action is needed.

We're well placed to act, because:

- we're an established and respected funder of population and other health research

NEWS

More population health news

CONTACT US

If you have any questions, contact the team:

OurPlanetOurHealth@wellcome.ac.uk

Australian Government
National Health and Medical Research Council

BUILDING
A HEALTHY
AUSTRALIA

Corporate Plan 2018–2019

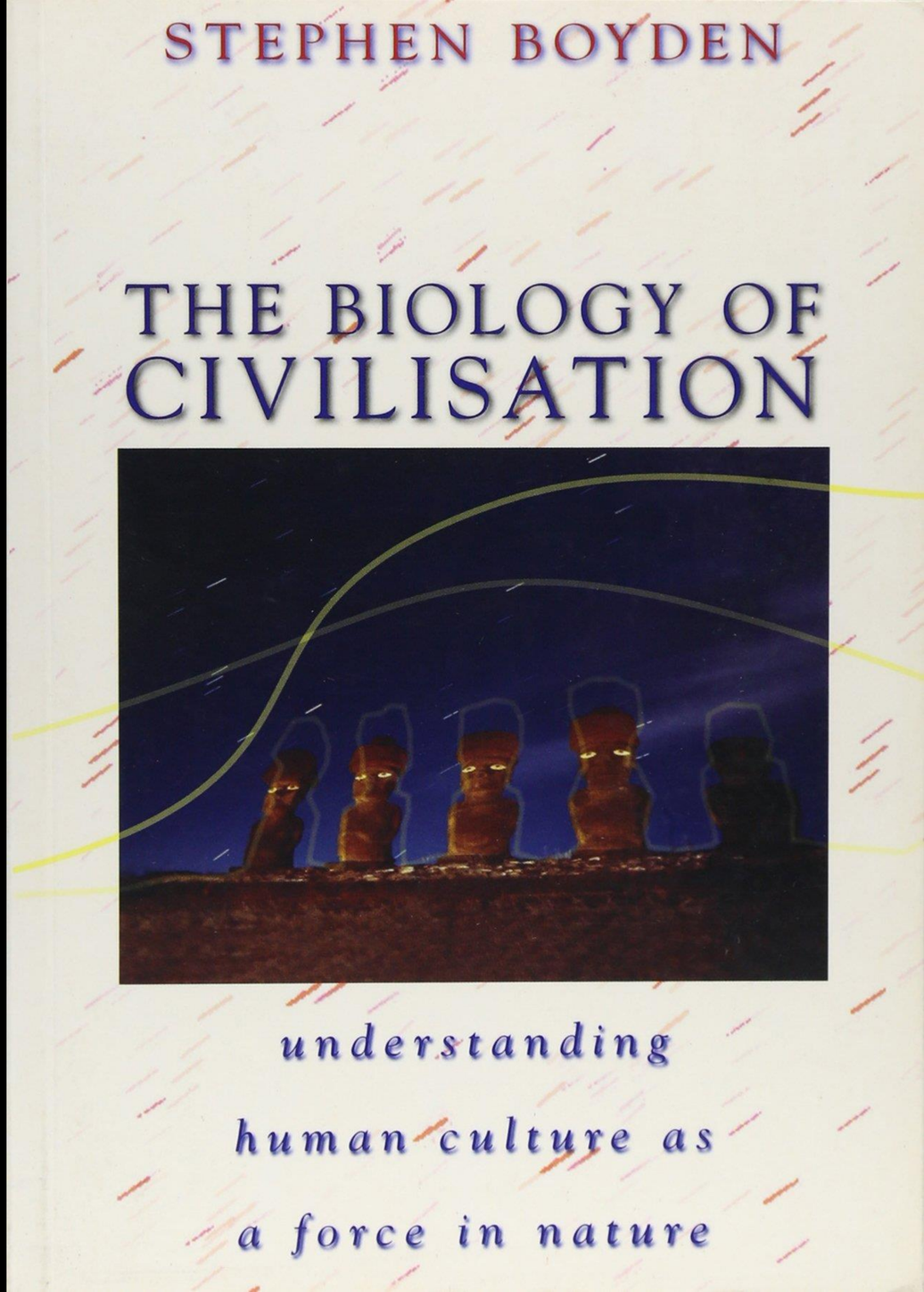
National Health and Medical Research Council

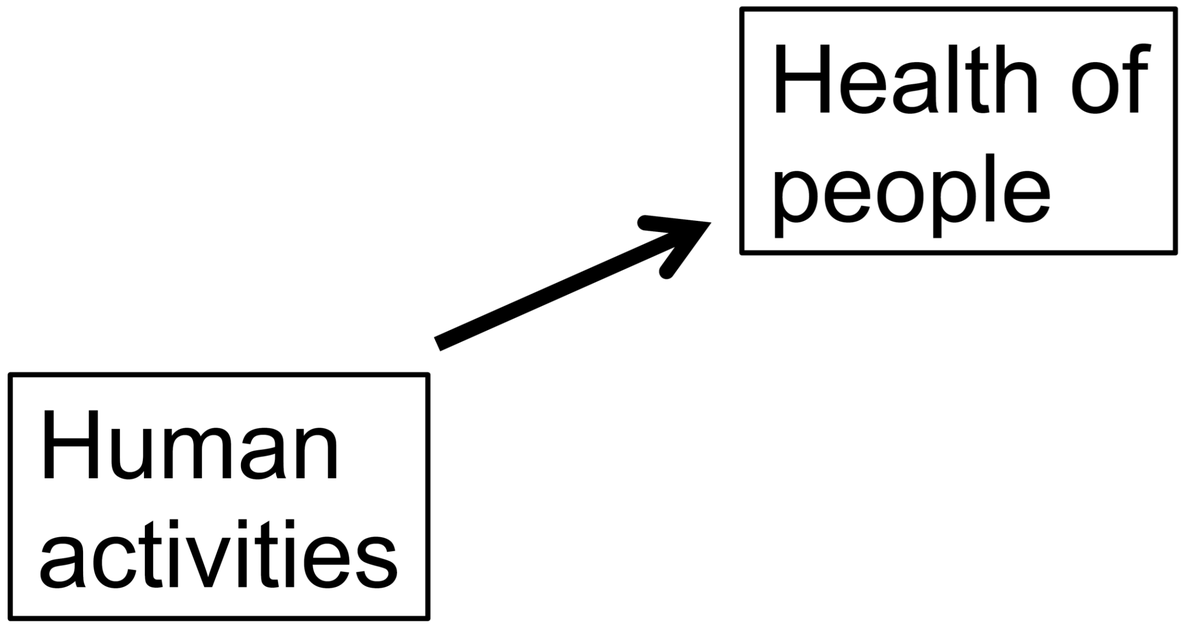
NHMRC

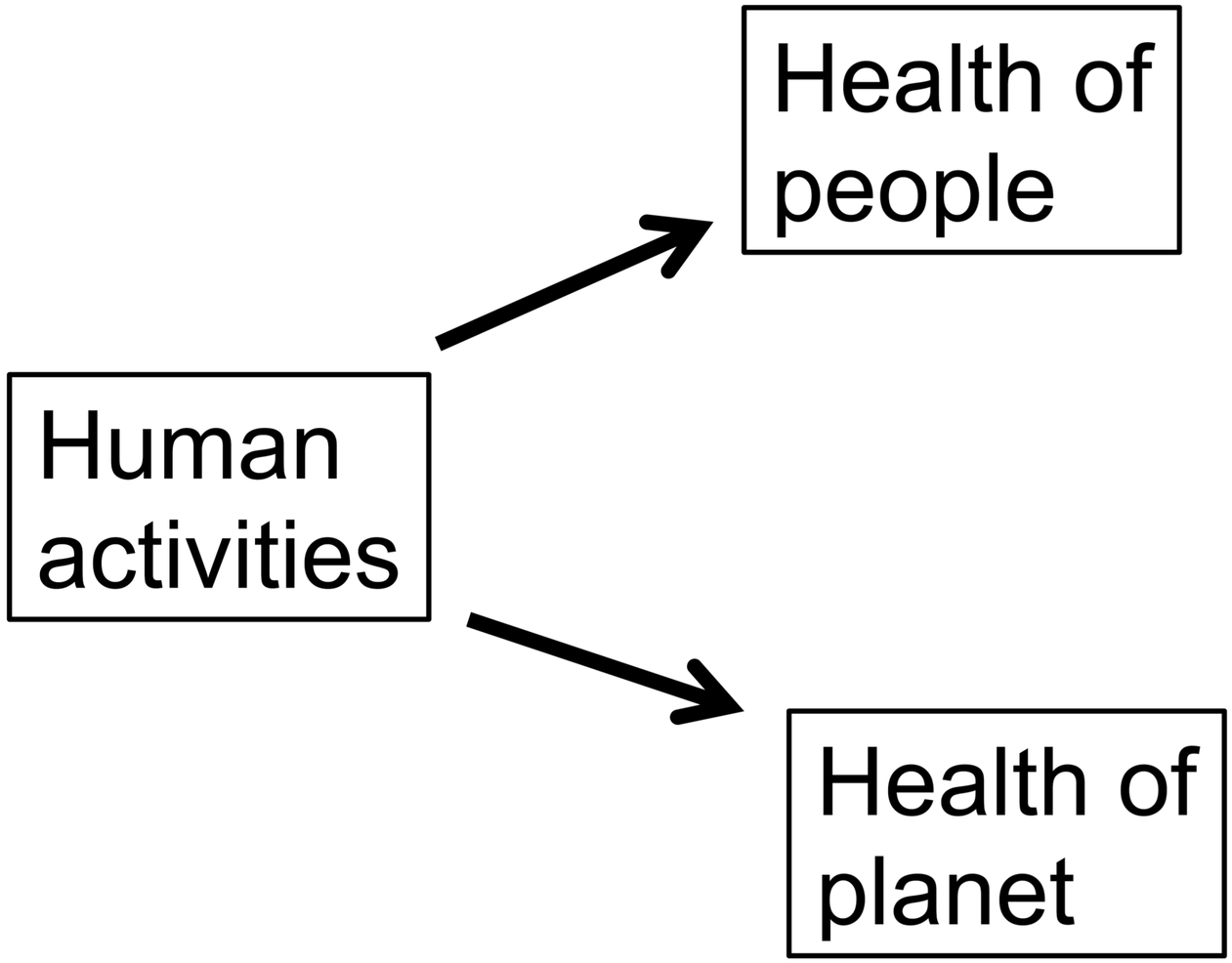

a natureresearch journal
nature
sustainability
new in 2018

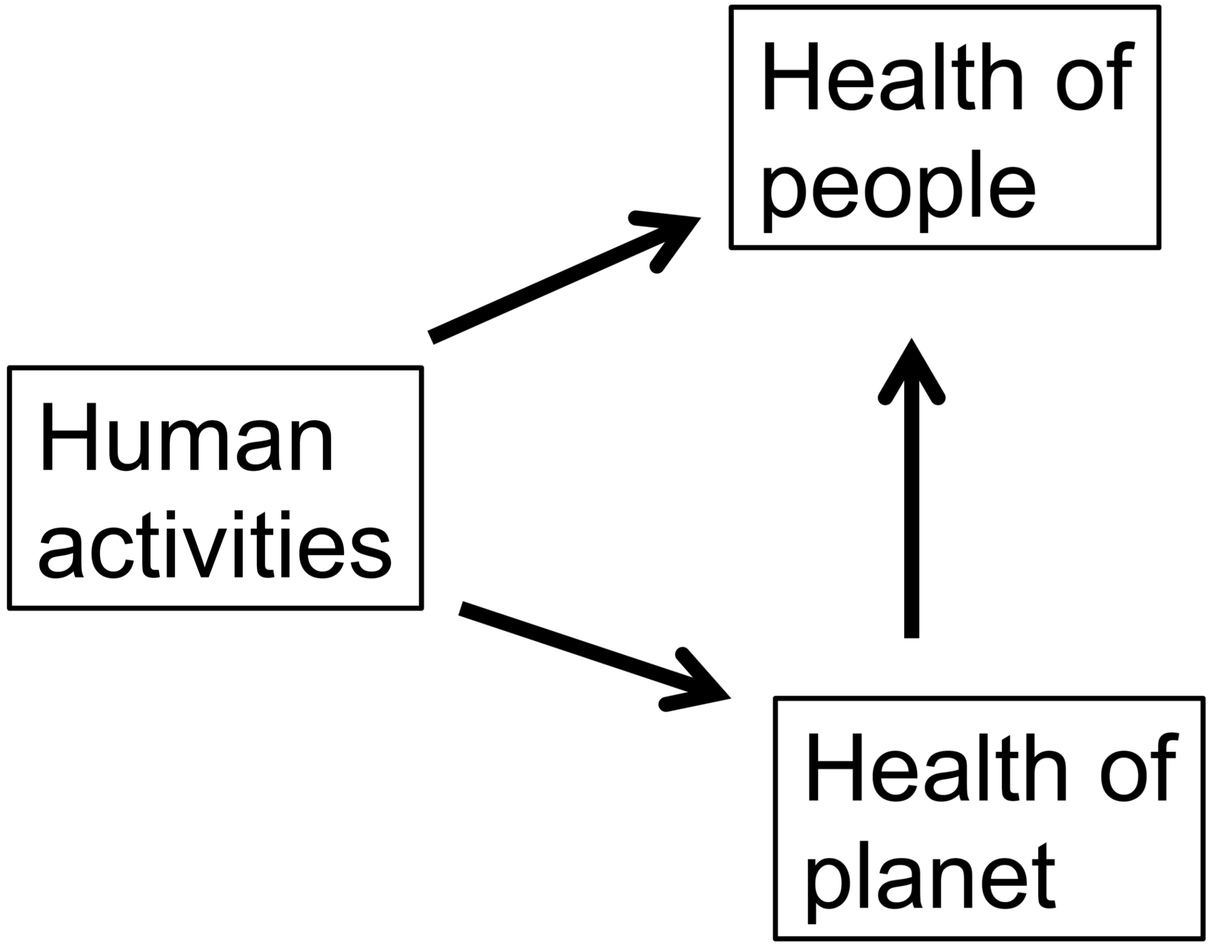

THE LANCET
Planetary Health
Volume 1 · Issue 1 · April 2017
www.thelancet.com/planetary-health
Comment
Climate change, global stability, and planetary health
See page e10
Articles
Drought and hospital admission and mortality in USA
See page e17
Articles
Water scarcity and effect of healthy diets in India
See page e26

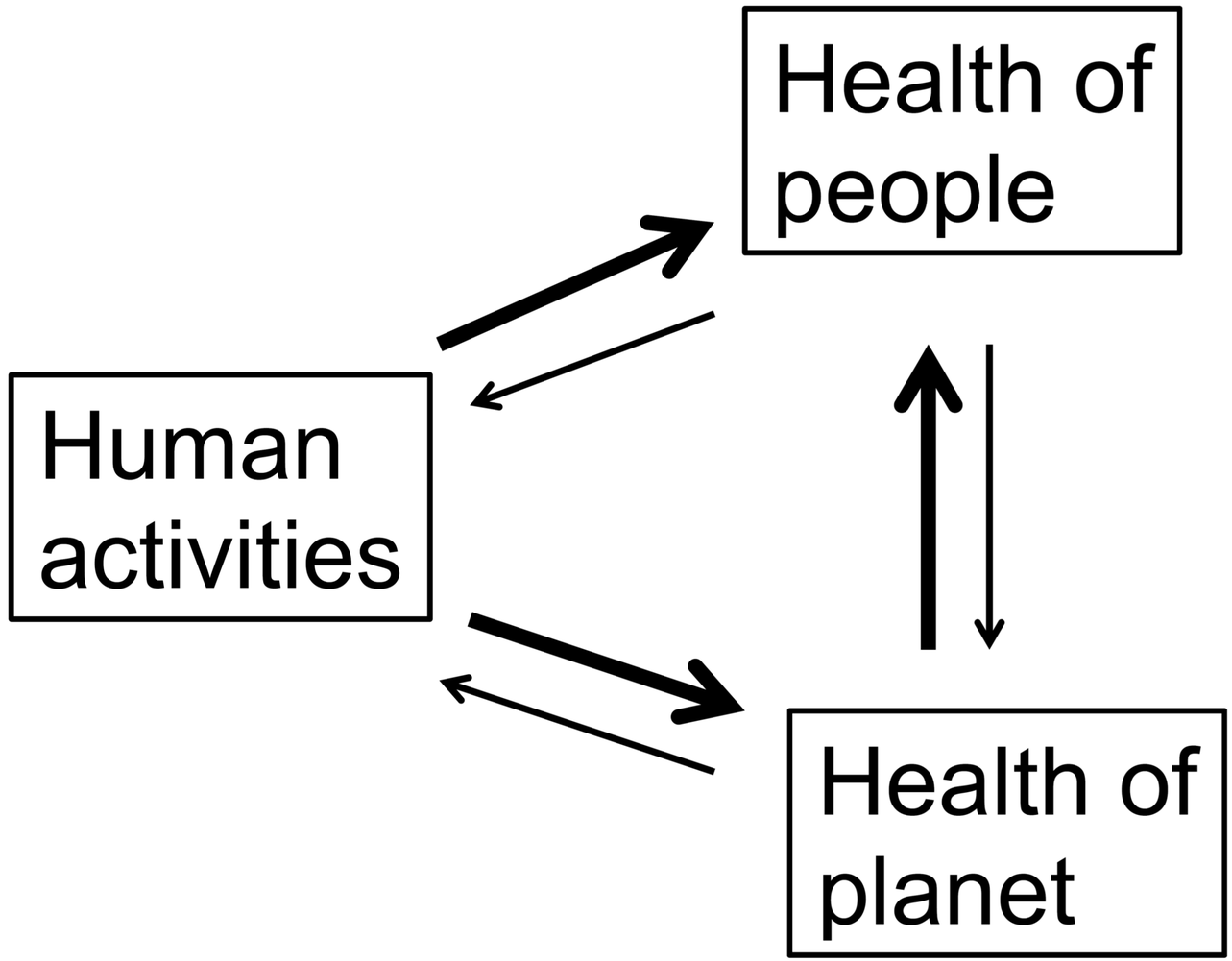
‘Human ecology’ as a way of understanding patterns of human health; alongside ‘epidemiology’ as a core method in environmental health




Health of people
Human activities

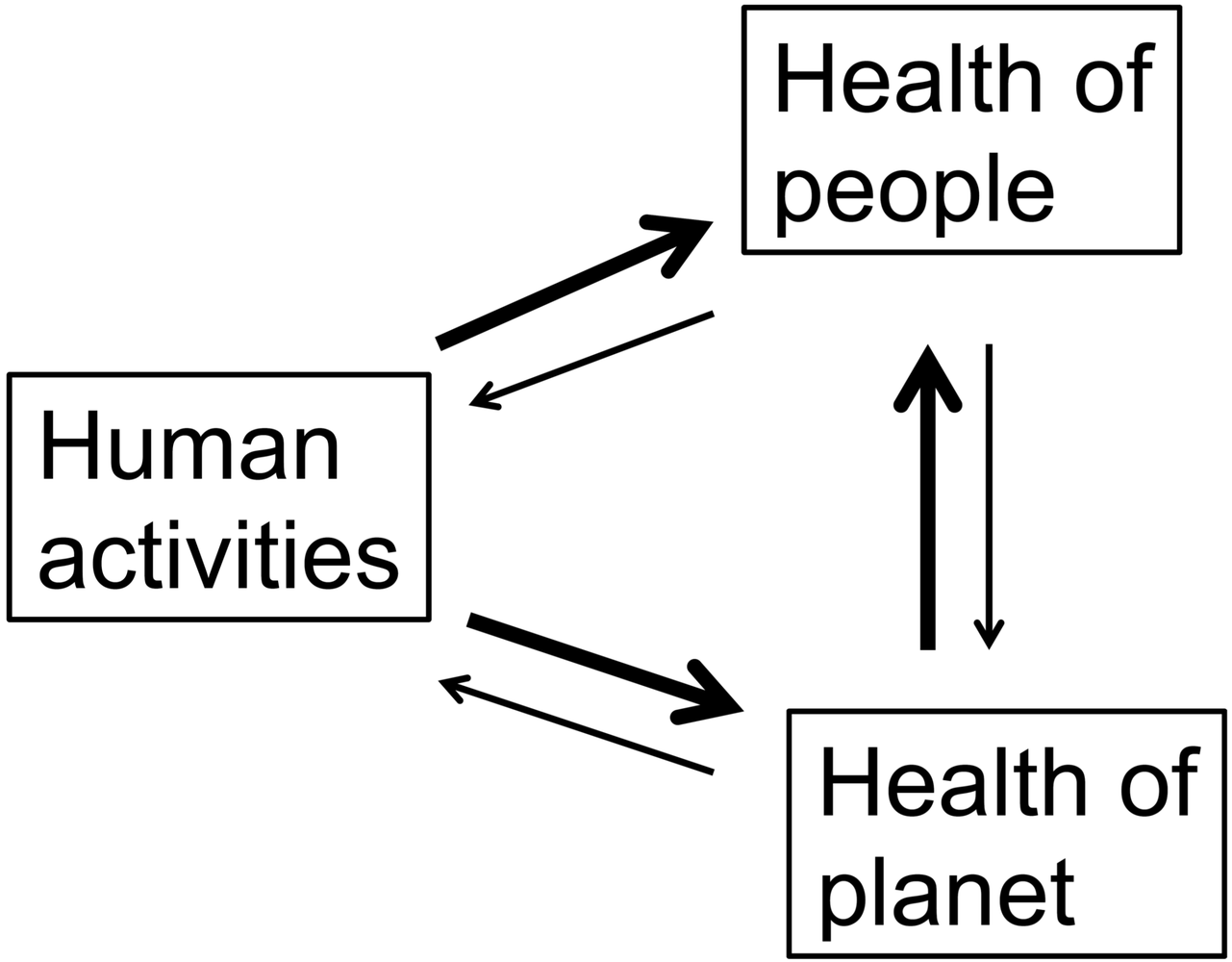

Health of people
Human activities
Health of planet

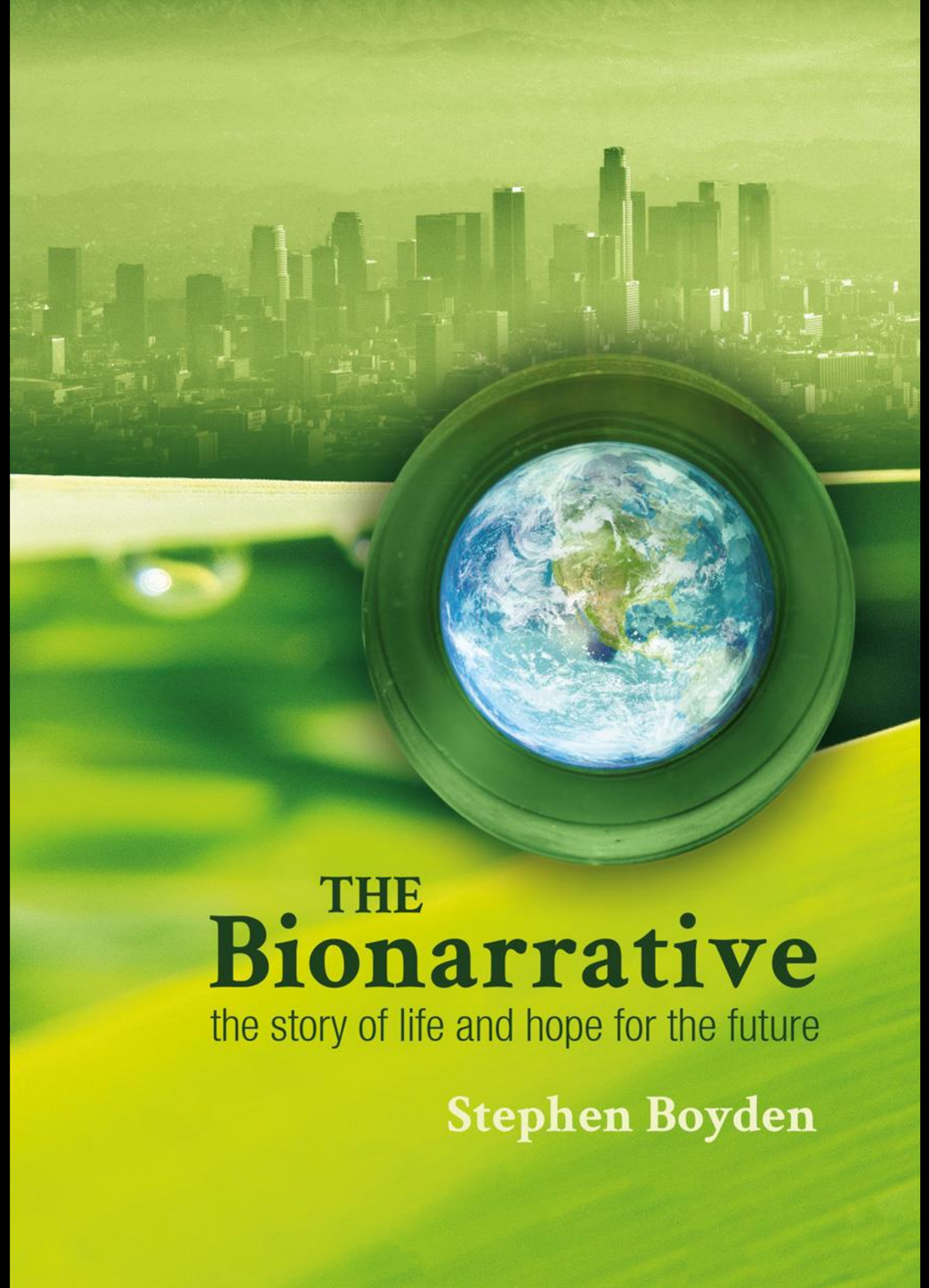

Health of people
Human activities
Health of planet


Health of people
Human activities
Health of planet

Boyden's Biosensitivity Triangle

https://press.anu.edu.au/publications/bionarrative





https://press.anu.edu.au/publications/bionarrative

Environmental health in the Anthropocene

What needs to change?

1. Intergenerational health equity (‘Leaving no one behind’)
2. An eco-social approach: an approach that recognises the ecological, economic and social foundations of health
3. Indigenous and local knowledge (ILK)
4. Systems thinking
5. In sum, we need to bring a ‘planetary consciousness’ to environmental health education, research, policy and practice

BMJ

LONDON, SATURDAY 26 JANUARY 1991

Sanitarian becomes ecologist: the new environmental health

Sensitivity to the environment demands new skills and attitudes

Once again public health is on the move. After 40 years in which medical thinking has been dominated by the "magic bullet," therapeutic, model of health the pendulum has swung strongly in the direction of health promotion and preventive medicine.

The reasons for this shift are complex. They include the prevailing political philosophies, which are antipathetic to publicly funded services and emphasise personal responsibility. But they also include various strands of academic support. These range from Ivan Illich's indictment of the iatrogenic effects of much of medical practice to the abundant evidence that, despite enormous investment in medical care, the health of large sections of the population has failed to show commensurate improvement.[1] Not least is McKeown's demonstration that most of the improvement in mortality in England and Wales between 1840 and 1970 had occurred before the availability of effective treatments.[2] McKeown's claim that the main contributions to improved health came were so central to the old public health, with its emphasis on hygiene, pollution, and the prevention of infectious disease.

The Victorian public health movement was constructed around a powerful motivating concept that came to be known as the "sanitary idea": the idea that overcrowding in insanitary conditions was at the root of the epidemics that afflicted the great towns and cities.[10] In the 1840s, 30 years before the germ theory of disease, it was this idea that led to the 1848 Public Health Act and the establishment of municipal departments of public health, with city medical officers and sanitary inspectors working as a team. The sanitary idea, coupled with the enlightened self interest of the middle classes in recognising their vulnerability to cholera spreading from poor neighbourhoods, also generated the momentum for adequate housing, safe water, and sewage disposal. In retrospect, the sanitary idea may be seen to have been flawed and incomplete and a product of Victorian thinking that technical solutions could be imposed on natural systems. A constant stream