Designing Cities for Human Wellbeing and Planetary Health

Presented by

Professor Tony Capon

THE UNIVERSITY OF SYDNEY



Image by Mi Pham on Unsplash

Health Promotion International, 2018;33:149–151
doi: 10.1093/heapro/daw046
Advance Access Publication Date: 29 June 2016
Perspectives

Perspectives

People, planet and participation: the Kuching statement on healthy, just and sustainable urban development

International Institute for Global Health, United Nations University, Kuala Lumpur, Malaysia

Corresponding author. E-mail: dietrich@unu.edu

Summary

This statement was commissioned by the UNU International Institute for Global Health in the run up to Habitat III—the third United Nations conference on housing and sustainable urban development. The statement draws on insights from the World Urban Campaign thinkers campus held during 24–27 January 2016 in Kuching, a WHO-designated healthy city.

Key words: sustainable development goals, determinants of health, urban health

INTRODUCTION

We are entering the Anthropocene—a new geological time period that marks an age of colossal and rapid human impact on Earth's systems. In this rapidly urbanizing era, cities are key players in ensuring that humanity and all other species can live harmoniously and healthily on this one small planet. But this requires cities to adopt an eco-social approach, placing both the health of people and planet at the centre of urban planning and governance. The hallmark of successful 21st century cities will be an understanding of urban development in terms of the complex interconnections between the ecological, economic and social foundations of human development and health.

PLANET: CITIES LIVING WITHIN ECOLOGICAL BOUNDARIES

We disrupt and destroy Earth's systems at our own peril. Humans share this planet with many other species, bounded within the diverse ecosystems that sustain us. People cannot thrive without the Earth's support systems or the biodiversity of natural ecosystems. Sustainable cities need to operate within the confines of our Earth's carrying capacity, recognizing that the fundamental roots of human wellbeing—air, water, food, fuels and materials—are derived from natural systems and the ecosystem services they provide. We must value the planet in its role as provider and protector; moderating and regulating climate, recycling and detoxifying wastes, replenishing and restoring the air we breathe and the water we drink, and shielding us from ultraviolet radiation.

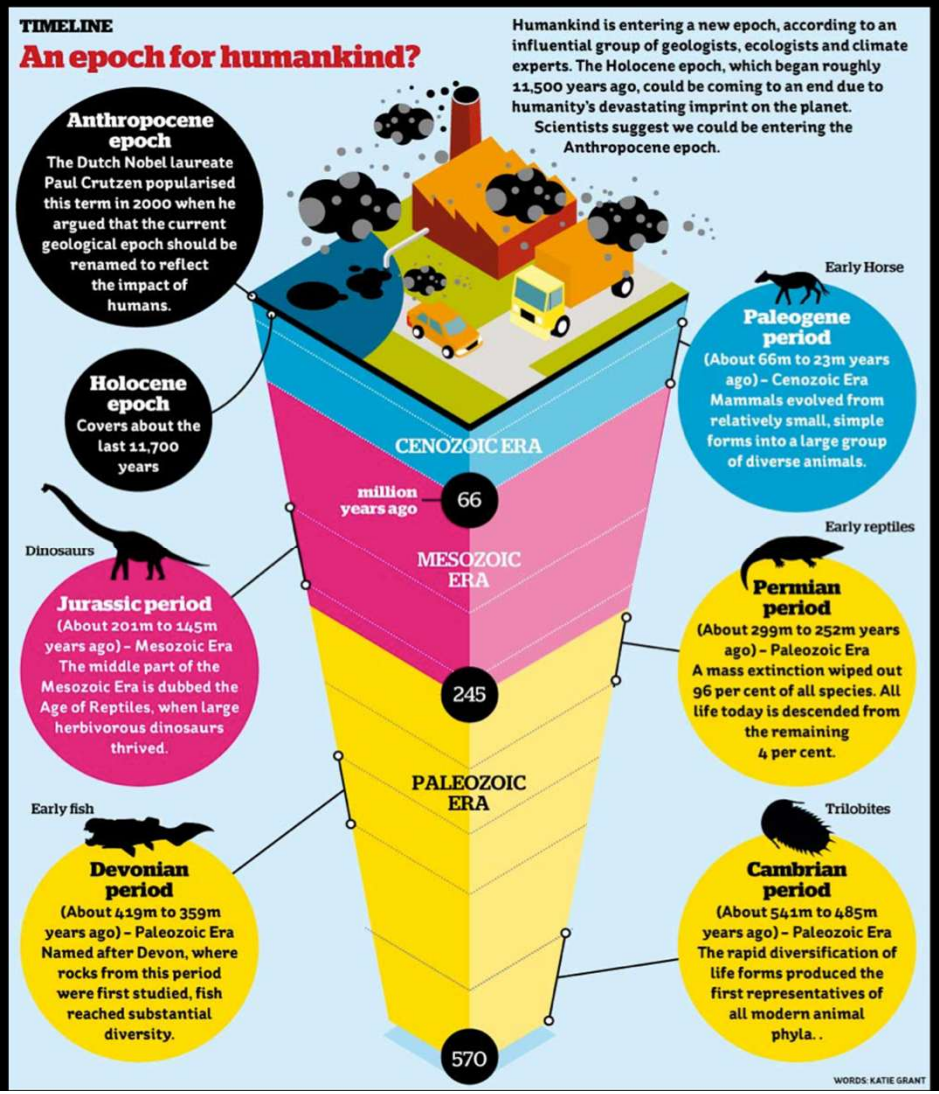
In recognizing the limits of the Earth's natural systems, healthy, just and sustainable cities seek to minimize their ecological footprint whilst maximizing their level of human development. They embrace ecologically sustainable technologies and design and encourage social, cultural and economic activities that protect and enrich their environments without compromising local and remote ecosystems, now and into the future.

© The Author 2016. Published by Oxford University Press.
This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted reuse, distribution, and reproduction in any medium, provided the original work is properly cited.

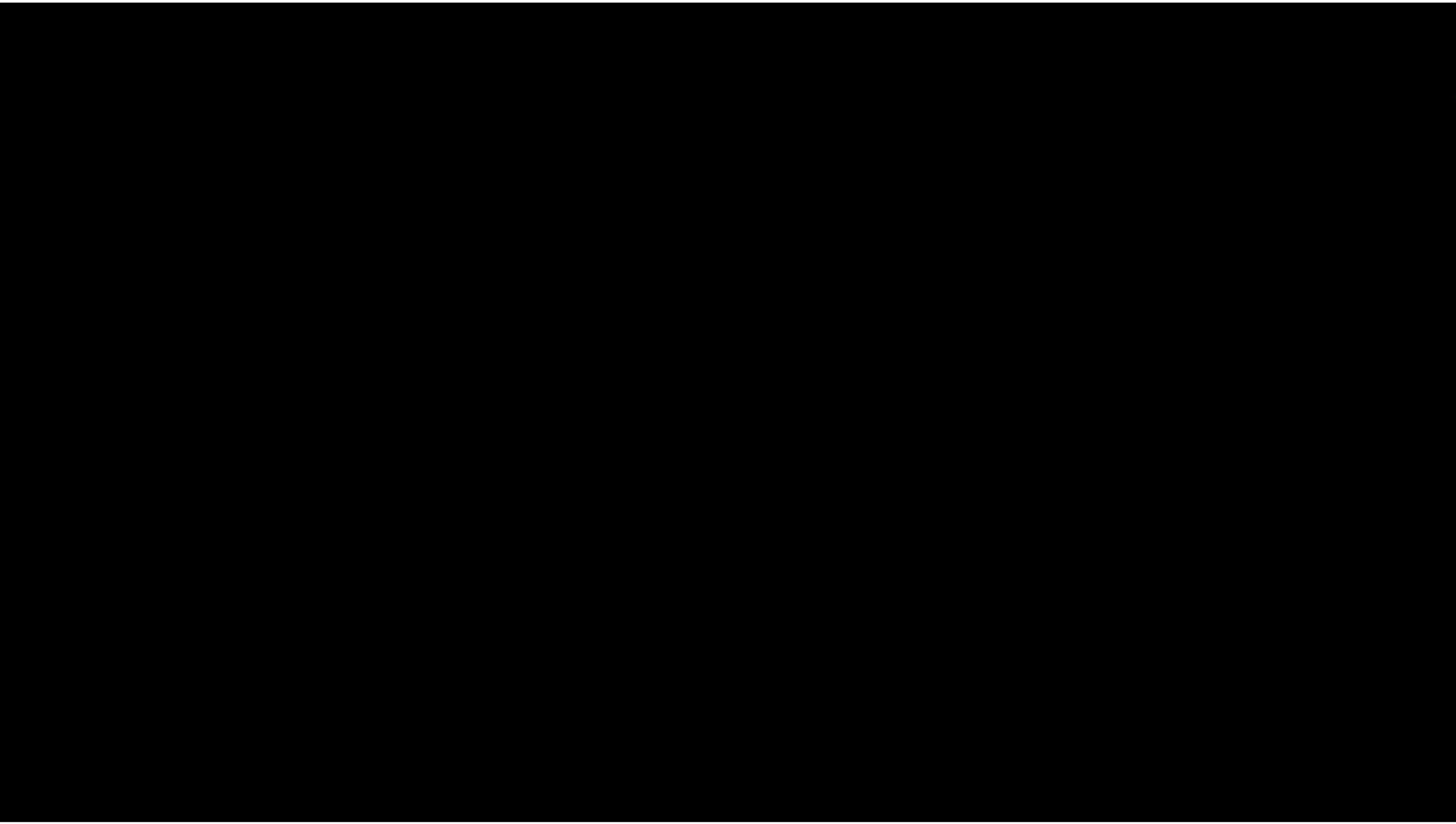
This talk

1. Some relevant history
2. The Anthropocene epoch
3. The Rockefeller Foundation–*Lancet* Commission on Planetary Health
4. Thinking ecologically about health in cities
5. So what?

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:

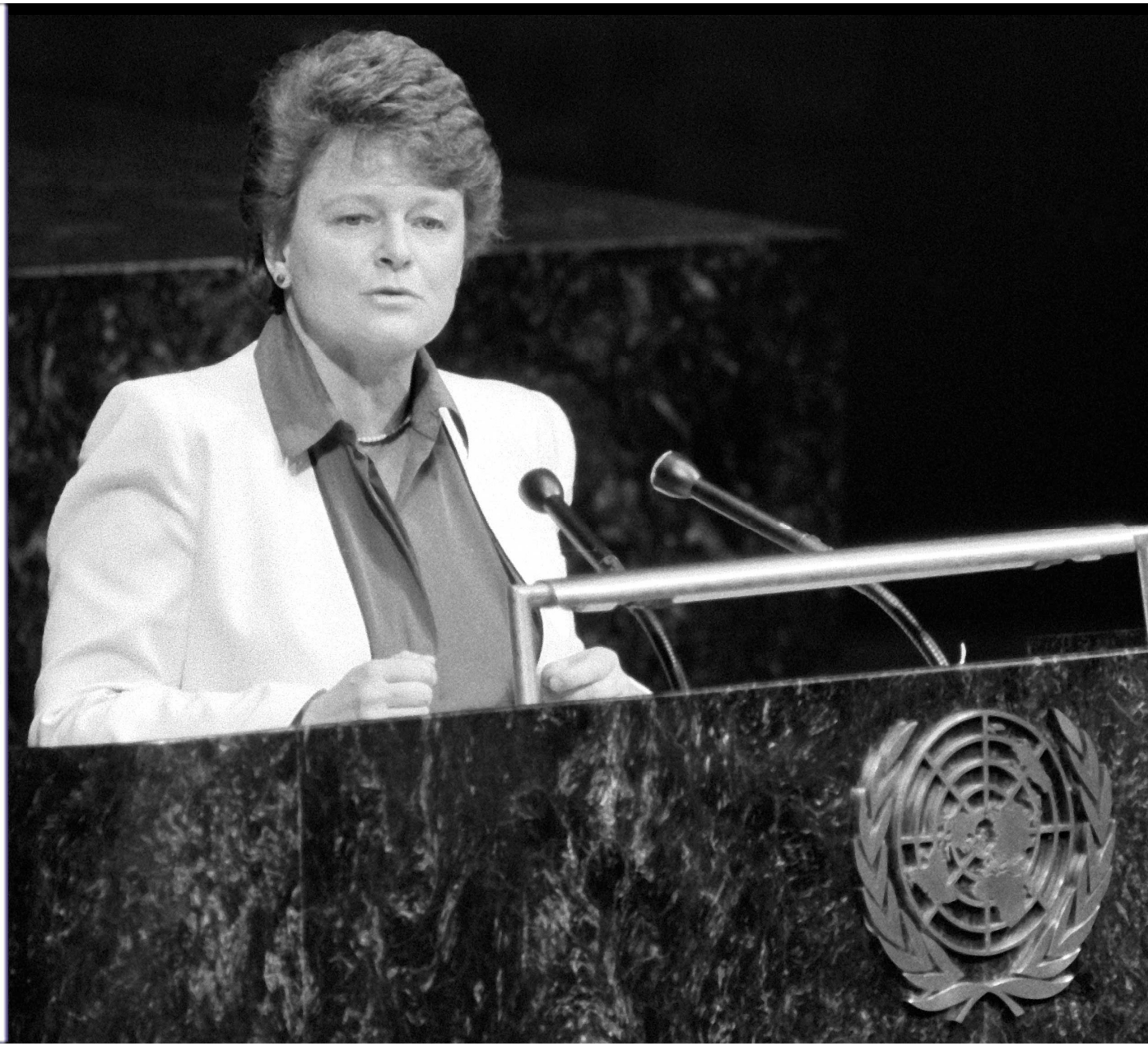
Prof Chris Beyrer
Dr Fred Boltz
Prof Anthony Capon
Dr Alex Ezeh
Prof Gong Peng
Prof Sir Andy Haines (Chair)
Dr Richard Horton
Dr Sam Myers
Dr Sania Nishtar
Dr Steve Osofsky
Prof Subhrendu Pattanayak
Dr Montira Pongsiri
Dr Agnes Soucat
Dr Jeanette Vega
Dr Derek Yach
Dr Sarah Whitmee
(Commission Researcher)

Building on other work including One Health and the Brundtland Commission

Image: Globaïa

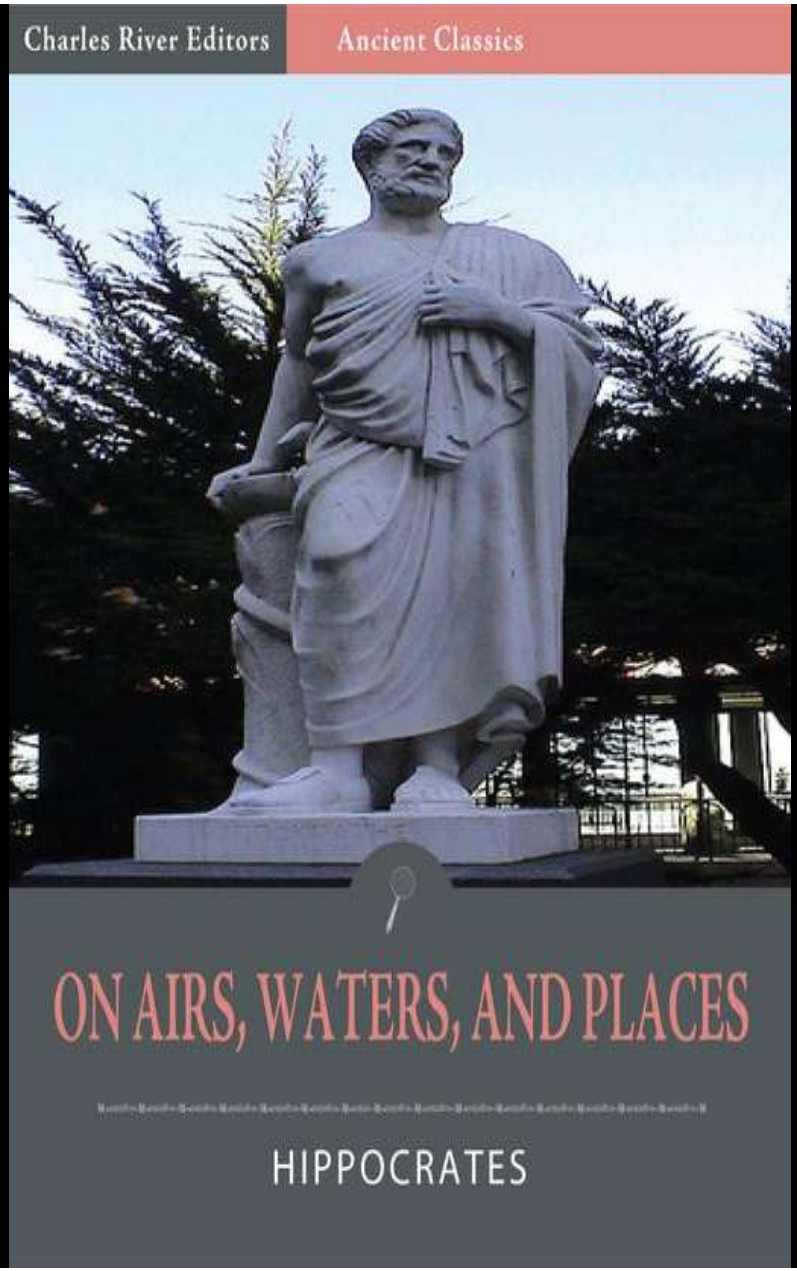
OUR COMMON FUTURE

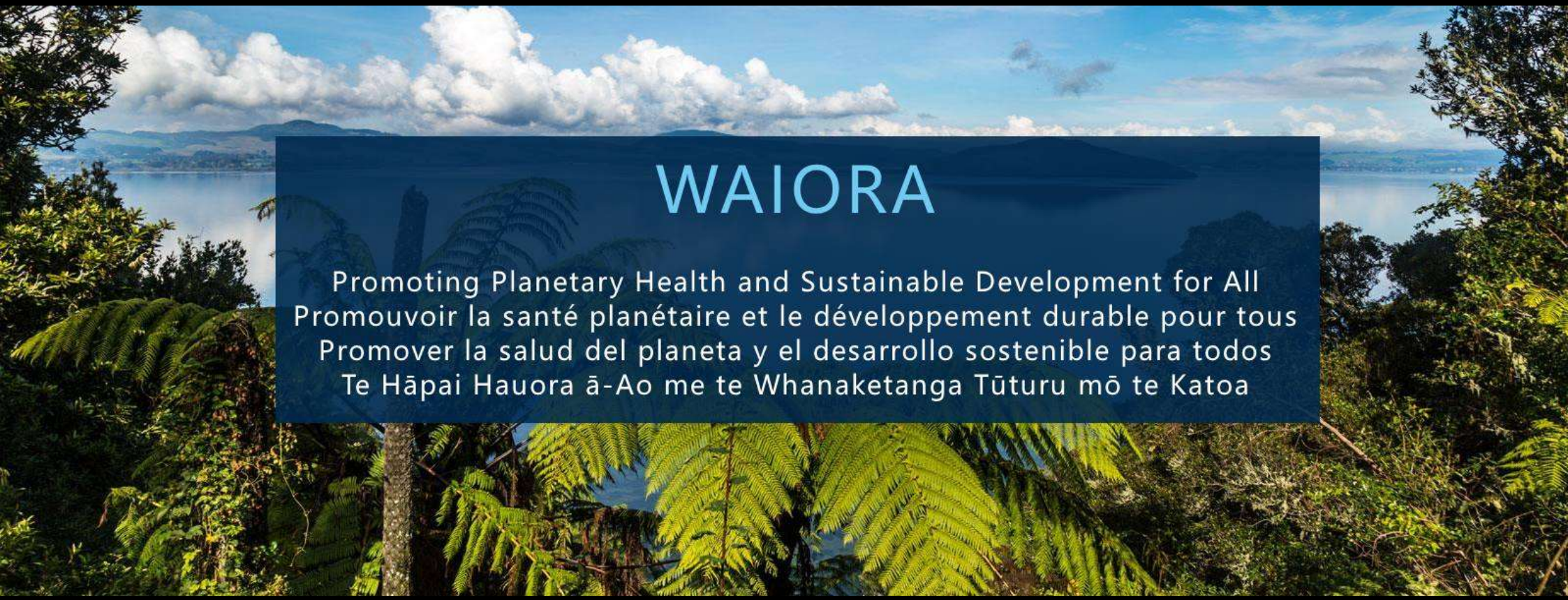
THE WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT



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

Population of the World

(billions, UN estimates)

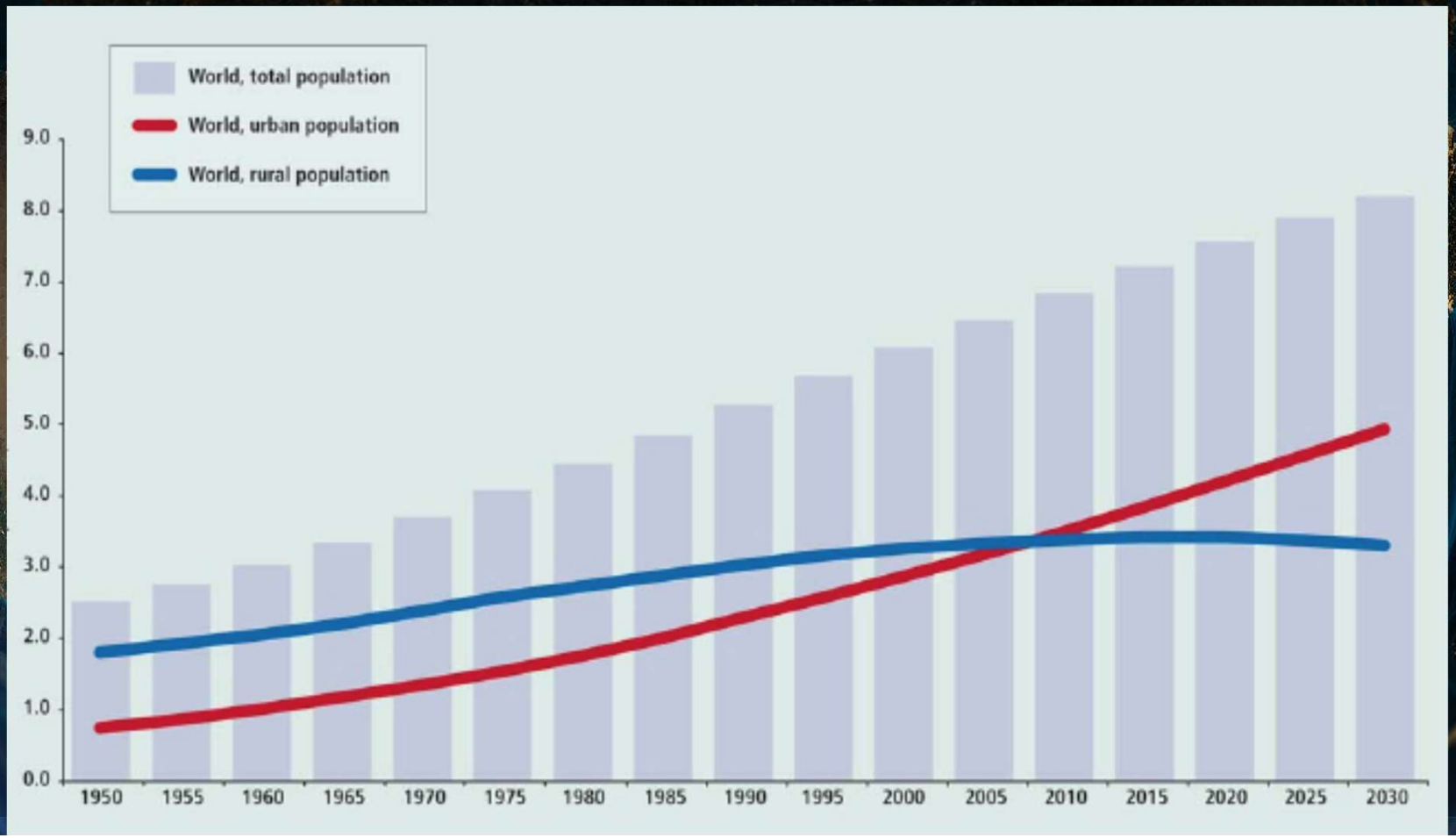


Image: Globaïa

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

(World Bank, 2011)

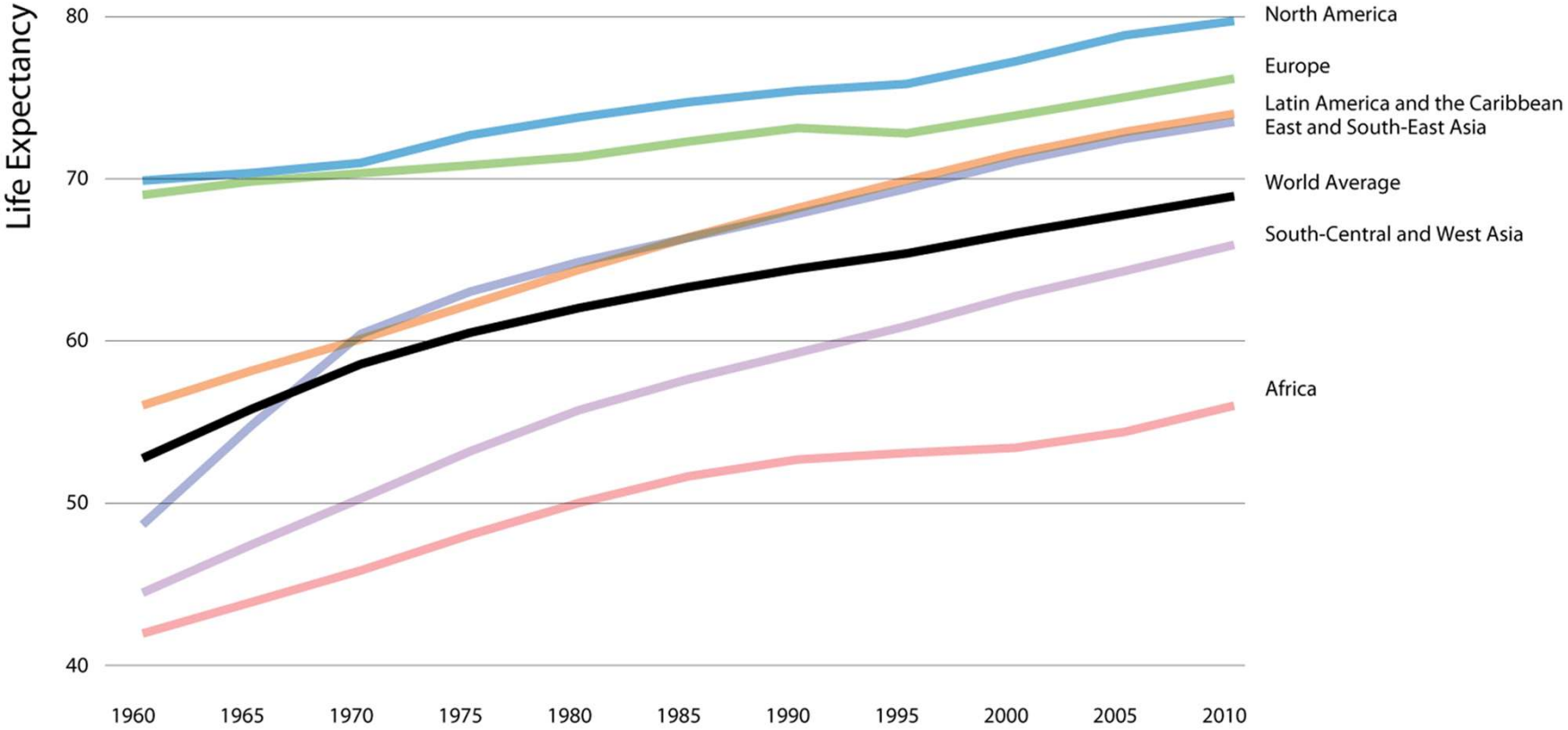


Image: Globaïa

The ROCKEFELLER FOUNDATION THE LANCET

COMMISSION ON PLANETARY HEALTH

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

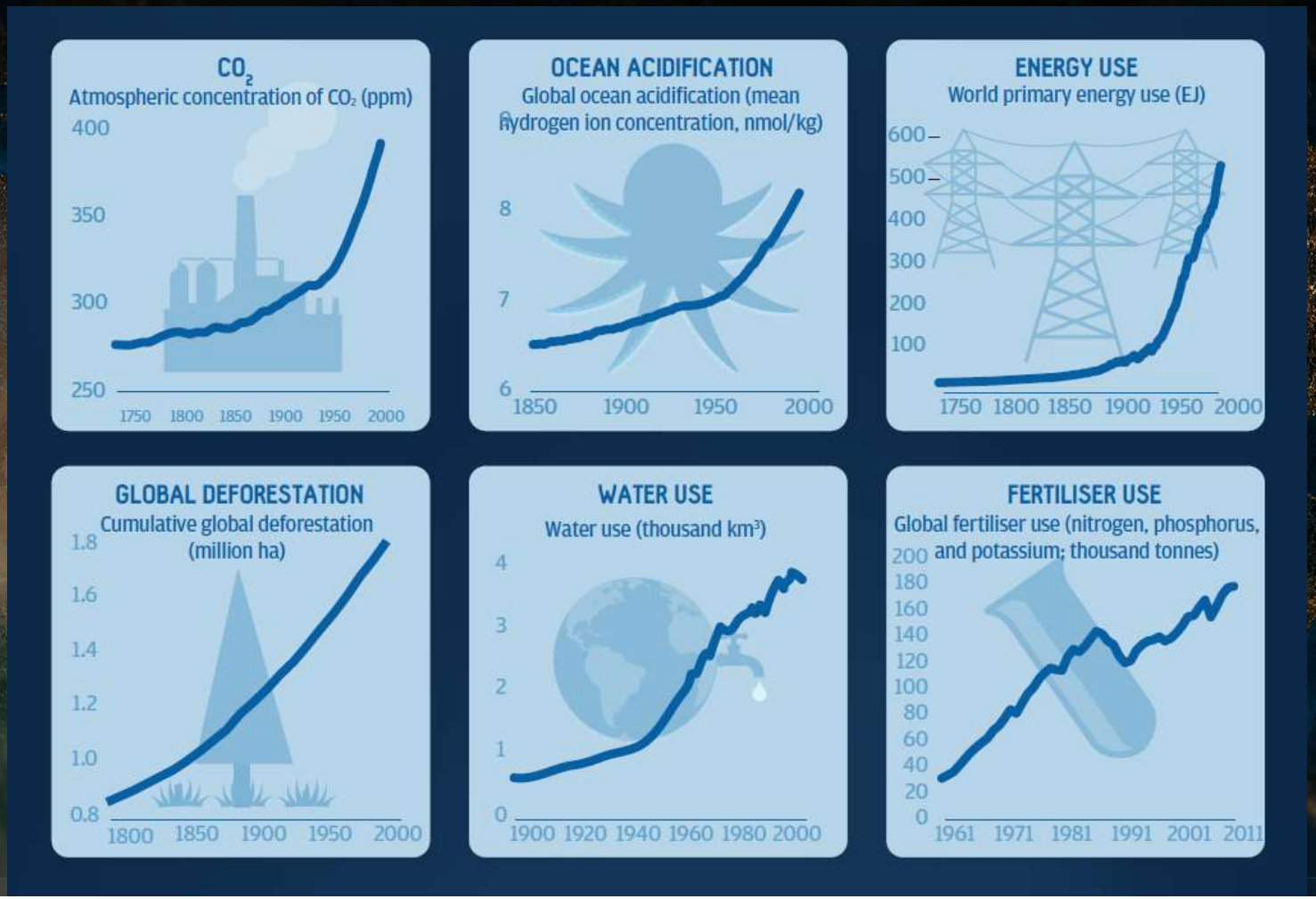


Image: Globaïa

The ROCKEFELLER FOUNDATION THE LANCET

COMMISSION ON PLANETARY HEALTH

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)

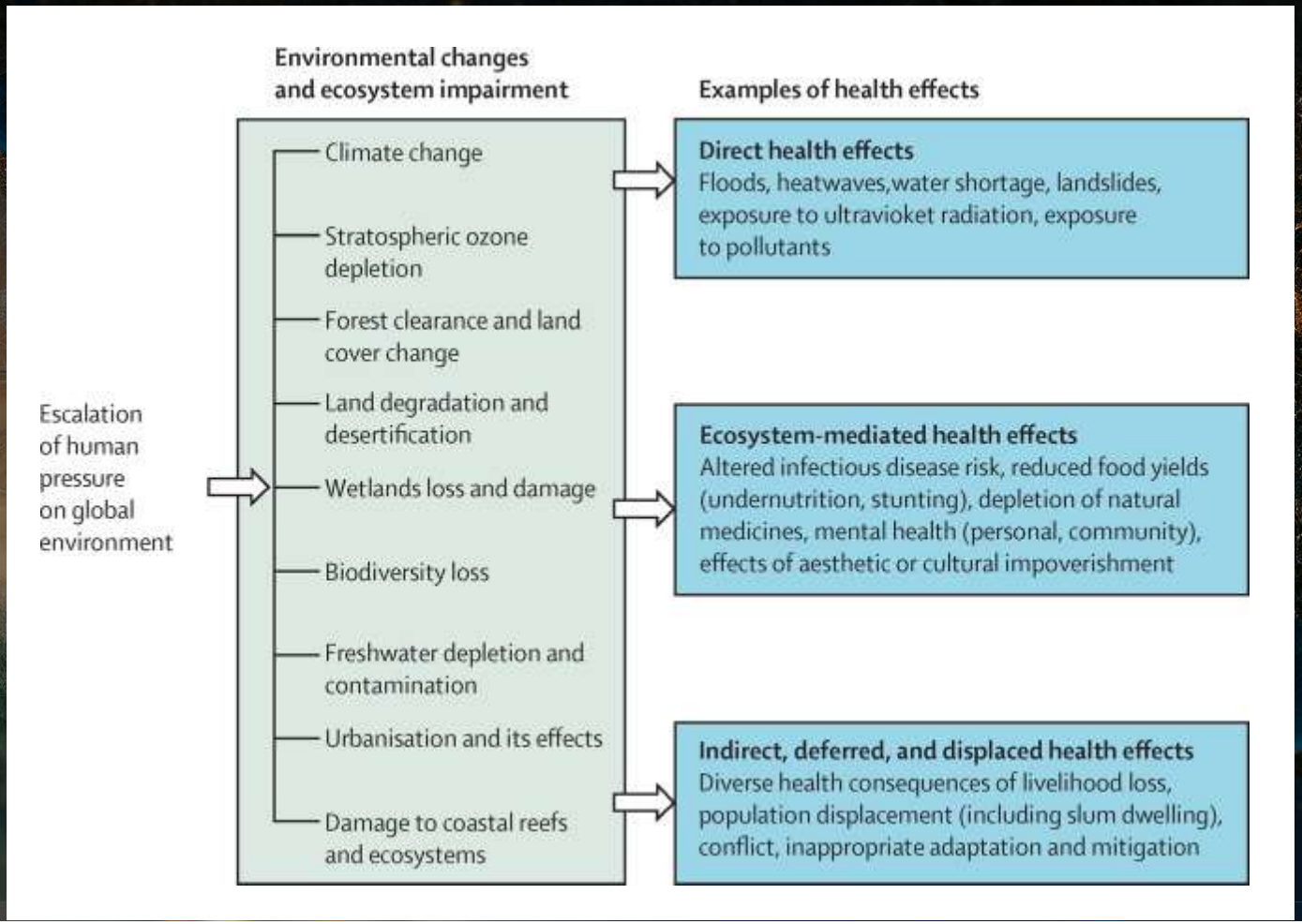


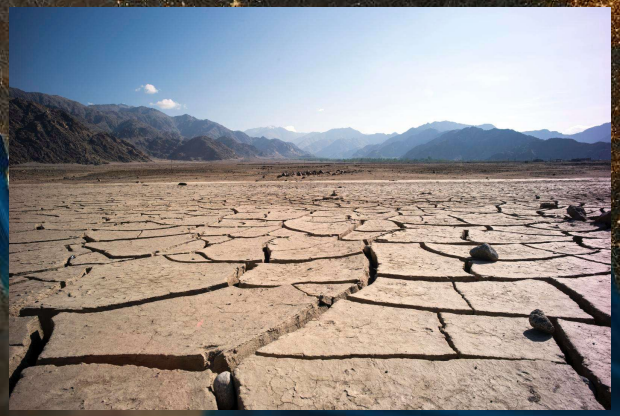
Image: Globaïa

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)



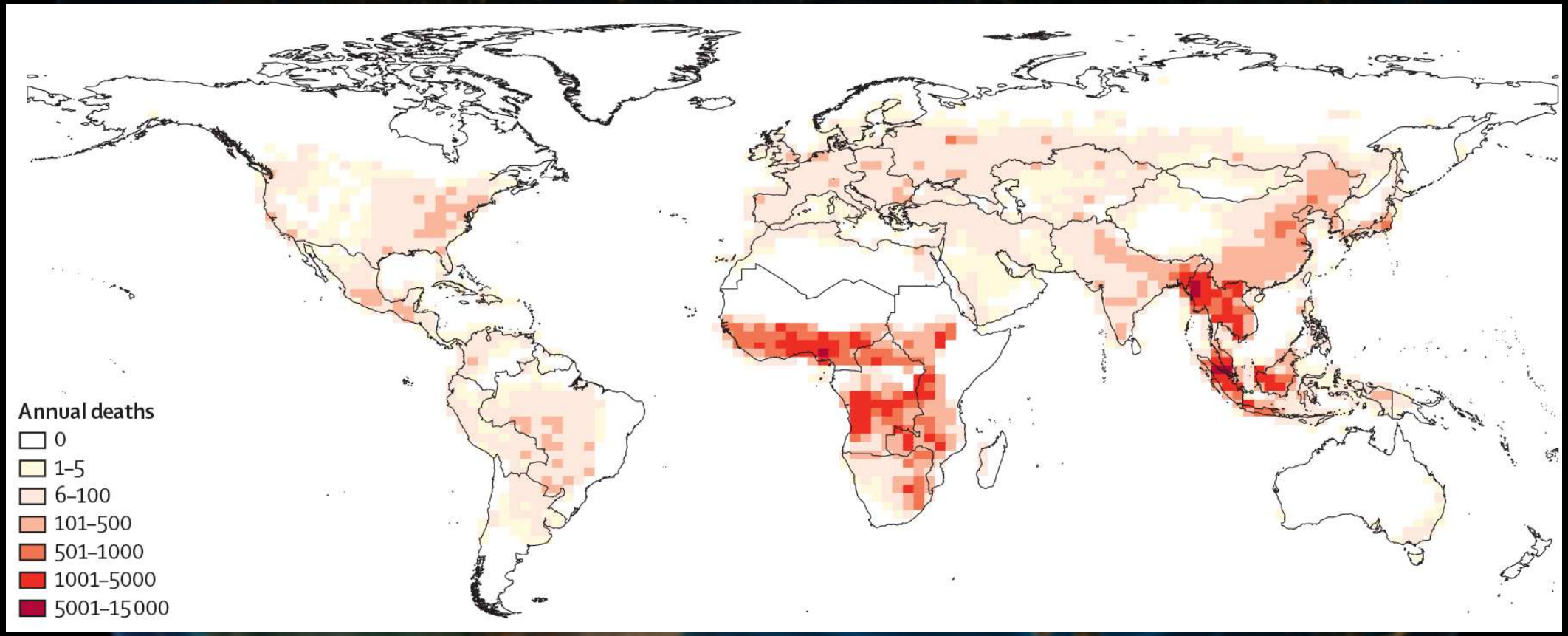




- Ambient particulates >3 m deaths p.a.
- Household from solid fuels >4 m deaths p.a.
- >7 million in total

Image: Globaïa

Annual average global mortality (1997–2006) due to landscape fire smoke



Reproduced from Johnston and colleagues 2012;, by permission of Environmental Health Perspectives.

Image: Globaïa

Emerging diseases

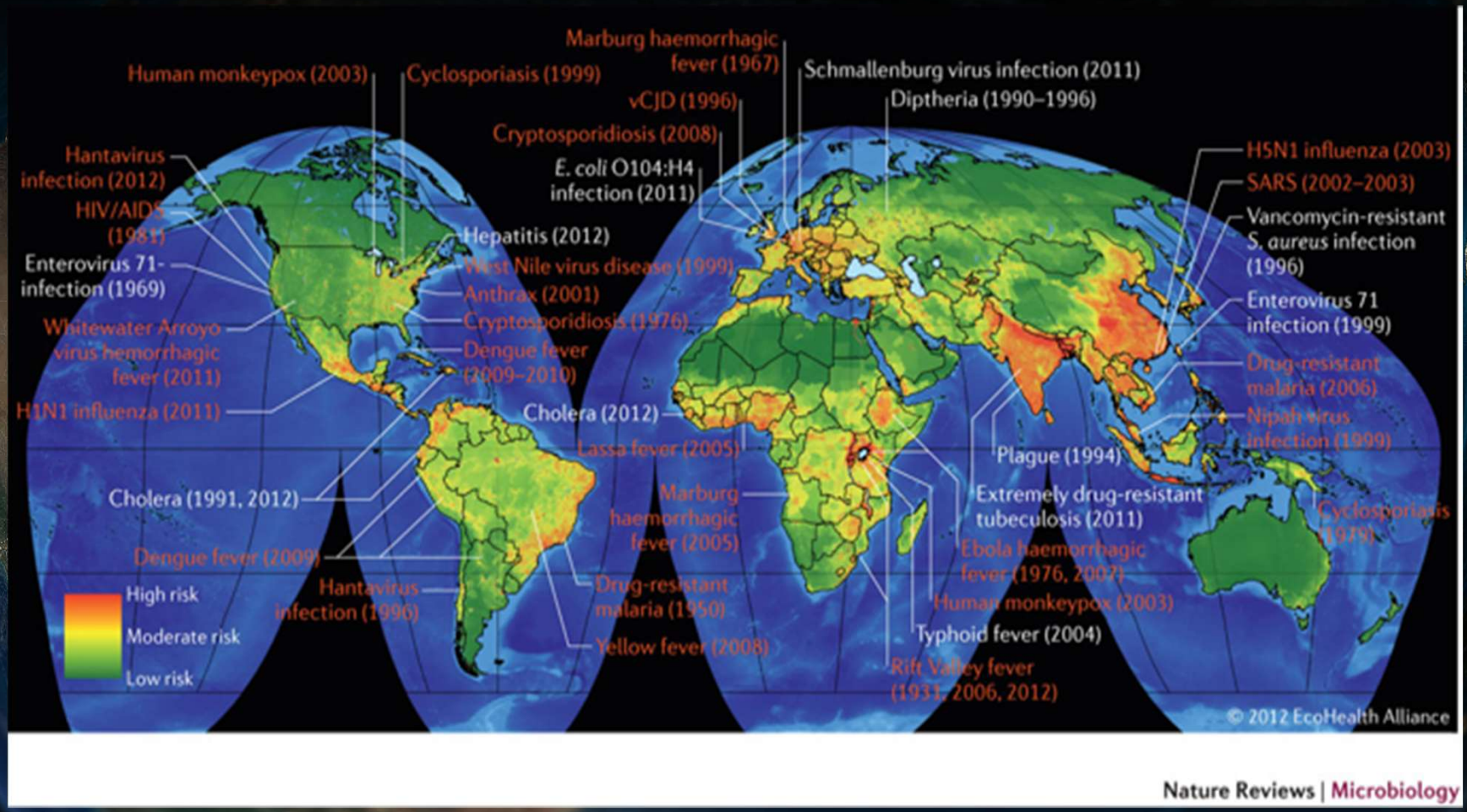


Image: Globaïa

The ROCKEFELLER FOUNDATION THE LANCET

COMMISSION ON PLANETARY HEALTH

Meeting the challenges

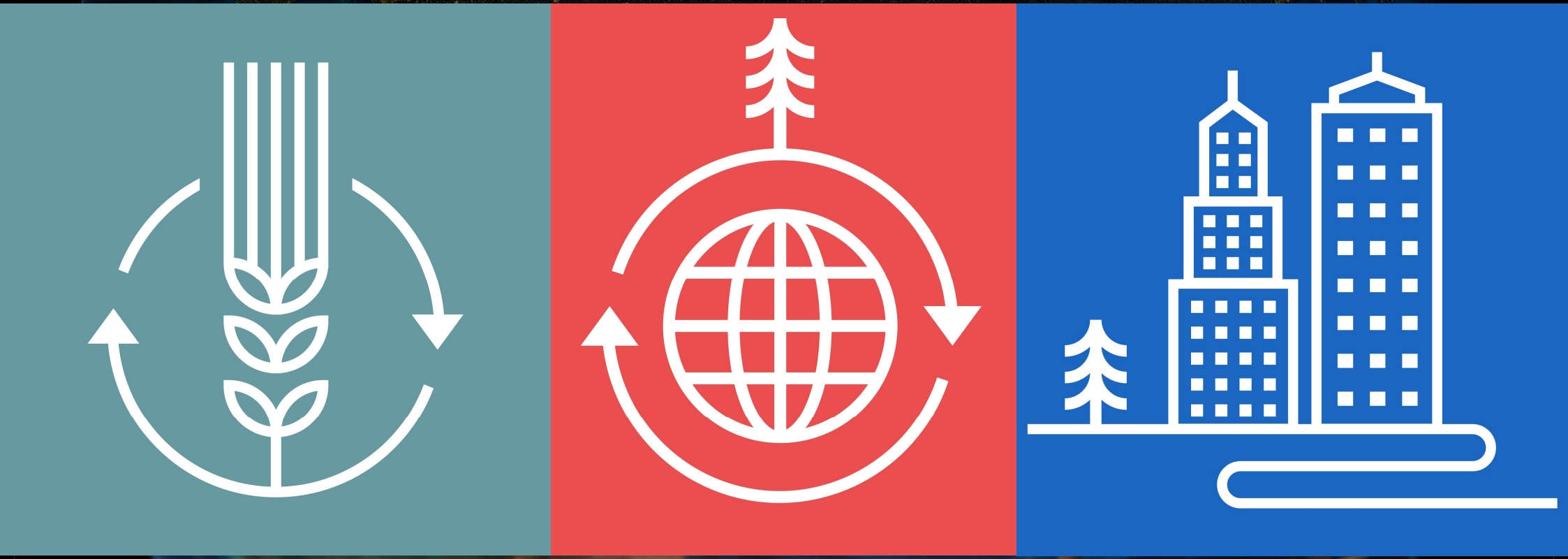


Image: Globaïa

Developing sustainable and healthy cities

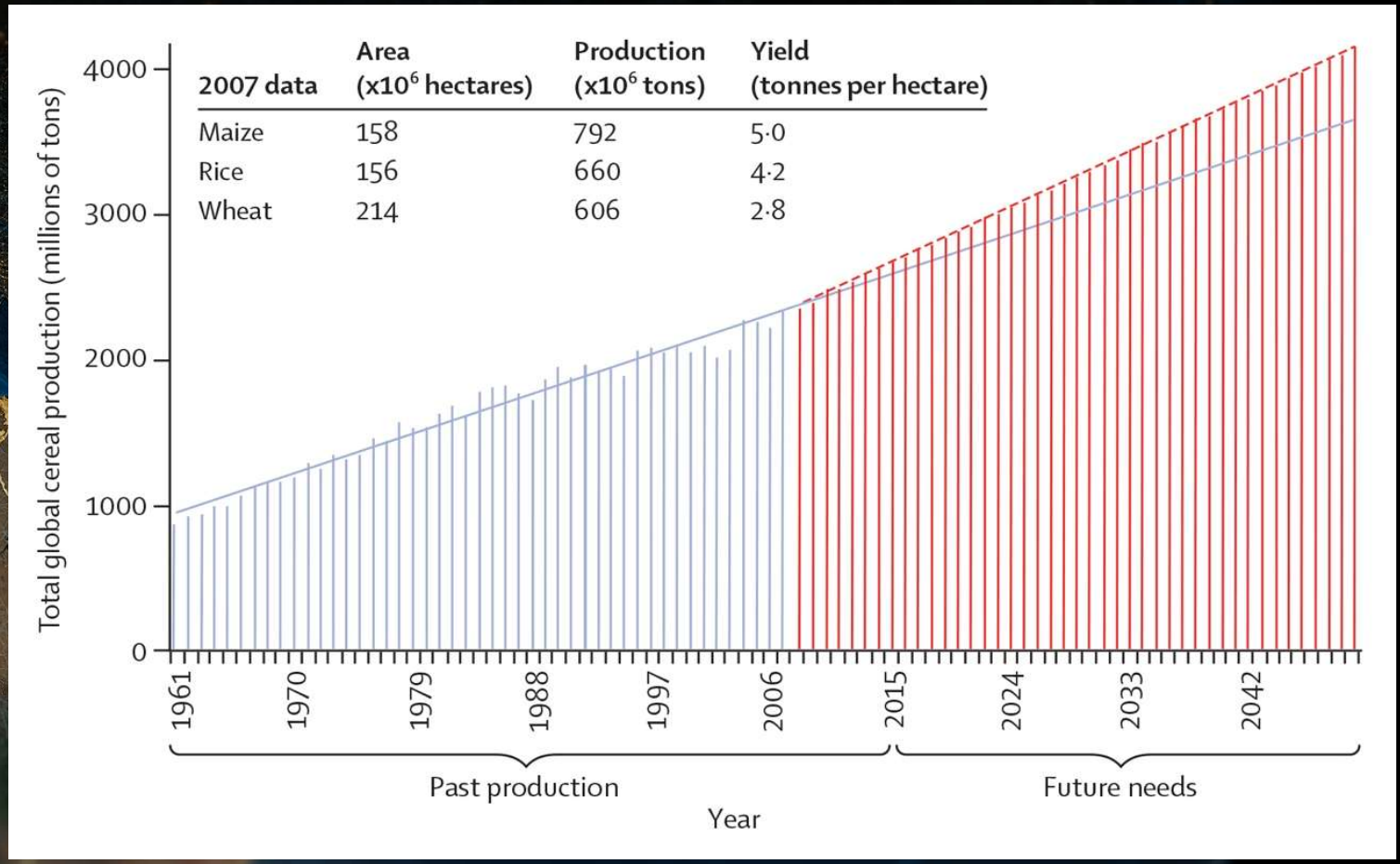


- Active travel /public transport
- Reduced fine particulate air pollution
- Green spaces –biodiversity, reduced heat island and mental health benefits
- Watershed conservation
- Access to healthy food
- Increased resilience to floods,storms and droughts

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

Reduced GHG emissions and land use requirements from healthy diets

Hallstrom et al 2014





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

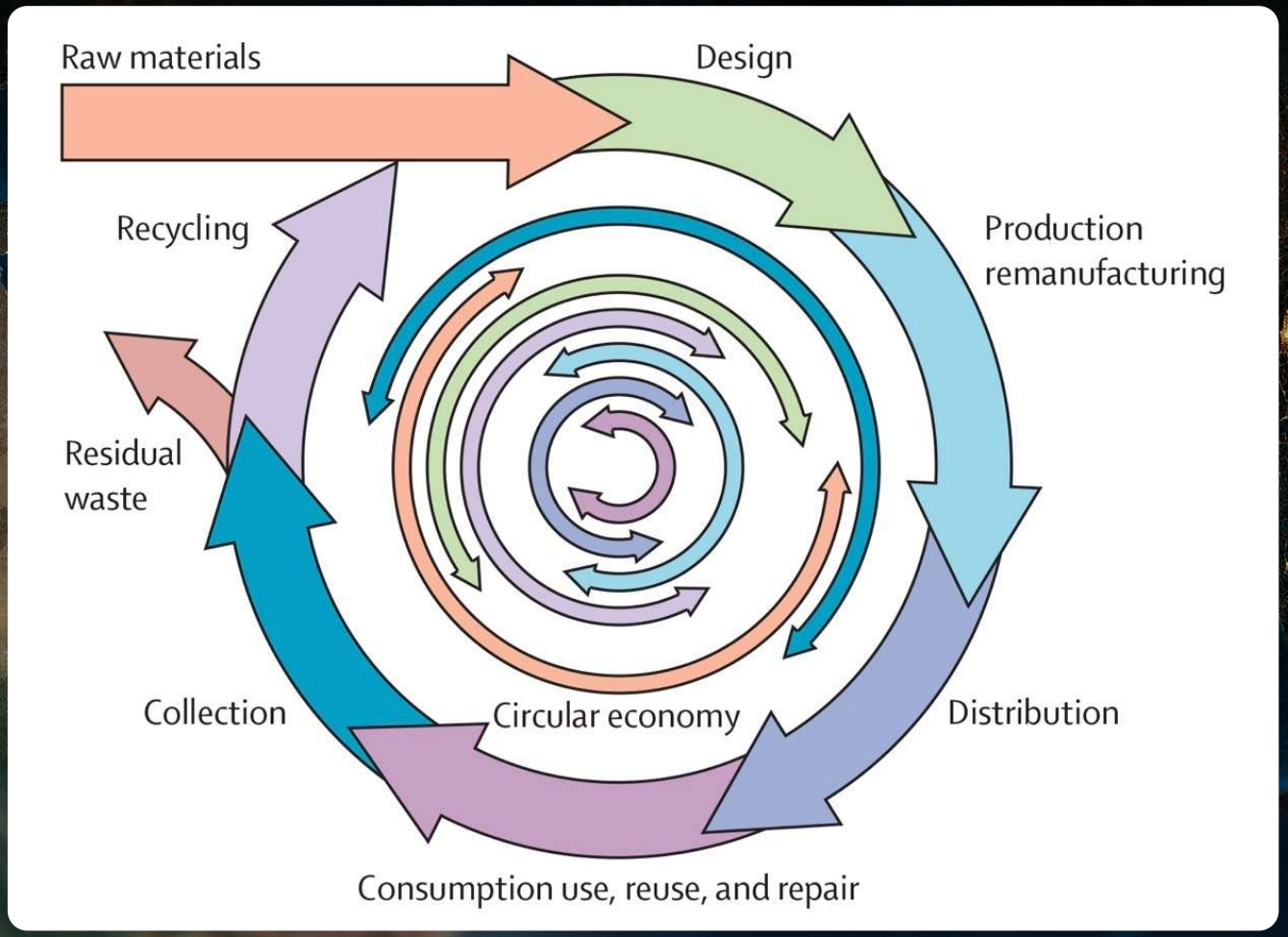


Image: Globaïa

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: Failures of imagination (e.g. genuine progress measures)
- Governance challenges: Failures of implementation (e.g. wellbeing of future generations)
- Research and information challenges: Failures of knowledge (e.g. transdisciplinary research)

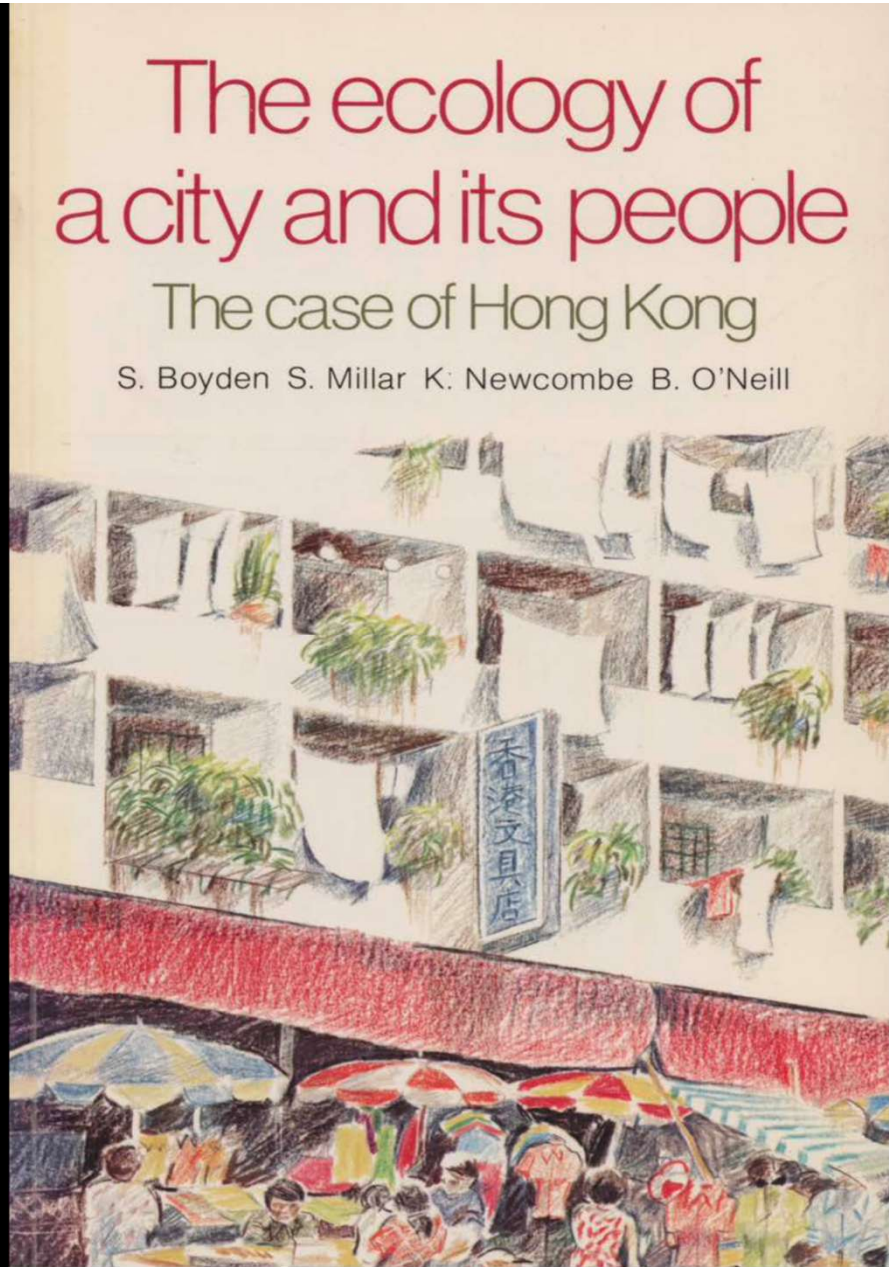
Image: Globaïa

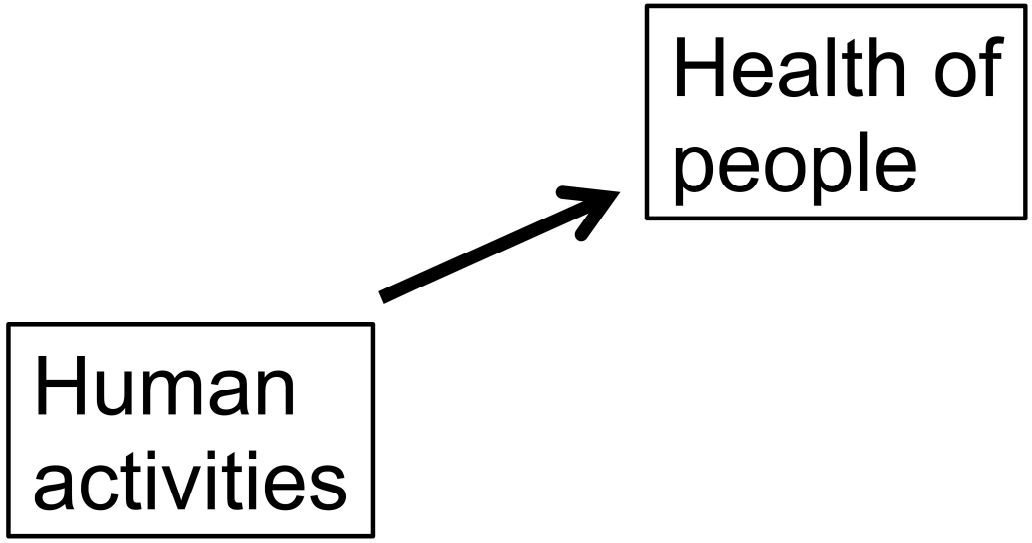
The ROCKEFELLER FOUNDATION THE LANCET

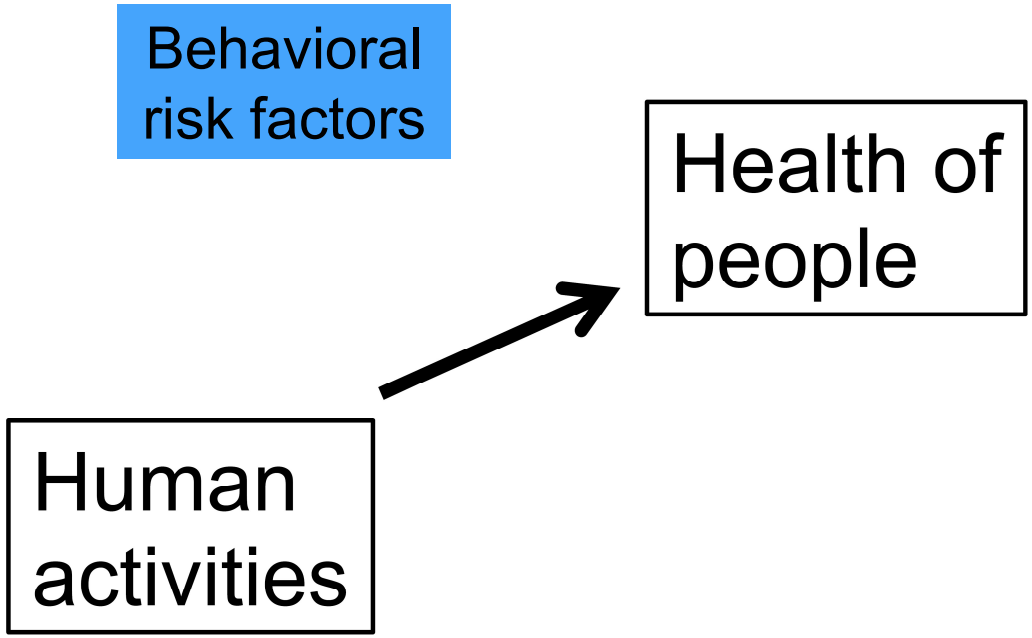
COMMISSION ON PLANETARY HEALTH

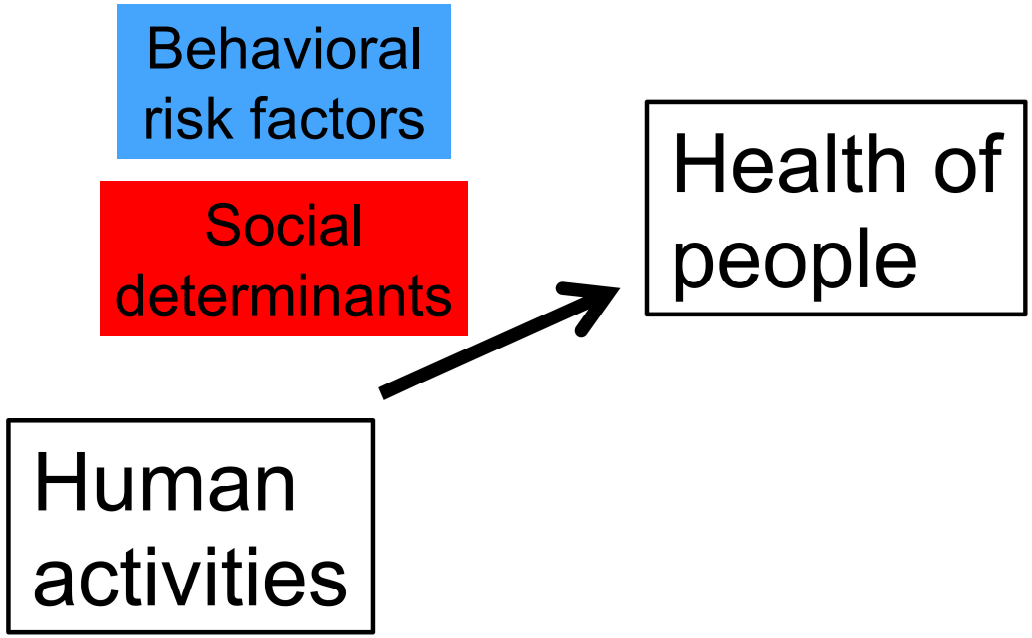


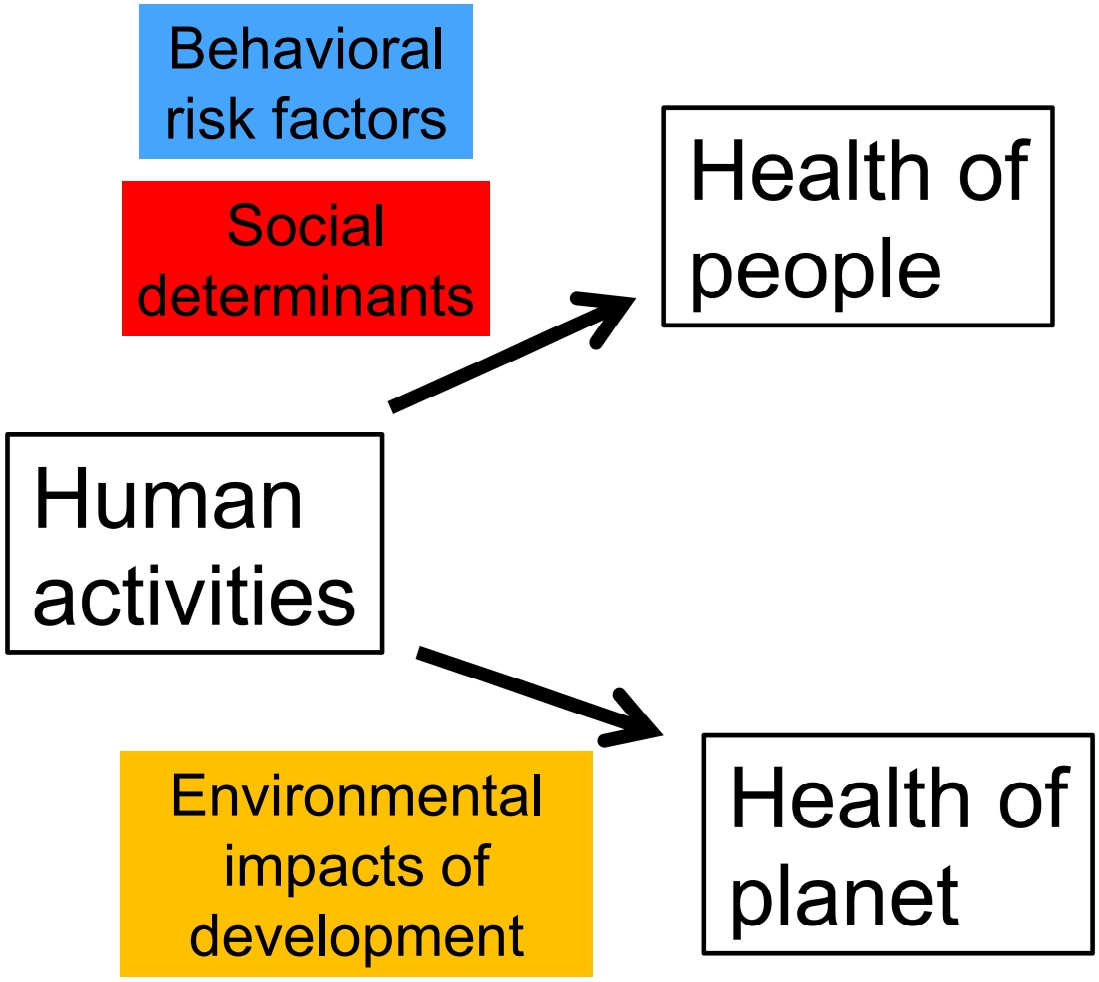
Human ecology,
alongside epidemiology,
as a way of understanding
urban circumstances and
their implications for
human wellbeing and
planetary health

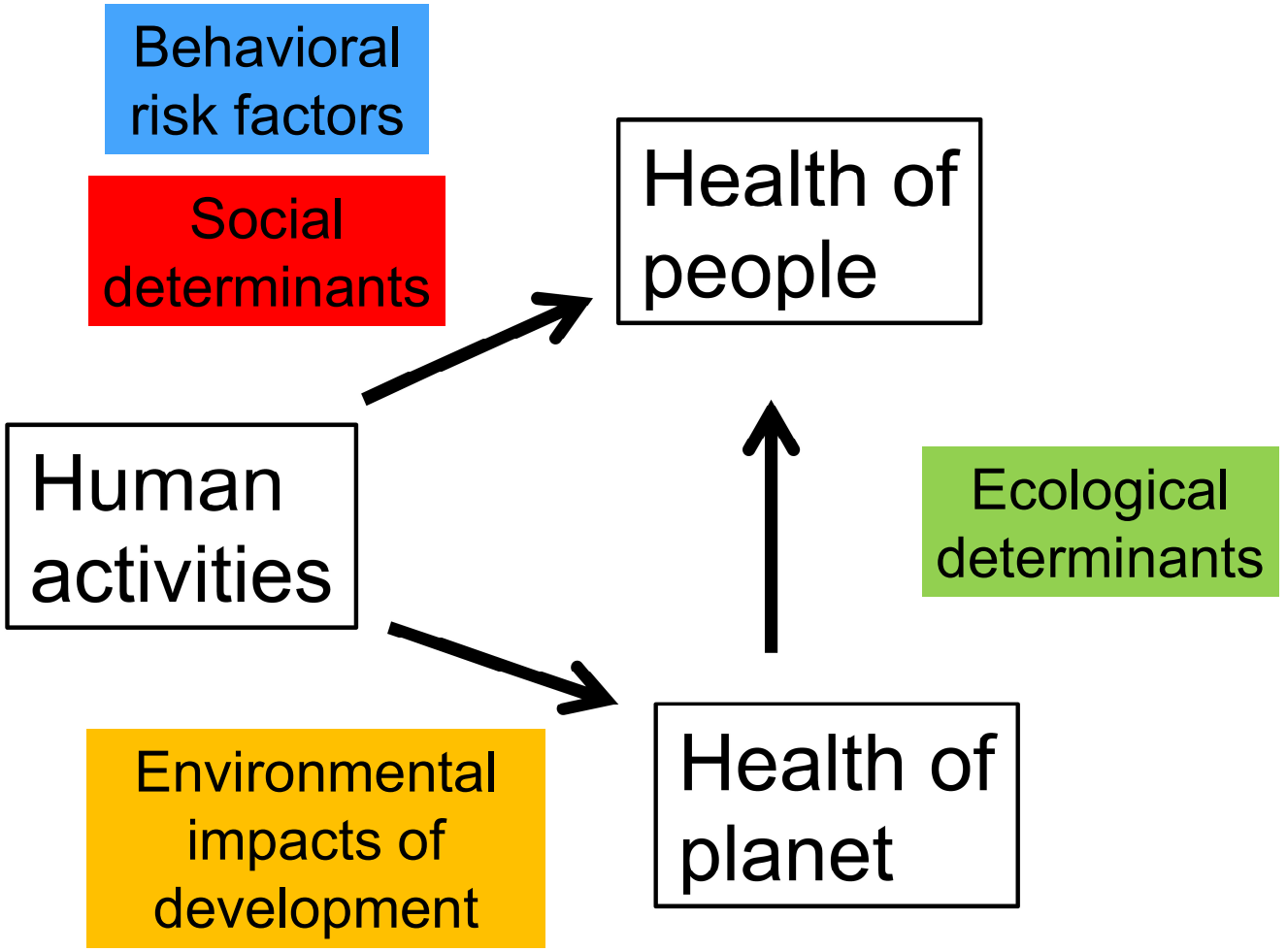


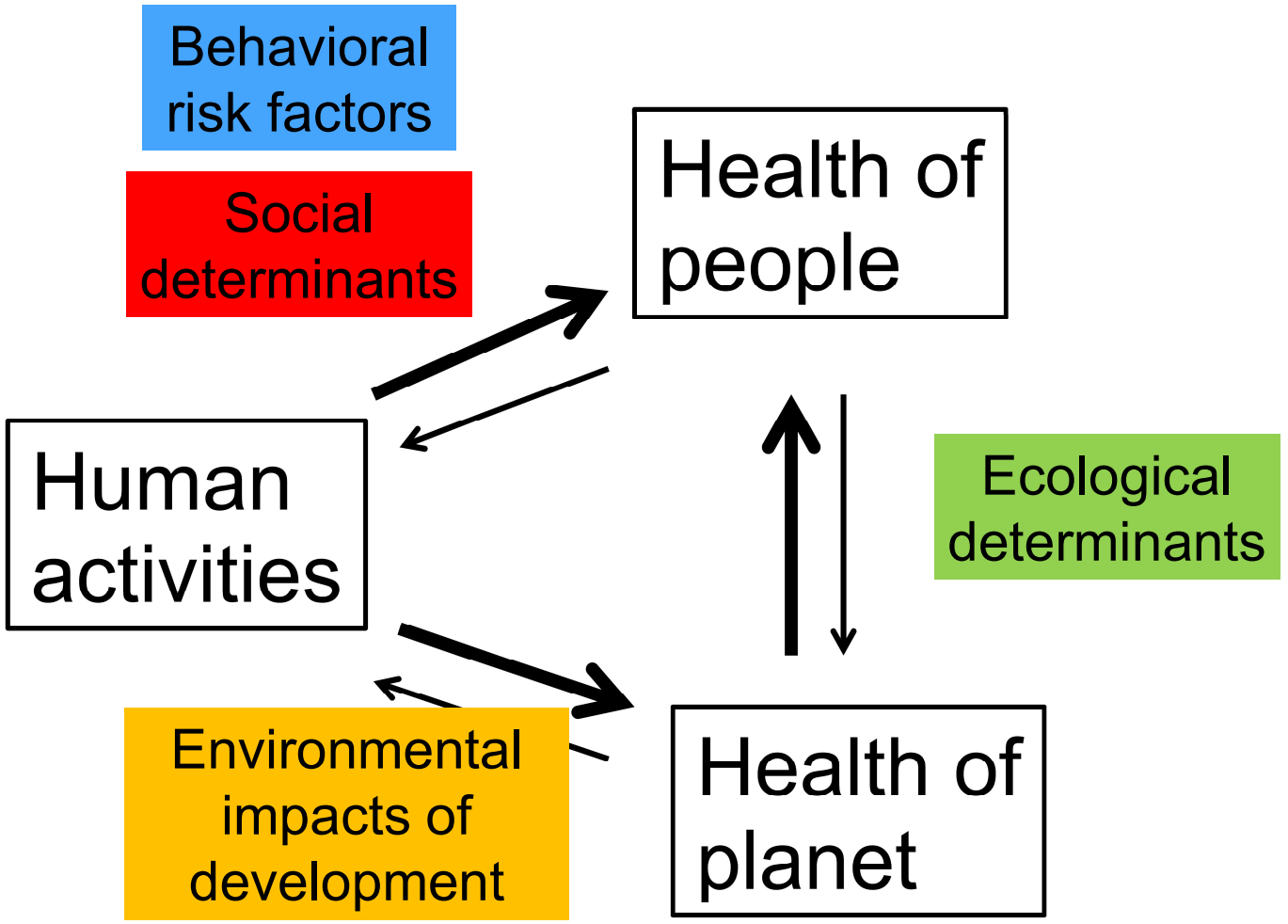

Health of people
Human activities


Behavioral risk factors
Health of people
Human activities

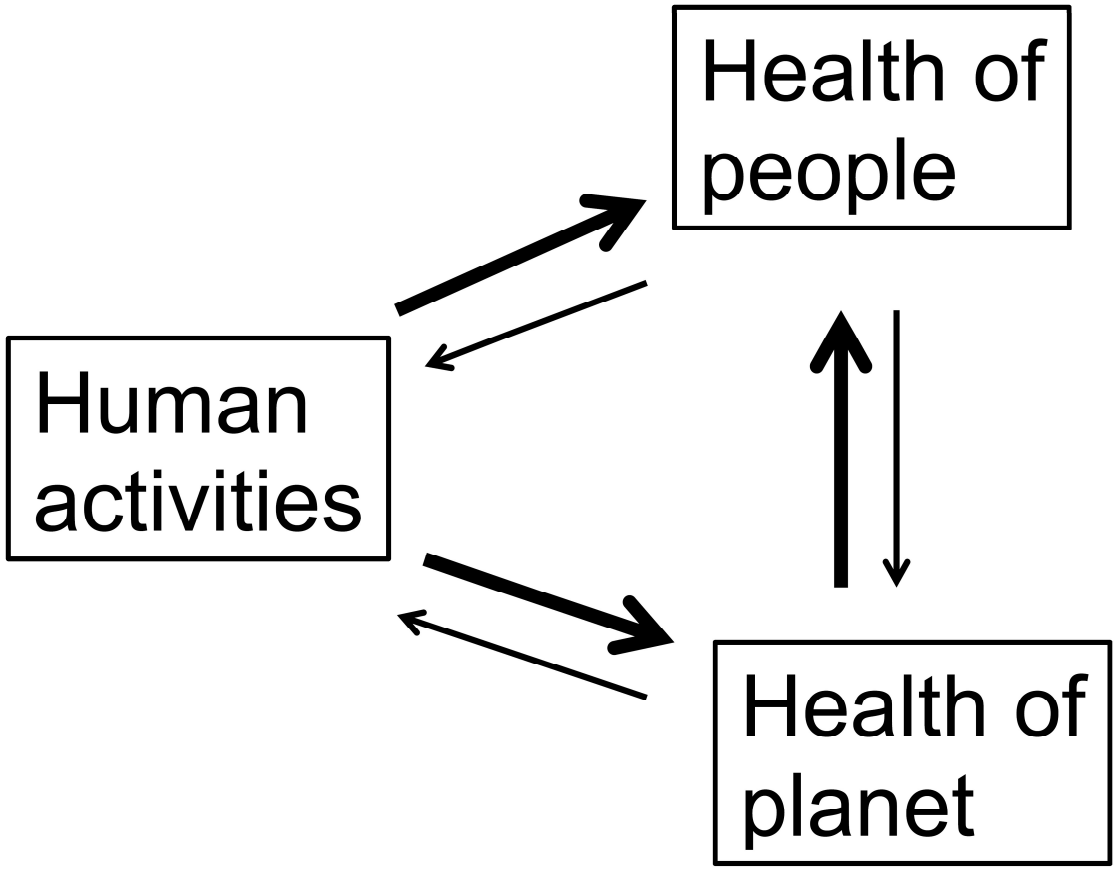

Behavioral risk factors
Social determinants
Health of people
Human activities


Behavioral risk factors
Social determinants
Health of people
Human activities
Environmental impacts of development
Health of planet

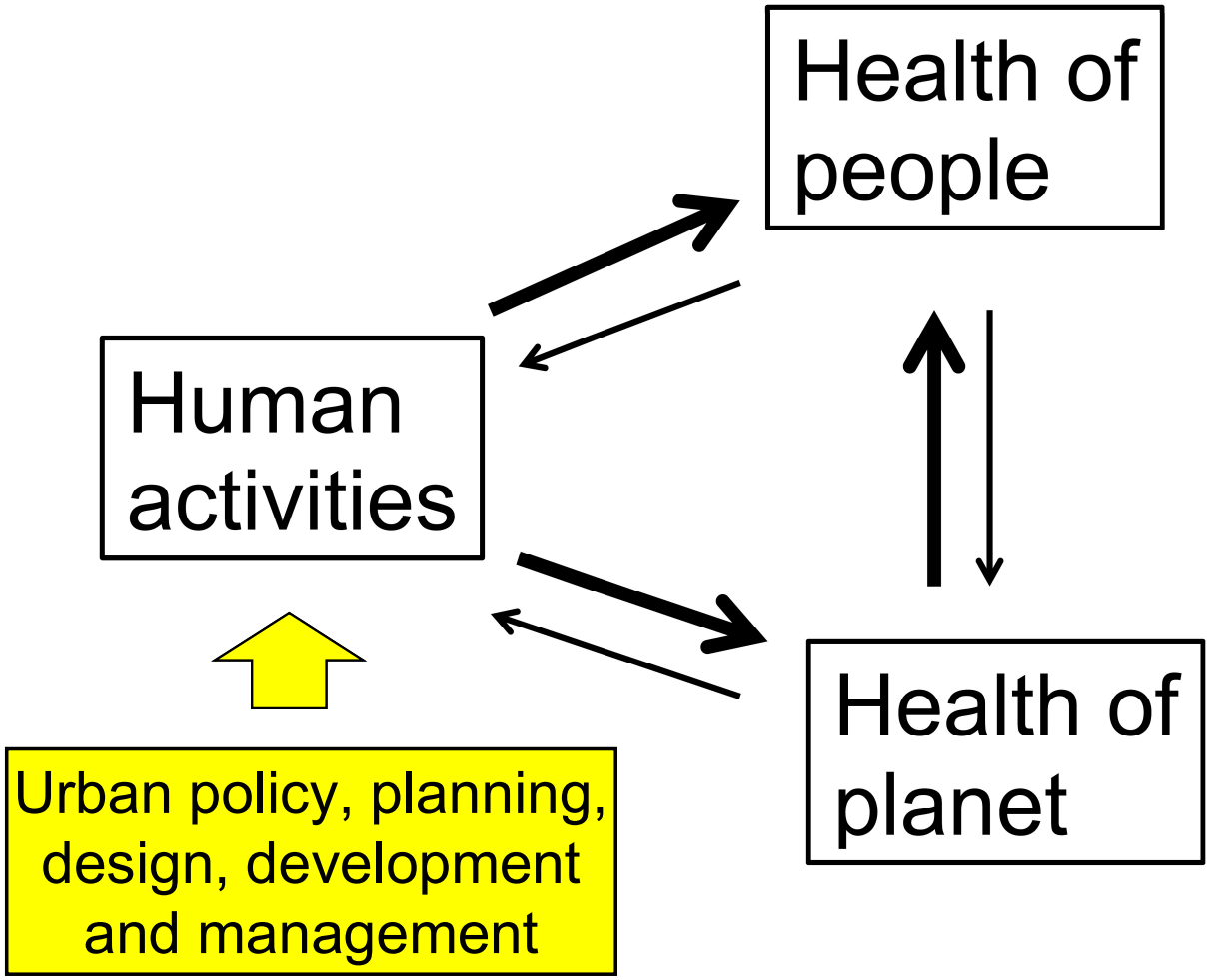

Behavioral risk factors
Social determinants
Health of people
Human activities
Ecological determinants
Environmental impacts of development
Health of planet


Behavioral risk factors
Social determinants
Health of people
Human activities
Ecological determinants
Environmental impacts of development
Health of planet

Boyden's Biosensitivity Triangle



Boyden's Biosensitivity Triangle



Essays in

Healthy City Design



Anthony Capon
Mark Johnson Peter Head
Siddharth Agarwal Roderick Lawrence

Design & Health
International Academy for Design and Health

WORLD HEALTH DESIGN

Essays in

Healthy City Design



Anthony Capon
Mark Johnson Peter Head
Siddharth Agarwal Roderick Lawrence

Design & Health
International Academy for Design and Health

WORLD HEALTH DESIGN

Contributors and Contents

Anthony Capon



This special supplement's guest editor, Anthony Capon is a professor at the National Centre for Epidemiology and Population Health at the Australian National University

06 For the first time, more people live in cities than in the countryside. Urban design has a critical role to play in improving human health in the future

Peter Head



A civil engineer and an expert in the sustainable development of cities, Peter Head is a director of global design at the engineering firm Arup

10 The health issues of affluent industrialised cities and the challenge of creating resilient cities are two sides of the same coin

Mark Johnson



Lecturer, critic and a world-renowned landscape designer, Mark Johnson is the founding principal of Civitas, Inc, a Denver based urban design firm

15 The urban planning of the late 19th century has had damaging consequences for health in the US. What is required to repair the damage?

Siddharth Agarwal



Physician Siddharth Agarwal is director of the Urban Health Resource Centre in India and president of the International Society of Urban Health

20 The urban environment can have a significant impact on human health and wellbeing, particularly among the poorest of city dwellers

Roderick Lawrence



Published widely on the subject of housing and health, Prof Roderick Lawrence is a professor in the Faculty of Social and Economic Sciences at the University of Geneva

27 Good quality housing is vital for health promotion, but the relationship between health and housing needs more multidisciplinary research

Editorial Director
Marc Sansom MBA
T: +44 (0) 1277 634 176
E: marc@designandhealth.com

Supplement Editors
Emily Brooks
Kathleen Armstrong

Director General
Alan Dilani PhD
T: +46 70 453 90 70
E: dilani@designandhealth.com

Subscriptions and advertising
T: +44 (0) 1277 634 176
E: WHD@designandhealth.com

Published by:
The International Academy for Design and Health
PO Box 7196, 103 88 Stockholm, Sweden

International Academy for Design and Health UK
8 Weir Wynd, Billericay Essex CM12 9QG UK
www.designandhealth.com

Design and production:
Graphic Evidence Ltd
www.graphic-evidence.co.uk

Volume 4: Number 3
ISSN 1654-9654

Subscriptions:
To receive regular copies of World Health Design please telephone +44 (0) 1277 634176 to place your order, or email WHD@designandhealth.com

Yearly subscription rates:
1 year £80; 2 years £130; Single Issue £30
World Health Design is published four times a year by the International Academy for Design and Health UK

No part of WHD may be reproduced or stored in a retrieval or transmitted in any form, electronic, mechanical or photocopying without prior written permission of the Editorial Director

Printed in the UK by
The Magazine Printing Company
using only paper from FSC/PEFC suppliers
www.magprint.co.uk

So what?

1. An eco-social approach: Recognising ecological and social determinants of health in cities

2. Systems thinking: Acknowledging the interdependence of all species (including those we cannot see)

3. Intergenerational health equity

4. Indigenous and local knowledge (ILK): Transdisciplinary

5. In sum, we need to bring ‘planetary consciousness’ to urban health policy, practice, research, and education