



Planetary Health: Protecting Human Health on a Rapidly Changing Planet

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16th Congres Medicine Generale France

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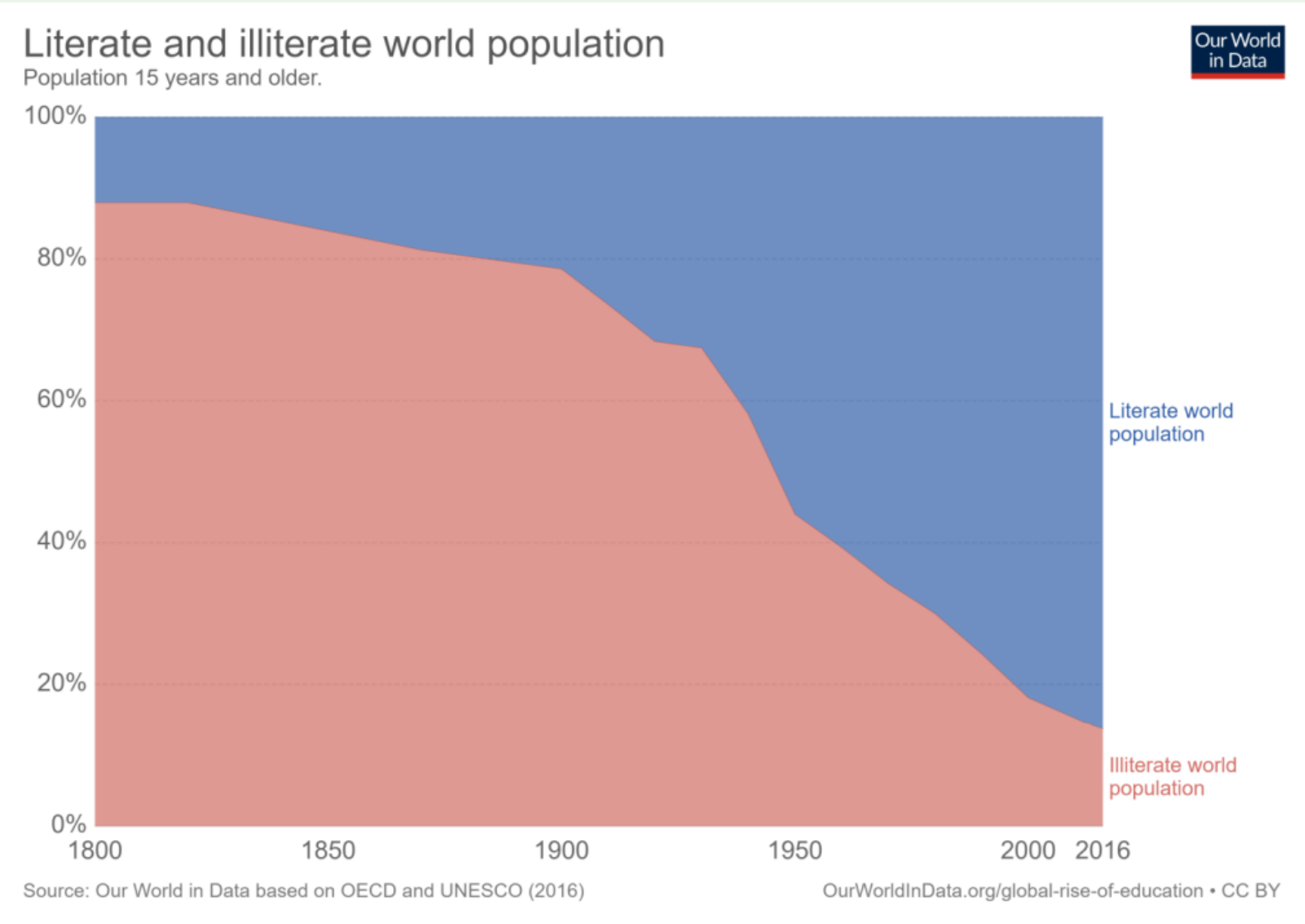


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PLANETARY
HEALTH
ALLIANCE

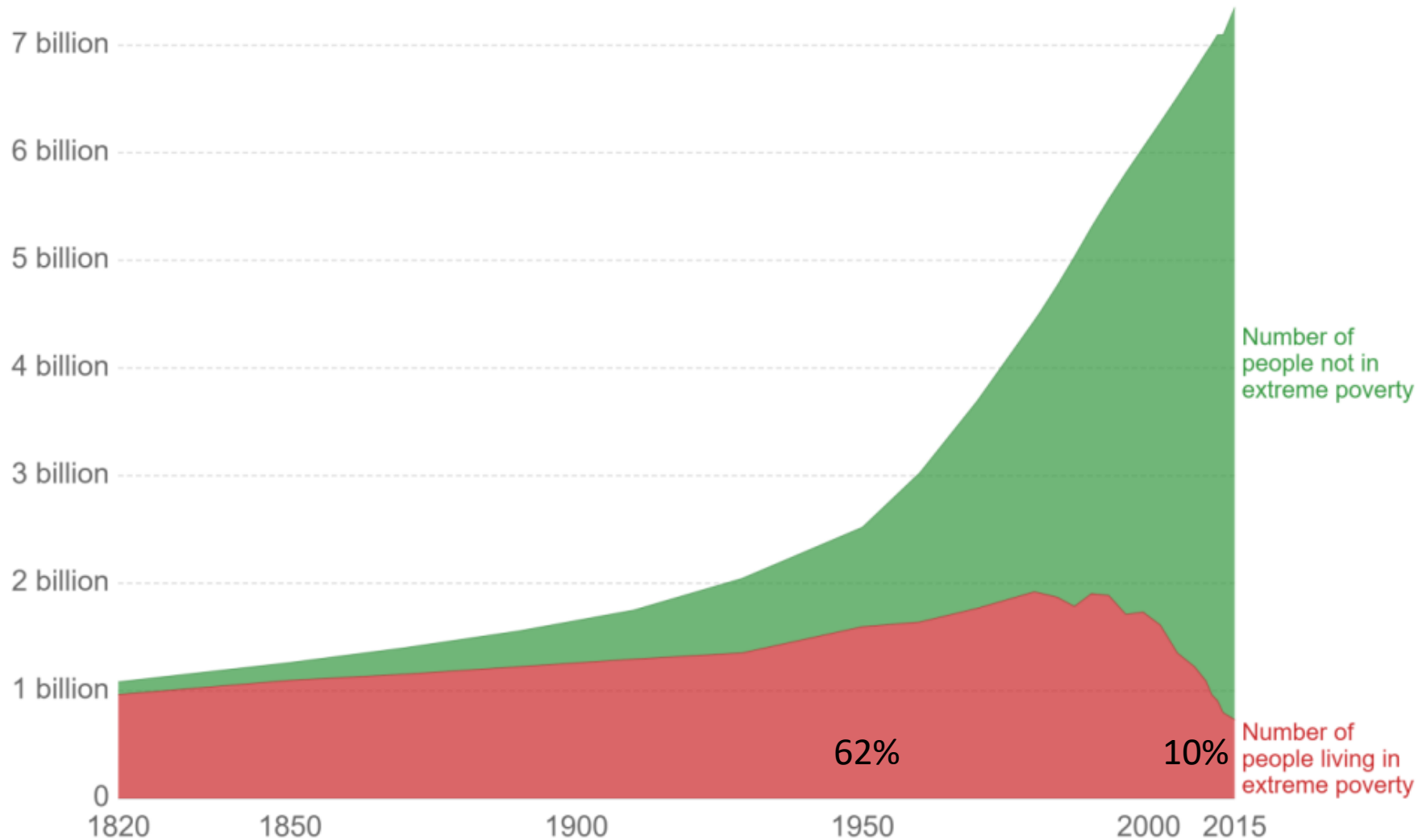
A Time Like No Other



1940:42%; 2015: 86%

World population living in extreme poverty, 1820-2015

Extreme poverty is defined as living on less than 1.90 international-\$ per day. International-\$ are adjusted for price differences between countries and for price changes over time (inflation).

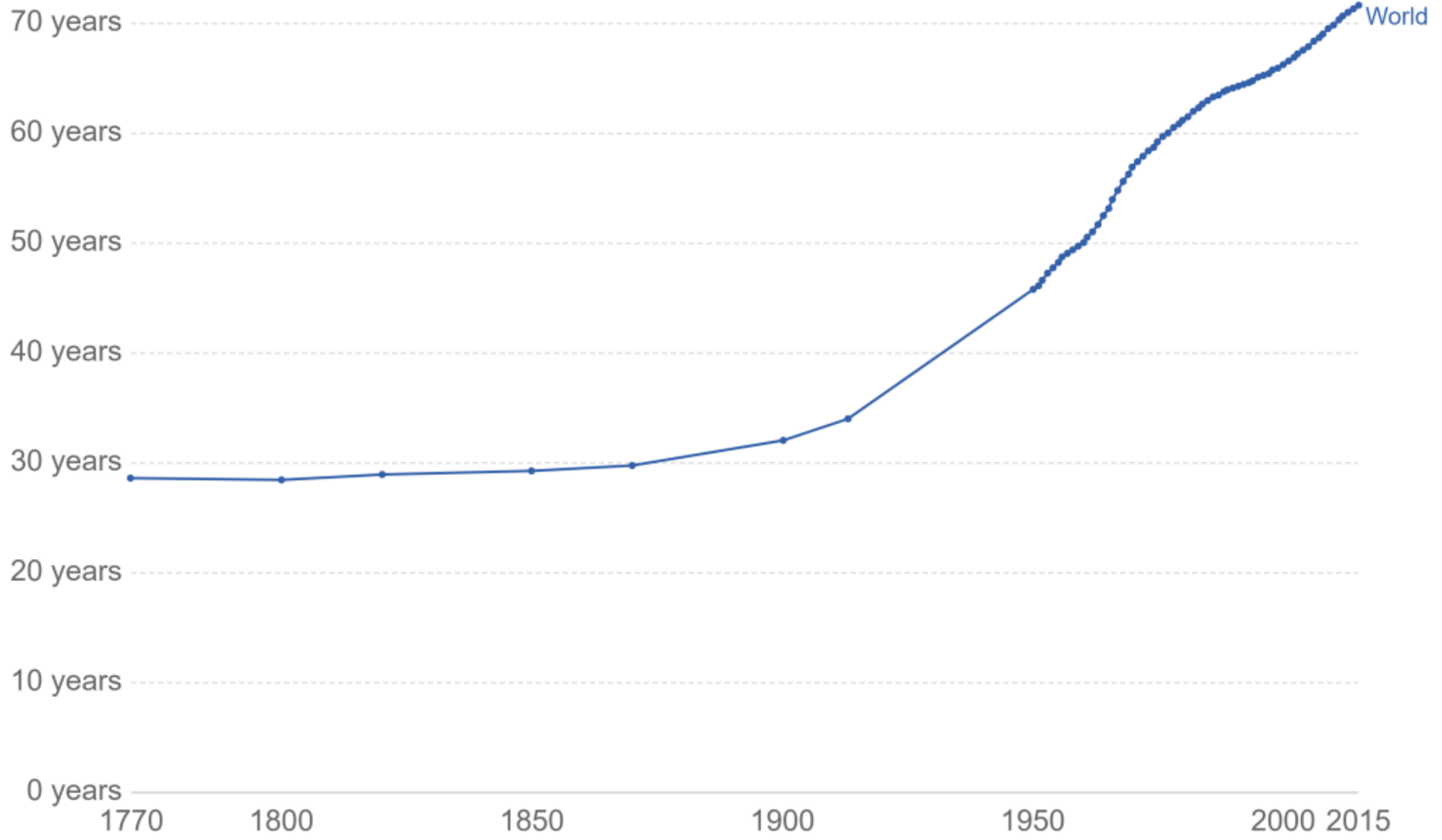


Source: OWID based on World Bank (2019) and Bourguignon and Morrisson (2002)

OurWorldInData.org/extreme-poverty/ • CC BY

1950: 62%; 2015: 10%

Life expectancy



Source: Riley (2005), Clio Infra (2015), and UN Population Division (2019)

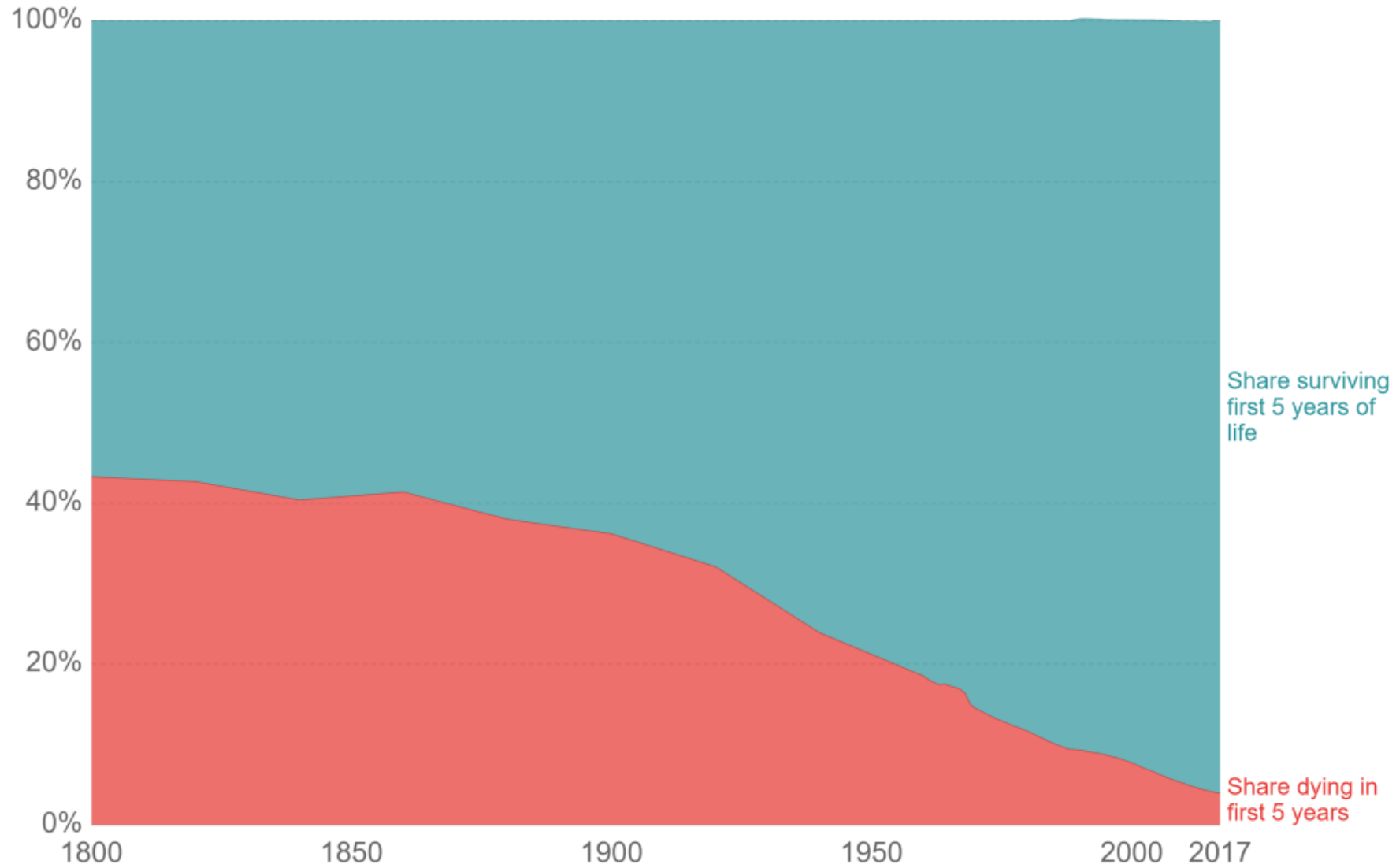
OurWorldInData.org/life-expectancy • CC BY

Note: Shown is period life expectancy at birth, the average number of years a newborn would live if the pattern of mortality in the given year were to stay the same throughout its life.

1950: 46; 2015: 72

Global child mortality

Share of the world population dying and surviving the first 5 years of life.

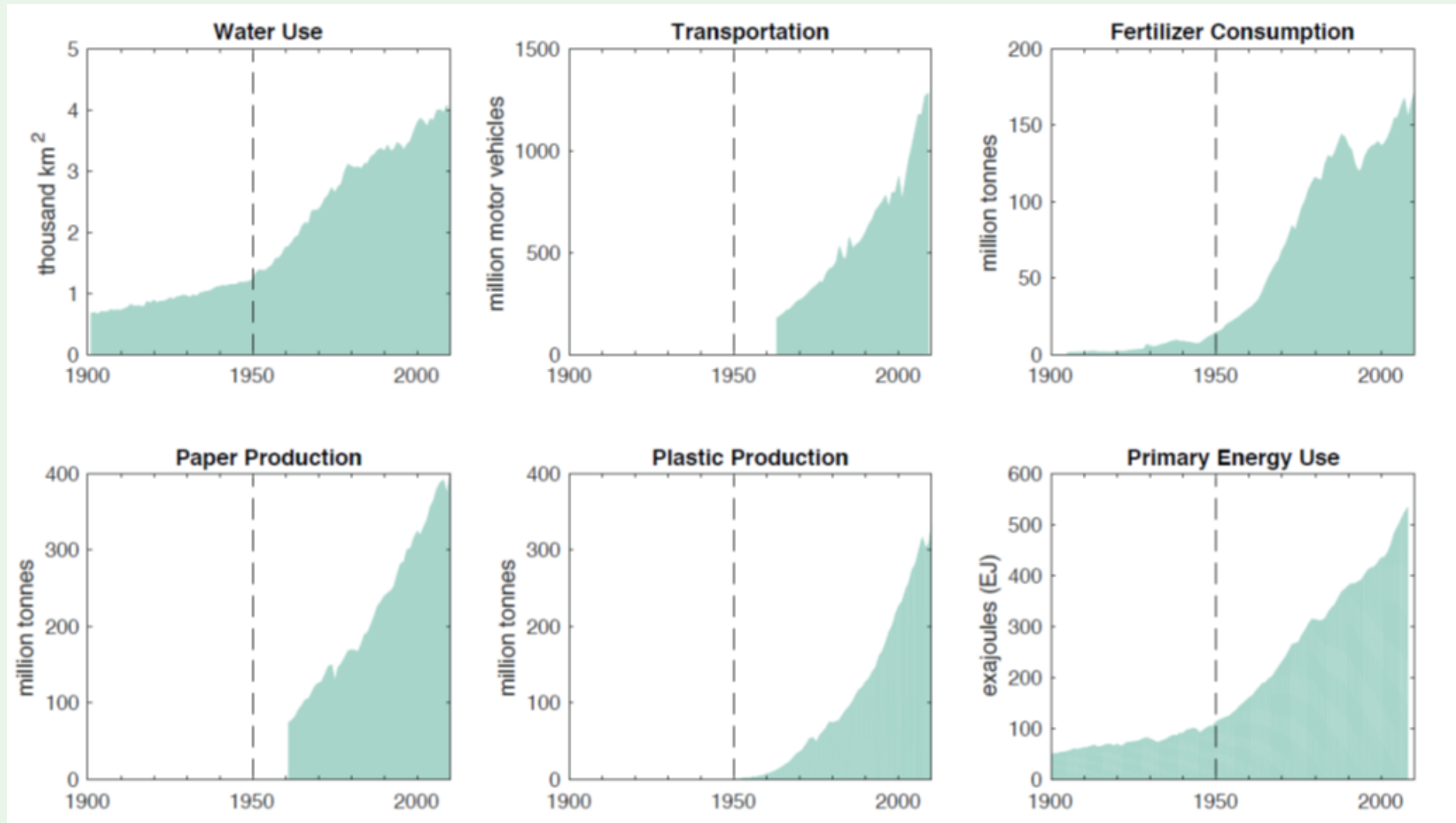


Source: Gapminder and the World Bank

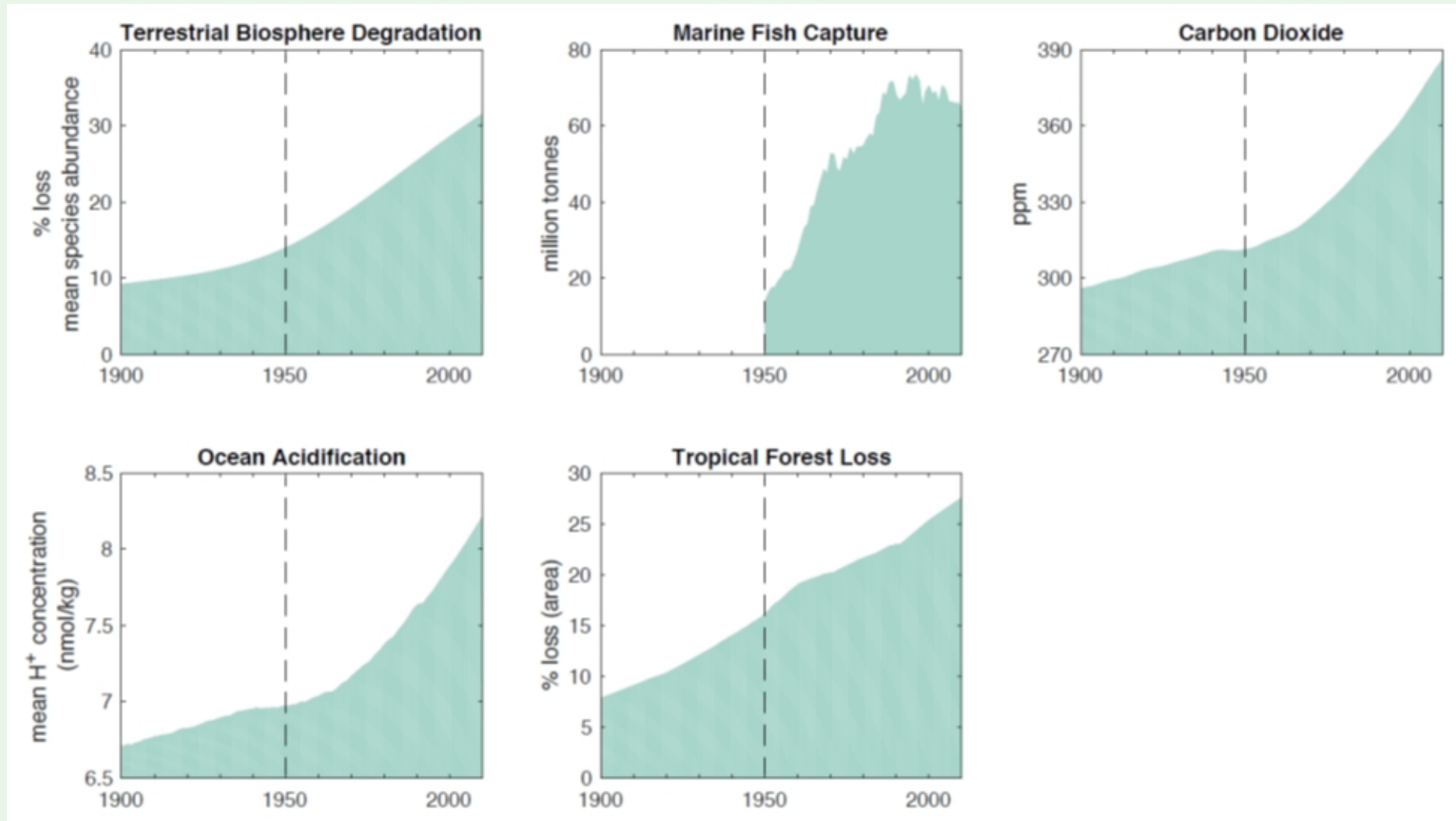
OurWorldInData.org/a-history-of-global-living-conditions-in-5-charts/ • CC BY

225 to 45/1000

The Great Acceleration



Human Impacts Across Natural Systems



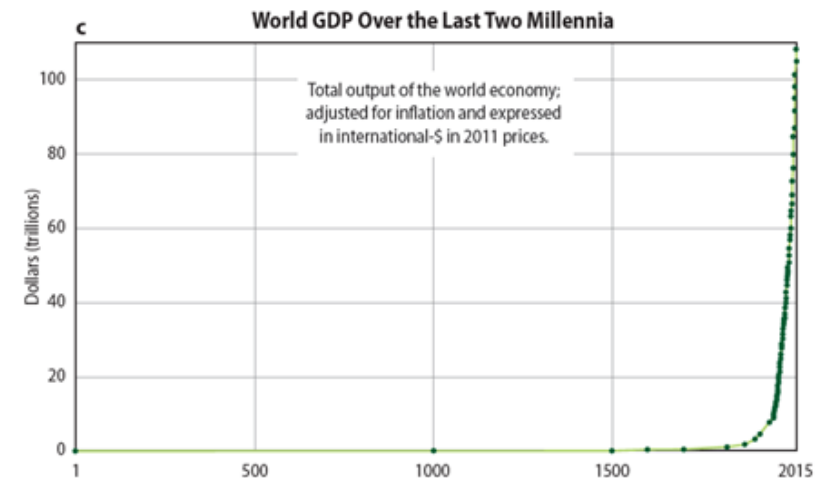
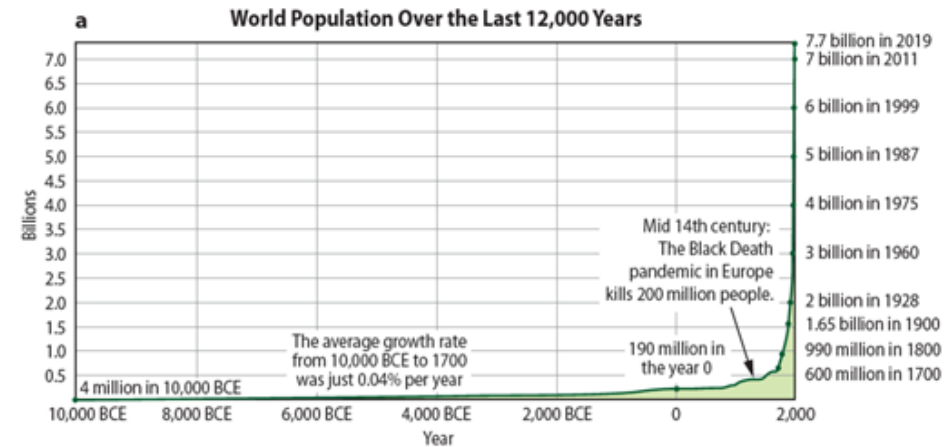
Since ~1870
Population Growth (7X)

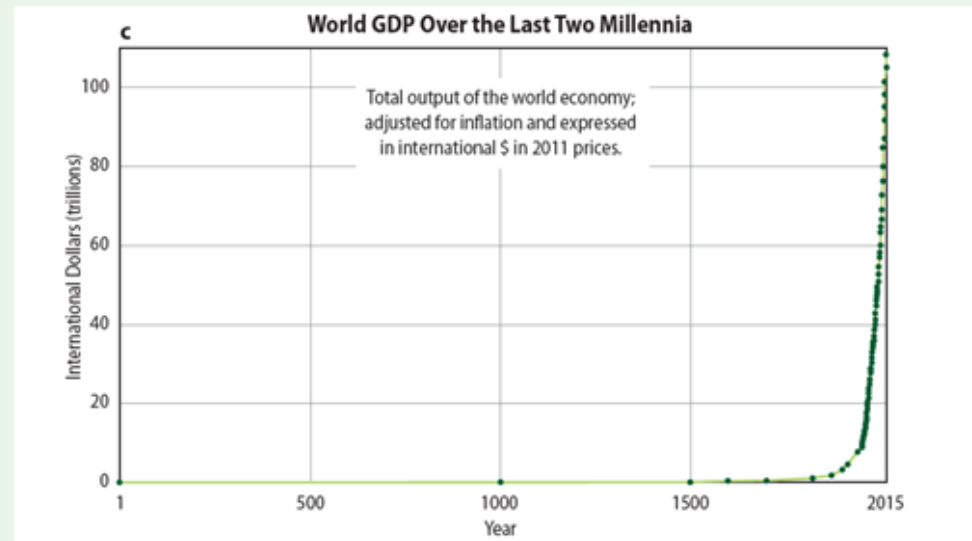
X

Per Capita GDP Growth
(11X)

=

Massive Growth in Total
GDP

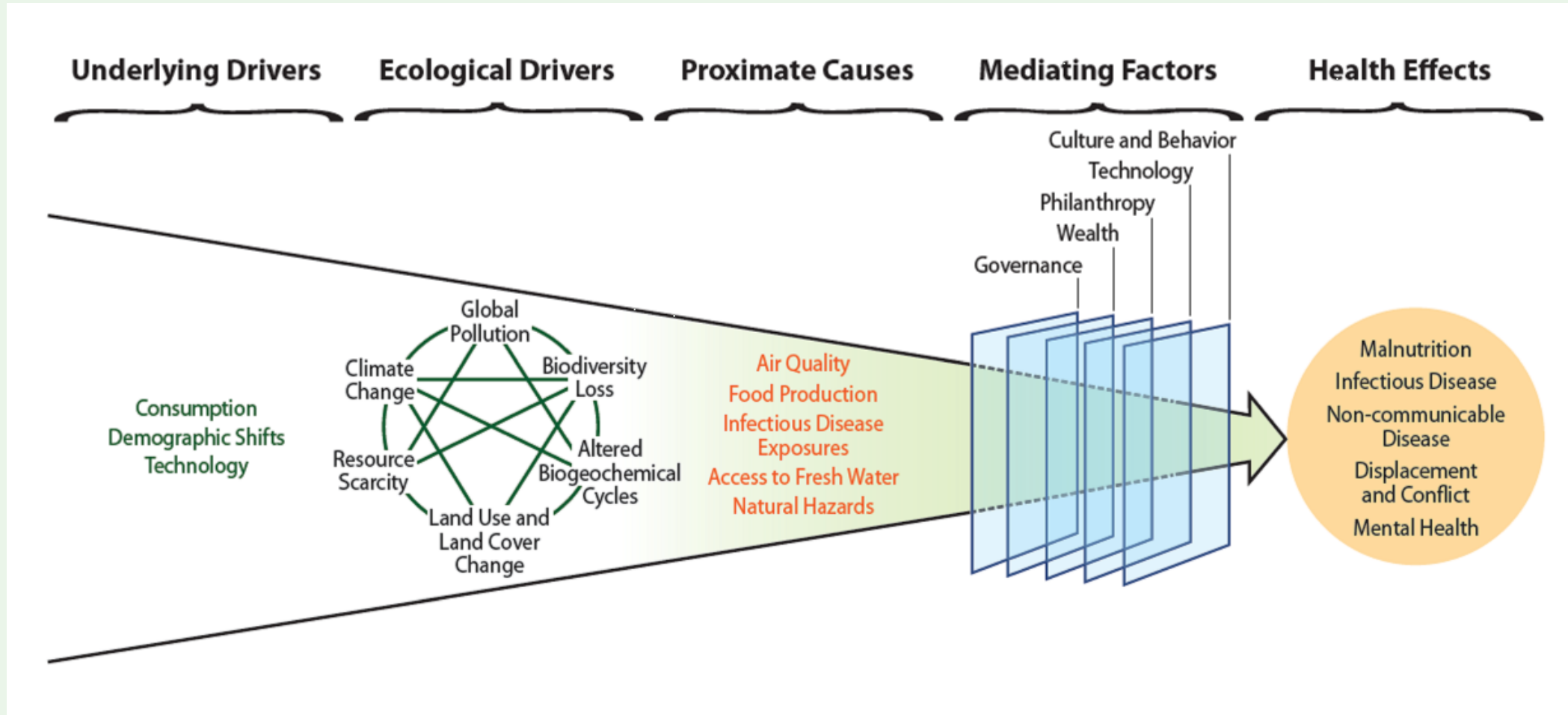




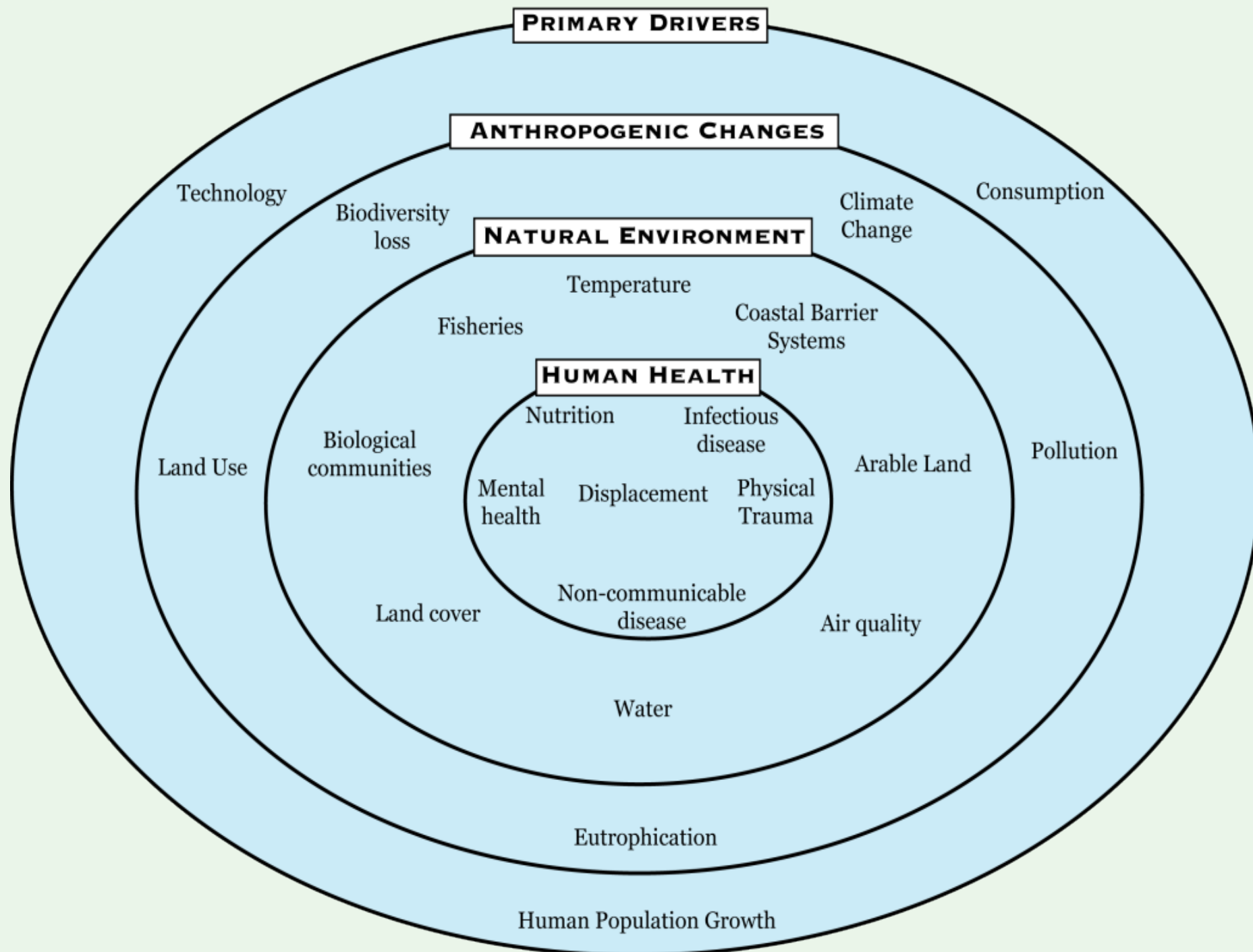
- Converted 40% of land surface for croplands and pasture
- Appropriate about half accessible fresh water for human uses
- 90% of monitored fisheries at, or beyond, limits
- Cut down 7-11 million km² of forests
- Dammed 60% of rivers
- Growing air, water and land pollution
- Climatic Disruption
- Species loss 1000 times baseline rate
- Population sizes of mammals, fishes, birds, reptiles and amphibians reduced by 66% since 1970
- Roughly 1 million species facing extinction, many within decades

Planetary Health

It is not just climate change: it is everything change!



From: Myers, SS. *Protecting Human Health on a Rapidly Changing Planet*, *The Lancet* 2017; 390(10114): 2860-8.



PRIMARY DRIVERS

ANTHROPOGENIC CHANGES

NATURAL ENVIRONMENT

HUMAN HEALTH

Technology

Consumption

Biodiversity loss

Climate Change

Temperature

Fisheries

Coastal Barrier Systems

Land Use

Biological communities

Nutrition

Infectious disease

Arable Land

Pollution

Mental health

Displacement

Physical Trauma

Land cover

Non-communicable disease

Air quality

Water

Eutrophication

Human Population Growth

Planetary Health and Nutrition: A few examples

CO₂ Emissions and Human Nutrition

Health Impacts of Pollinator Declines

Fisheries Degradation and Human Health





← Rice, Japan

Field Peas, →
Australia



Sorghum, →
Arizona



← Wheat,
Australia



Maize, →
Illinois

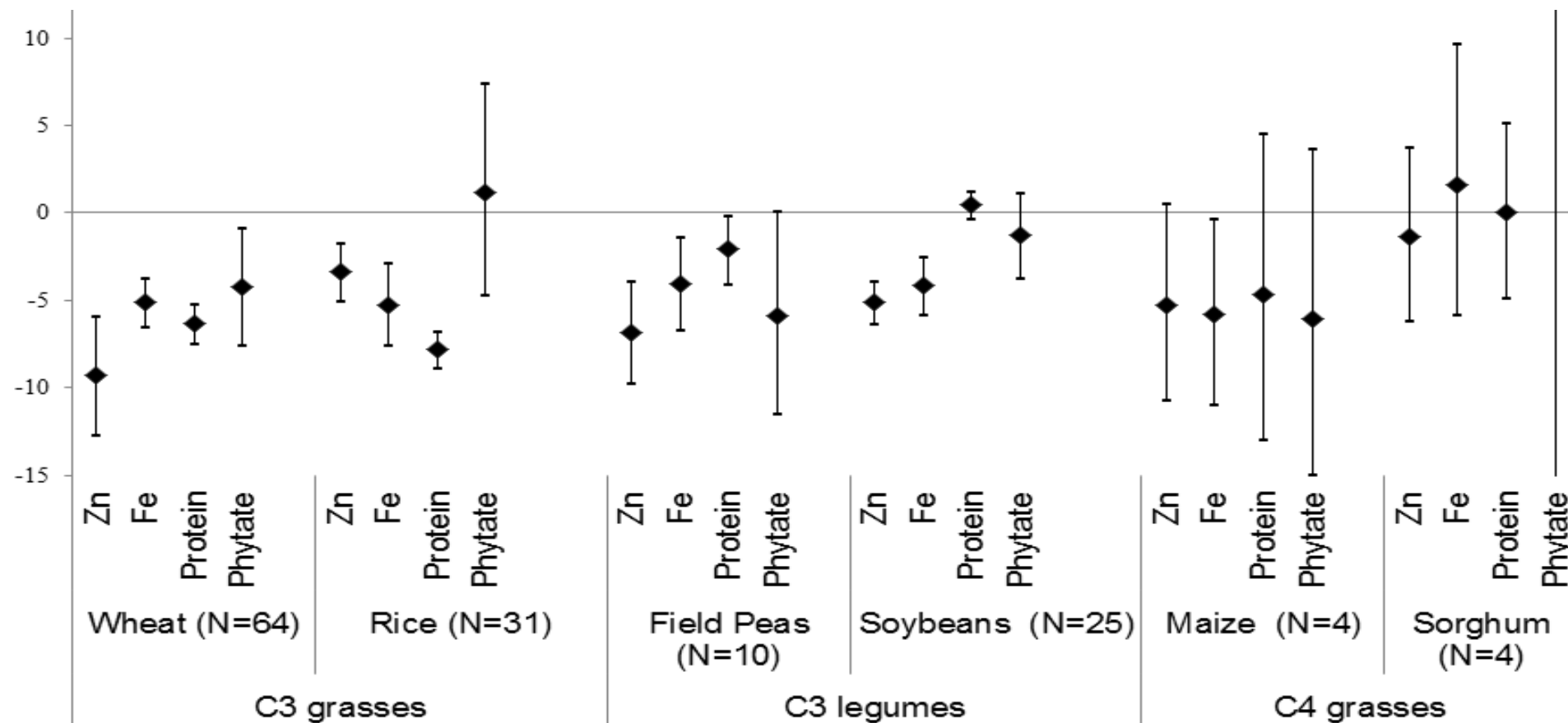


← Soybean,
Illinois



Increasing CO₂ threatens human nutrition

Samuel S. Myers^{1,2}, Antonella Zanobetti¹, Itai Kloog³, Peter Huybers⁴, Andrew D. B. Leakey⁵, Arnold J. Bloom⁶, Eli Carlisle⁶, Lee H. Dietterich⁷, Glenn Fitzgerald⁸, Toshihiro Hasegawa⁹, N. Michele Holbrook¹⁰, Randall L. Nelson¹¹, Michael J. Ottman¹², Victor Raboy¹³, Hidemitsu Sakai⁹, Karla A. Sartor¹⁴, Joel Schwartz¹, Saman Seneweera¹⁵, Michael Tausz¹⁶ & Yasuhiro Usui⁹



Global Nutritional Impacts of Rising CO₂

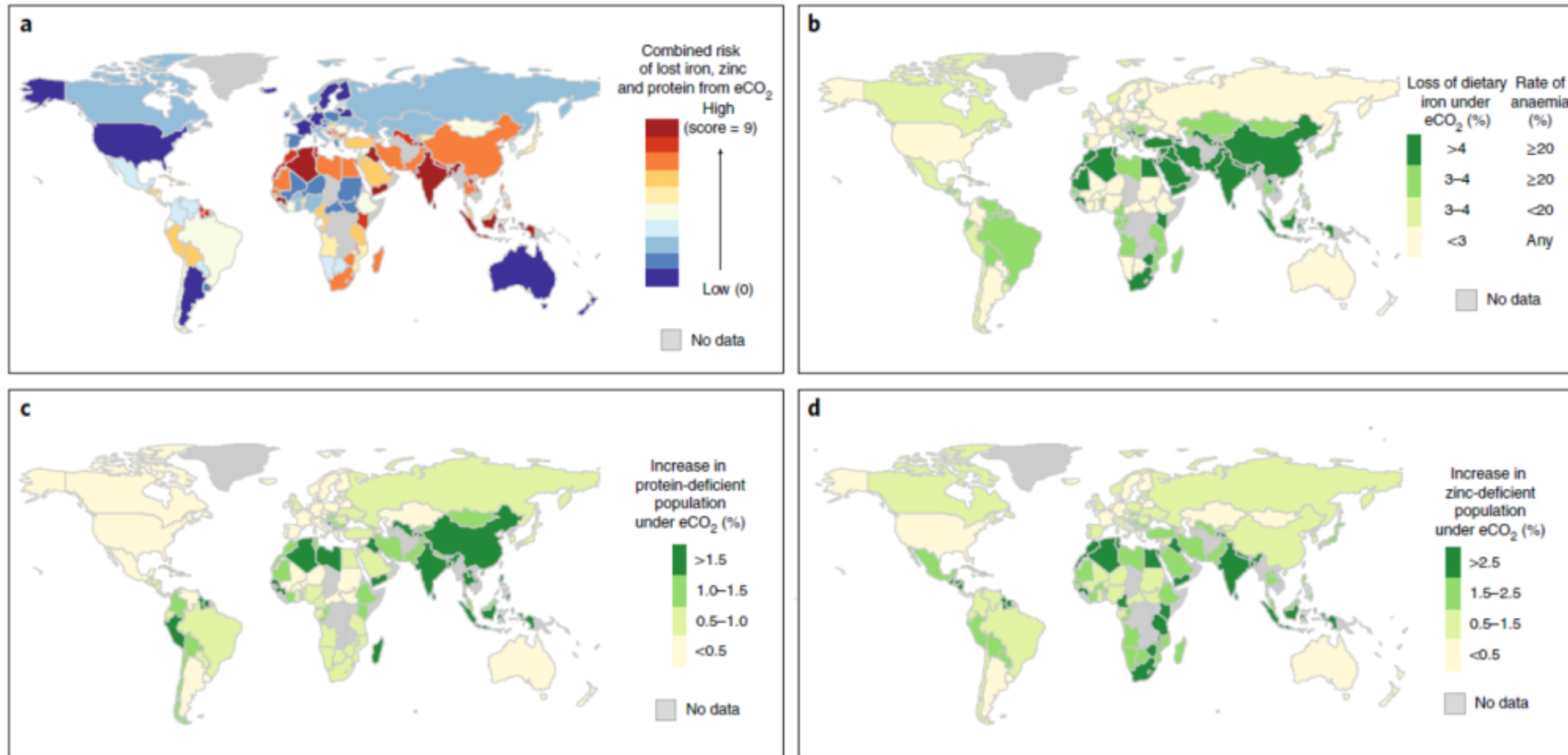


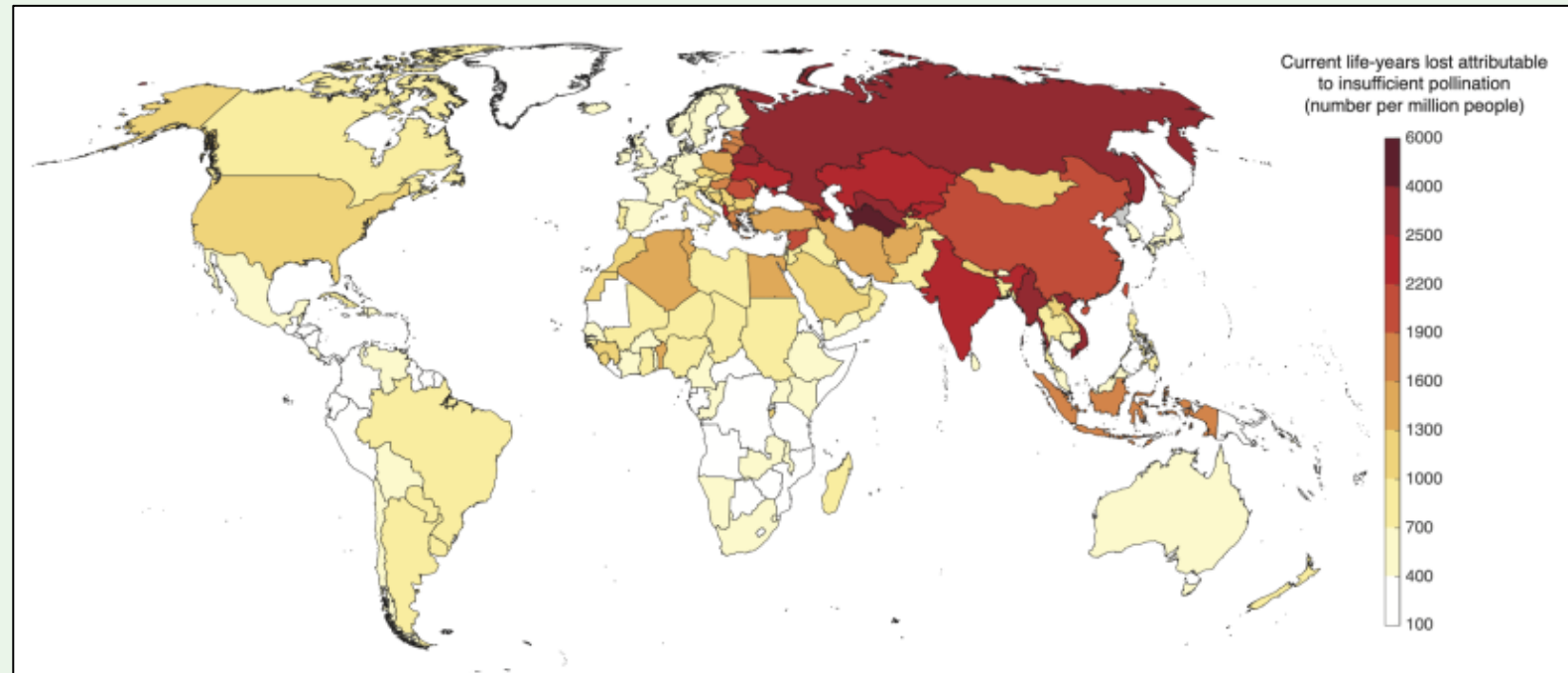
Fig. 2 | Risk of inadequate nutrient intake from elevated atmospheric CO₂ concentrations of 550 ppm. a-d. Combined qualitative summed risk from all nutrients (a), and individually for iron (b), protein (c) and zinc (d).

From: Smith, MR. and Myers, SS 2018. Impact of anthropogenic CO₂ emissions on global human nutrition. Nature Climate Change 8(9):834-839.

Too few pollinators: Too little nutritious food

- fruits, vegetables, and nuts protect against many non-communicable diseases: cancer, heart disease, stroke, diabetes
- Insufficient pollinator populations globally are reducing total fruit, vegetable, and nut yields by 3-5% globally
- This lost production and consumption of healthy foods is causing 427,000 excess deaths per year
- LMIC case study countries lost 12-31% of economic value of their harvests

Per capita health burden from insufficient pollination



M Smith, J Gerber, K Wiebe, L Garibaldi, M. Springmann, T Sulser, N Mueller, S. Myers. Environmental Health Perspectives, December 2022.

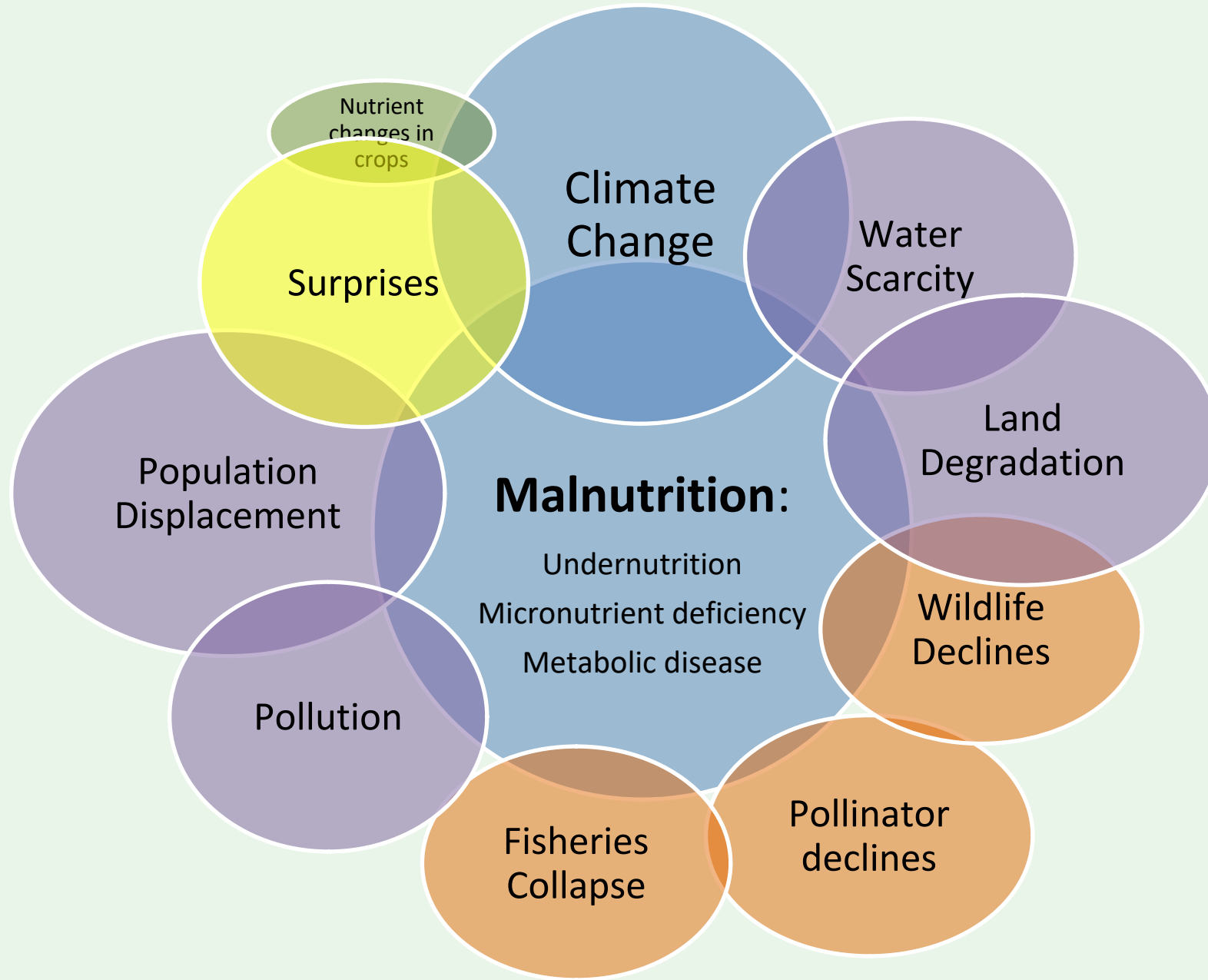


Women from a traditional sea-harvesting community fishing in Mozambique.

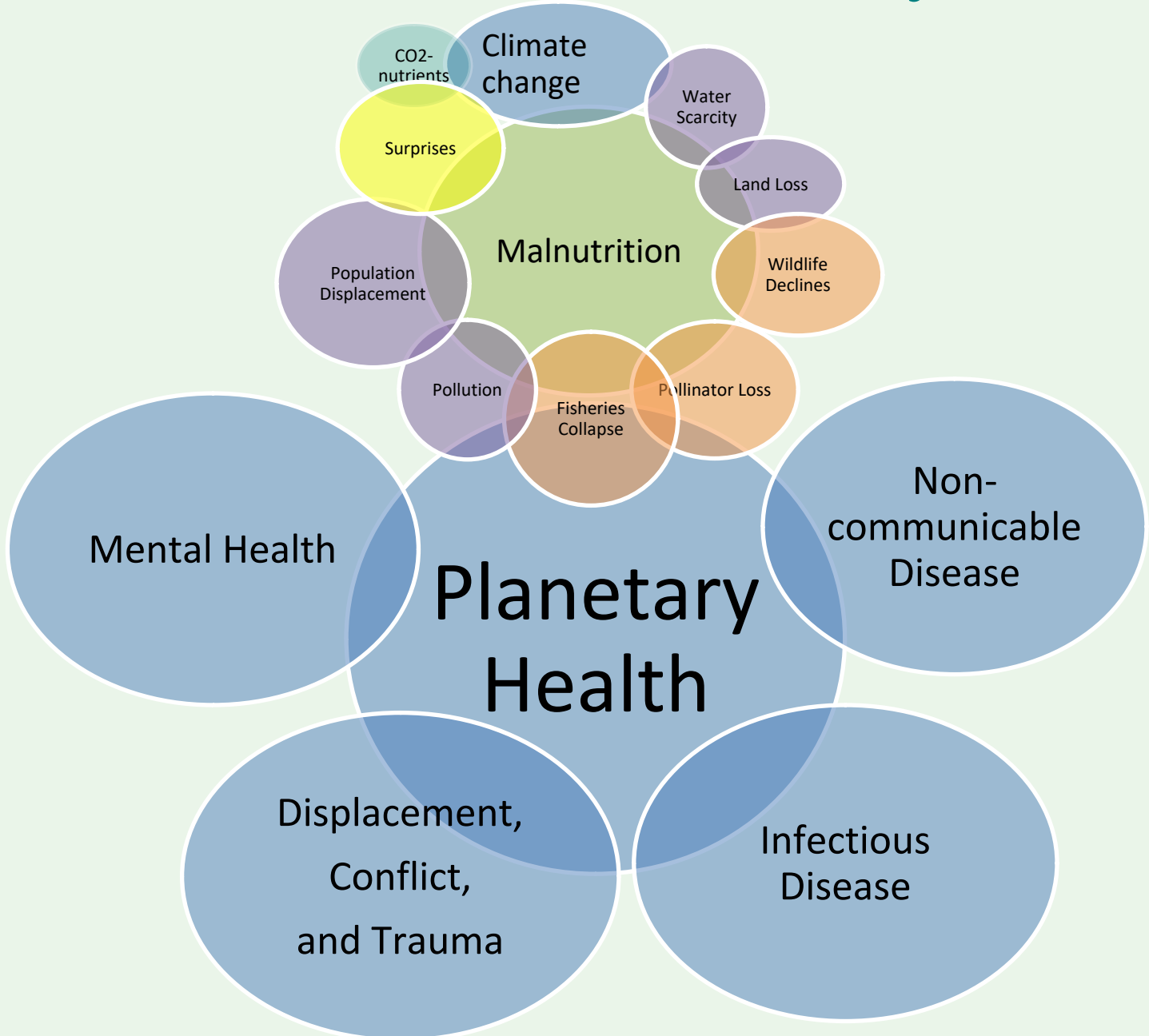
Fall in fish catch threatens human health

16 JUNE 2016 | VOL 534 | NATURE | 317

Human Nutrition on a Rapidly Changing Planet



Other Dimensions of Planetary Health



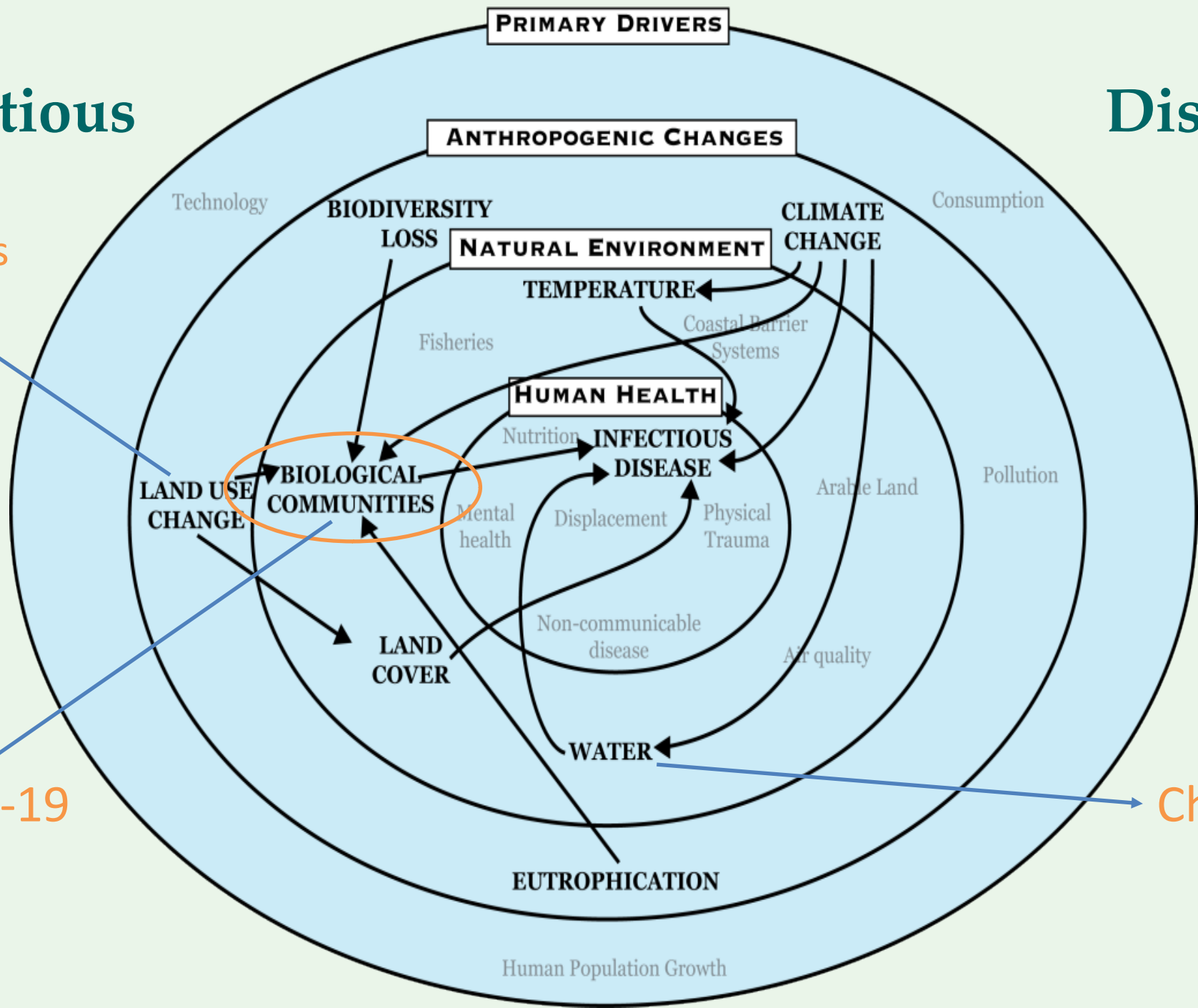
Infectious

Disease

Schistosomiasis
Malaria

Covid-19

Cholera



Non-communicable Disease

- Air, Soil, and Water Pollution (21% cardiac, 23% stroke, 8% COPD, 25% lung cancer) **9 million deaths/year**
- Loss of Pollinators
- Substitution of dietary carbohydrate for protein
- Ground-water salinity



Mental Health

Natural Disasters

Displacement
(30-75% PTSD)



Solastalgia
(Anticipatory solastalgia?)

Guilt?

Population Displacement Doubles in Ten Years



33 Million People Displaced in Pakistan

Reuters

The New York Times Magazine

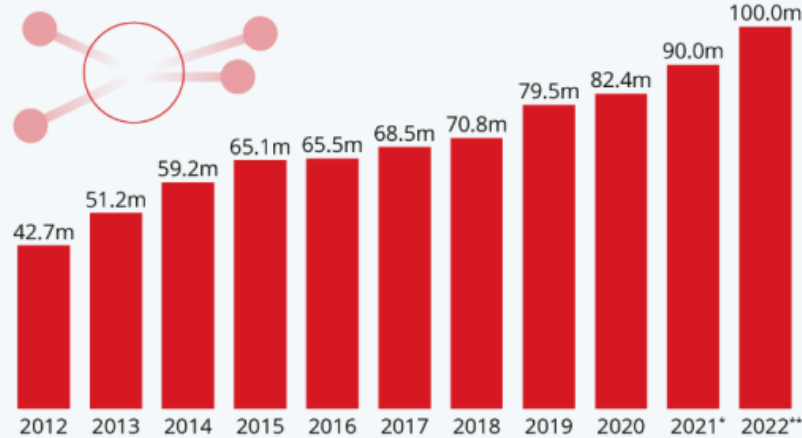
The Great Climate Migration Has Begun

New research suggests climate change will cause humans to move in unprecedented numbers.

By ABRAHM LUSTGARTEN
JULY 27, 2020

Number of Forcibly Displaced People Reaches 100 Million

Number of forcibly displaced people worldwide by year



Internally displaced, refugees and asylum seekers.
* preliminary figure ** preliminary figure as of May
Source: UNHCR



statista

Equity and Justice

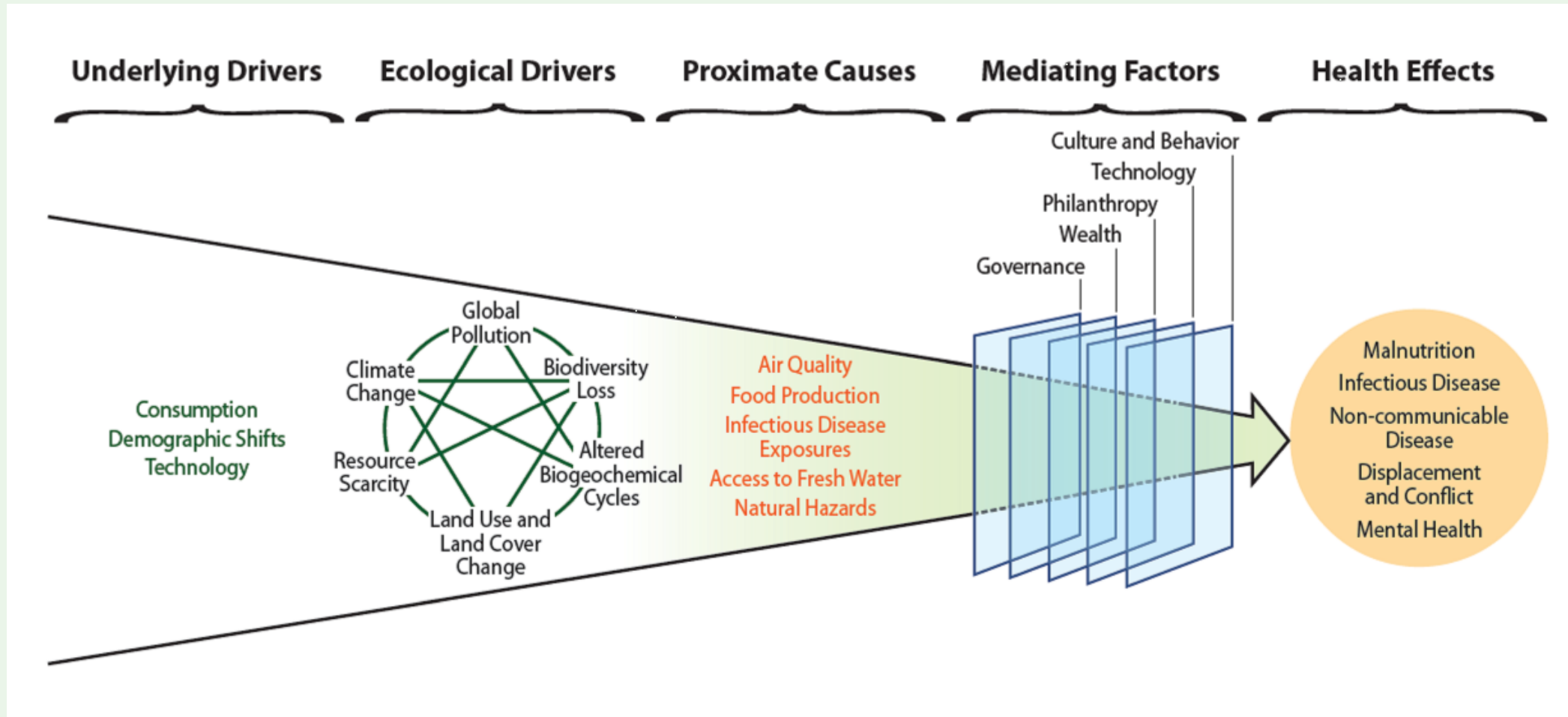


The Earth Crisis is Driving a Global Health Crisis



Planetary Health

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Thinking about solutions: The Great Transition

Demographic Transition

Post-combustion energy economy

Massive efficiencies in food and manufacturing

Design of Cities

Enlightened Policy/Private sector

Movement Building/organizing

Knowledge generation and mobilization (key role of universities)

Emotional/spiritual dimensions (interconnection with Nature and each other)



In the Context of Planetary Health, What Does It Mean to be a Clinician?



We carry an urgent message

Expanding our Self-conception as Practitioners

- Recognizing changing patterns of disease
- Greening healthcare practices
- Serving as trusted messengers
- Movement building and collective action
- Educating next generation: “There is no public health without planetary health”

One Earth

CellPress

Reflection Clinicians for Planetary Health

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<https://doi.org/10.1016/j.oneear.2022.03.006>

We reflect upon planetary health, a transdisciplinary field and social movement focused on the impacts of human disruptions to Earth's natural systems on human health and all life on Earth. We describe the unique roles that health clinicians play and how they can join the movement to restore planetary health.

A pledge for planetary health to unite health professionals in the Anthropocene

In 1948, the Declaration of Geneva¹ was passed as one of the first official acts of the World Medical Association. The Declaration updated the ancient Hippocratic oath and defined ethical principles applicable to the medical profession worldwide.² Other health professions have similar pledges and oaths that guide their practice,

generally based on the four bioethical principles of justice, autonomy, non-maleficence, and beneficence. Over time, these pledges have been updated to account for evolving societal norms, expectations, and challenges,³ and many students and health education institutions use adaptations of the original oath.^{4,5}

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The São Paulo Declaration on Planetary Health

Humanity, and indeed all of life on Earth, is at a crossroads. Over the past

action from the planetary health community charting a path forward to support a more equitable and resilient post-pandemic world. The Declaration's cross-cutting recommendations were drafted during the 2021 Planetary Health Annual Meeting



Published Online
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[https://doi.org/10.1016/j.s0140-6736\(21\)02181-1](https://doi.org/10.1016/j.s0140-6736(21)02181-1)

Birth of Alliance Santé Planétaire movement

1. 2019 - The **need to promote planetary health in French**: creation of a working group.
2. 2020 - Increased awareness with COVID-19: links between biodiversity collapse and pandemic risks.
3. 9th of January 2021 - **launch of the Alliance Santé Planétaire NGO**: 17 funding members + a dozen of subscribing members.
4. 200+ active members and many volunteer achievements...
5. *2023: European Planetary Health Hub*



French version of Planetary health – protecting nature to protect ourselves

- Steering and scientific proof-reading of the translation
- Launch in the main Political science public university in France (Sciences Po Paris)
- Foreword by the filmmaker on Making pandemics and books sold after the projection-debates

<https://alliancesanteplanetaire.org/livre-sante-planetaire>





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H E A L T H
A L L I A N C E**

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www.planetaryhealthalliance.org

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- **Sign up** for our monthly planetary health newsletter
- **Follow us** on social media (Twitter/Insta: @ph_alliance)
- **Youth:** Join our Next Gen Network or PHCA program!
- **Clinicians & Educators:** Join C4PH or a working group!
- **Come** to the 6th Planetary Health Annual Meeting April 2023 Malaysia

Community-building



Education



Outreach



Action