



Institute for
Planetary Security

Our lives in the 21st century: the best of times or the worst of times?

Alexander Verbeek

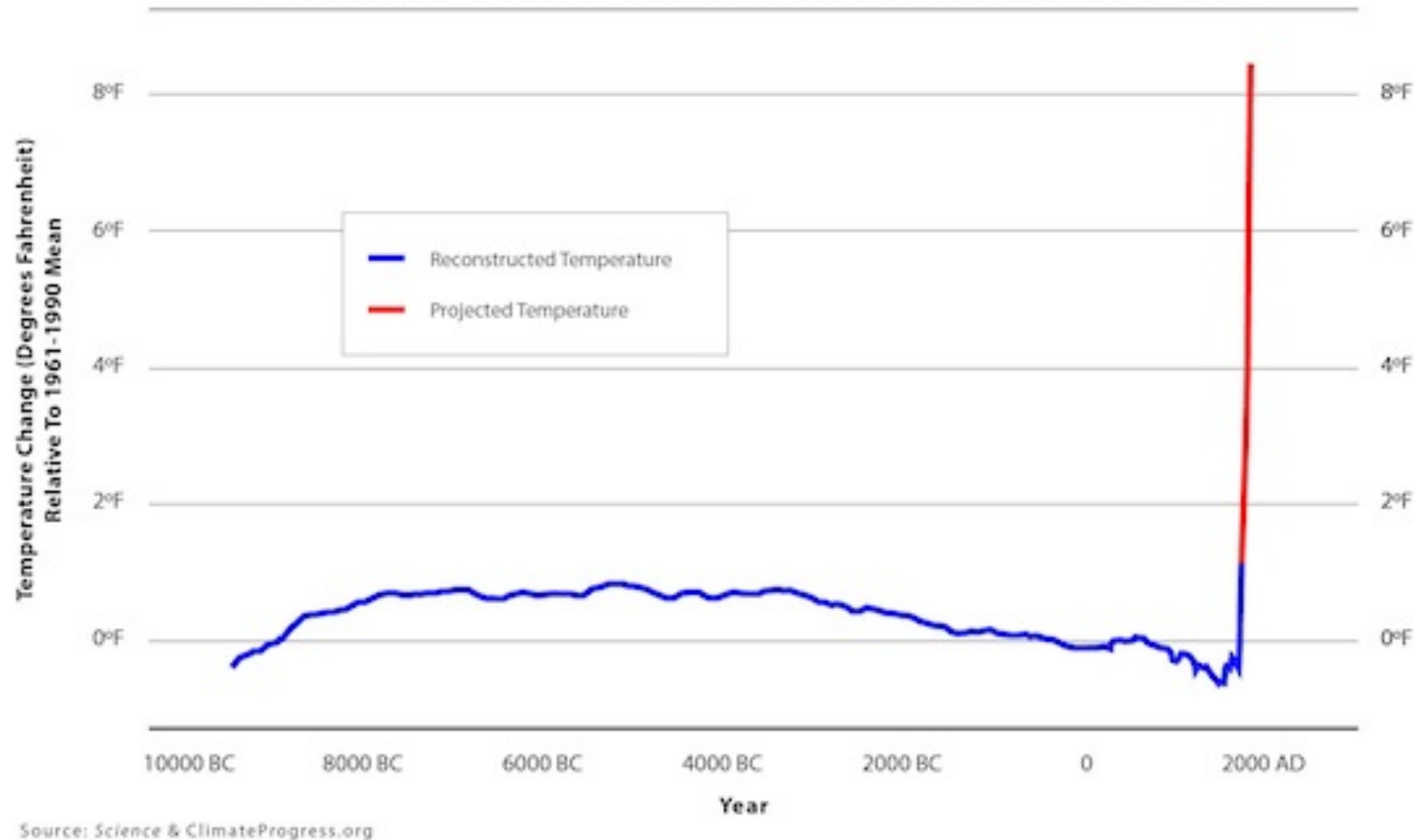
Twitter: [@alex_verbeek](https://twitter.com/@alex_verbeek)

Center for Science and Technology Policy Research (CSTPR),
Boulder, Colorado

11 April 2018



Carbon Pollution Set To End Era Of Stable Climate

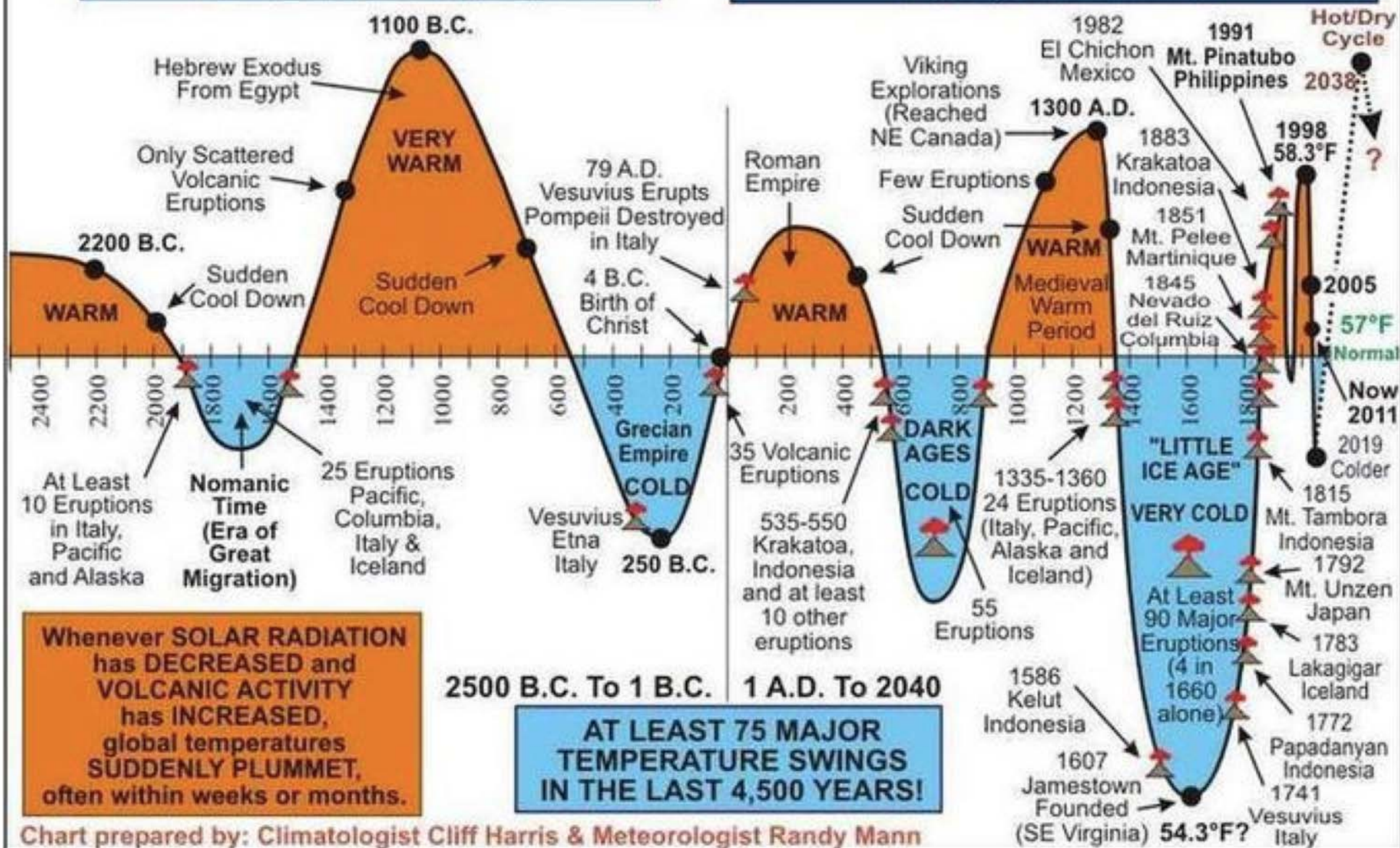


Source: <http://thinkprogress.org/climate/2013/11/03/2876491/hottest-september-record/>

GLOBAL TEMPERATURES (2500 B.C. TO 2040 A.D.)

MAJOR GLOBAL COOLING SINCE LATE 2007
A 0.9 Degree Fahrenheit drop in global temperatures from late 2007 to February 2009.

MOUNT PINATUBO ERUPTION (Philippines)
1.1 Degree F. Rapid Cool Down (June 1991 to March 1992)
Global Temperature Went From 0.6 Degrees Above Normal To 0.5 Degrees Below Normal.

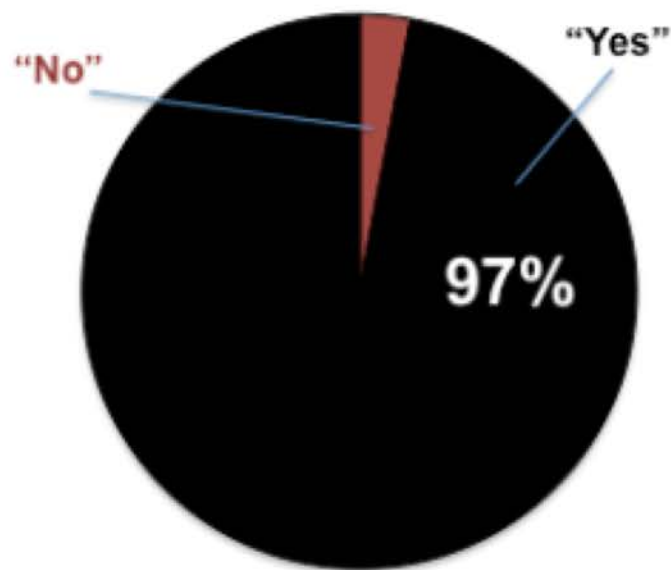


No higher resolution available.

Global_temp_chart.jpg (682 x 491 pixels, file size: 96 kilobytes, MIME type: image/jpeg)

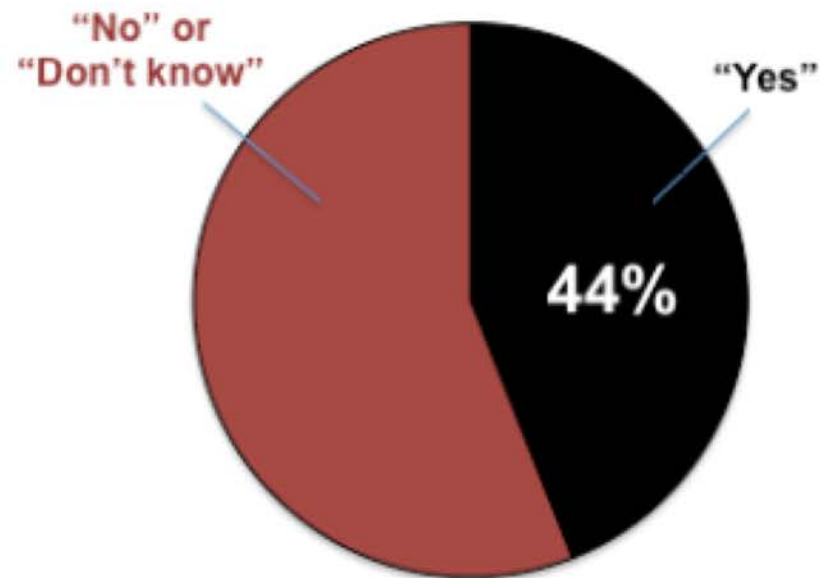
Is Global Warming Happening and Mostly Human Caused?

Climate Scientists¹ say...



¹Proportion of peer-reviewed papers that stated a position on the reality of human-caused global warming and said it is happening and human caused (Cook et. al, 2013).

The American Public² says...



²Question asked of Americans (18+): Assuming global warming is happening, do you think it is caused mostly by human activities; caused mostly by natural changes in the environment; other; none of the above because global warming isn't happening."

Base: Americans 18+ (n=1,013). April, 2014.

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5. Future challenges: how can the science community and the policy makers work together?

We live here in the Milkyway

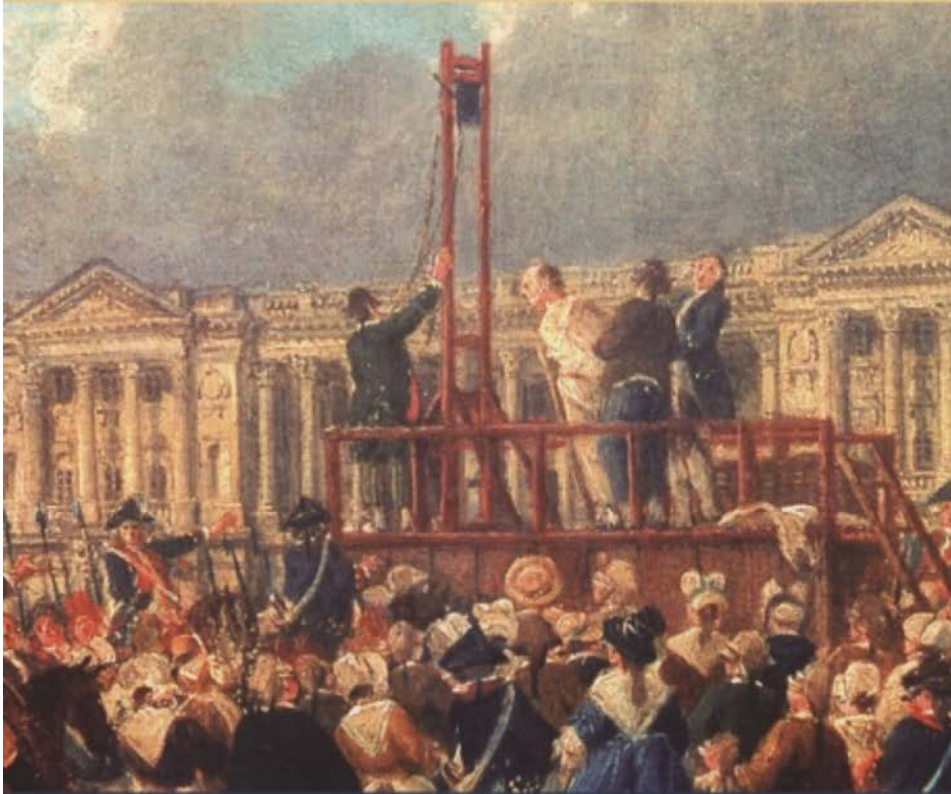


200TH ANNIVERSARY EDITION

Signet Classics

CHARLES DICKENS

A Tale of Two Cities

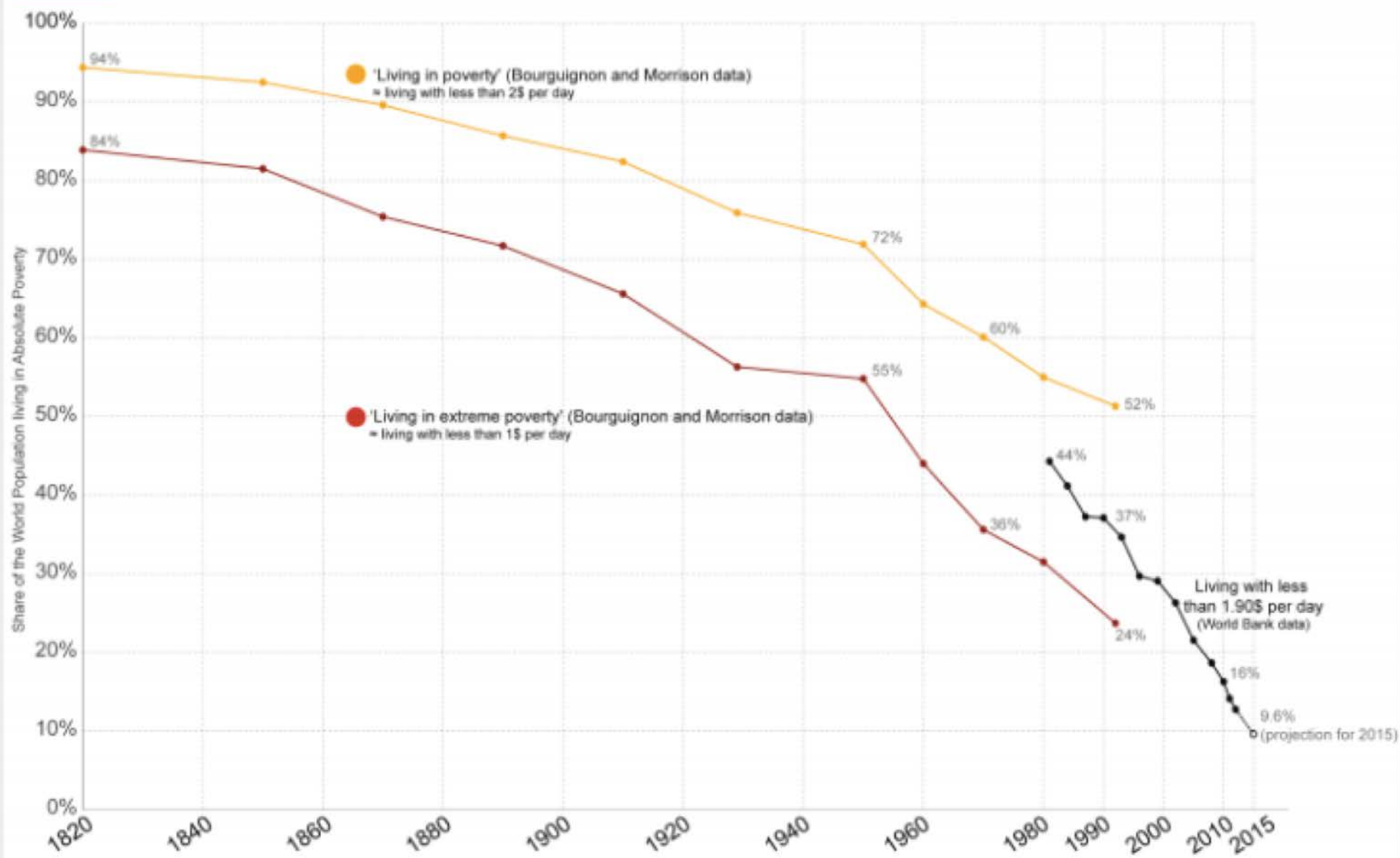


WITH AN AFTERWORD BY A. N. WILSON

"It was the best
of times, it was
the worst of
times, it was the age
of wisdom, it was the
age of foolishness, it
was the epoch of belief,
it was the epoch of
incredulity, it was the
season of Light, it was
the season of Darkness,
it was the spring of
hope, it was the winter

Share of the World Population living in Absolute Poverty, 1820-2015

All data are adjusted for inflation over time and for price differences between countries (PPP adjustment).

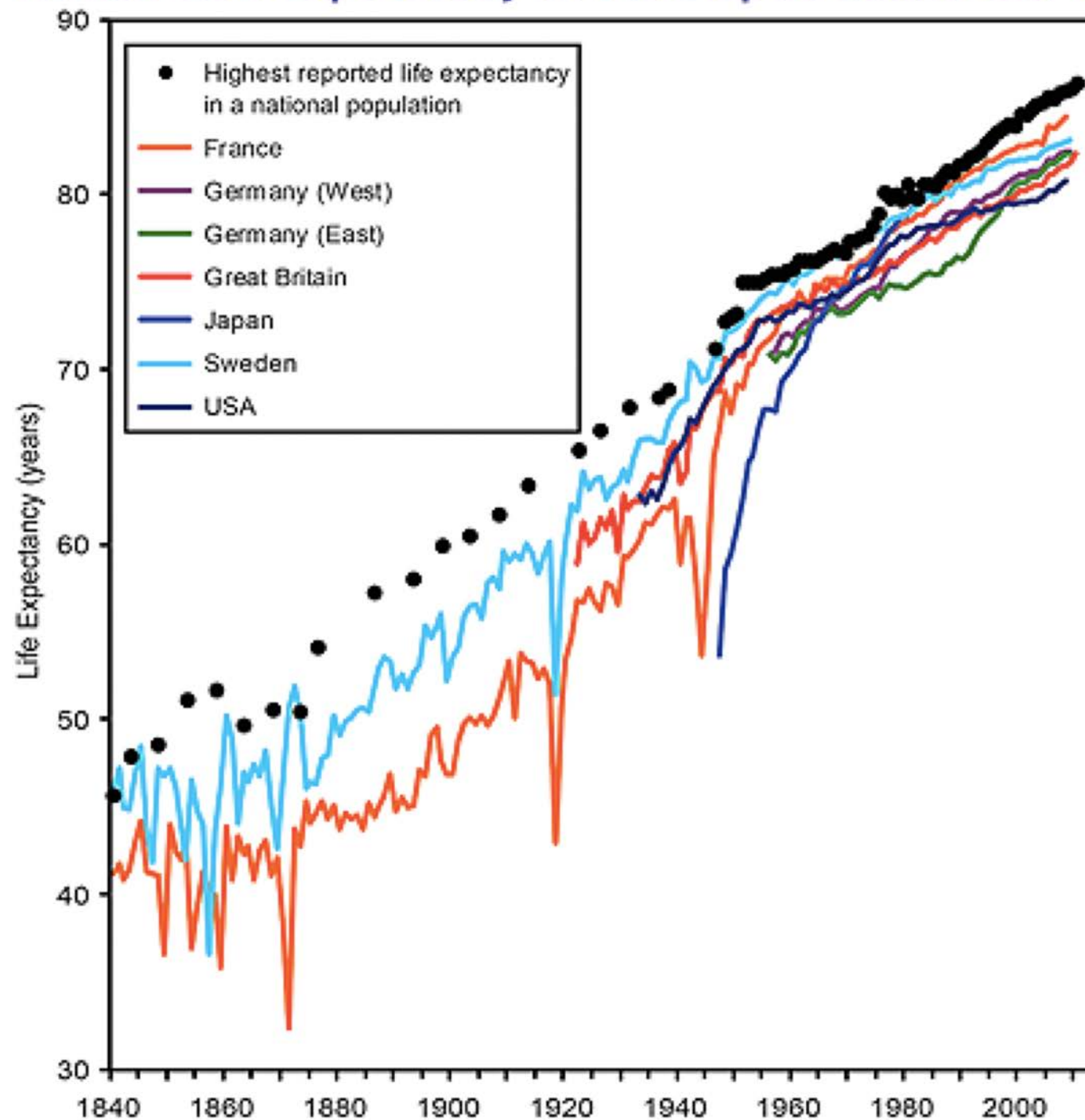


Data sources: 1820-1992 Bourguignon and Morrison (2002) - Inequality among World Citizens, in The American Economic Review; 1981-2015 World Bank (PovcalNet)

The interactive data visualisation is available at OurWorldinData.org. There you find the raw data and more visualisations on this topic.

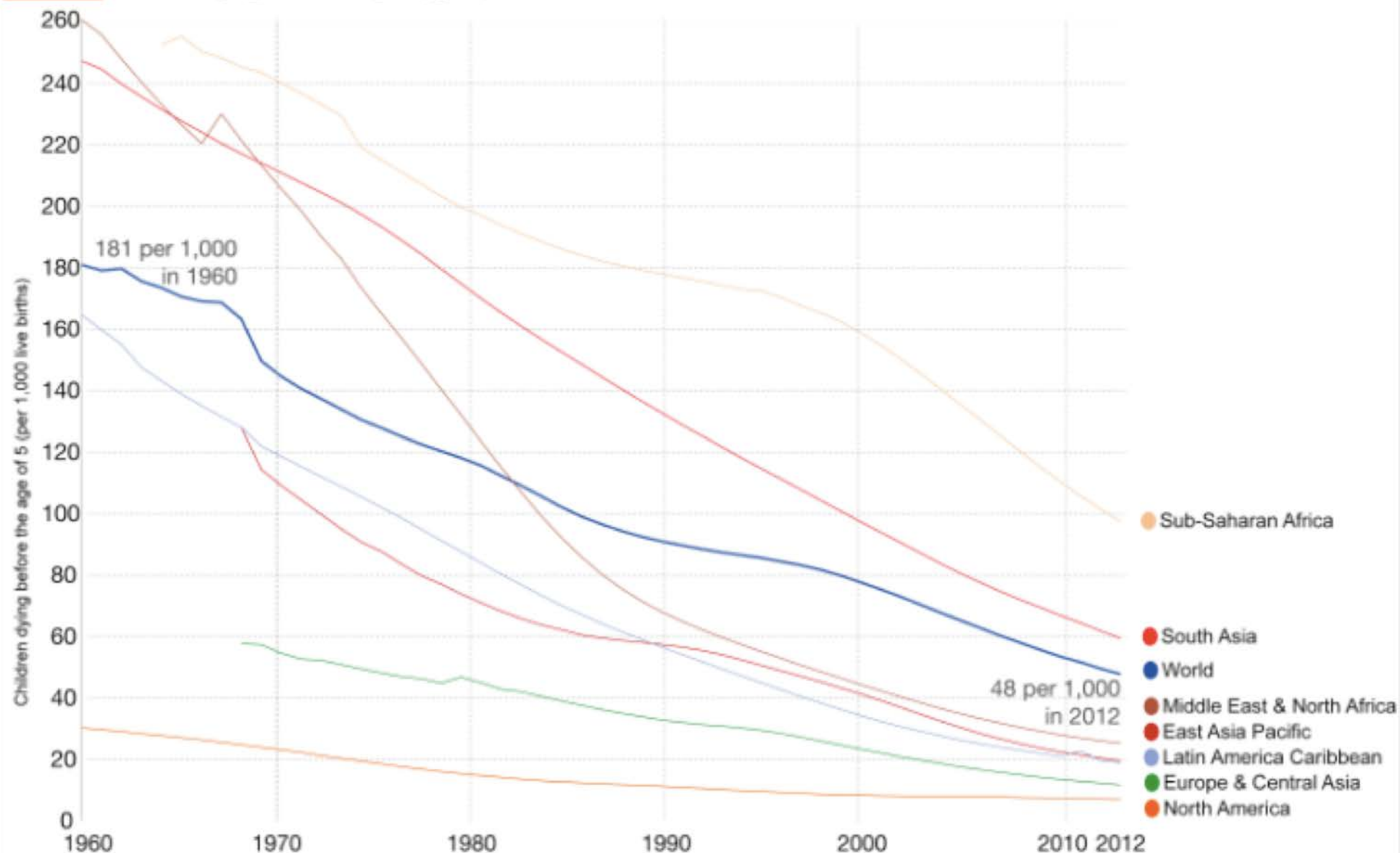
Licensed under CC-BY-SA by the author Max Roser.

Female Life Expectancy in Developed Countries: 1840-2009



Child mortality by world region

Children dying before the age of 5 per 1,000 live births.



Data source: UNICEF

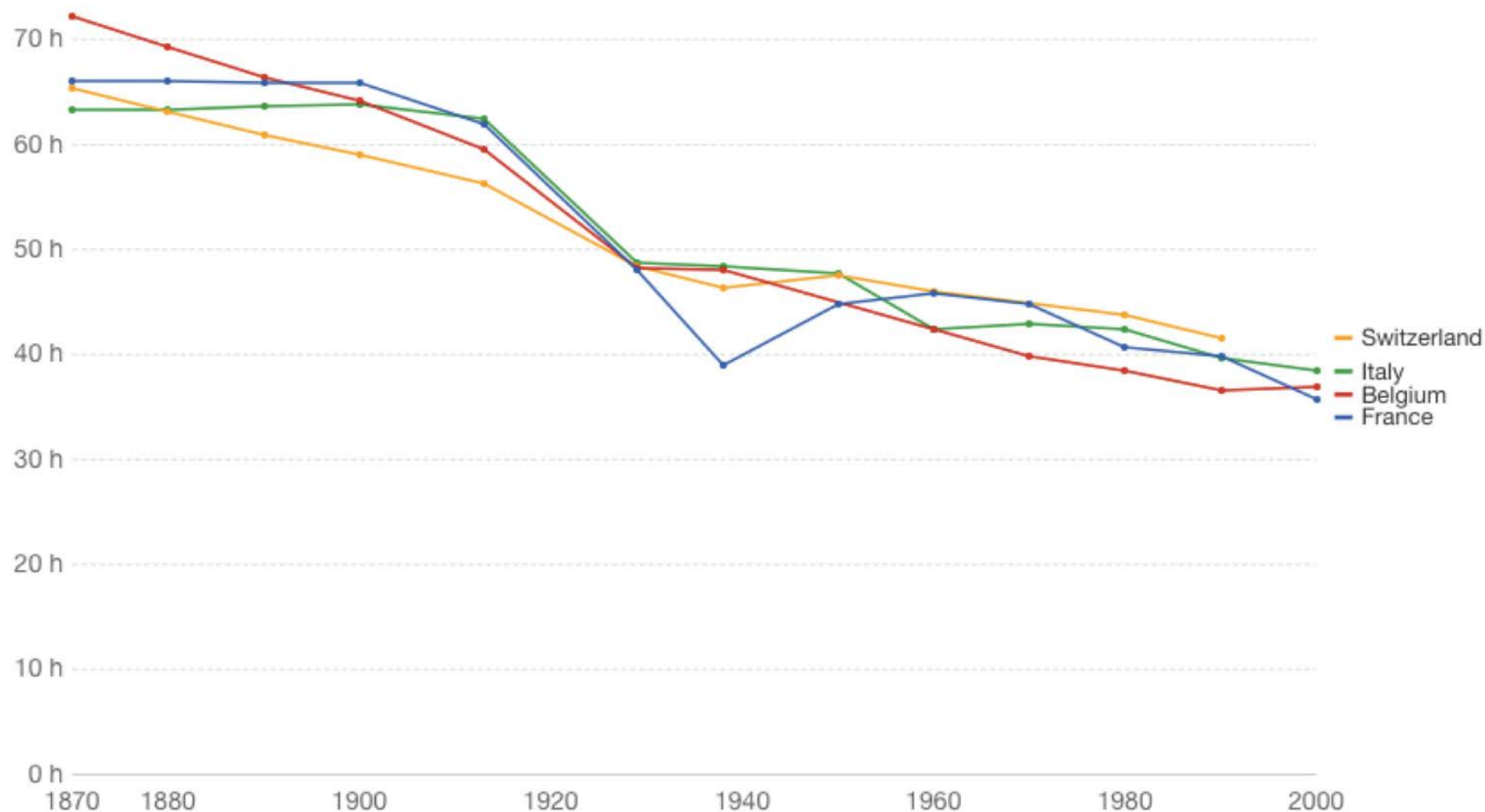
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Licensed under CC-BY-SA by the author Max Roser.

Weekly Work Hours

Work hours of full-time production workers (male and female) in non-agricultural activities.

Our World
in Data



Source: Huberman & Minns (2007)

+ Add country

CHART

MAP

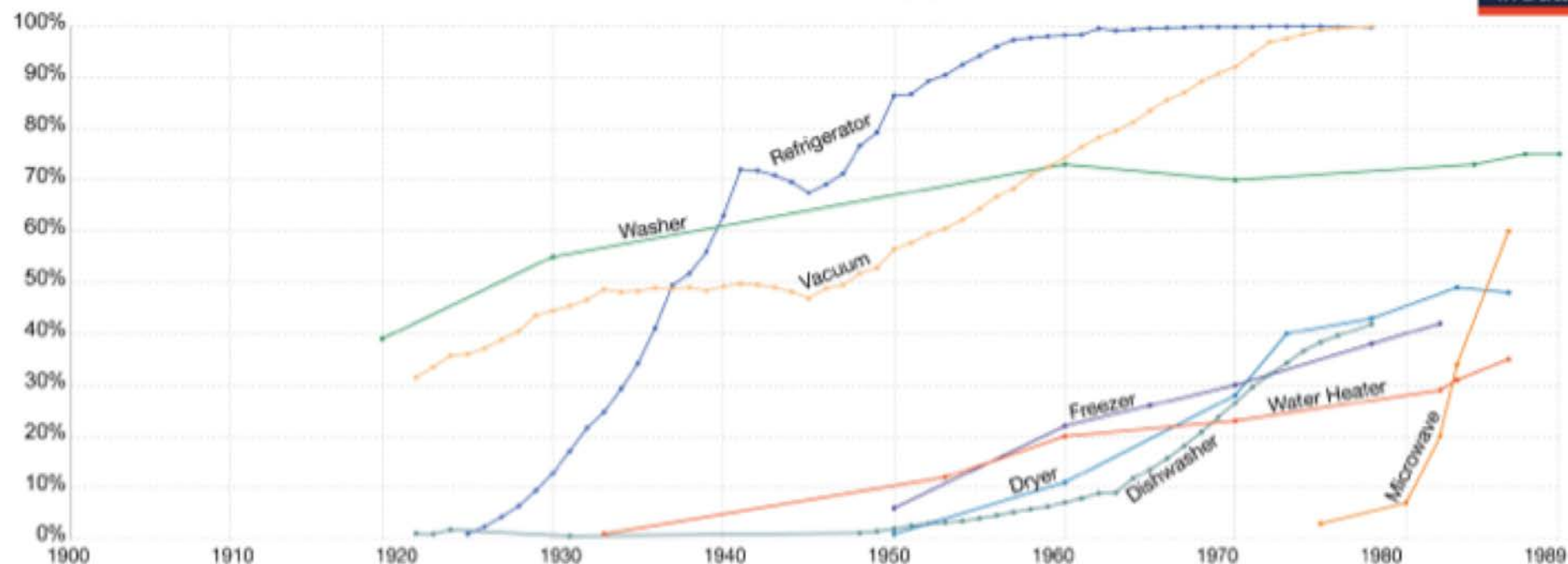
DATA

SOURCES



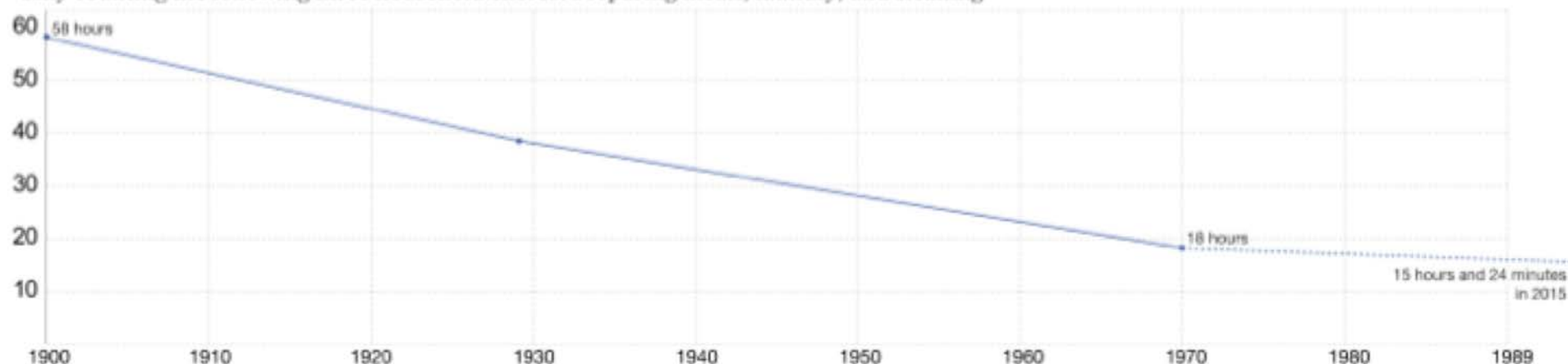
Share of US households with basic electrical appliances

Our World
in Data



Housework working hours per week, per household of two

Only counting the following three household chores: Preparing meals, laundry, and cleaning



Data source: Greenwood, Seshadri and Yorukoglu (2006) – "Engines of Liberation", Review of Economic Studies. Except working hours in 2015 from the American Time Use survey conducted by the BLS. The interactive data visualization is available at [OurWorldinData.org](https://ourworldindata.org). There you find the raw data and more visualizations on this topic. Licensed under CC-BY-SA by the author Max Roser.

Literate and illiterate world population, 1800 to 2014

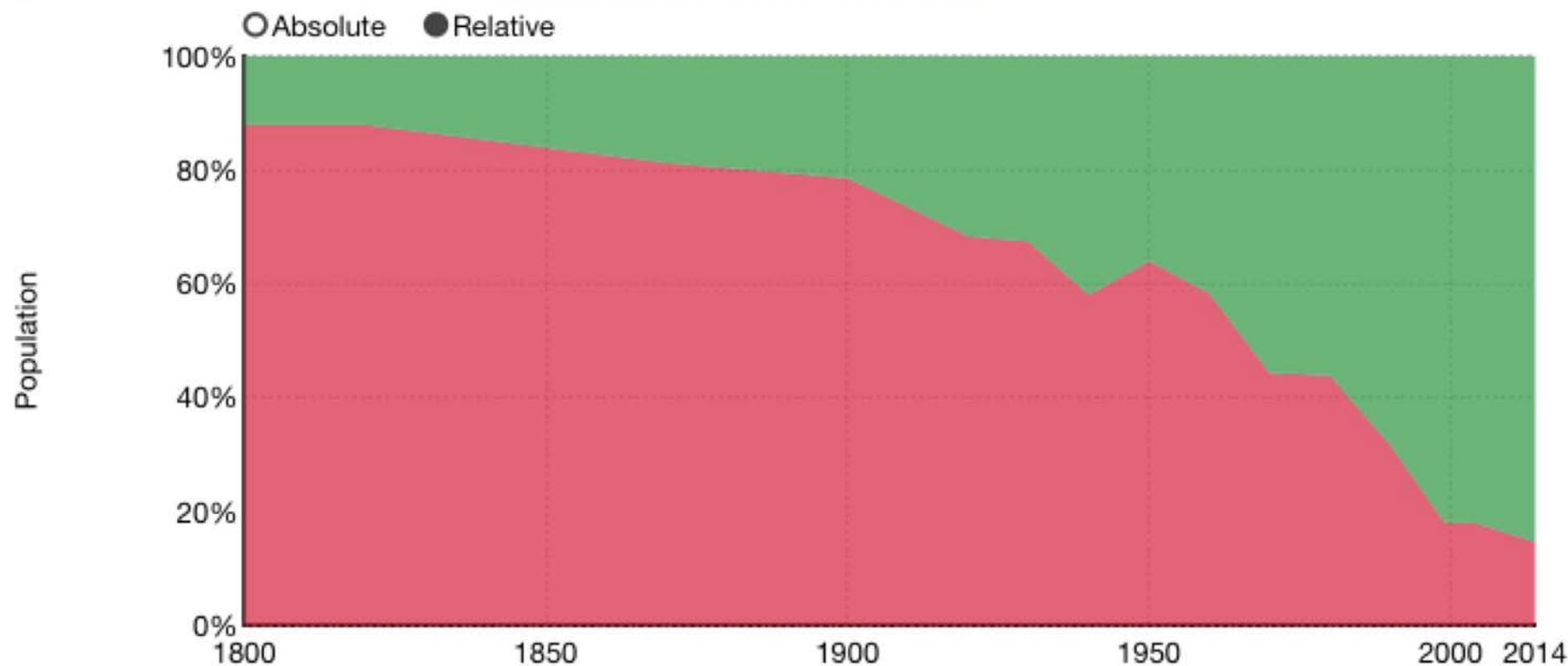
CHART

DATA

SOURCES

World - Illiterate World Population

World - Literate World Population

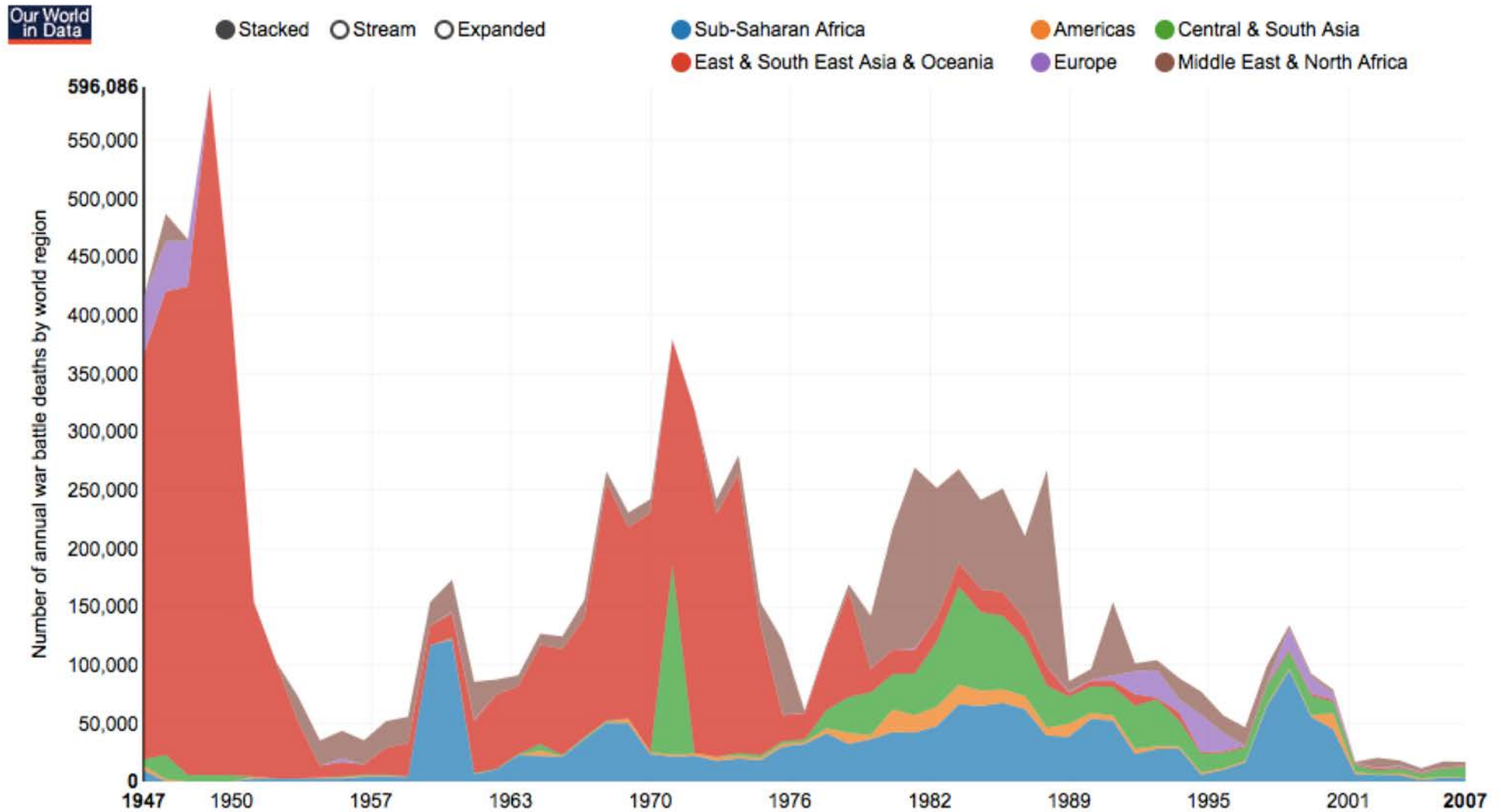


Data source: [Literate World Population](#) (Our World In Data based on OECD and UNESCO)

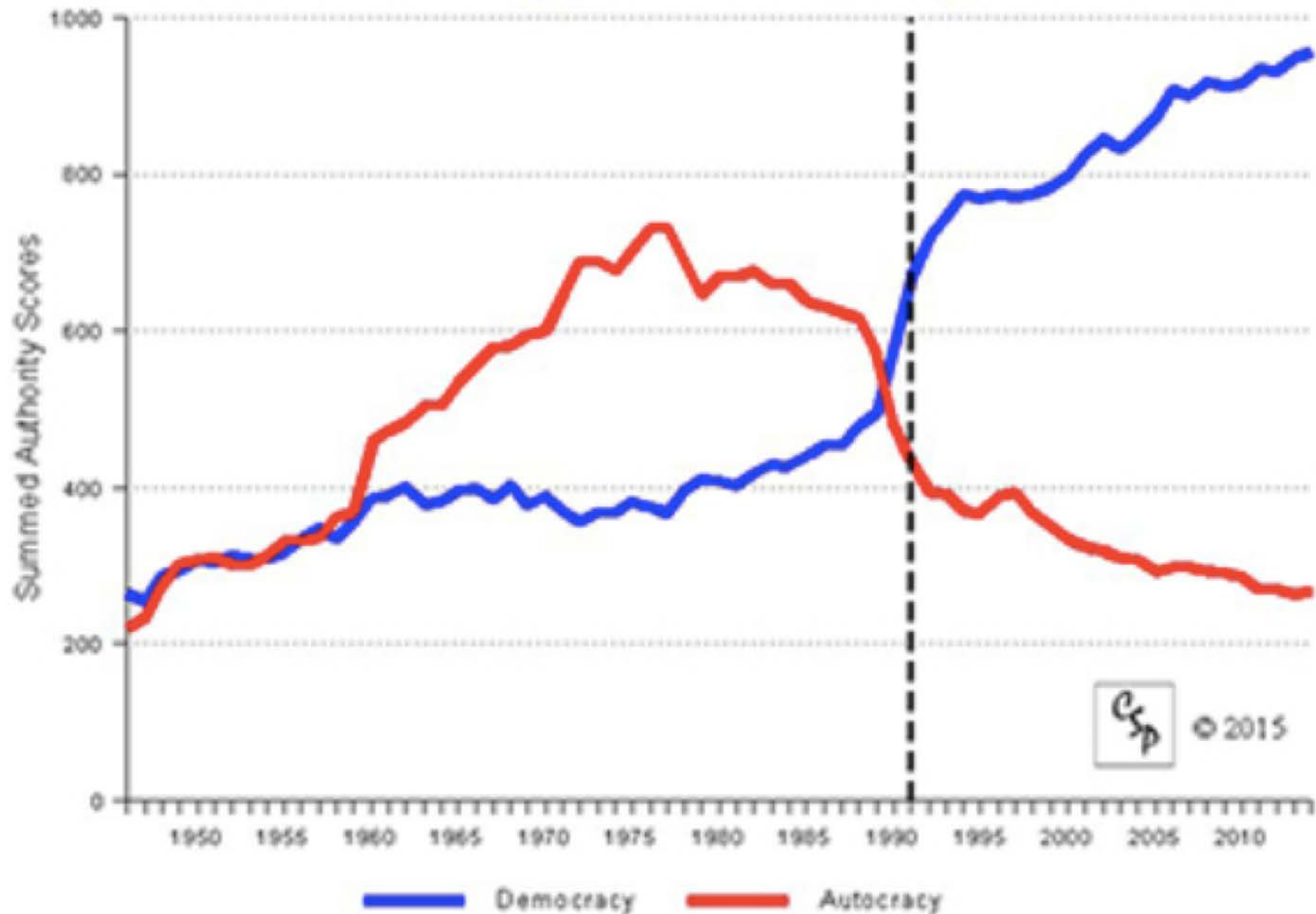
OurWorldInData.org/literacy/ • CC BY-SA

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Number of annual war battle deaths by world region, 1946-2007 – Max Roser²



Global Democracy and Autocracy, 1946-2014

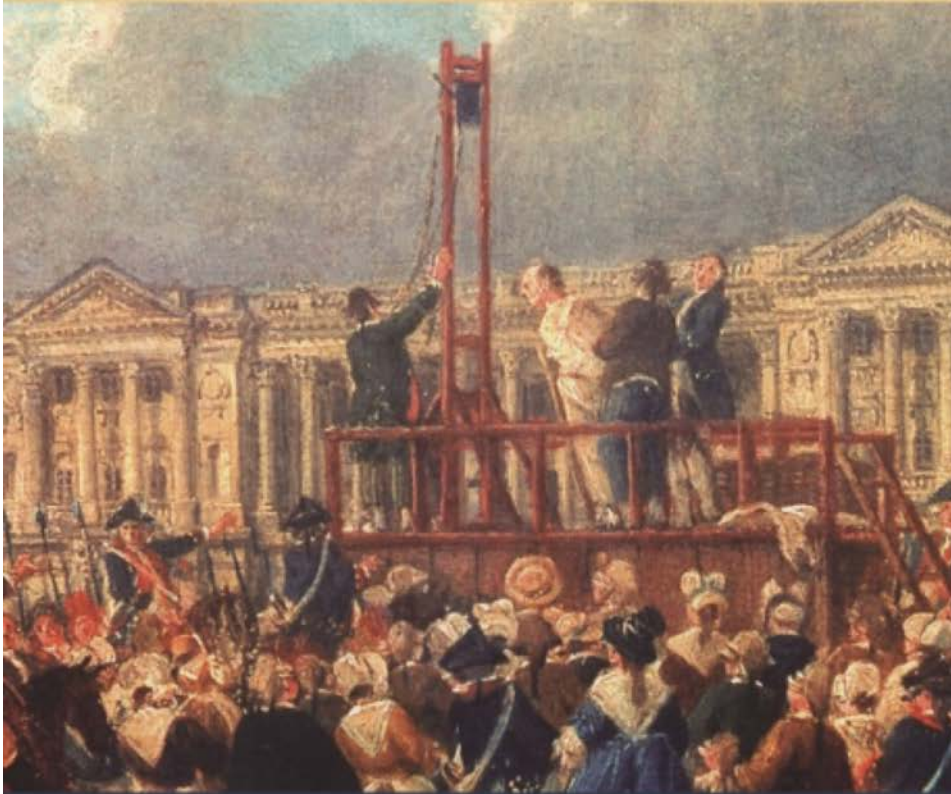


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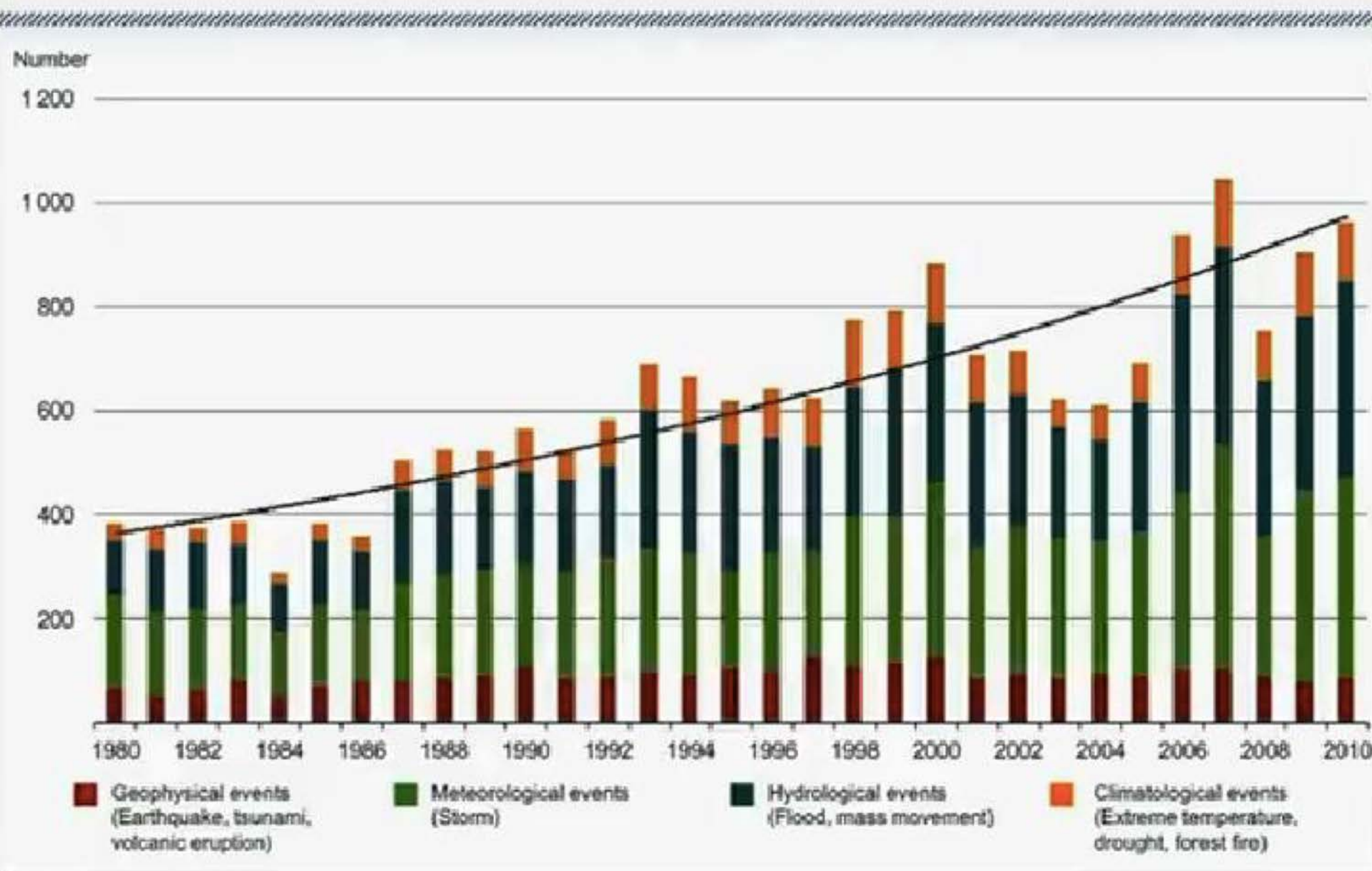


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*"It was the best of times,
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of foolishness, it was the
epoch of belief, it was
the epoch of incredulity,
it was the season of
Light, it was the season
of Darkness, it was
the spring of
hope, it was the
winter of*

Natural catastrophes worldwide, 1980 – 2010

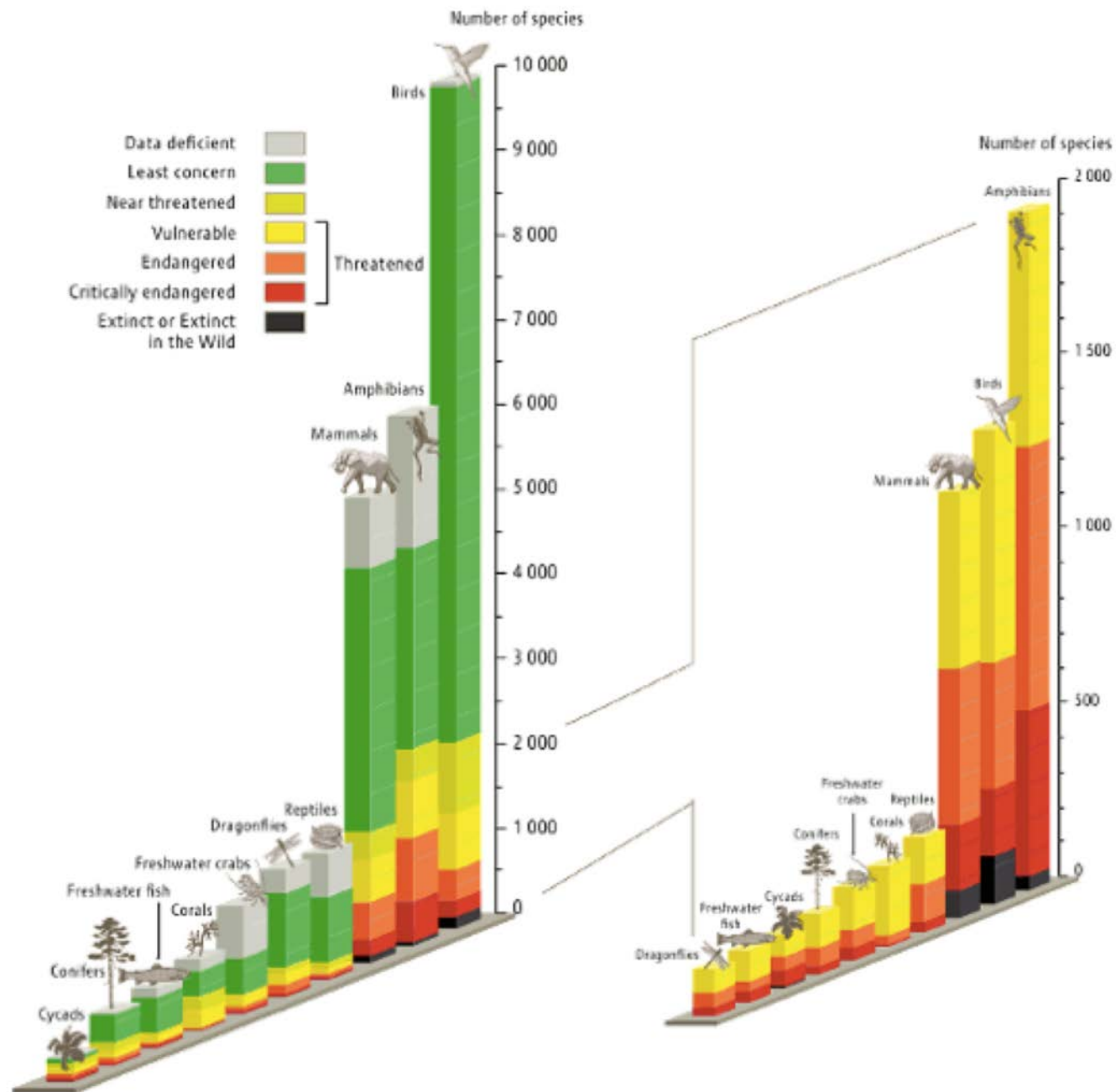
Number of events with trend



The Costs of Violence

- The economic impact of violence on the global economy in 2016 was \$14.3 trillion.
- This is equivalent to 12.6 per cent of the world's economic activity (gross world product)
- This is \$1,953 for every person
- The return on investment of peace building can be up to 16 times the cost of the intervention

Source: Global Peace Index 2017



Threat status of comprehensively assessed species by IUCN.

Source: IUCN

Share of global wealth

by income groups, 1980-2016

The richest 0.1% of the world's population have increased their combined wealth by as much as the poorest 50% - or 3.8bn people - since 1980

Top 10%

Top 1% of people own
27% of world's wealth

Bottom 50% own
12% of world's wealth

Income growth has been sluggish or even nil for the population between the global bottom 50% and top 1%.”

The US's richest 1% accounted for 39% of the nation's wealth in 2014, up from 22% in 1980. The

Jeff Bezos wealth increase in 2016: \$33 billion



"If the present growth trends in world population, industrialization, pollution, food production, and resource depletion continue unchanged, the limits to growth on this planet will be reached sometime within the next one hundred years."

-The Club of Rome, *The Limits of Growth*
(1972)

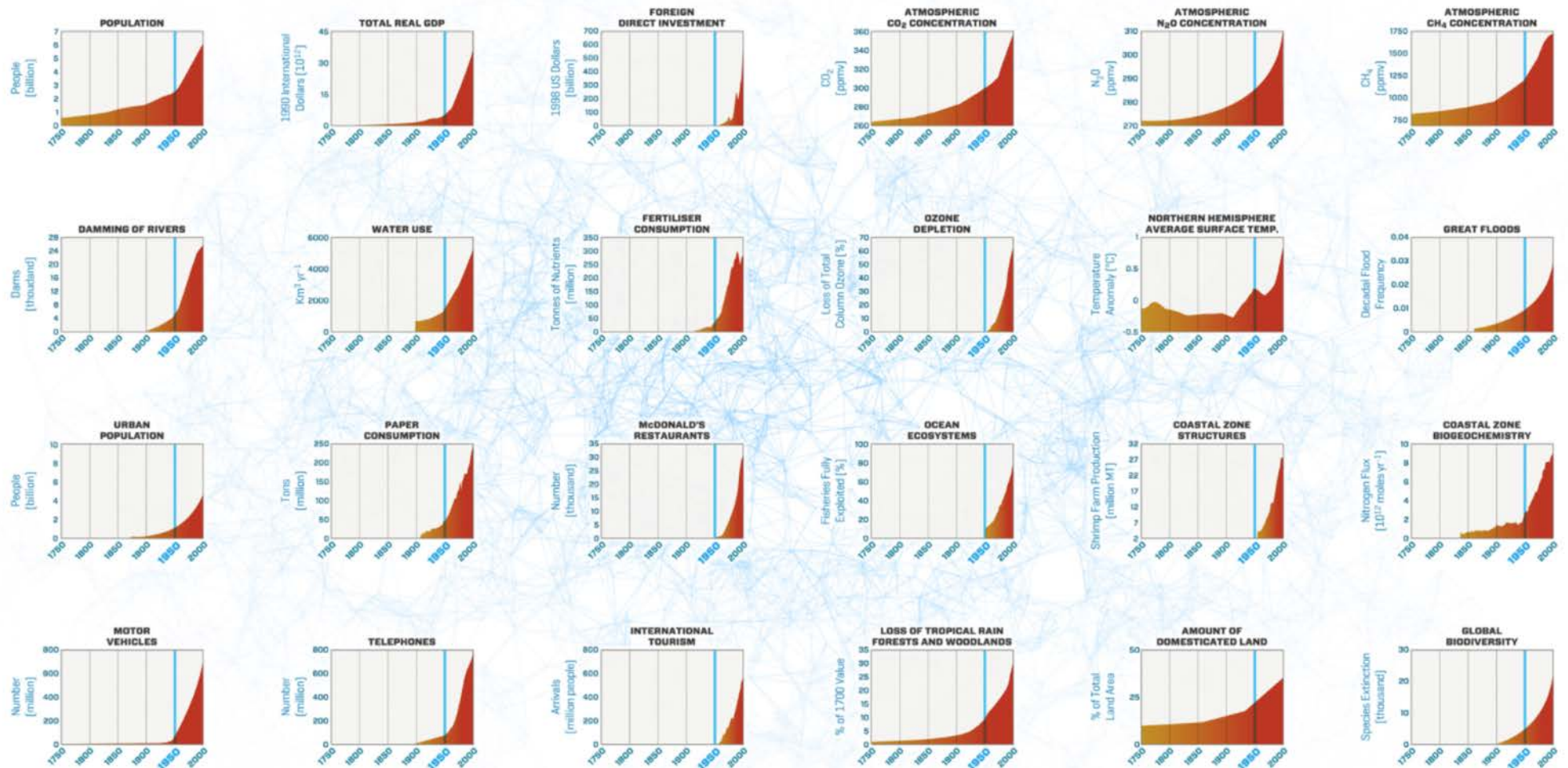
Brundtland report (1987):

“Our Common Future”

Sustainable Development:

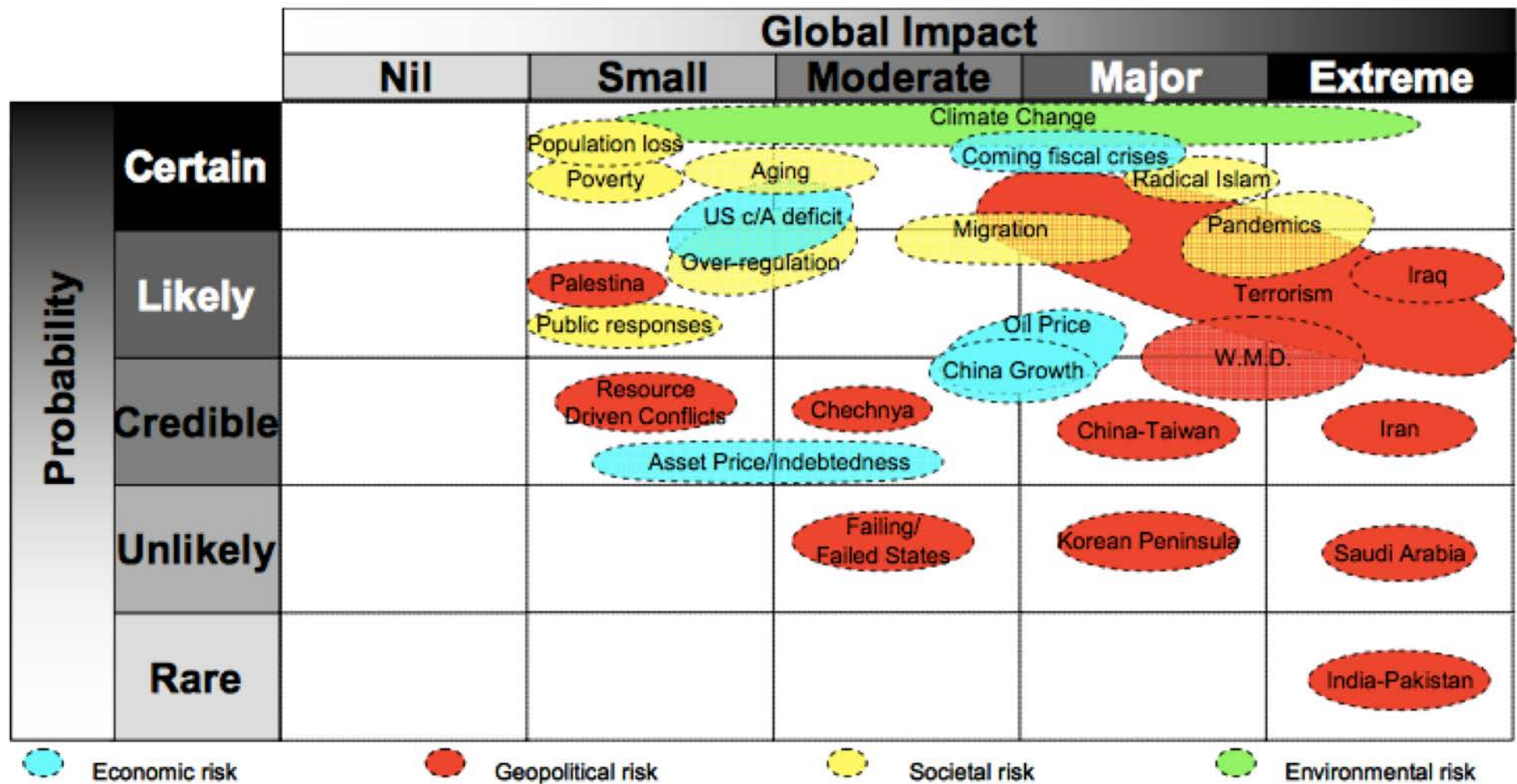
Development that meets the needs of the present without compromising the ability of future generations to meet their own needs



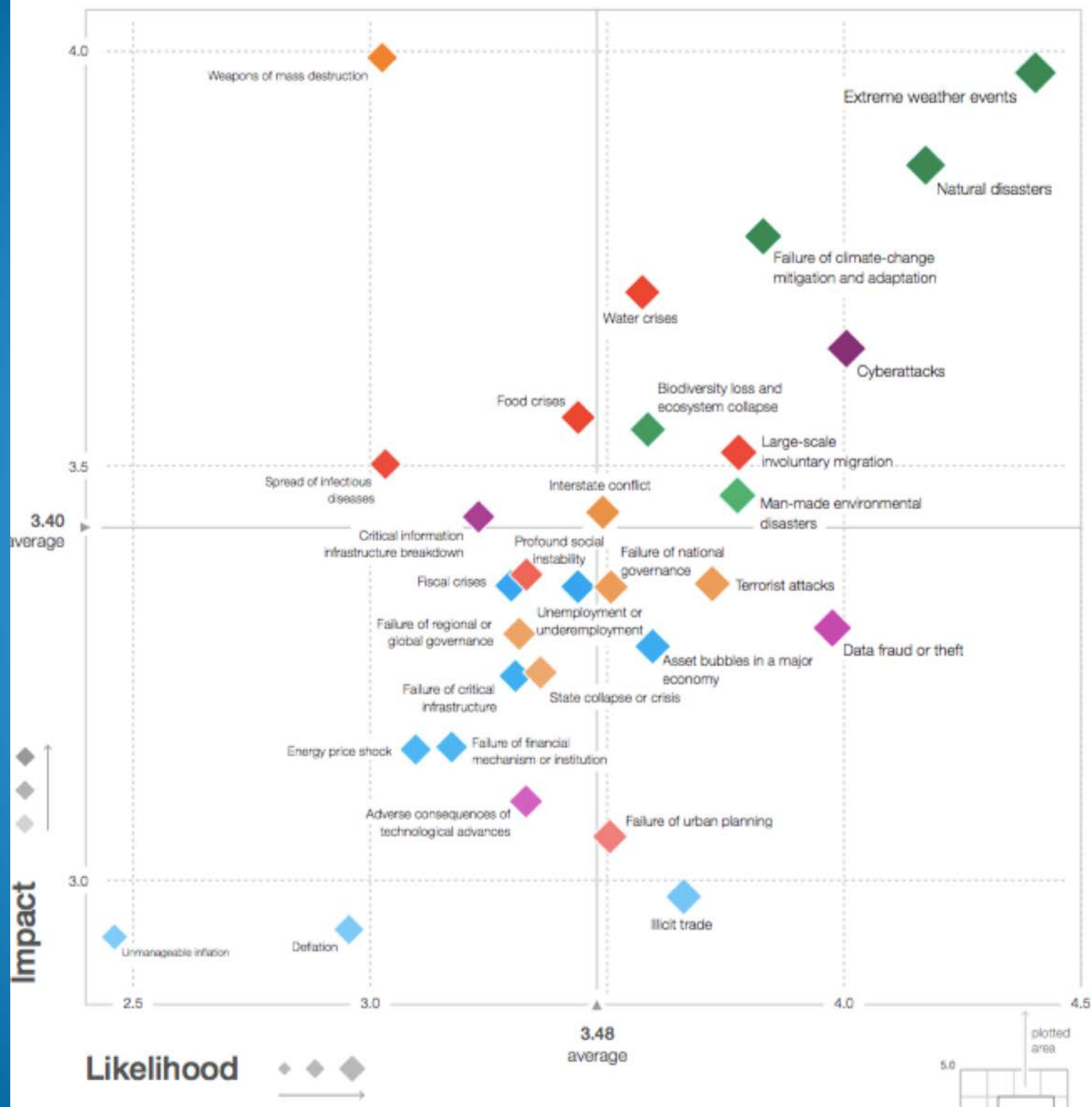


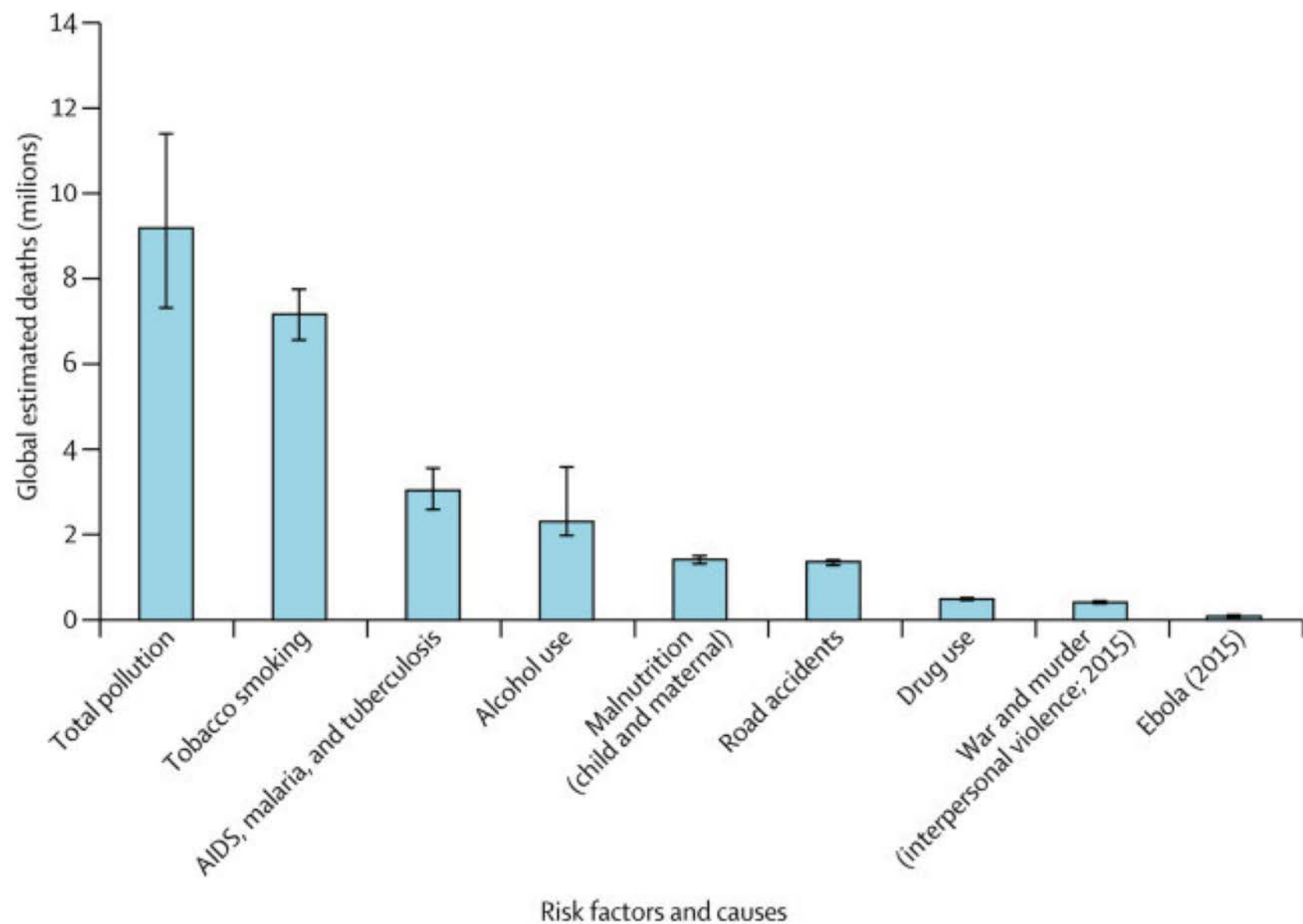
Source: The Great Acceleration Graphs. Steffen et al 2004. International Geosphere-Biosphere Programme.

2006



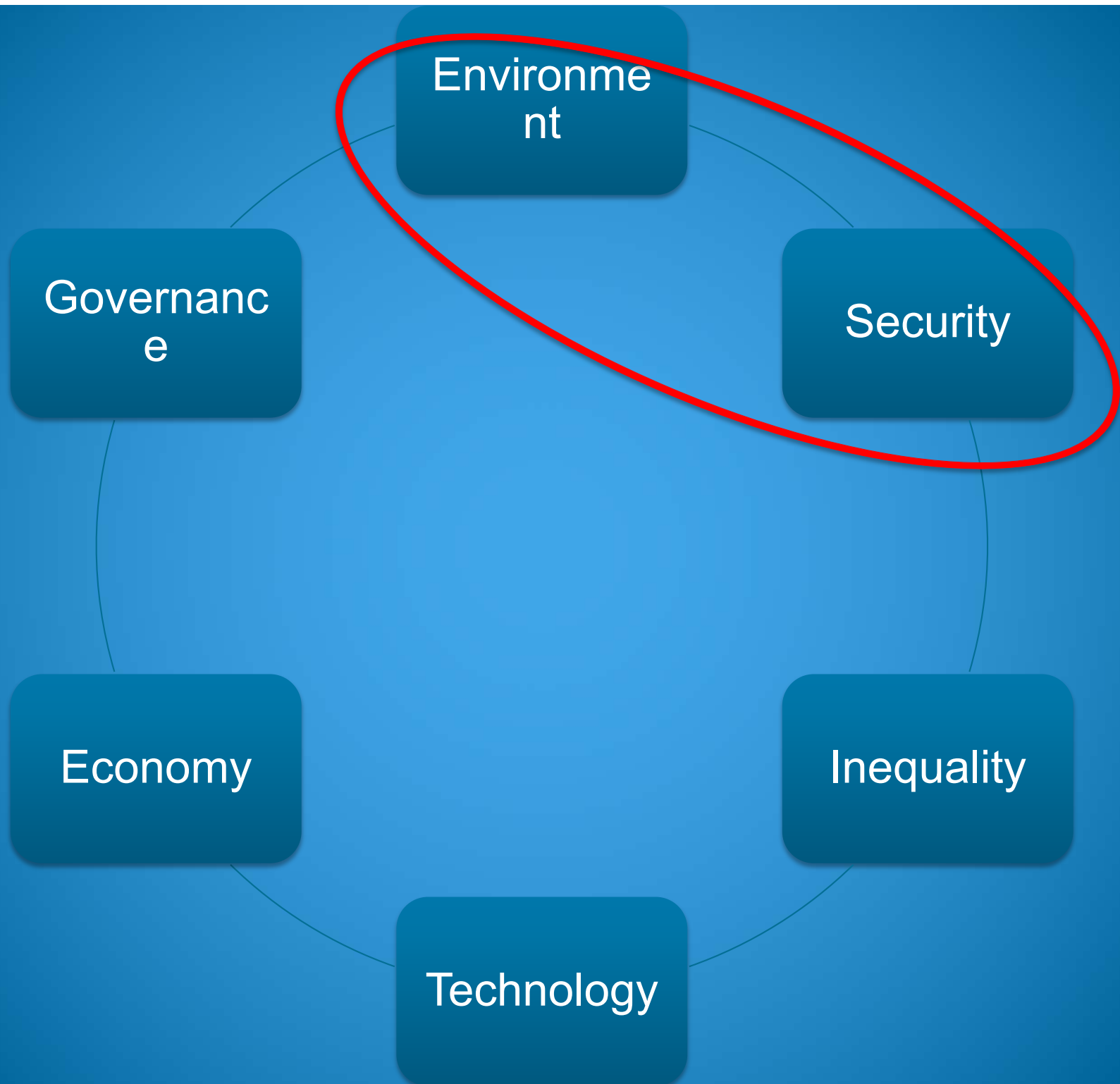
2018



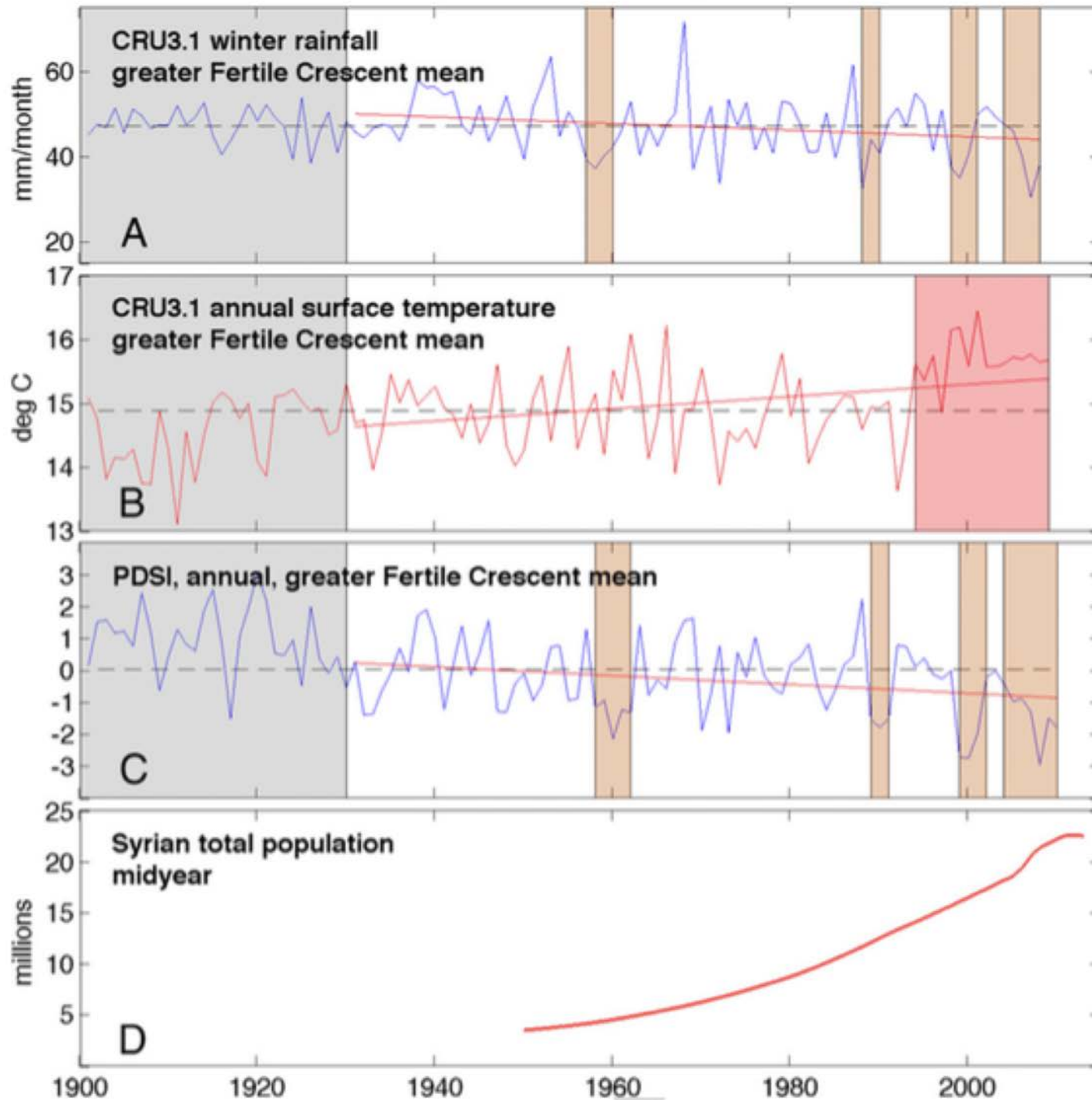


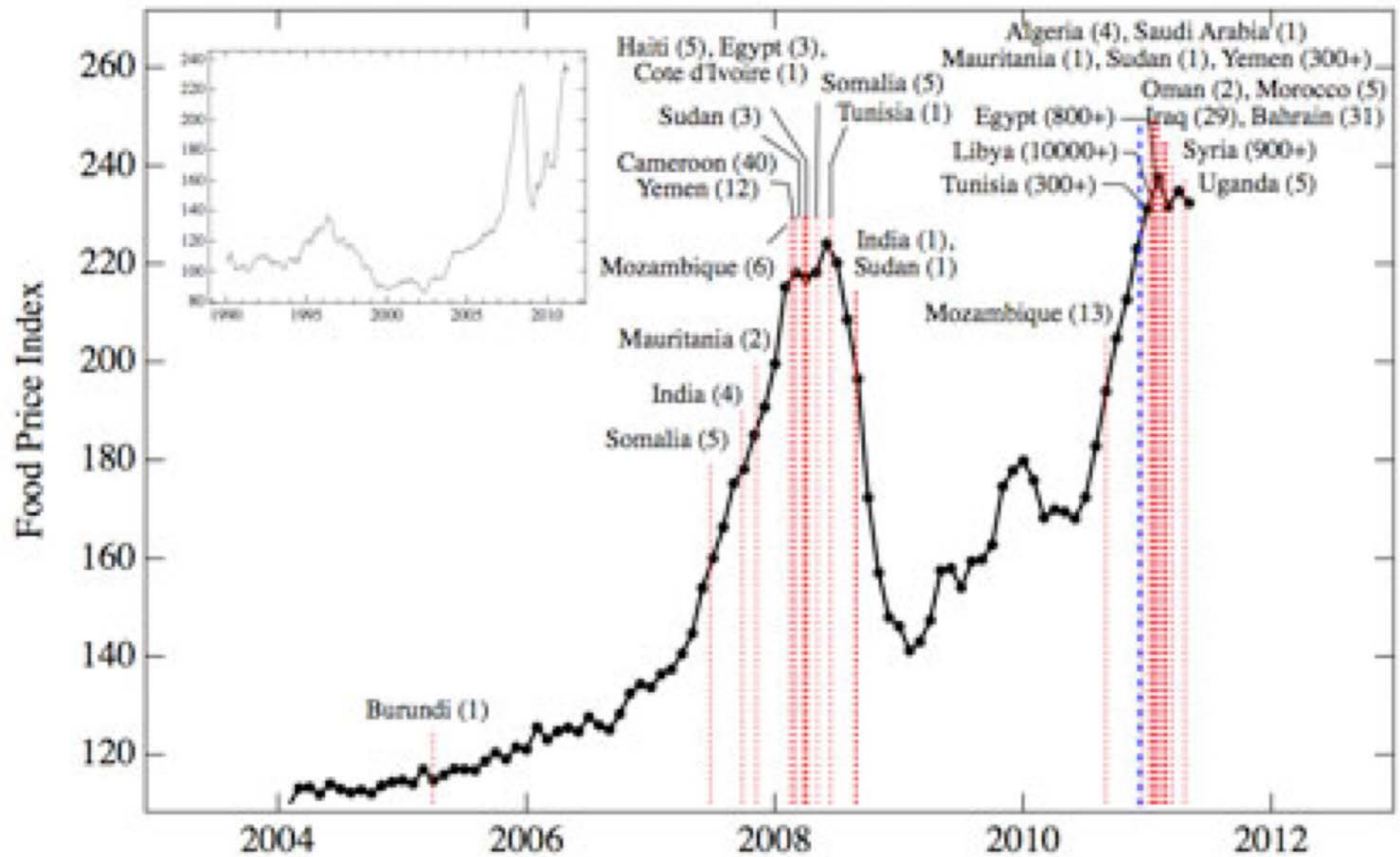
Global estimated deaths by major risk factor and cause, 2015

Image: The Lancet Commission on pollution and health



Precipitation history and long term trends





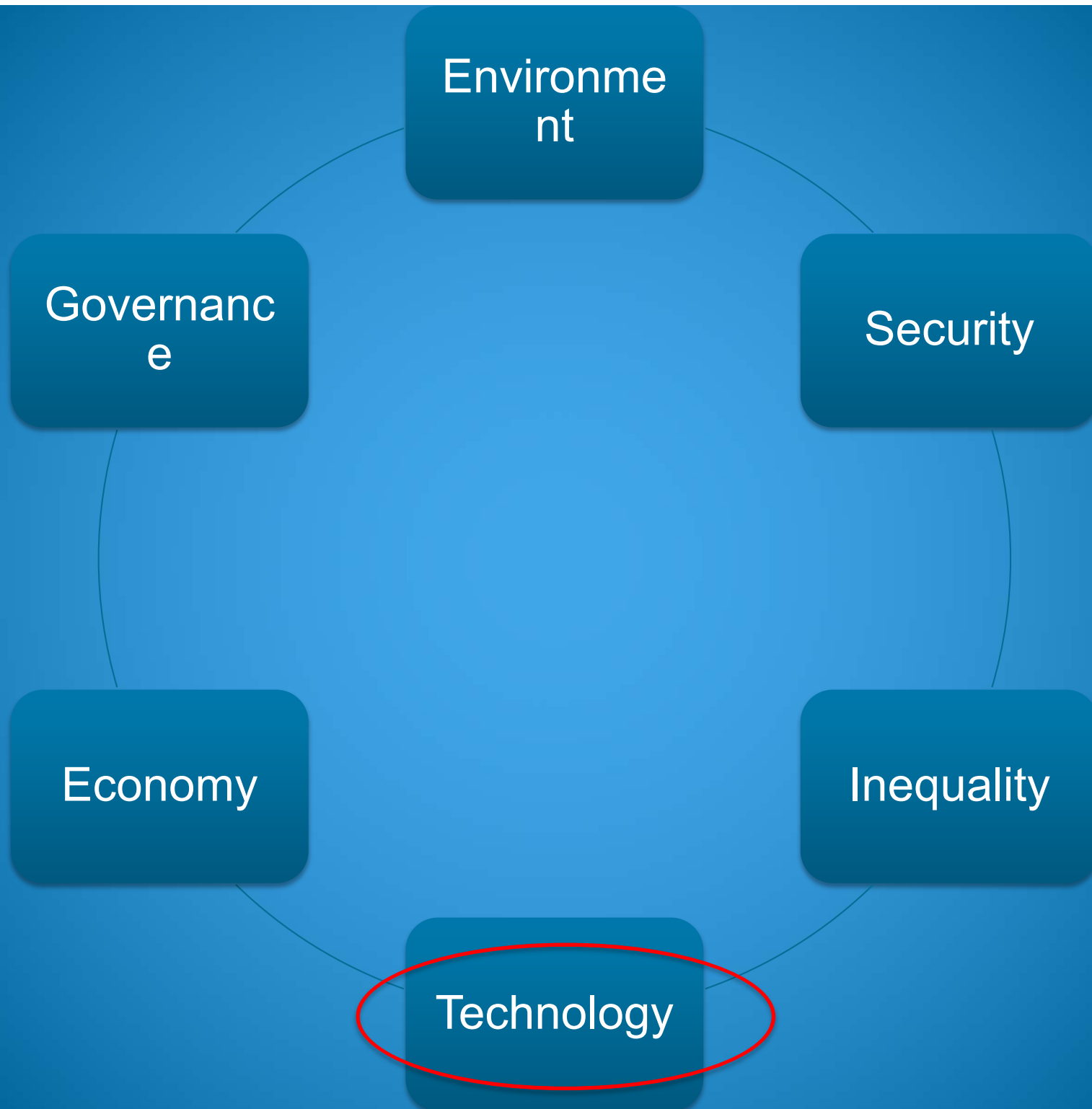


Inequality

Solutions by Rank

Rank	Solution	Sector	TOTAL ATMOSPHERIC CO2-EQ REDUCTION (GT)	NET COST (BILLIONS US \$)	SAVINGS (BILLIONS US \$)
1	Refrigerant Management	Materials	89.74	N/A	\$-902.77
2	Wind Turbines (Onshore)	Electricity Generation	84.60	\$1,225.37	\$7,425.00
3	Reduced Food Waste	Food	70.53	N/A	N/A
4	Plant-Rich Diet	Food	66.11	N/A	N/A
5	Tropical Forests	Land Use	61.23	N/A	N/A
★ 6	Educating Girls	Women and Girls	59.60	N/A	N/A
7	Family Planning	Women and Girls	59.60	N/A	N/A
8	Solar Farms	Electricity Generation	36.90	\$-80.60	\$5,023.84
9	Silvopasture	Food	31.19	\$41.59	\$699.37
10	Rooftop Solar	Electricity Generation	24.60	\$453.14	\$3,457.63

The Drawdown Project's list of 10 most promising solutions to reverse global warming. Image: [Drawdown Project](#)









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