



International Environmental Politics

Topic 1: Introduction

HS 2019

Prof. Dr. Thomas Bernauer



Please move up front, so that you can hear and see better, and we can have a better discussion!

To get this out of our way: admin and logistics

- **Slides and Reading Material**

- <http://www.ib.ethz.ch/teaching.html>
- Navigation: Overview, Course Materials, Registered students, please click here for course materials
- Use your Nethz login (contact Nicolas Solenthaler if you encounter problems: nicolas.solenthaler@gess.ethz.ch)
- Many interesting **books and journals** available at D-GESS Library, IFW building, Haldeneggsteig 4, and in D-USYS library in CHN building
- **Registration** in ETH mystudies system is compulsory for communication and for obtaining credits for the course. **Visiting students** are subject to the same conditions
- This course is offered by the ISTP: www.istp.ethz.ch

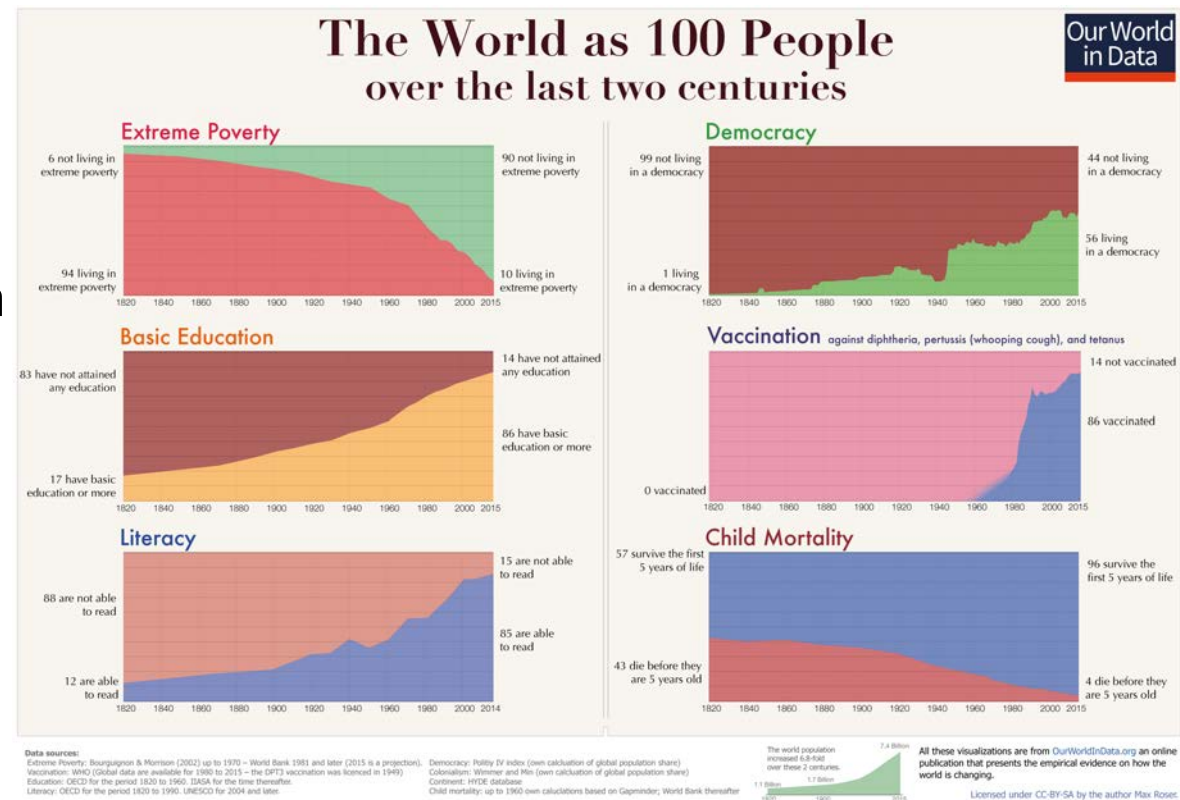
Let's start with human history

- History of time: around 14 bn years
- Genus homo: around 2.4 m years
- Homo sapiens: around 150'000 years
- Cognitive revolution: around 70'000 years ago
- Agricultural revolution: around 11'000 years ago
- Scientific revolution: around 500 years ago
- Industrial revolution: around 250 years ago
- Information/digital revolution: around 50 years ago
- Biotech revolution: around 30 years ago



Humanity is much better off today

“A recent survey asked “All things considered, do you think the world is getting better or worse, or neither getting better nor worse?”. In Sweden 10% thought things are getting better, in the US they were only 6%, and in Germany only 4%. Very few people think that the world is getting better. What is the evidence that we need to consider when answering this question? The question is about how the world has changed and so we must take a historical perspective.”



<https://www.forbes.com/sites/stevedenning/2017/11/30/why-the-world-is-getting-better-why-hardly-anyone-knows-it/#45fbe55f7826>

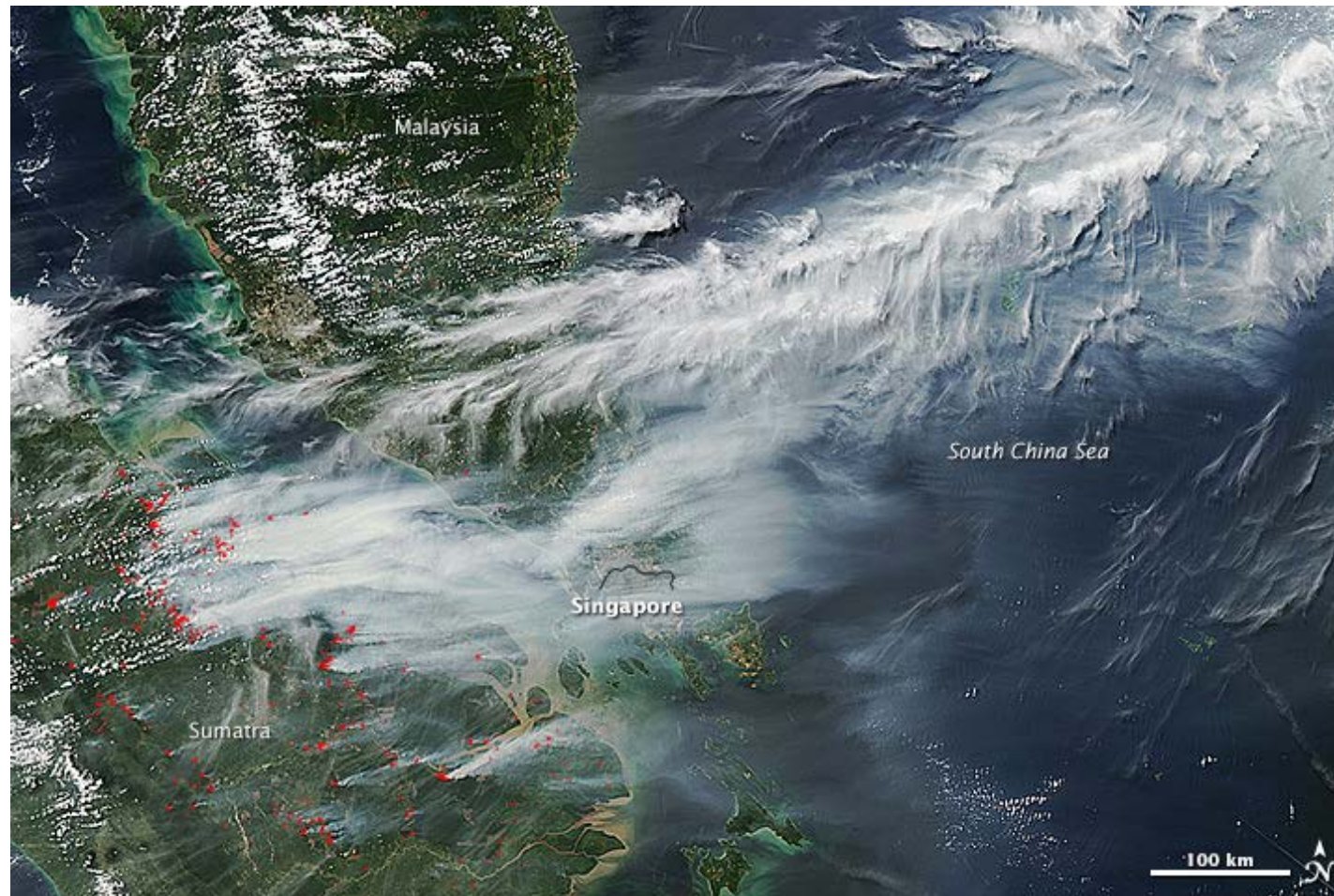
So why should we care about the environment?

- You tell me ...

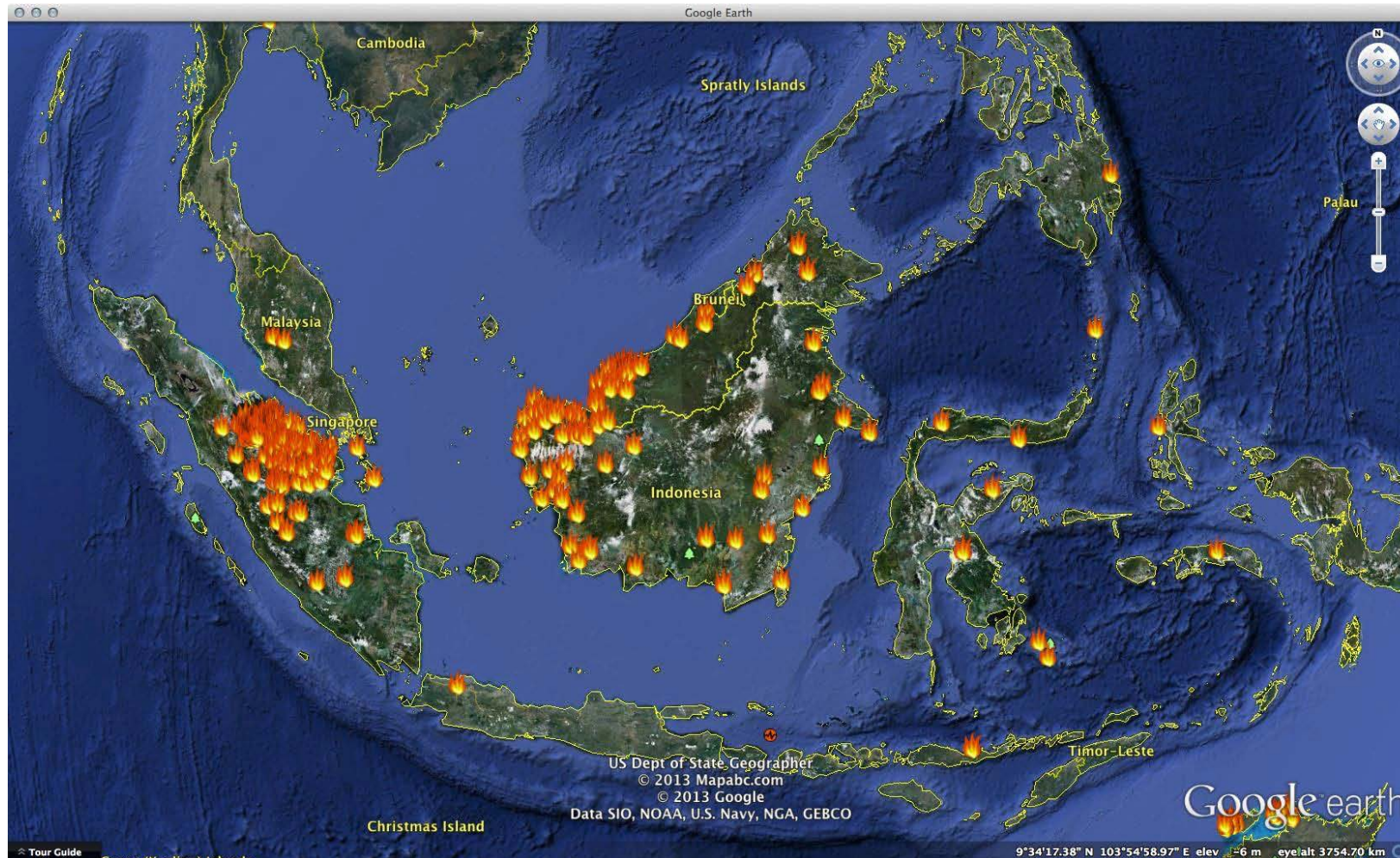
Examples of current transboundary environmental challenges

What is the main cause of smog in Singapore and how to deal with it?

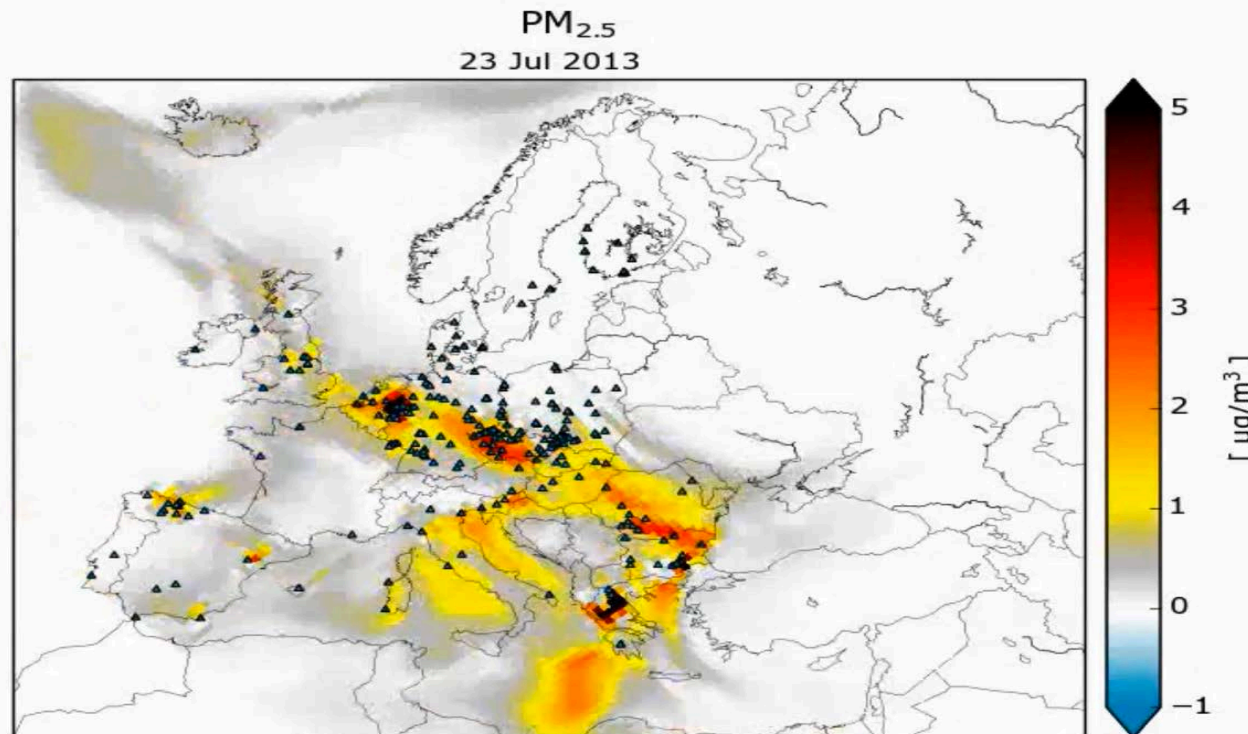




<http://urbanemissions.blogspot.com/2010/12/air-pollution-in-singapore.html>



Not just a problem in poor countries ...



Coal adds €62 billion a year to our health bill

https://www.env-health.org/IMG/pdf/heal_report_the_unpaid_health_bill_how_coal_power_plants_make_us_sick_final.pdf

What's the problem with rhinos, elephants, sharks, and rosewood?

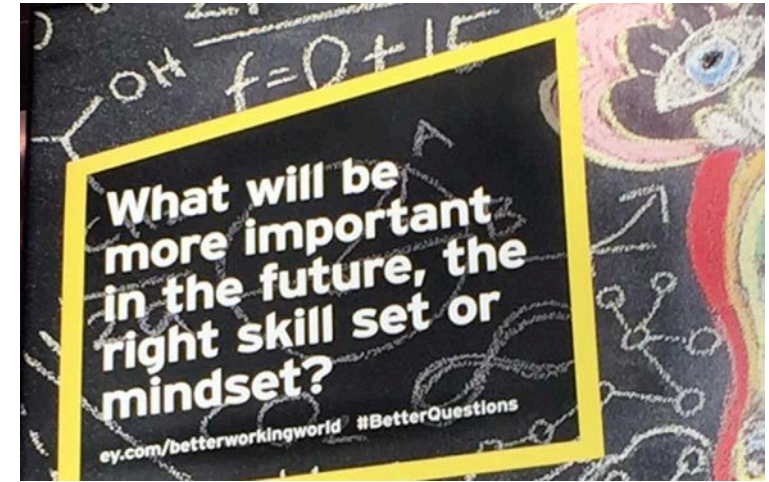


Agenda Today

- Aims of the course
- Content and rules of the game
- Ecological changes: from a „cowboy economy“ to a „spaceship economy“
- Political responses
- Political science research on international environmental politics (IEP)

Aims of this course

- Obtain an overview of relevant political science / political economy questions concerning international environmental politics/policy (IEP)
- Learn how to ask innovative questions about IEP and work out scientific responses
- Obtain an overview of key regional and global environmental problems
- The emphasis is on analytical concepts and tools rather than empirical comprehensiveness



Example: elephants and ivory

- Characterizing the problem: what is causing elephant populations in Southern Africa to decline?
- Designing solutions: what are governments, international organizations, and other stakeholders (e.g. civil society groups) doing to try and solve the problem?
- Ex post and ex ante assessment of problem solving effectiveness: are the solutions currently used effective? What could be done to address current limitations and increase the effectiveness of policy interventions. For instance:
 - Listing elephants in Annex I or II of the CITES agreement?
 - Closing down domestic ivory markets?

After warming up to the topic, a few words on the contents of the course and rules of the game

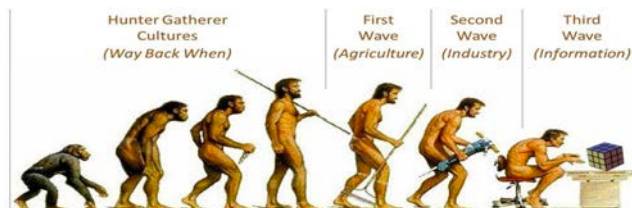
See Syllabus

Some Additional Points

- Cognitive Roadmap (see course materials, Topic 0)
- Podcast
- Sample test from previous year
- Mitchell text you read for today

From a „Cowboy Economy“ to a „Spaceship Economy“

- Population, energy, and resource consumption
- Adjusted Net Wavings
- Environmental Performance Index (<http://epi.yale.edu/>)
- Ecological Footprint Data (examples)
- Read: GEO and SOER summaries (mandatory reading, see website)



Population and energy

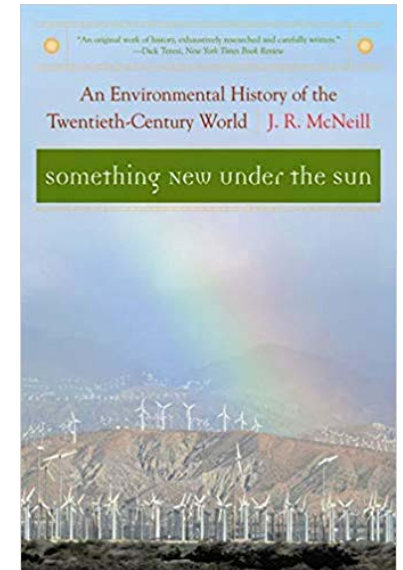
<i>Year</i>	<i>Population (billion)</i>	<i>Annual Growth Rate (%)</i>
1820	1	—
1850	1.2	0.5 (1820–1849)
1900	1.6	0.6 (1850–1899)
1950	2.5	0.8 (1900–1949)
1990	5.3	1.8 (1950–1989)
2000	6.0	1.5 (1990–1999)

Source: Cohen 1993:79 and app. 2.

TABLE 1.5 WORLD ENERGY USE, 1800–1990

	<i>1800</i>	<i>1900</i>	<i>2000</i>
Total (millions of metric tons of oil equivalent)	250	800	10,000
Indexed (1900 = 100)	31	100	1,250

Source: Elaborated from Smil 1994:187.



McNeill, Something New Under the Sun

...as we moved from our own muscles to animals to machines using fossil fuels and/or electricity

„Everything grows“

TABLE 12.1 THE MEASURE OF THE TWENTIETH CENTURY

<i>Item</i>	<i>Increase Factor, 1890s–1990s</i>
World population	4
Urban proportion of world population	3
Total world urban population	13
World economy	14
Industrial output	40
Energy use	13
Coal production	7
Air pollution	≈5
Carbon dioxide emissions	17

McNeill, Something New Under the Sun

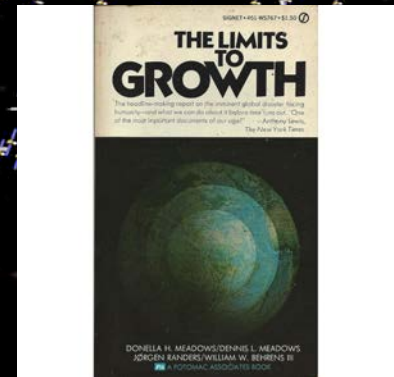
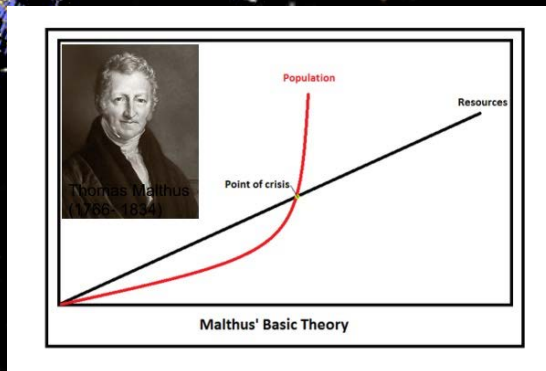
„Everything grows“, except natural resources...

Lead emissions to the atmosphere	≈8
Water use	9
Marine fish catch	35
Cattle population	4
Pig population	9
Horse population	1.1
Blue whale population (Southern Ocean only)	0.0025 (99.75% decrease)
Fin whale population	0.03 (97% decrease)
Bird and mammal species	0.99 (1% decrease)
Irrigated area	5
Forest area	0.8 (20% decrease)
Cropland	2

McNeill, Something New Under the Sun



Limits to growth and the “spaceship economy” problem



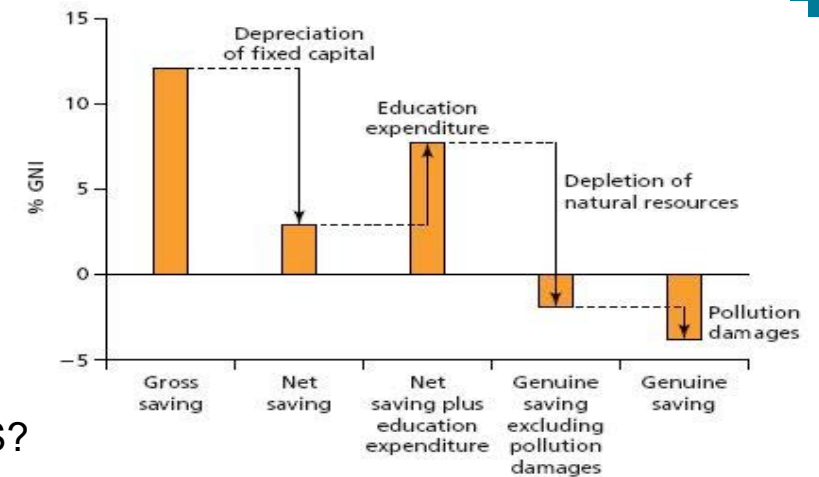
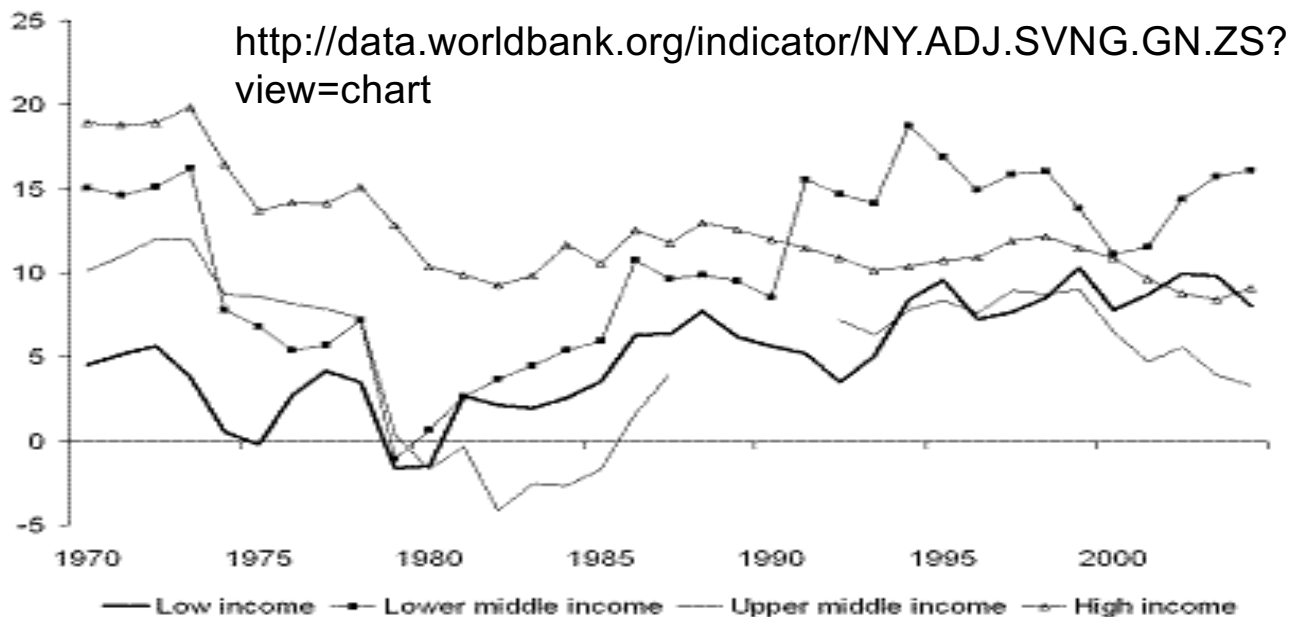
http://esamultimedia.esa.int/images/spacecraft-operations/space_debris/Bee-Hive-5_H1.jpg

How big is the environmental degradation problem? Some data

- For very nuanced global assessments, see
 - Global Environmental Outlook by the UNEP
 - Global Resources Outlook by the UNEP
 - The European Environment by the EEA
 - World Resources Report by the WRI
- For less nuanced, but highly aggregated, summary data, see
 - Adjusted net savings, ANS
 - Environmental Performance Index, EPI
 - Environmental Footprint

“Pure economics”: Adjusted Net Savings

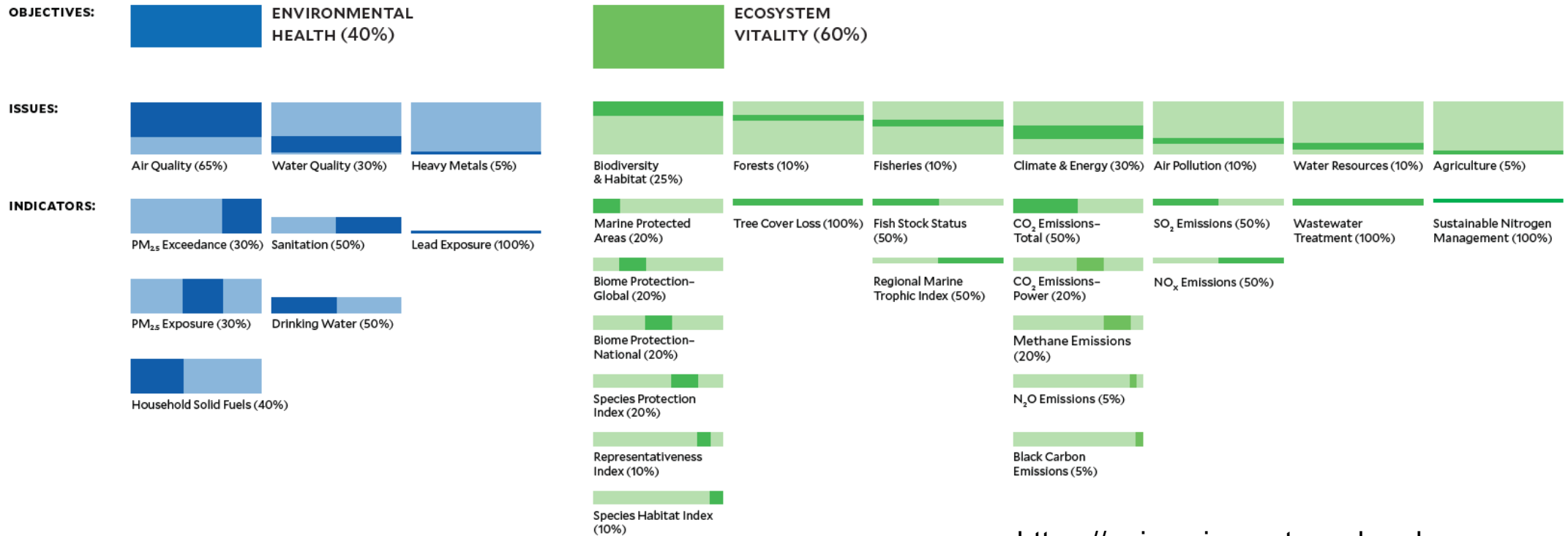
Rates of adjusted net savings in high-income countries are pushed upward by high investment, lack of dependence on natural resource depletion, and strong exports of high value-added goods and services. Countries with greater intensities of natural resource extraction, such as Australia, Canada, and the United States, had the lowest adjusted net savings rates, while continental Western Europe, Singapore and Hong Kong were the biggest savers, often exceeding 10 to 15 percent. Recent recessions in 1982-83 and 1990 coincided with downward turns in adjusted net savings rates, but the figures consistently exhibit an absence of the volatility and large rates of adjusted net dissaving seen in other regions.



Including human capital investment in adjusted net saving accentuates the differences between countries with strong and those with weak savings efforts. Without the effects of education spending, there is only a modest difference between recent average adjusted net savings rates among low- and middle-income countries, while the high-income countries exceed this level by around 5 percent. Weighing the effects of storing up human capital, however, changes the savings picture. Large investments in education by the most economically successful countries lead them to exceed the adjusted net savings rates of their counterparts in other income groups by around 8 percent in the same period. Investments in young people by middle-income countries were also noticeably larger than in low-income nations.

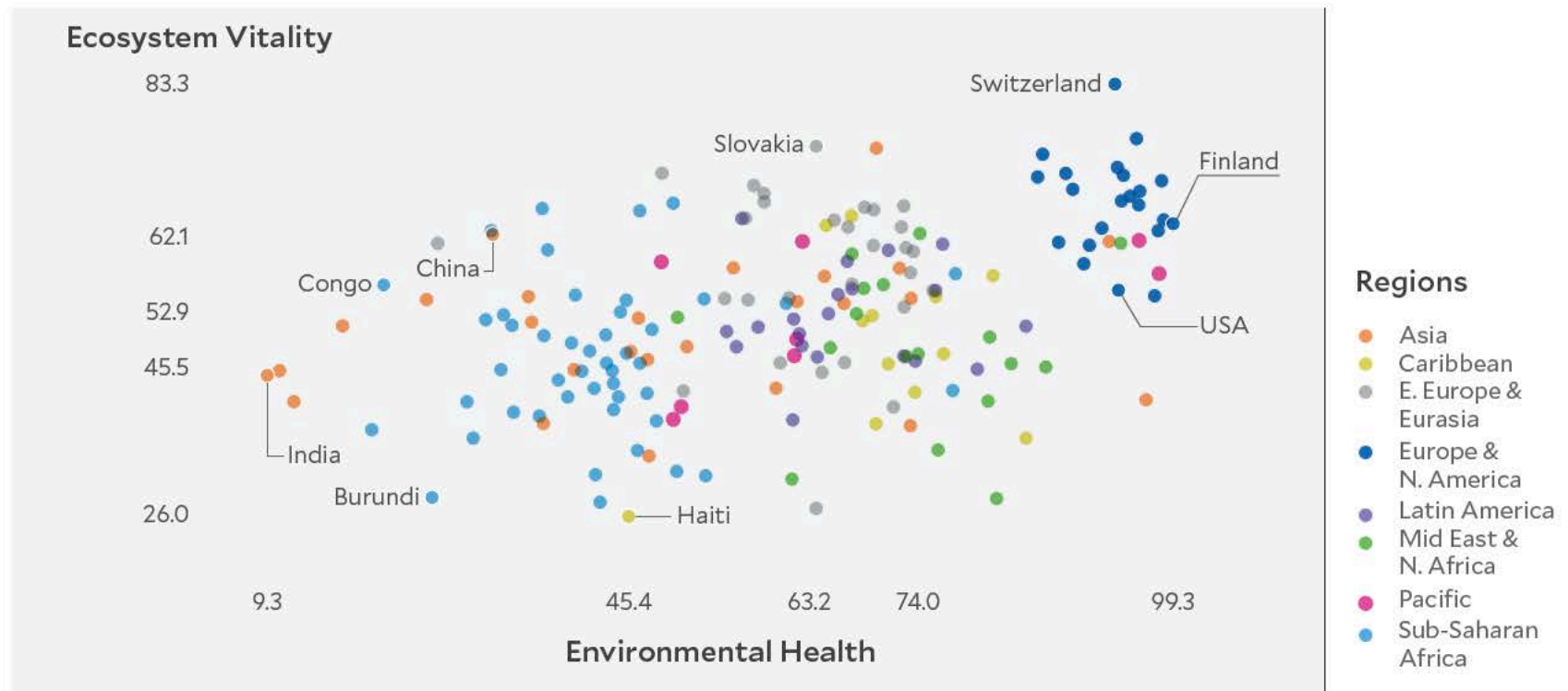
<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT>

Environmental Performance Index



<https://epi.envirocenter.yale.edu>

The relationship between sub-scores on the two policy objectives for all 180 countries in the 2018 EPI illustrate that Environmental Health and Ecosystem Vitality are distinct dimensions of environmental performance—which may be in some tension as economic growth creates resources to invest but adds to pollution burdens and habitat stress.



<https://epi.envirocenter.yale.edu>

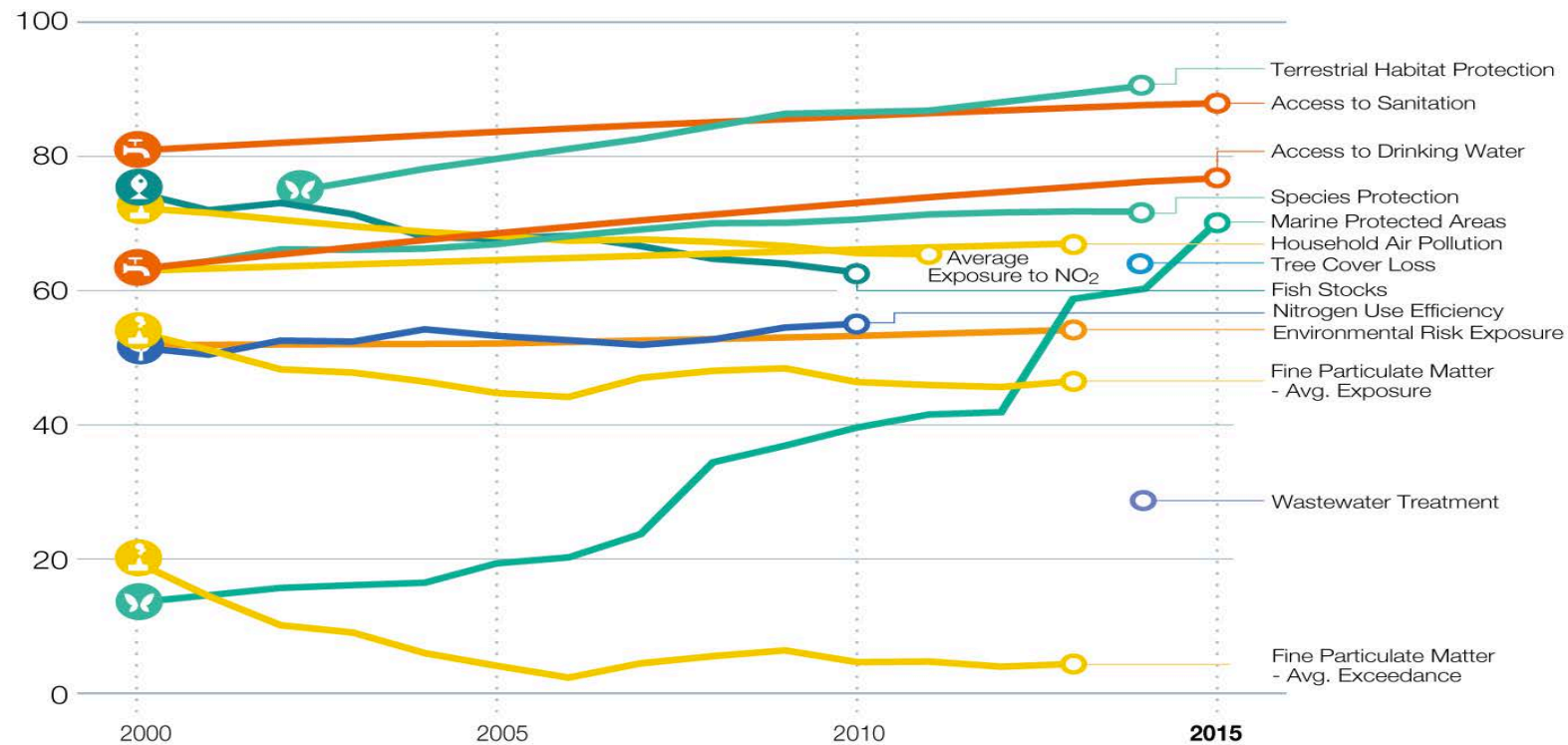
2018 EPI RANKINGS

RANK	COUNTRY	SCORE	REG
1	Switzerland	87.42	1
2	France	83.95	2
3	Denmark	81.60	3
4	Malta	80.90	4
5	Sweden	80.51	5
6	United Kingdom	79.89	6
7	Luxembourg	79.12	7
8	Austria	78.97	8
9	Ireland	78.77	9
10	Finland	78.64	10
11	Iceland	78.57	11
12	Spain	78.39	12
13	Germany	78.37	13
14	Norway	77.49	14
15	Belgium	77.38	15
16	Italy	76.96	16
17	New Zealand	75.96	1
18	Netherlands	75.46	17
19	Israel	75.01	1
20	Japan	74.69	1

160	Liberia	41.62	33
161	Cameroon	40.81	34
162	Swaziland	40.32	35
163	Djibouti	40.04	36
164	Papua New Guinea	39.35	21
165	Eritrea	39.34	37
166	Mauritania	39.24	38
167	Benin	38.17	39
168	Afghanistan	37.74	22
169	Pakistan	37.50	23
170	Angola	37.44	40
171	Central African Republic	36.42	41
172	Niger	35.74	42
173	Lesotho	33.78	43
174	Haiti	33.74	12
175	Madagascar	33.73	44
176	Nepal	31.44	24
177	India	30.57	25
178	Dem. Rep. Congo	30.41	45
179	Bangladesh	29.56	26
180	Burundi	27.43	46

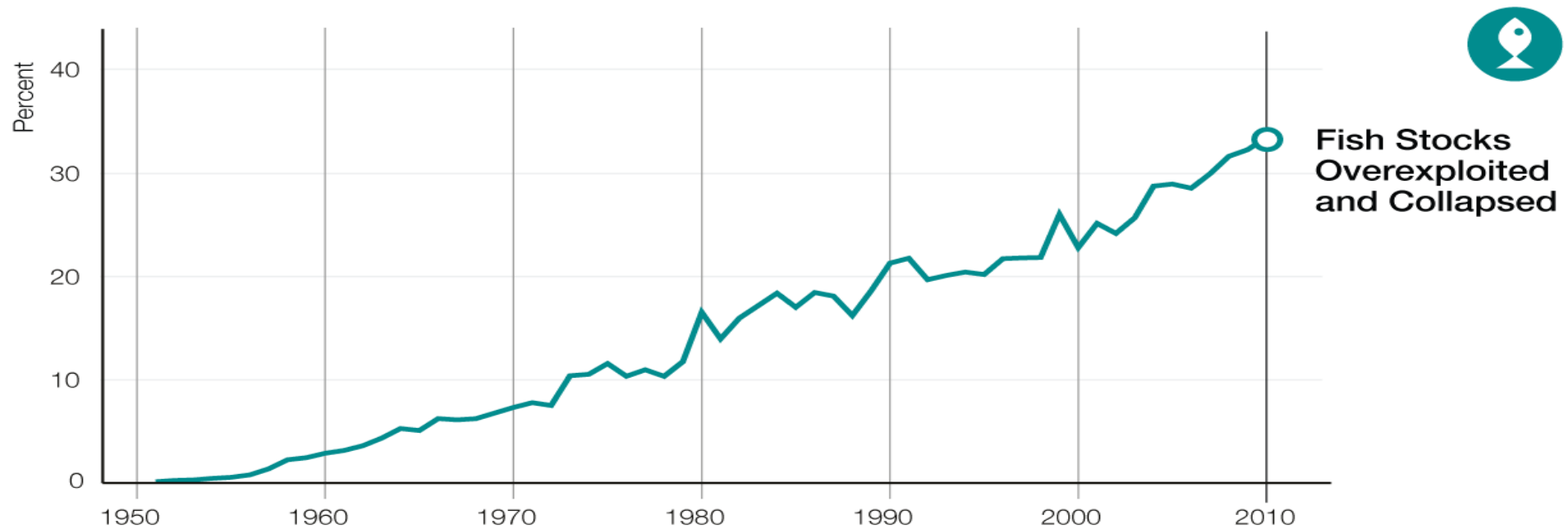
<https://epi.envirocenter.yale.edu>

Figure 1. Global indicators for EPI issue areas. Note: Some indicators, such as Tree Cover Loss, are expressed as trends that already encompass a time series. These indicators are represented by a dot instead of a line. *Data Source: 2016 EPI.*



<https://epi.envirocenter.yale.edu>

Figure 3: The percentage of global fish stocks that are overexploited or collapsed has increased over the last several decades, reaching its current peak at 34 percent. *Data source: Sea Around Us, 2015.*



<https://epi.envirocenter.yale.edu>

Limitations of the EPI

BOX 4. DATA GAPS AND DEFICIENCIES

The EPI is not a fully comprehensive picture of national and global environmental issues. The Index's goal is to provide a global assessment of environmental performance among nations, so we only gauge national environmental results on issues for which there are globally comparable data. After more than 15 years of work on environmental performance measurement and seven iterations of the EPI, global data remain incomplete for a number of key environmental issues.

Other issues:

- aggregation into one composite index
- changing composition of the index over time

These include:

Freshwater quality

Species Loss

Indoor air quality of residential, commercial buildings

Toxic chemical exposures

Municipal solid waste management

Nuclear safety

Wetlands loss

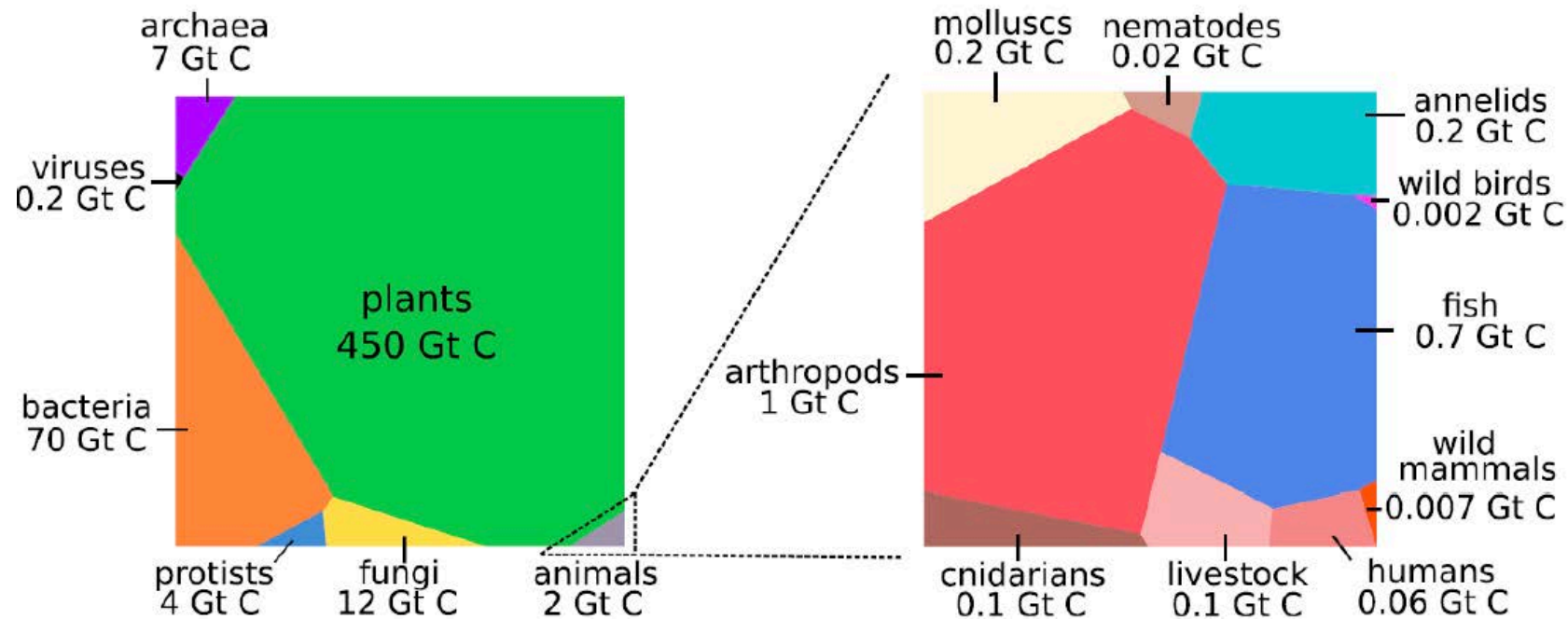
Agricultural soil quality and degradation

Recycling rates

Adaptation, vulnerability, and resiliency to climate change

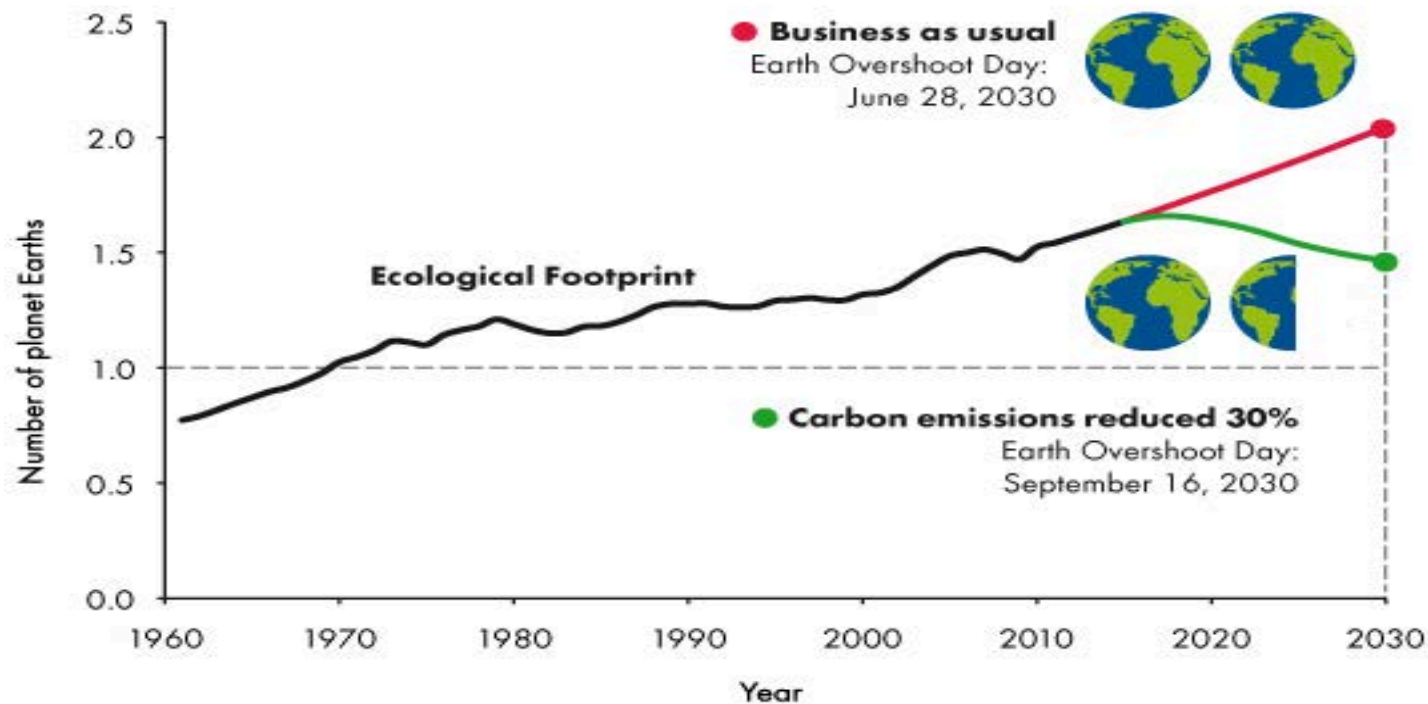
<https://epi.envirocenter.yale.edu>

Humanity's environmental footprint



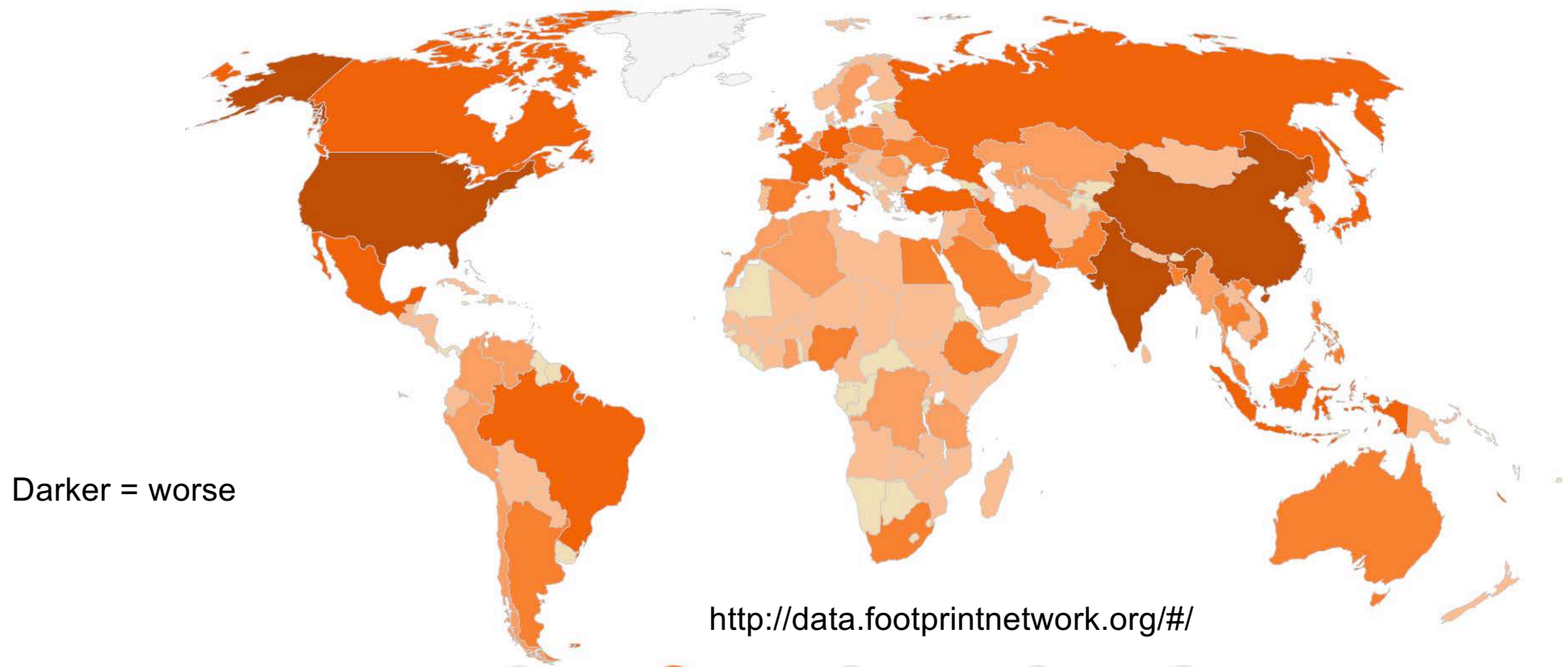
Humanity's environmental footprint

How many Earths does it take to support humanity?

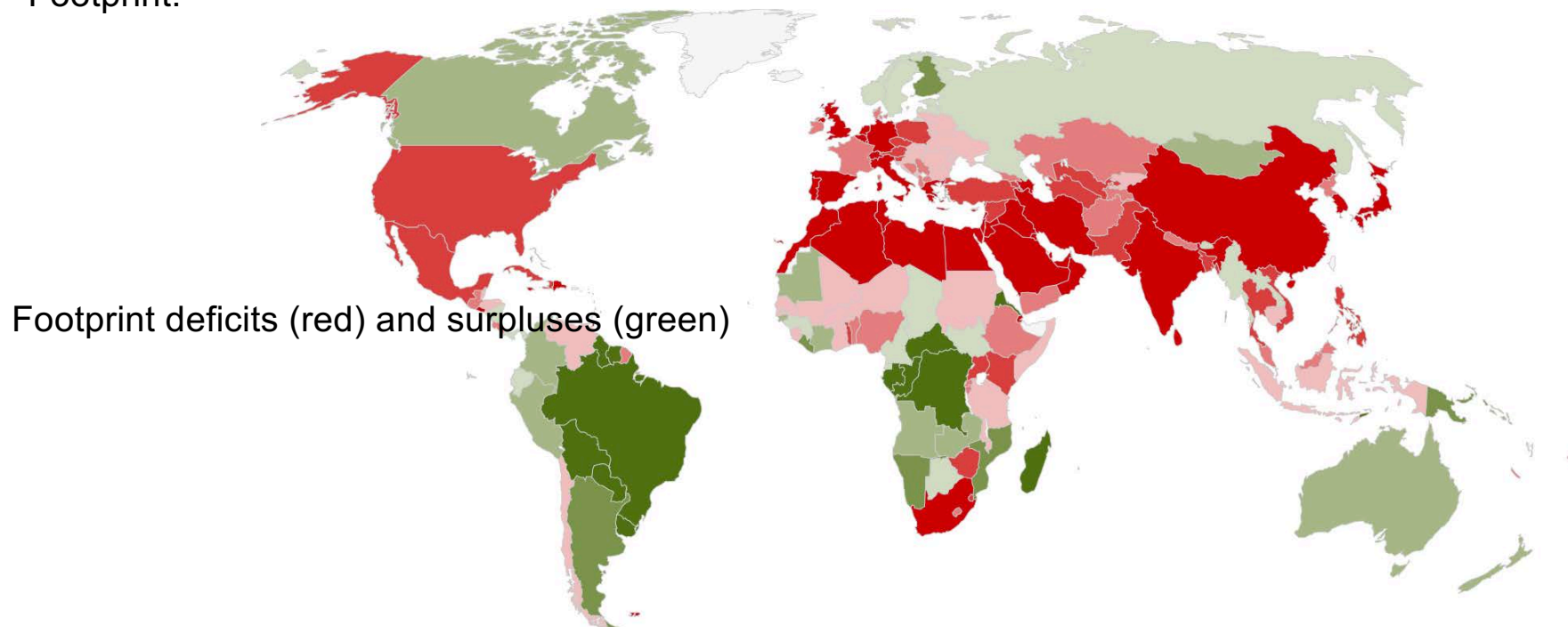


<http://www.footprintnetwork.org/en/index.php/GFN/>

Humanity's environmental footprint



ECOLOGICAL DEFICIT/RESERVE: An ecological deficit occurs when the Ecological Footprint of a population exceeds the biocapacity of the area available to that population. A national ecological deficit means that the nation is importing biocapacity through trade, liquidating national ecological assets or emitting carbon dioxide waste into the atmosphere. An ecological reserve exists when the biocapacity of a region exceeds its population's Ecological Footprint.

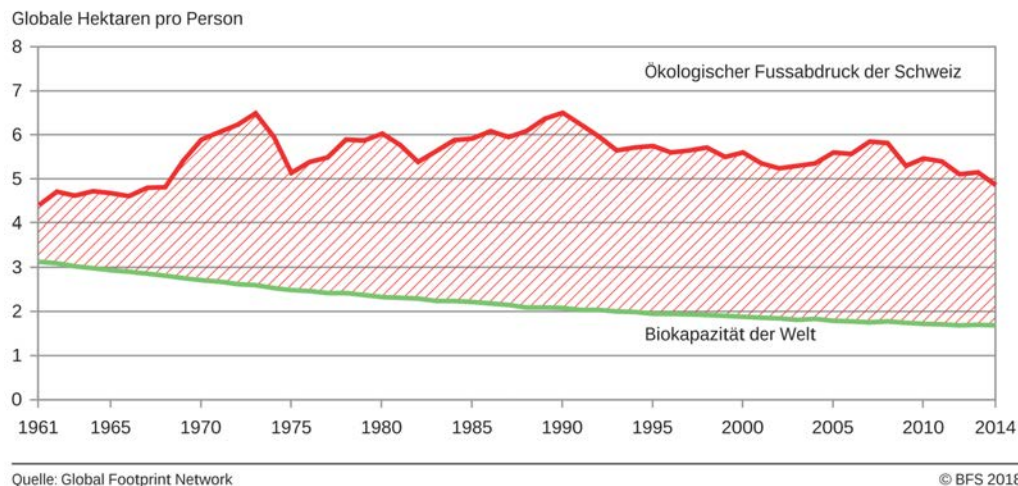


<http://data.footprintnetwork.org/#/>

Humanity's environmental footprint

This graph tracks the per-person Ecological Footprint and biocapacity in **Switzerland** since 1961. Both are measured in global hectares. Biocapacity per person varies each year with ecosystem management, agricultural practices (such as fertilizer use and irrigation), ecosystem degradation, weather, and population size. Footprint per person varies with consumption amounts and production efficiency. While most input data for the Footprint accounts come from UN statistical sources, the quality of country results varies. The quality of the assessment is scored on a 1-6 scale, and is provided for Switzerland in the lower-right corner of the graph.

Ökologischer Fussabdruck der Schweiz im Vergleich zur Biokapazität der Welt



<https://www.bfs.admin.ch/bfs/de/home/statistiken/nachhaltige-entwicklung/oekologischer-fussabdruck.html>

<http://www.footprintnetwork.org>

Political responses to **international** environmental problems

International problem solving efforts focus on international treaties and their implementation (just like national laws for specific policy problems). So here are a few examples...

Species and habitat protection (examples)

- Protocol on Biosafety (2000)
- Convention to Combat Desertification (1994)
- **International Tropical Timber Agreement (1994)**
- **Convention on Biological Diversity (1992)**
- Convention on the Conservation of Migratory Species of Wild Animals (1979)
- **Convention on International Trade in Endangered Species (CITES) (1973)**
- World Heritage Convention (1972)
- Convention on Wetlands of International Importance (RAMSAR) (1971)
- **Antarctic Treaty (1959)**
- Convention on Fishing and Conservation of the Living Resources of the High Seas (1958)
- International Plant Protection Convention (1951)
- Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere (1940)
- Convention on the Regulation of Whaling (1931, 1946)
- Convention on the Protection and Preservation of Fur Seals (1911)

Water (examples)

- Thousands of intl. agreements on river management (e.g., Rhine Action Program, 1987+)
- **UN Convention on the Law of the Sea (1982)**
- **MARPOL (1973+)**
- **Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (1972+)**
- Convention for the Prevention of Pollution of the Sea by Oil (1954+)
- Convention Concerning the Equitable Distribution of the Waters of the Rio Grande for Irrigation (1906)

Hazardous materials (examples)

- Convention on Prior Informed Consent for Hazardous Chemicals and Pesticides (1998+)
- Convention on the Transboundary Effects of Industrial Accidents (1992)
- **Convention on the Control of Transboundary Movements of Hazardous Wastes (1989++)**
- Convention on Early Notification of and Assistance in Case of a Nuclear Accident (1986)

Atmosphere (examples)

- **UN Framework Convention on Climate Change (1992+)**
- **Protocols on Heavy Metals and POPs (1998+)**
- **Convention for the Protection of the Ozone Layer (1985, plus subsequent Protocols)**
- **Convention on Long-Range Transboundary Air Pollution (1979, Protocols in 1985, 1988 ++)**
- **Moon and Outer Space Treaty (1967)**
- **Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space, and Under Water (1963)**

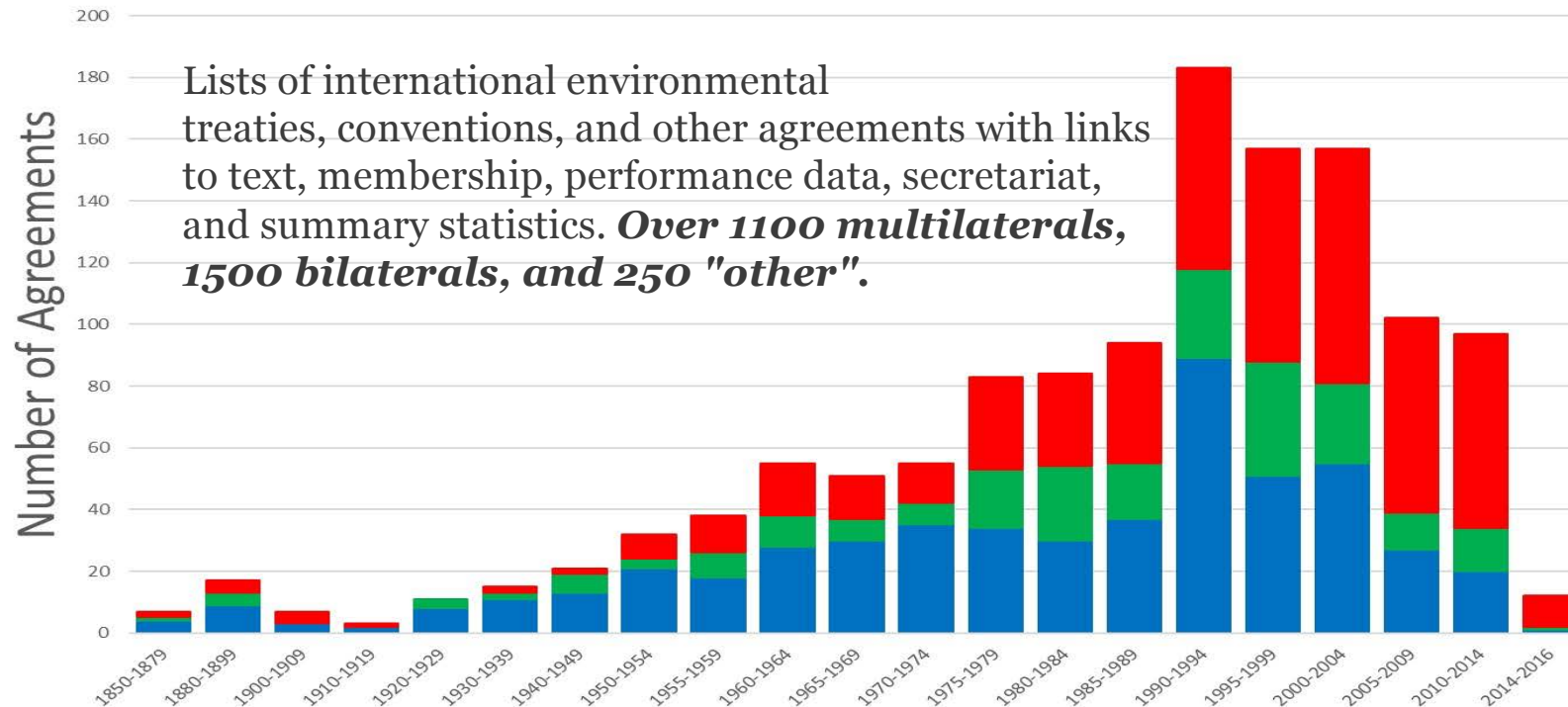
And many more

See:

**Ronald Mitchell, University of Oregon, International
Environmental Agreements Data, <http://iea.uoregon.edu/>**

Multilateral Environmental Agreements, 1850-2016

■ Treaties ■ Protocols ■ Amendments

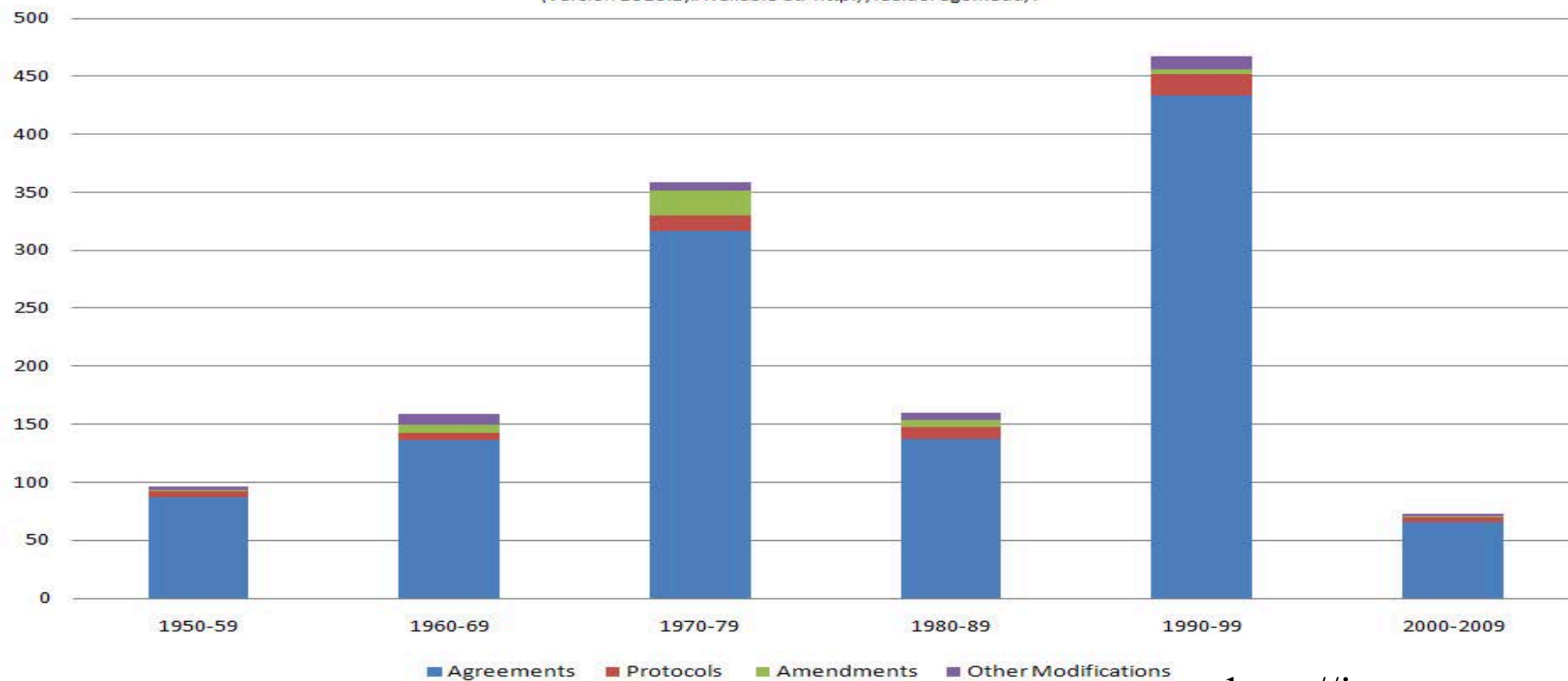


Source: Mitchell, Ronald B. 2017. International Environmental Agreements Database Project (Version 2017.1), Eugene, OR: University of Oregon. <http://iea.uoregon.edu/> Accessed May 8, 2017

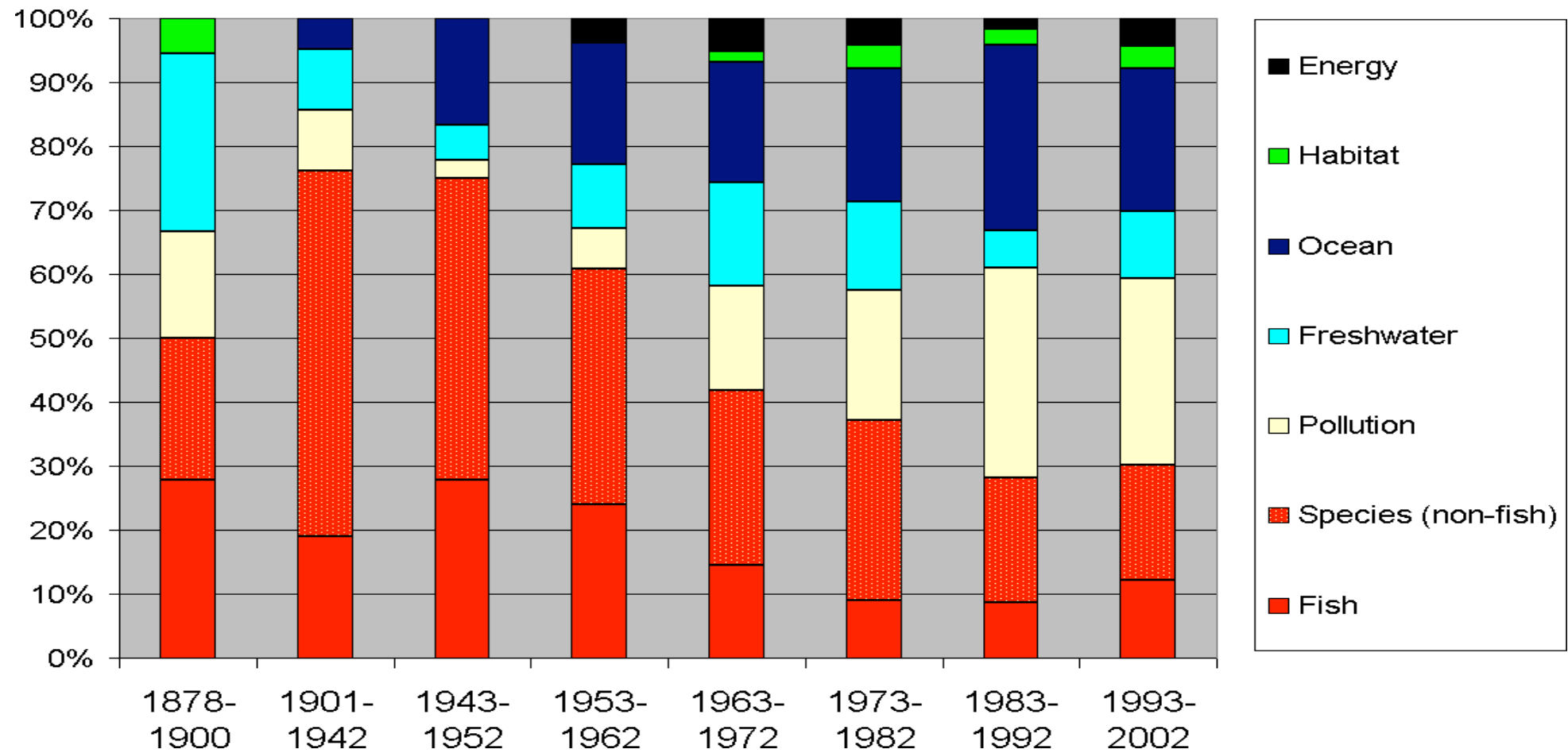
<http://iea.uoregon.edu/>

Bilateral Environmental Agreements

Source: Ronald B. Mitchell. 2002-2010. International Environmental Agreements Database Project (Version 2010.2). Available at: <http://iea.uoregon.edu/>.

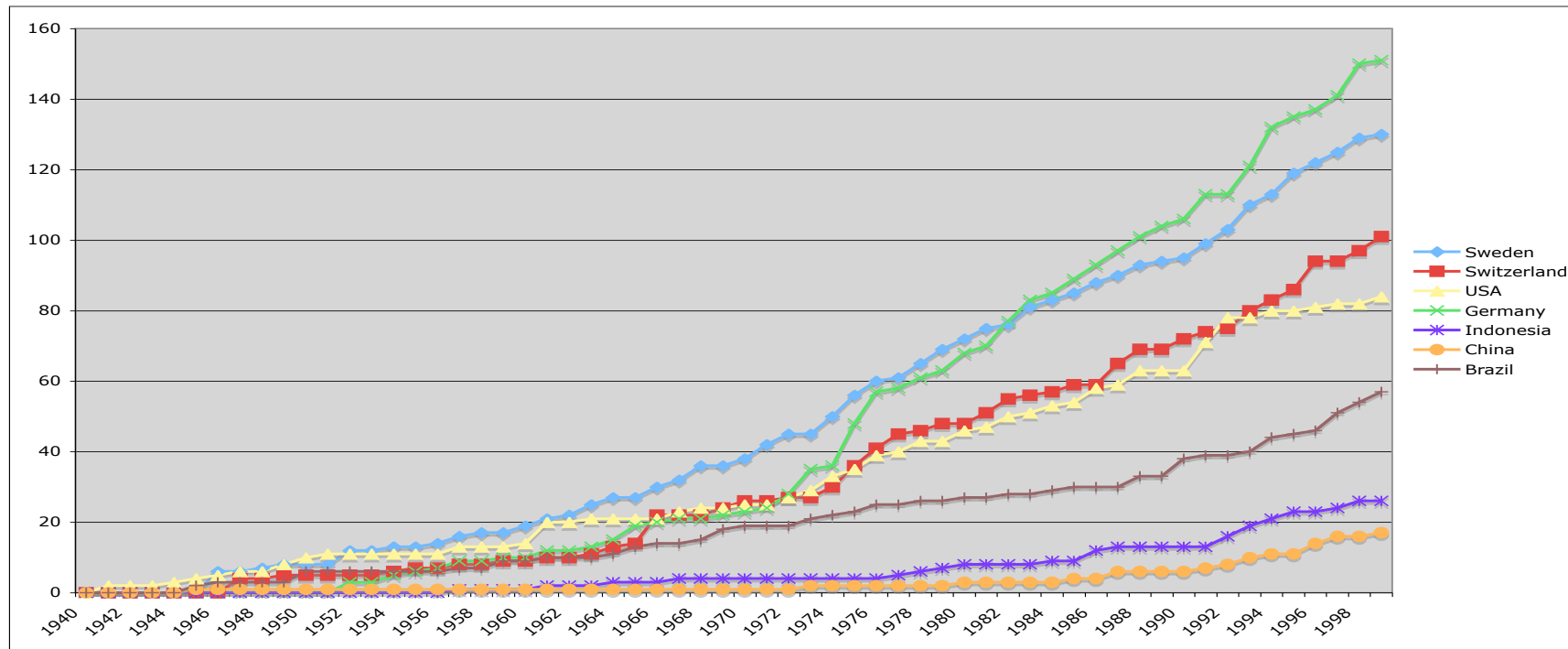


<http://iea.uoregon.edu/>



<http://iea.uoregon.edu/>

Global environmental treaty ratifications



Switzerland (as of 2010)

Actions taken on 496 Agreements including:

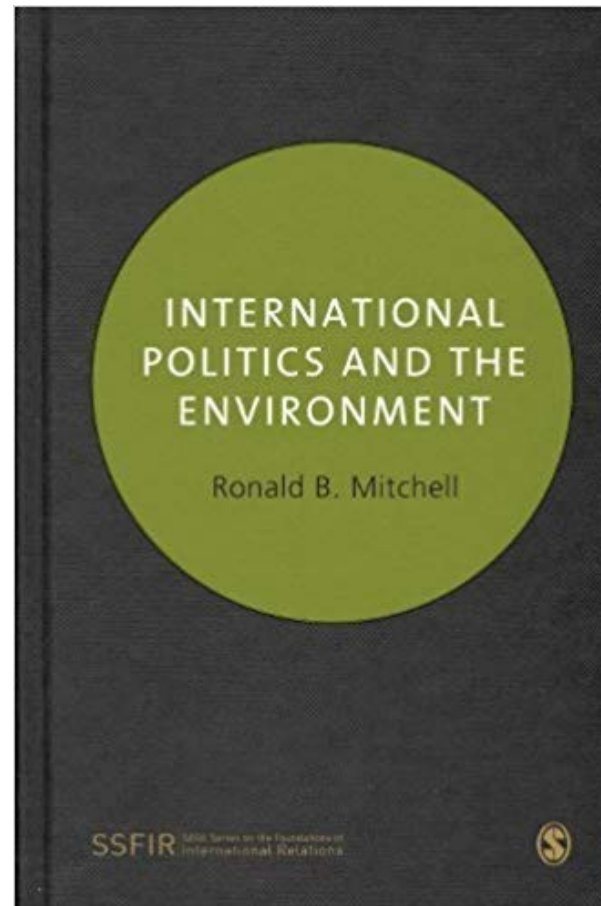
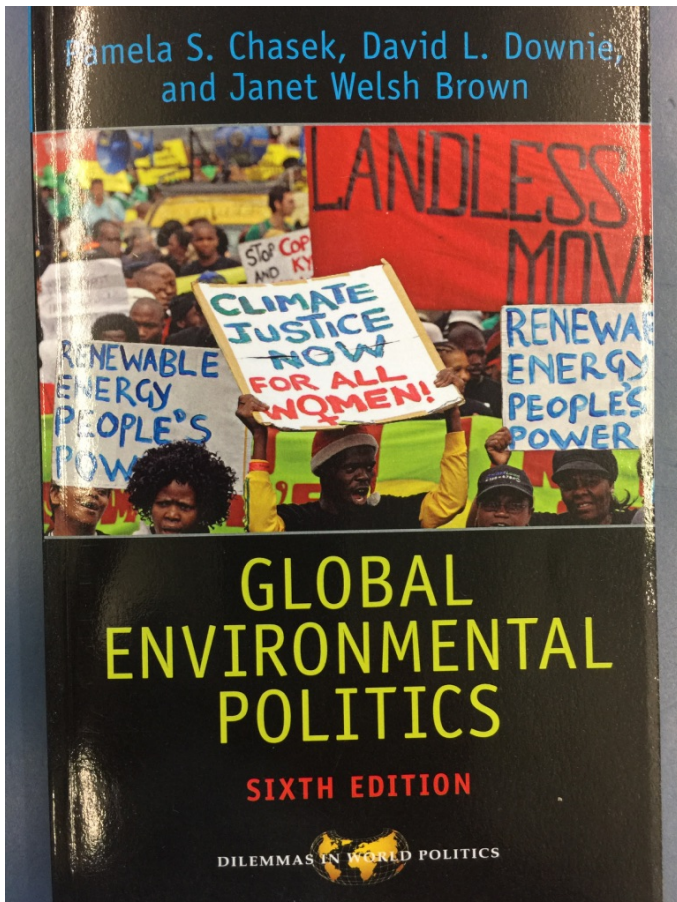
151 Signatures

150 Ratification, Accession, Succession, or Similar

440 Entry Into Forces

11 Withdrawal or Similar

To wrap up for today, some reading suggestions



**ARRIVEDERCI
E GRAZIE**