

Alternative indicators aiming at a more accurate measurement of living standard

Human Development Index (HDI)

Composite index created by the UNDP with the aim of assessing the rate of human development in a way **that includes not only income but also additional dimensions** (3) :

1. Life expectancy at birth
2. Level of knowledge (adult literacy and years of schooling)
3. Income level (GNI per capita converted at purchasing power parity exchange rate)

$$IDH = \left(I_{vie} \times I_{\text{éducation}} \times I_{\text{revenu}} \right)^{\frac{1}{3}}$$











(Ferro Luzzi et Weber, 2021, p. 15)

Human Development Index (HDI) Ranking

From the 2020 Human Development Report

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Search in table

	Rank	Country	HDI value (2019)	Life expectancy at birth (years) SDG3	Expected years of schooling (years) SDG 4.3	Mean years of schooling (years) SDG 4.6	Gross national income (GNI) per capita (PPP \$) SDG 8.5
	1	Norway	0.957	82.4	18.1	12.9	66,494
	2	Ireland	0.955	82.3	18.7	12.7	68,371
	2	Switzerland	0.955	83.8	16.3	13.4	69,394
	4	Hong Kong, China (SAR)	0.949	84.9	16.9	12.3	62,985
	4	Iceland	0.949	83.0	19.1	12.8	54,682
	6	Germany	0.947	81.3	17.0	14.2	55,314
	7	Sweden	0.945	82.8	19.5	12.5	54,508
	8	Australia	0.944	83.4	22.0	12.7	48,085
	8	Netherlands	0.944	82.3	18.5	12.4	57,707
	10	Denmark	0.940	80.9	18.9	12.6	58,662

Source: Human Development Report Office 2020. • Created with Datawrapper

<http://hdr.undp.org/>

Human Development Index (HDI) Ranking

From the 2020 Human Development Report

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	181	Mozambique	0.456	60.9	10.0	3.5	1,250
	182	Burkina Faso	0.452	61.6	9.3	1.6	2,133
	182	Sierra Leone	0.452	54.7	10.2	3.7	1,668
	184	Mali	0.434	59.3	7.5	2.4	2,269
	185	Burundi	0.433	61.6	11.1	3.3	754
	185	South Sudan	0.433	57.9	5.3	4.8	2,003
	187	Chad	0.398	54.2	7.3	2.5	1,555
	188	Central African Republic	0.397	53.3	7.6	4.3	993
	189	Niger	0.394	62.4	6.5	2.1	1,201

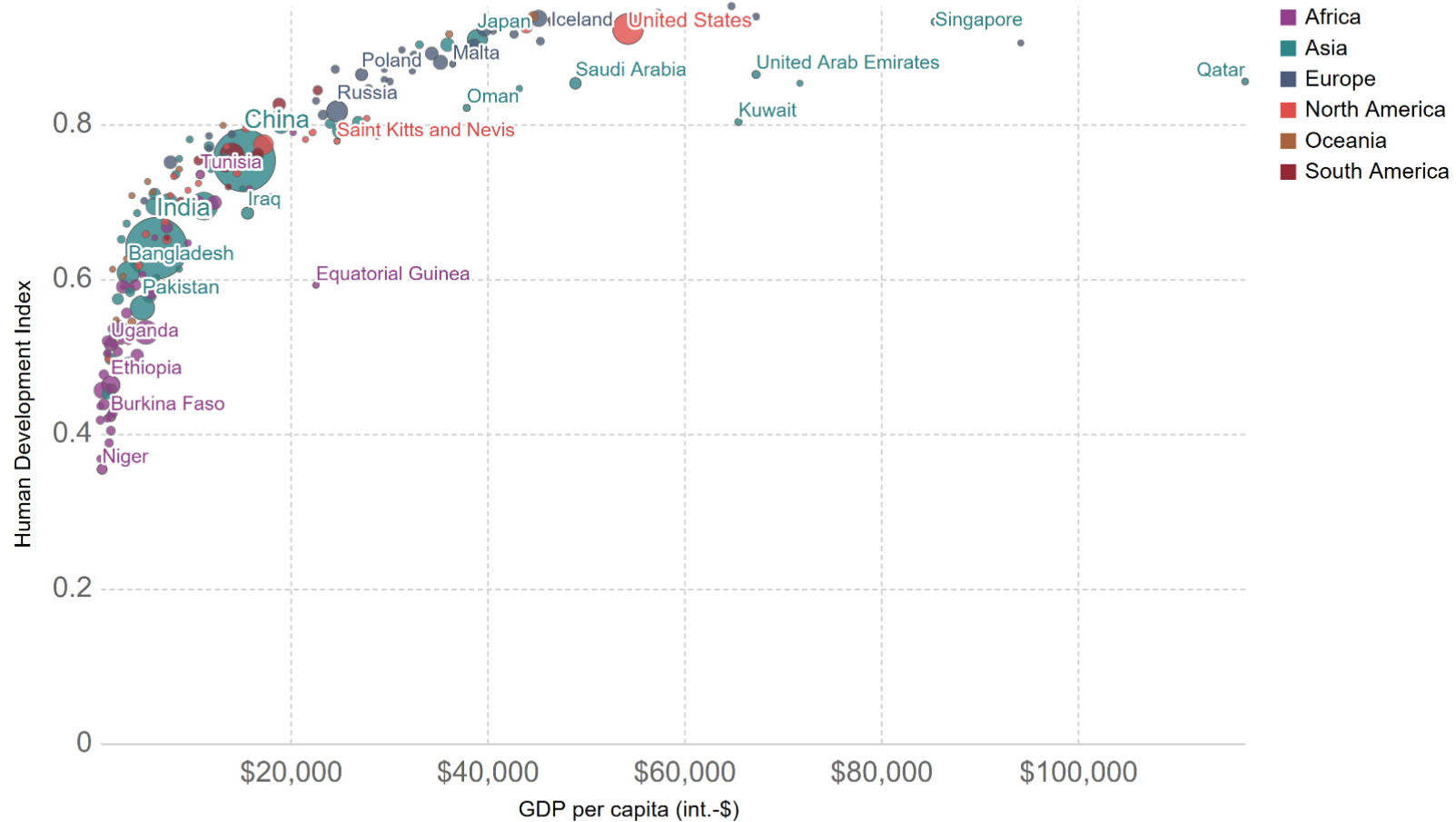
Source: Human Development Report Office 2020. • Created with Datawrapper

HDI: Main Critics

1. Nothing about the environment
2. Life expectancy does not necessarily mean *a healthy* life expectancy
3. Almost identical to the GDP/capita measure because the dimensions chosen are too influenced or correlated by GDP

Human Development Index vs. GDP per capita, 2017

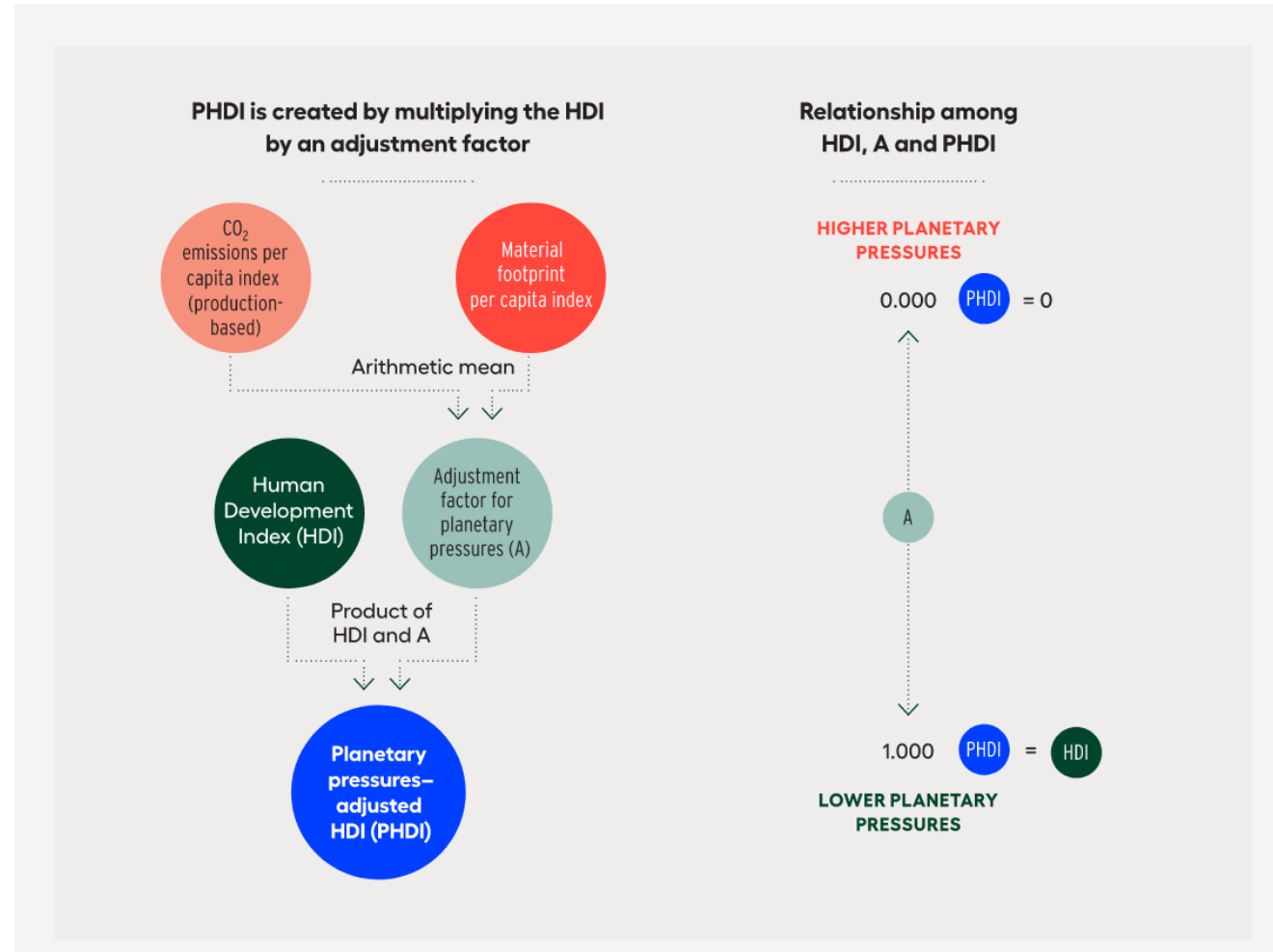
GDP per capita is measured in constant international-\$. This means it is adjusted for price differences between countries and adjusted for inflation to allow comparisons between countries and over time.



Source: UNDP (2018), World Bank, Our World In Data

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2020 Planetary pressures-adjusted Human Development Index (PHDI) is an experimental index



Green Gross Domestic Product (GGDP)

Adjustment of GDP/NR to take into account (over) exploitation of natural resources and pollution (natural capital depreciation)

Issue of quantifying things - **What is the value of the pollution generated ??**



Gross National Happiness (GNH)

Gross National Happiness (GNH) is an index developed by the government of **Bhutan** (and written into its Constitution in 2008), who wished to measure living standards in more comprehensive terms than GDP or GNP. Provides an overview on 9 dimensions:

1. **Psychological well-being**
2. **Use of time**
3. **Community vitality**
4. **Cultural diversity**
5. **Ecological resilience**
6. **Standard of living**
7. **Health**
8. **Education**
9. **Good governance**



The Easterlin Paradox

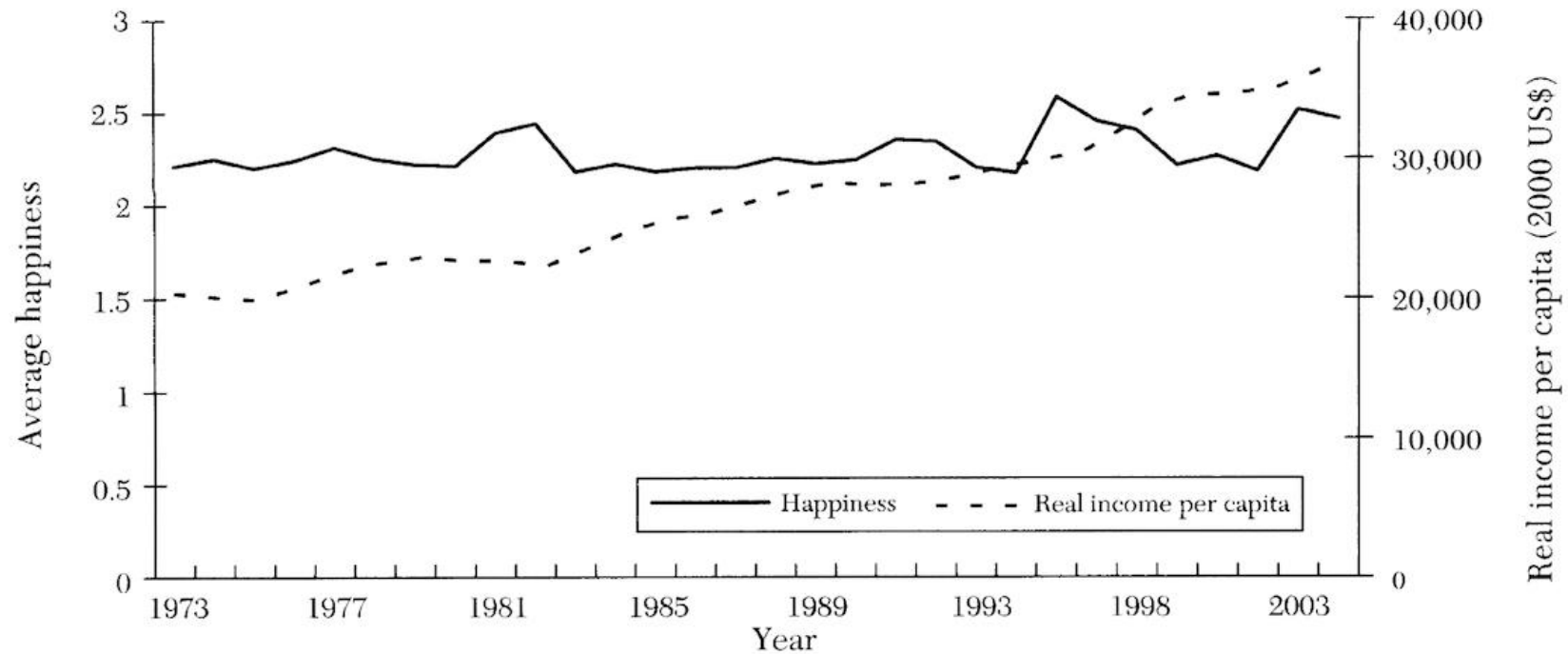
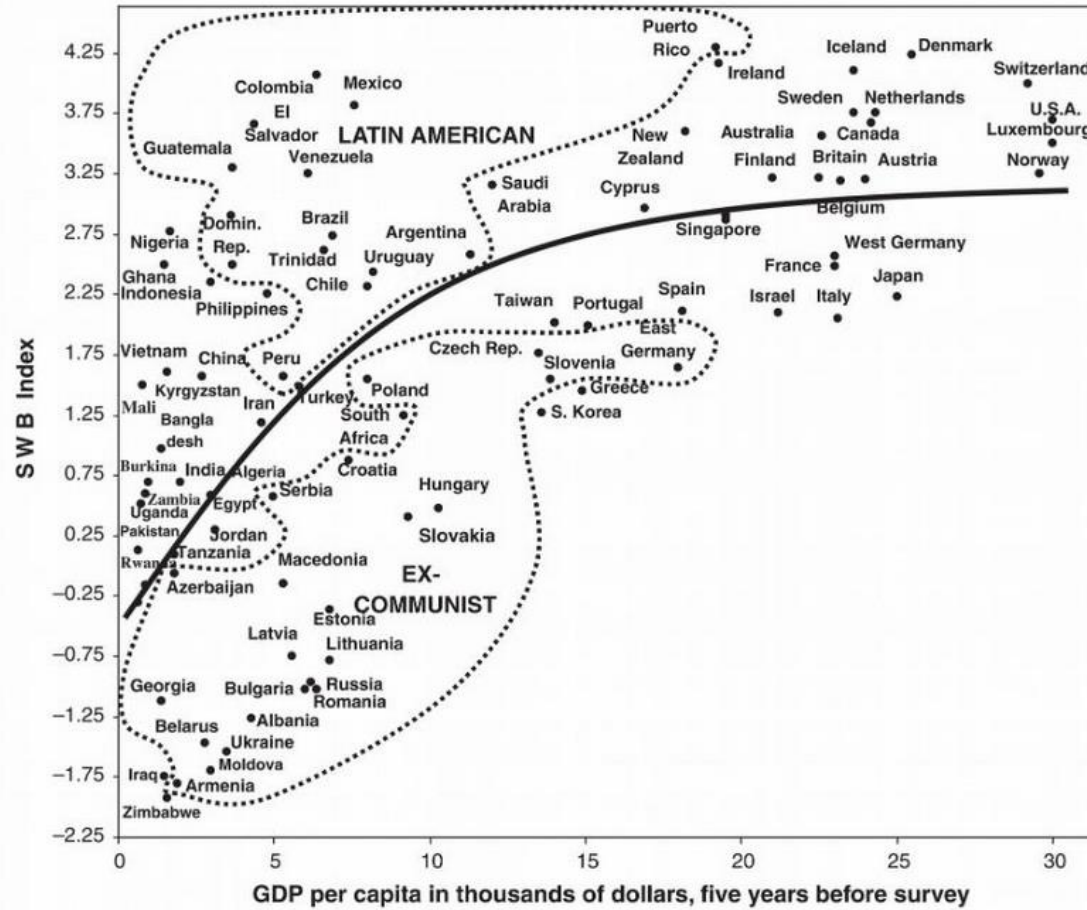


Figure 1. Happiness and Real Income Per Capita in the United States, 1973–2004

Source: World Database of Happiness and Penn World Tables. Happiness is the average reply to the following question: “Taken all together, how would you say things are these days? Would you say that you are...?” The responses are coded as (3) Very Happy, (2) Pretty Happy, and (1) Not too Happy. Happiness data are drawn from the General Social Survey.

Happiness and GDP per capita



Source : Inglehart et al. (2008).

GNH : Main Critics

1. Measurement → self-report
2. Results → Bhutan ranked 95th on 156 *World Happiness Report 2019*

Results are not yet at the level hoped, and we can legitimately question the relevance and feasibility of such an objective.

Measurement systems and indicators of sustainable development / well-being

UN SDGs

169 indicators to monitor the achievement of the SDGs

Limitations:

1. Data Collection - quality of data sources
2. High number of indicators
3. No hierarchy among them
4. No notion of monetary or financial stability

Monitoring at the global level:

<https://datatopics.worldbank.org/sdgatlas/>



A New York, la Commission statistique de l'ONU adopte des indicateurs de mesure du développement durable

15 Mar 2016 | [Actualités](#),
[Développement durable](#)

11 mars 2016 – A l'issue de sa 47ème session, [...]

UN SDGs - French Development Agency Video (10'24")



<https://www.youtube.com/watch?v=r5tb0hYMd9c>

Note : Video in French, Subtitles can be set in English

CH: MONET 2030 indicator system

- **Since 2003**, Switzerland has had a monitoring system for sustainable development **MONET** (*Monitoring der nachhaltigen Entwicklung*)
- Enables to determine to which extent Switzerland is progressing towards SD in relation to 3 qualitative objectives: social solidarity, economic efficiency and ecological responsibility
- Has been extended to take into account the SDGs and its targets in the Swiss context.
- Composed of more than **100 indicators** covering the environmental, social and economical **dimensions**, the system is structured according to the 17 SDGs.

www.monet2030.admin.ch





CH: MONET 2030 Indicator System

No measured targets in absolute terms, but indication of trends and directions of development



Period shown



Assessment

-  Positive
-  Unchanged
-  Negative
-  No assessment

Targeted trend

-  Decrease
-  Stabilisation
-  Increase

MONET Indicators

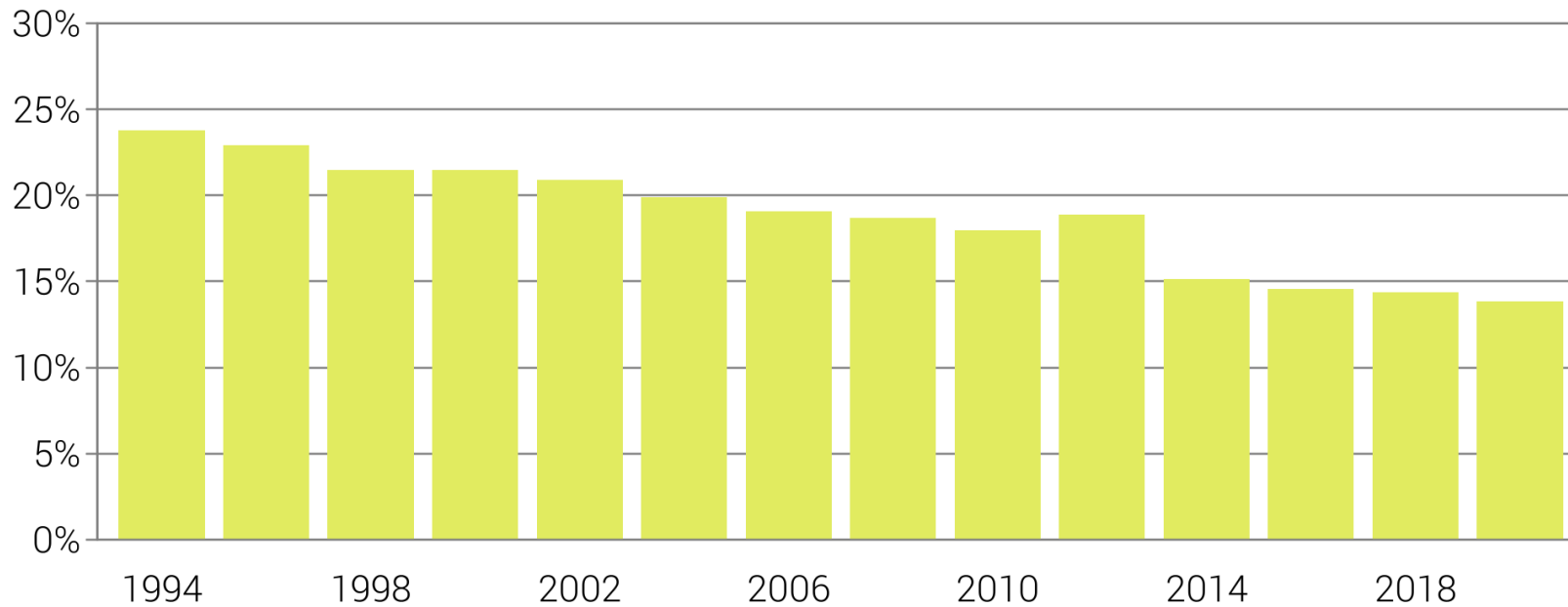
Set ▾	Indicator ▾	▾	▾	▾	▾
1 No poverty	Poverty rate	↙	↗	■	🌐
1 No poverty	Total social security expenditure		↗	■	🌐
1 No poverty	Fatalities caused by natural events	↙		■	🌐
2 Zero hunger	Fruit and vegetables consumption	↘		■	🌐
2 Zero hunger	Nitrogen balance from agriculture	↙	↘	■	🌐
2 Zero hunger	Plant genetic resources for food and agriculture	↘	→	■	🌐
2 Zero hunger	Greenhouse gas emissions from agriculture	↙	↘	■	🌐
2 Zero hunger	Export contributions	↙	↗	■	🌐
2 Zero hunger	Arable land	↘	↘	■	
3 Good health and well-being	Measles immunisation coverage	↙	↗	■	🌐
3 Good health and well-being	Years of potential life lost	↙	↘	■	🌐
3 Good health and well-being	Suicide rate	↙	↘	■	🌐

3 Good health and well-being	Particulate matter concentrations	↙	↘	■	🌐
3 Good health and well-being	Smoking rate	↙	↘	■	🌐
3 Good health and well-being	Life satisfaction	↘	→	■	
3 Good health and well-being	Overweight	↙	↗	■	
4 Quality education	Reading skills of 15-year-olds	↘	↗	■	🌐
4 Quality education	Teaching staff at higher education institutions	↘	→	■	🌐
4 Quality education	First diploma rate at upper secondary level	↘		■	🌐
4 Quality education	Participation in continuing education	↘		■	🌐
4 Quality education	Digital competencies	↘		■	
5 Gender equality	Wage gap between women and men	↙	↘	■	🌐
5 Gender equality	Domestic violence	↙		■	🌐
5 Gender equality	Time spent on professional activity and on domestic work	↙	↘	■	🌐



Wage gap between women and men

Wage gap¹ between women and men as a percentage of men's monthly gross wage, private sector



Close to
less than
15%

¹ compared to the median wage

Source: FSO – Swiss Earnings Structure Survey (ESS)

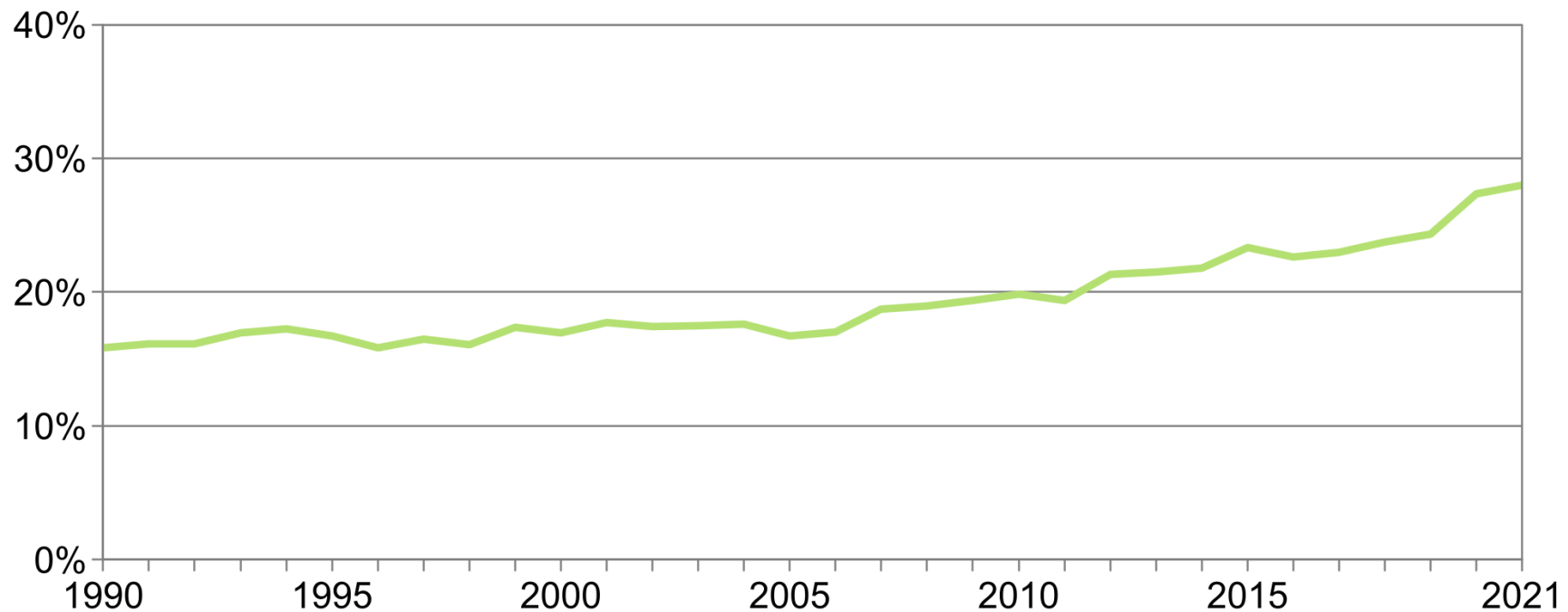
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<https://www.bfs.admin.ch/bfs/en/home/statistics/sustainable-development/monet-2030/all-indicators/5-egalite-sexes/wage-gap-women-men.assetdetail.14711643.html>



Renewable energies

In relation to final energy consumption



Just over
25%

Source: SFOE – Swiss renewable energy statistics

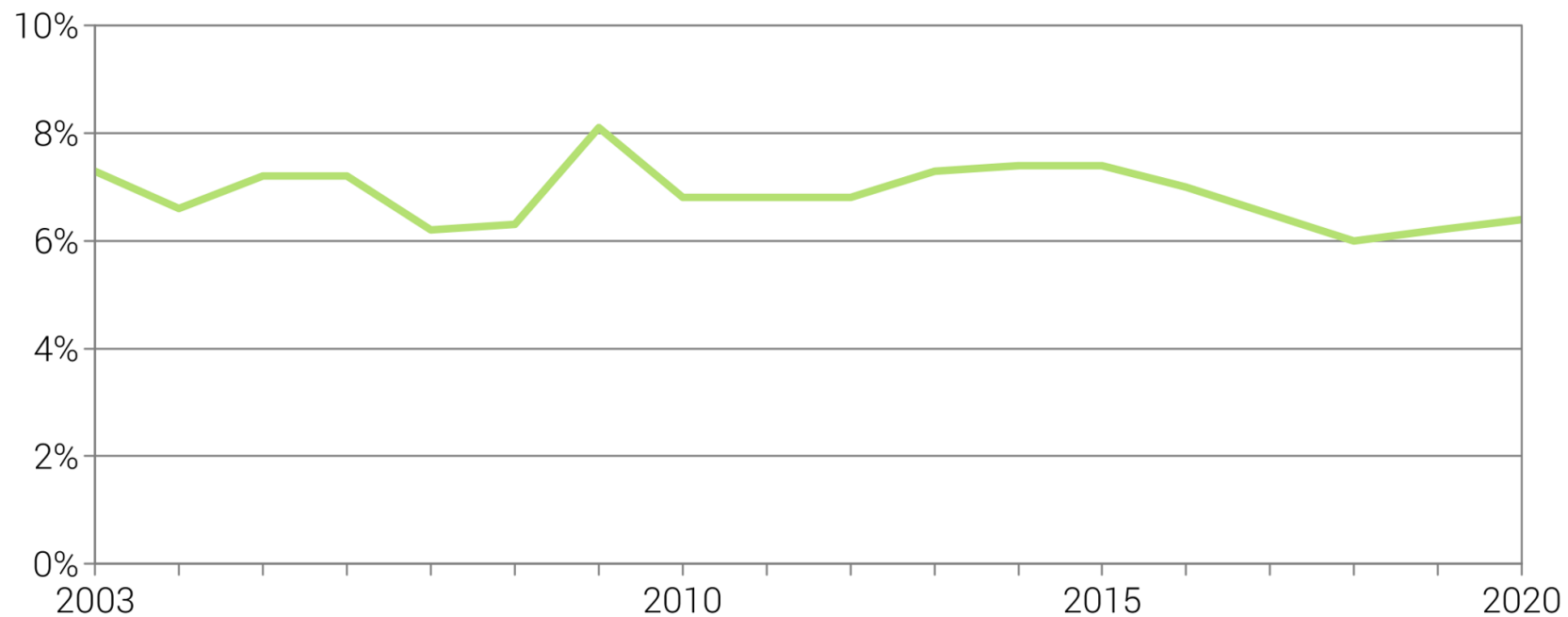
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<https://www.bfs.admin.ch/bfs/en/home/statistics/sustainable-development/monet-2030/all-indicators/7-energie/renewable-energies.assetdetail.14711314.html>



NEET: Young people neither in employment nor in training

Percentage of not employed young people aged 15 to 24 who are not in education or training



Nearly
6%



Source: Eurostat

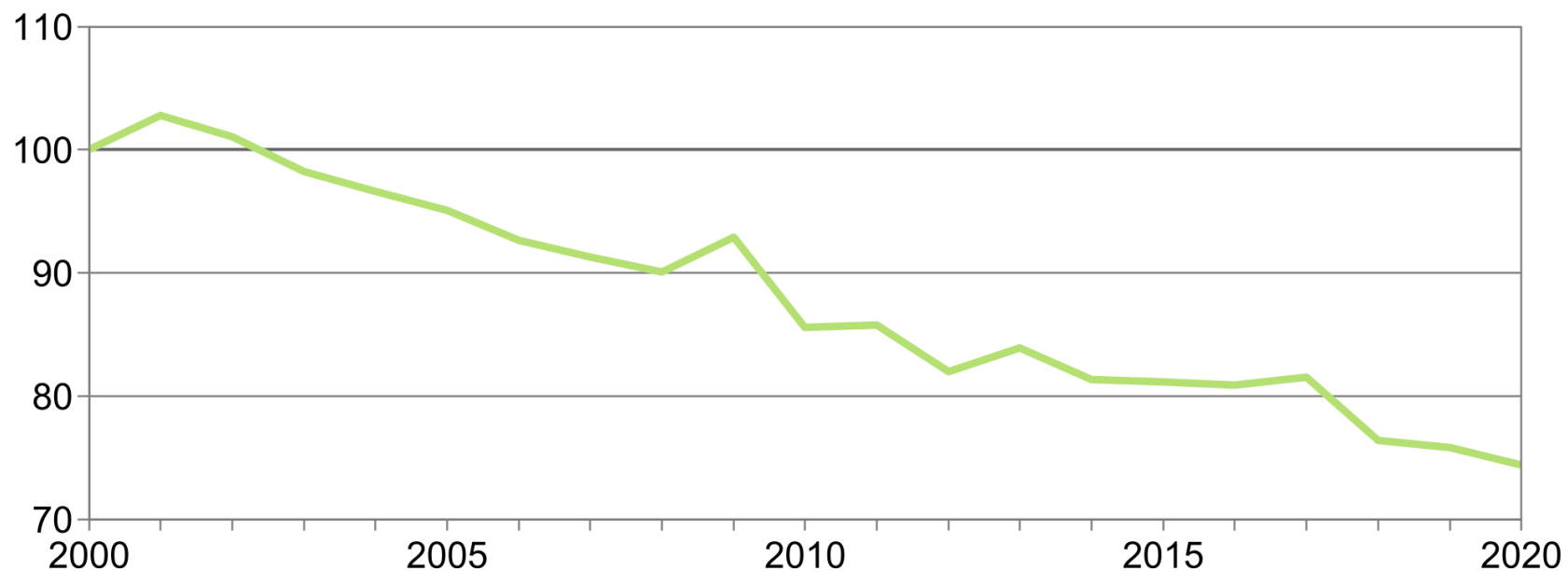
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Material intensity

Raw material consumption (RMC) to Gross Domestic Product ratio

Index 2000 = 100



-20%
since
2000



2020: provisional data

Source: FSO – Environmental accounts, National accounts

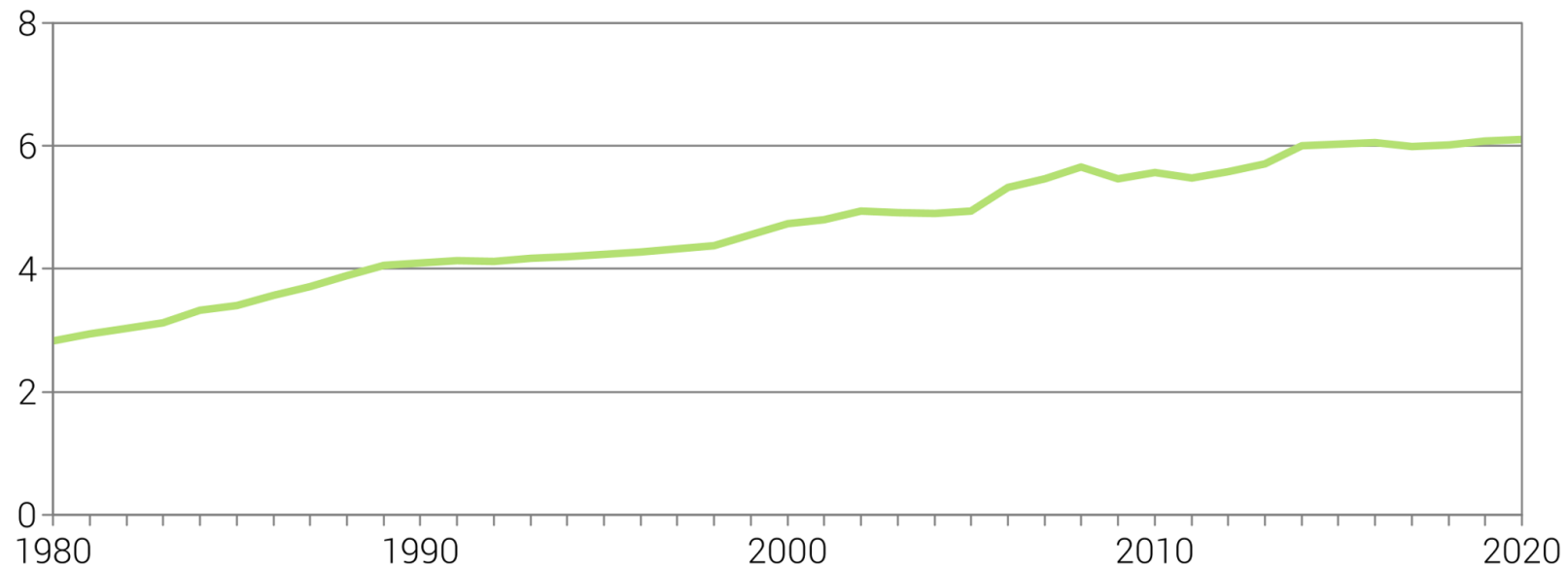
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Total municipal waste generation

Incl. recycling

Millions tonnes



6 mio. tons
(52.5% recycled)
+ 20% since 2000



Since 2004, excl. imported waste

Source: FOEN – Waste Statistics

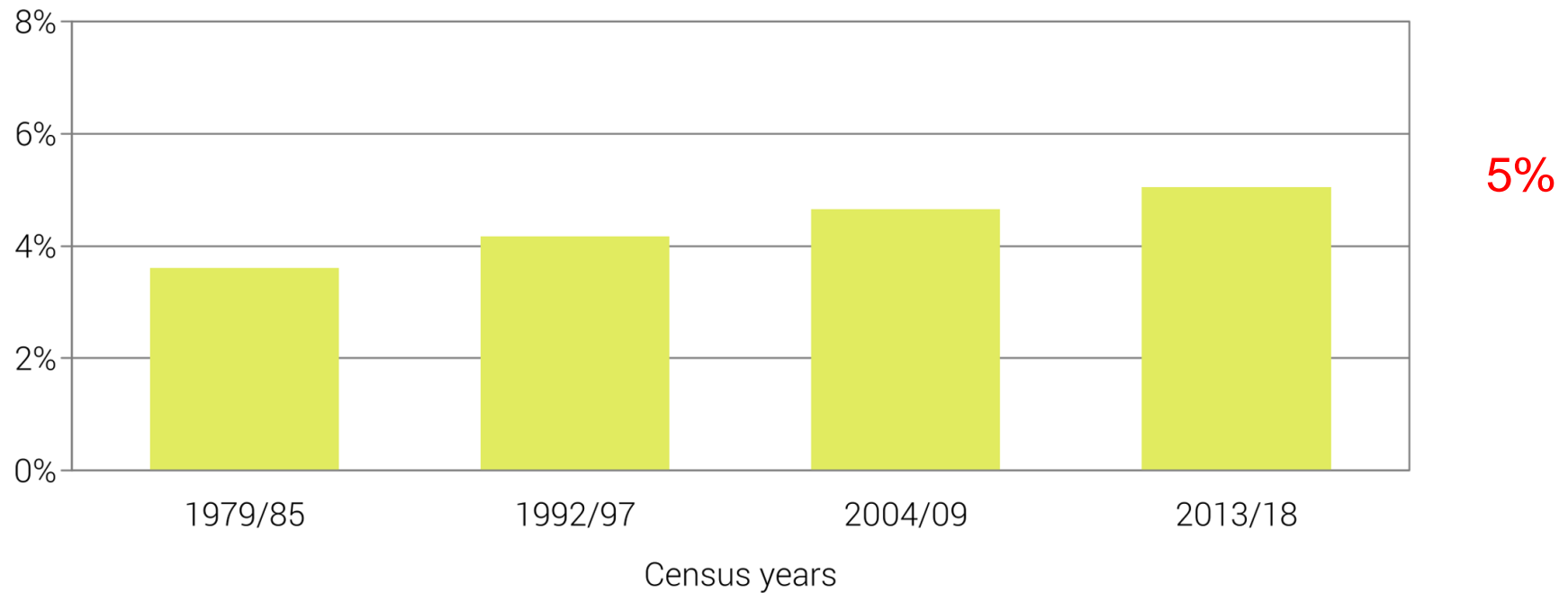
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<https://www.bfs.admin.ch/bfs/en/home/statistics/sustainable-development/monet-2030/all-indicators/12-consommation-production/total-municipal-waste-generation.assetdetail.19806659.html>



Soil sealing

Soil sealing as a percentage of total land area



Source: FSO – Land use statistics (AREA)

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<https://www.bfs.admin.ch/bfs/fr/home/statistiques/developpement-durable/monet-2030/tous-selon-themes/15-vie-terrestre/impermeabilisation-sol.assetdetail.19806758.html>

SwissStats Video 3'24" - What have statistics done for us ?



<https://www.youtube.com/watch?v=HigpKOWNdXU>

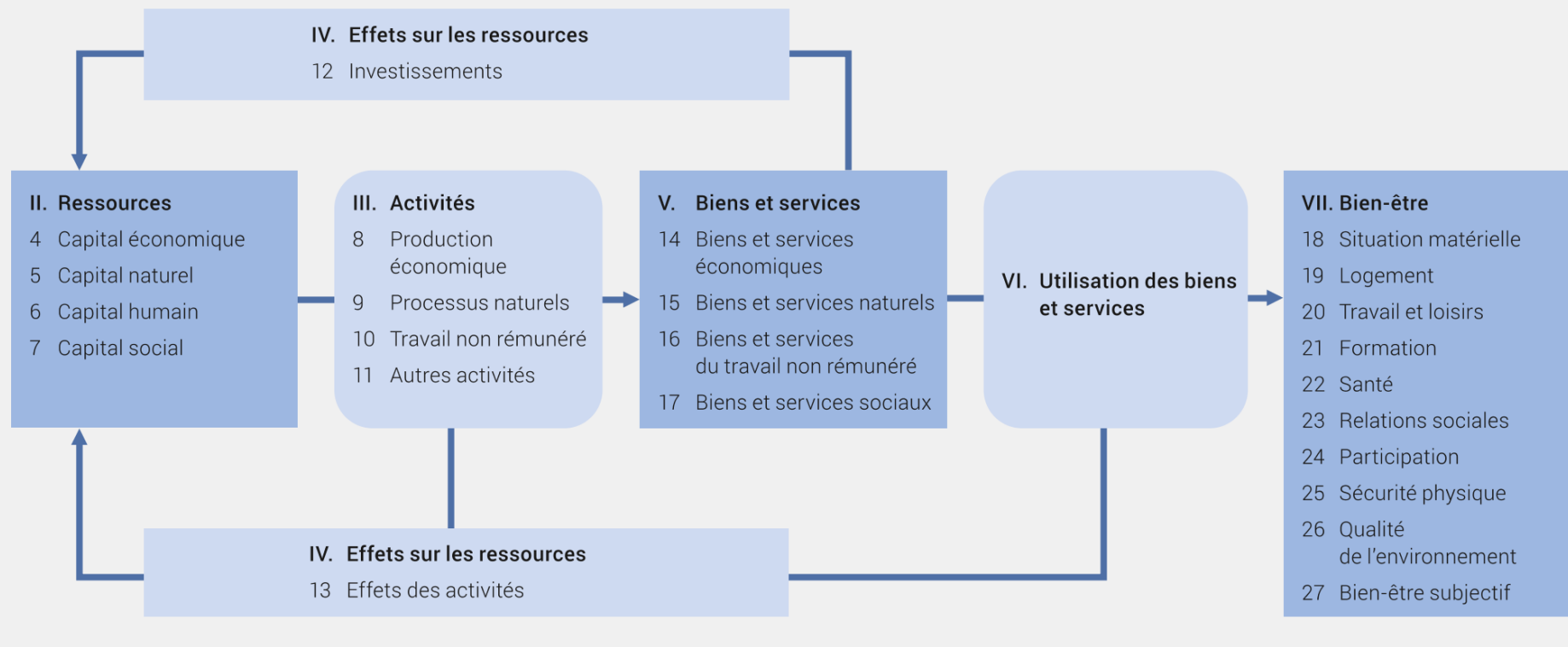
CH: System of Indicators “Measuring well-being”

- **Since 2014**, aims to provide information on the situation of the population that can be used as a basis for public opinion formation and political decision-making.
- Contains about **40** commented **indicators** from the 3 domains "society", "economy" and "environment".

The starting point is the idea **that social, human, natural and economic capital must be solicited/used in different processes to create well-being.**

Structure du système d'indicateurs «Mesure du bien-être»

I. Conditions-cadre: 1 Sociales, 2 Économiques, 3 Écologiques



Source: Harper, G., Price, R. (2011): A framework for understanding the social impacts of policy and their effects on wellbeing, p. 6

© OFS 2018

<https://www.bfs.admin.ch/bfs/fr/home/statistiques/themes-transversaux/mesure-bien-etre.html>

Note : Illustration available in French and German on Confederation website above

OECD: "How is life?" report



Ecological Footprint

- Calculated **since 2003** by the ***Global Footprint Network***, the ecological footprint measures human demand on the biosphere, in terms of the productive land and water areas needed to provide the resources used and absorb the waste
- To determine sustainability, the ecological footprint is compared with the availability of productive land (supply)

Evolution of the Global Ecological Footprint



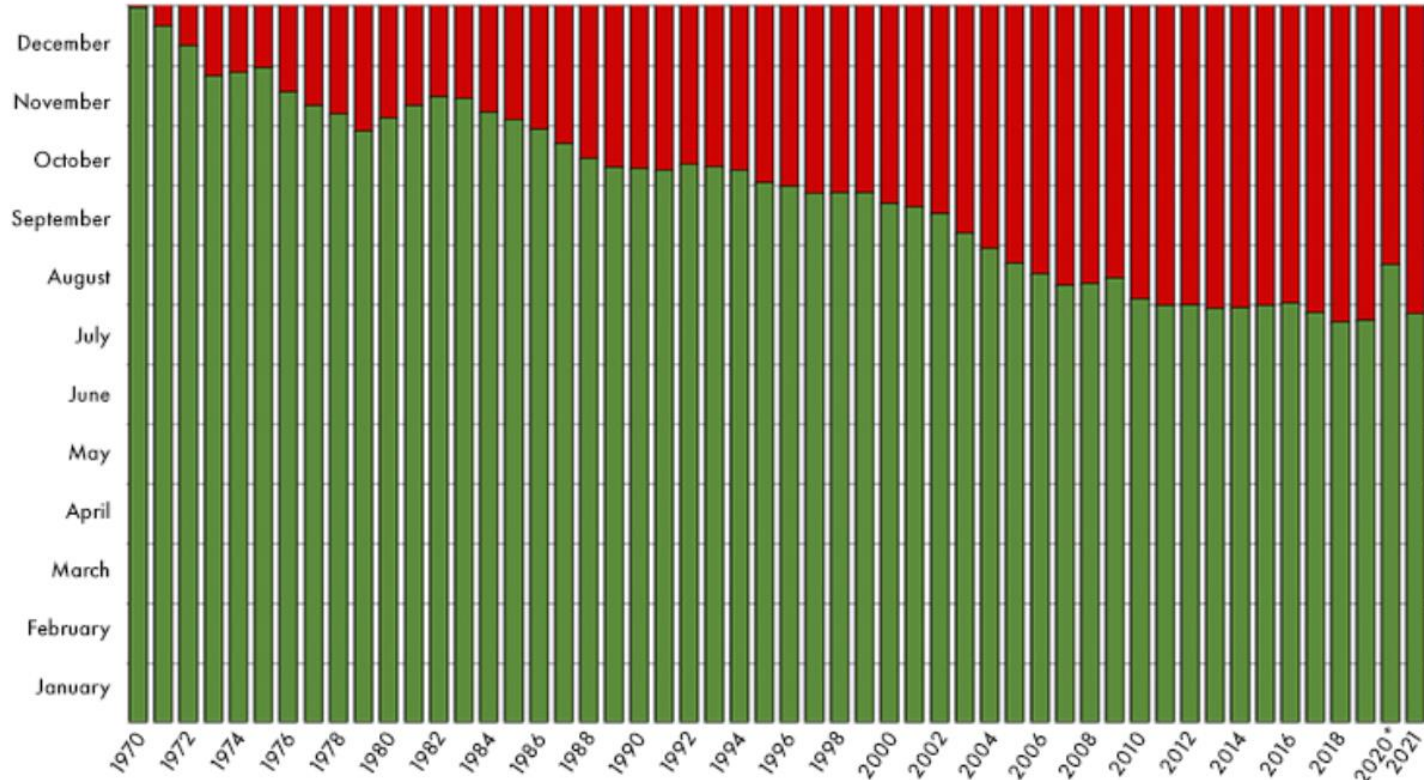
1 Earth

Earth Overshoot Day

1970 - 2021



1.7 Earths



Global Footprint Network
Advancing the Science of Sustainability

fodafo
FOOTPRINT DATA FOUNDATION



EARTH
OVERSHOOT
DAY

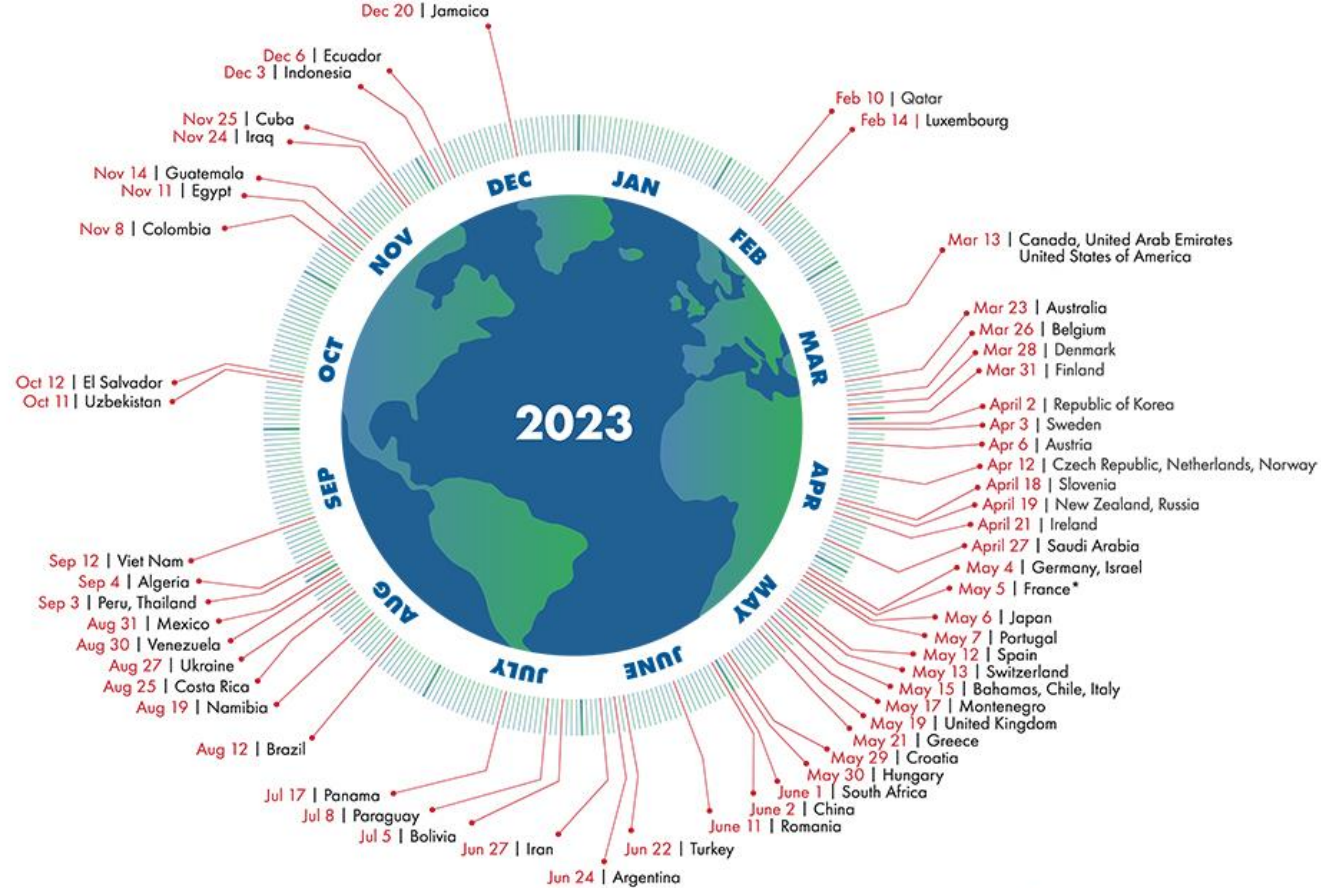
Source: National Footprint and Biocapacity Accounts 2021 Edition
data.footprintnetwork.org

*The calculation of Earth Overshoot Day 2020 reflects the initial drop in resource use in the first half of the year due to pandemic-induced lockdowns. All other years assume a constant rate of resource use throughout the year.

<https://www.overshootday.org/newsroom/past-earth-overshoot-days/>

Country Overshoot Days 2023

When would Earth Overshoot Day land if the world's population lived like...



For a full list of countries, visit [overshootday.org/country-overshoot-days](https://www.overshootday.org/country-overshoot-days).
 *French Overshoot Day based on nowcasted data. See [overshootday.org/france](https://www.overshootday.org/france).

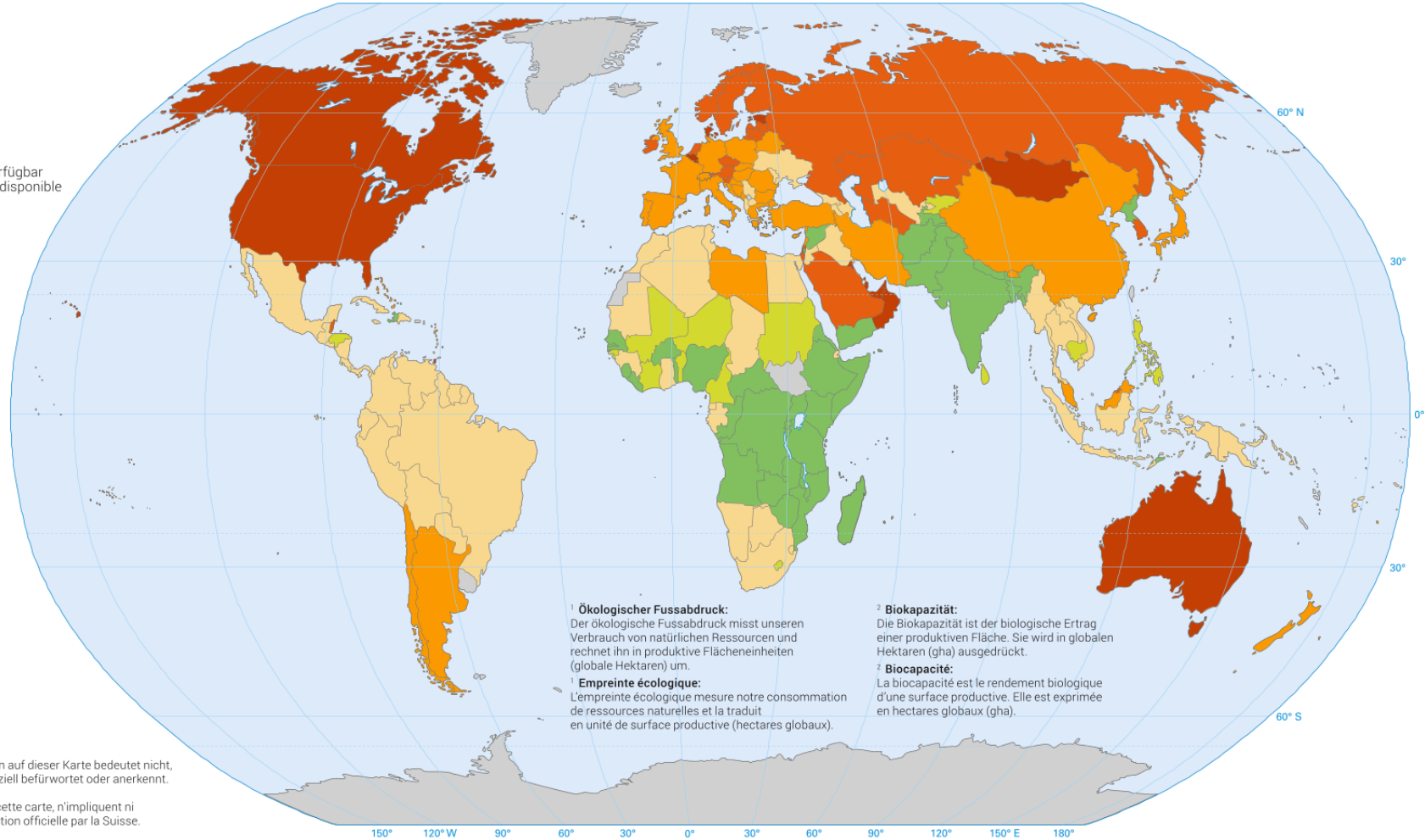
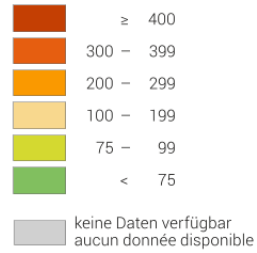
Source: National Footprint and Biocapacity Accounts, 2022 Edition
data.footprintnetwork.org



Globale Verteilung des ökologischen Fussabdrucks, 2017

Répartition globale de l’empreinte écologique, en 2017

Ökologischer Fussabdruck¹ im Verhältnis zur durchschnittlich verfügbaren globalen Biokapazität² pro Kopf, in %
 Empreinte écologique¹ par rapport à la biocapacité² mondiale moyenne disponible par personne, en %



1 Ökologischer Fussabdruck:

Der ökologische Fussabdruck misst unseren Verbrauch von natürlichen Ressourcen und rechnet ihn in produktive Flächeneinheiten (globale Hektaren) um.

1 Empreinte écologique:

L’empreinte écologique mesure notre consommation de ressources naturelles et la traduit en unité de surface productive (hectares globaux).

2 Biokapazität:

Die Biokapazität ist der biologische Ertrag einer produktiven Fläche. Sie wird in globalen Hektaren (gha) ausgedrückt.

2 Biocapacité:

La biocapacité est le rendement biologique d’une surface productive. Elle est exprimée en hectares globaux (gha).

Anmerkung:

Die Darstellung von Grenzen auf dieser Karte bedeutet nicht, dass die Schweiz diese offiziell befürwortet oder anerkennt.

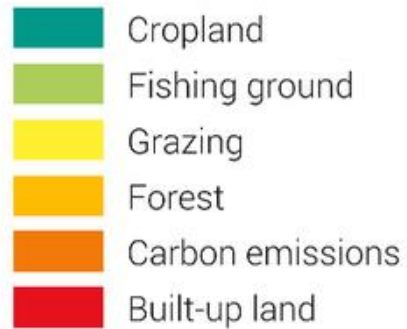
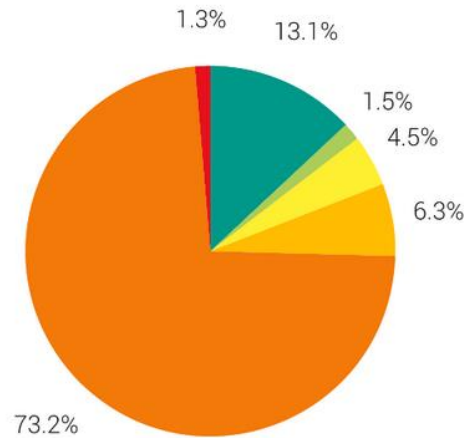
Remarque:

Les frontières figurant sur cette carte, n’impliquent ni reconnaissance, ni acception officielle par la Suisse.

Raumgliederung: Welt
Niveau géographique: monde

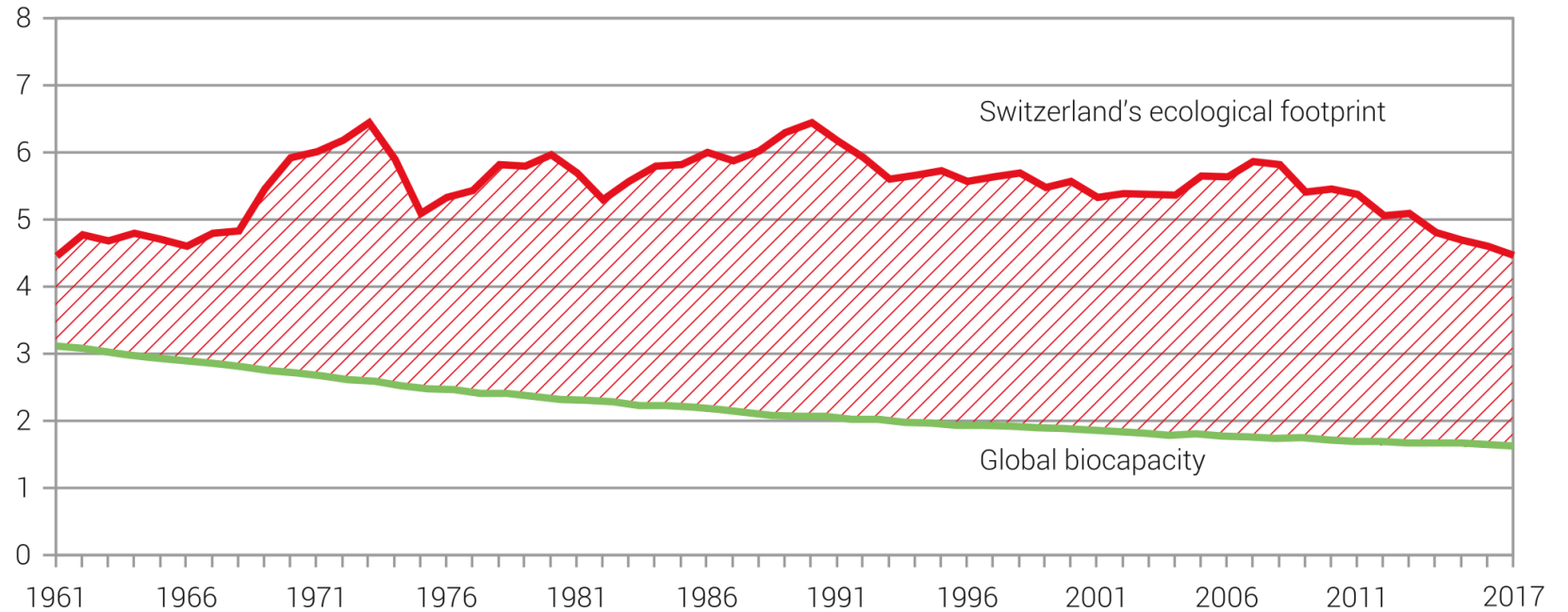


Switzerland's Ecological Footprint & Composition, 2017



Switzerland's Ecological Footprint in Comparison to Global Biocapacity

Global hectares per person



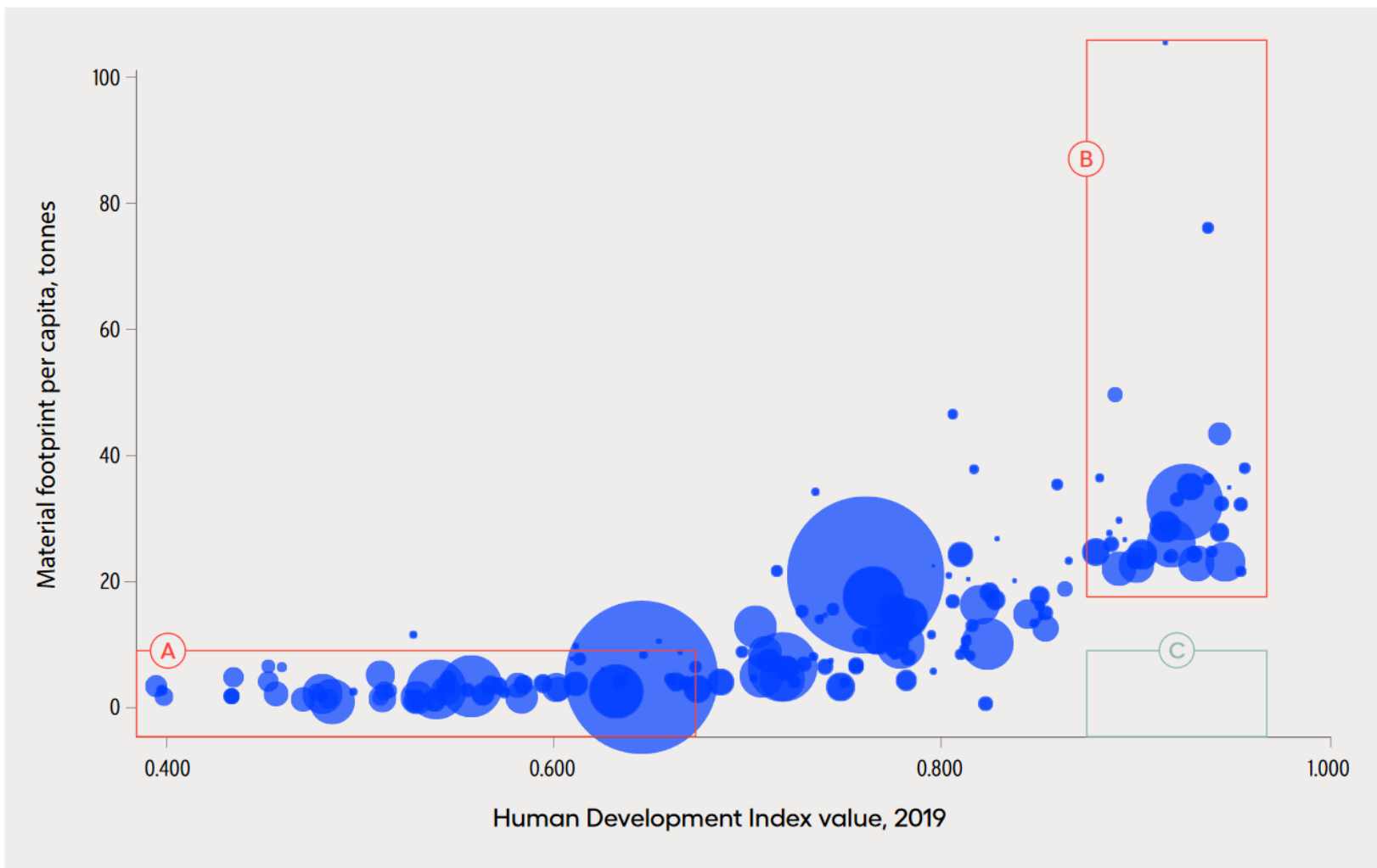
Source: Global Footprint Network

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<https://www.bfs.admin.ch/bfs/en/home/statistics/sustainable-development/more-sustainable-development-indicators/ecological-footprint.assetdetail.15764750.html>

Ecological footprint and HDI

Figure 1.3 Where human development paths landed: High human development goes with high resource use



Note: Includes only countries with more than 1 million inhabitants. Bubble size is proportional to population.

Source: Human Development Report Office based on data from the United Nations Environment Programme.

Exercise individual

Calculate
its own
ecological
footprint

